

Maritime Tsunami Hazard Assessment for the Guemes Channel, Washington

Technical Report

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1. Introduction

This Tsunami Hazard Assessment (THA) tests tsunamis from two earthquake sources: the Cascadia subduction zone (CSZ) and the Alaska-Aleutian subduction zone (AASZ) for the Guemes Channel, Washington. The modeled tsunami results from this study are useful for estimating potential current speeds, inundation depths, minimum water depths, and wave arrival times for a maximum considered local and distant source tsunami scenario at multiple sea-level tide stages (mean high water [MHW] and mean low water [MLW]). The data from this modeling study is used in the Tsunami Maritime Response and Mitigation Strategy for the Guemes Channel and Port of Anacortes to aid in planning and preparing the maritime community for a tsunami. This maritime guidance document is a collaboration between Washington Emergency Management Division, the Washington Department of Natural Resources' Washington Geological Survey, the Port of Anacortes, Sinclair Oil Corporation, and the City of Anacortes Emergency Management.

The tsunami modeling for this project corresponds to two distinct regions with varying modeling resolutions, known as fgmax regions: 1) A region covering the Guemes Channel and Port of Anacortes at 1/9th arc-second resolution, and 2) An overview of the greater region at 1/3rd arc-second resolution (Figure 1). An fgmax region is a fixed grid (fg) that saves the maximum (max) values of model variables attained during the duration of the simulation. These variables include water depth (h) and water speed (s) derived from the velocity components ($s = \sqrt{u^2 + v^2}$), as well as other quantities of interest derived from the depth (h) and horizontal momenta (h_u and h_v ; the quantities modeled in the shallow water equations). Both fgmax regions record and save each model variable in a single job run. However, each tsunami source and assigned tidal stage require a separate job run; model results from each job run are stored in individual multivariable netCDF files. Additionally, results from each of the fgmax region resolutions, though recorded in a single job run, are stored in separate netCDF files. Thus, two earthquake sources (CSZ and AASZ), two sea level scenarios (MHW and MLW), and two model resolutions (1/9th and 1/3rd arc-second) need a total of four job runs, yielding eight unique netCDF files. See Appendix B for further discussion of the data format. All digital elevation models (DEMs) and project data utilize World Geodetic System 1984 (WGS84, EPSG:4326) as the standard coordinate system for this study.

The tsunami modeling for this study is done using GeoClaw, version 5.9.0 (Clawpack Development Team, 2023). GeoClaw open-source software is available at <http://www.clawpack.org/geoclaw>. The exact version of the code used in the simulations reported here is also available by request from the Washington Geological Survey (WGS) at the Washington State Department of Natural Resources (WADNR). GeoClaw simulates tsunami generation, propagation, and inundation. This model, which solves the nonlinear shallow water equations and uses Adaptive Mesh Refinement (AMR) to focus fine computational grids around the defined fgmax regions, has undergone extensive verification and validation (Berger and others, 2011; LeVeque and others, 2011). GeoClaw has been accepted as a validated model by the U.S. National Tsunami Hazard Mitigation Program (NTHMP) after conducting multiple benchmark tests as part of an NTHMP benchmarking workshop (González and others, 2011). The following THA generally follows the format of reports developed by the University of Washington Tsunami Modeling Group (UWTMG; <http://depts.washington.edu/ptha/projects/index.html>). Some of the text in this report describes modeling methods developed by the UWTMG and is also used in those earlier reports.

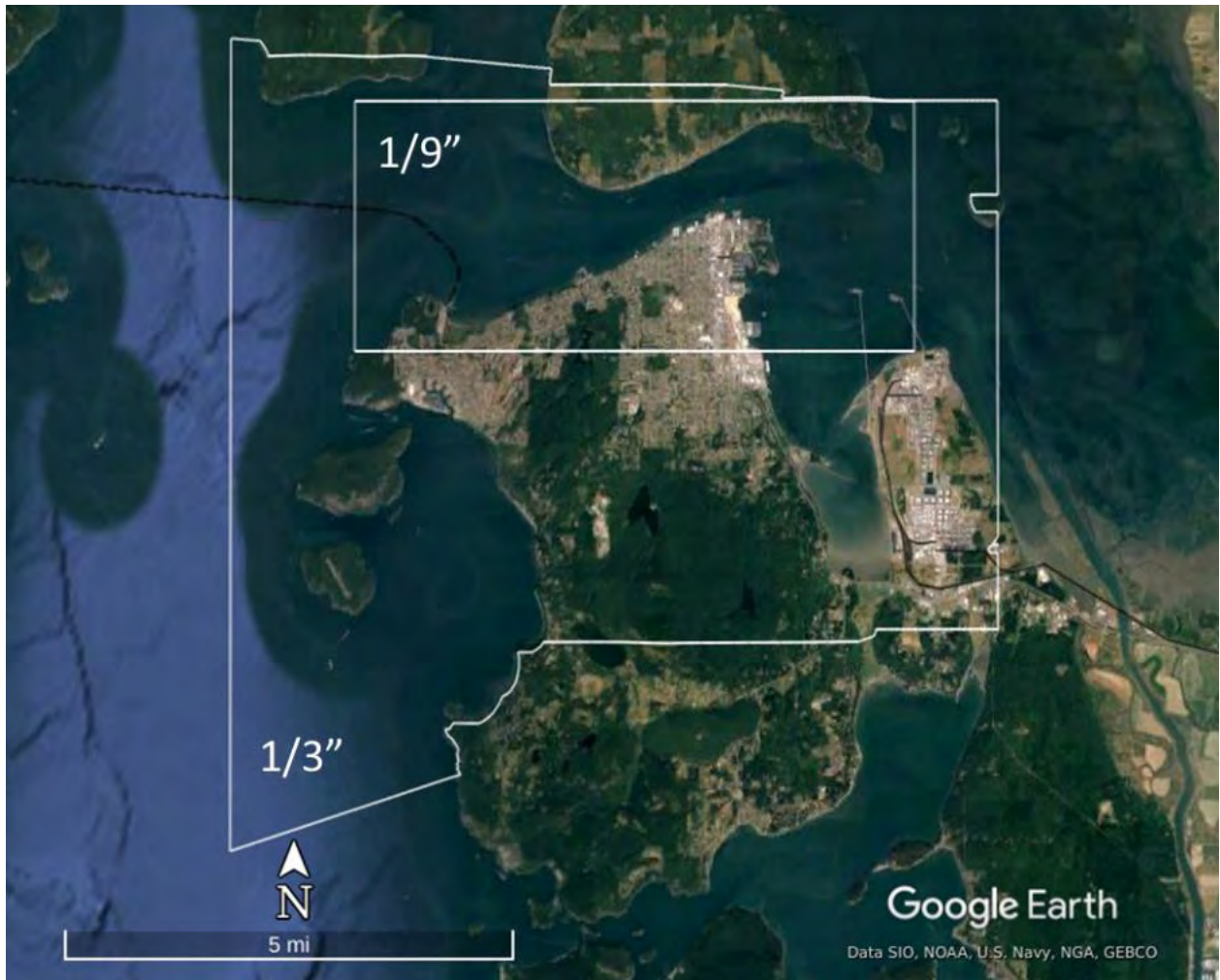


Figure 1. The Guemes Channel. The smaller rectangle shows the area of highest resolution modeling in this study, modeled at $1/9^{\text{th}}$ arc-second resolution. The larger rectangle shows an overview of the surrounding area and was modeled at $1/3^{\text{rd}}$ arc-second resolution.

2. Earthquake sources

This study tests two earthquake sources: 1) a local Cascadia subduction zone (CSZ) megathrust event with moment magnitude M_w 9.0 (Cascadia Extended L1), and 2) a distant Alaska-Aleutian subduction zone (AASZ) event off the coast of Alaska with moment magnitude M_w 9.24 (AKpme120).

2.1 Cascadia subduction zone earthquake

This study assesses a hypothetical tsunami generated by a megathrust event of the Cascadia subduction zone (CSZ). The CSZ spans from Northern California to British Columbia and has been seismically quiet since the year 1700 (Jacoby and others, 1997; Satake and others, 2003; Yamaguchi and others, 1997; Atwater and others, 2005). However, geologic evidence of submerged coastal areas and tsunami deposits (Atwater and Hemphill-Haley, 1997; Atwater and others, 2004), in addition to offshore sedimentary evidence (Goldfinger and others, 2012; Goldfinger and others, 2017), reveals that Cascadia

has had at least 23 approximate magnitude 9 earthquakes in the last 10,000 years. In addition, global positioning data show that Cascadia is currently building seismic stress, portending a future great earthquake (Burgette and others, 2009; Yousefi and others, 2020). The USGS estimates that there is a 10-14% chance of a magnitude 9 earthquake, and a 30% chance of a magnitude 8 on the CSZ within the next 50 years (Petersen and others, 2002).

The CSZ fault model used for this study is a derivative of the L1 scenario (Witter and others, 2011; 2013, coined the CSZ Extended L1 scenario. It's predecessor, the M_w 9.0 L1 scenario, is one of 15 scenarios based on an analysis of offshore data spanning 10,000 years for a THA of Bandon, Oregon (Witter and others, 2011). The L1 scenario's earthquake rupture terminates at around 48°N along the northern edge of the Juan de Fuca Plate (southern end of Vancouver Island, British Columbia). Due to Bandon's proximity to the southern part of the CSZ, a full-margin earthquake rupture propagating into the more northern Explorer Plate, which could be significant to Washington's Salish Sea (Dolcimascolo and others, 2021), was not considered. The M_w 9.0 Extended L1 scenario, developed by the NOAA Center for Tsunami Research at the Pacific Marine Environmental Laboratory (PMEL), solves this problem by extending the earthquake rupture up to the northern end of Vancouver Island, accommodating the Explorer Plate possibility (Gica and Arcas, 2015). The rupture geometry of this fault model still includes a surface-rupturing splay fault structure that amplifies tsunami waves, like the L1 scenario. The tsunami generated from this scenario consists of very large waves along the Pacific coast of Washington that enter the Strait of Juan de Fuca and reach the Guemes Channel. Figure 2 displays the crustal and seafloor deformation produced by the Extended L1 model; coseismic subsidence is negligible within this project's study area. Washington State has adopted the Extended L1 scenario (and the original L1) as the "maximum considered" CSZ tsunami scenario. The L-category source models have an estimated mean recurrence interval of ~3,333 years (Witter and others, 2013). This is a close and conservative approximation to design requirements for critical facilities in the international building code for seismic hazards that build to the engineering standard of a 2,500-year event (International Code Council, 2015).

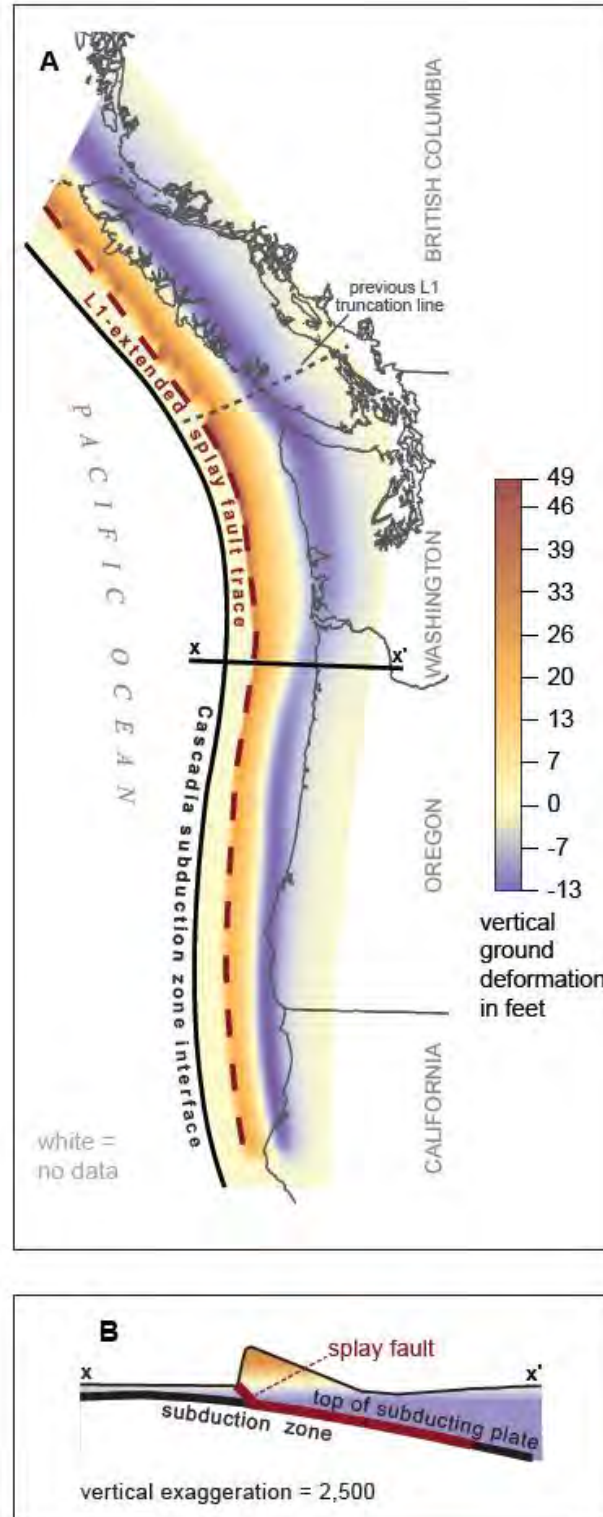


Figure 2. Vertical ground deformation for the Extended L1 scenario modified by the NOAA Center for Tsunami Research at PMEL (Gica and Arcas, 2015). This earthquake scenario has a maximum uplift 15.08 meters (~49 feet) offshore and a maximum subsidence -3.98 meters (~-13 feet) near the shore. B. Splay fault model diagram corresponding to the X–X' line in subfigure A.

2.2 Alaska-Aleutian subduction zone earthquake

The very seismically active Alaska-Aleutian subduction zone (AASZ) has had 82 observed tsunamis since the year 1788 (Wesson and others, 2007), including the tsunami generated by the 1964 M_w 9.2 Great Alaskan earthquake. The tsunami generated by this earthquake devastated not only the Alaskan coastline (Plafker and Kachadoorian, 1966), but also caused damage and fatalities along coastal areas of British Columbia, Washington, Oregon, and California (Lander and others, 1993).

The NOAA Center for Tsunami Research developed the AASZ earthquake scenario used in this study (Figure 3, referred to as AKpmel20; Chamberlain and others, 2009). This scenario is a hypothetical earthquake with a similar magnitude as the 1964 Alaska Earthquake (M_w 9.2). It has uniform slip of 20 m specified over a set of 20 "unit source" subfaults (Table 1) that correspond to the NOAA SIFT propagation database (Gica and others, 2008; http://sift.pmel.noaa.gov/ComMIT/compressed/info_sz.dat). A series of tsunami simulations with different combinations of unit sources led to the selection of this specific set of unit sources that produce the maximum tsunami impact to Washington's waterways. Because organizations such as the United States Geological Survey (USGS) and Pacific Northwest Seismic Network (PNSN) typically report magnitudes with only one decimal place, this scenario is considered the "maximal M_w 9.2" event for impact to Washington (assuming a crustal shear modulus, or rigidity, of 40 GPa).

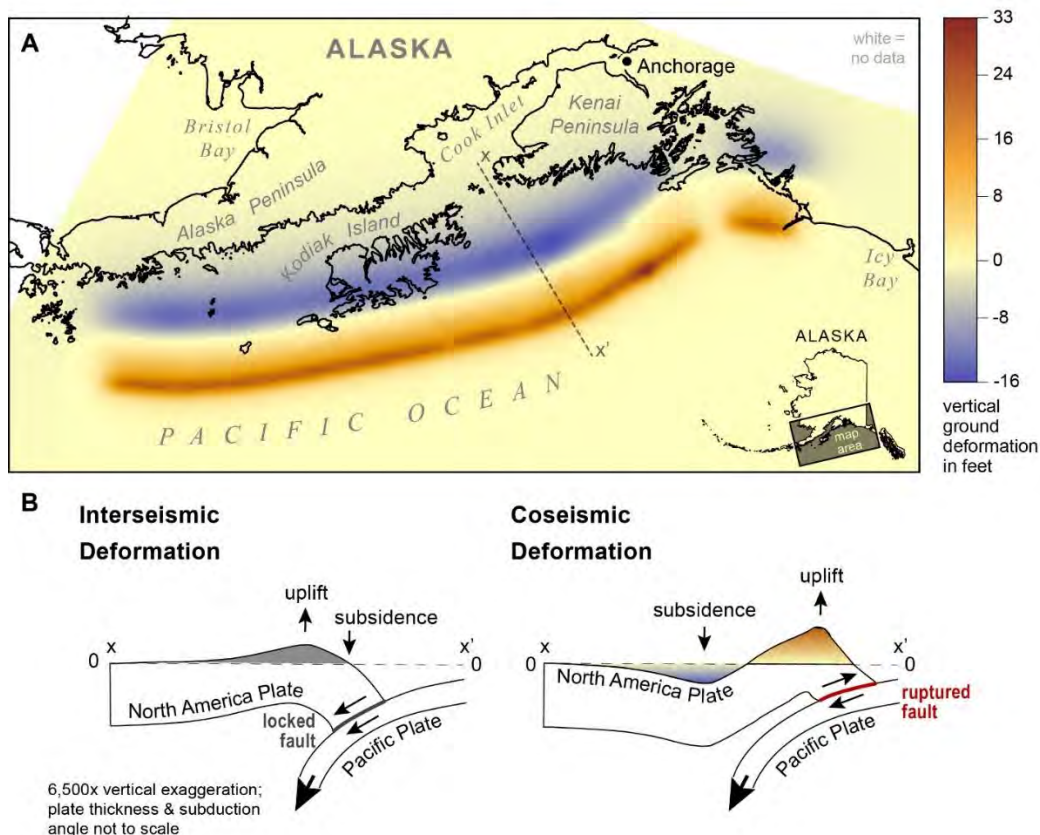


Figure 3: A. Surface deformation of the AKpmel20 source developed by the NOAA Center for Tsunami Research (Chamberlain and others, 2009). This earthquake scenario has a maximum uplift 9.7 meters (~33 feet) and maximum subsidence -4.9 meters (~-16 feet). B. Schematic representations of both interseismic (gradual) and coseismic (sudden) deformation.

Table 1: Subfault parameters for the Alaska earthquake source (AKpmel20) source used in this study (Chamberlain and others, 2009). All subfaults have a length = 100 km, width = 50 km, dip = 15°, rake = 90°, and slip = 20 m. The subfaults come from the NOAA Unit Source database and Sift propagation database metadata file (Gica and others, 2008). With crustal rigidity (shear modulus) set to $\mu = 40$ GPa, this gives a Mw 9.24 event (LeVeque and others, 2019).

Unit Source	Longitude	Latitude	Depth (km)	Strike (degrees)
acsza29	-157.7390	55.1330	17.94	247.0000
acsza29	-158.1203	55.4908	30.88	246.2137
acsza30	-156.3960	55.5090	17.94	240.0000
acsza30	-156.8479	55.8534	30.88	240.4869
acsza31	-155.1050	55.9700	17.94	236.0000
acsza31	-155.5685	56.3016	30.88	235.6690
acsza32	-153.7920	56.4730	17.94	236.0000
acsza32	-154.2120	56.8210	30.88	235.4756
acsza33	-152.4630	56.9750	17.94	236.0000
acsza33	-152.8909	57.3227	30.88	235.4119
acsza34	-151.0629	57.5124	17.94	236.0000
acsza34	-151.5802	57.8213	30.88	234.6891
acsza35	-149.7403	58.0441	17.94	230.0000
acsza35	-150.3575	58.3252	30.88	230.1971
acsza36	-148.6751	58.6565	17.94	218.0000
acsza36	-149.4588	58.8129	30.88	217.3327
acsza37	-147.7495	59.2720	17.94	213.7100
acsza37	-148.3921	59.5820	30.88	214.2669
acsza38	-145.3445	60.1351	17.94	260.0800
acsza38	-145.4638	60.5429	30.88	259.0313

3. Topography and bathymetry

Digital Elevation Models (DEMs) are needed by the GeoClaw modeling software to effectively track the movement of tsunami waves from the source to the study area. The footprints of the DEMs used in this study were developed/hosted by the NOAA National Centers for Environmental Information (NCEI) and are listed in Table 2. All DEMs used in this study are vertically referenced to mean high water (MHW), so that the “0” elevation reference point for model outputs is MHW. For the mean low water (MLW) simulations, the MHW DEM was also used, but sea level was set to -1.5884 m (5.2112 feet) below zero. All of the DEMs used in this study are projected in the World Geodetic System 1984 (WGS84, ESPG:4326) coordinate system. Note that published DEMs may have errors, or the landscape may have changed since the DEM was initially developed.

Table 2. DEMs used in this tsunami modeling study.

Name	Resolution	Source
ETOPO1 Global Relief Model	1 arc-minute	Amante and Eakins, 2009
Strait of Juan de Fuca (SJdF)	2 arc-second	NOAA NGDC, 2015
Port Townsend (PT)	1/3 arc-second, also coarsened to 2 arc-second for area between the study area and the SJdF DEM	NOAA NGDC, 2011
CUDEM (GC)	1/9 arc-second for the study area	CIRES, 2020

3.1 Study DEMs

The highest resolution model outputs for this study are run on a DEM covering the Guemes Channel with 1/9 arc-second grid points (1/9 arc-second both in longitude and latitude; GC 1/9"). For this study, some small unpublished edits by the Washington Geological Survey were made to the GC 1/9" DEM tile prior to the job run (CIRES, 2020) to correct minor errors. See Appendix A for a description of the modifications made. Additionally, the 1/3 arc-second Port Townsend (PT 1/3") DEM (NOAA NGDC, 2011) covered the immediate area around the Guemes Channel study area. The PT DEM is needed for the tsunami model due to lack of coverage by the GC 1/9" DEM tile in southern portion of Fidalgo Bay. A larger extent of the PT DEM, in addition to a third DEM covering the Strait of Juan de Fuca (NOAA NGDC, 2015) was also coarsened to 2" using a pre-processing script that subsampled every sixth point in each direction (PT 2"; SJdF 2"). These coarsened DEMs supply topography and bathymetry coverage over the Salish Sea, connecting the Guemes Channel to the Pacific Ocean. Lastly, the simulations also use ETOPO1 1-minute topography (Amante and Eakins, 2009) to cover the entire modeling domain for both the CSZ and AASZ runs, which both initiate in the Pacific Ocean. Figure 4 displays the extent of all DEMs used in this assessment, with the exception of the 1-minute ETOPO1 DEM used in the Pacific.

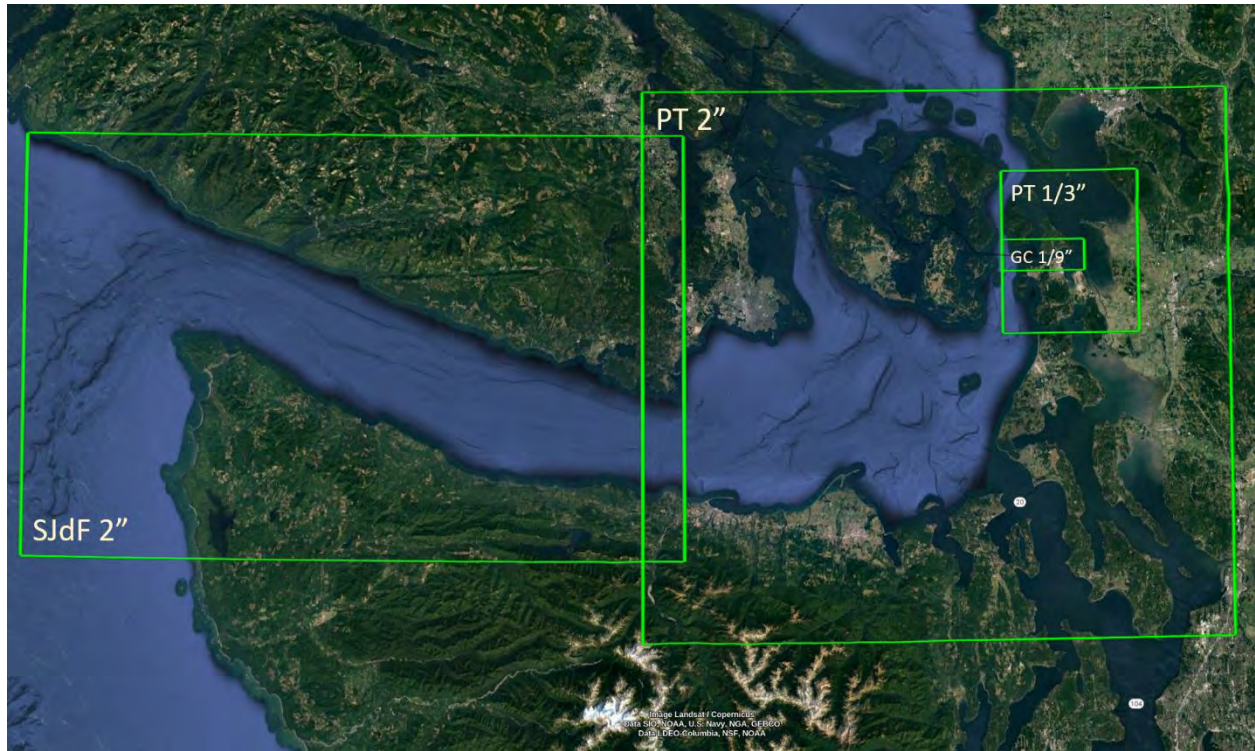


Figure 4. DEMs used in this study. The sources of the different resolution DEMs are listed in Table 2. These DEMs were used for both the CSZ and AASZ simulations. All simulations also used the ETOPO1 1-minute resolution DEM (not shown; Amante and Eakins, 2009) for the Pacific Ocean.

4. Study area

This study defines one $1/9^{\text{th}}$ arc-second (Guemes Channel) and one $1/3^{\text{rd}}$ arc-second (Overview area) fgmax region (refer to Figure 1). Both fgmax regions use a fixed set of points (independent of adaptive mesh refinement [AMR]) on which the maximum of each quantity of interest is monitored over the course of the simulation. The quantities monitored are the flow depth, flow speed, and momentum flux. These fgmax points also monitor the time of the maximum values and the first wave arrival at each grid point. Furthermore, all fgmax points lie on a grid with spacing based on their respective resolution and align with the DEM grids. Table 2 gives an overview of the number of points included in each fgmax region and Figures 5 & 6 provide visuals of the Guemes Channel and Overview fgmax areas, respectively.

Table 2: The total number of fgmax points in each fgmax region that is used in this tsunami hazard assessment. These fgmax regions only contains grid points for which the topography elevation is less than 15 m above MHW in the specified region boundaries. The column labeled "Count" gives the number of fgmax points in the region. See Section 6 for sample results of the maximum values monitored in each job run.

Fgmax region	Count	Resolution
Guemes Channel	4,380,150	$1/9''$
Overview area	1,462,741	$1/3''$

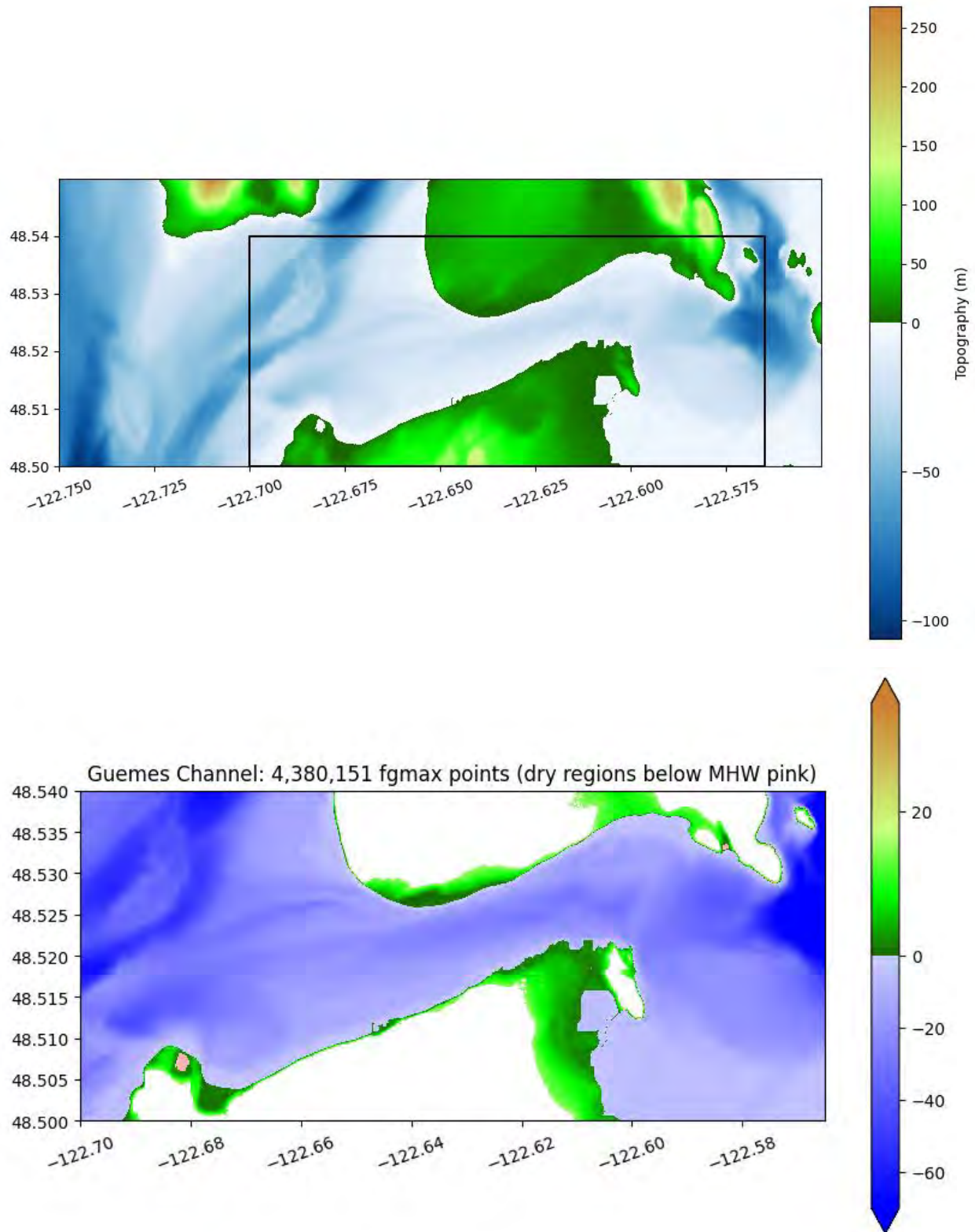


Figure 5: Rectangle used to select fgmax points for the Guemes Channel fgmax region (top). 4,380,151 points selected in the fgmax region (bottom).

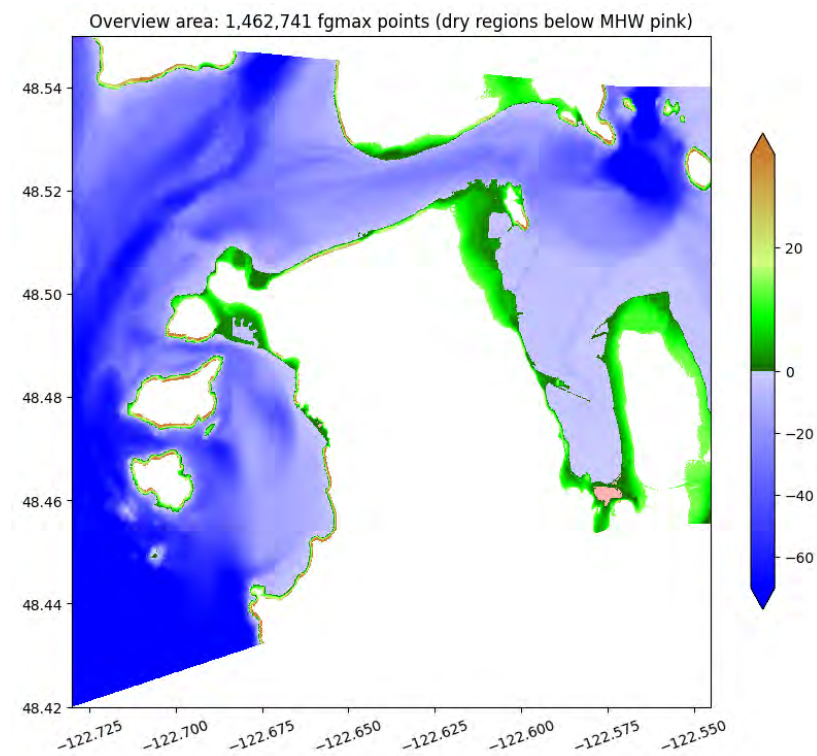
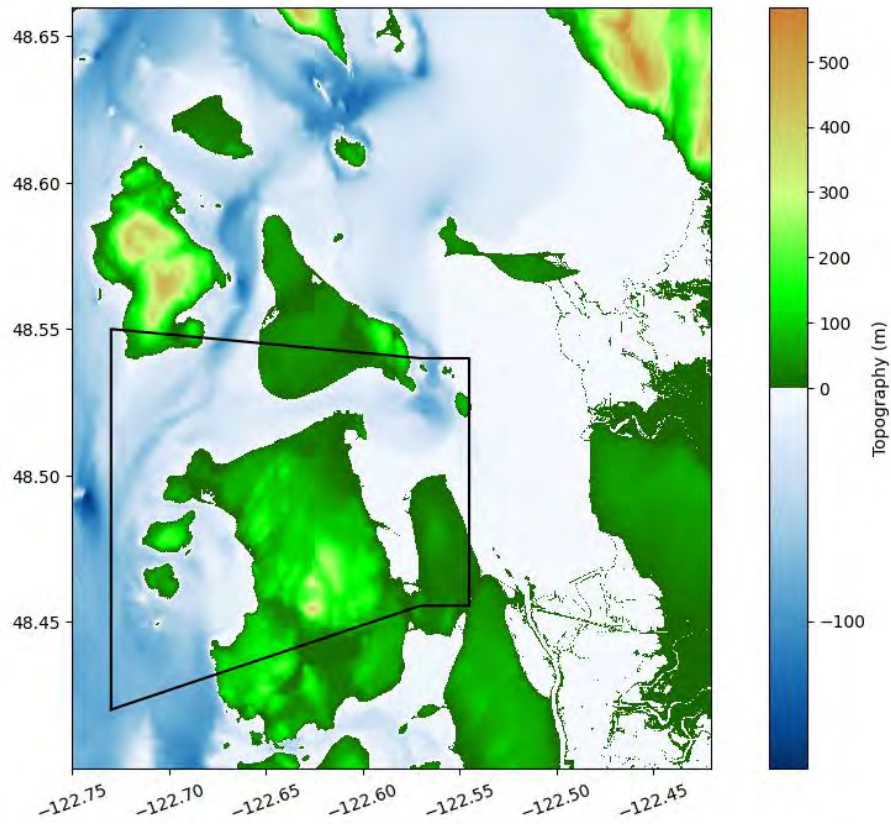


Figure 6: Polygon used to select fgmax points for the Overview fgmax region (top). 1,462,741 points selected in the fgmax region (bottom).

4.1 Fgmax selection improvements and limitations

The Overview 1/3 arc-second fgmax region selected for this project was specified as a polygon, or “Ruled Rectangle” in a pre-processing script (available upon request by the WGS) as opposed to a rectangular grid (see Figure 5 vs Figure 6). The University of Washington Tsunami Modeling Group (UWTMG) developed this capability in an effort to greatly reduce the number of selected fgmax points (LeVeque and others, 2019). Additionally, the UWTMG also developed the capability to only select grid points that return topography elevations below a specified limit, Z_{max} . For the current project, Z_{max} is set to 15 meters. Additionally, if only onshore inundation and nearshore currents need to be modeled, there is also the capability to set a maximum depth threshold (e.g. -60 or -40 meters). This would then only select fgmax points within the polygon where the bathymetry elevation is both above the specified value and less than Z_{max} . Note that this project includes all water points in each fgmax polygon to model currents farther from shore and did not include a maximum depth threshold. To run the code with many fgmax points efficiently, the UWTMG also improved the way the GeoClaw code internally handled the fgmax points. This resulted in a substantial computational speedup, while still monitoring values in the same manner as in previous versions of GeoClaw. Refer to LeVeque and others (2019) for a more complete summary of all improvements developed when selecting fgmax points and increasing computation efficiency.

4.2 Dry land below Mean High Water

Few locations in each fgmax region represent dry land with elevations below MHW, though protected from inundation under normal conditions. The standard GeoClaw software would initialize these points with water up to the level of MHW at the start of the simulation. Inadvertently, GeoClaw would flood these locations even if no tsunami arrived, which can be a misleading result. Moreover, for locations where the tsunami does reach land below MHW, there would be very different wave dynamics if the tsunami moved over an initially flooded artificial lake rather than moving over dry land. In these scenarios, the maximum depths recorded would be very different, with the former being incorrect. For example, water entering an artificial lake will spread out rapidly and eventually raise the level everywhere by a small amount. On the other hand, the same quantity of water overtopping a dike or levee and moving across dry land will quickly decelerate due to high bottom friction, giving higher maximum depth near the dike and little or no flooding farther inland. To deal with this problem, the UWTMG first developed a capability used in their project that modeled Whatcom County (Adams and others, 2019) and then improved upon it in the Island and Skagit County project (LeVeque and others, 2019) that forces these areas dry prior to tsunami wave arrival. Documentation of this “force dry” capability has been built into the GeoClaw code since v5.7.0 and is used in this current project. The locations that were subject to this problem in each region were effectively forced dry and were saved as a variable in the input netCDF file needed to run the tsunami simulation (Appendix B). This file is available upon request from the WGS.

5. Model uncertainties and limitations

The inputs to the GeoClaw model include the earthquake sources, the DEMs used, and the Fgmax areas (discussed in sections 2-4). In addition, other geophysical parameters are designated. Some physical processes are not included in these simulations, which use the two-dimensional shallow water equations. See below for the discussion of these parameters and their potential effect on the modeling results.

5.1 Tide stage and sea level rise

The simulations for this study were run at both Mean High Water (MHW) and Mean Low Water (MLW) tidal datums. The MHW datum is conservative for tsunami inundation depths as the deeper tidal stage amplifies flooding over land. The MLW datum is often conservative for tsunami currents, in that current speeds tend to increase at lower water levels in shallow areas, and also are conservative for minimum water depths to infer maximum drawdown values. Running simulations at both MHW and MLW tidal stages capture the range of variability of expected conditions along the Guemes Channel waterfront during a tsunami event. The DEMs used near the study location are referenced to the MHW datum (= 0) with the exception of the Strait of Juan de Fuca and ETOPO1 DEMs which is referenced to NAVD88. This is not a concern because those datasets are far from the study area and covers parts of the model at coarse resolution. The simulations at MLW used the same DEMs (referenced to MHW), but sea level was set in GeoClaw at -1.5883 m (~ -5 feet) to approximate MLW. The MLW level was obtained from data collected by the Port of Anacortes. While consideration of future sea level rise is important for planning, this study does not account for potential sea level rise projections.

5.2 The built environment

The topographic DEMs used in this study are “bare earth” and are created by stripping the land surface of built structures, buildings, and vegetation. The presence of structures and vegetation can alter tsunami flow patterns and generally impede inland flow. To some extent, the lack of structures in the model makes the model results more conservative, because structures can reduce inland penetration of the tsunami wave. Actual tsunami flows are likely to interact with structures that may impede flow and cause water to pile up in some areas. Bare earth DEMs may lead to simulations with higher flow velocities because there is nothing to slow the flows. Actual tsunami flows may be slowed by structures, or conversely may speed up in areas where the flow is channelized, such as between buildings. Structures also contribute to debris that interacts with tsunami flows. In some cases, structures may be necessary to best model an area, and for this study breakwaters were needed in the DEM around the Cap Sante Marina. See Appendix A for details.

5.3 Bottom friction

Each simulation uses the value 0.025 for Manning’s Roughness Coefficient. This is a standard value used in tsunami modeling and corresponds to a gravelly earth surface material. Using 0.025 is conservative in some sense, because the presence of trees, structures, and vegetation would justify the use of a larger value, which might tend to reduce the inland flow. On the other hand, larger friction values can lead to deeper flow in some areas, since the water may pile up more as it advances more slowly across the topography. There has not been a sensitivity study using other friction values at this time.

5.4 Tsunami modification of bathymetry and topography

Scour, erosion, and deposition all occur in a tsunami. These topographic and bathymetric changes will inherently alter flow patterns of the tsunami wave. The erosion of natural berms or ridges along the coastline (or manufactured levies, dikes, or breakwaters) by the tsunami could increase more extensive flooding. On the other hand, the movement of material in a tsunami also requires an expenditure of tsunami energy, which could reduce the inland extent of inundation. These complex changes to the land are largely uncertain in a tsunami, and GeoClaw does not account for erosional or bathymetric/topographic change during simulations. Because there is no active modification to the

topography and bathymetry in these results, the modeling dynamics of flow presented here may not entirely predict future tsunami behavior in the study area.

6. Fgmax results

This report contains figures of mapped modeling results from each job run (4 total). The Washington Geological Survey at the Washington State Department of Natural Resources developed these model results into high-quality graphics for the final maritime guidance publication and products. The fgmax plots that follow show the maximum onshore flow depths, maximum speeds, and minimum water depths recorded for both fgmax areas over the full simulation time for each source (10 hours for the CSZ scenario and 14 hours for the AASZ scenario) at mean high water (MHW) and mean low water (MLW) tidal stages.

The deepest onshore inundation depths (flooding over dry land) in the fgmax areas are from the CSZ Extended L1 event at MHW. Figure 7 shows onshore flow depths for the Cascadia Extended L1 source at both MHW and MLW tidal stages. The AASZ scenario produces minimal inundation depths to the study area, with the exception to the area east of the Anacortes Ferry Terminal and the immediate shoreline when the tidal stage was set to MHW (Figure 8).

Maximum speeds are shown for the CSZ scenario in Figure 9 and the for the AASZ scenario in Figure 10 at MHW and MLW tidal stages.

Minimum water depth values are important for understanding the potential drawdown of water preceding or between tsunami wave crests. In marinas, this can result in vessels becoming stranded and possibly tipped prior to wave crest arrival. As expected, the low tide simulations resulted in greater drawdown for both the CSZ (Figure 11) and AASZ (Figure 12) scenario. The CSZ scenario produced a slightly greater drawdown than the AASZ scenario in the study area. The gauge plots (Appendix D) show the timing of maximum drawdown for each event.

6.1 Maximum onshore flow depths

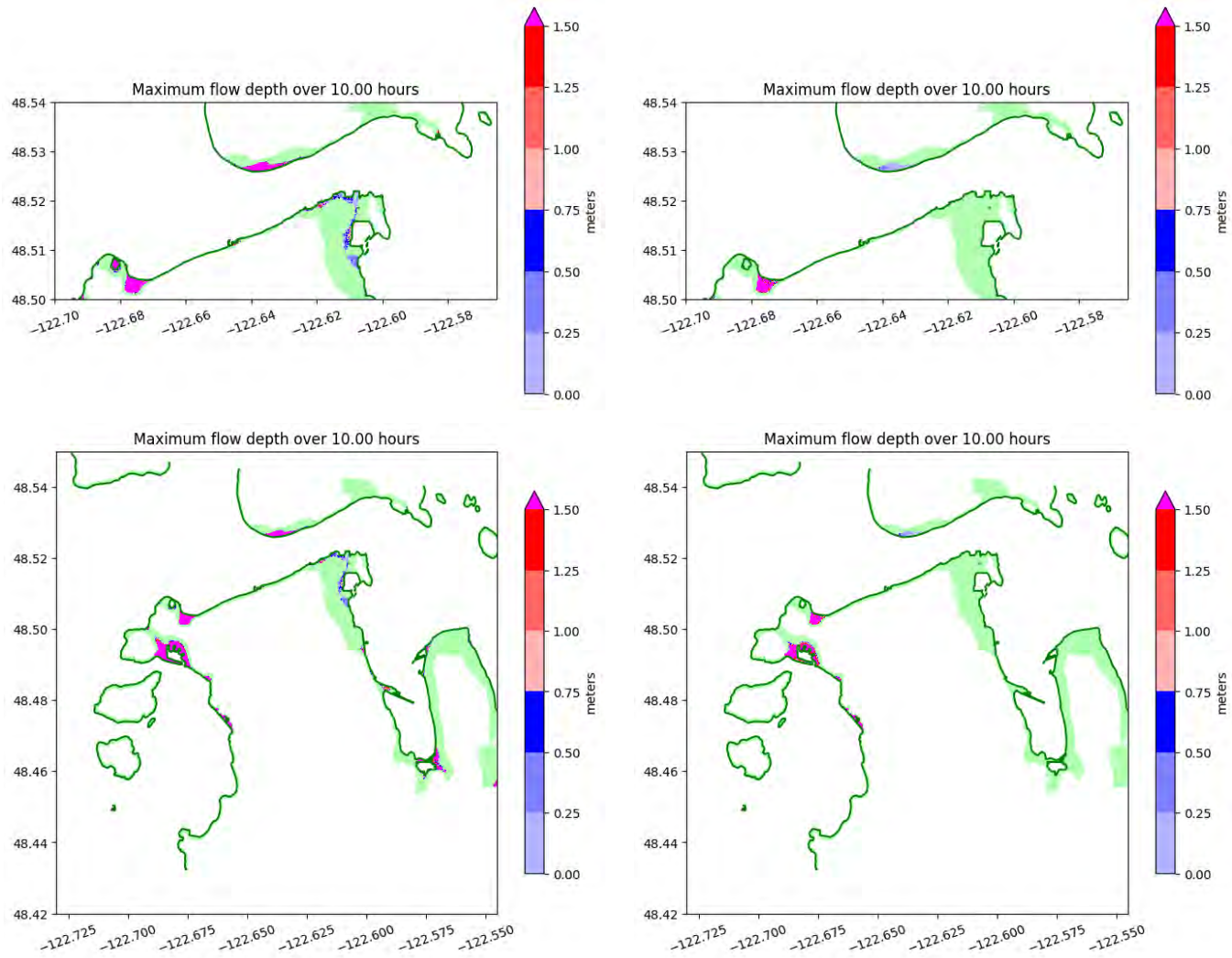


Figure 7: Cascadia subduction zone scenario, maximum onshore depths attained over 10 hours for MHW simulation (left), and MLW simulation (right). Top row, 1/9 arc-second resolution; second row, 1/3 arc-second resolution.

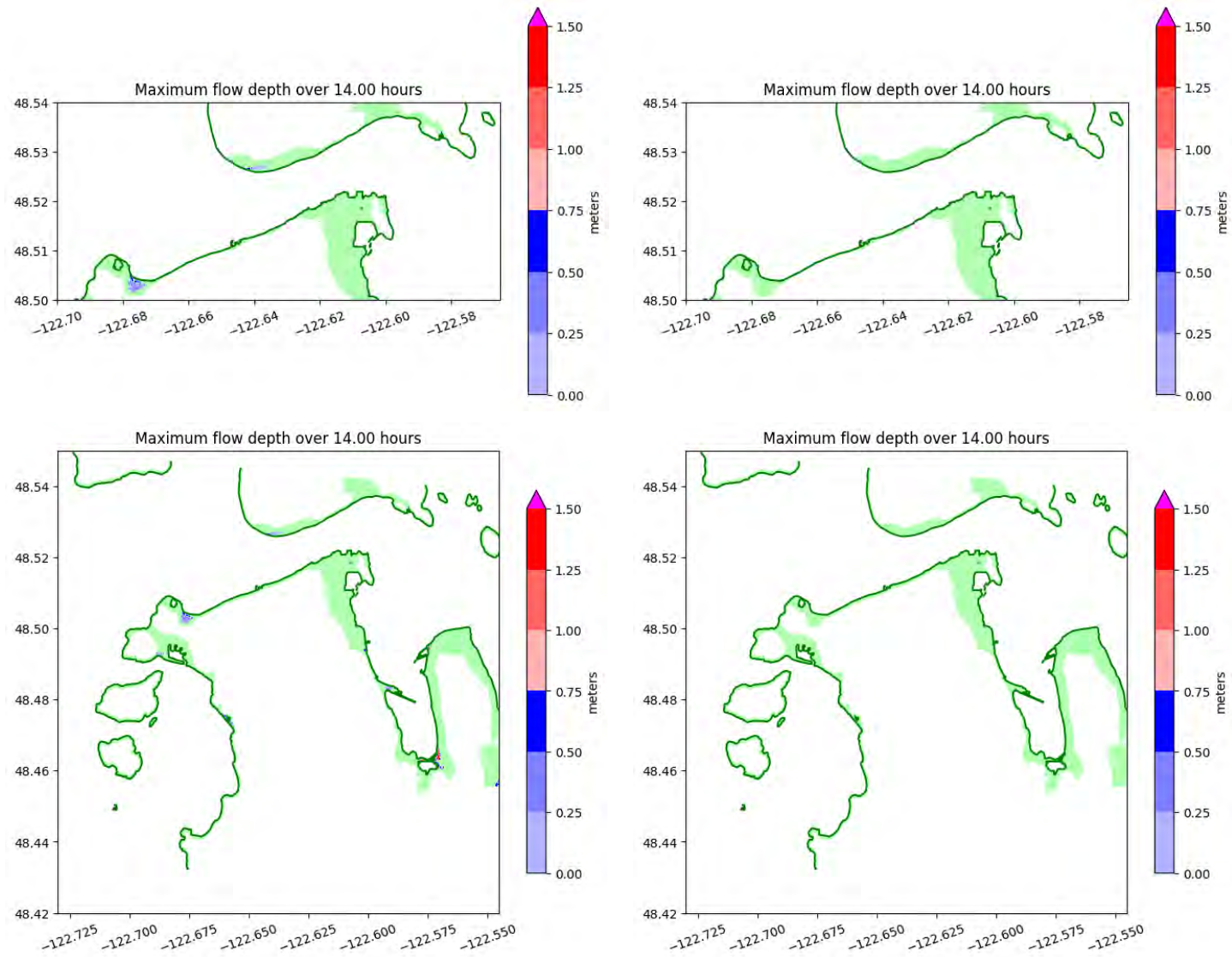


Figure 8: Alaska-Aleutian subduction zone scenario, maximum onshore depths attained over 14 hours for MHW simulation (left), and MLW simulation (right). Top row, 1/9 arc-second resolution; second row, 1/3 arc-second resolution.

6.2 Maximum speeds

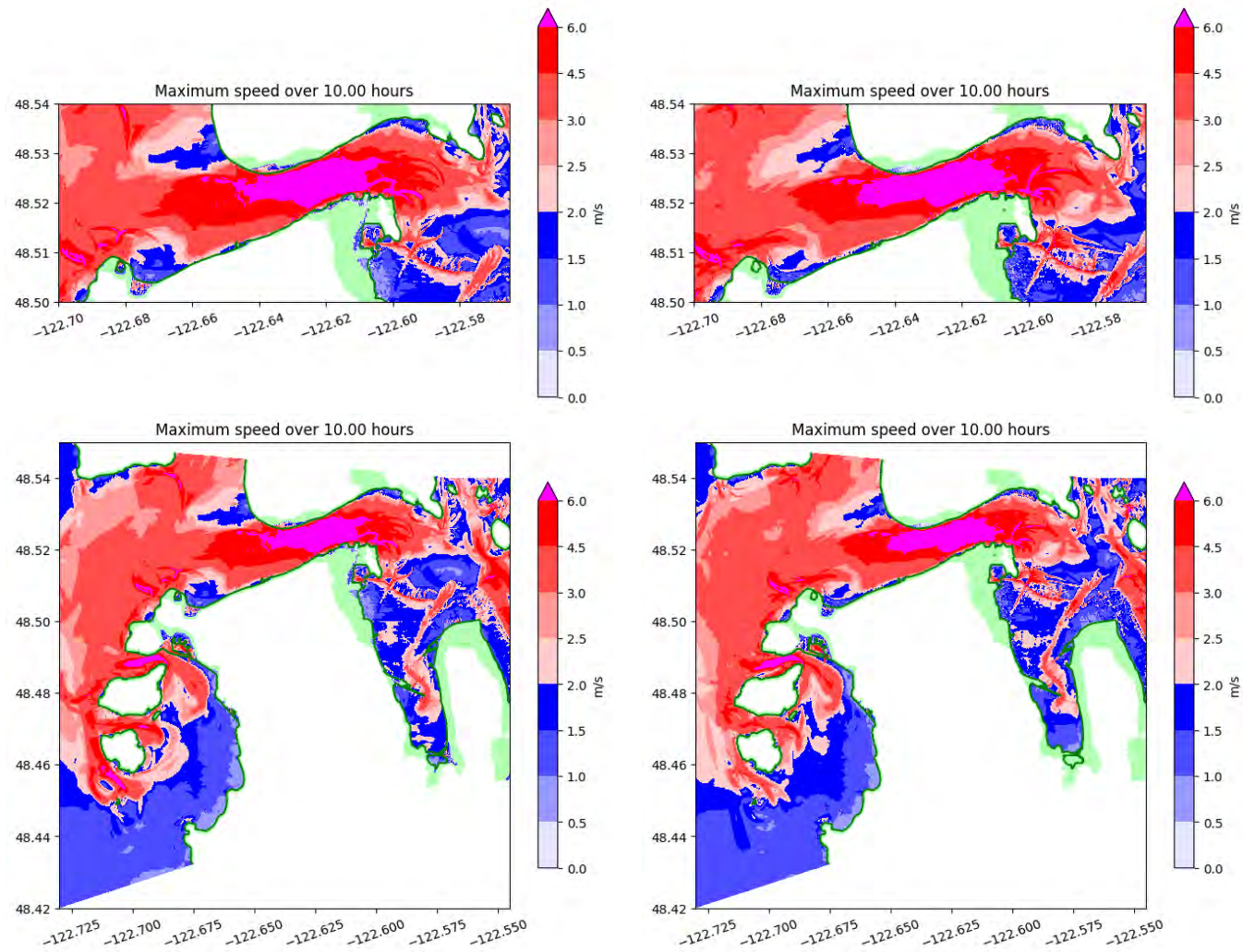


Figure 9: Cascadia subduction zone scenario, maximum speeds attained over 10 hours for MHW simulation (left), and MLW simulation (right). Top row, 1/9 arc-second resolution; second row, 1/3 arc-second resolution.

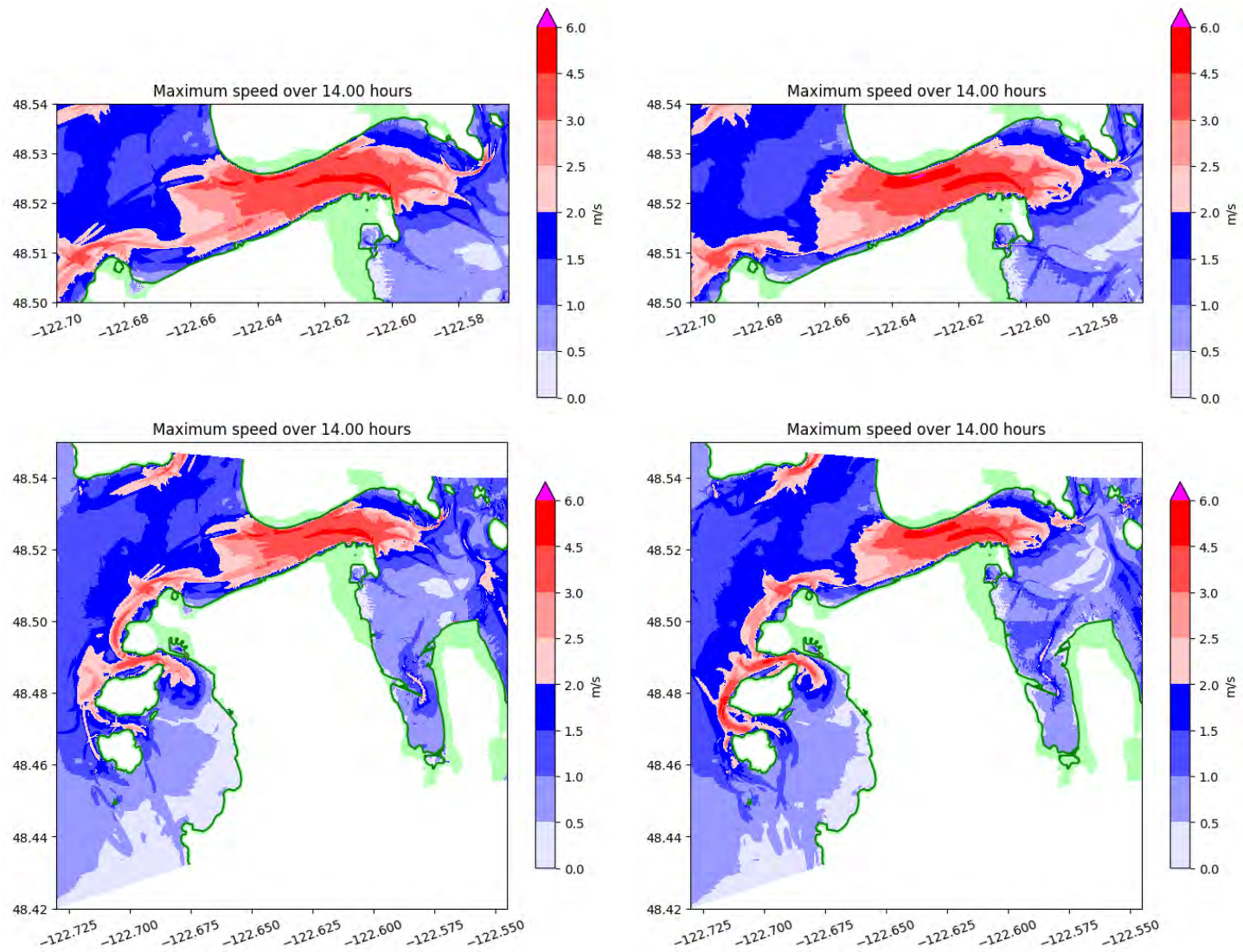


Figure 10: Alaska-Aleutian subduction zone scenario, maximum speeds attained over 14 hours for MHW simulation (left), and MLW simulation (right). Top row, 1/9 arc-second resolution; second row, 1/3 arc-second resolution.

6.3 Minimum water depths

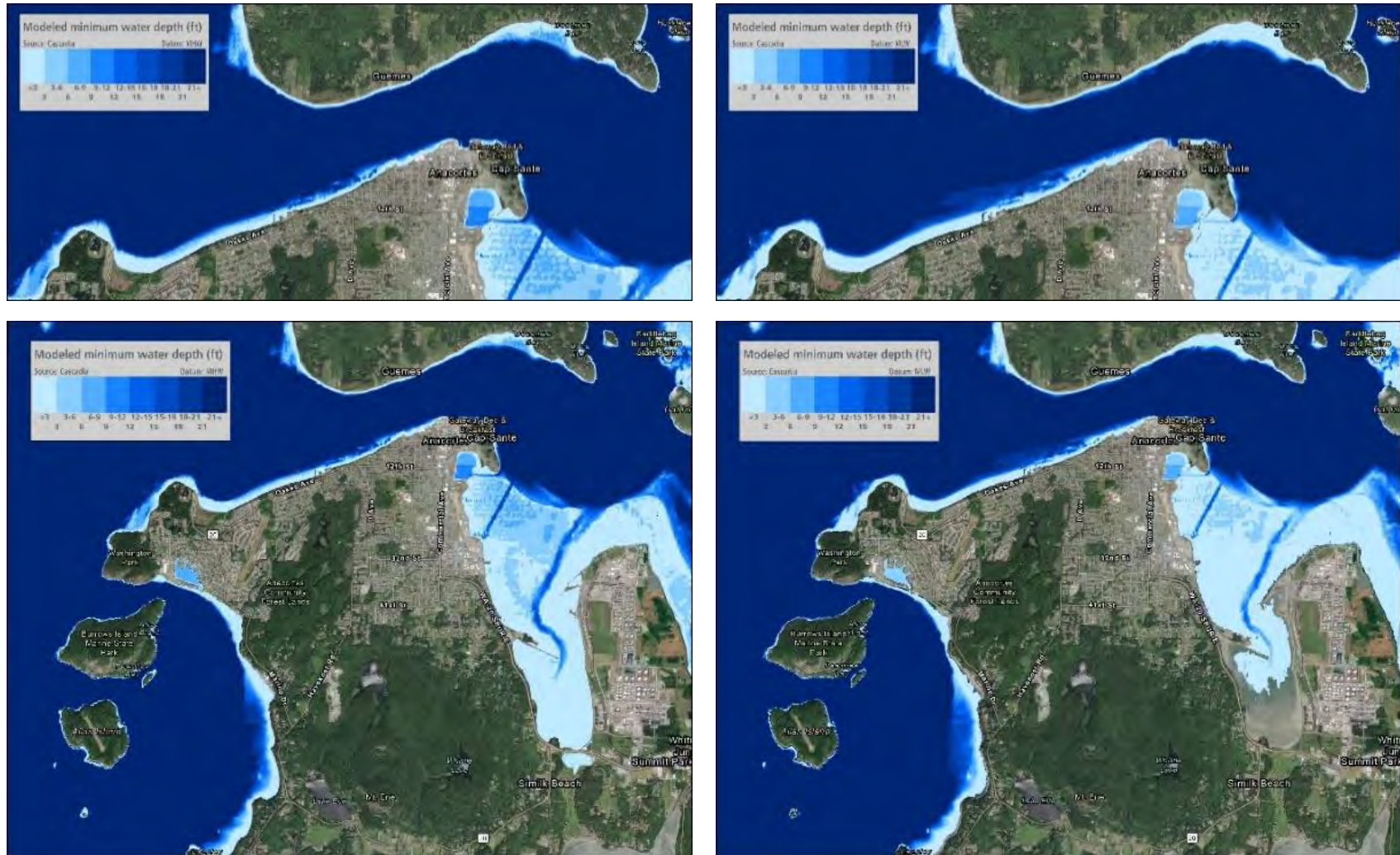


Figure 11: Cascadia subduction zone scenario, minimum water depths attained over 10 hours for MHW simulation (left), and MLW simulation (right). Top row, 1/9 arc-second resolution; second row, 1/3 arc-second resolution. Lightest blue represents water depths of three feet or less. Darkest blue represents water depths greater than 21 feet.

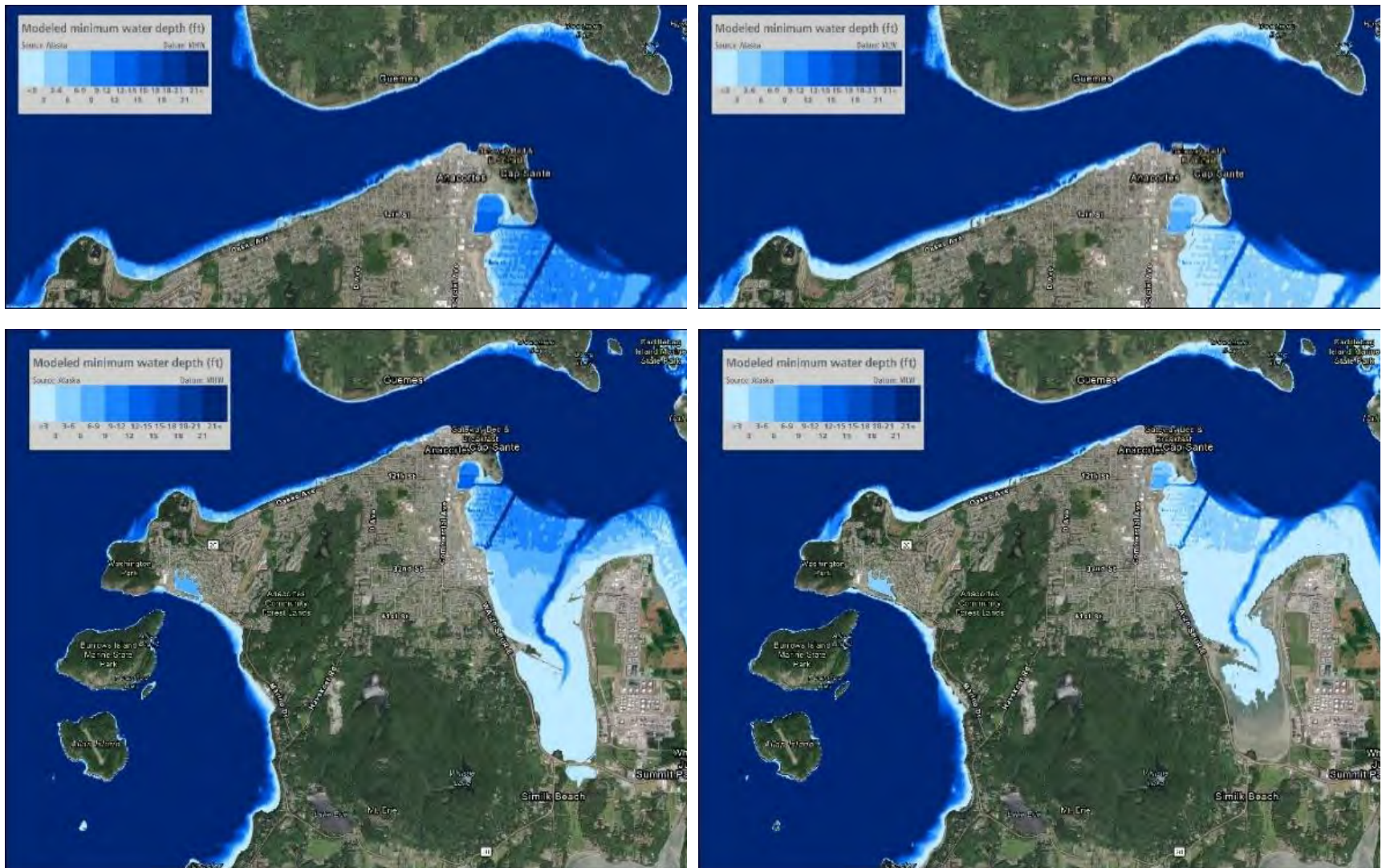


Figure 12: Alaska-Aleutian subduction zone scenario, minimum water depths attained over 14 hours for MHW simulation (left), and MLW simulation (right). Top row, 1/9 arc-second resolution; second row, 1/3 arc-second resolution. Lightest blue represents water depths of three feet or less. Darkest blue represents water depths greater than 21 feet.

7. Gauge output results

7.1 Synthetic gauge locations

Figure 13 shows the locations of the 155 simulated gauges used to capture time series of the flow depth/surface elevation, and current velocity at specified locations for each simulation. All 155 gauges are used in both the the CSZ and AASZ scenario job runs. Figure 14 shows the gauges modeled at the highest resolution (1/9 arc-second). In addition, Figure 15 shows some of these highest resolution gauges in a zoomed view of the Port of Anacortes and Cap Sante Marina. Figures 16 and 17 show the gauges near March Point and Fidalgo Head, respectively. Note that some gauges were modeled with a slightly coarser resolution (1/3 arc-second) and their time series may be less accurate, though are still considered high resolution. Most gauges are located in water; however some are located on land. Table 3 summarizes location and model resolution for each gauge.

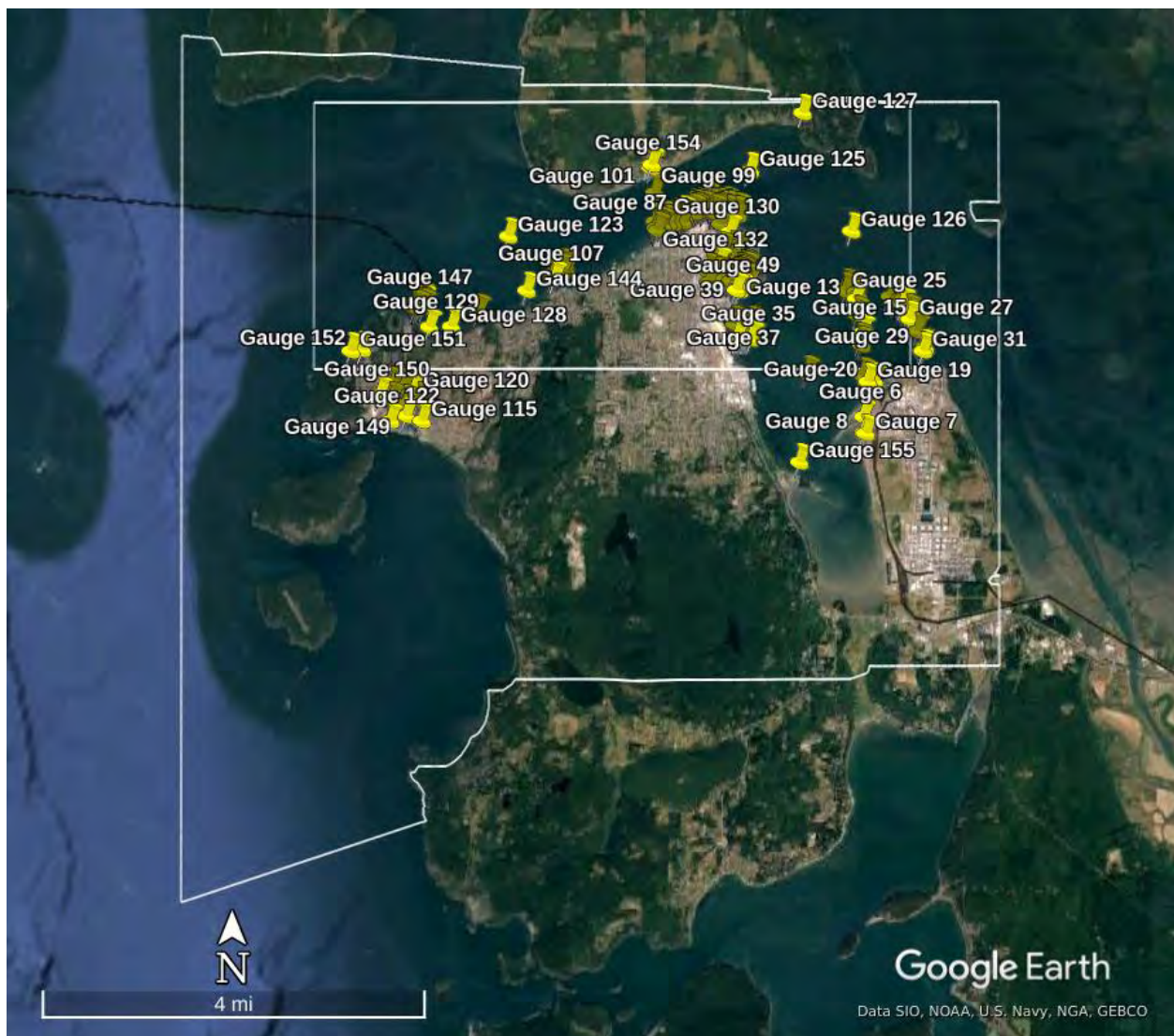


Figure 13. All 155 synthetic gauge locations in this study.



Figure 14. Guemes Channel area highest resolution gauges (1/9 arc-second).

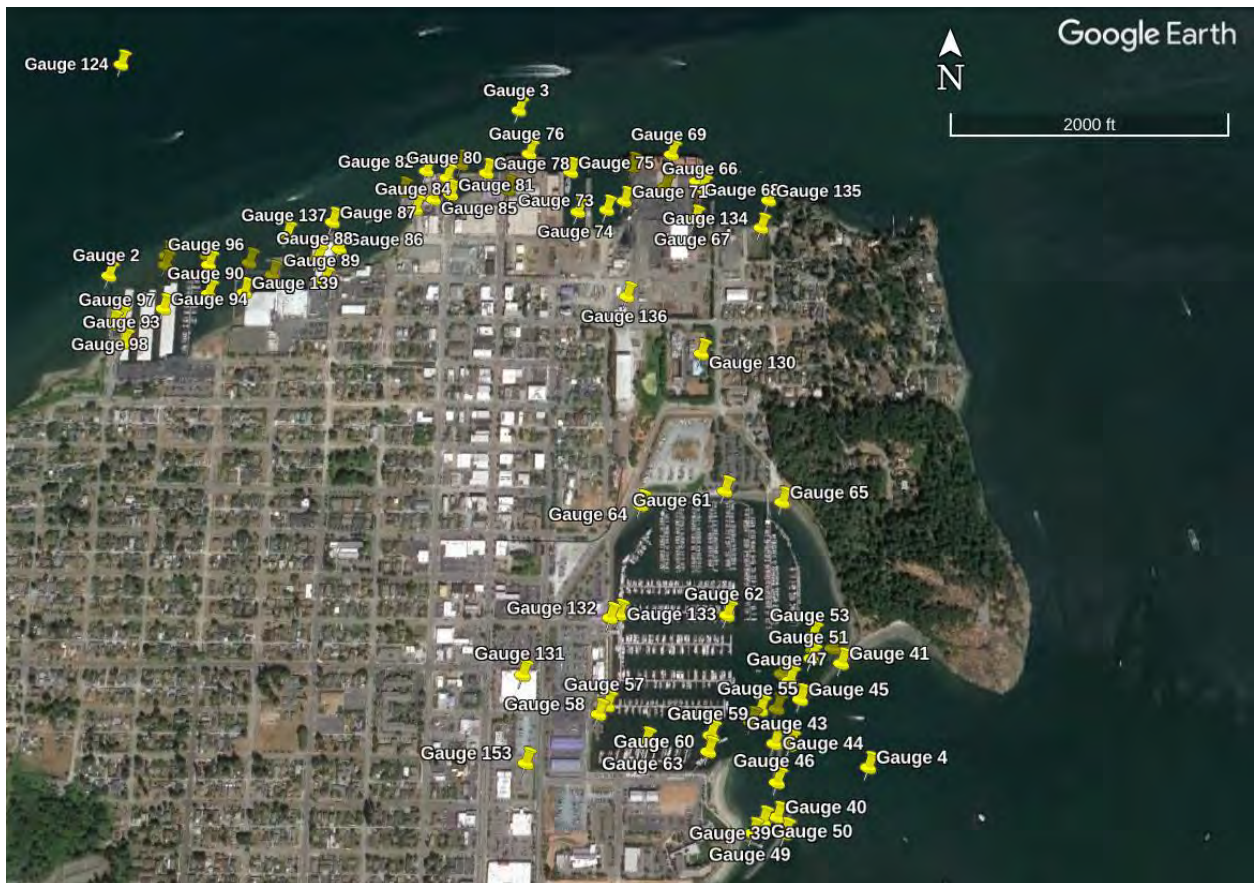


Figure 15. Gauges around the Port of Anacortes and Cap Sante Marina.



Figure 16. Gauges around March Point. Gauges within the white rectangle in the northwest corner of the map are modeled at 1/9 arc-second resolution. Other gauges outside of white rectangle are modeled at 1/3 arc-second resolution.



Figure 17. Gauges around Fidalgo Head. Gauges within the white rectangle in the northeast corner of the map are modeled at 1/9 arc-second resolution. Other gauges outside of white rectangle are modeled at 1/3 arc-second resolution.

Table 3. Locations of all synthetic tide gauges in this study. These gauges are also shown in map view in Figures 13-17. Each gauge records the results for both the Cascadia subduction zone and Alaska-Aleutian subduction zone scenarios.

Number	Latitude	Longitude	Description	Land or water?	Resolution (arc-second)
1	48.50755	-122.677	Sydney BC Terminal, Anacortes Ferry Terminal	water	1/9
2	48.51977	-122.624	Guemes Island Ferry Terminal	water	1/9
3	48.5231	-122.612	Port of Anacortes, Pier 1	water	1/9
4	48.5106	-122.602	Cap Sante Marina	water	1/9
5	48.4969	-122.589	Fidalgo Bay	water	1/3
6	48.49047	-122.577	Equilon Enterprises pumping station	water	1/3
7	48.48799	-122.576	Equilon Enterprises pumping station	land	1/3
8	48.48803	-122.577	Equilon Enterprises pumping station tide flat	water	1/3
9	48.50958	-122.58	March Point Shell Puget Sound Refinery dock	water	1/9
10	48.50928	-122.578	March Point Shell Puget Sound Refinery dock 2	water	1/9
11	48.50918	-122.578	March Point Shell Puget Sound Refinery dock 3	water	1/9
12	48.50863	-122.578	March Point Shell Puget Sound Refinery dock 4	water	1/9
13	48.50815	-122.578	March Point Shell Puget Sound Refinery dock 5	water	1/9
14	48.50574	-122.578	March Point Shell Puget Sound Refinery dock 6	water	1/9
15	48.50308	-122.577	March Point Shell Puget Sound Refinery dock 7	water	1/9

Number	Latitude	Longitude	Description	Land or water?	Resolution (arc-second)
16	48.50176	-122.578	March Point Shell Puget Sound Refinery dock 8	water	1/9
17	48.50121	-122.577	March Point Shell Puget Sound Refinery dock 9	water	1/9
18	48.4966	-122.577	March Point Shell Puget Sound Refinery dock 10	water	1/3
19	48.4957	-122.576	March Point Shell Puget Sound Refinery dock 11	water	1/3
20	48.49582	-122.574	HollyFrontier Anacortes	water	1/3
21	48.50851	-122.571	Refinery dock east	water	1/9
22	48.50824	-122.568	Refinery dock east 2	water	1/9
23	48.50808	-122.568	Refinery dock east 3	water	1/9
24	48.50805	-122.568	Refinery dock east 4	water	1/9
25	48.50716	-122.568	Refinery dock east 5	water	1/9
26	48.50607	-122.566	Refinery dock east 6	water	1/9
27	48.5051	-122.566	Refinery dock east 7	water	1/9
28	48.50329	-122.564	Refinery dock east 8	water	1/3
29	48.50077	-122.563	Refinery dock east 9	water	1/3
30	48.501	-122.563	Refinery dock east 10	water	1/3
31	48.50031	-122.563	Refinery dock east 11	water	1/3
32	48.50442	-122.602	Anacortes Marina northeast entrance	water	1/9
33	48.50423	-122.602	Anacortes Marina northeast entrance 2	water	1/9
34	48.50224	-122.602	Anacortes Marina southeast entrance	water	1/9
35	48.50215	-122.602	Anacortes Marina southeast entrance 2	water	1/9
36	48.50335	-122.603	Anacortes Marina center	water	1/9
37	48.50225	-122.605	Anacortes Marina southwest	water	1/9
38	48.50434	-122.606	Anacortes Marina northwest	water	1/9
39	48.50945	-122.605	Cap Sante Marina south jetty	water	1/9
40	48.50973	-122.605	Cap Sante Marina south jetty inside	water	1/9
41	48.51245	-122.603	Cap Sante Marina north jetty	water	1/9
42	48.51272	-122.603	Cap Sante Marina north jetty inside	water	1/9
43	48.51099	-122.604	Cap Sante Marina central jetty	water	1/9
44	48.51102	-122.605	Cap Sante Marina central jetty inside	water	1/9
45	48.5118	-122.604	Cap Sante Marina between north central jetty	water	1/9
46	48.51034	-122.605	Cap Sante Marina between south central jetty	water	1/9
47	48.51214	-122.604	Cap Sante Marina breakwater	water	1/9
48	48.51226	-122.605	Cap Sante Marina breakwater inside	water	1/9
49	48.50945	-122.605	Cap Sante Marina south breakwater	water	1/9
50	48.50965	-122.605	Cap Sante Marina south breakwater inside	water	1/9
51	48.51254	-122.604	Cap Sante Marina entrance north	water	1/9
52	48.51269	-122.604	Cap Sante Marina entrance north 2	water	1/9
53	48.51293	-122.604	Cap Sante Marina entrance north 3	water	1/9
54	48.51164	-122.605	Cap Sante Marina entrance south	water	1/9
55	48.51162	-122.605	Cap Sante Marina entrance south 2	water	1/9
56	48.5114	-122.606	Cap Sante Marina entrance south 3	water	1/9

Number	Latitude	Longitude	Description	Land or water?	Resolution (arc-second)
57	48.51169	-122.609	Cap Sante Marina cranes	water	1/9
58	48.51154	-122.61	Cap Sante Marina cranes	water	1/9
59	48.51117	-122.607	Cap Sante Marina fuel dock north	water	1/9
60	48.51088	-122.607	Cap Sante Marina fuel dock south	water	1/9
61	48.51562	-122.606	Cap Sante Marina Beach	water	1/9
62	48.51332	-122.606	Cap Sante Marina center	water	1/9
63	48.51104	-122.608	Cap Sante Marina south	water	1/9
64	48.51535	-122.609	Cap Sante Marina northwest	water	1/9
65	48.51541	-122.605	Cap Sante Marina northeast	water	1/9
66	48.5215	-122.607	Pier 2 east	water	1/9
67	48.52087	-122.607	Pier 2 east 2	water	1/9
68	48.52165	-122.607	Pier 2 east 3	water	1/9
69	48.5222	-122.608	Pier 2 north	water	1/9
70	48.52194	-122.609	Pier 2 west	water	1/9
71	48.52125	-122.609	Pier 2 west 2	water	1/9
72	48.52152	-122.608	Pier 2	land	1/9
73	48.52108	-122.61	Port of Anacortes	water	1/9
74	48.52103	-122.61	Port of Anacortes 2	water	1/9
75	48.52183	-122.611	Pier 1 east	water	1/9
76	48.5222	-122.612	Pier 1 north	water	1/9
77	48.52199	-122.614	Pier 1 west	water	1/9
78	48.52182	-122.613	Pier 1 west 2	water	1/9
79	48.52147	-122.612	Pier 1 Railroad/Commercial Ave	land	1/9
80	48.52172	-122.614	Curtis Wharf east	water	1/9
81	48.52138	-122.614	Curtis Wharf east 2	water	1/9
82	48.52186	-122.615	Curtis Wharf north	water	1/9
83	48.52144	-122.616	Curtis Wharf west	water	1/9
84	48.52109	-122.615	Curtis Wharf west 2	water	1/9
85	48.52128	-122.615	Curtis Wharf	land	1/9
86	48.52029	-122.617	Trident Seafoods east	water	1/9
87	48.52083	-122.617	Trident Seafoods north	water	1/9
88	48.5201	-122.618	Trident Seafoods west	water	1/9
89	48.51966	-122.618	Trident Seafood	land	1/9
90	48.51941	-122.621	Anchor Cove Marina east	water	1/9
91	48.52016	-122.622	Anchor Cove Marina north outside	water	1/9
92	48.51998	-122.622	Anchor Cove Marina north inside	water	1/9
93	48.51845	-122.623	Anchor Cove Marina west	water	1/9
94	48.51912	-122.622	Anchor Cove Marina center	water	1/9
95	48.52015	-122.621	Anchor Cove Marina entrance	water	1/9
96	48.51998	-122.621	Anchor Cove Marina entrance 2	water	1/9
97	48.51889	-122.623	Guemes Island Ferry Terminal east	water	1/9

Number	Latitude	Longitude	Description	Land or water?	Resolution (arc-second)
98	48.51881	-122.624	Guemes Island Ferry Terminal west	water	1/9
99	48.52824	-122.625	Guemes Island Ferry Terminal Guemes east	water	1/9
100	48.52802	-122.625	Guemes Island Ferry Terminal Guemes north	water	1/9
101	48.52821	-122.625	Guemes Island Ferry Terminal Guemes west	water	1/9
102	48.51231	-122.644	Lovric's marina east	water	1/9
103	48.51288	-122.644	Lovric's marina east outside	water	1/9
104	48.51212	-122.645	Lovric's marina center	water	1/9
105	48.51249	-122.646	Lovric's marina north	water	1/9
106	48.51297	-122.646	Lovric's marina north outside	water	1/9
107	48.51116	-122.647	Lovric's marina west	water	1/9
108	48.51123	-122.647	Lovric's marina west outside	water	1/9
109	48.51228	-122.646	Lovric's marina entrance	water	1/9
110	48.5071	-122.678	Anacortes Ferry Terminal west	water	1/9
111	48.50693	-122.678	Anacortes Ferry Terminal east	water	1/9
112	48.50668	-122.678	Anacortes Ferry Terminal east 2	water	1/9
113	48.50735	-122.677	Anacortes Ferry Terminal north	water	1/9
114	48.50679	-122.678	Anacortes Ferry Terminal	land	1/9
115	48.48986	-122.677	Skyline Marina entrance	water	1/3
116	48.49286	-122.683	Skyline Marina Center	water	1/3
117	48.4924	-122.68	Skyline Marina central	water	1/3
118	48.4951	-122.683	Skyline Marina north 1	water	1/3
119	48.49497	-122.681	Skyline Marina north 2	water	1/3
120	48.49417	-122.678	Skyline Marina north 3	water	1/3
121	48.49283	-122.677	Skyline Marina north 4	water	1/3
122	48.48986	-122.684	Burrows Pass	water	1/3
123	48.51754	-122.657	Guemes Channel 1	water	1/9
124	48.52407	-122.624	Guemes Channel 2	water	1/9
125	48.52738	-122.602	Guemes Channel 3	water	1/9
126	48.51831	-122.579	Guemes Channel 4	water	1/9
127	48.53604	-122.59	Deadman Bay	water	1/9
128	48.50398	-122.67	Guemes Channel Trail 1	land	1/9
129	48.50394	-122.675	Guemes Channel Trail 2	land	1/9
130	48.51823	-122.607	Wastewater Treatment Plant	land	1/9
131	48.51224	-122.612	Safeway	land	1/9
132	48.51327	-122.609	Main Cap Sante dock	land	1/9
133	48.51334	-122.609	Main Cap Sante dock	water	1/9
134	48.5207	-122.605	Environmental cleaup area	land	1/9
135	48.52127	-122.605	Environmental cleaup area	water	1/9
136	48.51935	-122.609	Storage facility	land	1/9
137	48.52056	-122.619	Trident Seafoods west 1	water	1/9
138	48.52002	-122.62	Trident Seafoods west 2	water	1/9

Number	Latitude	Longitude	Description	Land or water?	Resolution (arc-second)
139	48.51943	-122.62	Trident Seafoods west 3	water	1/9
140	48.51978	-122.619	Trident Seafoods west 4	water	1/9
141	48.50992	-122.58	March Point Shell Puget Sound Refinery dock 12	water	1/9
142	48.50933	-122.581	March Point Shell Puget Sound Refinery dock 13	water	1/9
143	48.50611	-122.664	Walking trail to Lovric's	land	1/9
144	48.5094	-122.653	Walking trail to Lovric's 2	land	1/9
145	48.50792	-122.678	Anacortes Ferry Terminal dolphins 1	water	1/9
146	48.50809	-122.677	Anacortes Ferry Terminal dolphins 2	water	1/9
147	48.50764	-122.676	Anacortes Ferry Terminal dolphins 3	water	1/9
148	48.50689	-122.676	Anacortes Ferry Terminal dolphins 4	water	1/9
149	48.49059	-122.68	Flouder Bay Condos	land	1/9
150	48.49383	-122.686	Flounder Bay boat storage	land	1/3
151	48.50033	-122.693	Washington Park Boat Launch	water	1/9
152	48.50053	-122.69	PSE power station at Washington Park	land	1/9
153	48.51068	-122.612	PSE power station near Safeway	land	1/9
154	48.52779	-122.625	Dolphin at Guemes Ferry	water	1/9
155	48.48368	-122.591	Fidalgo Bay RV Park	land	1/3

7.2 Synthetic gauge plots

The individual gauge plots show time series outputs of the flow depth (h ; fluctuations in the water depth at the gauge location during the simulation), surface elevation (η ; the variation in the height of the water surface at the gauge location), and speed for both the CSZ and AASZ scenarios at MHW and MLW from each individual simulated tide gauge (Appendix D). The AMR level subplots beneath the flow depth plots indicate the level of refinement (or resolution) of that each gauge was set to (level 8 = 1/9 arc-second; level 7 = 1/3 arc-second). The topobathy subplots beneath the surface elevation plots indicate any coseismic land level changes (or lack thereof). Negative topobathy numbers record the offshore depth of water at the location of which the simulated tide gauge is placed. The speed is shown as a time series of speed vs time ($\sqrt{u^2 + v^2}$), in addition to the individual E—W (u) and N—S (v) velocity components. The u — v plane located in the lower right plot for each event also allows one to see how the E—W component, u , of the speed compares to the N—S component, v , which can help discern the dominant direction of the tsunami current if one exists. On the other hand, the speed vs time plots simply show one-dimensional current speeds over the course of the simulation. Note that the vertical and horizontal axes on the gauge plots vary by location, parameter, and duration. The vertical scale is set by the maximum values in each plot to better show the results.

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Data availability

The computer code and input data used in this study has been archived and is available on request from the Washington Geological Survey. The DEMs used in this study are available from the National Centers for Environmental Information (NCEI) at www.ncei.noaa.gov. NCEI provides these referenced to the MHW and NAVD88 vertical datums. NAVD88 can be converted to MHW with NOAA's VDatum tool: <https://vdatum.noaa.gov/vdatumweb/>.

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Appendix A. Modifications to the Guemes Channel 1/9 arc-second DEM

Several modifications were made to the 1/9 arc-second DEM covering the Guemes Channel and Port of Anacortes by the Washington Geological Survey, Washington State Department of Natural Resources for the purposes of this study. During the tsunami modeling setup, it became apparent that the breakwater elevations adjacent to Cap Sante Marina were not properly resolved in the originally developed DEM, which was a question of concern. For example, all wave attenuators (breakwaters and jetties) were missing entirely due to the initial elevations points within the delivered DEM set to below the mean high water (MHW) vertical datum. This was inaccurate when checking them against air photos and from confirmation from the Port of Anacortes (Figure A1). To solve this issue, the Port of Anacortes shared the post-construction survey for both the north and south wave attenuators. According to the survey, the finished elevations of both structures ranged from 12.8 feet to 12.6 feet, and 12.8 feet to 11.8 feet above mean lower low water (MLLW), respectively (Port of Anacortes, 2011). Because the difference between MLLW and MHW at this location is approximately 5 feet, it was clear the elevations for these structures needed modification. These elevations were increased accordingly to match the heights from the post-construction survey, converted to MHW.

Furthermore, the Port of Anacortes also shared bathymetric surveys for Cap Sante Marina and the Marine Terminal in the Guemes Channel, in addition to a 3D model of the Pier 2 Marine Terminal berth depth based on data collected by David Evans and Associates in 2019. The Washington Geological Survey re-contoured all of Cap Sante Marina and based additional shoreline modifications within the Guemes Channel on this recent survey project. The updated DEM used in this tsunami hazard assessment now more accurately reflects the actual ground surface and bathymetry of the region (Figure A2). To obtain a version of the modified DEM used in this study, contact the Washington Geological Survey.



Figure A1. Top: Aerial imagery of Cap Sante Marina at the Port of Guemes Channel. Bottom: Original unmodified DEM extent covering Cap Sante Marina. Red areas are elevations greater than MHW and blue areas are elevations less than MHW.

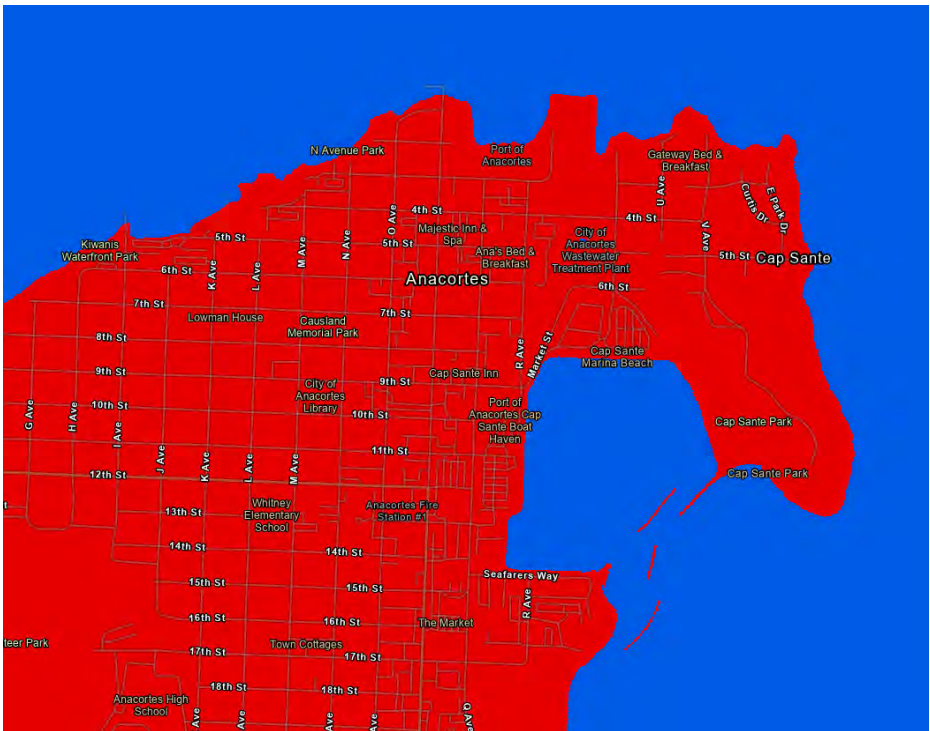
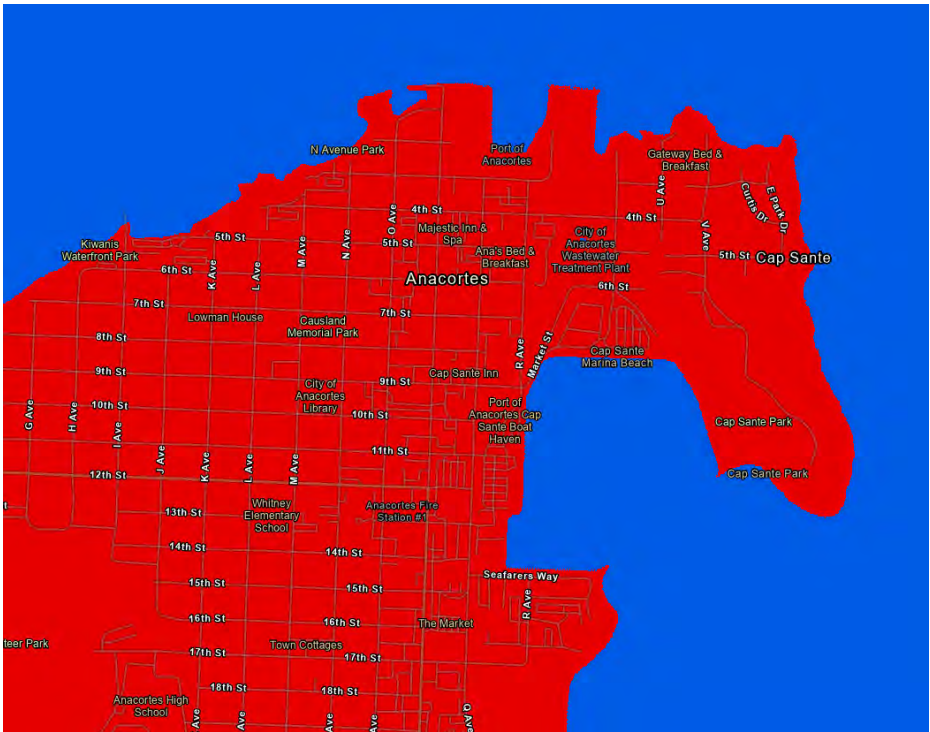


Figure A2. Before (top) and after (bottom) versions of the 1/9 arc-second DEM covering the Guemes Channel and Port of Anacortes. Modifications for this study were based on 2019 bathymetric surveys provided by the Port of Anacortes. Red areas are elevations greater than MHW and blue areas are elevations less than MHW.

Appendix B. GeoClaw output and version information

Output was delivered as NetCDF for each source (Cascadia subduction zone and Alaska-Aleutian subduction zone), at high tide (MHW) and low tide (MLW).

The netCDF files contain multiple field variables. A pre-processing script generates a few variables before the initiation of the GeoClaw run based on the fgmax region as part of the input. Following the GeoClaw run, the fgmax output generates other variables. Note that all variables are stored on two-dimensional uniform grids as defined by the lon and lat arrays. Only the points on this grid where fgmax point == 1 are used as fgmax points and only at these points is fgmax output available.

Values created as part of the GeoClaw input:

- lon: longitude, x (degrees),
- lat: latitude, y (degrees),
- Z: topography value Z from the DEM, relative to MHW (m),
- fgmax point: 1 if this point is used as an fgmax point, 0 otherwise,
- force_dry_init: 1 if this point is initialized as usual, 0 if this point is forced to be dry, regardless of initial topography value.

Values created based on the GeoClaw output:

- dz: Co-seismic surface deformation interpolated to each point (m),
- B: post-seismic topography value B from GeoClaw at gauge location (m),
- h: maximum depth of water over simulation (m),
- s: maximum speed over simulation (m/s),
- hss: maximum momentum hs^2 over simulation (m^3/s^2),
- hmin: minimum depth of water over simulation (m),
- arrival time: apparent arrival time (rising wave > 0.05 m) of tsunami (s),

In addition, the netCDF files contain the following metadata values:

- tfinal: final time of GeoClaw simulation (seconds),
- history: record of times data was added to file,
- outdir: location of output directory where data was found,
- run_finished: date and time run finished,

The fgmax points align exactly with the 1/9" DEM points. The finest level computational finite volume grid also aligns so that cell centers are exactly at the fgmax points, and Z in the netCDF file is the value from the DEM at this point. However, by integrating a piecewise bilinear function that interpolates the 1/9" DEM obtains the topography value B used in a grid cell in GeoClaw, which is not exactly equal to Z initially. Moreover, B is the value after any co-seismic deformation associated with the event.

B.1 GeoClaw Version 5.9.0

The modeling for this project used GeoClaw Version 5.9.0. GeoClaw is open source, part of the Clawpack software, and available at <http://www.clawpack.org>. Refer to the official [version 5.9.0 release notes](#) to view changes and modifications from previous GeoClaw versions.

B.2 GeoClaw source terms for propagation on the sphere

After completion of tsunami modeling for this project, the Washington Geological Survey was made aware of missing source terms in the mass equation within the GeoClaw code, and that the spherical coordinate form of the shallow water equations was not fully implemented in the Alaska tsunami simulations*. Normally, GeoClaw solves the shallow water wave equations on a rectangular grid in longitude-latitude space and deals with varying finite volume grid cell sizes, which decrease when moving away from the equator and toward the poles. However, the missing terms lead to waves decaying more than they should when propagating towards the poles, and less than they should when propagating toward the equator. The University of Washington Tsunami Modeling Group (UWTMG) completed an initial comparative test with and without these source terms using the same distant Alaska-Aleutian subduction zone (AASZ) earthquake source model as described in Section 2.2 for Hawaii and Cape Flattery, Washington. They confirmed the previous statement and found as much as a ~20% decrease in offshore wave heights where these source terms are included (Figure B1).

*Additional terms were also missing in the momentum equations, “but these are quadratic in the fluid velocities and hence negligible for most realistic tsunami propagation problems, in which the depth-averaged fluid velocities are typically very small in the deep ocean where long-distance propagation takes place” (LeVeque, 2023).

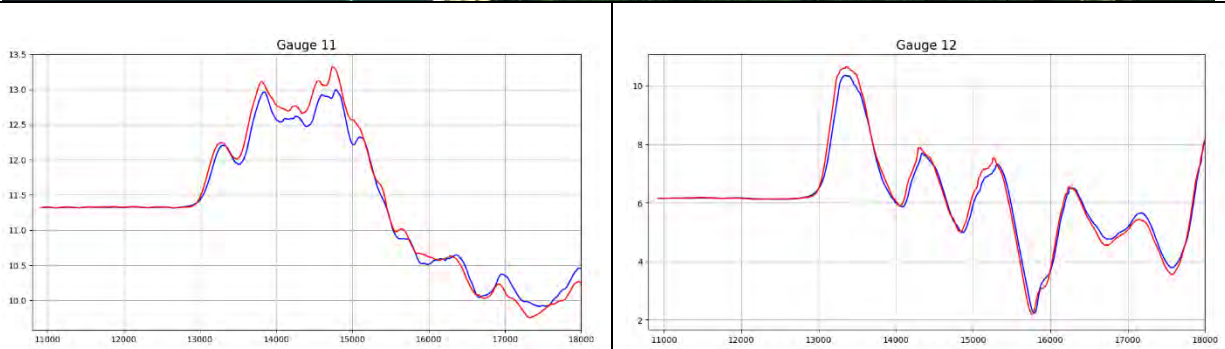
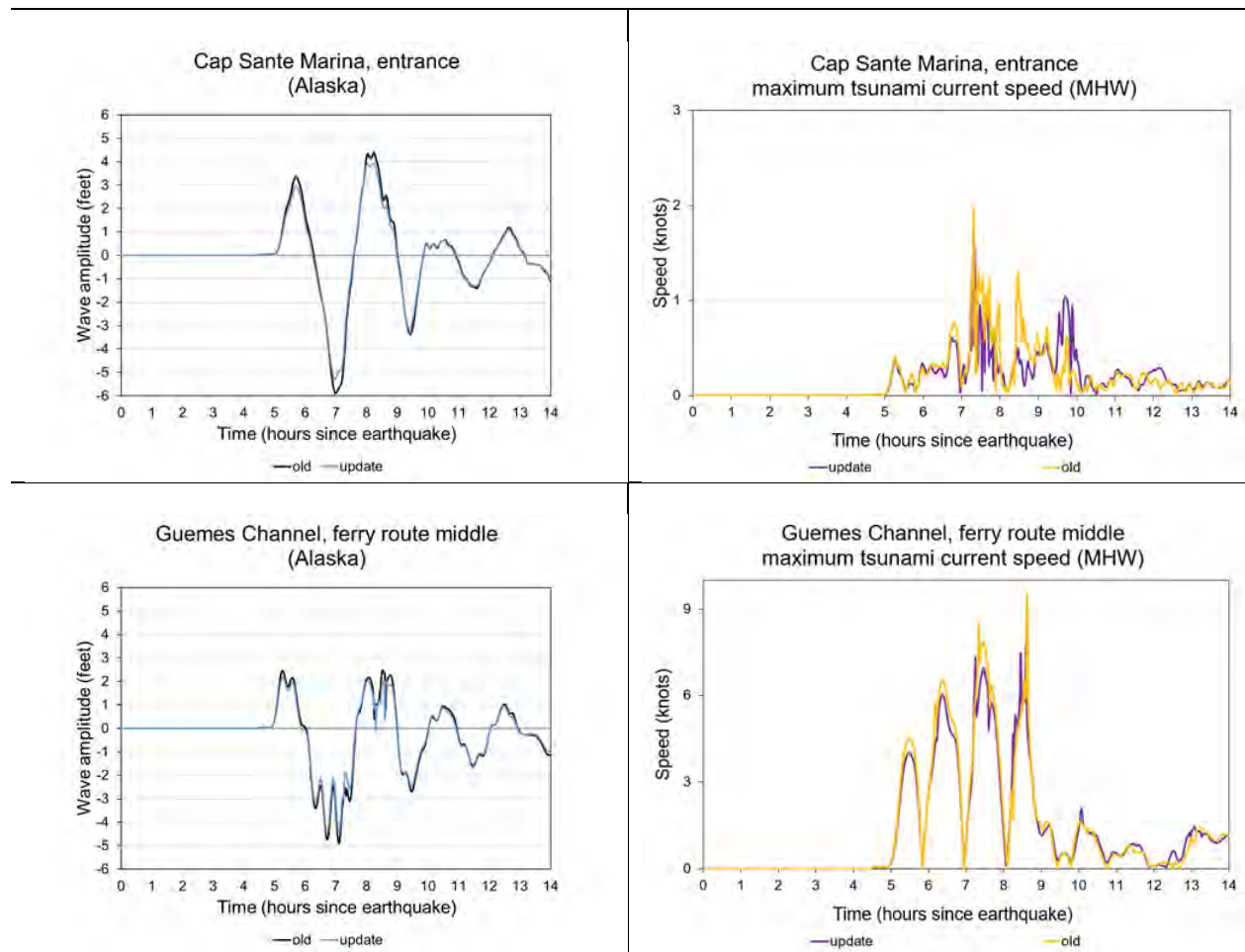


Figure B1: Comparative test case from a distant Alaska-Aleutian subduction zone scenario at the entrance to Neah Bay marina (Gauge 11) and offshore Buckroe Beach in Makah Bay (gauge 12) with and without the corrected spherical source terms developed by the University of Washington Tsunami Modeling Group (UWTMG). Tide gauge marigrams plot water depth (meters) over time (seconds). Red lines represent the tsunami waveform from a previous job run simulated in 2020-2021 for the Cape Flattery Study area with the source terms omitted. Blue lines represent a recent (2023) rerun of the same study area with the source terms included. The waveform with the source terms included show slightly smaller amplitudes by 10-15% relative to the original simulation. The UWTMG modeling report, code, and data for this original modeling project can be viewed here: https://depts.washington.edu/ptha/WA_EMD_2020/ (Leveque and others, 2021).

Following the initial tests by the UWTMG, the Washington Geological Survey also completed a comparative test for the Guemes Channel area, as described in Section 4, with and without these spherical source terms included for the distant AASZ source model at mean high water. Much like the UWTMG's findings, the GeoClaw code without the source terms (original job run) overestimates the waves traveling towards the equator and produced modeled wave heights and current speeds that are also ~10-15% greater than the results from the job run with these terms included (Figure B2; Appendix C. Gauge report summaries). The UWTMG developed the following documentation, which includes additional information, notes, and testing on this topic: https://faculty.washington.edu/rjl/misc/spherical_swe_2023-10-27.pdf.



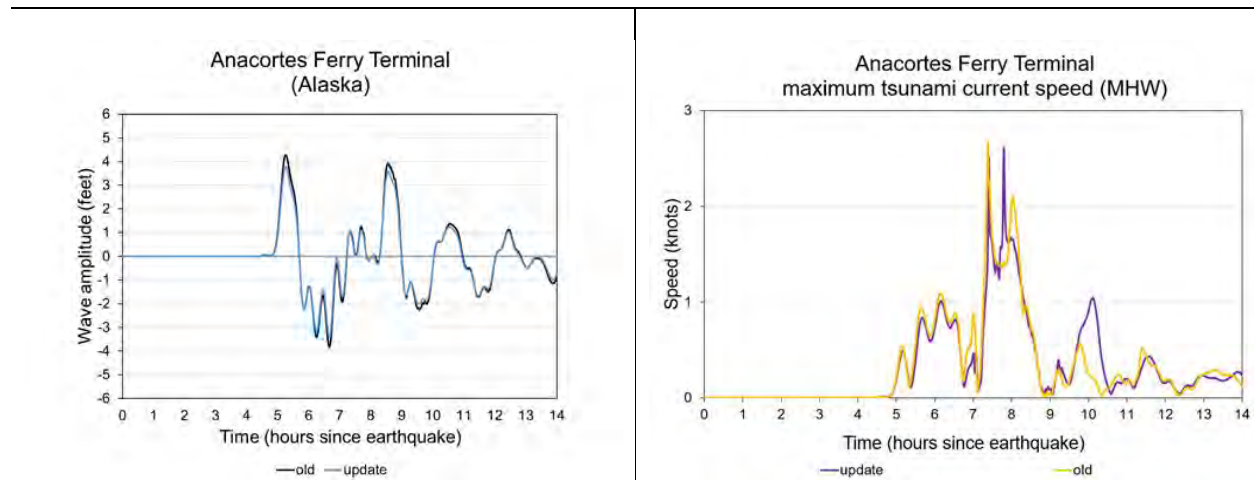


Figure B2: Comparative test case from a distant Alaska-Aleutian subduction zone scenario (simulated at mean high water) at select tide gauge locations within the Guemes Channel with and without the corrected spherical source terms developed by the Washington Geological Survey. Left) Wave amplitude over time. Black lines represent the tsunami waveform without the source terms and blue lines represent the tsunami waveform with the corrected source terms. Right) Wave speed over time. Yellow lines represent the tsunami waveform without the source terms and purple lines represent the tsunami waveform with the corrected source terms. The waveform with the source terms included show slightly smaller wave amplitudes and slower current speeds by ~10-15% relative to the original simulation. Cap Sante Marina, entrance represents tide gauge 56; Guemes Channel, ferry route middle represents tide gauge 124; Anacortes Ferry Terminal represents tide gauge 1 (Refer to section 7 for locations, and Appendix C for summary tables).

It should be noted that the missing spherical source terms in the mass equation only relates to cases where waves propagate north-to-south or vice-versa for long distances. In other words, it's only when waves are traveling from one latitude to a very different latitude that these source terms become important in the shallow water wave equations, such as a tsunami that forms closer to the northern pole (like offshore of Alaska) and propagates far southward (such as to Washington). On the other hand, the lack of these terms makes little difference in modeled results for waves propagating east-west in mid-latitudes for long distances (such as a tsunami that propagates from Japan to Washington) or over short distances such as a local Cascadia subduction zone (CSZ) event.

Correcting this issue in the GeoClaw code by including these source terms cause the waves to decay faster as they travel south. This leads to relatively smaller modeled wave heights offshore Washington compared to if they were not included in the GeoClaw code. However, due to the large amount of uncertainty with regard to the next AASZ earthquake event compared to the modeled scenario, and all other uncertainties, limitations, and assumptions listed in Section 5, the Tsunami Maritime Response and Mitigation Strategy for the Guemes Channel and Port of Anacortes opts to still use the original results corresponding to the distant AASZ tsunami scenario that omits these source terms for overall conservatism.

Appendix C. Gauge report summaries

The following subheadings of this appendix include summary tables for all simulated tide gauges from each different source (Cascadia subduction zone and Alaska-Aleutian subduction zone [CSZ and AASZ, respectively]) and tidal level (mean high water [MHW] and mean low water [MLW]). The variables within each table are defined as:

- B0: pre-seismic bathymetry/topography elevation (m)
- B: post-seismic bathymetry/topography elevation (m)
- dzi: co-seismic surface deformation (m)
- max h: maximum depth of water over simulation (m)
- min h: minimum depth of water over simulation (m)
- max zeta: maximum surface elevation (eta) offshore above MHW; or maximum depth (h) onshore (m)
- max Δh^* : maximum change in water depth/height (h_0-h ; [$\max \text{zeta}-\text{dzi}$]) over simulation (m)
- max eta post-earthquake: post-seismic maximum surface elevation ($B + h$) above MHW (m) over simulation (m)
- max s: maximum speed over simulation (m/s)
- max h_s : maximum momentum over simulation (m^2/s)
- max h_h : maximum momentum flux h_s^2 over simulation (m^3/s^2)
- tmax: time of maximum zeta over simulation (minutes)
- tmin: time of minimum zeta over simulation (minutes)
- tfirstPOS: time of first rising wave arrival ($\text{zeta} > 0.025$ m) over simulation (minutes)
- tfirstNEG: time of first falling wave arrival ($\text{zeta} < 0.025$ m) over simulation (minutes)
- tfirstDRAW**: time of first significant fall wave arrival ($h_0-h > 0.3048$ m) over simulation (minutes)
- tfirstADVIS: time of first “advisory-level” wave arrival ($h-h_0 > 0.3048$ m) over simulation (minutes). This threshold matches the Advisory Alert-level defined by the National Tsunami Hazard Mitigation Program (NTHMP)
- tfirstWARN: time of first “warning-level” wave arrival ($h-h_0 > 0.9144$ m) over simulation (minutes). This threshold matches the Warning Alert-level defined by the NTHMP

* Note: max Δh is only included for the local source, CSZ runs. This is because we assume that zero land level changes would occur from a distant, AASZ scenario. However, for the Guemes Channel study region there is no modeled land level change from the CSZ scenario. If closer to the earthquake source, coseismic subsidence generated by the CSZ scenario would cause the land/seafloor and water surface levels to drop simultaneously. Following this drop, the water surface level would rebound back to the pre-earthquake conditions over the course of the simulated tsunami, but the land/seafloor would not. The rate at which the water surface level recovers is not captured in the tsunami simulation. Thus, determining offshore wave amplitude is challenging where land level changes exist because amplitude refers to the height above water surface level. This becomes a dynamic and uncertain variable where there are coseismic elevation changes. Rather, because flow depth (h) does not change during coseismic impacts, we instead report the change in water depth (max Δh) over the simulation to capture the maximum impact of the tsunami water height. This value represents both the tsunami wave amplitude and the amount of sea-level recovery following the earthquake in the zone of coseismic impact. This value may not represent the largest wave amplitude, which is generally the first wave in this study area. When no coseismic impacts occur, max Δh is the same as max zeta and/or max h (if the gauge is onshore).

**Note: tfirstDRAW timings reported as n/a suggest that either 1) the gauge was placed onshore, or 2) the post-earthquake water depth never falls a foot or more (-0.3048 m) below the water depth (h_0) at the time of the earthquake.

Scenario: Cascadia subduction zone, mean high water

Gauge	B0	B	dzi	max h	min h	max zeta	max Δh	max eta post-quake	max s	max hs	max hss	tmax	tmin	tfirstPOS	tfirstNEG	tfirstDRAW	tfirstADVIS	tfirstWARN
1	-11.03	-11.03	0	14.98	7.74	3.96	3.96	3.96	1.23	14.38	16.83	115.06	208.38	102.5	19	51.4	103.4	105.1
2	-10.34	-10.34	0	13.01	6.85	2.66	2.66	2.66	6.4	63.22	382.26	174.1	213.22	107.3	23.3	56.3	108.2	110.3
3	-18.08	-18.08	0	20.26	14.68	2.19	2.19	2.19	6.62	113.86	736.42	174.42	231.02	110.2	25.5	59.3	111.5	137.6
4	-4.49	-4.49	0	6.64	1.24	2.15	2.15	2.15	1.79	7.66	13.67	180.05	233.36	119.2	33.1	66.5	121.2	137
5	-3.76	-3.76	0	5.99	0.85	2.23	2.23	2.23	1.92	8.11	12.23	183.73	238.13	120.7	35.1	67	122.3	135.3
6	-0.76	-0.76	0	3.13	0	2.37	2.37	2.37	1.35	2.85	3.22	183.82	249.19	127.5	37.7	68	128.1	129.6
7	1.21	1.21	0	1.19	0	1.19	1.19	2.41	1.33	1.18	1.19	183.97	0	145.7	n/a	n/a	180	182.3
8	-0.52	-0.52	0	2.94	0	2.42	2.42	2.42	1.27	2.94	3.68	183.9	388.65	127.9	37.8	68.2	128.3	130.5
9	-13.47	-13.47	0	15.42	9.71	1.95	1.95	1.95	1.81	22.79	34.14	179.91	224.47	118.8	33.3	66.4	121	133
10	-16.12	-16.12	0	18.08	12.3	1.96	1.96	1.96	1.49	25.37	35.98	179.93	224.54	118.9	33.4	66.6	120.9	132.7
11	-15.55	-15.55	0	17.52	11.72	1.97	1.97	1.97	2.07	24.63	50.95	179.95	224.55	118.9	33.4	66.6	120.9	132.8
12	-15.17	-15.17	0	17.15	11.31	1.98	1.98	1.98	2.97	35.22	104.57	179.92	224.55	118.9	33.5	66.6	121	132.8
13	-13.84	-13.84	0	15.83	9.97	1.99	1.99	1.99	1.34	21.12	28.33	180.08	224.58	118.9	33.5	66.6	121	132.8
14	-3.99	-3.99	0	6	0.59	2.01	2.01	2.01	2.59	8.99	13.88	180.08	226.93	119.7	33.8	66.7	121.6	133.3
15	-8.38	-8.38	0	10.48	4.92	2.11	2.11	2.11	3.59	17.78	63.44	180.56	227.07	119.4	34.2	66.9	121.2	133.6
16	-6.36	-6.36	0	8.49	2.71	2.13	2.13	2.13	3.77	11.17	41.43	180.76	228.4	119.5	34.4	67	121.1	131.1
17	-5.82	-5.82	0	7.95	2.2	2.14	2.14	2.14	3.45	10.58	26.63	180.87	227.7	119.6	34.5	67	121.1	131.1
18	-2.99	-2.99	0	5.18	0.04	2.19	2.19	2.19	1.19	5.97	7.07	181.75	234.33	120.1	35.1	67.1	121.5	130.4
19	-1.72	-1.72	0	3.89	0	2.18	2.18	2.18	1.47	5.39	7.94	181.88	243.4	120.2	35.2	67.2	121.6	130.1
20	-0.82	-0.82	0	3.01	0.01	2.19	2.19	2.19	1.42	3.96	5.61	182.13	535.36	119.9	35	67.2	121.4	127.4
21	-14.99	-14.99	0	16.94	10.91	1.95	1.95	1.95	3.71	40.83	151.43	179.99	226.67	119	33.8	66.8	120.9	132.4
22	-14.93	-14.93	0	16.87	11.05	1.94	1.94	1.94	2.96	35.01	103.67	180.03	224.64	119	33.9	66.8	120.9	129.9
23	-15.86	-15.86	0	17.81	11.98	1.95	1.95	1.95	3.04	38.84	118.15	180.04	224.85	119	33.9	66.8	120.9	132
24	-13.96	-13.96	0	15.9	10.08	1.95	1.95	1.95	1.97	22.3	42.77	179.64	224.67	119	33.9	66.9	120.9	129.9
25	-9.9	-9.9	0	11.87	6	1.97	1.97	1.97	1.83	15.81	24.51	179.72	225.06	119	34	66.8	121	131.9
26	-4.59	-4.59	0	6.56	0.69	1.97	1.97	1.97	1.65	7.28	8.61	179.91	225.47	119.4	34.2	66.9	121.3	133
27	-4.45	-4.45	0	6.44	1.09	1.99	1.99	1.99	1.75	6.43	6.86	179.31	227.59	119.4	34.4	67	121.4	131.5
28	-3.67	-3.67	0	5.71	0.65	2.03	2.03	2.03	1.4	5.87	6.53	178.95	229.48	119.5	34.7	67.1	121.4	130.8
29	-2.67	-2.67	0	4.72	0	2.06	2.06	2.06	1.25	4.8	5.38	178.69	235.54	119.6	35.4	67.2	121.4	132.1
30	-2.87	-2.87	0	4.92	0.04	2.05	2.05	2.05	1.18	5.06	5.72	178.67	233.1	119.6	35.4	67.2	121.4	132.2
31	-2.28	-2.28	0	4.35	0	2.07	2.07	2.07	1.09	4.25	4.61	178.81	239.11	119.5	35.3	67.1	121.3	131.8
32	-4.47	-4.47	0	6.61	1.26	2.14	2.14	2.14	0.83	4.36	3.05	181.18	233.69	119.2	33.7	66.7	121	135.3
33	-4.03	-4.03	0	6.17	0.82	2.14	2.14	2.14	0.91	4.41	3.41	181.21	235.38	119.2	33.7	66.7	121	135.3
34	-4.2	-4.2	0	6.37	0.99	2.17	2.17	2.17	0.91	4.51	3.21	181.65	234.61	119.3	34	66.8	120.9	135.2

Gauge	B0	B	dzi	max h	min h	max zeta	max Δh	max eta post-quake	max s	max hs	max hss	tmax	tmin	tfirstPOS	tfirstNEG	tfirstDRAW	tfirstADVIS	tfirstWARN
35	-4.17	-4.17	0	6.35	0.96	2.17	2.17	2.17	0.92	4.4	3.07	181.66	234.69	119.3	34	66.8	120.9	135.2
36	-3.84	-3.84	0	6.01	0.6	2.16	2.16	2.16	0.88	4.11	2.87	181.31	235.21	119.2	33.8	66.7	120.8	135.3
37	-2.54	-2.54	0	4.73	0.04	2.19	2.19	2.19	1.47	1.94	0.8	181.03	239.77	119.2	34	66.8	120.7	135.2
38	-2.75	-2.75	0	4.92	0.04	2.16	2.16	2.16	1.4	3.08	1.94	181.37	239.52	119.1	33.7	66.8	120.7	135.2
39	-2.42	-2.42	0	4.59	0	2.17	2.17	2.17	0.77	2.58	1.61	180.01	222.17	119.1	33.2	66.6	121	134.8
40	-2.55	-2.55	0	4.74	0	2.19	2.19	2.19	1.02	2.71	2.14	180.33	238.28	119.2	33.1	66.8	121.2	135.4
41	-2.63	-2.63	0	4.83	0	2.2	2.2	2.2	1.15	3.86	3.51	180.09	223.83	119.2	33	66.6	122	133.9
42	-2.17	-2.17	0	4.4	0	2.22	2.22	2.22	2.52	3.51	7.61	180.18	240.96	120.8	33	67.3	122.4	135.6
43	-3.48	-3.48	0	5.69	0.18	2.21	2.21	2.21	1.03	3.08	2.39	180.1	233.97	118.9	33.1	66.7	121.2	136.5
44	-2.99	-2.99	0	5.21	0.16	2.22	2.22	2.22	1.72	4.29	7.39	180.65	236.52	121.2	33.1	67.1	122.6	136
45	-5.84	-5.84	0	8.06	2.63	2.22	2.22	2.22	3.41	11.01	35.67	180.11	233.77	119.2	33	66.9	121.7	135.9
46	-2.89	-2.89	0	5.1	0	2.2	2.2	2.2	2.83	5.42	11	180.26	236.17	119.5	33.1	66.8	121.3	136.6
47	-3.69	-3.69	0	5.93	0.58	2.23	2.23	2.23	0.58	3.05	1.76	180.05	233.93	118.9	33	66.9	121.4	135.8
48	-3.33	-3.33	0	5.57	0.48	2.24	2.24	2.24	0.94	4.61	4.33	180.53	237.29	121.1	33	67.4	122.8	135.8
49	-2.94	-2.94	0	5.12	0.14	2.19	2.19	2.19	1.93	4.45	8.09	180.06	237.63	119.3	33.2	66.8	121.4	135
50	-2.37	-2.37	0	4.56	0	2.19	2.19	2.19	1.41	2.34	3.1	180	226.94	119.3	33.1	66.8	121.3	135.1
51	-3.11	-3.11	0	5.33	0.01	2.23	2.23	2.23	3.4	8.07	26.18	180.14	234.57	121.1	33	67.1	122.7	135.9
52	-3.05	-3.05	0	5.28	0.1	2.23	2.23	2.23	4.33	10.04	30.07	180.19	235.07	121.2	33	67.2	122.7	136
53	-2.74	-2.74	0	4.98	0	2.24	2.24	2.24	3.44	8.05	14.11	180.22	235.02	121.2	33	67.4	122.6	135.6
54	-6.14	-6.14	0	8.37	3.01	2.23	2.23	2.23	3.53	17.5	61.31	180.59	233.92	119.9	33	67	122.6	136.5
55	-6.75	-6.75	0	9	3.82	2.25	2.25	2.25	4.54	23.87	103.94	180.53	239.61	120.8	33	67.2	122.9	136.4
56	-6.16	-6.16	0	8.41	3.21	2.25	2.25	2.25	3.16	16.53	48.51	180.52	240.19	121	33.1	67.3	122.1	136.4
57	-6.2	-6.2	0	8.46	3.33	2.26	2.26	2.26	1.86	11.01	17.03	180.19	237.9	121.2	33.1	67.4	122.5	136.5
58	-1.97	-1.97	0	4.24	0	2.27	2.27	2.27	1.53	6.4	9.81	180.24	230.3	121.3	33.1	67.4	122.4	136.4
59	-6.07	-6.07	0	8.34	3.22	2.27	2.27	2.27	3.11	15.04	46.82	180.43	237.37	121.8	33.1	67.4	122.8	136.7
60	-4.72	-4.72	0	6.99	1.87	2.27	2.27	2.27	2.17	7.09	15.01	180.48	237.43	121.6	33.1	67.4	122.8	136.6
61	-4.48	-4.48	0	6.78	1.6	2.3	2.3	2.3	0.81	4.83	3.93	180.65	237.46	121	33	67.6	122.5	135.6
62	-5.78	-5.78	0	8.03	2.91	2.25	2.25	2.25	1.58	8.7	13.73	180.34	237.58	121.2	33	67.5	122.9	137.9
63	-5.69	-5.69	0	7.94	2.82	2.25	2.25	2.25	2.44	11.55	28.2	180.48	237.64	121.1	33.1	67.4	122.6	136.1
64	-1.46	-1.46	0	3.76	0	2.3	2.3	2.3	0.66	1.19	0.64	180.86	222.24	120.9	33	67.5	122.5	135.7
65	-2.07	-2.07	0	4.36	0	2.29	2.29	2.29	0.79	2.03	1.59	180.66	227.47	121	33	67.6	122.6	135.8
66	-2.96	-2.96	0	5.17	0	2.21	2.21	2.21	1.86	4.97	8.78	174.83	233.37	112.3	26.8	61.5	113.2	138.6
67	-0.41	-0.41	0	2.66	0	2.24	2.24	2.24	1.4	0.99	0.81	174.99	364.2	112	26.9	61.1	113.2	137
68	-0.46	-0.46	0	2.67	0	2.21	2.21	2.21	1.93	1.9	2.16	174.84	127.53	112.2	26.8	64.6	113.2	138.6
69	-16	-16	0	18.19	12.45	2.2	2.2	2.2	4.97	69.55	344.45	174.31	230.53	111.8	26.5	60.7	114	140.7
70	-5.37	-5.37	0	7.58	1.76	2.21	2.21	2.21	5.99	19.72	101.61	174.23	122.59	111.8	26.1	59.9	112.5	139.1

Gauge	B0	B	dzi	max h	min h	max zeta	max Δh	max eta post-quake	max s	max hs	max hss	tmax	tmin	tfirstPOS	tfirstNEG	tfirstDRAW	tfirstADVIS	tfirstWARN
71	-4.82	-4.82	0	7.11	1.37	2.29	2.29	2.29	3.46	17.63	60.92	174.33	230.48	110.1	25.9	60	111	138.2
72	2.06	2.06	0	0.15	0	0.15	0.15	2.21	0.58	0.07	0.03	174.71	0	173.5	n/a	n/a	n/a	n/a
73	-12.38	-12.38	0	14.67	8.94	2.29	2.29	2.29	2.1	26.42	55.44	174.3	230.5	110.1	25.9	60	111.1	138.2
74	-9.38	-9.38	0	11.66	5.91	2.29	2.29	2.29	1.94	18.43	35.79	174.51	230.55	110.1	25.9	60	111.3	138.1
75	-10.99	-10.99	0	13.24	7.5	2.25	2.25	2.25	3.01	31.26	88.35	174.43	230.73	110.5	25.8	59.9	112	139.2
76	-13.03	-13.03	0	15.18	9.55	2.15	2.15	2.15	5.33	68.05	362.42	174.44	230.95	110.3	25.5	59.4	111.9	136.8
77	-8.71	-8.71	0	10.82	4.84	2.11	2.11	2.11	6.33	49.87	315.87	173.82	215.92	109.8	25	57.8	111.1	138
78	-1.74	-1.74	0	3.88	0	2.14	2.14	2.14	2.42	8.42	19.42	174.75	124.16	110.2	25	57.7	111.5	137.2
79	2.11	2.11	0	0.19	0	0.19	0.19	2.31	0.67	0.06	0.04	175.35	0	174.5	n/a	n/a	n/a	n/a
80	-4.12	-4.12	0	6.16	0.56	2.04	2.04	2.04	4.5	22.19	82.2	173.32	217.59	109.4	24.9	57.7	110.8	138
81	-0.69	-0.69	0	2.81	0	2.12	2.12	2.12	1.56	3.9	5.63	174.69	528.61	109.5	26	62.1	110.7	137.3
82	-10.37	-10.37	0	12.45	6.89	2.07	2.07	2.07	6.29	58.14	349.79	173.73	217.44	109.3	24.8	57.8	110.5	138
83	-7.23	-7.23	0	9.38	3.73	2.14	2.14	2.14	5.31	38.02	183.35	174.08	231.56	108.9	24.6	57.6	110.2	137.9
84	-1.6	-1.6	0	3.96	0	2.36	2.36	2.36	2	7.75	15.18	174.15	227.65	108.6	24.2	57.6	109.7	112
85	1.54	1.54	0	0.65	0	0.65	0.65	2.19	2.15	0.74	1.47	174.44	0	171.5	n/a	n/a	172	n/a
86	-2.96	-2.96	0	5.3	0	2.34	2.34	2.34	2.56	10.08	21.46	173.77	233.36	108.4	23.9	57.4	109.5	112
87	-6.6	-6.6	0	8.84	3.22	2.24	2.24	2.24	4.85	34.13	162.01	173.69	217.08	108.5	24	57.3	109.5	112.4
88	-2.83	-2.83	0	5.09	0	2.27	2.27	2.27	2.25	8.15	15.62	174.85	218.92	108.3	23.9	57.3	109.3	113.9
89	2.34	2.34	0	0.14	0	0.14	0.14	2.48	1.94	0.27	0.53	174.39	0	173.8	n/a	n/a	n/a	n/a
90	-2.89	-2.89	0	5.51	0	2.63	2.63	2.63	3.15	17.08	53.84	174.08	233.56	107.8	23.5	56.7	108.6	110.6
91	-10.21	-10.21	0	12.83	6.85	2.62	2.62	2.62	6.26	60.57	357.7	174.54	215.78	107.6	23.5	56.6	108.5	110.9
92	-9.75	-9.75	0	12.37	6.42	2.62	2.62	2.62	6.13	57.09	330.39	174.54	215.78	107.6	23.5	56.7	108.5	110.8
93	-1.99	-1.99	0	4.67	0	2.68	2.68	2.68	1.7	2.74	2.18	173.97	209.17	107.5	23.5	56.9	108.5	110.6
94	-5.28	-5.28	0	7.93	1.87	2.65	2.65	2.65	2.9	22.17	62.24	174.29	215.95	107.5	23.4	56.8	108.3	111.1
95	-9.36	-9.36	0	11.94	6.04	2.58	2.58	2.58	5.45	51.26	272.96	174.25	216.57	107.8	23.6	56.8	108.7	110.9
96	-8.24	-8.24	0	10.82	4.9	2.58	2.58	2.58	4.95	42.57	208	174.23	216.55	107.8	23.6	56.8	108.7	110.8
97	-3.15	-3.15	0	5.83	0	2.68	2.68	2.68	4.49	18.34	81.23	173.95	215.66	107.5	23.4	56	108.5	110.8
98	-3.02	-3.02	0	5.7	0	2.68	2.68	2.68	4.64	17.61	75.75	173.96	233.2	107.4	23.3	55.1	108.5	110.6
99	-2.94	-2.94	0	5.38	0	2.44	2.44	2.44	3.77	15.1	56.12	174.09	231.84	107.9	23.8	56.8	108.9	111.1
100	-6.64	-6.64	0	9.09	3.15	2.45	2.45	2.45	5.23	37.19	187.45	174.08	216.19	107.9	23.8	56.5	109	111.2
101	-2.22	-2.22	0	4.66	0	2.45	2.45	2.45	5.59	14.24	77.74	174.1	208.72	108	23.8	56.2	109.1	112
102	-3.87	-3.87	0	7.21	0.28	3.34	3.34	3.34	1.81	11.54	18.91	116.37	211.31	104.7	21.4	53.6	105.5	107.1
103	-7.34	-7.34	0	10.63	3.67	3.29	3.29	3.29	3.78	34.65	125	116.73	211.39	104.7	21.3	53.6	105.5	107.2
104	-3.69	-3.69	0	6.82	0.03	3.14	3.14	3.14	2.18	14.57	31.73	117.48	211.78	104.6	21.4	53.5	105.4	106.9
105	-6.67	-6.67	0	9.97	2.92	3.3	3.3	3.3	3.66	32.15	116.83	116.96	211.34	104.5	21.2	53.4	105.4	107.1
106	-9.92	-9.92	0	13.24	6.24	3.32	3.32	3.32	3.6	42.08	145.6	116.91	211.11	104.6	21.2	53.5	105.4	107.1

Gauge	B0	B	dzi	max h	min h	max zeta	max Δh	max eta post-quake	max s	max hs	max hss	tmax	tmin	tfirstPOS	tfirstNEG	tfirstDRAW	tfirstADVIS	tfirstWARN
107	-2.98	-2.98	0	6.22	0.57	3.23	3.23	3.23	1.96	4.72	9.21	116.47	216.08	104.6	21.1	53.4	105.5	107.2
108	-1.42	-1.42	0	5.03	0	3.61	3.61	3.61	2.07	10.41	21.55	116.41	201.68	104.1	20.8	52.9	105	106.7
109	-5.37	-5.37	0	8.68	1.66	3.31	3.31	3.31	3.6	27.33	98.06	116.59	211.24	104.6	21.1	53.2	105.6	107.2
110	-3.88	-3.88	0	7.86	0.59	3.98	3.98	3.98	1.72	11.13	17.46	115.07	208.34	102.5	19	51.4	103.4	105.1
111	-4.86	-4.86	0	8.87	1.57	4.01	4.01	4.01	1.55	10.62	13.74	115.07	208.33	102.5	19.1	51.5	103.4	105.2
112	-3.55	-3.55	0	7.59	0.26	4.04	4.04	4.04	1.62	8.08	10.36	115.01	208.34	102.5	19.1	51.7	103.4	105.2
113	-9.43	-9.43	0	13.4	6.14	3.97	3.97	3.97	1.22	15.47	18.8	115.1	208.43	102.5	19	51.4	103.4	105.1
114	2.74	2.74	0	1.22	0	1.22	1.22	3.95	1.6	1.8	2.87	115.06	0	110.1	n/a	n/a	111	113.4
115	-4.45	-4.45	0	10.09	1.39	5.65	5.65	5.65	6.43	28.55	170.6	112.67	199.37	97	19	39.2	97.9	99.6
116	-2.24	-2.24	0	7.68	1	5.45	5.45	5.45	2.57	19.17	49.32	111.64	89.76	101.7	19.3	41.3	102.3	103.6
117	-3.57	-3.57	0	9.1	1.99	5.53	5.53	5.53	2.58	21.36	52.25	111.93	89.47	102.7	19.1	41.2	103.3	104.1
118	-3.54	-3.54	0	9.2	1.95	5.66	5.66	5.66	0.87	7.89	6.88	112.02	90.19	101.6	19.9	40.8	102.3	103.6
119	-3.56	-3.56	0	9.42	1.98	5.85	5.85	5.85	1.55	12.38	19.16	111.43	89.75	101.5	19.5	40.9	102.1	103.3
120	-3.89	-3.89	0	9.55	2.31	5.66	5.66	5.66	1	7.96	7.98	110.88	89.86	102.1	19.3	41.1	102.9	104.1
121	-3.71	-3.71	0	9.33	2.13	5.62	5.62	5.62	0.74	6.84	5.06	112.23	89.34	102.2	19	41	103	104.3
122	-27.28	-27.28	0	32.59	23.88	5.3	5.3	5.3	3.56	85.36	304.12	112.5	197.85	96.2	19	40	97.1	98.6
123	-16.91	-16.91	0	20.58	13	3.67	3.67	3.67	5.52	71.84	396.32	116.61	208.79	103.8	20.4	52.9	104.6	106.3
124	-26.2	-26.2	0	28.69	22.79	2.49	2.49	2.49	7.09	177.25	1247.54	174.36	215.46	107.7	23.6	56.5	108.6	110.8
125	-24.97	-24.97	0	27.06	21.63	2.09	2.09	2.09	5.31	131.28	696.8	174.74	230.18	113.1	27.7	62.3	133.2	138.4
126	-20.11	-20.11	0	21.95	16.63	1.83	1.83	1.83	2.15	45.17	97.05	178.72	223.57	119.1	32.7	66.1	121.7	134.2
127	-2.51	-2.51	0	4.69	0	2.17	2.17	2.17	1.42	1.42	0.59	176.28	235.66	113.9	29.6	64.2	116.1	136.4
128	3.79	3.79	0	0.36	0	0.36	0.36	4.15	0.83	0.25	0.2	114.75	0	113.4	n/a	n/a	114.4	n/a
129	1.11	1.11	0	3.1	0	3.1	3.1	4.21	2.6	4.7	10.46	114.54	0	106	n/a	n/a	106.8	108.5
130	2.69	2.69	0	0	0	0	0	2.69	0	0	0	0	0	n/a	n/a	n/a	n/a	n/a
131	2.33	2.33	0	0.09	0	0.09	0.09	2.42	0.49	0.04	0.02	181.61	0	181.3	n/a	n/a	n/a	n/a
132	1.34	1.34	0	1	0	1	1	2.34	1.2	1.08	1.2	181.19	0	175.9	n/a	n/a	176.8	179.5
133	-2.89	-2.89	0	5.18	0.18	2.28	2.28	2.28	3	8.82	23.22	179.93	237.96	121.2	33	67.5	122.8	136
134	3.22	3.22	0	0	0	0	0	3.22	0	0	0	0	0	n/a	n/a	n/a	n/a	n/a
135	-3.83	-3.83	0	6.1	0.35	2.27	2.27	2.27	1.88	8.32	15.31	174.64	230.09	111.5	27	61.3	112.7	138.5
136	2.1	2.1	0	0	0	0	0	2.1	0	0	0	0	0	n/a	n/a	n/a	n/a	n/a
137	-8.52	-8.52	0	10.82	5.17	2.3	2.3	2.3	5.23	45.48	237.64	174.73	216.65	108.2	23.8	57.1	109.3	112.4
138	-6.5	-6.5	0	9.03	3.1	2.53	2.53	2.53	4.09	29.07	118.92	174.23	216.52	108	23.8	56.9	109	111.2
139	-3.01	-3.01	0	5.69	0	2.68	2.68	2.68	2.12	11.73	24.89	174.34	217.71	107.7	23.4	56.8	108.5	110.4
140	-2.85	-2.85	0	5.51	0	2.66	2.66	2.66	2.23	12.23	27.27	174	218.14	108.4	23.8	56.9	109.7	112.1
141	-19.64	-19.64	0	21.61	15.91	1.97	1.97	1.97	1.55	27.62	40.46	179.86	224.41	118.7	33.3	66.4	120.9	132.9
142	-15.68	-15.68	0	17.65	11.9	1.97	1.97	1.97	1.5	24.41	34.14	179.9	224.39	118.8	33.3	66.4	120.9	132.9

Gauge	B0	B	dzi	max h	min h	max zeta	max Δh	max eta post-quake	max s	max hs	max hss	tmax	tmin	tfirstPOS	tfirstNEG	tfirstDRAW	tfirstADVIS	tfirstWARN
143	1.72	1.72	0	2.34	0	2.34	2.34	4.06	0.54	1.2	0.62	115.77	0	107.6	n/a	n/a	108.3	109.8
144	0.65	0.65	0	2.13	0	2.13	2.13	2.78	0.65	1.3	0.85	111.42	0	105.8	n/a	n/a	106.5	108.1
145	-9.57	-9.57	0	13.5	6.29	3.93	3.93	3.93	1.5	14.5	21.41	115.11	208.36	102.4	19.3	51.3	103.3	105.1
146	-15.81	-15.81	0	19.77	12.53	3.96	3.96	3.96	1.98	35.8	70.74	115.1	208.29	102.5	19.3	51.4	103.4	105.1
147	-14.54	-14.54	0	18.52	11.25	3.98	3.98	3.98	1.4	24.37	34.22	115.34	208.33	102.5	19	51.5	103.4	105.1
148	-10.05	-10.05	0	14.09	6.76	4.03	4.03	4.03	1.11	11.6	11.76	114.94	208.45	102.5	19.1	51.6	103.4	105.2
149	2.99	2.99	0	2.48	0	2.48	2.48	5.47	3.06	4.43	13.35	112.34	0	103.2	n/a	n/a	104	106.2
150	1.74	1.74	0	3.8	0	3.8	3.8	5.54	3.02	6.63	19.76	110.43	0	103.6	n/a	n/a	103.8	104.6
151	-3.11	-3.11	0	7.28	0	4.17	4.17	4.17	0.87	6.18	5.36	114.08	206.1	99.6	19	45.7	100.5	102.2
152	10.33	10.33	0	0	0	0	0	10.33	0	0	0	0	0	n/a	n/a	n/a	n/a	n/a
153	1.91	1.91	0	0.32	0	0.32	0.32	2.23	1.01	0.18	0.18	183.2	0	180.9	n/a	n/a	182.2	n/a
154	-10.94	-10.94	0	13.41	7.45	2.47	2.47	2.47	5.7	62.55	342.72	174.06	216.21	108	23.7	56.6	108.9	111
155	1.14	1.14	0	1.29	0	1.29	1.29	2.44	1.81	1.94	3.06	183.52	0	143.6	n/a	n/a	151.1	180.9

Scenario: Cascadia subduction zone, mean low water

Gauge	B0	B	dzi	max h	min h	max zeta	max Δh	max eta post-quake	max s	max hs	max hss	tmax	tmin	tfirstPOS	tfirstNEG	tfirstDRAW	tfirstADVIS	tfirstWARN
1	-11.03	-11.03	0	13.24	6.12	2.22	2.22	2.22	2.08	27.51	57.27	118.93	209.63	103.2	19.4	51.1	104.1	105.8
2	-10.34	-10.34	0	11.45	4.77	1.11	1.11	1.11	5.94	53.15	305.93	174.98	234.79	108.3	23.8	56	109.2	111.4
3	-18.08	-18.08	0	18.9	12.35	0.82	0.82	0.82	6.51	99.18	645.37	176.11	233.41	111.4	25.9	58	113.1	140.2
4	-4.49	-4.49	0	5.08	0.37	0.59	0.59	0.59	1.35	4.44	5.98	182.46	238.67	120.2	33.9	63.1	121.9	131.3
5	-3.76	-3.76	0	4.55	0.29	0.79	0.79	0.79	1.93	7.11	11.92	186.2	517.61	122.5	36.2	63.8	123.8	128.5
6	-0.75	-0.75	0	1.85	0	1.08	1.08	1.1	1.56	1.85	2.27	188.64	0	136.5	n/a	n/a	137.8	186.5
7	1.21	1.21	0	0	0	0	0	1.21	0	0	0	0	0	n/a	n/a	n/a	n/a	n/a
8	-0.53	-0.53	0	1.51	0	0.99	0.99	0.99	1.11	1.09	0.79	189.62	0	140	n/a	n/a	141.7	187
9	-13.47	-13.47	0	13.88	7.24	0.41	0.41	0.41	3.21	23.83	76.47	181.58	226.12	118.8	33.8	63.7	120.5	127.7
10	-16.12	-16.12	0	16.54	9.86	0.42	0.42	0.42	1.49	16.66	24.79	181.56	225.91	118.8	33.9	63.7	120.4	127.3
11	-15.55	-15.55	0	15.98	9.29	0.43	0.43	0.43	1.67	17.65	29.42	181.56	225.91	118.8	33.9	63.7	120.4	127.3
12	-15.17	-15.17	0	15.6	8.9	0.43	0.43	0.43	1.93	19.24	37.05	181.36	225.82	118.8	33.9	63.8	120.4	127
13	-13.84	-13.84	0	14.28	7.56	0.44	0.44	0.44	2.3	19.92	45.83	181.35	225.94	118.8	34	63.7	120.4	126.2
14	-3.99	-3.99	0	4.43	0.09	0.44	0.44	0.44	2.15	7.37	12.79	182.74	238	120.3	34.3	63.7	121.9	128.2
15	-8.38	-8.38	0	8.95	3.67	0.57	0.57	0.57	4.23	17.09	70.62	182.83	236.44	120.1	34.7	63.7	121.3	126.4
16	-6.36	-6.36	0	6.97	1.62	0.61	0.61	0.61	3.99	10.02	37.51	183.15	237.23	120.3	34.9	63.7	121.5	126.5
17	-5.82	-5.82	0	6.43	1.18	0.61	0.61	0.61	3.2	9.17	22.43	183.13	236.62	120.4	34.9	63.7	121.6	126.7
18	-2.99	-2.99	0	3.7	0	0.7	0.7	0.7	1.2	4.28	5.07	183.36	116.74	121.9	35.6	63.7	123.1	128
19	-1.79	-1.79	0	2.41	0	0.7	0.7	0.63	1.29	2.91	3.75	183.52	89.09	122.6	35.6	n/a	123.5	128.9
20	-0.8	-0.8	0	1.54	0	0.72	0.72	0.74	0.92	1.25	1.08	183.04	0	126.1	n/a	n/a	129.3	179.5
21	-14.99	-14.99	0	15.41	8.59	0.42	0.42	0.42	4.2	40.09	168.23	181.05	225.32	119	34.2	64	120.4	125.7
22	-14.93	-14.93	0	15.35	8.66	0.42	0.42	0.42	2.29	22.93	52.46	181.18	227.13	119	34.3	64	120.4	125.6
23	-15.86	-15.86	0	16.28	9.55	0.43	0.43	0.43	2.49	27.24	67.87	181.19	227.17	119	34.3	64	120.4	125.6
24	-13.96	-13.96	0	14.38	7.67	0.42	0.42	0.42	1.79	16.49	29.58	181.21	227.16	119	34.3	64	120.4	125.6
25	-9.9	-9.9	0	10.34	3.57	0.44	0.44	0.44	1.14	7.36	6.67	181.28	227	119.1	34.4	64	120.5	125.7
26	-4.59	-4.59	0	5.04	0.37	0.45	0.45	0.45	1.47	4.61	5.5	182.35	225.57	119.6	34.5	64	120.8	126
27	-4.45	-4.45	0	4.93	0.83	0.48	0.48	0.48	1.43	4.41	4.85	181.9	237.29	119.7	34.7	64	121	126.2
28	-3.67	-3.67	0	4.21	0.29	0.54	0.54	0.54	1.24	3.09	2.88	182.26	237.23	119.8	34.8	63.9	120.8	124.6
29	-2.67	-2.67	0	3.26	0	0.59	0.59	0.59	1.16	2.36	2.08	181.89	529.03	119.7	35	63.4	120.9	125.1
30	-2.87	-2.87	0	3.45	0	0.59	0.59	0.59	1.18	2.57	2.29	181.89	380.19	119.8	34.9	63.5	120.9	125.1
31	-2.28	-2.28	0	2.89	0	0.61	0.61	0.61	0.9	1.89	1.54	181.91	535.64	119.6	35	63.3	120.8	125.3
32	-4.47	-4.47	0	5.16	0.43	0.69	0.69	0.69	1.85	3.82	3.59	181.99	241.01	120.1	34.5	63.4	121.5	129.3
33	-4.03	-4.03	0	4.72	0	0.69	0.69	0.69	1.55	3.8	3.21	181.94	241.25	120.1	34.6	63.4	121.5	129.5
34	-4.2	-4.2	0	4.9	0.09	0.7	0.7	0.7	1.6	3.86	4.74	182.38	240.48	120.2	34.8	63.5	121.4	129.7

Gauge	B0	B	dzi	max h	min h	max zeta	max Δh	max eta post-quake	max s	max hs	max hss	tmax	tmin	tfirstPOS	tfirstNEG	tfirstDRAW	tfirstADVIS	tfirstWARN
35	-4.17	-4.17	0	4.88	0.06	0.71	0.71	0.71	1.48	3.69	3.51	182.41	240.49	120.2	34.8	63.5	121.4	129.8
36	-3.84	-3.84	0	4.56	0.11	0.71	0.71	0.71	1.94	3.35	2.71	182.01	244.56	120.1	34.7	63.4	121.4	129.7
37	-2.54	-2.54	0	3.28	0.03	0.74	0.74	0.74	1.26	1.41	0.73	181.95	535.77	119.9	34.7	63.4	121.3	128.6
38	-2.75	-2.75	0	3.47	0.02	0.71	0.71	0.71	1.44	2.36	1.69	181.59	527.09	120.1	34.5	63.3	121.3	129.7
39	-2.42	-2.42	0	3.07	0	0.65	0.65	0.65	0.92	2.34	1.93	182.75	85.78	120.4	34.1	63.2	121.5	129.4
40	-2.55	-2.55	0	3.2	0	0.66	0.66	0.66	0.98	1.69	1.25	182.78	531.99	120.9	34.2	63.2	122.1	130.1
41	-2.63	-2.63	0	3.22	0	0.6	0.6	0.6	1.21	2.35	2.82	182.18	526.18	120.2	33.8	63	122.1	131.3
42	-2.17	-2.17	0	2.87	0	0.69	0.69	0.69	1.76	3.51	5.57	183.98	78.69	122.6	34.2	63.2	126.1	132.5
43	-3.48	-3.48	0	4.11	0	0.63	0.63	0.63	1.04	3.33	3.48	182.05	225.85	119.9	34	62.9	121.6	129
44	-2.99	-2.99	0	3.65	0.03	0.66	0.66	0.66	1.54	5.31	8.19	184.99	526.71	123.7	34.2	63.3	125.5	131.4
45	-5.84	-5.84	0	6.46	1.48	0.63	0.63	0.63	3.71	10.12	32.82	181.79	238.38	120.4	34	63	122.1	129.2
46	-2.89	-2.89	0	3.55	0	0.66	0.66	0.66	2.5	5.65	11.12	182.91	522.29	121.6	34.1	63	122.7	130.7
47	-3.69	-3.69	0	4.36	0	0.66	0.66	0.66	0.62	2.66	1.64	181.5	229.76	119.9	34	63	121.6	128.7
48	-3.33	-3.33	0	4.01	0	0.68	0.68	0.68	0.86	2.53	2.09	184.88	511.21	125.3	34.2	63.3	127	131.1
49	-2.94	-2.94	0	3.61	0.09	0.68	0.68	0.68	1.68	2.93	4.47	182.69	525.01	120.6	34.2	63.2	122.1	130.1
50	-2.37	-2.37	0	3.03	0	0.66	0.66	0.66	1.17	1.88	1.64	183.09	246.65	120.7	34.2	63.2	122.2	130.1
51	-3.11	-3.11	0	3.75	0	0.64	0.64	0.64	3.26	9.8	30.24	184.28	227.14	122	34.1	62.9	125.2	132.5
52	-3.05	-3.05	0	3.71	0	0.66	0.66	0.66	3.46	8.49	25.88	184.02	520.59	125	34.1	62.9	126.7	132.6
53	-2.74	-2.74	0	3.41	0	0.68	0.68	0.68	3.14	2.98	7.95	185.18	499.36	125.3	34.2	63.3	127	132.6
54	-6.14	-6.14	0	6.75	2.01	0.61	0.61	0.61	4.82	17.23	71.53	181.67	238.83	122.4	34	62.9	124.8	131.7
55	-6.75	-6.75	0	7.39	3.01	0.64	0.64	0.64	4.76	24.46	100.14	184.85	238.99	124.5	34.2	63.2	126.3	131.5
56	-6.16	-6.16	0	6.84	2.48	0.67	0.67	0.67	4.76	14.75	70.22	184.79	241.05	125.1	34.2	63.3	126.6	130.7
57	-6.2	-6.2	0	6.95	2.49	0.75	0.75	0.75	2.23	14.43	32.23	184.33	241.88	124	34.3	63.3	125.5	131.2
58	-1.97	-1.97	0	2.72	0	0.75	0.75	0.75	1	2.3	2.26	184.28	357.14	123.9	34.3	63.3	125.4	131.2
59	-6.07	-6.07	0	6.72	2.38	0.64	0.64	0.64	3.93	13.04	51.22	184.72	241.62	126.9	34.2	63.3	127.9	132.4
60	-4.72	-4.72	0	5.39	1.01	0.67	0.67	0.67	2.72	7.83	21.03	184.19	241.58	126	34.2	63.3	127.6	131.7
61	-4.48	-4.48	0	5.22	0.77	0.73	0.73	0.73	0.66	2.54	1.6	184.89	242.67	124.9	34.3	63.3	126.5	131.8
62	-5.78	-5.78	0	6.43	2.08	0.64	0.64	0.64	1.69	9.41	15.88	184.71	241.44	125.6	34.3	63.3	127.4	133.6
63	-5.69	-5.69	0	6.36	1.98	0.67	0.67	0.67	2.81	11.19	31.48	184.23	242.1	124.5	34.3	63.3	125.7	131.3
64	-1.53	-1.53	0	2.18	0	0.72	0.72	0.65	0.99	0.82	0.81	185.15	0	125.3	n/a	n/a	127.2	134.4
65	-2.07	-2.07	0	2.77	0	0.7	0.7	0.7	0.89	2.42	2.16	185.29	282.14	124.9	34.3	63.3	126.3	131.6
66	-2.96	-2.96	0	3.61	0	0.65	0.65	0.65	1.77	4.07	5.6	175.81	495.97	113.3	27.4	59.8	116.7	137.7
67	-0.41	-0.41	0	1.09	0	0.67	0.67	0.68	1.46	0.74	1.06	175.52	0	132	n/a	n/a	132	142.8
68	-0.59	-0.59	0	1.1	0	0.63	0.63	0.51	1.24	0.61	0.48	175.82	0	139.3	n/a	n/a	139.6	174.9
69	-16	-16	0	16.68	10.46	0.68	0.68	0.68	6.4	77	491.41	176.39	232.38	112.9	27	59.1	116.5	137.7
70	-5.37	-5.37	0	6.11	0.06	0.75	0.75	0.75	6.64	15.36	53.43	175.8	233.22	113.1	26.5	58.9	113.9	137.1

Gauge	B0	B	dzi	max h	min h	max zeta	max Δh	max eta post-quake	max s	max hs	max hss	tmax	tmin	tfirstPOS	tfirstNEG	tfirstDRAW	tfirstADVIS	tfirstWARN
71	-4.82	-4.82	0	5.71	0	0.89	0.89	0.89	1.77	9.59	16.39	176.5	220.48	111.2	26.4	58.9	112	136.8
72	2.06	2.06	0	0	0	0	0	2.06	0	0	0	0	0	n/a	n/a	n/a	n/a	n/a
73	-12.38	-12.38	0	13.21	6.66	0.83	0.83	0.83	1.9	19.64	35.45	176.51	233.06	111.2	26.4	58.9	112	135.5
74	-9.38	-9.38	0	10.3	3.76	0.92	0.92	0.92	1.52	13.59	18.37	176.5	233.36	111.2	26.4	58.9	112.2	136.9
75	-10.99	-10.99	0	11.86	5	0.87	0.87	0.87	3.12	31.94	86.68	176.35	233.55	111.8	26.3	58.9	112.9	138.1
76	-13.03	-13.03	0	13.85	7.17	0.81	0.81	0.81	5.18	56.79	293.91	176.2	232.47	111.7	26	58	115.2	138.3
77	-8.71	-8.71	0	9.57	2.77	0.86	0.86	0.86	5.5	35.94	187.78	176.21	233.37	111.1	25.4	57.1	133.3	137.6
78	-1.81	-1.81	0	2.59	0	0.86	0.86	0.78	2.18	5.38	11.74	176.26	246.06	111.5	25.5	n/a	133.8	138.3
79	2.11	2.11	0	0	0	0	0	2.11	0	0	0	0	0	n/a	n/a	n/a	n/a	n/a
80	-4.12	-4.12	0	4.99	0	0.87	0.87	0.87	2.9	13.42	38.97	176.4	229.98	110.7	25.3	57.1	112.4	137.5
81	-0.84	-0.84	0	1.58	0	0.89	0.89	0.74	0.65	0.79	0.51	176.47	0	135.8	n/a	n/a	138.5	173.1
82	-10.37	-10.37	0	11.26	4.56	0.89	0.89	0.89	5.77	46.86	267.08	175.92	233.66	110.5	25.2	57.2	112.3	137.6
83	-7.23	-7.23	0	8.16	1.38	0.93	0.93	0.93	4.65	26.96	118.48	175.33	233.83	110.2	25.1	57	111.4	138.5
84	-1.3	-1.3	0	2.56	0	0.96	0.96	1.26	1.29	2.59	3.33	175.36	0	110.5	n/a	n/a	110.5	113.6
85	1.54	1.54	0	0	0	0	0	1.54	0	0	0	0	0	n/a	n/a	n/a	n/a	n/a
86	-2.96	-2.96	0	3.94	0	0.98	0.98	0.98	1.51	3.35	4.58	175.42	91.74	109.5	24.5	56.9	110.5	113.2
87	-6.6	-6.6	0	7.57	0.68	0.97	0.97	0.97	4.37	24.56	106.58	175.38	233.27	109.7	24.6	56.8	110.8	137.2
88	-2.83	-2.83	0	3.82	0	0.99	0.99	0.99	1.17	2.9	3.39	176.2	520.13	109.6	24.4	57	110.4	114.5
89	2.34	2.34	0	0	0	0	0	2.34	0	0	0	0	0	n/a	n/a	n/a	n/a	n/a
90	-2.89	-2.89	0	3.97	0	1.08	1.08	1.08	3.36	5.54	12.87	174.67	125.78	108.9	24.1	56.2	109.8	111.8
91	-10.21	-10.21	0	11.28	4.6	1.07	1.07	1.07	5.67	50.04	281.94	174.97	234.62	108.6	24.1	56.2	109.5	111.6
92	-9.75	-9.75	0	10.82	4.19	1.07	1.07	1.07	5.46	46.05	251.21	174.96	234.7	108.6	24.1	56.2	109.5	111.6
93	-1.99	-1.99	0	3.09	0	1.1	1.1	1.1	1.03	1.67	0.92	174.74	70.15	108.5	23.8	56.2	109.4	111.5
94	-5.28	-5.28	0	6.39	0	1.11	1.11	1.11	2.53	9.71	24.58	174.56	234.6	108.4	24	56.3	109.3	111.8
95	-9.36	-9.36	0	10.41	3.71	1.05	1.05	1.05	4.92	40.53	193.09	174.73	234.5	108.8	24.2	56.3	109.7	111.9
96	-8.24	-8.24	0	9.29	2.54	1.05	1.05	1.05	4.31	33.01	142.2	174.7	234.49	108.8	24.2	56.3	109.7	112
97	-3.15	-3.15	0	4.26	0	1.11	1.11	1.11	3.13	8.6	26.92	174.98	207.73	108.6	23.9	55.8	109.6	111.7
98	-3.02	-3.02	0	4.15	0	1.13	1.13	1.13	3.18	8.3	26.41	174.95	377.69	108.4	23.9	55.7	109.5	111.6
99	-2.94	-2.94	0	3.97	0	1.03	1.03	1.03	4.81	6.89	19.22	175	89.48	108.9	24.4	56.6	109.9	112.4
100	-6.64	-6.64	0	7.65	1.01	1.01	1.01	1.01	4.8	27.43	129.17	174.96	234.59	108.9	24.4	56.3	110	112.7
101	-2.22	-2.22	0	3.2	0	0.99	0.99	0.99	4.49	6.14	27.54	174.96	127.19	109.2	24.4	56.2	111	138.5
102	-3.87	-3.87	0	5.68	0	1.81	1.81	1.81	1.59	8.02	12.45	117.09	206.31	105.5	21.3	54.2	106.3	107.9
103	-7.34	-7.34	0	9.09	1.95	1.74	1.74	1.74	4.15	36.46	151.31	117.17	213.57	105.6	21.6	54.1	106.3	108
104	-3.69	-3.69	0	5.46	0	1.77	1.77	1.77	1.37	6.73	9.23	116.1	218.41	105.5	21.4	54.2	106.2	107.9
105	-6.67	-6.67	0	8.34	1.26	1.67	1.67	1.67	3.55	27.91	99.08	115.6	214.17	105.4	21.5	54	106.2	107.9
106	-9.92	-9.92	0	11.65	4.56	1.73	1.73	1.73	3.4	38.56	130.22	116.42	214.21	105.4	21.5	54	106.2	107.9

Gauge	B0	B	dzi	max h	min h	max zeta	max Δh	max eta post-quake	max s	max hs	max hss	tmax	tmin	tfirstPOS	tfirstNEG	tfirstDRAW	tfirstADVIS	tfirstWARN
107	-2.98	-2.98	0	4.68	0.53	1.69	1.69	1.69	1.35	4.26	4.78	116.11	525.07	105.7	21.5	53.9	106.2	108.5
108	-1.17	-1.17	0	3.51	0	2.09	2.09	2.34	1.36	4.7	6.37	116.98	0	105.9	n/a	n/a	106.2	107.8
109	-5.37	-5.37	0	7.06	0.08	1.69	1.69	1.69	3.3	23.01	75.87	117.2	214.07	105.5	21.5	53.7	106.4	108.1
110	-3.88	-3.88	0	6.09	0	2.21	2.21	2.21	2.31	14.01	32.32	118.3	214.41	103.3	19.3	51.1	104.1	105.8
111	-4.86	-4.86	0	7.17	0.05	2.31	2.31	2.31	1.82	13.06	23.81	118.39	209.51	103.3	19.3	51.1	104.2	105.8
112	-3.55	-3.55	0	5.94	0	2.39	2.39	2.39	1.45	8.59	12.43	118.46	204.49	103.3	19.2	51.1	104.2	105.8
113	-9.43	-9.43	0	11.67	4.52	2.24	2.24	2.24	2.08	24.22	50.34	118.89	209.59	103.3	19.4	51.1	104.1	105.8
114	2.74	2.74	0	0	0	0	0	2.74	0	0	0	0	0	n/a	n/a	n/a	n/a	n/a
115	-4.45	-4.45	0	8.25	1.01	3.81	3.81	3.81	6.61	28.31	159.09	113.49	83.79	97	19	38.5	97.9	99.6
116	-3.01	-3.01	0	6.09	0.7	3.86	3.86	3.09	2.52	10.75	26.71	116.28	525.38	103.5	21.8	48.3	104.3	105.9
117	-3.57	-3.57	0	7.39	1.32	3.82	3.82	3.82	5.8	24.82	143.94	116.67	95.97	103.4	21.7	48.2	104.6	106.7
118	-3.54	-3.54	0	7.58	1.28	4.04	4.04	4.04	0.85	6.02	5.15	116.01	97.84	103.6	21.2	48.7	104.4	105.8
119	-3.56	-3.56	0	7.72	1.31	4.15	4.15	4.15	0.9	6.36	5.74	116.1	97.3	103.5	21.5	48.4	104.4	105.8
120	-3.89	-3.89	0	8.04	1.64	4.15	4.15	4.15	0.57	2.53	1.08	114.77	96.7	103.5	22	48.1	104.6	106.4
121	-3.71	-3.71	0	7.62	1.46	3.91	3.91	3.91	0.77	5.73	4.43	114.93	95.76	104.5	21.6	48.3	105.3	107.1
122	-27.28	-27.28	0	30.84	22.31	3.56	3.56	3.56	3.48	80.53	271.05	112.7	200.79	96.8	19	38.5	97.6	99.3
123	-16.91	-16.91	0	19.01	11.41	2.1	2.1	2.1	5.25	61.81	323.97	117.13	211.84	104.5	20.6	52.8	105.4	107.1
124	-26.2	-26.2	0	27.23	20.69	1.03	1.03	1.03	7.21	170.63	1227.32	175.46	234.61	108.7	24.1	56.2	109.6	111.8
125	-24.97	-24.97	0	25.53	19.53	0.56	0.56	0.56	4.89	113.37	554.17	176.62	231.76	114.4	28.3	60.4	131.2	140.7
126	-20.11	-20.11	0	20.41	14.13	0.3	0.3	0.3	3.04	56.47	171.6	180.77	225.33	118.8	33.3	63.7	120.5	128.9
127	-2.51	-2.51	0	3.07	0	0.55	0.55	0.55	0.98	1.41	0.97	177.46	112.28	114.5	29.2	62.5	117.3	128.9
128	3.79	3.79	0	0	0	0	0	3.79	0	0	0	0	0	n/a	n/a	n/a	n/a	n/a
129	1.11	1.11	0	1.51	0	1.51	1.51	2.62	2.46	2.06	4.82	118.7	0	110.7	n/a	n/a	111.6	113.8
130	2.69	2.69	0	0	0	0	0	2.69	0	0	0	0	0	n/a	n/a	n/a	n/a	n/a
131	2.33	2.33	0	0	0	0	0	2.33	0	0	0	0	0	n/a	n/a	n/a	n/a	n/a
132	1.34	1.34	0	0	0	0	0	1.34	0	0	0	0	0	n/a	n/a	n/a	n/a	n/a
133	-2.89	-2.89	0	3.57	0.03	0.68	0.68	0.68	2.22	7.56	16.79	184.36	242.3	125.3	34.3	63.3	126.8	131.7
134	3.22	3.22	0	0	0	0	0	3.22	0	0	0	0	0	n/a	n/a	n/a	n/a	n/a
135	-3.83	-3.83	0	4.49	0	0.66	0.66	0.66	1.3	3.63	4.72	176.11	226.4	112.5	27.6	59.5	114.7	137.6
136	2.1	2.1	0	0	0	0	0	2.1	0	0	0	0	0	n/a	n/a	n/a	n/a	n/a
137	-8.52	-8.52	0	9.49	2.86	0.97	0.97	0.97	4.62	34.82	157.86	174.66	234.62	109.4	24.4	56.5	110.4	113.7
138	-6.5	-6.5	0	7.55	0.79	1.04	1.04	1.04	3.02	18.71	56.47	174.86	234.08	109.2	24.3	56.4	110	112.3
139	-3.01	-3.01	0	4.11	0	1.1	1.1	1.1	1.36	4.59	5.21	174.65	371.8	108.8	24.1	56.4	109.6	111.2
140	-2.85	-2.85	0	3.87	0	1.02	1.02	1.02	1.01	1.85	1.79	174.99	495.8	109	24.2	56.4	110.1	113
141	-19.64	-19.64	0	20.07	13.5	0.42	0.42	0.42	1.52	21.65	32.68	181.52	226.13	118.7	33.8	63.7	120.4	127.6
142	-15.68	-15.68	0	16.11	9.44	0.42	0.42	0.42	2.69	26.45	71.01	181.61	226.2	118.8	33.8	63.7	120.5	127.7

Gauge	B0	B	dzi	max h	min h	max zeta	max Δh	max eta post-quake	max s	max hs	max hss	tmax	tmin	tfirstPOS	tfirstNEG	tfirstDRAW	tfirstADVIS	tfirstWARN
143	1.72	1.72	0	0.75	0	0.75	0.75	2.47	0.48	0.17	0.06	117.03	0	112.5	n/a	n/a	113.7	n/a
144	0.65	0.65	0	1.48	0	1.48	1.48	2.13	0.46	0.39	0.1	117.09	0	110.7	n/a	n/a	111.3	113.4
145	-9.57	-9.57	0	11.66	4.68	2.09	2.09	2.09	2.57	29.81	76.46	116.52	209.73	103.2	19.4	51	104.1	105.8
146	-15.81	-15.81	0	17.93	10.91	2.12	2.12	2.12	3.56	48.68	173.21	119.08	209.96	103.2	19.5	51	104.1	105.8
147	-14.54	-14.54	0	16.78	9.63	2.24	2.24	2.24	2.81	35.72	100.3	119	209.68	103.3	19.7	51.1	104.2	105.8
148	-10.05	-10.05	0	12.43	5.12	2.38	2.38	2.38	1.58	14.94	23.22	117.58	209.65	103.3	19.7	51.2	104.2	105.8
149	2.99	2.99	0	0.74	0	0.74	0.74	3.73	1.83	1.28	2.34	115.43	0	107.5	n/a	n/a	109	n/a
150	1.74	1.74	0	2	0	2	2	3.74	1.86	2.93	5.39	114.6	0	107.8	n/a	n/a	108.2	109.3
151	-3.11	-3.11	0	5.67	0	2.55	2.55	2.55	1.11	3.09	1.95	114.99	213.19	100.2	19	46.3	101.2	102.9
152	10.33	10.33	0	0	0	0	0	10.33	0	0	0	0	0	n/a	n/a	n/a	n/a	n/a
153	1.91	1.91	0	0	0	0	0	1.91	0	0	0	0	0	n/a	n/a	n/a	n/a	n/a
154	-10.94	-10.94	0	11.92	5.39	0.99	0.99	0.99	5.82	53.73	299.92	174.9	234.85	108.9	24.3	56.4	109.8	112.2
155	1.14	1.14	0	0.01	0	0.01	0.01	1.16	0.25	0	0	185.66	0	n/a	n/a	n/a	n/a	n/a

Scenario: Alaska-Aleutian subduction zone, mean high water

Gauge	B0	B	dzi	max h	min h	max zeta	max eta post-quake	max s	max hs	max hss	tmax	tmin	tfirstPOS	tfirstNEG	tfirstDRAW	tfirstADVIS	tfirstWARN
1	-11.03	-11.03	0	12.33	9.86	1.31	1.31	1.38	15.6	21.42	315.65	399.65	290.3	342.2	344.5	300.1	307.5
2	-10.34	-10.34	0	11.2	8.85	0.86	0.86	3.48	33.1	115.24	511.7	425.96	294.5	359.7	367.5	304.5	n/a
3	-18.08	-18.08	0	18.9	16.41	0.83	0.83	3.47	59.1	205.16	489.22	424.62	295.7	363.3	370.8	307.1	n/a
4	-4.49	-4.49	0	5.82	2.72	1.33	1.33	0.58	2.43	1.38	493.66	420.24	301.5	377	384.3	314.3	335.4
5	-3.76	-3.76	0	5.11	1.83	1.35	1.35	0.94	2.83	2.64	495.27	418.98	303.1	377.7	384.8	316.1	336
6	-0.76	-0.76	0	2.18	0	1.42	1.42	0.52	1	0.48	496.23	419.87	306.7	379.2	388	319	337.4
7	1.21	1.21	0	0.21	0	0.21	1.43	0.34	0.05	0.01	495.83	0	482.6	n/a	n/a	n/a	n/a
8	-0.52	-0.52	0	1.96	0	1.44	1.44	0.7	1.1	0.64	495.82	419.55	296	379.3	388.2	319	337.6
9	-13.47	-13.47	0	14.74	11.7	1.27	1.27	0.58	7.35	4.22	487.07	418.95	300.6	377.3	384.1	314.4	334.9
10	-16.12	-16.12	0	17.39	14.34	1.27	1.27	0.47	7.39	3.37	487.16	417.76	300.8	377.4	384.1	314.5	334.8
11	-15.55	-15.55	0	16.82	13.77	1.27	1.27	0.47	7.35	3.32	487.17	417.78	300.8	377.4	384.1	314.5	334.8
12	-15.17	-15.17	0	16.44	13.38	1.27	1.27	0.47	6.92	3.28	487.18	417.81	300.8	377.4	384.1	314.6	334.8
13	-13.84	-13.84	0	15.11	12.05	1.27	1.27	0.5	6.62	3.3	487.16	417.63	300.8	377.4	384.2	314.6	334.8
14	-3.99	-3.99	0	5.26	2.17	1.27	1.27	0.9	3.91	3	487.6	416.46	301	377.3	384.1	314.9	335.1
15	-8.38	-8.38	0	9.67	6.52	1.29	1.29	0.89	5.95	5.3	487.56	417.15	302.2	377.6	384.4	315.2	335.1
16	-6.36	-6.36	0	7.66	4.49	1.3	1.3	0.9	4.7	3.76	486.74	417.4	302.4	377.7	384.5	315.3	335.2
17	-5.82	-5.82	0	7.12	3.94	1.3	1.3	0.89	4.48	3.29	486.75	417.58	302.5	377.7	384.5	315.4	335.2
18	-2.99	-2.99	0	4.33	1.07	1.34	1.34	0.61	2.37	1.42	495.22	418.93	302.8	377.7	384.8	315.8	335.6
19	-1.72	-1.72	0	3.06	0	1.35	1.35	0.65	1.76	1.15	495	426.53	303.1	377.8	384.7	315.9	335.6
20	-0.82	-0.82	0	2.16	0.01	1.34	1.34	0.56	0.98	0.48	494.77	442.63	303.2	377.7	384.6	315.8	335.4
21	-14.99	-14.99	0	16.25	13.18	1.26	1.26	0.37	5.89	2.18	486.85	417.67	301.2	377.6	384.2	314.9	334.7
22	-14.93	-14.93	0	16.19	13.11	1.26	1.26	0.39	6.23	2.44	487.02	417.53	301.3	377.7	384.2	315	334.7
23	-15.86	-15.86	0	17.12	14.04	1.26	1.26	0.37	6.26	2.32	487.03	417.57	301.3	377.7	384.2	315	334.7
24	-13.96	-13.96	0	15.22	12.14	1.26	1.26	0.42	6.27	2.61	487.06	417.53	301.3	377.7	384.2	315	334.7
25	-9.9	-9.9	0	11.16	8.08	1.26	1.26	0.45	4.92	2.19	487.16	416.27	301.4	377.6	384.1	315.1	334.7
26	-4.59	-4.59	0	5.85	2.76	1.25	1.25	0.75	4.31	3.25	487.44	416.68	301.7	377.4	383.9	315.3	335.2
27	-4.45	-4.45	0	5.7	2.59	1.26	1.26	0.7	3.92	2.76	487.57	416.94	301.8	377.4	383.9	315.4	335.2
28	-3.67	-3.67	0	4.93	1.79	1.26	1.26	0.69	3.33	2.3	486.94	416.8	302.4	377.3	383.7	315.7	335.5
29	-2.67	-2.67	0	3.92	0.76	1.26	1.26	0.82	2.87	2.11	486.42	417.19	302.7	376.9	383.3	315.9	335.7
30	-2.87	-2.87	0	4.12	0.96	1.26	1.26	0.75	2.98	2.17	486.36	417.12	302.7	376.9	383.3	315.9	335.7
31	-2.28	-2.28	0	3.55	0.37	1.26	1.26	0.71	2.37	1.59	486.5	417.31	302.7	377	383.4	315.8	335.6
32	-4.47	-4.47	0	5.8	2.65	1.33	1.33	0.42	1.57	0.66	492.88	418.15	301.8	377.2	384.5	314.8	335.3
33	-4.03	-4.03	0	5.36	2.2	1.33	1.33	0.48	1.61	0.78	492.96	418.23	301.8	377.2	384.5	314.9	335.3

Gauge	B0	B	dzi	max h	min h	max zeta	max eta post-quake	max s	max hs	max hss	tmax	tmin	tfirstPOS	tfirstNEG	tfirstDRAW	tfirstADVIS	tfirstWARN
34	-4.2	-4.2	0	5.53	2.35	1.33	1.33	0.42	1.45	0.61	493	417.18	301.8	377.4	384.6	315.1	335.4
35	-4.17	-4.17	0	5.51	2.32	1.33	1.33	0.42	1.44	0.6	492.96	417.47	301.8	377.4	384.6	315.1	335.4
36	-3.84	-3.84	0	5.18	2	1.33	1.33	0.45	1.42	0.64	493.17	417.41	301.8	377.3	384.6	314.9	335.3
37	-2.54	-2.54	0	3.87	0.68	1.33	1.33	0.16	0.38	0.05	493.28	418.14	301.7	377.3	384.6	315	335.3
38	-2.75	-2.75	0	4.09	0.92	1.33	1.33	0.36	0.76	0.27	493.87	418.08	301.2	377.1	384.6	314.7	335.3
39	-2.42	-2.42	0	3.75	0.63	1.33	1.33	0.4	0.72	0.22	493.59	417.39	301.8	377	384.4	314.5	335.3
40	-2.55	-2.55	0	3.88	0.76	1.34	1.34	0.37	1	0.36	493.49	420.94	301.5	377.2	384.6	314.5	335.3
41	-2.63	-2.63	0	3.97	0.85	1.34	1.34	0.57	1.7	0.85	494.14	420.38	301	376.9	384.1	314.3	335.5
42	-2.17	-2.17	0	3.52	0.37	1.35	1.35	0.72	2.45	1.77	494.24	419.14	302	377.2	384.7	314.6	335.3
43	-3.48	-3.48	0	4.82	1.7	1.34	1.34	0.43	1.49	0.58	493.97	417.01	301.5	376.9	384.2	314.3	335.4
44	-2.99	-2.99	0	4.33	1.2	1.34	1.34	0.58	1.83	0.88	494.04	420.19	301.9	377.3	384.8	314.6	335.4
45	-5.84	-5.84	0	7.18	4.05	1.34	1.34	1.02	4.32	4.39	493.97	419.92	301.7	377	384.5	314.4	335.4
46	-2.89	-2.89	0	4.23	1.11	1.34	1.34	1.12	2.02	2.13	493.6	418.25	301.7	377.1	384.5	314.5	335.4
47	-3.69	-3.69	0	5.03	1.91	1.34	1.34	0.31	1.53	0.47	494.27	419.85	301.7	377	384.5	314.3	335.3
48	-3.33	-3.33	0	4.68	1.53	1.35	1.35	0.33	1.51	0.5	494.29	419.08	301.9	377.2	384.8	314.6	335.4
49	-2.94	-2.94	0	4.27	1.15	1.34	1.34	0.57	1.62	0.92	493.73	418.41	301.5	377.2	384.6	314.5	335.3
50	-2.37	-2.37	0	3.7	0.58	1.34	1.34	0.5	1.07	0.37	493.76	420.68	301.5	377.2	384.6	314.5	335.3
51	-3.11	-3.11	0	4.45	1.31	1.35	1.35	1.44	3.12	4.37	494.2	420.26	301.9	377	384.5	314.6	335.4
52	-3.05	-3.05	0	4.4	1.25	1.35	1.35	1.49	3.1	4.5	494.17	420.29	302	377	384.5	314.7	335.4
53	-2.74	-2.74	0	4.09	0.93	1.35	1.35	0.91	3.66	3.32	494.18	419.27	302.1	377.2	384.8	314.7	335.3
54	-6.14	-6.14	0	7.48	4.35	1.34	1.34	1.45	7.46	10.83	493.87	419.8	301.8	377	384.5	314.5	335.4
55	-6.75	-6.75	0	8.09	4.95	1.34	1.34	1.7	9.42	15.78	494.12	419.87	301.8	377.2	384.7	314.7	335.4
56	-6.16	-6.16	0	7.5	4.36	1.34	1.34	1.02	5.16	5.24	494.08	419.9	301.8	377.2	384.8	314.5	335.3
57	-6.2	-6.2	0	7.55	4.4	1.35	1.35	0.78	4.55	3.55	493.35	419.62	302.3	377.3	384.9	314.6	335.3
58	-1.97	-1.97	0	3.33	0.17	1.35	1.35	0.3	0.8	0.2	494.91	419.64	302.2	377.4	384.9	314.6	335.3
59	-6.07	-6.07	0	7.42	4.27	1.35	1.35	0.4	2.71	1.08	493.43	419.71	302.1	377.3	384.8	314.6	335.4
60	-4.72	-4.72	0	6.07	2.92	1.35	1.35	0.33	1.79	0.59	494.83	419.76	302.1	377.3	384.9	314.6	335.4
61	-4.48	-4.48	0	5.84	2.67	1.36	1.36	0.16	0.93	0.15	494.17	419.59	302.2	377.2	384.8	314.6	335.3
62	-5.78	-5.78	0	7.13	3.98	1.35	1.35	0.47	3.32	1.56	494.3	419.43	302	377.3	384.8	314.6	335.3
63	-5.69	-5.69	0	7.04	3.88	1.35	1.35	0.67	3.96	2.64	493.56	419.71	302.2	377.3	384.9	314.6	335.3
64	-1.46	-1.46	0	2.82	0	1.36	1.36	0.21	0.24	0.04	493.7	413.89	302.1	377.2	384.8	314.6	335.3
65	-2.07	-2.07	0	3.44	0.26	1.36	1.36	0.18	0.55	0.1	494.35	418.89	302.3	377.2	384.8	314.6	335.3
66	-2.96	-2.96	0	4.04	1.28	1.08	1.08	1.39	5.08	7.08	486.59	426.1	296.4	368.8	373	308.5	478.4
67	-0.41	-0.41	0	1.51	0	1.1	1.1	0.2	0.23	0.05	486.68	397.38	296.4	368.7	373	308.5	478.4
68	-0.46	-0.46	0	1.55	0	1.08	1.08	1.17	1.37	1.24	486.56	551.13	296.4	368.8	374.7	308.6	478.4
69	-16	-16	0	16.98	14.07	0.98	0.98	4.19	69	288.55	486.85	422.01	296.2	368.5	372.4	308.3	484.1

Gauge	B0	B	dzi	max h	min h	max zeta	max eta post-quake	max s	max hs	max hss	tmax	tmin	tfirstPOS	tfirstNEG	tfirstDRAW	tfirstADVIS	tfirstWARN
70	-5.37	-5.37	0	6.32	3.66	0.95	0.95	3.2	13.6	39.36	487.3	429.38	296	362	372.6	308.1	485.6
71	-4.82	-4.82	0	5.77	3.15	0.95	0.95	1.75	6.99	12.26	487.71	424.7	295.9	367.6	372.4	307.4	485.8
72	2.06	2.06	0	0	0	0	2.06	0	0	0	0	0	n/a	n/a	n/a	n/a	n/a
73	-12.38	-12.38	0	13.3	10.73	0.93	0.93	1.76	23	40.53	486.4	426.39	295.9	367.6	372.4	307.4	486
74	-9.38	-9.38	0	10.37	7.72	0.99	0.99	1.36	13.8	18.79	511.42	426.56	295.7	367.7	372.5	307.3	486
75	-10.99	-10.99	0	11.96	9.21	0.97	0.97	2.05	22.6	42.91	511.63	427.41	295.8	367.6	372.8	307.4	485.9
76	-13.03	-13.03	0	13.9	11.08	0.86	0.86	3.15	43.6	137.3	488.79	425.52	295.7	363.6	370.7	307.3	n/a
77	-8.71	-8.71	0	9.59	7.01	0.88	0.88	3.5	26.5	92.7	512.7	426.13	295.5	352.2	368.4	306.7	n/a
78	-1.74	-1.74	0	2.56	0.08	0.83	0.83	1.63	3.86	6.28	482.72	426.08	295.5	364.2	368	307	n/a
79	2.11	2.11	0	0	0	0	2.11	0	0	0	0	0	n/a	n/a	n/a	n/a	n/a
80	-4.12	-4.12	0	4.97	2.43	0.85	0.85	2.23	10.2	22.64	513.86	426.34	295.4	354.2	368.8	306.6	n/a
81	-0.69	-0.69	0	1.6	0	0.91	0.91	0.75	0.99	0.74	513.19	395.69	295.2	361.2	369.2	306.5	n/a
82	-10.37	-10.37	0	11.23	8.68	0.86	0.86	3.33	34.6	110.46	513.94	426.13	295.3	353.4	369.3	306.4	n/a
83	-7.23	-7.23	0	8.08	5.58	0.85	0.85	2.56	17.5	40.65	515.58	425.7	295.2	355.4	369.3	306.2	n/a
84	-1.6	-1.6	0	2.45	0.14	0.85	0.85	1.04	2.26	2.35	515.6	425.53	295.1	364.7	369.4	306	n/a
85	1.54	1.54	0	0	0	0	1.54	0	0	0	0	0	n/a	n/a	n/a	n/a	n/a
86	-2.96	-2.96	0	3.8	1.41	0.84	0.84	1.37	4.38	5.89	515.96	425.92	294.9	364.8	368.5	305.6	n/a
87	-6.6	-6.6	0	7.43	5.01	0.83	0.83	2.44	16.1	36.79	515.99	425.7	295.1	357.1	368.1	305.6	n/a
88	-2.83	-2.83	0	3.62	1.26	0.79	0.79	1.21	3.94	4.48	517.71	426.26	295	365	368.5	305.4	n/a
89	2.34	2.34	0	0	0	0	2.34	0	0	0	0	0	n/a	n/a	n/a	n/a	n/a
90	-2.89	-2.89	0	3.68	1.39	0.79	0.79	1.96	6.44	12.66	510.36	426.05	294.6	363.1	368.5	304.9	n/a
91	-10.21	-10.21	0	11.02	8.71	0.81	0.81	3.34	31.2	104.12	510.97	425.98	294.6	363	368.3	304.8	n/a
92	-9.75	-9.75	0	10.56	8.25	0.81	0.81	3.15	27.8	87.56	511	426.01	294.6	363.3	368.4	304.8	n/a
93	-1.99	-1.99	0	2.89	0.48	0.9	0.9	0.37	0.98	0.36	511.54	426.12	294.5	364.4	368.4	304.7	n/a
94	-5.28	-5.28	0	6.1	3.76	0.82	0.82	1.53	8.12	11.52	511.46	425.89	294.6	363.7	368.6	304.7	n/a
95	-9.36	-9.36	0	10.15	7.81	0.78	0.78	2.91	24.5	71.2	510.25	404.55	294.7	363.2	368.6	305	n/a
96	-8.24	-8.24	0	9.02	6.71	0.78	0.78	2.62	21.2	52.44	510.24	404.53	294.7	363	368.5	305	n/a
97	-3.15	-3.15	0	4.01	1.64	0.86	0.86	2.33	7.86	18.28	511.62	426.06	294.5	352.5	366.9	304.7	n/a
98	-3.02	-3.02	0	3.88	1.51	0.87	0.87	2.58	8.09	20.91	511.64	426.22	294.5	347.5	366.8	304.6	n/a
99	-2.94	-2.94	0	3.72	1.4	0.78	0.78	1.65	5.34	7.81	512.45	425.77	294.6	363.1	368.2	305.1	n/a
100	-6.64	-6.64	0	7.41	5.09	0.77	0.77	2.87	18.2	47.41	513.04	425.79	294.6	361.7	367.8	305.1	n/a
101	-2.22	-2.22	0	3.01	0.5	0.79	0.79	3.22	5.15	10.17	513.08	425.46	294.6	360.4	367.6	305.1	n/a
102	-3.87	-3.87	0	5.02	2.51	1.15	1.15	1.81	7.29	13.18	315.82	401.19	292.4	344.1	347.6	302	309.9
103	-7.34	-7.34	0	8.47	5.99	1.13	1.13	2.4	18	43.07	315.75	401.26	292.6	344.1	347.6	302	309.9
104	-3.69	-3.69	0	4.81	2.32	1.12	1.12	1.03	3.54	3.63	314.51	401.08	292.4	344	347.5	302	309.7
105	-6.67	-6.67	0	7.8	5.31	1.12	1.12	2.42	15.1	36.56	315.61	400.9	292.6	344	346.7	301.9	309.8

Gauge	B0	B	dzi	max h	min h	max zeta	max eta post-quake	max s	max hs	max hss	tmax	tmin	tfirstPOS	tfirstNEG	tfirstDRAW	tfirstADVIS	tfirstWARN
106	-9.92	-9.92	0	11.05	8.56	1.13	1.13	2.61	25	65.39	315.59	401	292.6	344	346.7	301.9	309.8
107	-2.98	-2.98	0	4.11	1.62	1.13	1.13	0.12	0.36	0.04	512.92	400.15	292.5	344.1	347	301.9	309.9
108	-1.42	-1.42	0	2.61	0.16	1.19	1.19	1.06	1.47	1.52	315.71	400.92	292.1	343.7	346.6	301.7	309.2
109	-5.37	-5.37	0	6.49	4.01	1.12	1.12	2.18	11.5	24.49	315.76	400.77	292.5	344	346.9	301.9	309.9
110	-3.88	-3.88	0	5.18	2.7	1.31	1.31	1.71	7.09	12.15	315.96	399.6	290.3	342.1	344.5	300.1	307.6
111	-4.86	-4.86	0	6.17	3.69	1.31	1.31	1.51	7.84	11.87	315.77	399.63	290.3	342.2	344.5	300.1	307.5
112	-3.55	-3.55	0	4.86	2.37	1.31	1.31	1.32	5.14	6.79	315.82	399.68	290.3	342.2	344.6	300.1	307.6
113	-9.43	-9.43	0	10.73	8.25	1.31	1.31	1.56	15.2	23.76	315.82	399.67	290.3	342.2	344.6	300.1	307.5
114	2.74	2.74	0	0	0	0	2.74	0	0	0	0	0	n/a	n/a	n/a	n/a	n/a
115	-4.45	-4.45	0	6.07	3.02	1.63	1.63	2.65	11	27.53	518.49	368.09	287.2	334.1	335.7	295	301.2
116	-2.24	-2.24	0	3.95	1.13	1.71	1.71	0.54	2.12	1.16	310.28	372.87	290.2	339	342.3	296.2	301.8
117	-3.57	-3.57	0	5.25	2.17	1.68	1.68	1.77	7.39	13.03	310.78	372.41	290	339	342.2	296.2	301.8
118	-3.54	-3.54	0	5.26	2.12	1.72	1.72	0.04	0.18	0.01	310.36	373.41	290.4	339	342.2	296.3	301.8
119	-3.56	-3.56	0	5.27	2.16	1.71	1.71	0.04	0.19	0.01	310.52	372.98	290.3	339.1	342.3	296.2	301.9
120	-3.89	-3.89	0	5.59	2.49	1.7	1.7	0.04	0.19	0.01	310.79	372.79	290	339	342.3	296.2	301.9
121	-3.71	-3.71	0	5.41	2.31	1.7	1.7	0.04	0.18	0.01	310.03	372.24	289.8	339	342.3	296.2	302
122	-27.28	-27.28	0	28.9	25.83	1.62	1.62	2.29	60.4	138.27	518.28	367.65	286.7	334.7	336.5	294.2	300.3
123	-16.91	-16.91	0	18.13	15.54	1.22	1.22	2.4	37.4	89.69	315.85	400.64	291.8	343.2	345.9	301.2	308.8
124	-26.2	-26.2	0	26.95	24.7	0.75	0.75	4.9	130	635.72	510.75	426.04	294.7	362.6	368	304.9	n/a
125	-24.97	-24.97	0	26.01	23.29	1.04	1.04	3.3	80.3	264.61	487.28	424.96	296.9	370.8	376.5	309.3	478.6
126	-20.11	-20.11	0	21.29	18.36	1.18	1.18	1.39	29.3	40.51	485.66	421.6	299.9	376.8	383.7	314	335
127	-2.51	-2.51	0	3.65	0.85	1.14	1.14	0.33	1.06	0.35	489.34	423.56	297.6	373.5	381.1	310.6	336.3
128	3.79	3.79	0	0	0	0	3.79	0	0	0	0	0	n/a	n/a	n/a	n/a	n/a
129	1.11	1.11	0	0.19	0	0.19	1.3	0.65	0.12	0.08	316.97	0	310.7	n/a	n/a	n/a	n/a
130	2.69	2.69	0	0	0	0	2.69	0	0	0	0	0	n/a	n/a	n/a	n/a	n/a
131	2.33	2.33	0	0	0	0	2.33	0	0	0	0	0	n/a	n/a	n/a	n/a	n/a
132	1.34	1.34	0	0.01	0	0.01	1.35	0.1	0	0	494.19	0	n/a	n/a	n/a	n/a	n/a
133	-2.89	-2.89	0	4.25	1.09	1.35	1.35	0.68	1.74	1.18	494.16	419.27	302.2	377.3	384.8	314.6	335.3
134	3.22	3.22	0	0	0	0	3.22	0	0	0	0	0	n/a	n/a	n/a	n/a	n/a
135	-3.83	-3.83	0	4.85	2.17	1.02	1.02	1.17	5.68	6.67	484.93	425.74	296.3	368.6	373	308.6	481.5
136	2.1	2.1	0	0	0	0	2.1	0	0	0	0	0	n/a	n/a	n/a	n/a	n/a
137	-8.52	-8.52	0	9.28	6.96	0.76	0.76	2.63	22	54.56	517.06	425.88	294.9	364.2	368.4	305.4	n/a
138	-6.5	-6.5	0	7.25	4.98	0.75	0.75	2.1	14.6	30.5	509.68	402.88	294.8	362.1	368.6	305.1	n/a
139	-3.01	-3.01	0	3.79	1.52	0.78	0.78	1.18	4.24	4.81	316.27	425.92	294.8	362.8	368.6	304.9	n/a
140	-2.85	-2.85	0	3.59	1.33	0.74	0.74	0.91	3.23	2.93	524.24	425.68	294.8	364.1	368.5	305.2	n/a
141	-19.64	-19.64	0	20.91	17.87	1.27	1.27	0.48	8.98	4.28	487.13	418.92	300.6	377.3	384.1	314.4	334.8

Gauge	B0	B	dzi	max h	min h	max zeta	max eta post-quake	max s	max hs	max hss	tmax	tmin	tfirstPOS	tfirstNEG	tfirstDRAW	tfirstADVIS	tfirstWARN
142	-15.68	-15.68	0	16.95	13.91	1.27	1.27	0.54	8.1	4.37	487.09	417.63	300.6	377.3	384.1	314.4	334.9
143	1.72	1.72	0	0	0	0	1.72	0	0	0	0	0	n/a	n/a	n/a	n/a	n/a
144	0.64	0.64	0	0.57	0	0.57	1.21	0.45	0.02	0.01	316.06	0	306	n/a	n/a	309.3	n/a
145	-9.57	-9.57	0	10.87	8.4	1.3	1.3	1.67	16.4	27.36	315.44	399.66	290.3	342.1	344.5	300.1	307.5
146	-15.81	-15.81	0	17.12	14.64	1.31	1.31	1.32	20.8	27.37	315.57	399.72	290.4	342.1	344.5	300.1	307.5
147	-14.54	-14.54	0	15.85	13.37	1.31	1.31	1.22	17.7	21.59	315.72	399.73	290.4	342.2	344.6	300.1	307.5
148	-10.05	-10.05	0	11.36	8.87	1.31	1.31	1.08	10.8	11.61	315.75	399.76	290.5	342.2	344.6	300.1	307.6
149	2.99	2.99	0	0	0	0	2.99	0	0	0	0	0	n/a	n/a	n/a	n/a	n/a
150	1.74	1.74	0	0	0	0	1.74	0	0	0	0	0	n/a	n/a	n/a	n/a	n/a
151	-3.11	-3.11	0	4.51	1.89	1.4	1.4	0.57	1.82	1.04	314.58	373.37	287.7	339.3	341.7	297.4	305
152	10.33	10.33	0	0	0	0	10.33	0	0	0	0	0	n/a	n/a	n/a	n/a	n/a
153	1.91	1.91	0	0	0	0	1.91	0	0	0	0	0	n/a	n/a	n/a	n/a	n/a
154	-10.94	-10.94	0	11.71	9.42	0.77	0.77	3.31	37.5	124.09	512.74	425.77	294.7	362.5	368	305	n/a
155	1.14	1.14	0	0.29	0	0.29	1.43	0.52	0.12	0.06	497.74	0	344.3	n/a	n/a	n/a	n/a

Scenario: Alaska-Aleutian subduction zone, mean low water

Gauge	B0	B	dzi	max h	min h	max zeta	max eta post-quake	max s	max hs	max hss	tmax	tmin	tfirstPOS	tfirstNEG	tfirstDRAW	tfirstADVIS	tfirstWARN
1	-11.03	-11.03	0	10.78	8.26	-0.25	-0.25	1.09	10.67	11.61	316.31	402.32	290.8	343.7	346.1	300.8	308.1
2	-10.34	-10.34	0	9.66	7.11	-0.69	-0.69	3.31	29.56	97.74	516.69	427.67	295.4	356.2	367.7	305.3	n/a
3	-18.08	-18.08	0	17.56	14.65	-0.52	-0.52	4.21	70.32	296.37	482.63	427.92	296.5	365.5	369.7	307.9	476.2
4	-4.49	-4.49	0	4.4	0.91	-0.09	-0.09	0.49	1.28	0.52	485.72	418.98	302.1	374.6	382.1	315.2	332.8
5	-3.76	-3.76	0	3.71	0.22	-0.05	-0.05	1.19	2.14	2.43	488.45	427.75	304.3	375	383.1	317.4	332.8
6	-0.75	-0.75	0	0.79	0	0.03	0.04	0.33	0.18	0.05	488.97	0	334	n/a	n/a	344	n/a
7	1.21	1.21	0	0	0	0	1.21	0	0	0	0	0	n/a	n/a	n/a	n/a	n/a
8	-0.53	-0.53	0	0.57	0	0.04	0.04	0.36	0.07	0.02	488.78	0	345.4	n/a	n/a	483.5	n/a
9	-13.47	-13.47	0	13.33	9.87	-0.14	-0.14	0.51	5.84	2.97	487.01	417.79	300.8	374.9	382	315	332.1
10	-16.12	-16.12	0	15.98	12.51	-0.14	-0.14	0.44	6.47	2.83	486.05	417.94	300.9	375	382.1	315.1	332.1
11	-15.55	-15.55	0	15.41	11.94	-0.14	-0.14	0.45	6.27	2.85	486.12	417.98	300.9	375	382.1	315.1	332.1
12	-15.17	-15.17	0	15.03	11.55	-0.14	-0.14	0.46	6.04	2.7	486.15	417.96	301	375	382.2	315.2	332.1
13	-13.84	-13.84	0	13.7	10.22	-0.14	-0.14	0.56	5.83	3.27	486.3	418.06	301.1	374.9	382.1	315.2	332.1
14	-3.99	-3.99	0	3.86	0.35	-0.13	-0.13	1.15	2.53	2.36	486.49	418.36	301.5	374.6	381.9	315.6	332.3
15	-8.38	-8.38	0	8.26	4.71	-0.11	-0.11	1.58	7.43	11.72	487.49	417.85	302.2	375	382.4	316	332.3
16	-6.36	-6.36	0	6.26	2.65	-0.1	-0.1	1.8	5.42	8.62	487.7	417.29	302.5	375	382.5	316.1	332.3
17	-5.82	-5.82	0	5.71	2.08	-0.1	-0.1	1.43	4.79	6.17	487.85	419.03	302.5	375	382.5	316.2	332.3
18	-2.99	-2.99	0	2.93	0	-0.06	-0.06	0.45	1.11	0.47	488.88	438.43	302.9	375.3	383.1	317	332.5
19	-1.79	-1.79	0	1.66	0	-0.06	-0.13	0.4	0.59	0.23	488.75	823.17	311.2	289.6	n/a	318.5	335
20	-0.8	-0.8	0	0.76	0	-0.06	-0.04	0.4	0.15	0.04	489.2	0	329.6	n/a	n/a	337.8	n/a
21	-14.99	-14.99	0	14.84	11.35	-0.15	-0.15	0.94	10.83	10.23	486.29	417.75	301.3	375.3	382.3	315.4	332
22	-14.93	-14.93	0	14.77	11.28	-0.15	-0.15	0.77	9.82	7.6	485.76	417.75	301.4	375.3	382.3	315.5	331.9
23	-15.86	-15.86	0	15.7	12.21	-0.15	-0.15	0.73	10	7.31	485.75	417.63	301.4	375.3	382.3	315.5	331.9
24	-13.96	-13.96	0	13.81	10.31	-0.15	-0.15	0.76	9.06	6.91	485.78	417.61	301.4	375.3	382.3	315.5	331.9
25	-9.9	-9.9	0	9.75	6.25	-0.15	-0.15	0.67	5.09	3.4	485.94	417.74	301.5	375.3	382.3	315.6	332
26	-4.59	-4.59	0	4.45	0.93	-0.15	-0.15	0.69	2.5	1.45	486.01	418.11	301.9	375.1	382.2	315.8	332.2
27	-4.45	-4.45	0	4.3	0.86	-0.15	-0.15	1.04	2.32	1.29	486.15	419.44	302.1	375.1	382.2	315.9	332.2
28	-3.67	-3.67	0	3.54	0.3	-0.14	-0.14	0.59	1.65	0.81	486.96	425.1	302.4	375.1	382.2	316.2	332.4
29	-2.67	-2.67	0	2.53	0	-0.13	-0.13	0.42	1.04	0.44	486.61	416.54	302.9	375.2	382.2	316.4	332.6
30	-2.87	-2.87	0	2.73	0	-0.13	-0.13	0.44	1.13	0.48	486.54	435.21	302.9	375.2	382.2	316.4	332.6
31	-2.28	-2.28	0	2.15	0	-0.13	-0.13	0.37	0.73	0.25	486.66	441.14	303.1	375.2	382.3	316.4	332.6
32	-4.47	-4.47	0	4.39	0.81	-0.08	-0.08	0.36	1.03	0.31	487.37	420.79	302.5	374.8	382.4	315.8	332.6
33	-4.03	-4.03	0	3.95	0.37	-0.08	-0.08	0.43	1.04	0.36	487.45	420.82	302.5	374.8	382.3	315.8	332.6
34	-4.2	-4.2	0	4.13	0.52	-0.07	-0.07	0.34	1.03	0.32	487.99	421.39	302.6	374.9	382.5	316.1	332.6

Gauge	B0	B	dzi	max h	min h	max zeta	max eta post-quake	max s	max hs	max hss	tmax	tmin	tfirstPOS	tfirstNEG	tfirstDRAW	tfirstADVIS	tfirstWARN
35	-4.17	-4.17	0	4.1	0.49	-0.07	-0.07	0.32	0.95	0.27	487.97	421.33	302.8	374.9	382.5	316.1	332.6
36	-3.84	-3.84	0	3.77	0.18	-0.08	-0.08	0.4	0.9	0.29	487.07	423.37	302.7	374.9	382.5	315.9	332.7
37	-2.54	-2.54	0	2.46	0.03	-0.07	-0.07	0.31	0.18	0.02	487.36	441.22	302.6	374.9	382.5	316	332.6
38	-2.75	-2.75	0	2.68	0.02	-0.08	-0.08	0.81	0.36	0.23	486.96	440.36	302.9	374.9	382.4	315.8	332.7
39	-2.42	-2.42	0	2.34	0	-0.08	-0.08	0.2	0.31	0.06	485.71	555.68	302.2	374.6	382.1	315.4	332.8
40	-2.55	-2.55	0	2.47	0	-0.08	-0.08	0.33	0.52	0.17	486.06	439.8	302.8	375.1	382.7	315.6	332.9
41	-2.63	-2.63	0	2.54	0	-0.09	-0.09	0.36	0.51	0.14	485.53	563.94	301.5	374.5	381.8	315.2	332.8
42	-2.17	-2.17	0	2.09	0	-0.08	-0.08	0.77	0.69	0.49	485.4	391.35	303	375.5	383.2	316	333.2
43	-3.48	-3.48	0	3.39	0	-0.09	-0.09	0.48	1.21	0.58	485.49	416.33	302.5	374.5	381.9	315.3	332.8
44	-2.99	-2.99	0	2.89	0.03	-0.09	-0.09	0.75	1.02	0.36	485.06	440.27	302.9	375.6	383.3	316.1	333.3
45	-5.84	-5.84	0	5.75	2.28	-0.09	-0.09	2.13	5.54	11.56	485.43	421.03	302.7	374.8	382.4	315.4	332.9
46	-2.89	-2.89	0	2.81	0	-0.09	-0.09	1.28	1.46	1.45	485.94	409.72	302.7	374.7	382.1	315.8	333
47	-3.69	-3.69	0	3.61	0.15	-0.08	-0.08	0.22	0.45	0.08	485.4	422.8	302.8	374.9	382.5	315.3	332.8
48	-3.33	-3.33	0	3.24	0	-0.09	-0.09	0.44	1.4	0.61	483.94	420.45	303.1	375.7	383.5	316.2	333.3
49	-2.94	-2.94	0	2.85	0.09	-0.08	-0.08	0.6	1.01	0.52	486.02	438.67	302.8	375	382.7	315.6	332.8
50	-2.37	-2.37	0	2.28	0	-0.08	-0.08	0.44	0.53	0.2	485.99	575.61	302.8	375	382.7	315.6	332.9
51	-3.11	-3.11	0	3.02	0	-0.08	-0.08	1.58	2.52	3.56	485.44	434.25	303	374.9	382.5	315.9	333.2
52	-3.05	-3.05	0	2.97	0	-0.08	-0.08	1.99	2.47	4.65	485.4	435.32	303	375	382.6	316.2	333.4
53	-2.74	-2.74	0	2.65	0	-0.09	-0.09	1.96	1.51	2.49	485.32	407.52	303.1	375.6	383.4	316.2	333.4
54	-6.14	-6.14	0	6.05	2.59	-0.09	-0.09	3.09	10.45	32.05	485.35	421.33	302.9	374.9	382.5	315.9	333.1
55	-6.75	-6.75	0	6.66	3.23	-0.09	-0.09	2.6	11.67	30.3	485.29	427.69	303	375.3	383	316.1	333.3
56	-6.16	-6.16	0	6.07	2.63	-0.09	-0.09	2.88	10.25	29.5	485.19	427.77	303	375.7	383.4	316.1	333.3
57	-6.2	-6.2	0	6.11	2.66	-0.1	-0.1	0.9	3.62	3.12	484.29	428.39	303.5	375.8	383.5	316	333.4
58	-1.97	-1.97	0	1.88	0	-0.09	-0.09	0.5	0.44	0.11	484.24	394.03	303.5	375.8	383.5	316	333.4
59	-6.07	-6.07	0	5.98	2.54	-0.09	-0.09	2.4	8.77	20.65	484.61	427.66	303.2	375.7	383.5	316	333.3
60	-4.72	-4.72	0	4.63	1.19	-0.09	-0.09	1.46	4.38	6.41	484.6	427.65	303.2	375.7	383.5	316	333.3
61	-4.48	-4.48	0	4.4	0.94	-0.08	-0.08	0.54	1.63	0.88	484.36	428.59	303.2	375.8	383.6	316.1	333.3
62	-5.78	-5.78	0	5.68	2.24	-0.1	-0.1	0.99	4.01	3.14	484.15	428.47	303.2	375.7	383.5	316.1	333.4
63	-5.69	-5.69	0	5.59	2.15	-0.1	-0.1	1	4.07	4.06	484.33	428.58	303.5	375.8	383.5	316	333.3
64	-1.53	-1.53	0	1.38	0	-0.07	-0.15	0.5	0.2	0.08	484.21	0	309	n/a	n/a	318.7	336.8
65	-2.07	-2.07	0	1.99	0	-0.08	-0.08	0.31	0.54	0.15	484.62	551.53	290.9	375.8	383.6	316.1	333.4
66	-2.96	-2.96	0	2.55	0	-0.41	-0.41	1.07	2.22	2.36	482.37	433.14	297.4	364	373.3	309.3	336.9
67	-0.41	-0.41	0	0.04	0	-0.37	-0.37	0.16	0	0	482.06	0	481.8	n/a	n/a	n/a	n/a
68	-0.59	-0.59	0	0.19	0	-0.4	-0.4	0.43	0.08	0.03	482.36	0	476.5	n/a	n/a	n/a	n/a
69	-16	-16	0	15.52	12.56	-0.48	-0.48	2.55	35.61	90.83	482.45	422.9	296.9	365.5	370.6	309.1	338
70	-5.37	-5.37	0	4.89	1.99	-0.48	-0.48	3.16	10.64	31.77	482.7	424.85	296.8	366.8	371.6	308.9	476

Gauge	B0	B	dzi	max h	min h	max zeta	max eta post-quake	max s	max hs	max hss	tmax	tmin	tfirstPOS	tfirstNEG	tfirstDRAW	tfirstADVIS	tfirstWARN
71	-4.82	-4.82	0	4.32	1.32	-0.5	-0.5	1.19	4.79	5.71	482.2	428.64	296.5	367.2	372	308.2	475.5
72	2.06	2.06	0	0	0	0	2.06	0	0	0	0	0	n/a	n/a	n/a	n/a	n/a
73	-12.38	-12.38	0	11.88	8.92	-0.5	-0.5	1.11	12.89	14.37	482.2	427.58	296.5	367.2	372	308.2	475.6
74	-9.38	-9.38	0	8.88	5.92	-0.5	-0.5	1.13	9.65	10.92	482.22	427.56	296.5	367.2	372	308.2	475.6
75	-10.99	-10.99	0	10.48	7.46	-0.51	-0.51	2.05	17.89	33.1	481.18	427.16	296.6	367.4	372.2	308.2	476
76	-13.03	-13.03	0	12.53	9.32	-0.51	-0.51	3.42	40.28	137.55	482.59	428.21	296.6	365.7	369.7	308.1	475.7
77	-8.71	-8.71	0	8.11	5.21	-0.6	-0.6	3.51	25.61	89.92	481.92	426.52	296.2	360.2	367.6	307.6	478.1
78	-1.81	-1.81	0	1.13	0	-0.6	-0.67	0.62	0.67	0.41	481.92	366.14	296.3	358.4	n/a	307.8	481.9
79	2.11	2.11	0	0	0	0	2.11	0	0	0	0	0	n/a	n/a	n/a	n/a	n/a
80	-4.12	-4.12	0	3.51	0.63	-0.61	-0.61	2.48	7.23	17.95	481.88	428.35	296.1	360.1	367.4	307.4	478.5
81	-0.84	-0.84	0	0.25	0	-0.59	-0.59	0.57	0.03	0.01	481.89	0	335.2	n/a	n/a	n/a	n/a
82	-10.37	-10.37	0	9.76	6.94	-0.61	-0.61	3.33	30.96	103.16	482.24	428.38	296.2	362.6	369	307.2	478.8
83	-7.23	-7.23	0	6.59	3.8	-0.64	-0.64	2.38	14.69	35	482.47	428.5	296.2	362.5	369.1	307	480.6
84	-1.3	-1.3	0	0.96	0	-0.64	-0.34	0.3	0.2	0.06	482.44	0	306.4	n/a	n/a	306.6	480.3
85	1.54	1.54	0	0	0	0	1.54	0	0	0	0	0	n/a	n/a	n/a	n/a	n/a
86	-2.96	-2.96	0	2.32	0	-0.64	-0.64	1.26	2.61	3.29	484.73	405.36	296	363.8	369	306.4	480.9
87	-6.6	-6.6	0	5.92	3.24	-0.68	-0.68	2.43	13.43	32.59	484.69	427.38	296	362.4	368.7	306.5	n/a
88	-2.83	-2.83	0	2.18	0	-0.65	-0.65	0.96	2.09	2.02	484.61	412.07	296.1	364.1	369.2	306.3	482.7
89	2.34	2.34	0	0	0	0	2.34	0	0	0	0	0	n/a	n/a	n/a	n/a	n/a
90	-2.89	-2.89	0	2.16	0	-0.72	-0.72	1.72	3.25	5.07	519.27	402.05	295.8	359.2	368.6	305.7	n/a
91	-10.21	-10.21	0	9.48	6.97	-0.73	-0.73	3.12	27.85	86.84	519.15	427.56	295.5	357.8	368.4	305.6	n/a
92	-9.75	-9.75	0	9.01	6.51	-0.73	-0.73	2.94	24.96	73.39	519.17	427.75	295.5	357.9	368.6	305.5	n/a
93	-1.99	-1.99	0	1.28	0	-0.71	-0.71	0.13	0.14	0.02	516.04	440.77	294.2	358.7	368.8	305.4	n/a
94	-5.28	-5.28	0	4.55	2.02	-0.73	-0.73	1.18	5.07	5.96	514.61	427.86	295.5	358.6	368.7	305.4	n/a
95	-9.36	-9.36	0	8.64	6.12	-0.73	-0.73	2.85	23.24	66.14	519.33	427.46	295.8	357.2	368.8	305.7	n/a
96	-8.24	-8.24	0	7.51	4.98	-0.72	-0.72	2.77	19.46	53.98	519.33	427.49	295.8	357.2	368.7	305.7	n/a
97	-3.15	-3.15	0	2.46	0	-0.69	-0.69	2.27	4.19	8.34	516.47	427.89	295.4	353.2	367	305.4	n/a
98	-3.02	-3.02	0	2.33	0	-0.68	-0.68	2.27	4	8.19	516.59	423.99	295.5	352.2	366.5	305.4	n/a
99	-2.94	-2.94	0	2.2	0	-0.74	-0.74	1.18	2.61	3.08	484.33	403.46	295.6	361.3	368.3	305.9	n/a
100	-6.64	-6.64	0	5.9	3.31	-0.75	-0.75	2.46	12.85	31.62	517.92	427.3	295.6	359.8	368.1	305.9	n/a
101	-2.22	-2.22	0	1.47	0	-0.75	-0.75	1.78	2.45	4.36	517.88	564.5	295.6	356.5	368	305.9	n/a
102	-3.87	-3.87	0	3.46	0.93	-0.41	-0.41	1.18	2.46	2.9	316.66	403.12	293.1	346	349.4	302.8	310.4
103	-7.34	-7.34	0	6.92	4.4	-0.43	-0.43	2.42	13.35	32.35	316.27	403.35	293.1	345.8	349.3	302.8	310.5
104	-3.69	-3.69	0	3.27	0.74	-0.41	-0.41	0.72	1.65	1.14	315.89	403.18	293.1	345.9	349.3	302.7	310.3
105	-6.67	-6.67	0	6.25	3.74	-0.43	-0.43	2.05	10.28	21.11	316.29	403.01	293.1	345.7	348.7	302.6	310.4
106	-9.92	-9.92	0	9.5	6.98	-0.42	-0.42	2.38	19.7	46.81	316.37	403.16	293.1	345.7	348.8	302.7	310.3

Gauge	B0	B	dzi	max h	min h	max zeta	max eta post-quake	max s	max hs	max hss	tmax	tmin	tfirstPOS	tfirstNEG	tfirstDRAW	tfirstADVIS	tfirstWARN
107	-2.98	-2.98	0	2.56	0.55	-0.42	-0.42	0.17	0.26	0.03	516.93	411.2	270.1	345.8	348.9	302.6	310.5
108	-1.17	-1.17	0	1.06	0	-0.36	-0.12	0.7	0.64	0.45	316.85	0	304.3	n/a	n/a	304.7	312.1
109	-5.37	-5.37	0	4.95	2.43	-0.43	-0.43	1.9	7.24	13.75	517.07	402.91	293	345.7	348.5	302.6	310.5
110	-3.88	-3.88	0	3.63	1.11	-0.25	-0.25	1.04	2.77	2.89	316.27	402.2	290.8	343.7	346.1	300.8	308.2
111	-4.86	-4.86	0	4.61	2.09	-0.25	-0.25	0.86	3.13	2.68	316.26	402.48	290.8	343.7	346.1	300.8	308.1
112	-3.55	-3.55	0	3.3	0.78	-0.25	-0.25	0.76	1.8	1.37	316.54	402.57	290.8	343.7	346.1	300.8	308.2
113	-9.43	-9.43	0	9.18	6.66	-0.25	-0.25	1.02	8.4	8.58	316.31	402.26	290.8	343.7	346.1	300.8	308.1
114	2.74	2.74	0	0	0	0	2.74	0	0	0	0	0	n/a	n/a	n/a	n/a	n/a
115	-4.45	-4.45	0	4.5	1.5	0.05	0.05	3.44	8.49	19.66	523.82	364.48	287.7	334.3	335.4	295.6	301.9
116	-3.01	-3.01	0	2.73	0.63	0.18	-0.27	0.15	0.36	0.05	312.16	401.19	281.3	341.5	353.2	300.4	307.8
117	-3.57	-3.57	0	3.68	1.48	0.1	0.1	1.04	3.46	3.59	525.91	400.35	291.4	361.5	379.4	300.3	307.8
118	-3.54	-3.54	0	3.72	1.43	0.19	0.19	0.03	0.09	0	524.98	401.7	282.1	361.6	379.5	300.4	307.9
119	-3.56	-3.56	0	3.73	1.46	0.17	0.17	0.05	0.11	0.01	525.74	401.42	282.2	361.5	379.4	300.4	307.9
120	-3.89	-3.89	0	4.06	1.8	0.16	0.16	0.05	0.15	0.01	525.74	400.97	282.3	361.6	379.5	300.4	307.9
121	-3.71	-3.71	0	3.87	1.62	0.16	0.16	0.04	0.13	0.01	525.74	400.23	282	361.6	379.4	300.4	308.1
122	-27.28	-27.28	0	27.44	24.3	0.15	0.15	2.47	61.06	151.12	519.49	371.03	287.4	335.6	337.3	294.8	300.9
123	-16.91	-16.91	0	16.57	13.94	-0.34	-0.34	2.36	34.14	77.47	316.51	402.74	292.4	344.8	347.4	301.9	309.4
124	-26.2	-26.2	0	25.44	22.95	-0.76	-0.76	4.27	105.94	451.93	517.9	427.61	295.4	360.6	368.2	305.6	n/a
125	-24.97	-24.97	0	24.61	21.55	-0.36	-0.36	2.86	67.37	192.97	484.22	425.88	297.4	369.9	375.7	310.1	334.8
126	-20.11	-20.11	0	19.91	16.54	-0.2	-0.2	0.87	17.33	15.13	485.06	418.51	300.3	374.8	381.8	314.6	332.3
127	-2.51	-2.51	0	2.25	0	-0.26	-0.26	0.33	0.54	0.18	482.96	402.3	297.5	372	379.1	311.6	332.6
128	3.79	3.79	0	0	0	0	3.79	0	0	0	0	0	n/a	n/a	n/a	n/a	n/a
129	1.11	1.11	0	0	0	0	1.11	0	0	0	0	0	n/a	n/a	n/a	n/a	n/a
130	2.69	2.69	0	0	0	0	2.69	0	0	0	0	0	n/a	n/a	n/a	n/a	n/a
131	2.33	2.33	0	0	0	0	2.33	0	0	0	0	0	n/a	n/a	n/a	n/a	n/a
132	1.34	1.34	0	0	0	0	1.34	0	0	0	0	0	n/a	n/a	n/a	n/a	n/a
133	-2.89	-2.89	0	2.81	0.06	-0.09	-0.09	0.79	1.65	1.04	484.11	428.16	303.4	375.7	383.5	316.1	333.3
134	3.22	3.22	0	0	0	0	3.22	0	0	0	0	0	n/a	n/a	n/a	n/a	n/a
135	-3.83	-3.83	0	3.4	0.43	-0.44	-0.44	1.42	3.84	5.44	484.98	427.15	297.4	367.2	373	309.4	336.8
136	2.1	2.1	0	0	0	0	2.1	0	0	0	0	0	n/a	n/a	n/a	n/a	n/a
137	-8.52	-8.52	0	7.81	5.2	-0.71	-0.71	2.75	20.37	56.06	517.85	427.24	295.9	362.3	368.9	306.2	n/a
138	-6.5	-6.5	0	5.8	3.26	-0.71	-0.71	2.23	11.88	26.44	519.33	427.69	295.9	361.6	368.9	305.9	n/a
139	-3.01	-3.01	0	2.31	0	-0.7	-0.7	0.78	1.38	1.01	519.32	423.65	296	362.5	368.9	305.8	n/a
140	-2.85	-2.85	0	2.15	0	-0.71	-0.71	0.56	0.8	0.45	519.4	432.55	296	361.7	368.9	305.9	n/a
141	-19.64	-19.64	0	19.5	16.05	-0.14	-0.14	0.46	8.13	3.74	487.03	417.87	300.7	374.9	382.1	315	332.1
142	-15.68	-15.68	0	15.54	12.08	-0.14	-0.14	0.51	6.95	3.52	487.03	417.78	300.8	374.9	382.1	315	332.1

Gauge	B0	B	dzi	max h	min h	max zeta	max eta post-quake	max s	max hs	max hss	tmax	tmin	tfirstPOS	tfirstNEG	tfirstDRAW	tfirstADVIS	tfirstWARN
143	1.72	1.72	0	0	0	0	1.72	0	0	0	0	0	n/a	n/a	n/a	n/a	n/a
144	0.64	0.64	0	0	0	0	0.64	0	0	0	0	0	n/a	n/a	n/a	n/a	n/a
145	-9.57	-9.57	0	9.31	6.81	-0.25	-0.25	1.4	11.65	16.34	315.92	402.3	290.7	343.6	346	300.8	308.2
146	-15.81	-15.81	0	15.56	13.05	-0.25	-0.25	1.32	19.2	25.37	315.99	402.27	290.8	343.7	346	300.8	308.1
147	-14.54	-14.54	0	14.29	11.77	-0.25	-0.25	1.2	15.45	18.5	316.06	402.28	290.8	343.7	346.1	300.8	308.1
148	-10.05	-10.05	0	9.81	7.28	-0.25	-0.25	1	8.44	8.4	316.14	402.37	290.9	343.7	346.1	300.8	308.2
149	2.99	2.99	0	0	0	0	2.99	0	0	0	0	0	n/a	n/a	n/a	n/a	n/a
150	1.74	1.74	0	0	0	0	1.74	0	0	0	0	0	n/a	n/a	n/a	n/a	n/a
151	-3.11	-3.11	0	3	0.28	-0.12	-0.12	0.37	0.94	0.33	518.3	376.65	288.3	340.5	343.1	298	305.6
152	10.33	10.33	0	0	0	0	10.33	0	0	0	0	0	n/a	n/a	n/a	n/a	n/a
153	1.91	1.91	0	0	0	0	1.91	0	0	0	0	0	n/a	n/a	n/a	n/a	n/a
154	-10.94	-10.94	0	10.18	7.66	-0.75	-0.75	3.18	30.32	96.32	481.23	427.97	295.5	360.3	368.2	305.8	n/a
155	1.14	1.14	0	0	0	0	1.14	0	0	0	0	0	n/a	n/a	n/a	n/a	n/a

Scenario: Alaska-Aleutian subduction zone, mean high water (updated source term, explained in Appendix B.2)

Gauge	B0	B	dzi	max h	min h	max zeta	max eta post-quake	max s	max hs	max hss	tmax	tmin	tfirstPOS	tfirstNEG	tfirstDRAW	tfirstADVIS	tfirstWARN
1	-11.03	-11.03	0	12.17	9.99	1.15	1.15	1.34	15.1	20.31	315.96	399.82	290.8	341.8	344.4	300.8	309.1
2	-10.34	-10.34	0	11.04	8.99	0.7	0.7	3.26	31.22	101.88	519.17	426.04	294.9	349.7	367.3	305.3	n/a
3	-18.08	-18.08	0	18.79	16.58	0.71	0.71	3.44	59.15	203.46	478.01	424.74	296.2	364.9	370.7	308.1	n/a
4	-4.49	-4.49	0	5.68	2.9	1.19	1.19	0.53	2.55	1.25	493.5	417.36	301.7	375.2	383	315.4	473.7
5	-3.76	-3.76	0	4.99	2.03	1.23	1.23	0.86	2.72	2.28	494.3	418.1	304.1	375.8	383.6	317.1	340.5
6	-0.76	-0.76	0	2.05	0	1.29	1.29	0.52	0.93	0.43	495.38	418.55	307.4	376.5	386.6	320	340.8
7	1.21	1.21	0	0.09	0	0.09	1.3	0.35	0.01	0	491.01	0	485.6	n/a	n/a	n/a	n/a
8	-0.52	-0.52	0	1.83	0	1.31	1.31	0.7	0.9	0.44	490.79	582.42	306.9	376.5	386.8	319.9	340.7
9	-13.47	-13.47	0	14.62	11.88	1.15	1.15	0.53	6.9	3.68	487.13	417.39	301.4	375.6	382.9	315.6	472.6
10	-16.12	-16.12	0	17.27	14.53	1.15	1.15	0.43	6.63	2.82	487.12	417.24	301.5	375.7	382.9	315.7	472.4
11	-15.55	-15.55	0	16.71	13.96	1.15	1.15	0.43	6.45	2.74	487.15	417.26	301.5	375.7	382.9	315.7	472.4
12	-15.17	-15.17	0	16.32	13.57	1.15	1.15	0.44	6.46	2.86	487.08	417.28	301.6	375.8	383	315.8	472.4
13	-13.84	-13.84	0	15	12.24	1.16	1.16	0.47	6.24	2.93	487.22	417.31	301.6	375.7	383	315.8	472.5
14	-3.99	-3.99	0	5.15	2.36	1.16	1.16	0.86	3.55	2.62	487.51	415.7	302	375.6	382.8	316.1	472.9
15	-8.38	-8.38	0	9.55	6.72	1.17	1.17	0.75	5.13	3.84	487.9	417.01	302.7	376	383.2	316.3	342.6
16	-6.36	-6.36	0	7.54	4.69	1.18	1.18	0.76	4.03	2.81	486.97	416.83	302.9	376	383.3	316.4	341.5
17	-5.82	-5.82	0	7	4.14	1.18	1.18	0.76	4	2.47	487.03	416.78	303	376	383.3	316.4	341.3
18	-2.99	-2.99	0	4.2	1.28	1.21	1.21	0.55	2.14	1.16	493.88	417.73	303.9	376.2	383.5	316.9	340.5
19	-1.72	-1.72	0	2.93	0.03	1.21	1.21	0.6	1.59	0.95	494.43	417.62	303.9	376.1	383.5	317	340.5
20	-0.82	-0.82	0	2.03	0.01	1.21	1.21	0.49	0.83	0.39	494.22	441.48	303.6	376.1	383.6	316.9	340.5
21	-14.99	-14.99	0	16.14	13.37	1.15	1.15	0.35	5.6	1.95	487.25	416.78	301.9	376	383	316.1	472.2
22	-14.93	-14.93	0	16.08	13.3	1.15	1.15	0.33	5.18	1.69	487.17	416.81	301.9	376.1	383	316.2	472.2
23	-15.86	-15.86	0	17.01	14.23	1.15	1.15	0.31	5.26	1.65	487.19	416.82	302	376.1	383	316.2	472.2
24	-13.96	-13.96	0	15.11	12.33	1.15	1.15	0.35	5.15	1.78	487.14	416.69	302	376.1	383	316.2	472.2
25	-9.9	-9.9	0	11.05	8.28	1.15	1.15	0.4	4.25	1.67	487.62	416.05	302	376	383	316.2	472.2
26	-4.59	-4.59	0	5.74	2.95	1.15	1.15	0.71	3.82	2.7	488.53	416.11	302.3	375.9	382.7	316.4	472.7
27	-4.45	-4.45	0	5.59	2.8	1.15	1.15	0.67	3.53	2.33	488.23	416.41	302.6	375.9	382.8	316.5	472.8
28	-3.67	-3.67	0	4.83	2.01	1.15	1.15	0.67	3.08	2.02	488.54	416.2	303.2	375.9	382.6	316.8	472.9
29	-2.67	-2.67	0	3.82	0.97	1.15	1.15	0.75	2.64	1.91	487.93	416.58	303.5	375.7	382.2	317	473.1
30	-2.87	-2.87	0	4.02	1.17	1.15	1.15	0.75	2.76	1.98	487.71	416.58	303.5	375.7	382.2	317	473.1
31	-2.28	-2.28	0	3.44	0.59	1.15	1.15	0.66	2.18	1.39	488.14	417.14	303.5	375.8	382.4	317	472.9
32	-4.47	-4.47	0	5.66	2.84	1.19	1.19	0.4	1.53	0.6	482.94	415.91	302.4	375.5	383.2	315.9	341.6
33	-4.03	-4.03	0	5.22	2.39	1.19	1.19	0.46	1.57	0.71	483	415.92	302.4	375.5	383.2	315.9	341.6
34	-4.2	-4.2	0	5.4	2.55	1.2	1.2	0.39	1.42	0.55	494.84	416.36	302.5	375.6	383.2	316.1	341

Gauge	B0	B	dzi	max h	min h	max zeta	max eta post-quake	max s	max hs	max hss	tmax	tmin	tfirstPOS	tfirstNEG	tfirstDRAW	tfirstADVIS	tfirstWARN
35	-4.17	-4.17	0	5.37	2.52	1.2	1.2	0.39	1.39	0.53	494.87	416.37	302.5	375.6	383.3	316.1	341
36	-3.84	-3.84	0	5.04	2.2	1.2	1.2	0.42	1.37	0.57	483.19	415.99	302.6	375.5	383.2	315.9	341.2
37	-2.54	-2.54	0	3.74	0.88	1.2	1.2	0.17	0.35	0.05	495.14	417.12	302.6	375.6	383.2	316	341
38	-2.75	-2.75	0	3.95	1.12	1.19	1.19	0.35	0.74	0.25	483.28	416.41	302.6	375.4	383.3	315.8	341.7
39	-2.42	-2.42	0	3.61	0.82	1.19	1.19	0.36	0.65	0.22	493.57	416.51	302.1	375.3	383.1	315.5	473.5
40	-2.55	-2.55	0	3.74	0.95	1.19	1.19	0.37	1.14	0.42	493.7	417.83	302.4	375.4	383.3	315.5	473.6
41	-2.63	-2.63	0	3.82	1.04	1.19	1.19	0.45	1.61	0.69	493.33	417.73	301.8	375.1	382.9	315.4	473.8
42	-2.17	-2.17	0	3.37	0.56	1.19	1.19	0.66	0.89	0.5	481.58	417.88	302.2	375.4	383.5	315.6	473.5
43	-3.48	-3.48	0	4.67	1.89	1.19	1.19	0.45	1.42	0.58	493.56	416.16	302.1	375.2	383	315.4	473.5
44	-2.99	-2.99	0	4.18	1.38	1.19	1.19	0.64	1.28	0.78	493.97	418.26	302.4	375.5	383.5	315.6	473.5
45	-5.84	-5.84	0	7.03	4.24	1.19	1.19	0.72	3.52	2.5	493.51	417.34	302.1	375.3	383.2	315.4	473.5
46	-2.89	-2.89	0	4.09	1.29	1.19	1.19	1.12	2.02	2.25	493.79	416.72	302.3	375.4	383.2	315.6	473.6
47	-3.69	-3.69	0	4.88	2.09	1.19	1.19	0.24	1.13	0.27	493.4	417.51	302.1	375.3	383.2	315.4	473.4
48	-3.33	-3.33	0	4.52	1.71	1.19	1.19	0.21	0.86	0.18	481.23	417.5	302.6	375.5	383.5	315.6	473.6
49	-2.94	-2.94	0	4.13	1.33	1.19	1.19	0.48	1.41	0.67	493.8	417.47	302.4	375.4	383.3	315.5	473.6
50	-2.37	-2.37	0	3.56	0.76	1.19	1.19	0.49	0.96	0.35	493.73	416.4	302.4	375.4	383.3	315.5	473.6
51	-3.11	-3.11	0	4.3	1.5	1.19	1.19	1.32	2.97	3.88	493.32	417.78	302.1	375.2	383.2	315.6	473.5
52	-3.05	-3.05	0	4.24	1.44	1.19	1.19	1.36	2.89	3.8	481.5	417.87	302.2	375.2	383.2	315.7	473.5
53	-2.74	-2.74	0	3.93	1.12	1.19	1.19	0.91	1.3	1.19	481.64	417.93	302.3	375.4	383.5	315.6	473.6
54	-6.14	-6.14	0	7.33	4.53	1.19	1.19	1.39	7.2	9.98	493.46	418.31	302.2	375.2	383.3	315.5	473.8
55	-6.75	-6.75	0	7.94	5.14	1.19	1.19	1.52	8.5	12.9	494.07	418.32	302.4	375.4	383.4	315.6	473.7
56	-6.16	-6.16	0	7.35	4.55	1.19	1.19	0.9	4.7	4.23	494.09	418.13	302.5	375.5	383.5	315.6	473.6
57	-6.2	-6.2	0	7.39	4.58	1.19	1.19	0.83	4.8	3.98	493.7	417.89	302.7	375.5	383.6	315.6	473.8
58	-1.97	-1.97	0	3.16	0.35	1.19	1.19	0.37	0.64	0.24	493.83	417.82	302.7	375.5	383.6	315.6	473.5
59	-6.07	-6.07	0	7.26	4.45	1.19	1.19	0.33	2.04	0.67	493.72	417.81	302.6	375.5	383.5	315.6	473.8
60	-4.72	-4.72	0	5.91	3.1	1.19	1.19	0.22	1.28	0.28	493.65	417.86	302.7	375.5	383.5	315.6	473.7
61	-4.48	-4.48	0	5.68	2.86	1.2	1.2	0.13	0.67	0.08	481.37	417.48	302.6	375.5	383.6	315.6	473.5
62	-5.78	-5.78	0	6.96	4.16	1.18	1.18	0.44	3.01	1.33	494.08	417.15	302.6	375.5	383.5	315.6	473.8
63	-5.69	-5.69	0	6.88	4.06	1.19	1.19	0.74	4.09	3.03	493.75	417.8	302.7	375.5	383.6	315.6	473.7
64	-1.46	-1.46	0	2.66	0	1.2	1.2	0.2	0.26	0.02	481.45	417.38	302.2	375.5	383.6	315.6	473.6
65	-2.07	-2.07	0	3.27	0.45	1.2	1.2	0.23	0.54	0.12	481.5	417.39	302.4	375.5	383.6	315.6	473.5
66	-2.96	-2.96	0	3.87	1.44	0.91	0.91	0.72	1.97	1.28	484.65	425.22	296.6	366.6	372.8	309.6	n/a
67	-0.41	-0.41	0	1.34	0	0.92	0.92	0.22	0.11	0.02	484.77	398.54	296.7	367	373	309.5	483.2
68	-0.46	-0.46	0	1.37	0	0.91	0.91	0.87	0.75	0.44	484.56	575.4	296.6	364	373.7	309.7	n/a
69	-16	-16	0	16.84	14.4	0.84	0.84	2.59	41.11	106.55	484.29	422.83	296.7	365	372.5	309.3	n/a
70	-5.37	-5.37	0	6.17	3.84	0.8	0.8	2.86	14.88	42.57	484.08	428.56	296.6	366.1	371.8	309.2	n/a

Gauge	B0	B	dzi	max h	min h	max zeta	max eta post-quake	max s	max hs	max hss	tmax	tmin	tfirstPOS	tfirstNEG	tfirstDRAW	tfirstADVIS	tfirstWARN
71	-4.82	-4.82	0	5.63	3.32	0.81	0.81	1.43	6.65	8.37	484.99	426.3	296.4	366.5	371.4	308.3	n/a
72	2.06	2.06	0	0	0	0	2.06	0	0	0	0	0	n/a	n/a	n/a	n/a	n/a
73	-12.38	-12.38	0	13.17	10.89	0.8	0.8	1.46	16.75	24.46	484.93	426.29	296.5	366.3	371.2	308.3	n/a
74	-9.38	-9.38	0	10.18	7.88	0.8	0.8	1.07	10.68	11.38	484.92	426.18	296.5	366.7	371.1	308.3	n/a
75	-10.99	-10.99	0	11.78	9.42	0.8	0.8	1.99	20.86	41.49	484.8	426.46	296.4	366.8	371.1	308.3	n/a
76	-13.03	-13.03	0	13.82	11.25	0.78	0.78	2.63	32.98	84.54	483.05	425.28	296.3	365.1	371	308.3	n/a
77	-8.71	-8.71	0	9.46	7.21	0.75	0.75	3.16	27.02	85.26	484.96	426.54	296	358.6	367	307.7	n/a
78	-1.74	-1.74	0	2.5	0.24	0.76	0.76	1.12	2.48	2.77	484	425.78	296.1	357.9	367	307.9	n/a
79	2.11	2.11	0	0	0	0	2.11	0	0	0	0	0	n/a	n/a	n/a	n/a	n/a
80	-4.12	-4.12	0	4.86	2.62	0.75	0.75	2.08	9.03	17.93	481.92	426.13	296	358.9	366.5	307.5	n/a
81	-0.69	-0.69	0	1.45	0	0.76	0.76	0.65	0.83	0.54	480.83	394.68	295.8	359.2	368.1	307.6	n/a
82	-10.37	-10.37	0	11.11	8.87	0.74	0.74	2.99	30.89	87.75	481.95	425.78	295.9	361.1	368.3	307.3	n/a
83	-7.23	-7.23	0	7.98	5.76	0.75	0.75	2.49	17.49	40.05	515.09	425.28	295.9	352.6	368.5	307	n/a
84	-1.6	-1.6	0	2.35	0.24	0.75	0.75	0.8	1.75	1.41	515	425.08	295.9	362.6	368.6	306.9	n/a
85	1.54	1.54	0	0	0	0	1.54	0	0	0	0	0	n/a	n/a	n/a	n/a	n/a
86	-2.96	-2.96	0	3.72	1.56	0.75	0.75	1.18	3.74	4.34	514.96	425.31	295.5	363.2	368.8	306.5	n/a
87	-6.6	-6.6	0	7.34	5.18	0.74	0.74	2.41	14.84	33.99	515.01	425.12	295.6	354.6	368.5	306.5	n/a
88	-2.83	-2.83	0	3.59	1.44	0.76	0.76	1.11	3.51	3.74	515.05	425.4	295.7	363.9	368.9	306.3	n/a
89	2.34	2.34	0	0	0	0	2.34	0	0	0	0	0	n/a	n/a	n/a	n/a	n/a
90	-2.89	-2.89	0	3.6	1.54	0.71	0.71	1.8	5.55	9.62	518.74	425.49	295	356.7	368.1	305.7	n/a
91	-10.21	-10.21	0	10.92	8.87	0.71	0.71	3.14	29.52	92.67	518.82	425.67	295	358	368	305.6	n/a
92	-9.75	-9.75	0	10.45	8.41	0.71	0.71	2.98	26.64	79.29	518.83	425.7	295	360.9	368.1	305.6	n/a
93	-1.99	-1.99	0	2.71	0.64	0.72	0.72	0.31	0.79	0.25	518.91	403.14	294.8	361.6	368.4	305.5	n/a
94	-5.28	-5.28	0	5.99	3.92	0.71	0.71	1.33	7.83	10.44	518.83	425.82	295	361.5	368.4	305.5	n/a
95	-9.36	-9.36	0	10.07	7.98	0.7	0.7	2.8	23.96	67.15	517.19	405.23	295.1	361.8	368.3	305.8	n/a
96	-8.24	-8.24	0	8.94	6.87	0.7	0.7	2.49	19.35	47.09	517.2	405.21	295	361.4	368.2	305.8	n/a
97	-3.15	-3.15	0	3.86	1.8	0.7	0.7	2.08	7.45	15.21	518.91	425.97	294.9	348.9	366.4	305.5	n/a
98	-3.02	-3.02	0	3.72	1.66	0.7	0.7	2.38	7.43	17.71	518.91	425.93	294.9	347.5	365.7	305.4	n/a
99	-2.94	-2.94	0	3.68	1.57	0.75	0.75	1.75	5.86	10.26	515.45	425.45	295.2	361	368.2	305.9	n/a
100	-6.64	-6.64	0	7.39	5.25	0.75	0.75	2.63	18.42	48.51	514.04	425.67	295.3	352.4	367.7	305.9	n/a
101	-2.22	-2.22	0	2.95	0.74	0.73	0.73	2.52	5.65	12.71	515.56	425.42	295.2	353.9	367.5	305.9	n/a
102	-3.87	-3.87	0	4.88	2.62	1.01	1.01	1.43	5.9	8.43	315.9	400.9	292.9	343.8	347.3	302.7	312
103	-7.34	-7.34	0	8.34	6.09	1	1	2.29	16.29	37.36	315.78	400.86	293	343.6	347.2	302.8	312.1
104	-3.69	-3.69	0	4.69	2.43	1	1	0.95	3.78	3.61	314.98	401.02	292.9	343.8	347.1	302.6	311.7
105	-6.67	-6.67	0	7.67	5.42	0.99	0.99	2.14	14.28	30.32	315.25	400.72	293	343.4	347	302.6	311.9
106	-9.92	-9.92	0	10.92	8.67	1	1	2.27	22.21	50.36	315.66	400.72	293	343.5	346.9	302.6	311.8

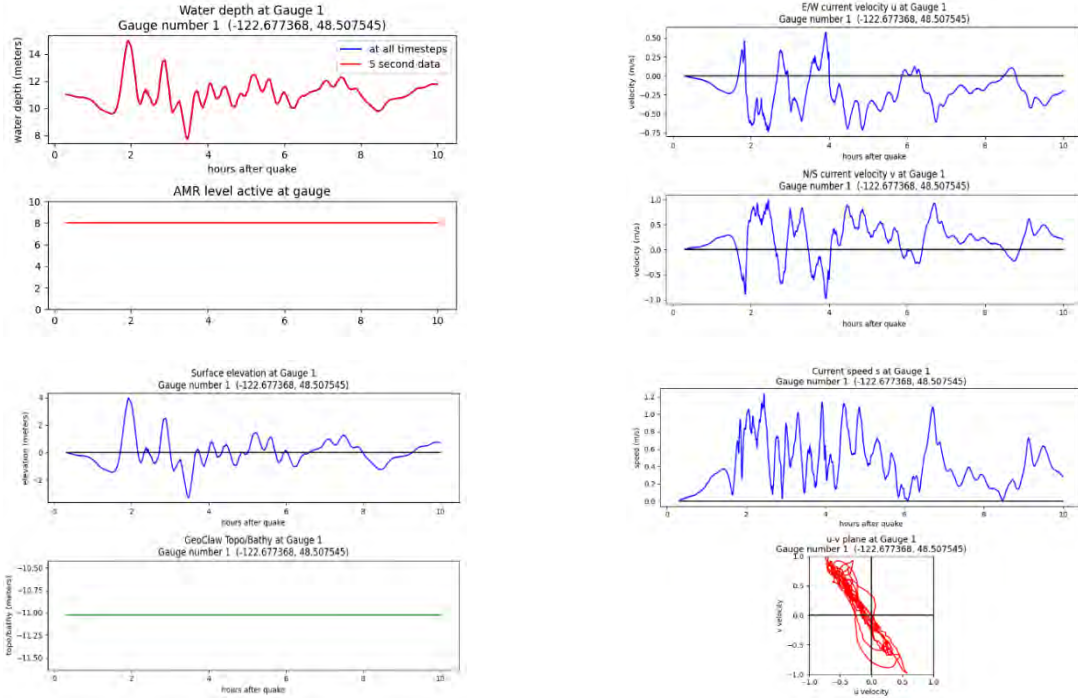
Gauge	B0	B	dzi	max h	min h	max zeta	max eta post-quake	max s	max hs	max hss	tmax	tmin	tfirstPOS	tfirstNEG	tfirstDRAW	tfirstADVIS	tfirstWARN
107	-2.98	-2.98	0	3.97	1.72	0.99	0.99	0.1	0.35	0.04	315.44	400.18	293.2	343.6	346.9	302.7	312
108	-1.42	-1.42	0	2.47	0.22	1.05	1.05	0.93	1.49	1.18	316.21	400.2	293.1	343.4	346.4	302.3	311
109	-5.37	-5.37	0	6.36	4.12	0.99	0.99	2.05	10.96	22.5	315.84	400.69	292.9	343.5	346.8	302.6	312.1
110	-3.88	-3.88	0	5.03	2.84	1.15	1.15	1.34	5.46	7.31	316	399.88	291	341.8	344.4	300.8	309.1
111	-4.86	-4.86	0	6.01	3.82	1.15	1.15	1.18	6.01	7.09	316.03	399.93	291	341.8	344.4	300.8	309.1
112	-3.55	-3.55	0	4.7	2.51	1.15	1.15	1.09	4.15	4.52	316.08	399.98	290.9	341.9	344.4	300.8	309.1
113	-9.43	-9.43	0	10.58	8.39	1.15	1.15	1.35	13.01	17.57	315.96	399.84	290.8	341.8	344.4	300.8	309.1
114	2.74	2.74	0	0	0	0	2.74	0	0	0	0	0	n/a	n/a	n/a	n/a	n/a
115	-4.45	-4.45	0	5.92	3.12	1.48	1.48	2.42	10.26	24.36	517.32	364.61	287.7	333.9	335.5	295.5	302.3
116	-2.24	-2.24	0	3.77	1.19	1.54	1.54	0.49	1.81	0.89	515.61	371.25	290.5	338.4	341.7	296.7	302.8
117	-3.57	-3.57	0	5.06	2.26	1.49	1.49	1.66	6.97	11.54	515.95	371.27	290.3	338.3	341.7	296.7	302.8
118	-3.54	-3.54	0	5.08	2.22	1.55	1.55	0.04	0.17	0.01	515.32	371.58	290.8	338.4	341.7	296.8	302.8
119	-3.56	-3.56	0	5.1	2.25	1.53	1.53	0.04	0.19	0.01	514.75	371.51	290.6	338.4	341.7	296.7	302.8
120	-3.89	-3.89	0	5.41	2.58	1.52	1.52	0.04	0.18	0.01	516.12	371.43	290.3	338.4	341.7	296.8	302.8
121	-3.71	-3.71	0	5.24	2.4	1.53	1.53	0.04	0.16	0.01	515.2	371.52	290.2	338.3	341.7	296.7	303
122	-27.28	-27.28	0	28.78	25.96	1.49	1.49	1.97	53.08	104.39	517.1	366.24	287.3	334.4	336.3	294.7	301.5
123	-16.91	-16.91	0	17.98	15.69	1.07	1.07	1.94	30.59	59.43	315.54	400.82	292.1	342.9	345.7	301.9	310.6
124	-26.2	-26.2	0	26.87	24.85	0.67	0.67	4	105.64	422.2	315.64	402.49	295.1	360	367.9	305.7	n/a
125	-24.97	-24.97	0	25.95	23.47	0.98	0.98	3.72	90.19	335.29	484.56	424.84	297.5	369.9	375.9	310.4	479.1
126	-20.11	-20.11	0	21.2	18.55	1.09	1.09	1.31	25.63	33.58	486.75	418.88	300.6	375.2	382.5	315.3	473.9
127	-2.51	-2.51	0	3.58	1.02	1.06	1.06	0.27	0.84	0.21	486.59	424.23	298.3	372.5	379.3	311.7	474.8
128	3.79	3.79	0	0	0	0	3.79	0	0	0	0	0	n/a	n/a	n/a	n/a	n/a
129	1.11	1.11	0	0.05	0	0.05	1.16	0.21	0.01	0	316.09	0	313.7	n/a	n/a	n/a	n/a
130	2.69	2.69	0	0	0	0	2.69	0	0	0	0	0	n/a	n/a	n/a	n/a	n/a
131	2.33	2.33	0	0	0	0	2.33	0	0	0	0	0	n/a	n/a	n/a	n/a	n/a
132	1.34	1.34	0	0	0	0	1.34	0	0	0	0	0	n/a	n/a	n/a	n/a	n/a
133	-2.89	-2.89	0	4.09	1.27	1.19	1.19	0.81	2.36	1.87	482.37	418.07	302.7	375.5	383.6	315.6	473.8
134	3.22	3.22	0	0	0	0	3.22	0	0	0	0	0	n/a	n/a	n/a	n/a	n/a
135	-3.83	-3.83	0	4.75	2.36	0.91	0.91	0.78	3.55	2.77	484.67	425.06	296.9	367.8	372.7	309.7	n/a
136	2.1	2.1	0	0	0	0	2.1	0	0	0	0	0	n/a	n/a	n/a	n/a	n/a
137	-8.52	-8.52	0	9.28	7.09	0.76	0.76	2.54	21.36	53.69	515.14	402.53	295.4	362.1	368.5	306.2	n/a
138	-6.5	-6.5	0	7.21	5.07	0.71	0.71	2.05	13.96	28.57	518.4	403.98	295	357.1	368.5	305.9	n/a
139	-3.01	-3.01	0	3.73	1.65	0.72	0.72	1.13	3.36	3.19	517.21	403.93	294.9	362.4	368.6	305.8	n/a
140	-2.85	-2.85	0	3.57	1.46	0.72	0.72	0.48	1.67	0.79	515.33	403.83	295	354.3	368.5	306	n/a
141	-19.64	-19.64	0	20.8	18.06	1.15	1.15	0.44	8.39	3.68	487.09	417.39	301.3	375.6	382.9	315.6	472.5
142	-15.68	-15.68	0	16.84	14.1	1.15	1.15	0.51	7.65	3.86	487.11	417.44	301.4	375.6	382.9	315.6	472.5

Gauge	B0	B	dzi	max h	min h	max zeta	max eta post-quake	max s	max hs	max hss	tmax	tmin	tfirstPOS	tfirstNEG	tfirstDRAW	tfirstADVIS	tfirstWARN
143	1.72	1.72	0	0	0	0	1.72	0	0	0	0	0	n/a	n/a	n/a	n/a	n/a
144	0.64	0.64	0	0.43	0	0.43	1.07	0.4	0.02	0	315.7	0	307.1	n/a	n/a	311.2	n/a
145	-9.57	-9.57	0	10.71	8.54	1.15	1.15	1.48	14.41	21.4	315.81	399.77	290.6	341.8	344.3	300.7	309.1
146	-15.81	-15.81	0	16.96	14.78	1.15	1.15	1.44	23.05	33.17	315.76	399.83	290.7	341.8	344.4	300.8	309.1
147	-14.54	-14.54	0	15.69	13.5	1.15	1.15	1.41	20.87	29.45	315.77	399.83	290.9	341.8	344.4	300.8	309.1
148	-10.05	-10.05	0	11.2	9.01	1.15	1.15	1.38	14.22	19.57	316	399.86	291	341.9	344.4	300.8	309.1
149	2.99	2.99	0	0	0	0	2.99	0	0	0	0	0	n/a	n/a	n/a	n/a	n/a
150	1.74	1.74	0	0	0	0	1.74	0	0	0	0	0	n/a	n/a	n/a	n/a	n/a
151	-3.11	-3.11	0	4.34	2	1.23	1.23	0.48	1.57	0.76	315.27	373.79	288.3	338.9	341.6	298.2	306.6
152	10.33	10.33	0	0	0	0	10.33	0	0	0	0	0	n/a	n/a	n/a	n/a	n/a
153	1.91	1.91	0	0	0	0	1.91	0	0	0	0	0	n/a	n/a	n/a	n/a	n/a
154	-10.94	-10.94	0	11.68	9.57	0.74	0.74	2.93	33.08	96.96	515.45	425.64	295.3	352.4	367.9	305.8	n/a
155	1.14	1.14	0	0.17	0	0.17	1.31	0.28	0.03	0.01	492.83	0	480.3	n/a	n/a	n/a	n/a

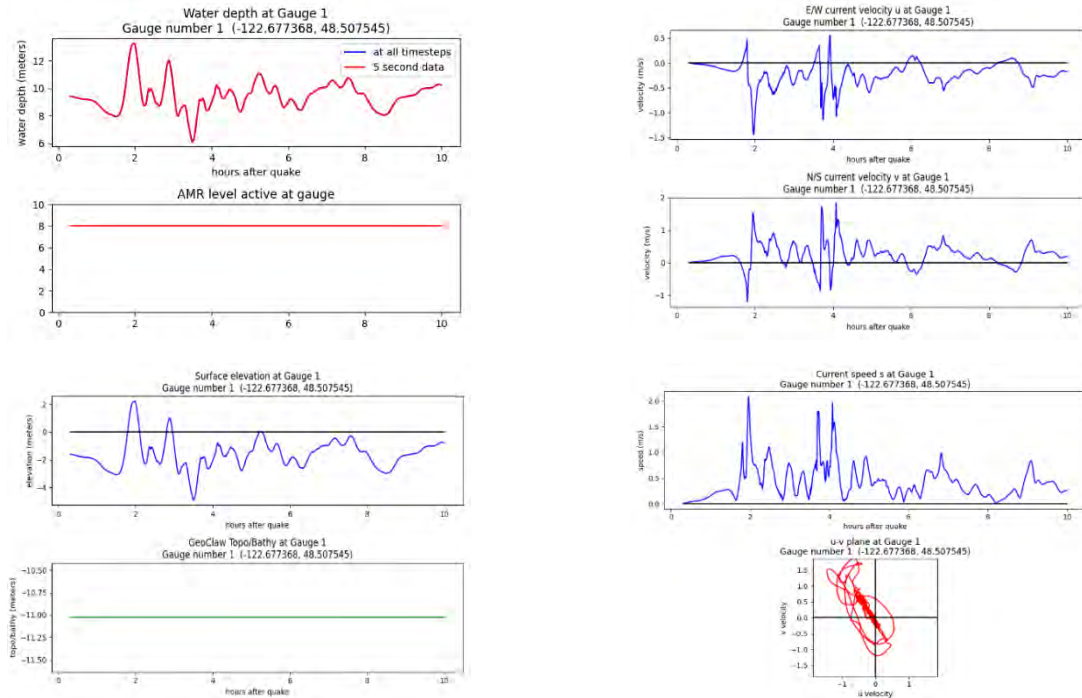
Appendix D. All study gauge plots

Gauge 1: Sydney BC Terminal, Anacortes Ferry Terminal

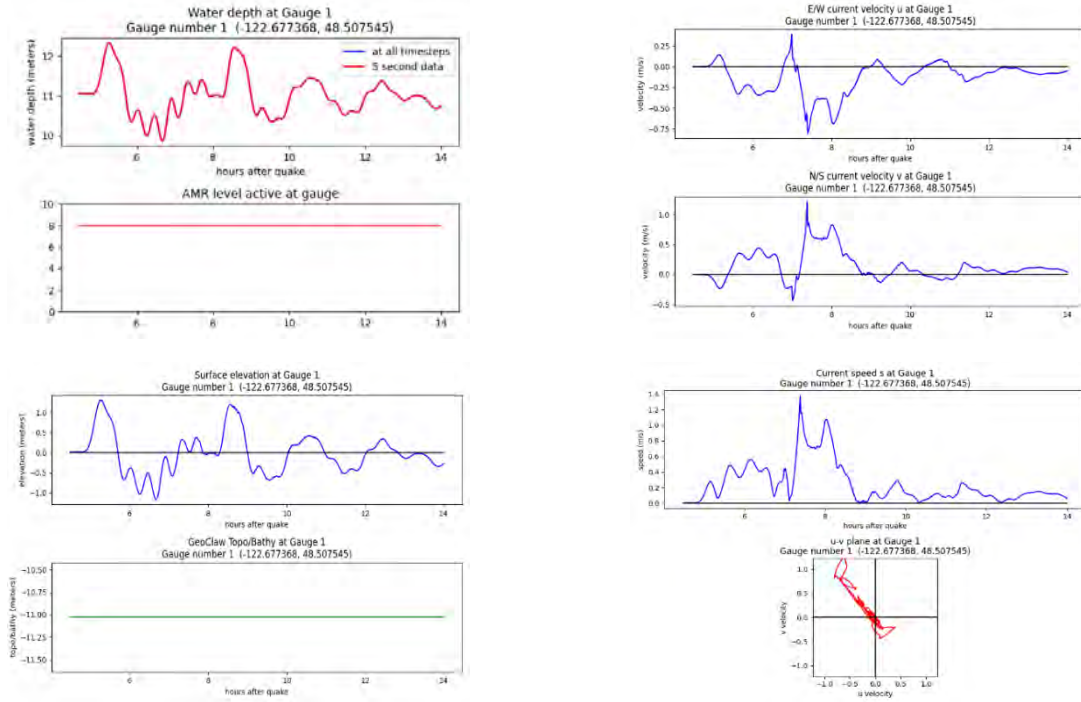
Cascadia subduction zone scenario, MHW:



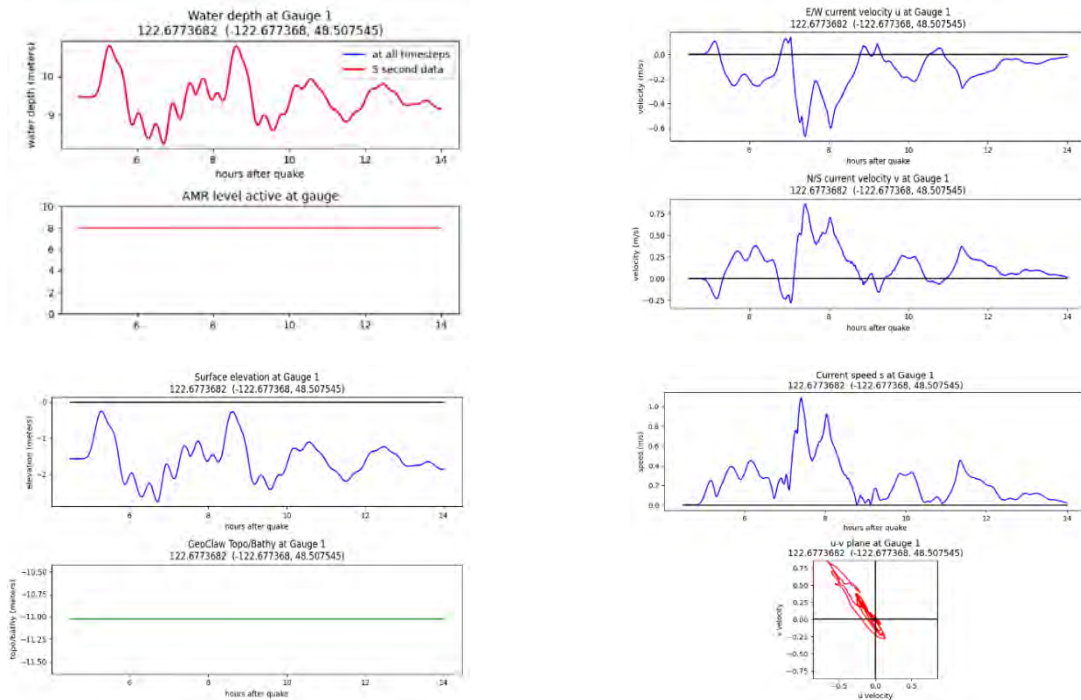
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

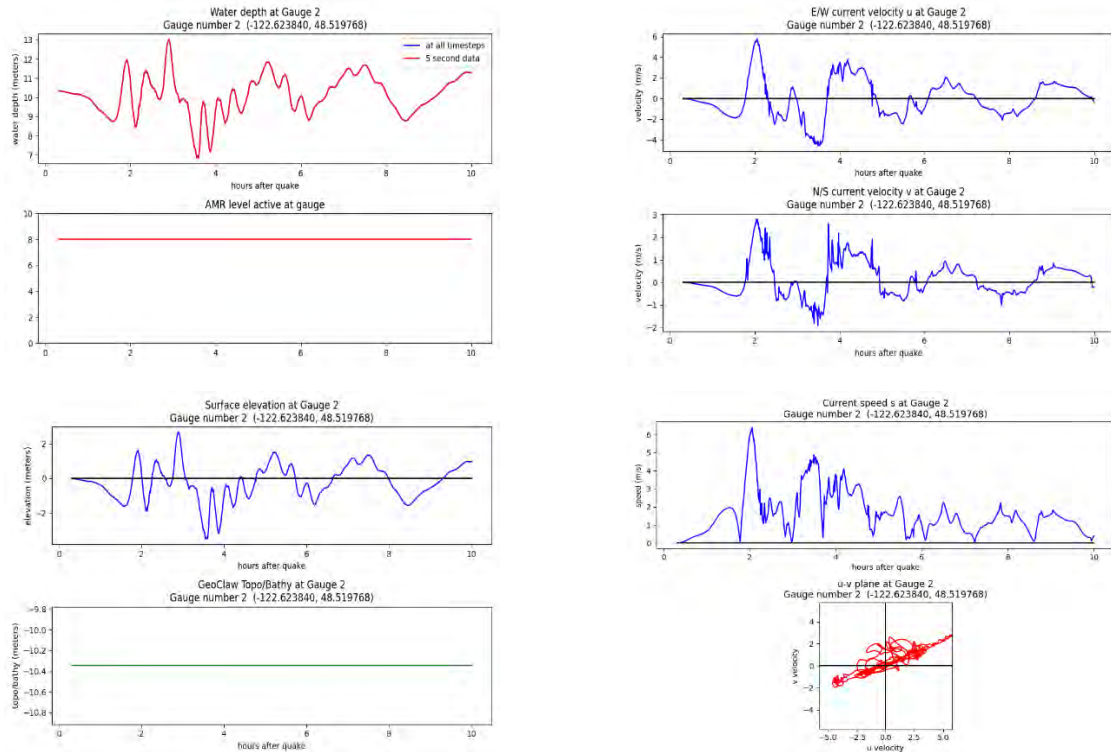


Alaska-Aleutian subduction zone scenario, MLW:

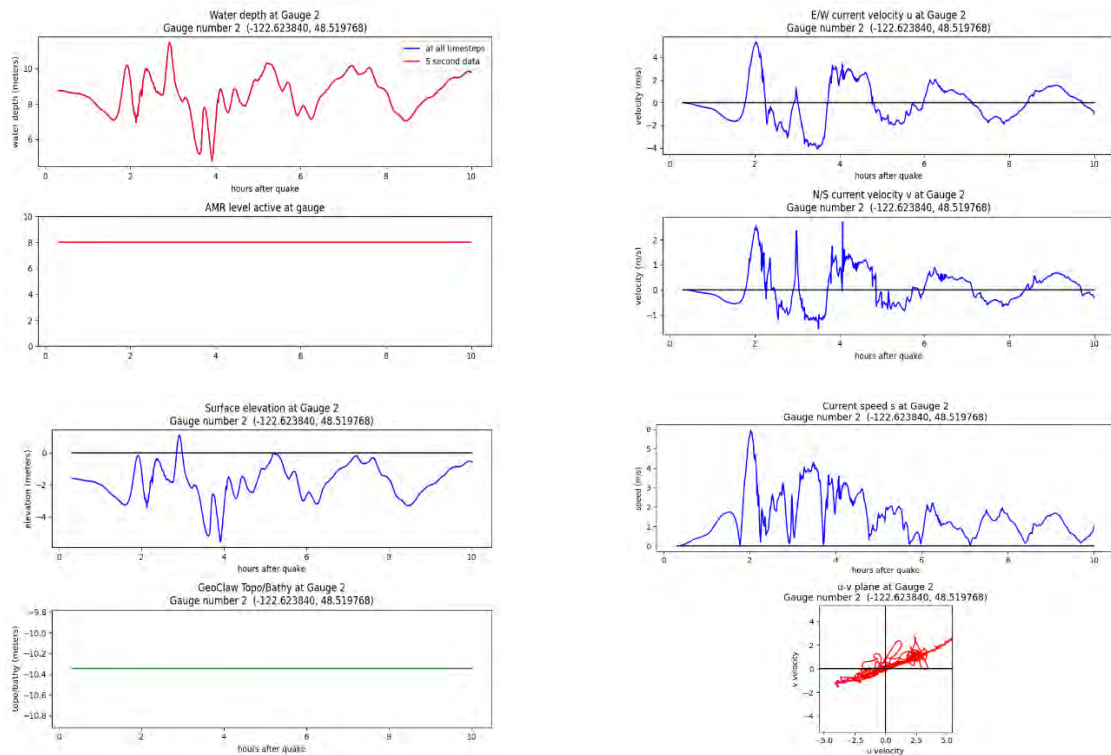


Gauge 2: Guemes Island Ferry Terminal

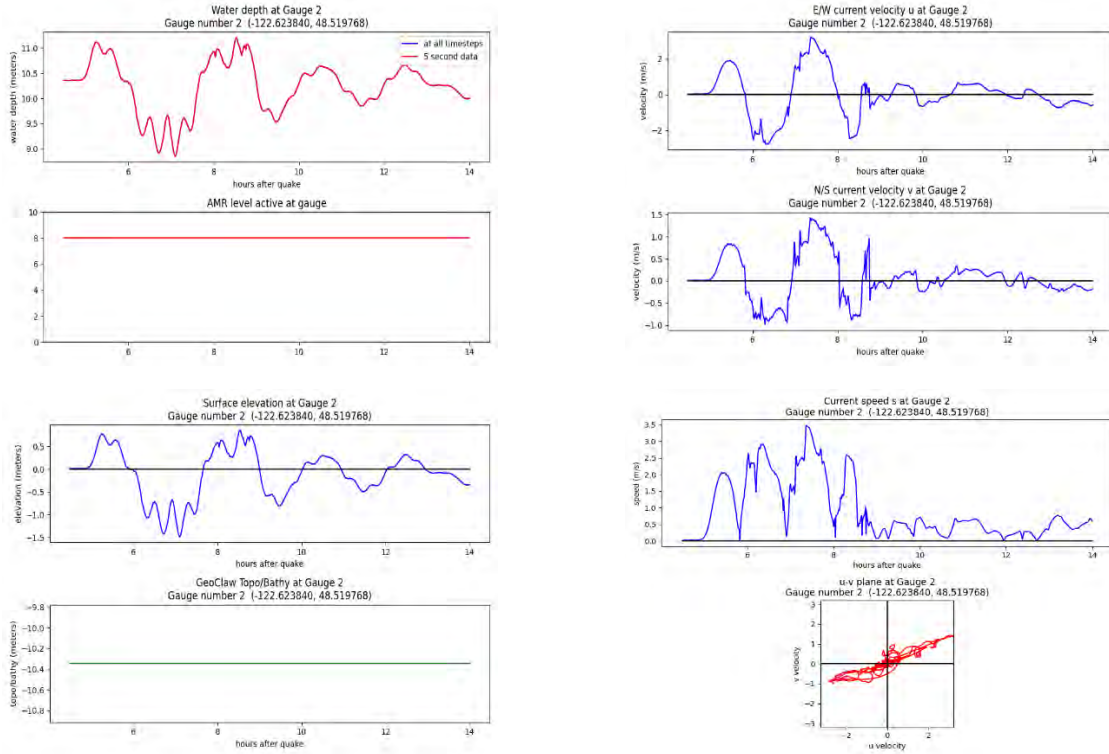
Cascadia subduction zone scenario, MHW:



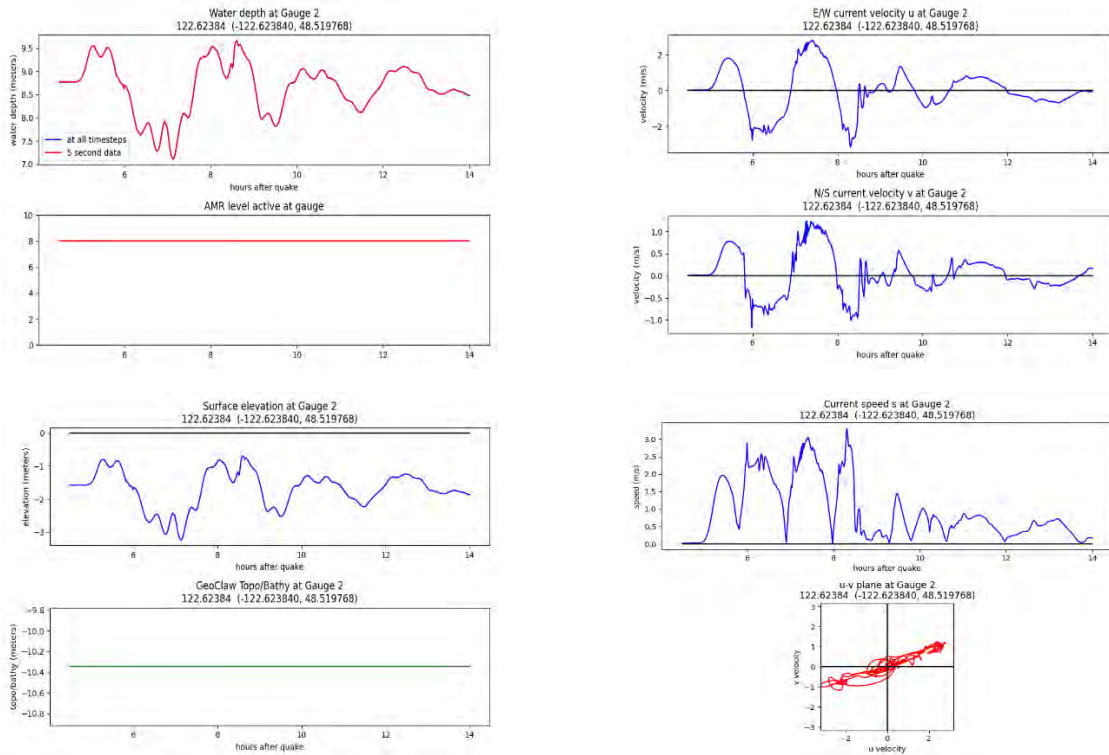
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

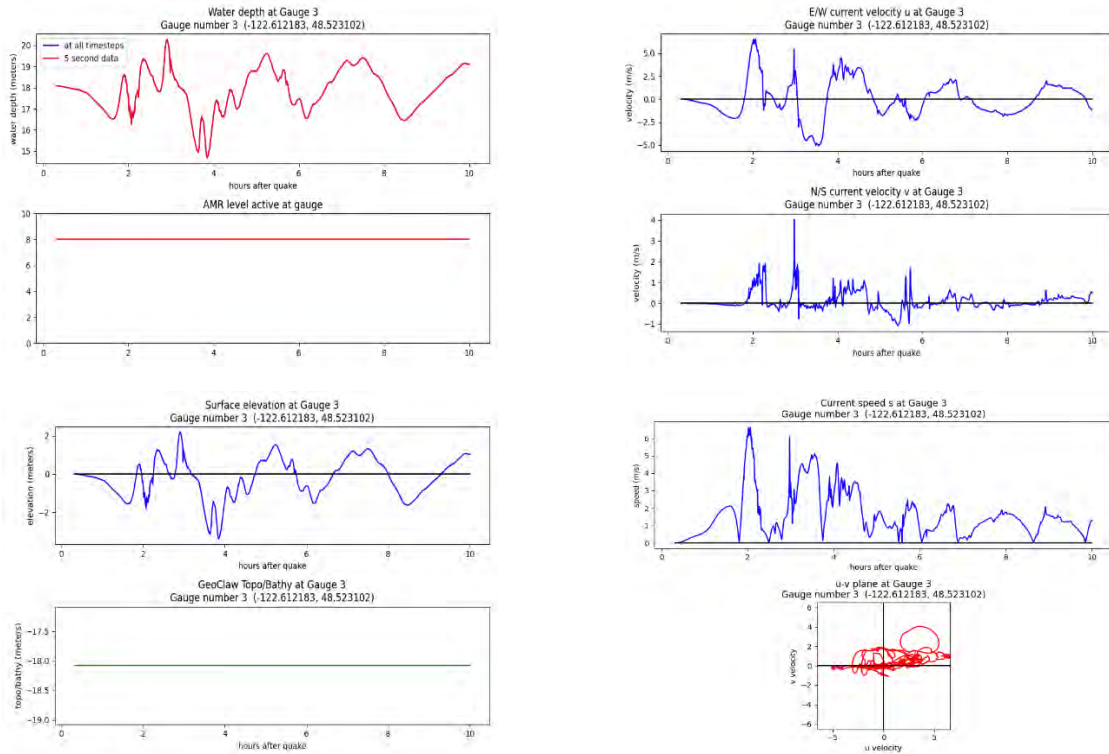


Alaska-Aleutian subduction zone scenario, MLW:

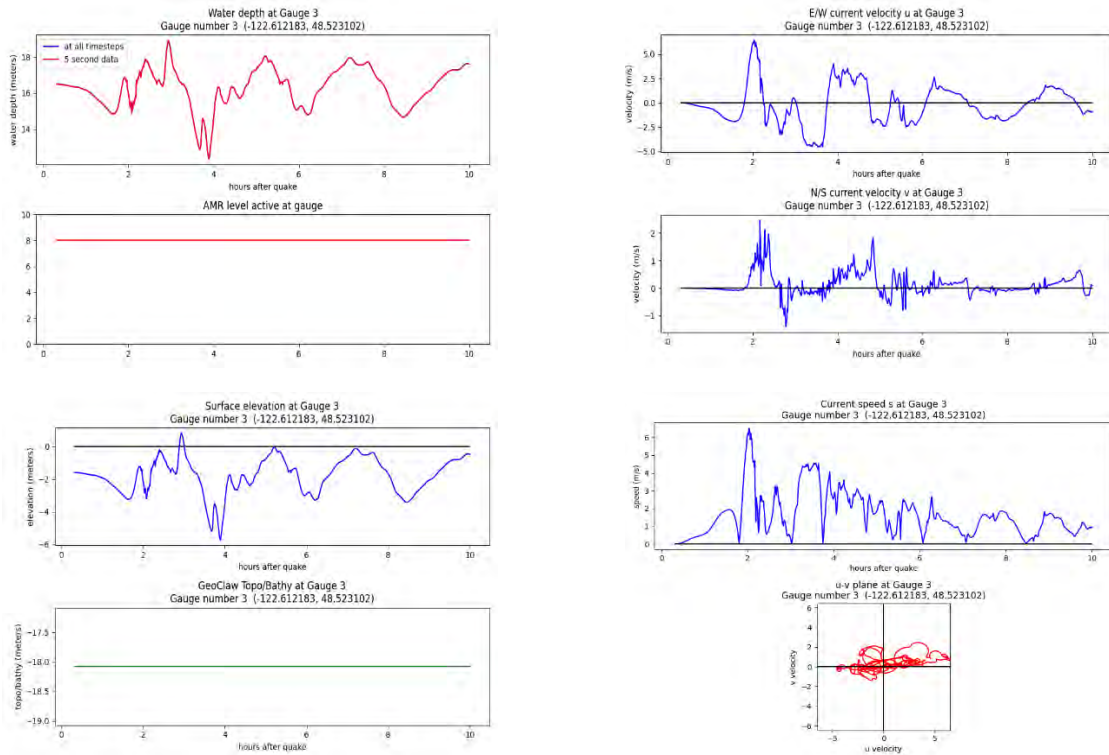


Gauge 3: Port of Anacortes, Pier 1

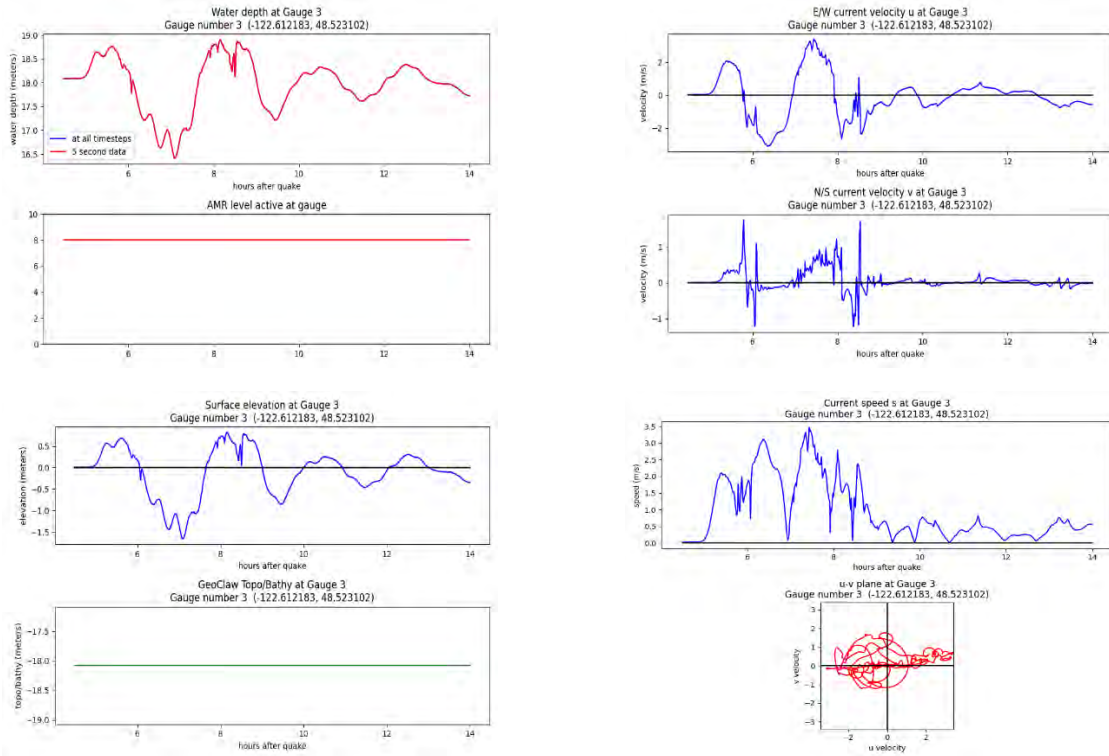
Cascadia subduction zone scenario, MHW:



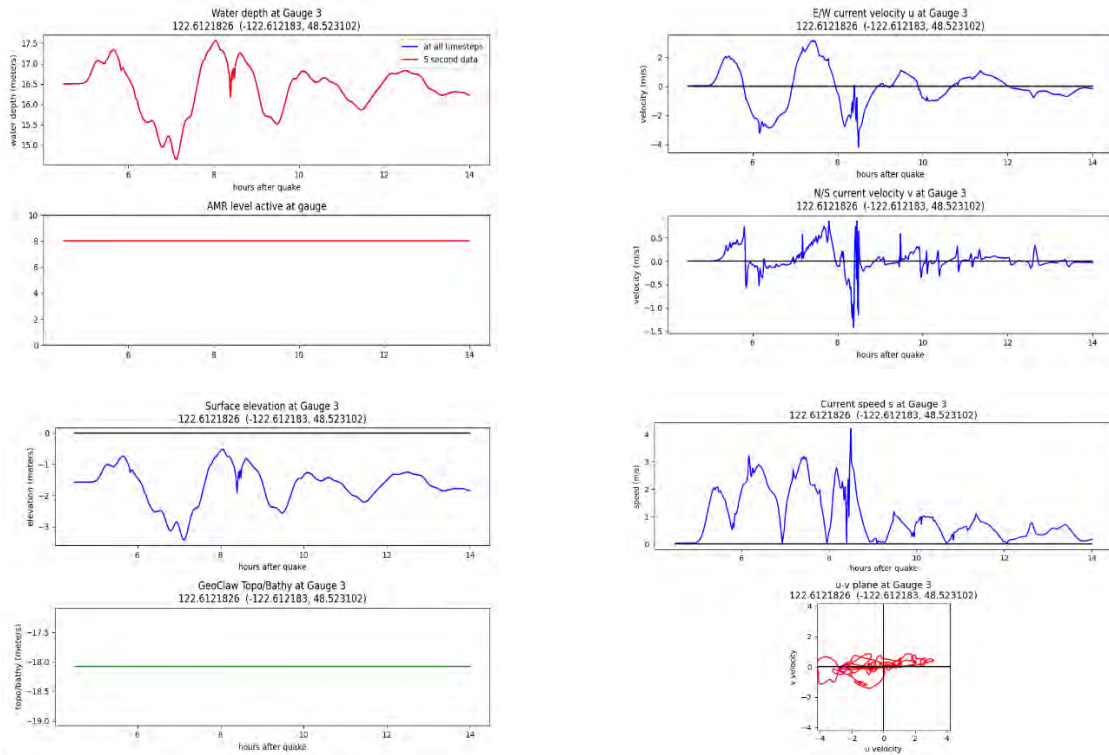
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

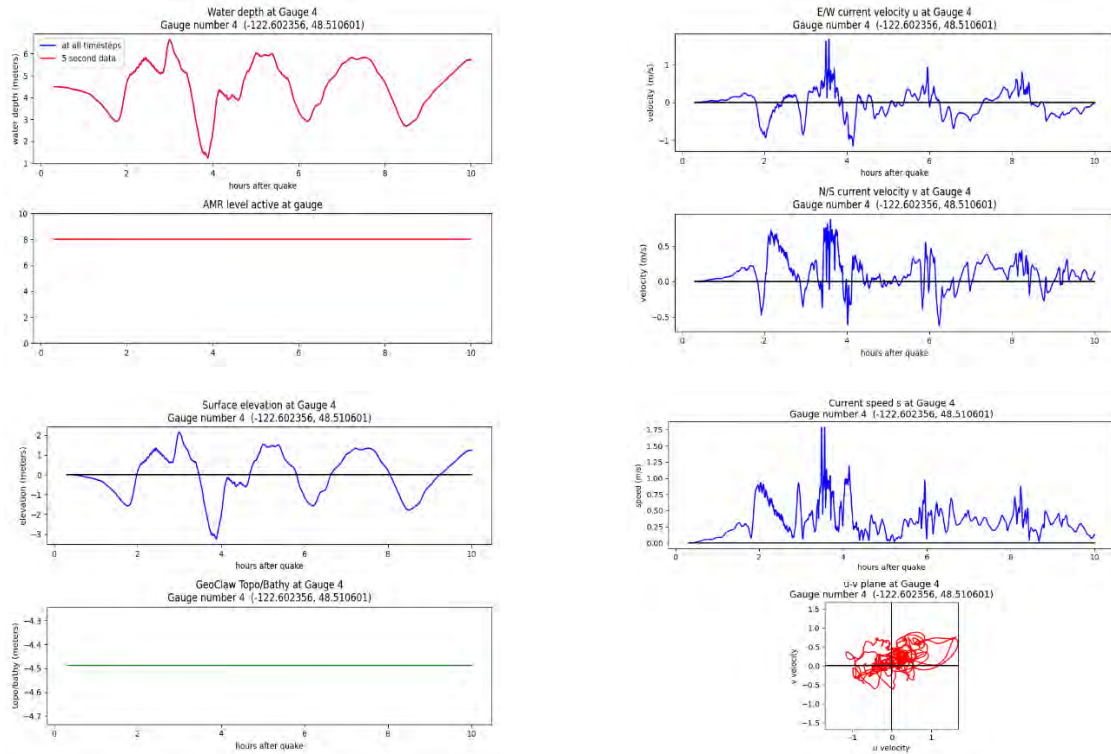


Alaska-Aleutian subduction zone scenario, MLW:

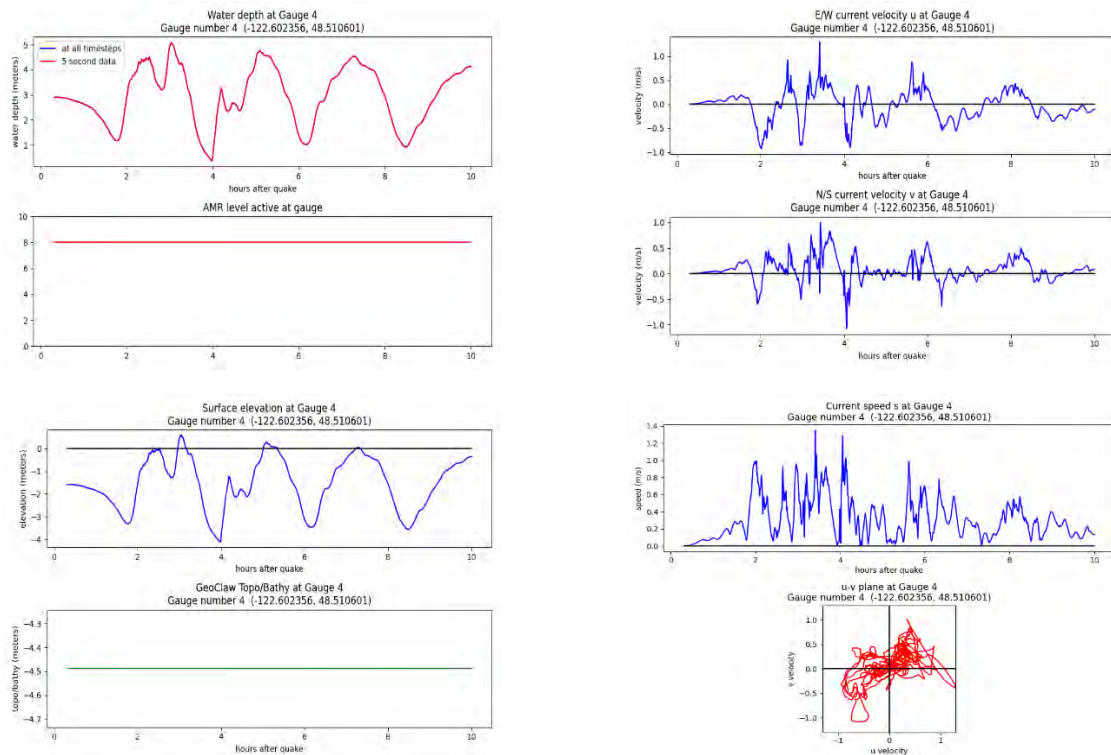


Gauge 4: Cap Sante Marina

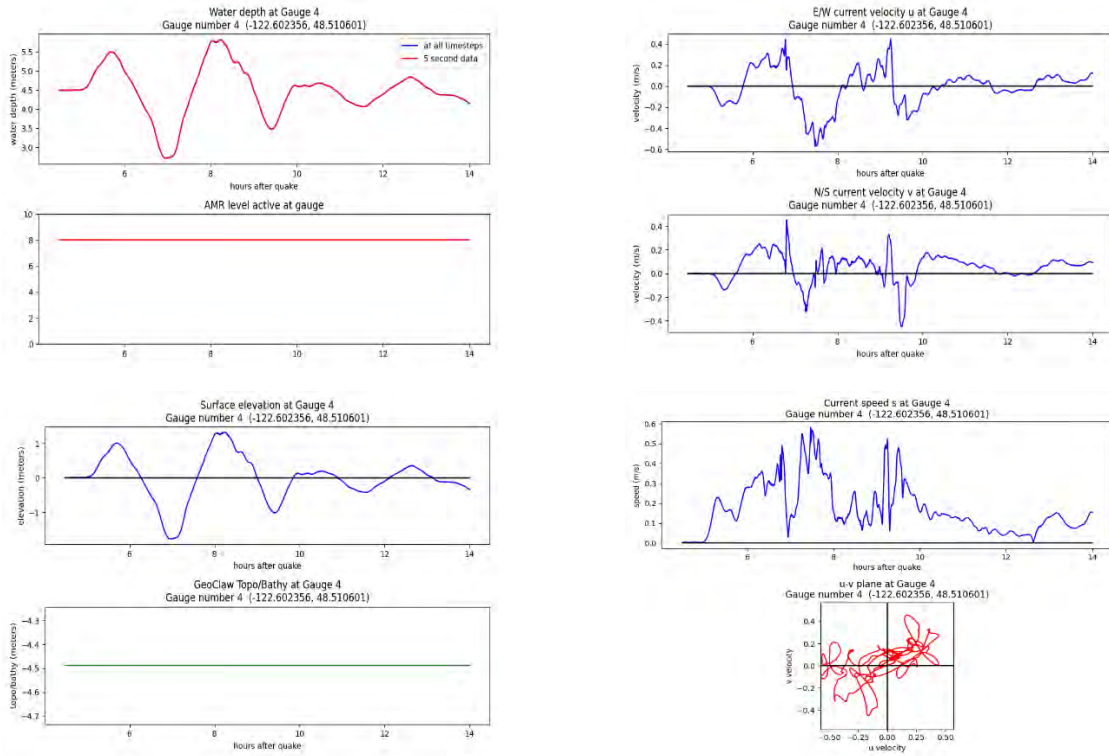
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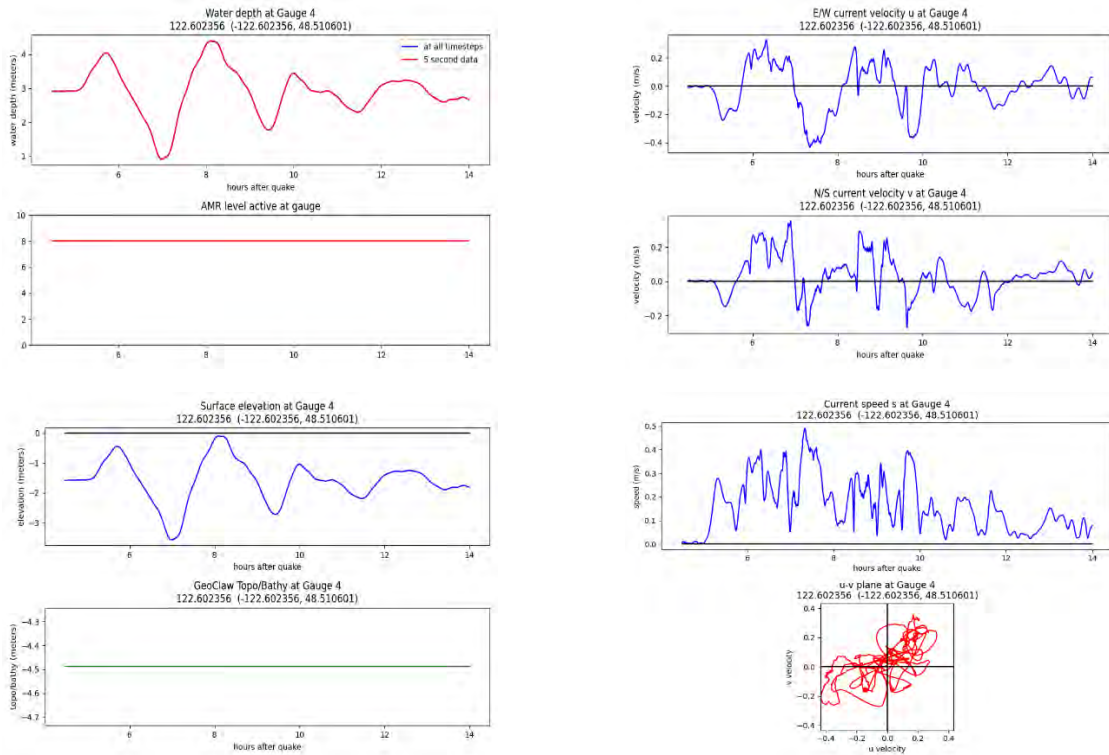
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

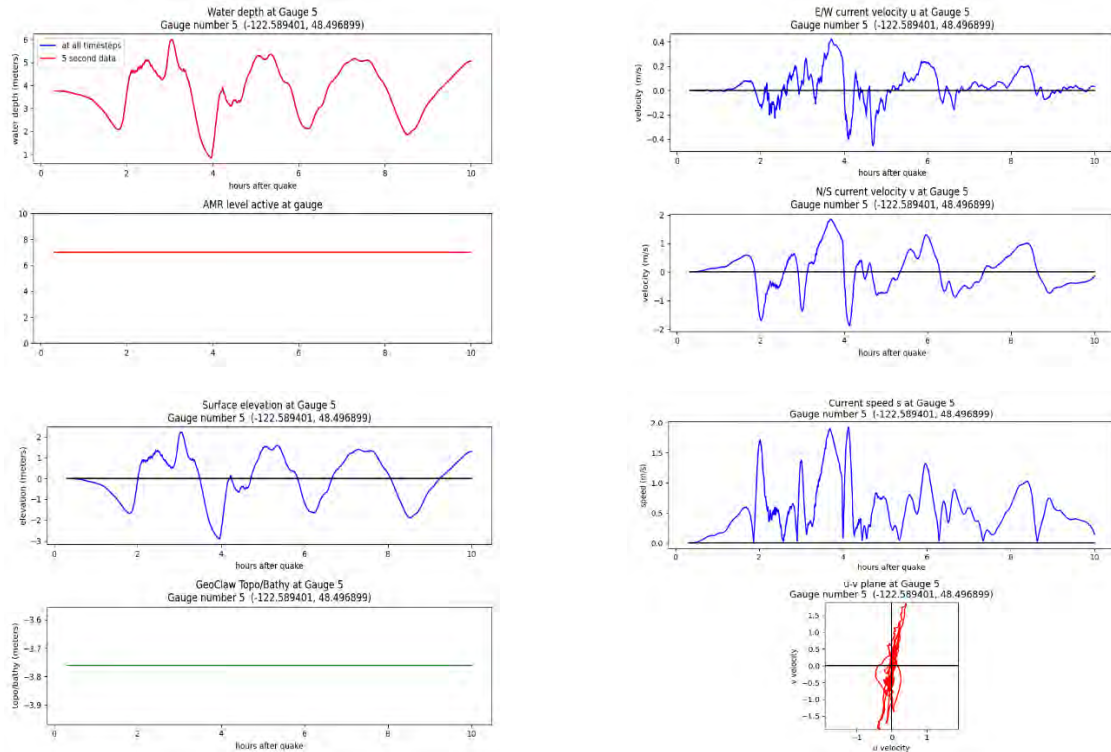


Alaska-Aleutian subduction zone scenario, MLW:

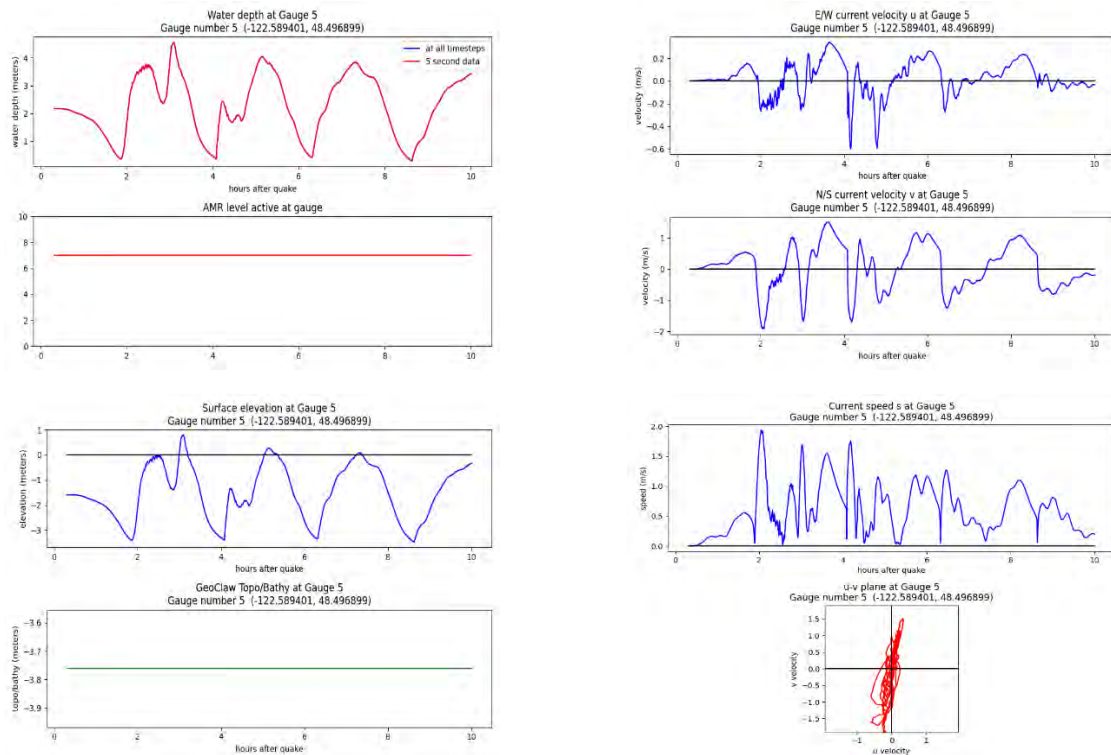


Gauge 5: Fidalgo Bay

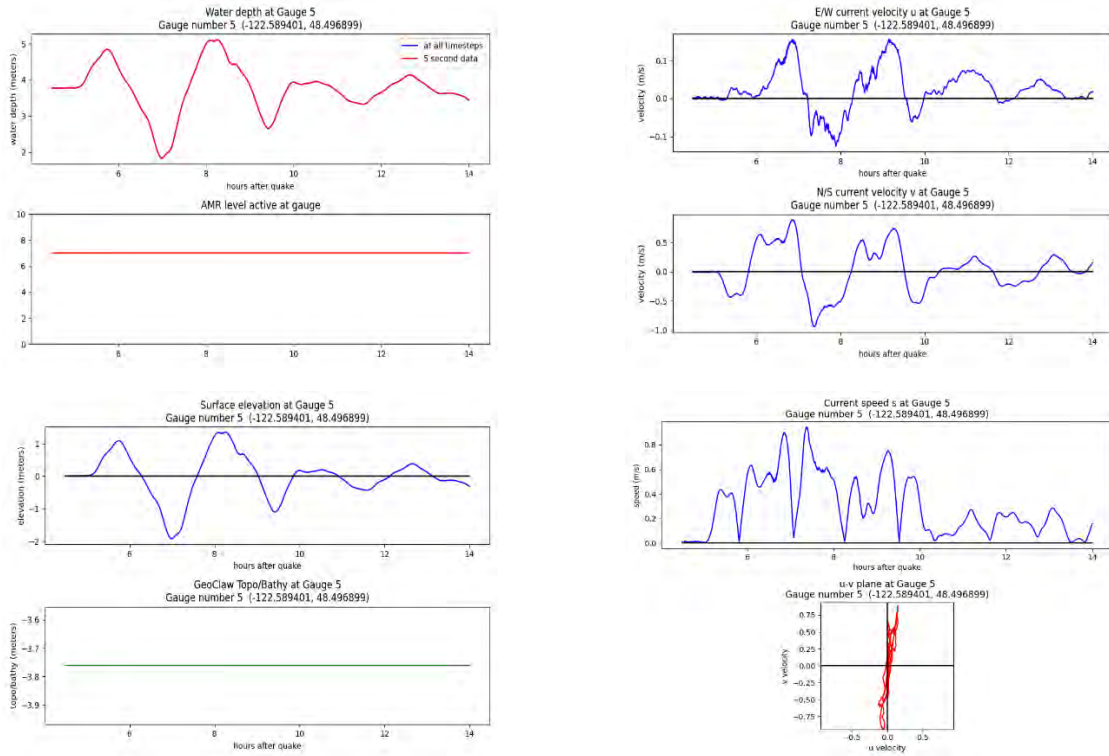
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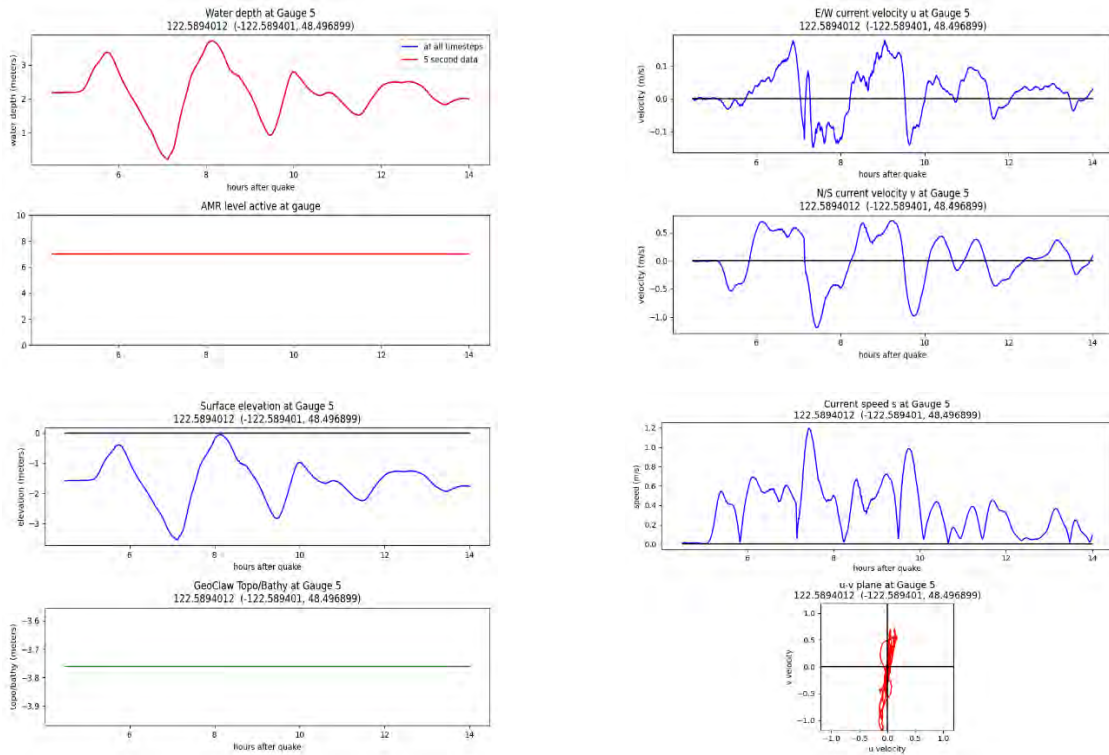
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

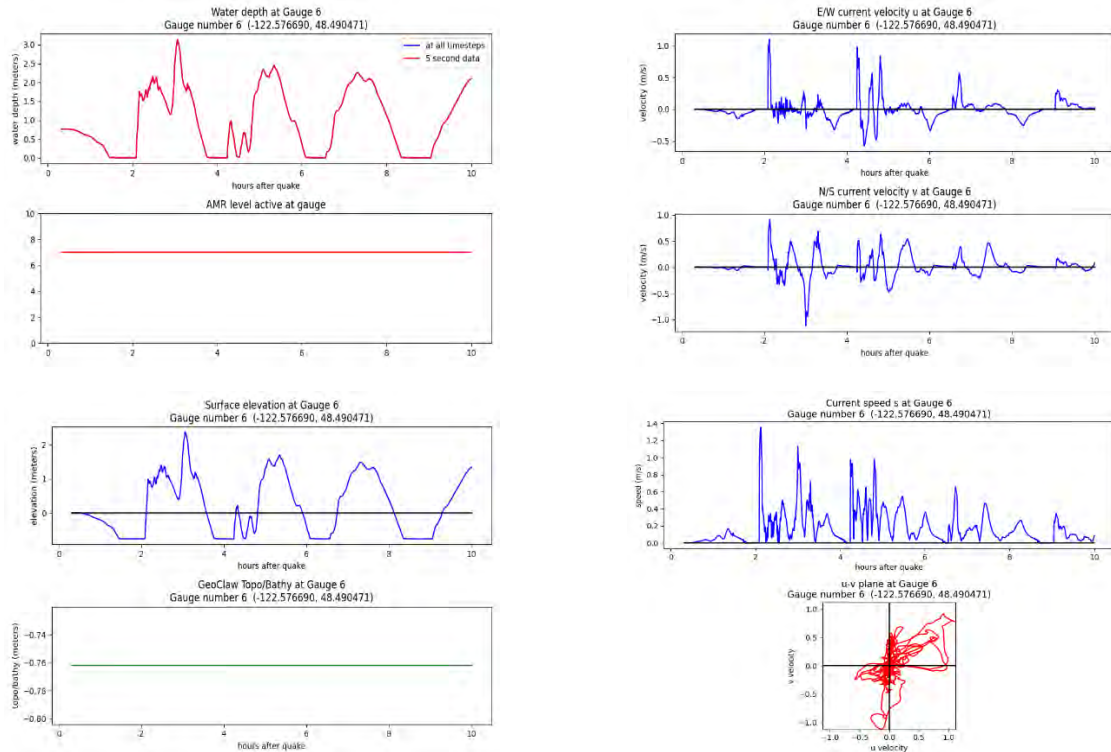


Alaska-Aleutian subduction zone scenario, MLW:

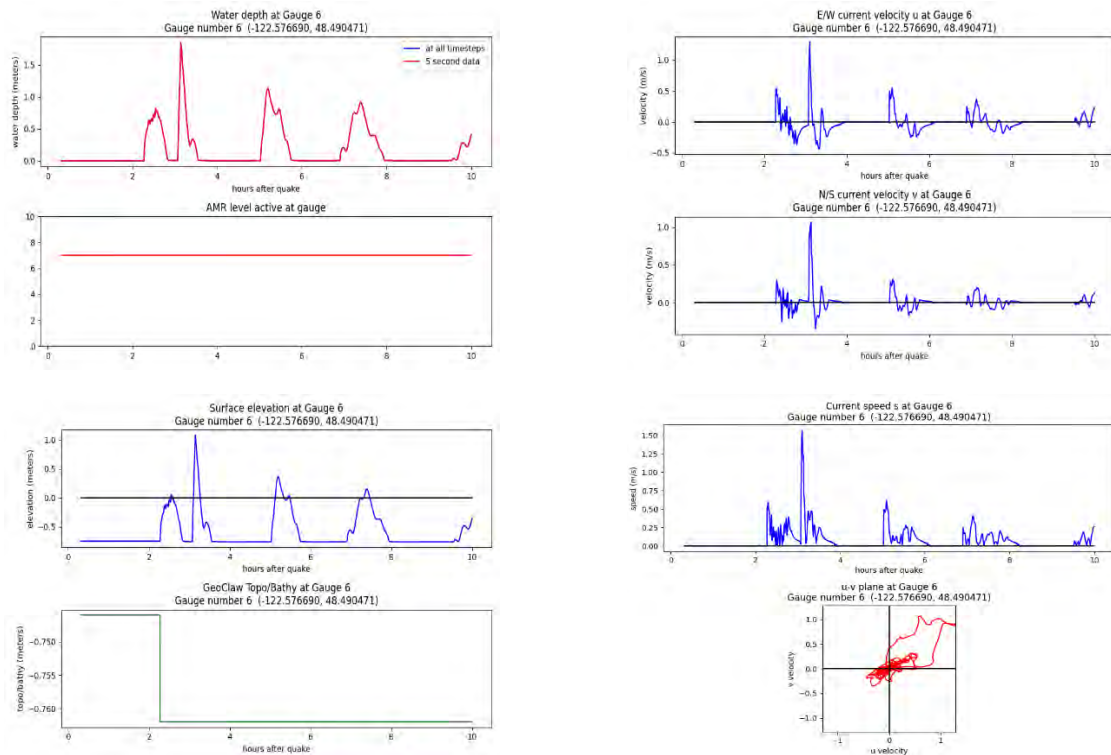


Gauge 6: Equilon Enterprises pumping station (offshore)

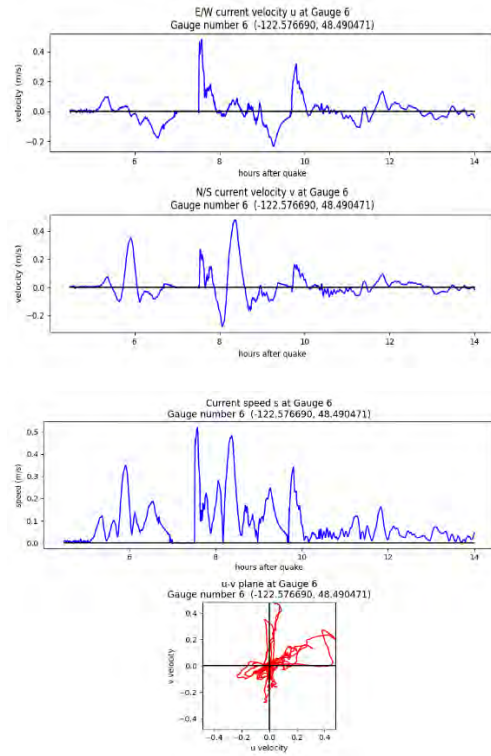
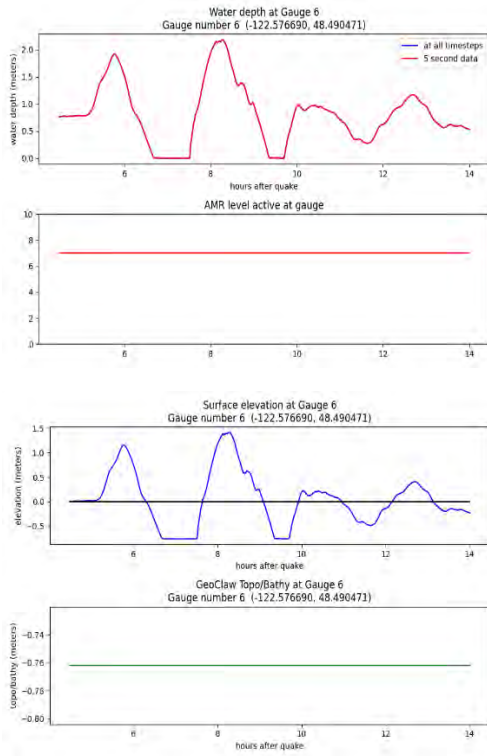
Cascadia subduction zone scenario, MHW:



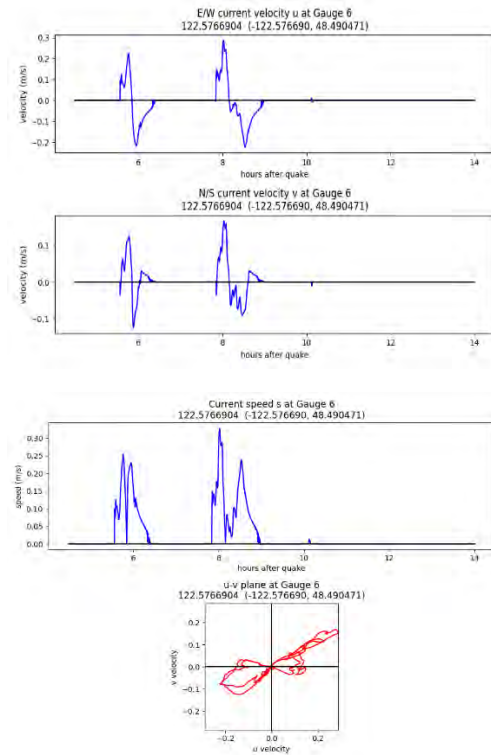
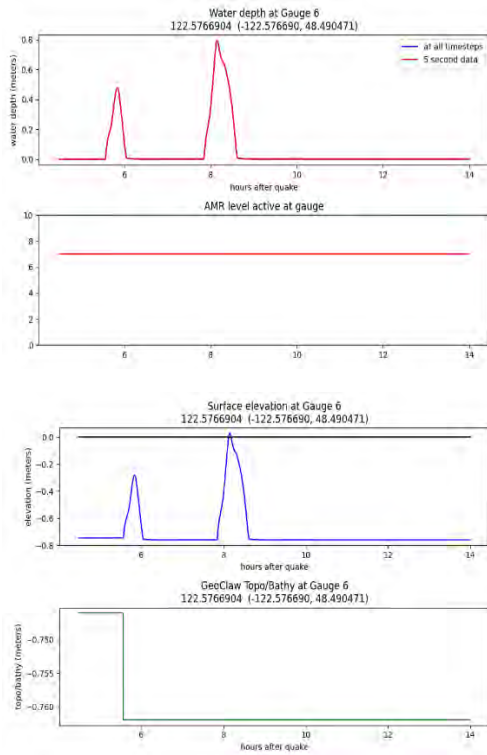
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

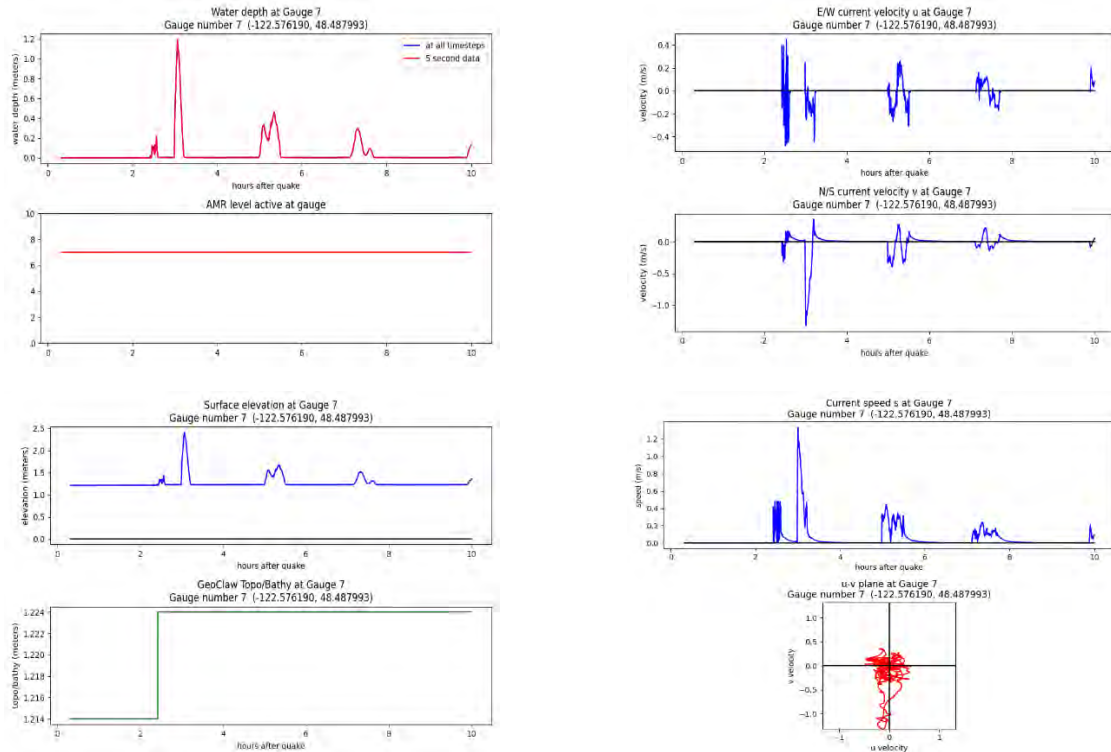


Alaska-Aleutian subduction zone scenario, MLW:

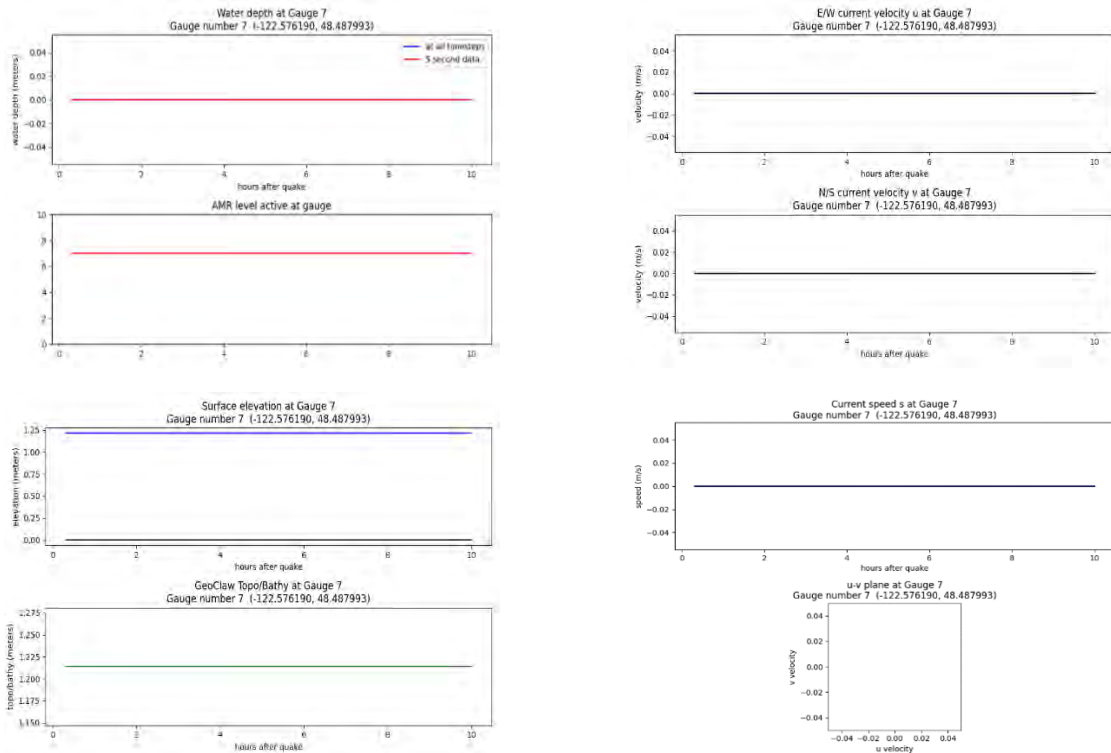


Gauge 7: Equilon Enterprises pumping station (onshore)

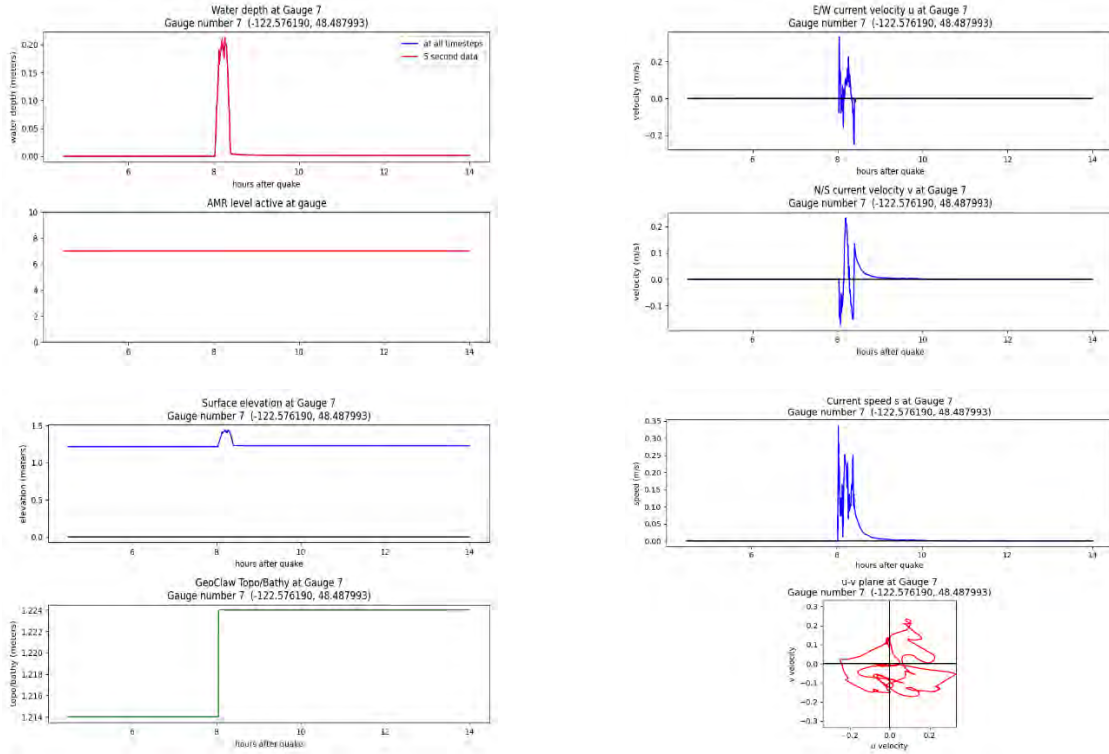
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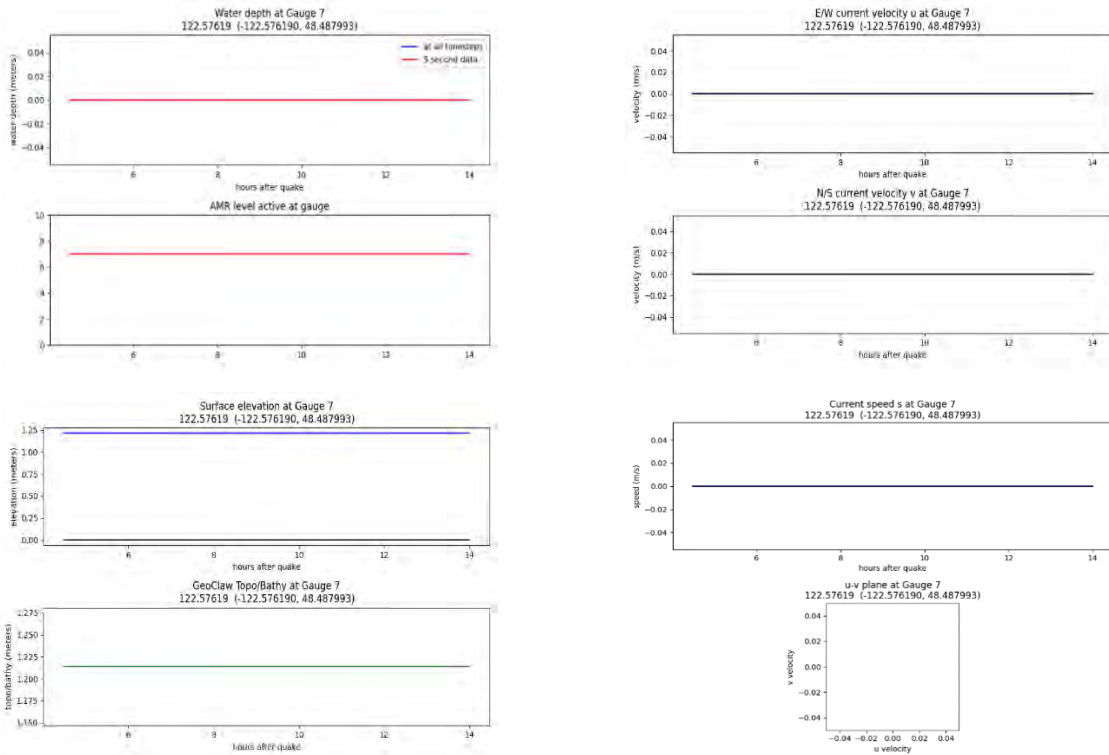
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW

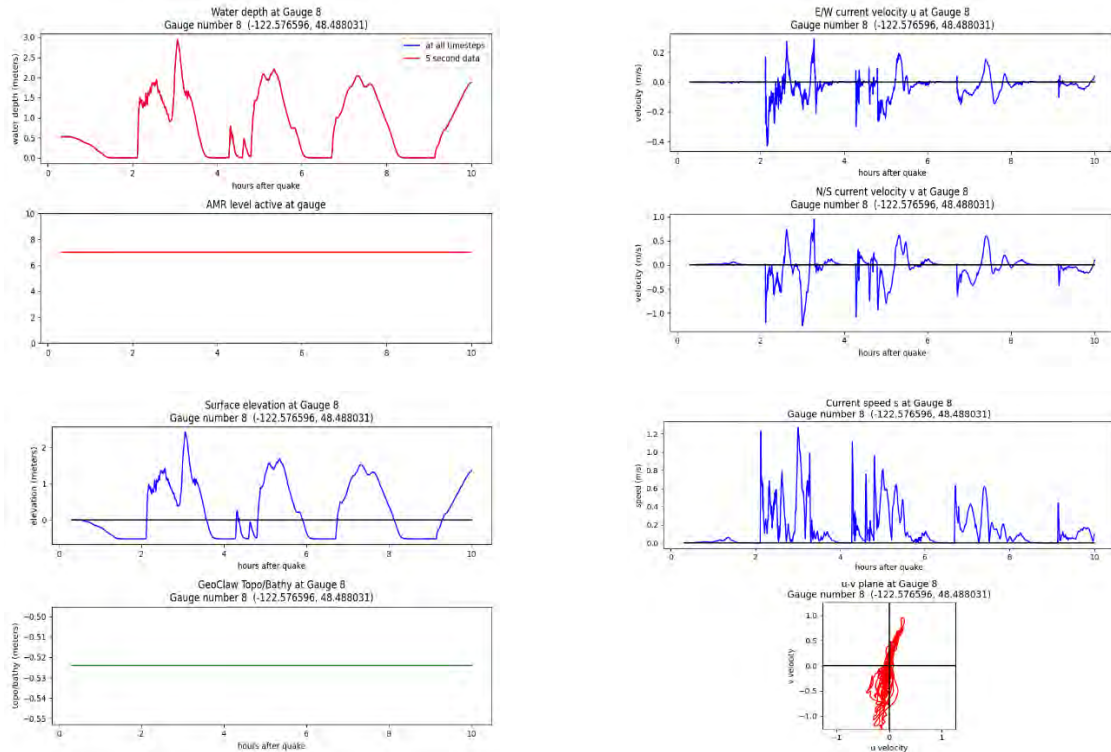


Alaska-Aleutian subduction zone scenario, MLW:

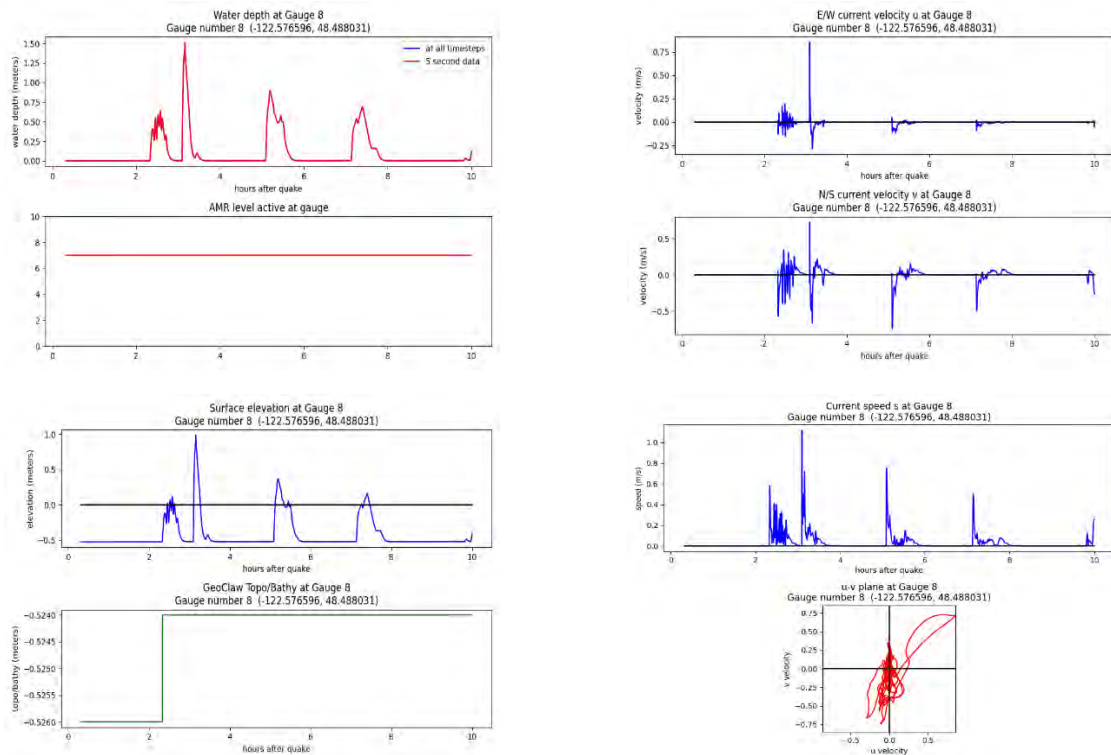


Gauge 8: Equilon Enterprises pumping station tide flat

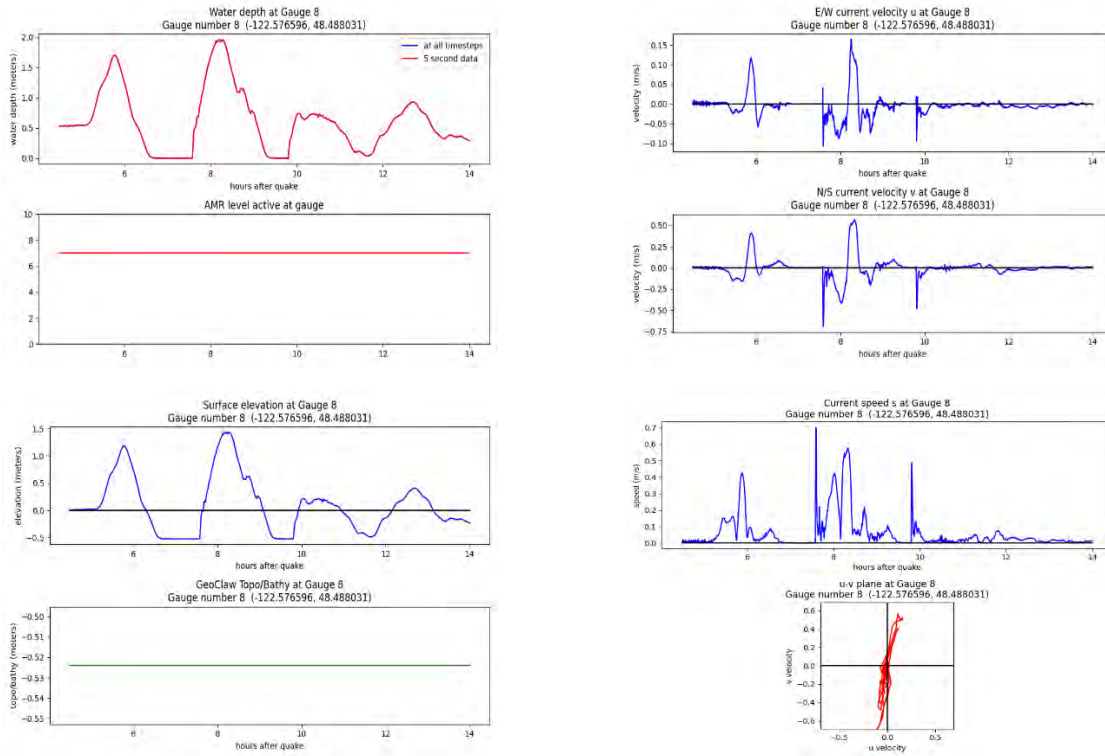
Cascadia subduction zone scenario, MHW:



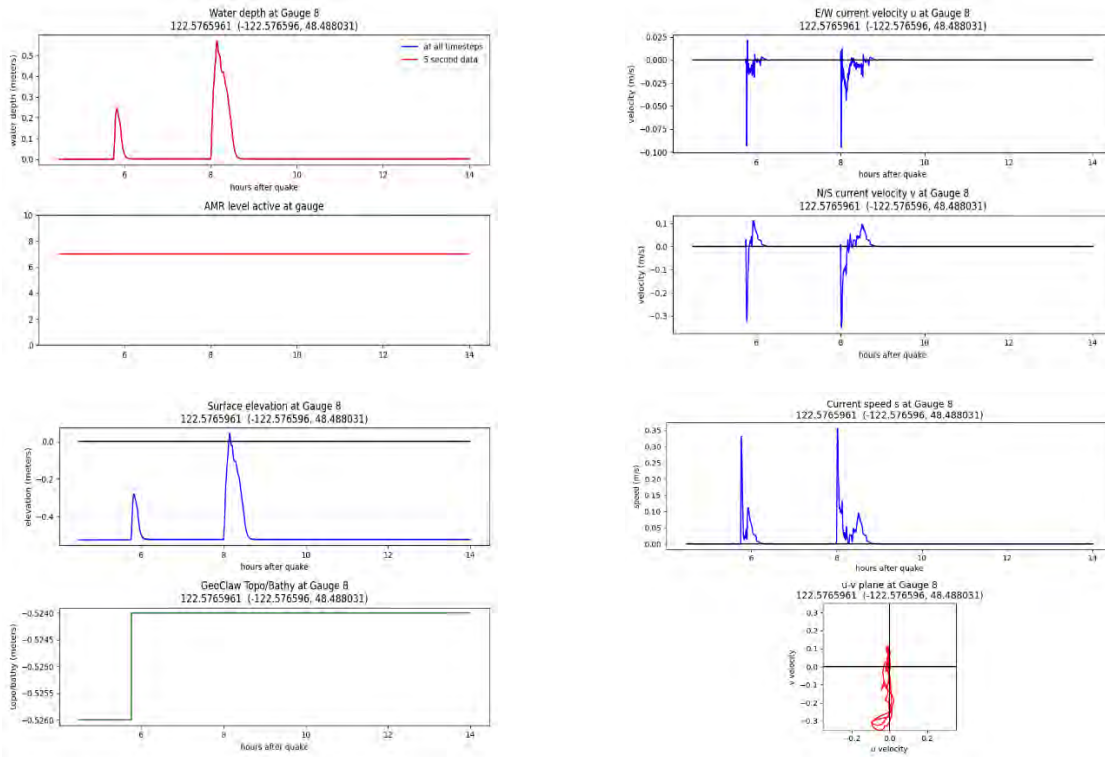
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

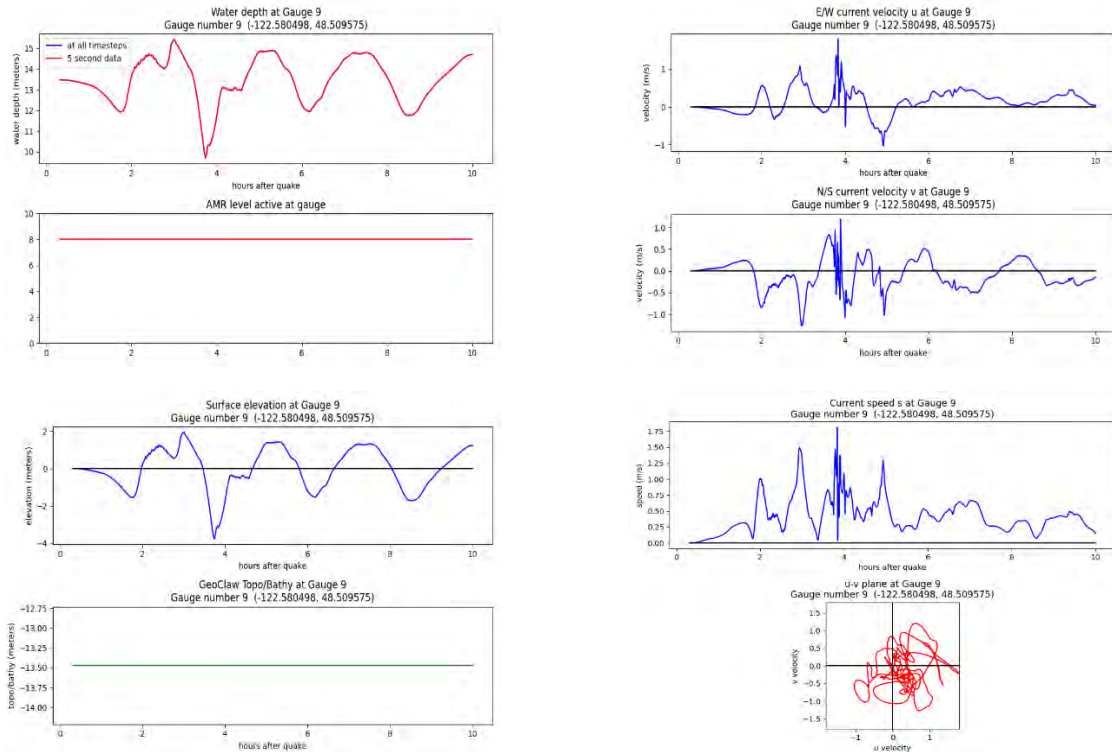


Alaska-Aleutian subduction zone scenario, MLW:

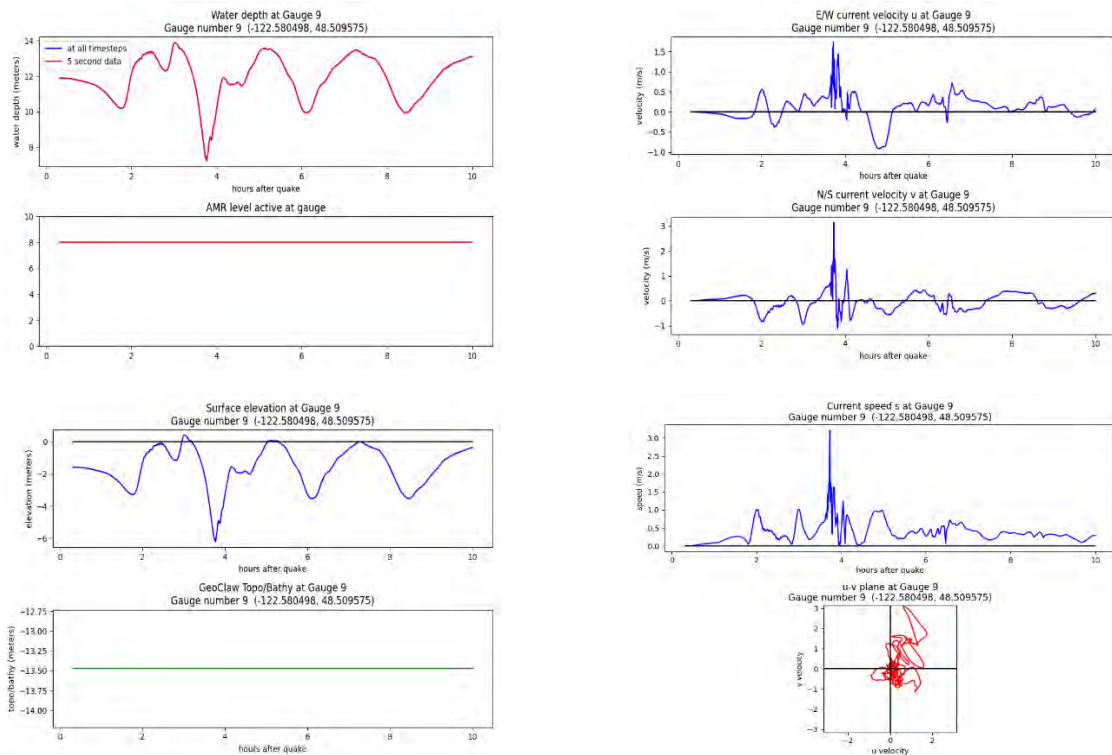


Gauge 9: March Point Shell Puget Sound Refinery dock

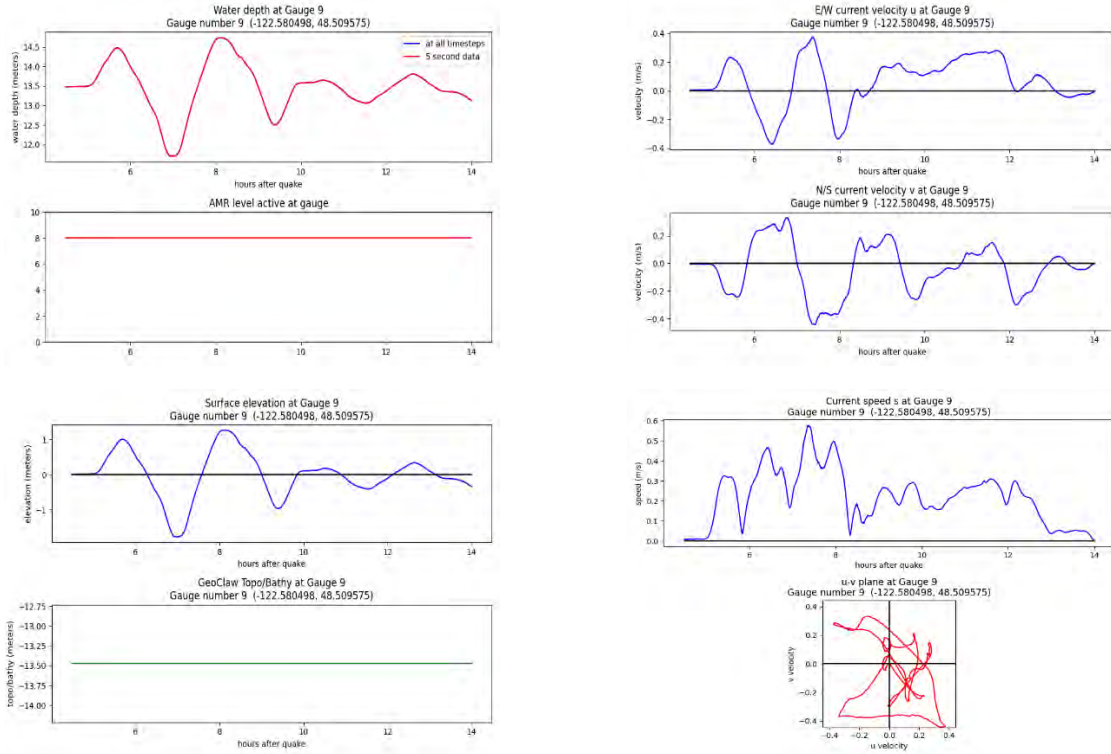
Cascadia subduction zone scenario, MHW:



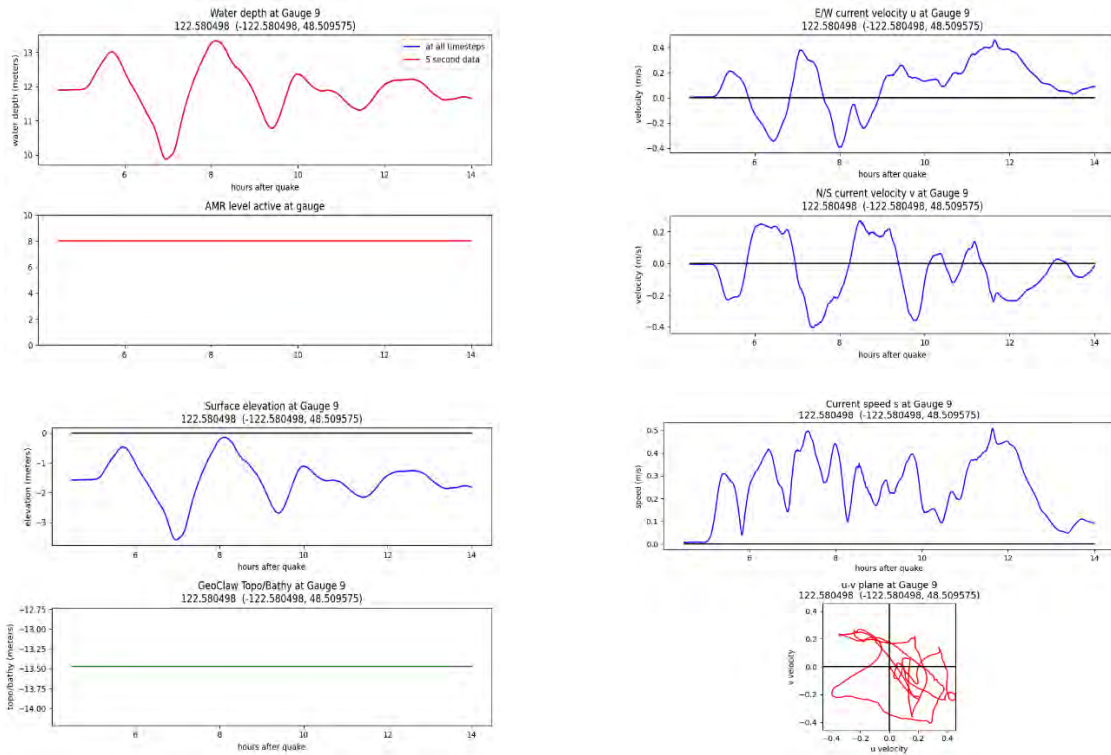
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

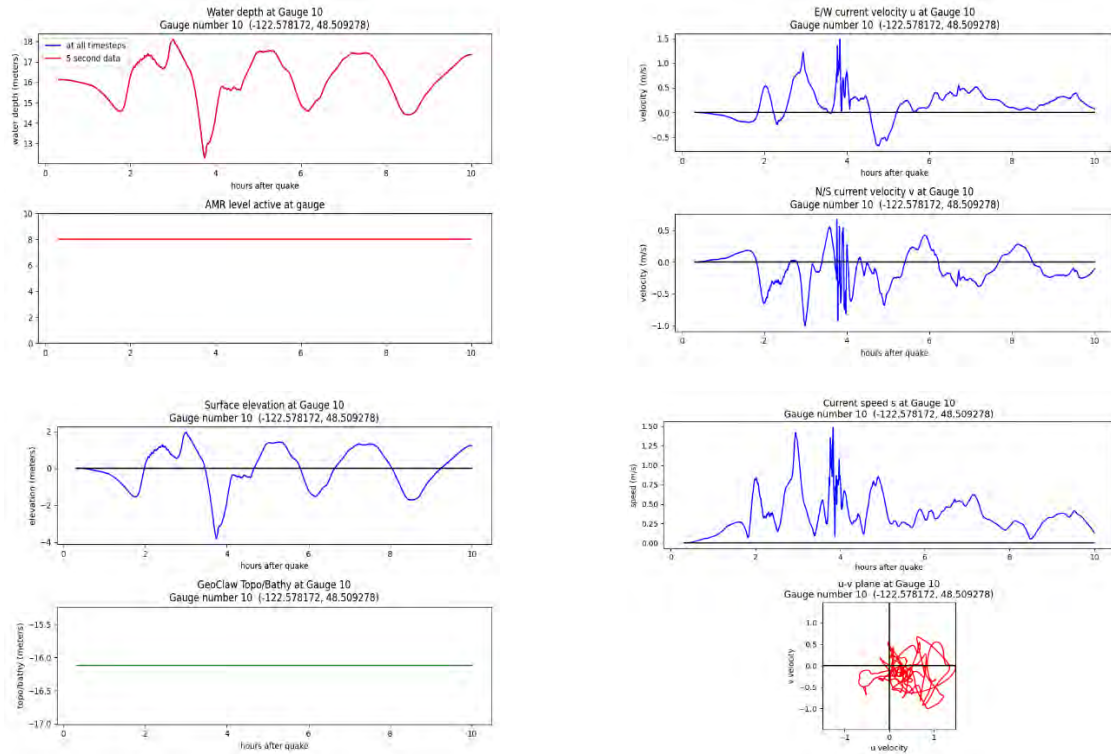


Alaska-Aleutian subduction zone scenario, MLW:

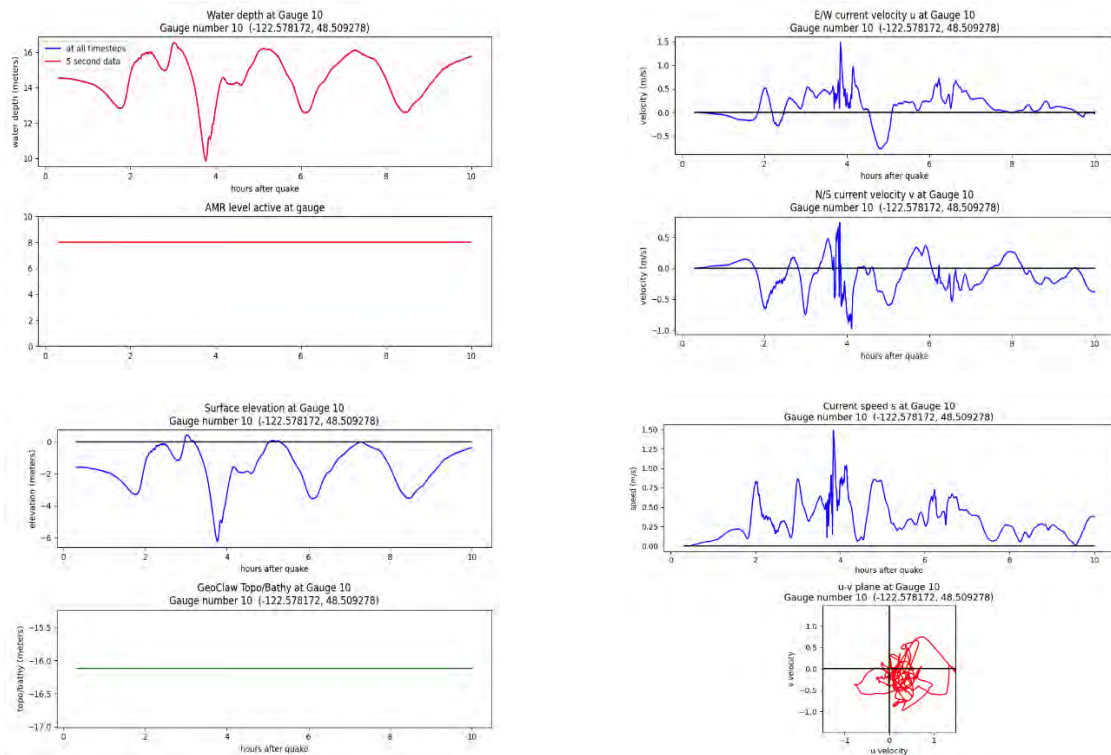


Gauge 10: March Point Shell Puget Sound Refinery dock 2

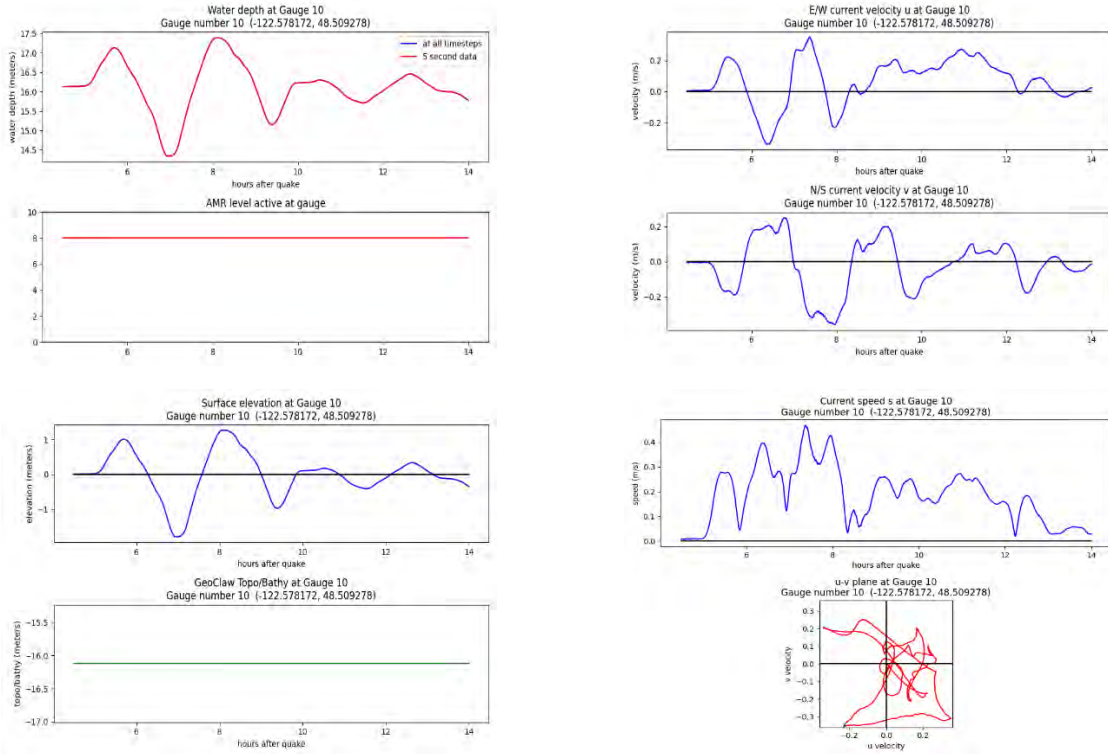
Cascadia subduction zone scenario, MHW:



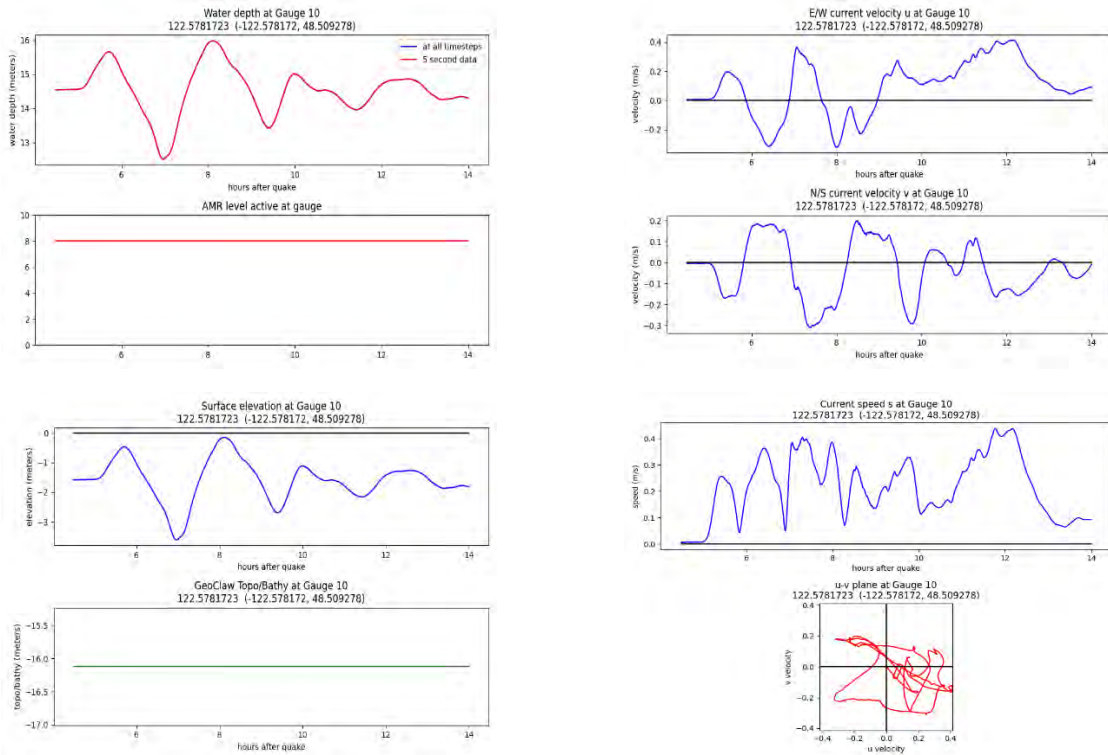
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

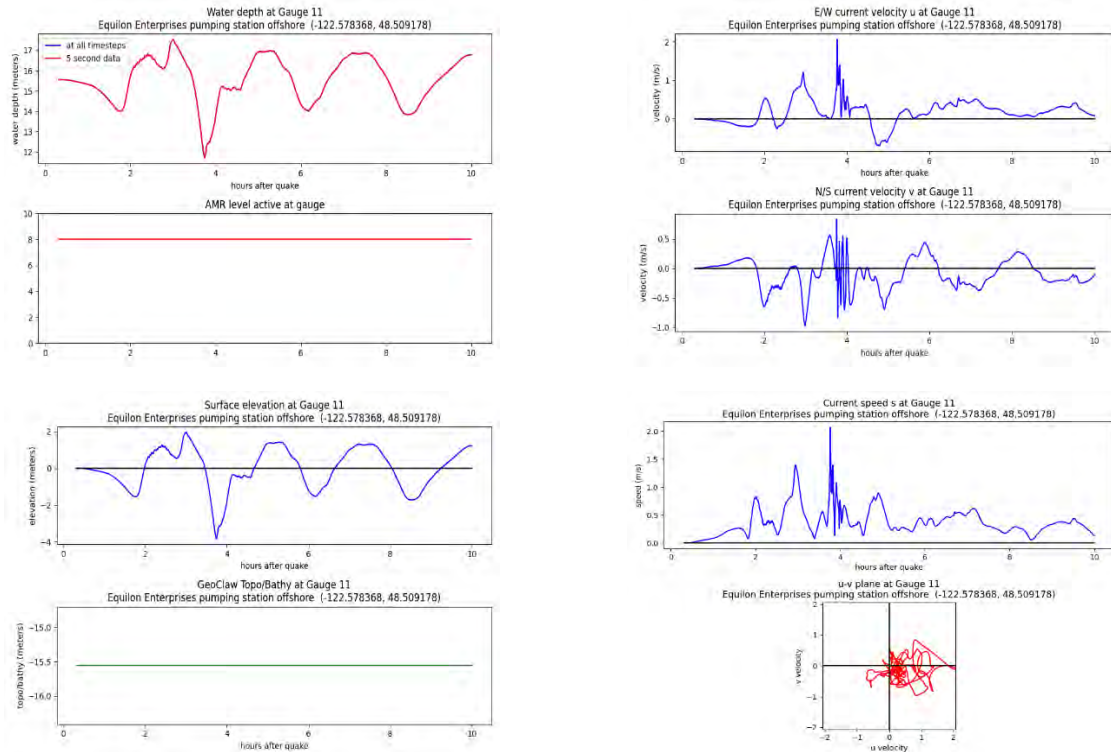


Alaska-Aleutian subduction zone scenario, MLW:

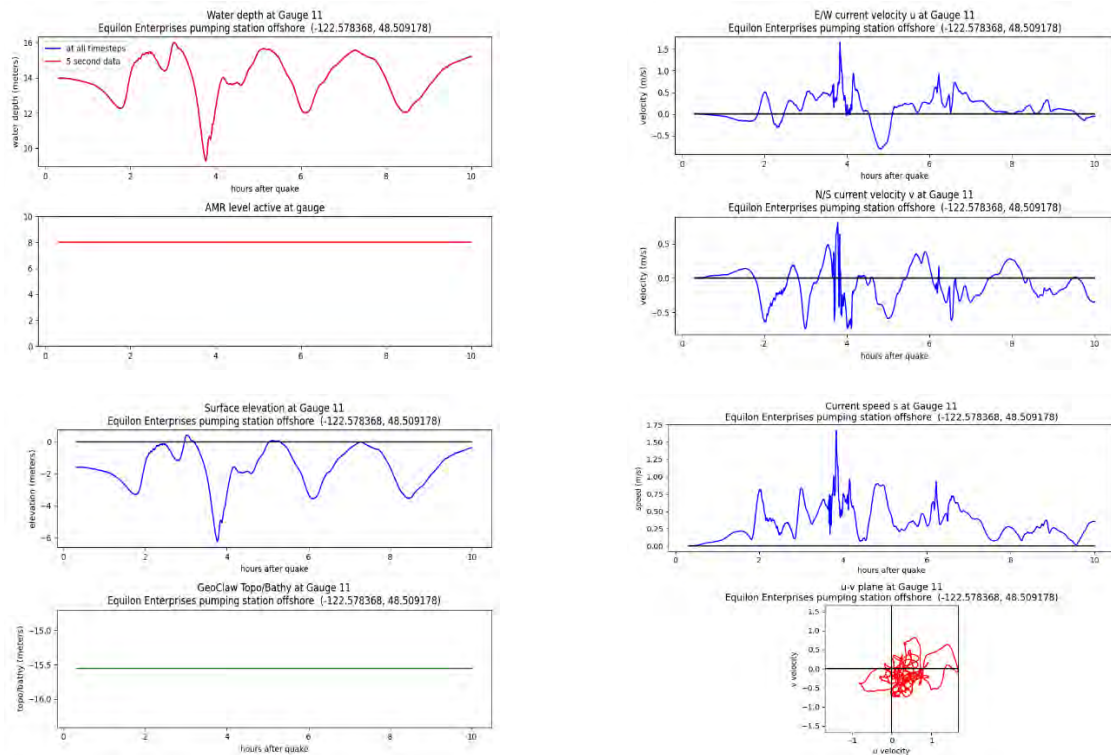


Gauge 11: March Point Shell Puget Sound Refinery dock 3

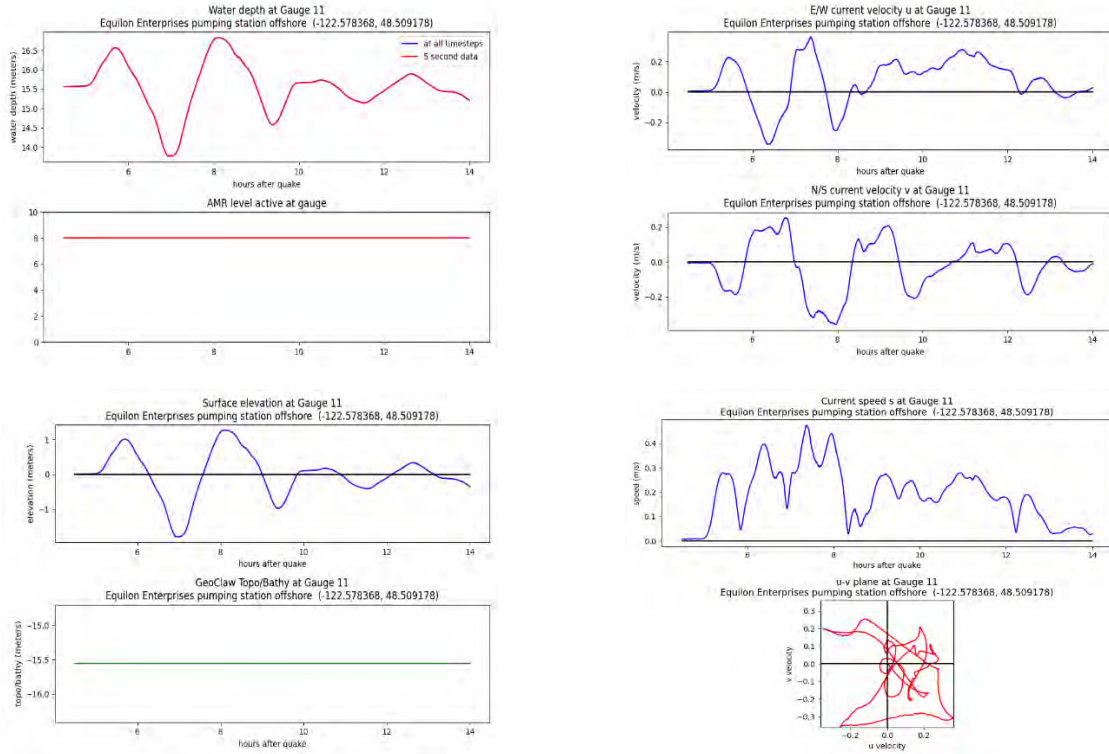
Cascadia subduction zone scenario, MHW:



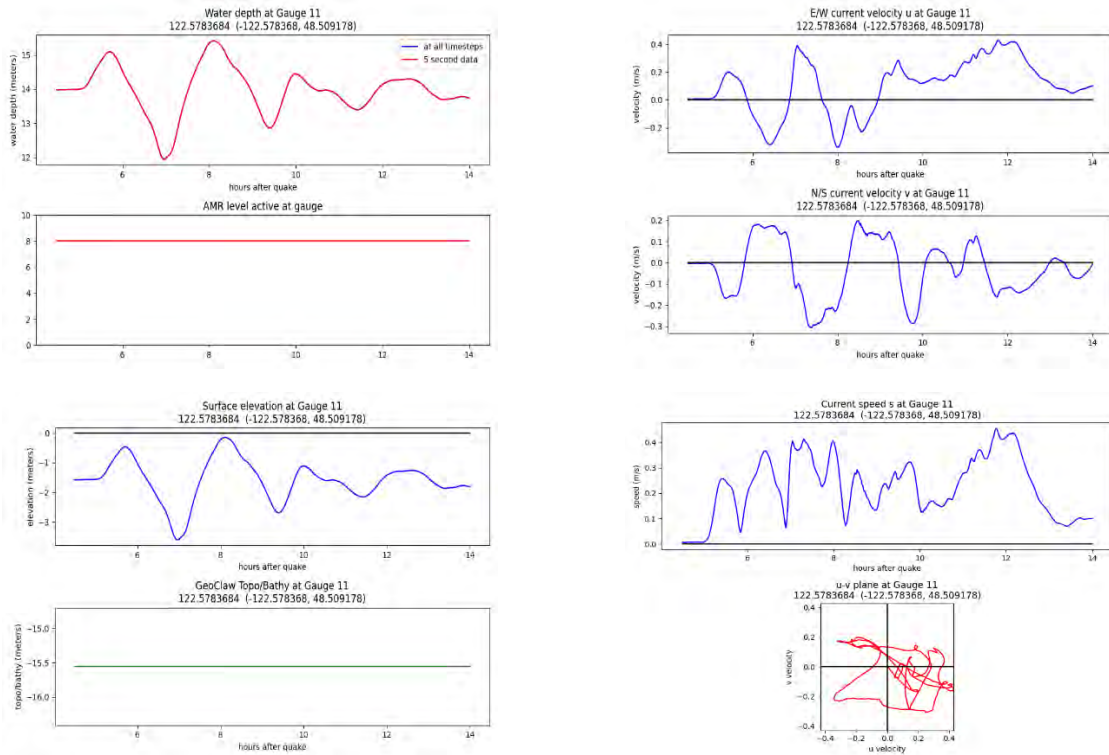
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

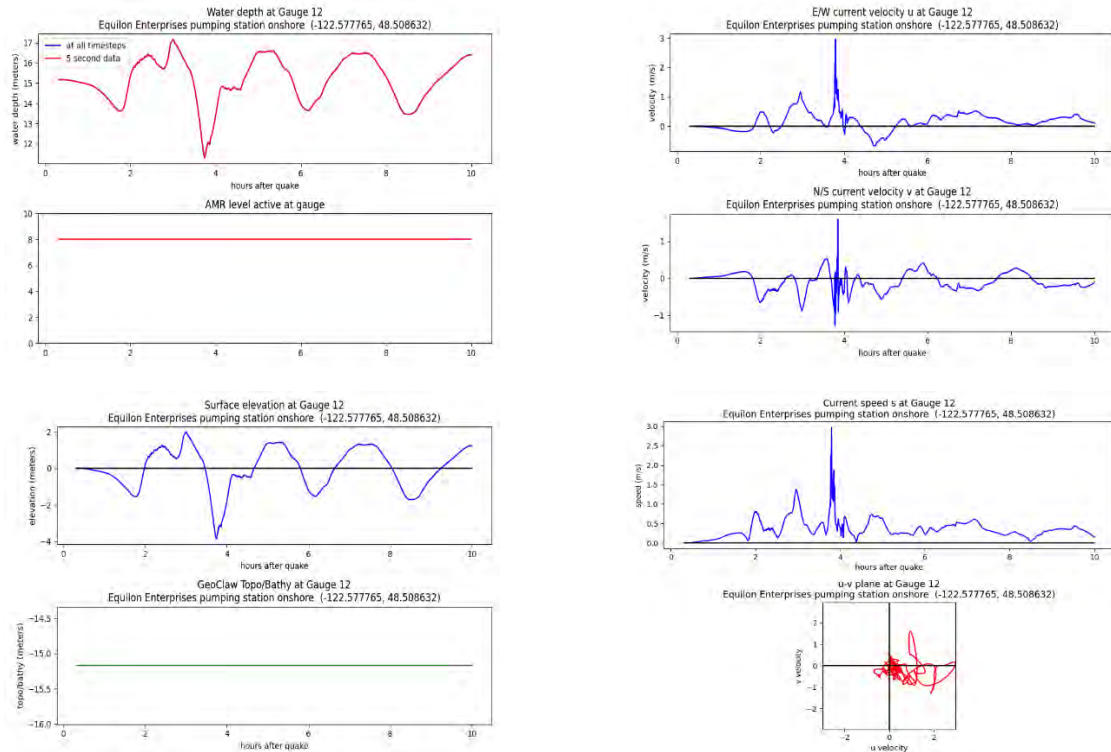


Alaska-Aleutian subduction zone scenario, MLW:

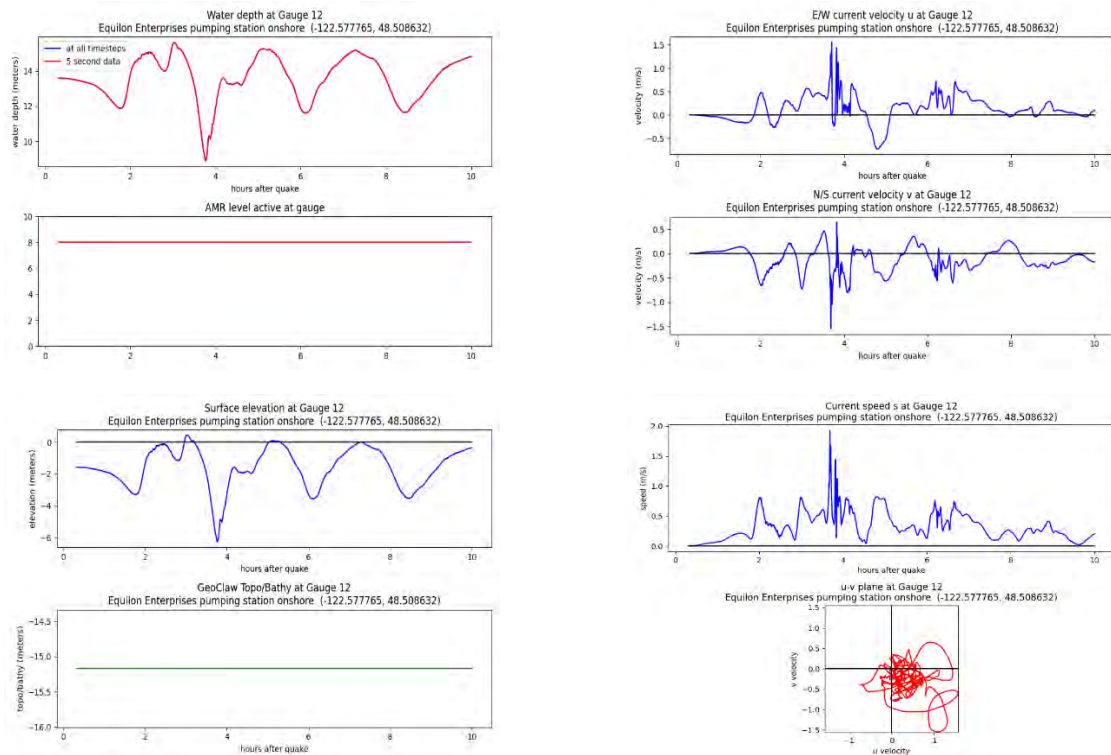


Gauge 12: March Point Shell Puget Sound Refinery dock 4

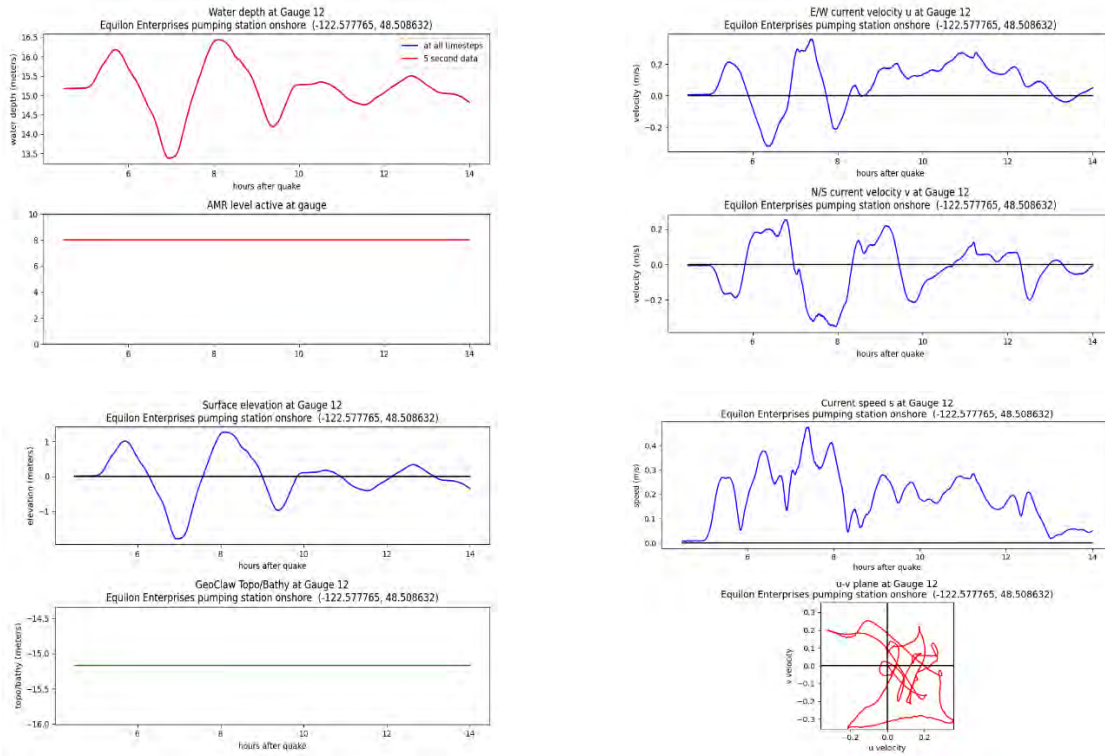
Cascadia subduction zone scenario, MHW:



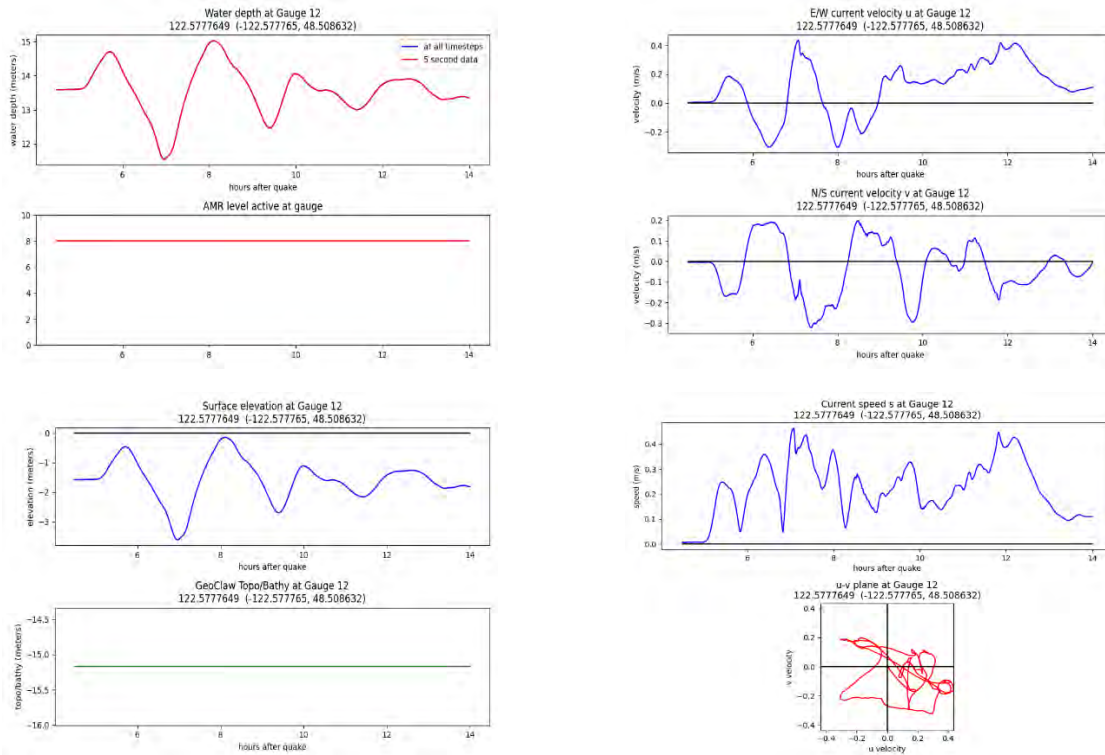
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

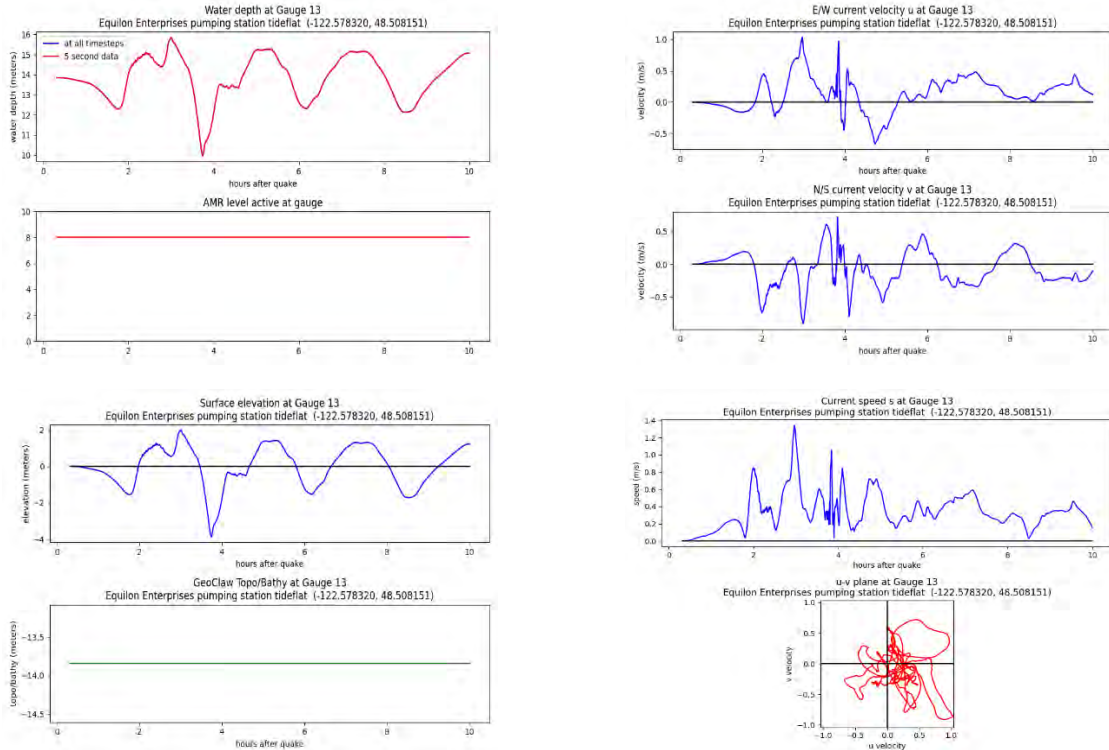


Alaska-Aleutian subduction zone scenario, MLW:

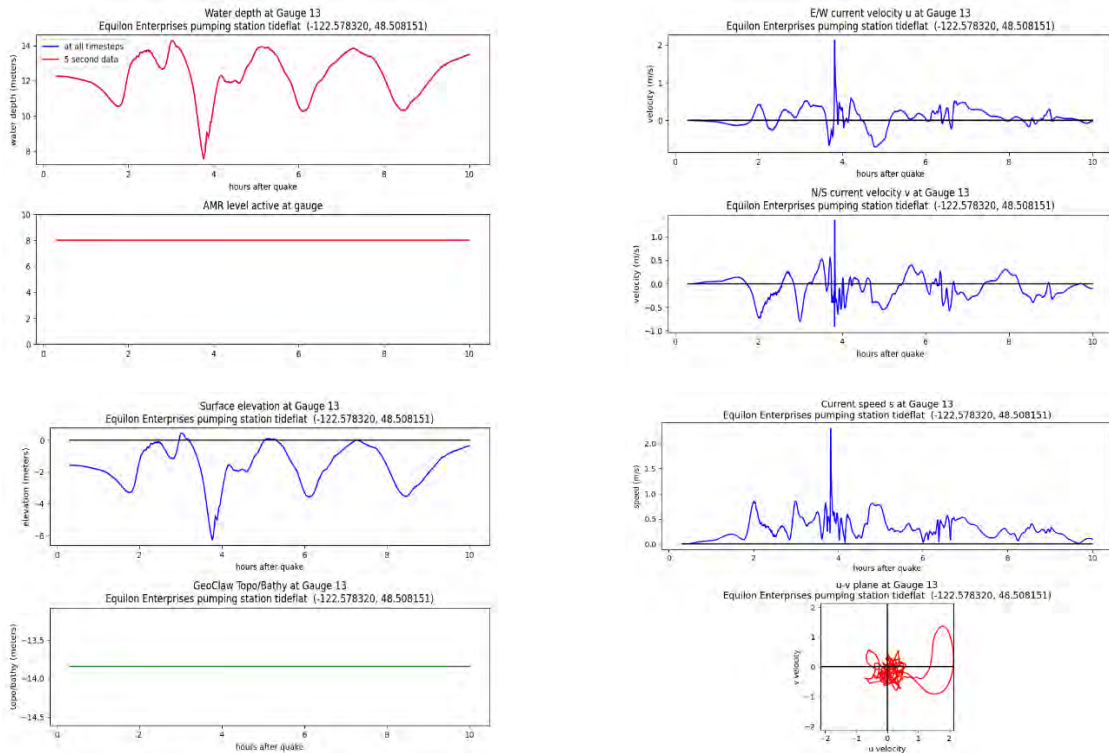


Gauge 13: March Point Shell Puget Sound Refinery dock 5

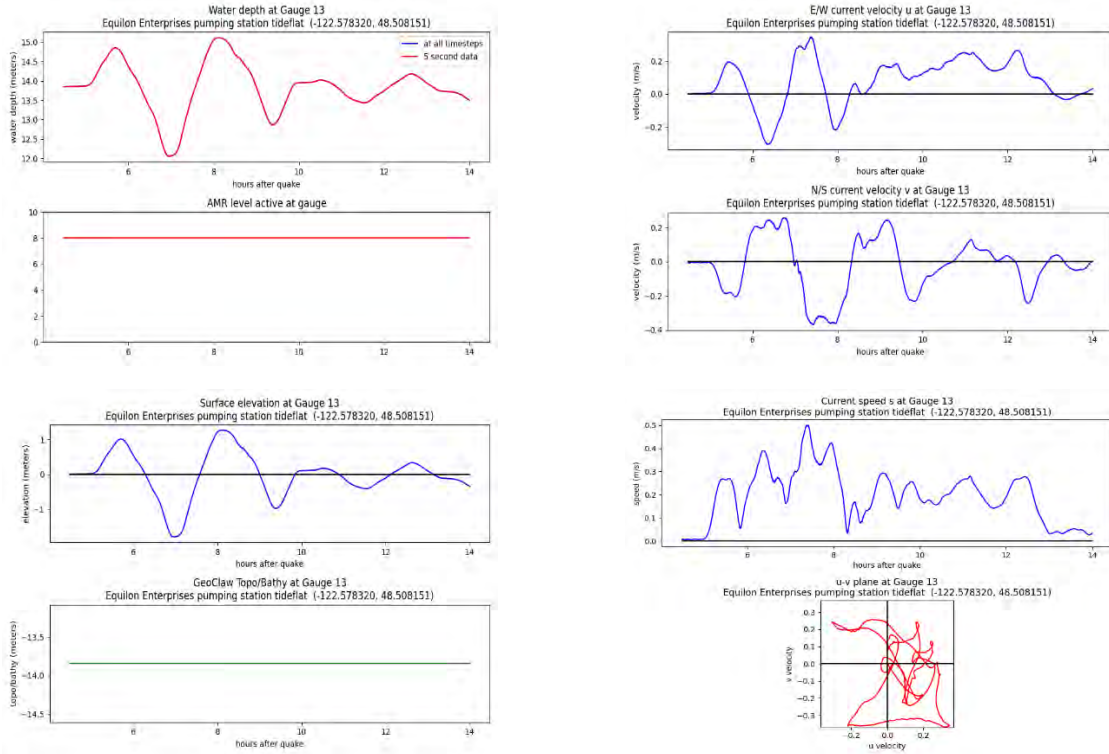
Cascadia subduction zone scenario, MHW:



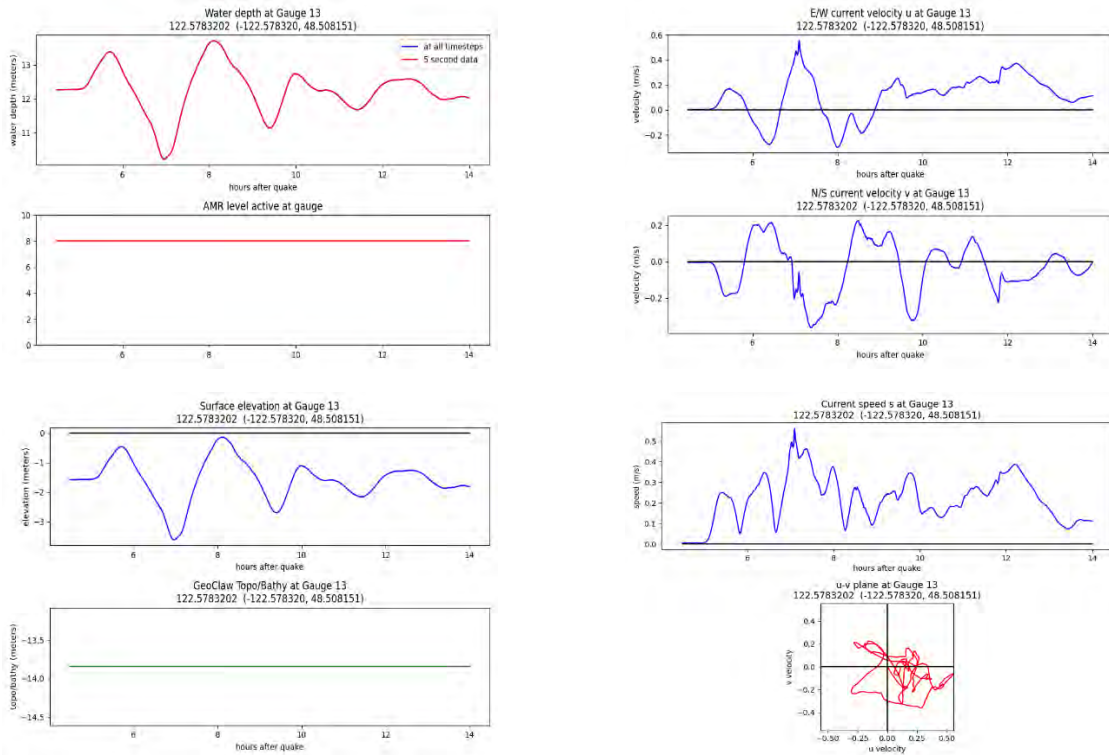
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

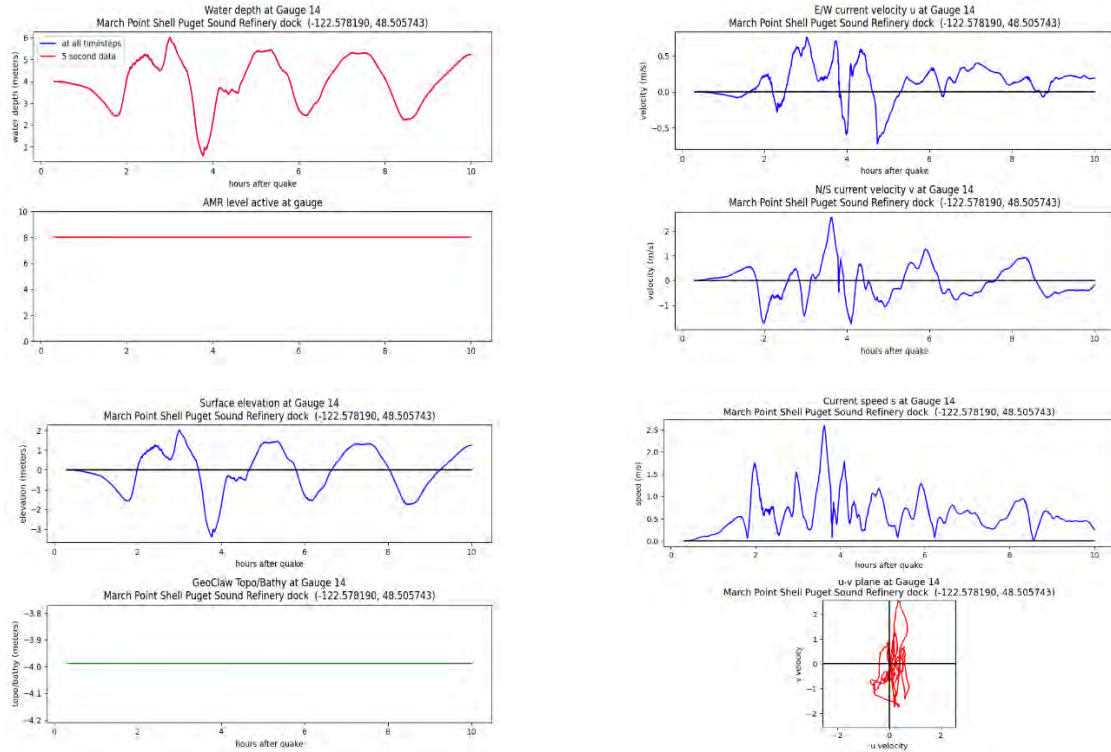


Alaska-Aleutian subduction zone scenario, MLW:

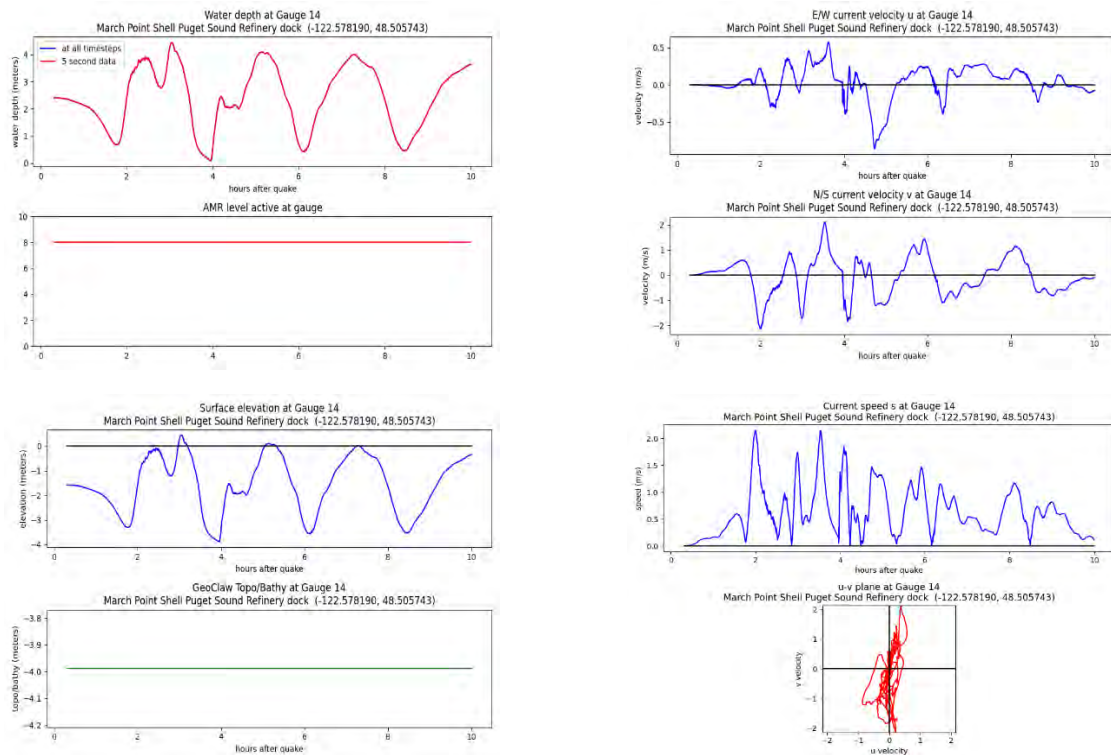


Gauge 14: March Point Shell Puget Sound Refinery dock 6

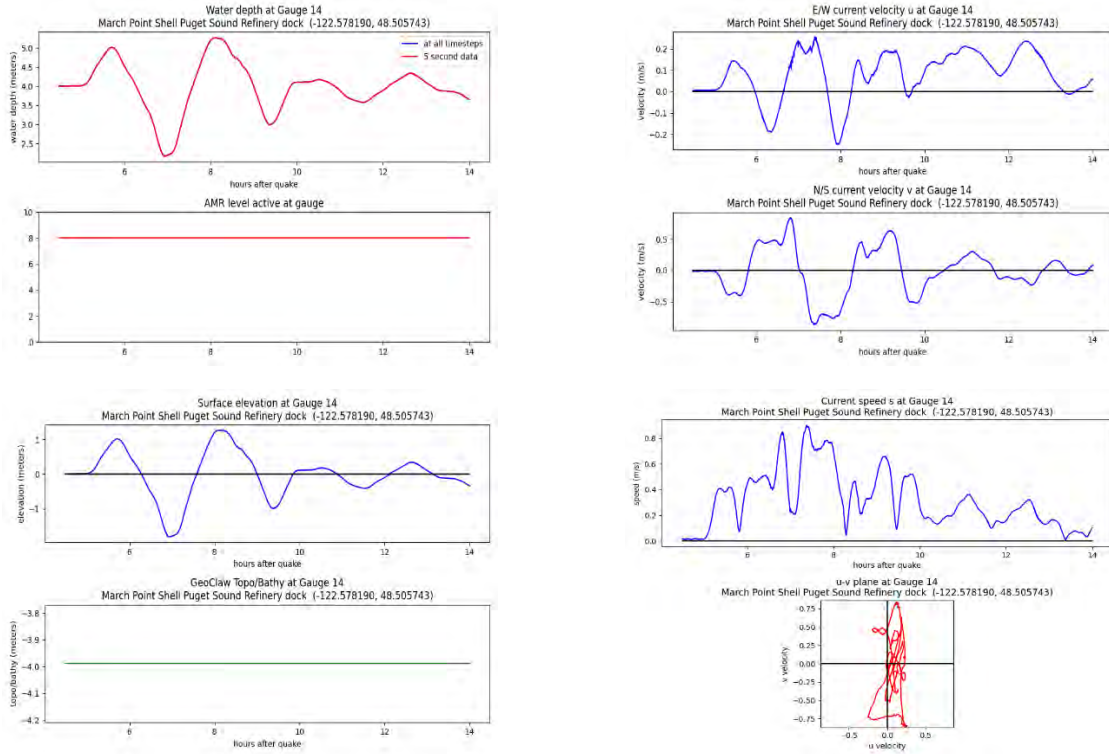
Cascadia subduction zone scenario, MHW:



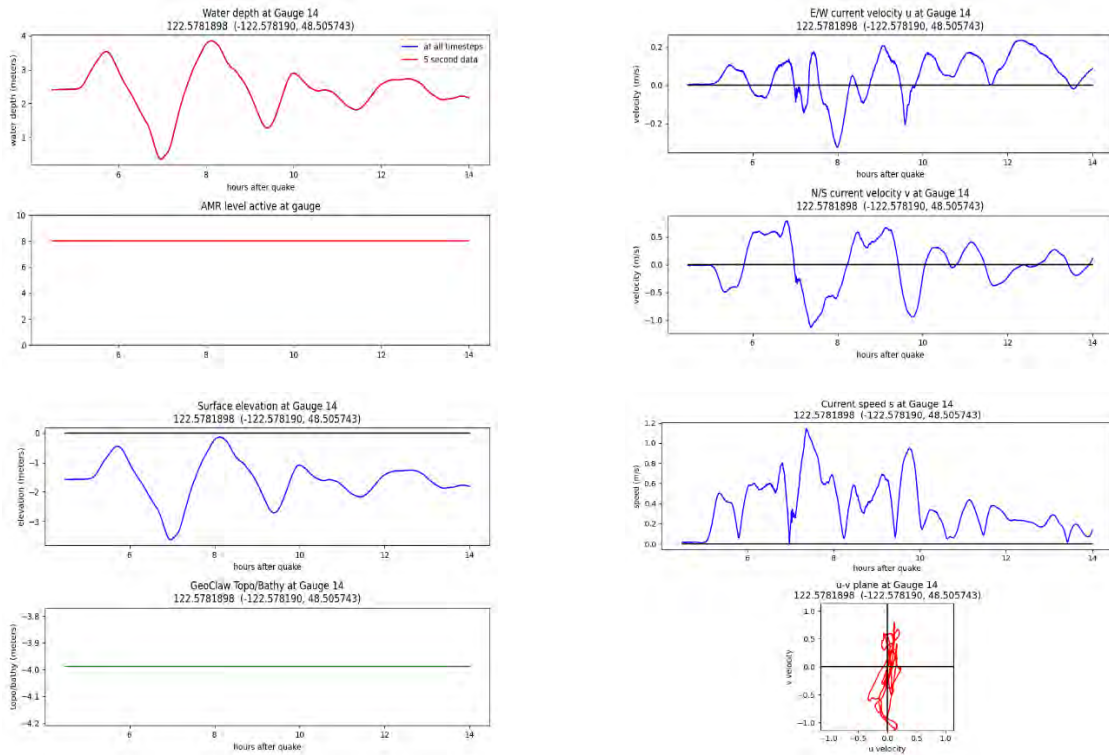
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

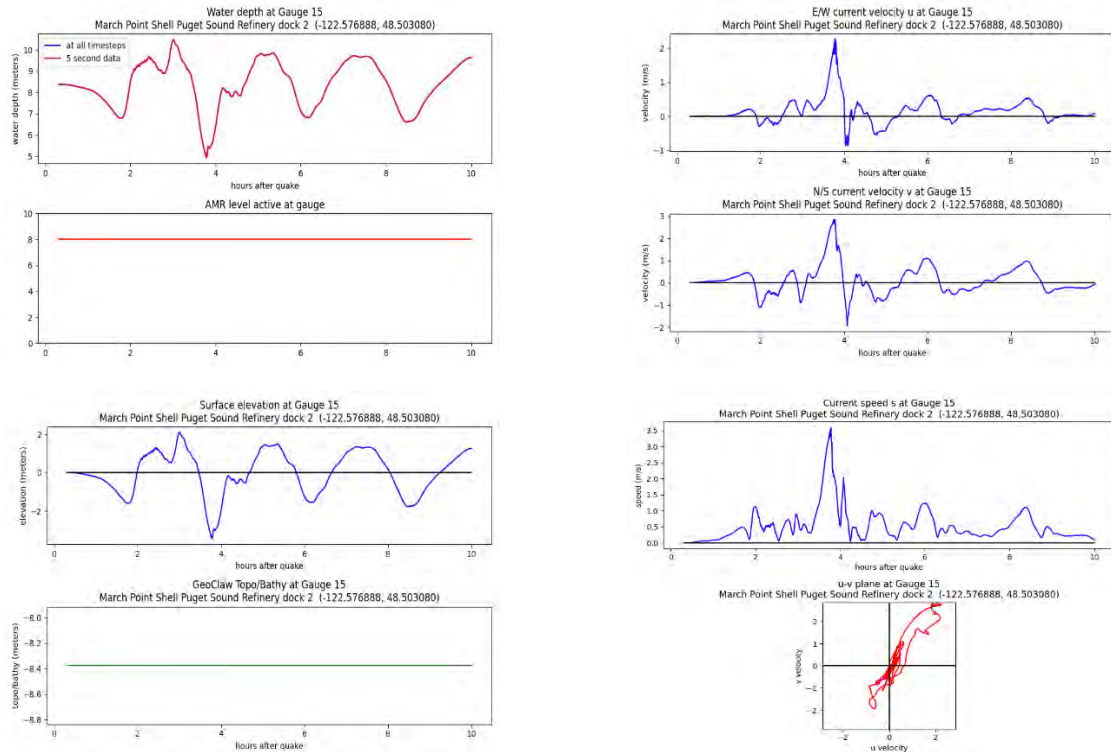


Alaska-Aleutian subduction zone scenario, MLW:

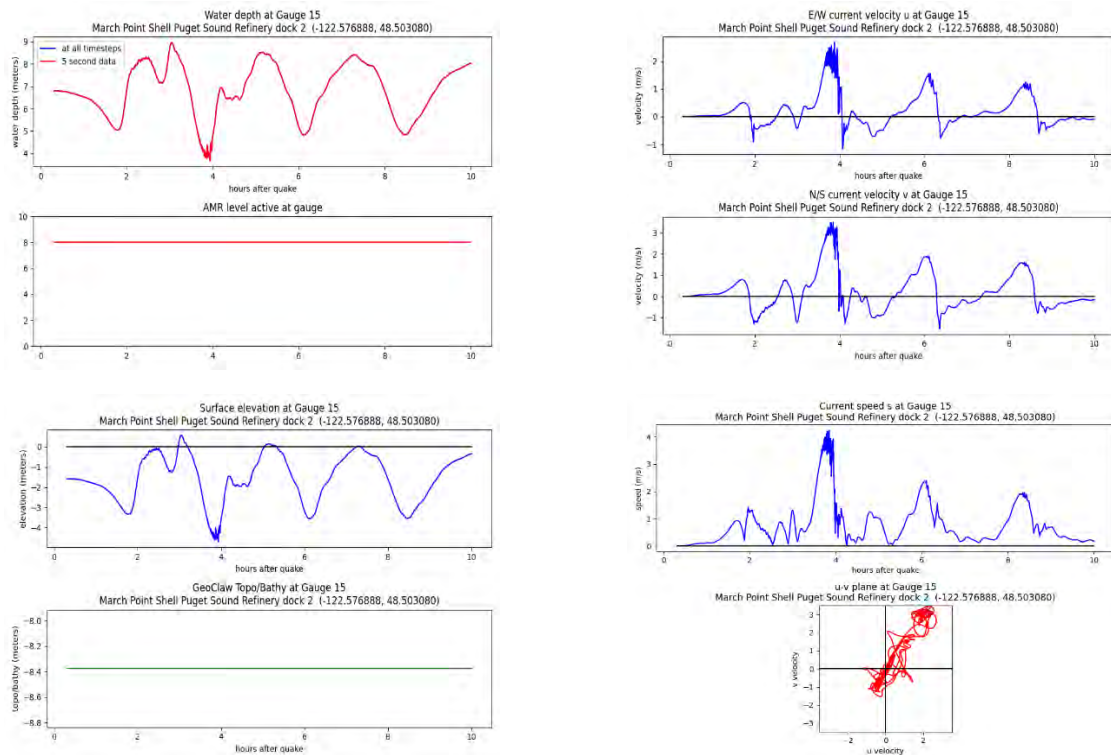


Gauge 15: March Point Shell Puget Sound Refinery dock 7

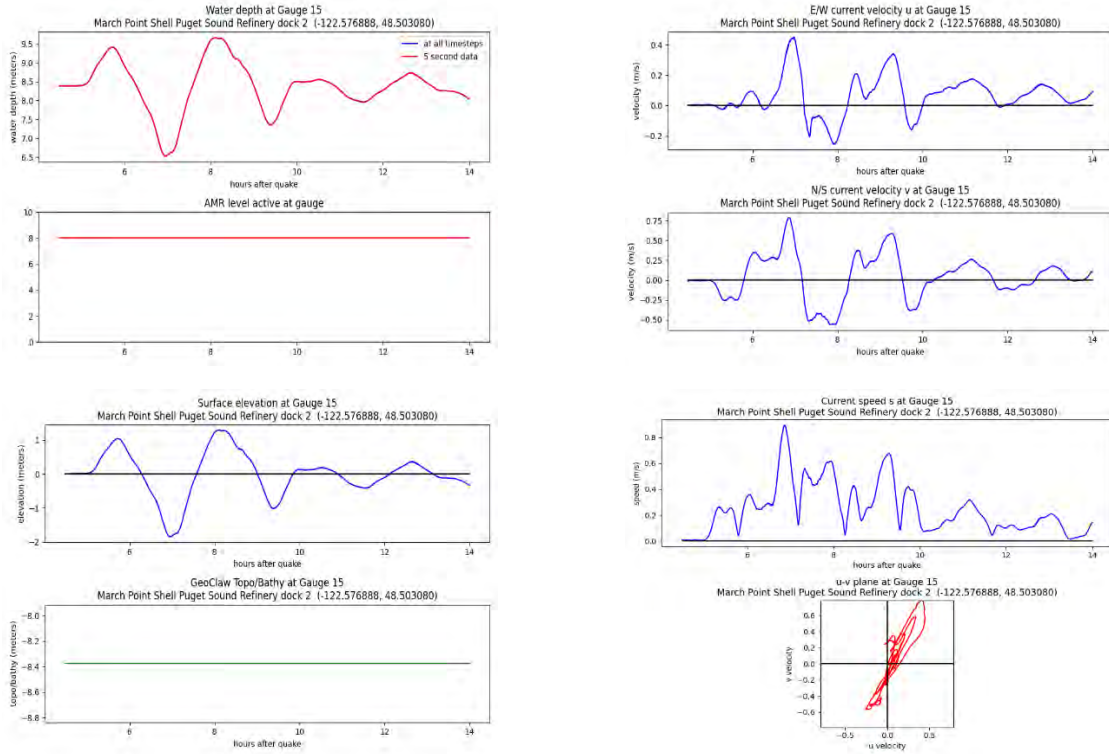
Cascadia subduction zone scenario, MHW:



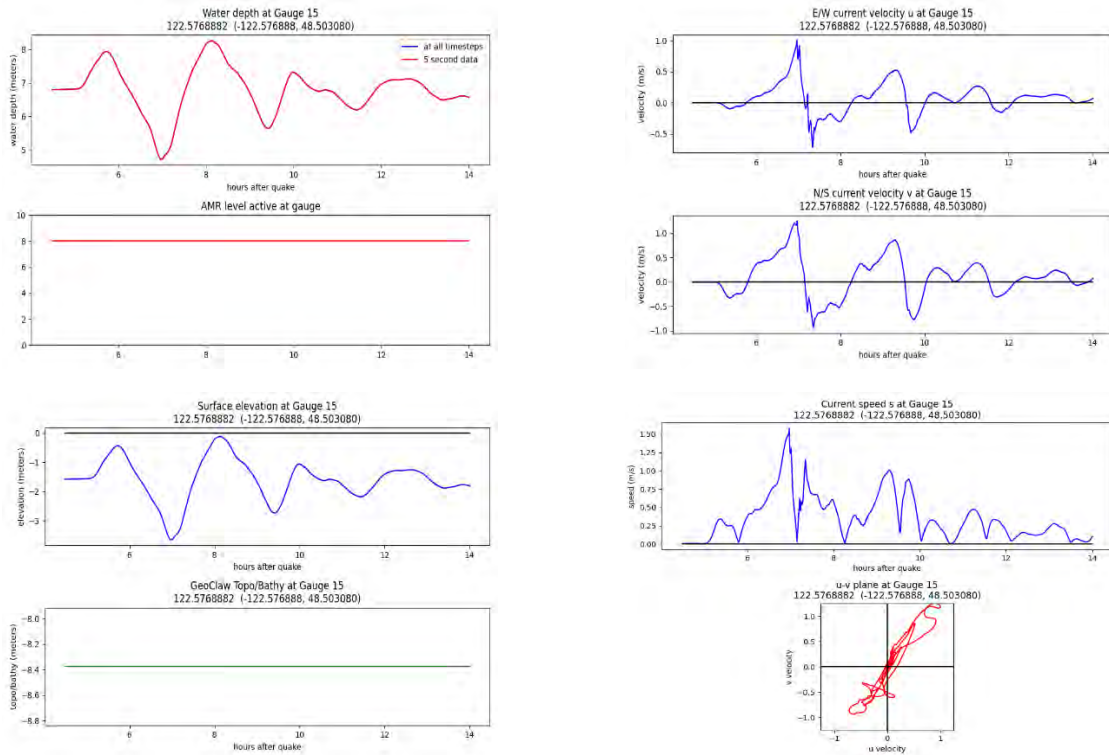
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

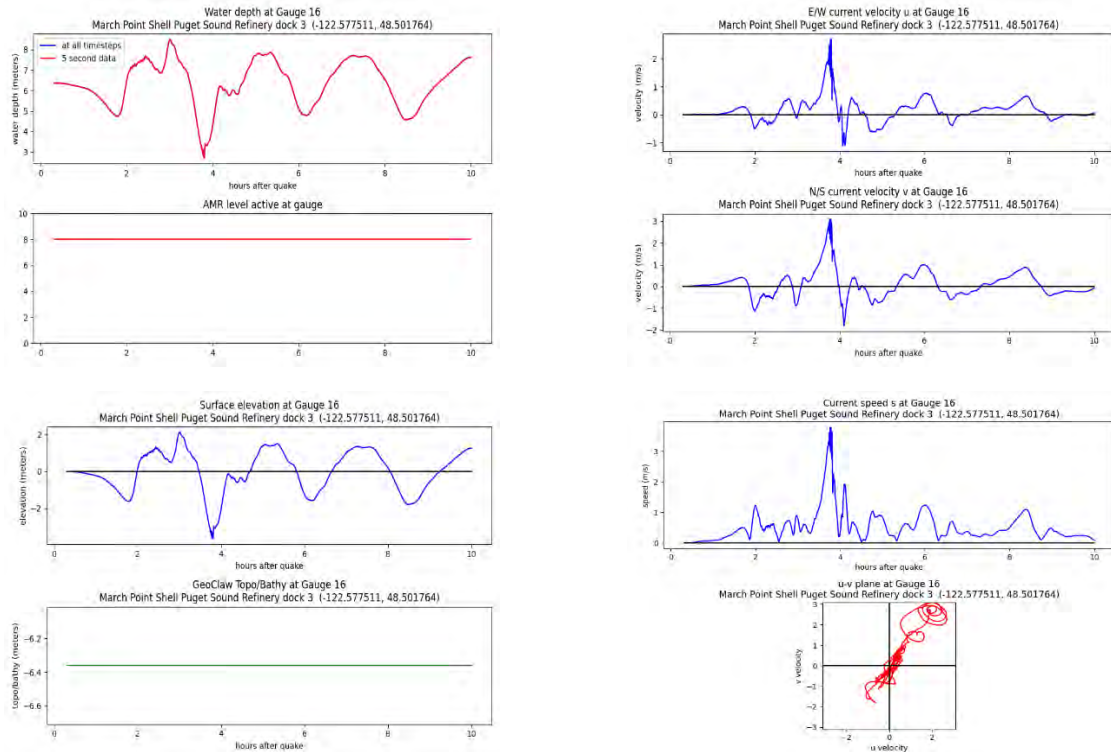


Alaska-Aleutian subduction zone scenario, MLW:

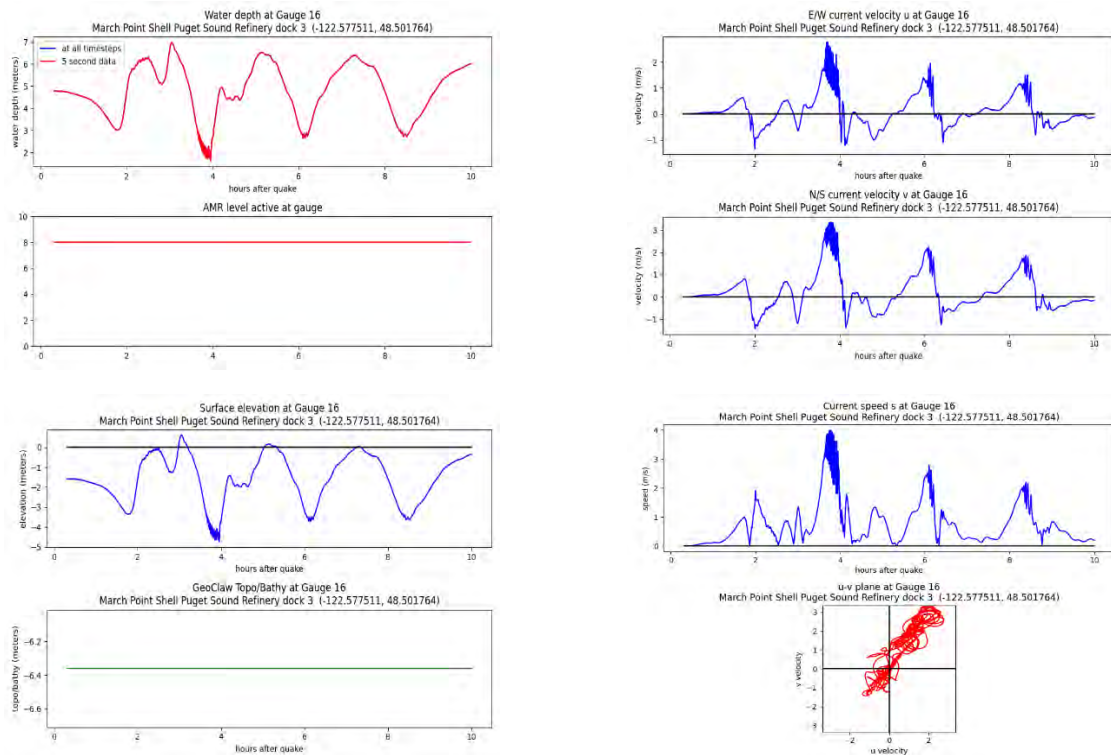


Gauge 16: March Point Shell Puget Sound Refinery dock 8

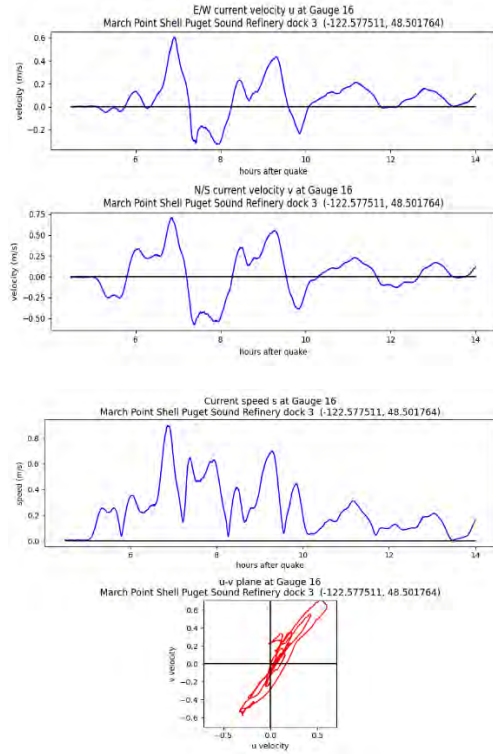
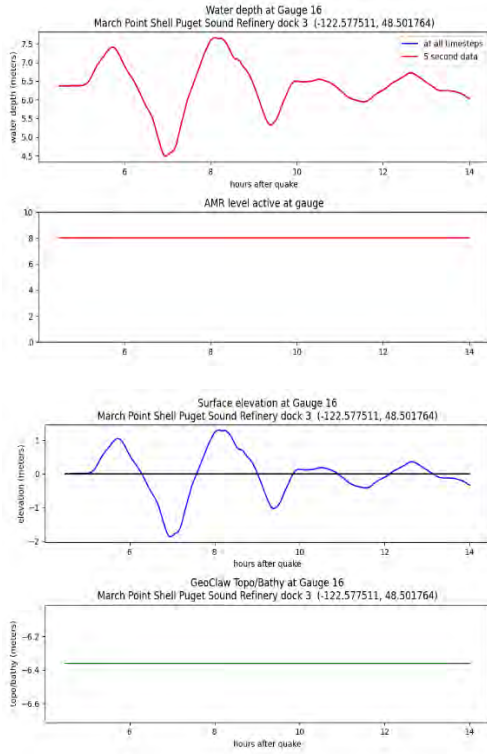
Cascadia subduction zone scenario, MHW:



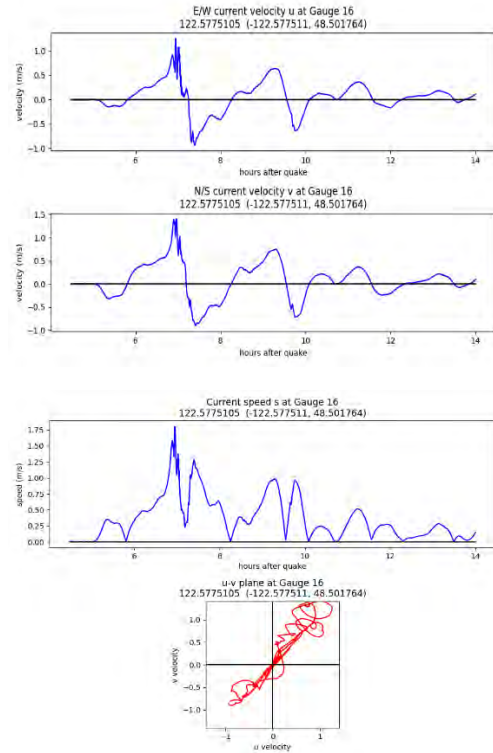
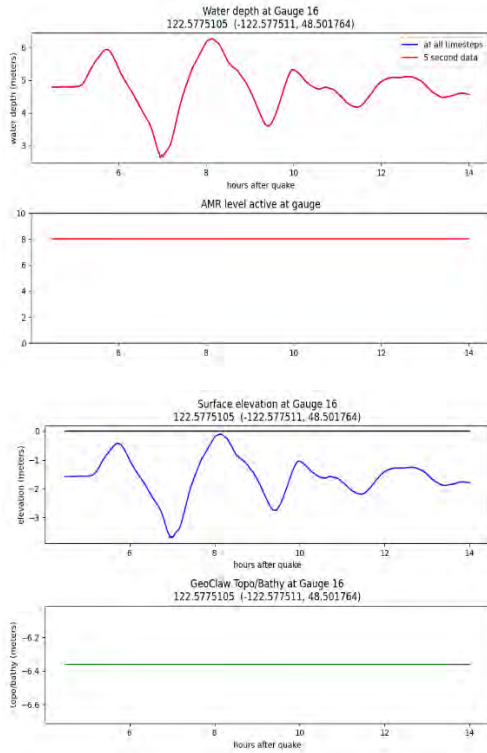
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

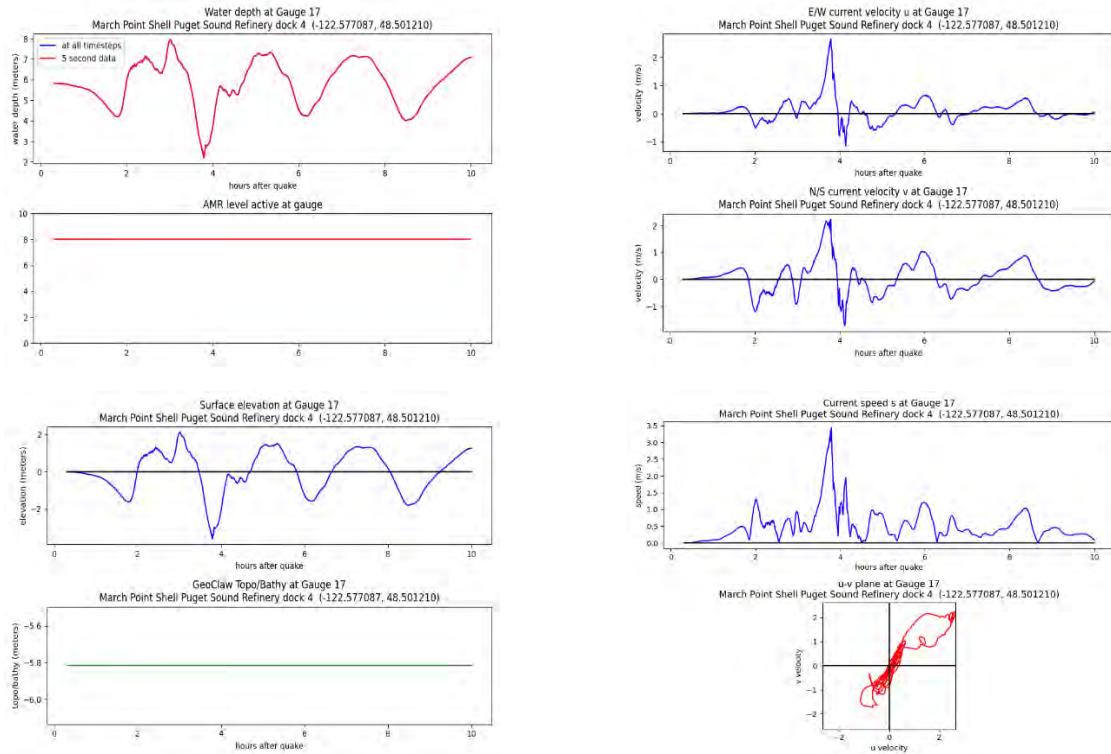


Alaska-Aleutian subduction zone scenario, MLW:

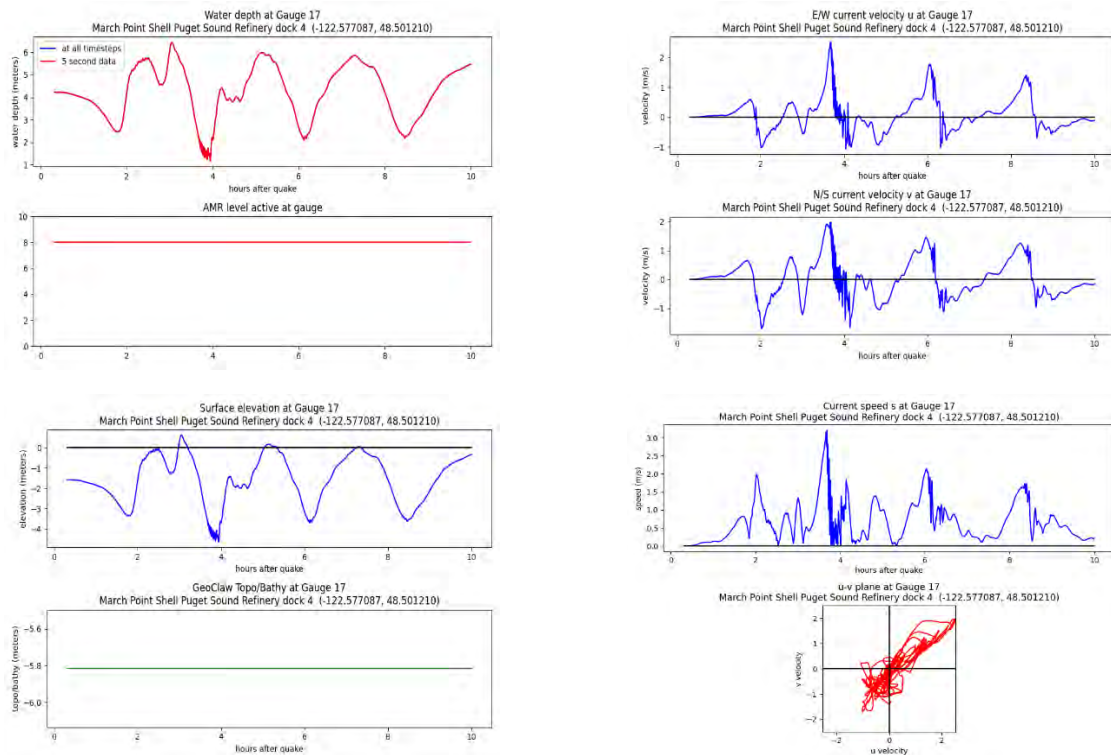


Gauge 17: March Point Shell Puget Sound Refinery dock 9

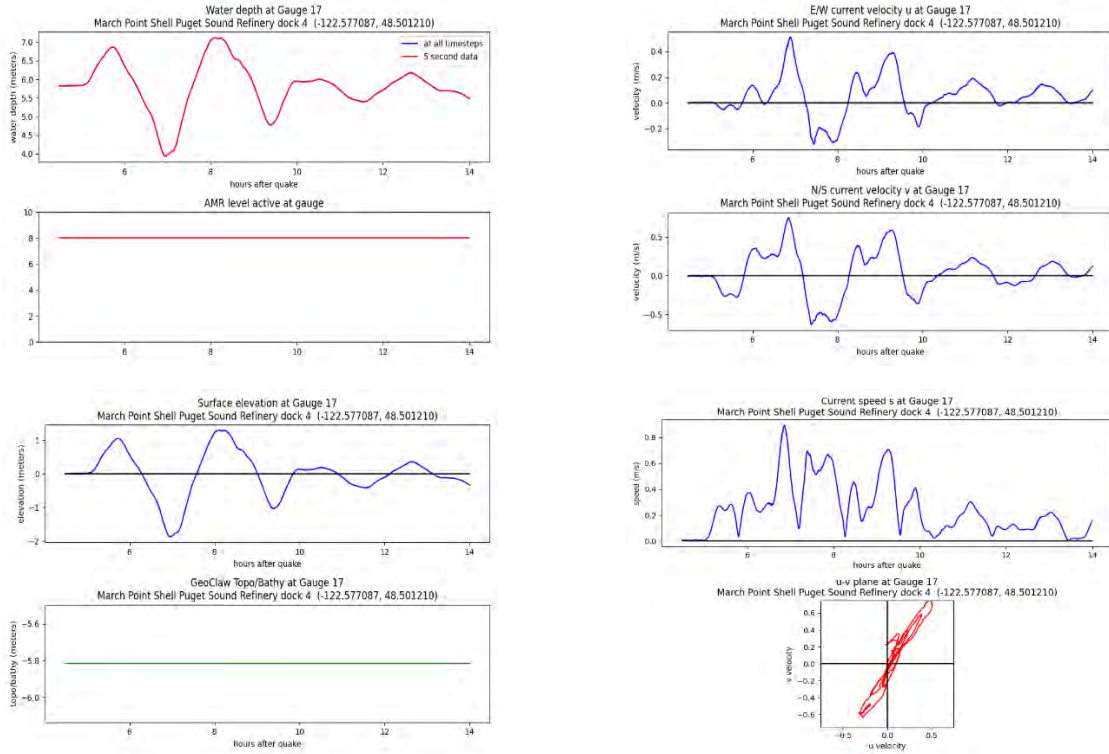
Cascadia subduction zone scenario, MHW:



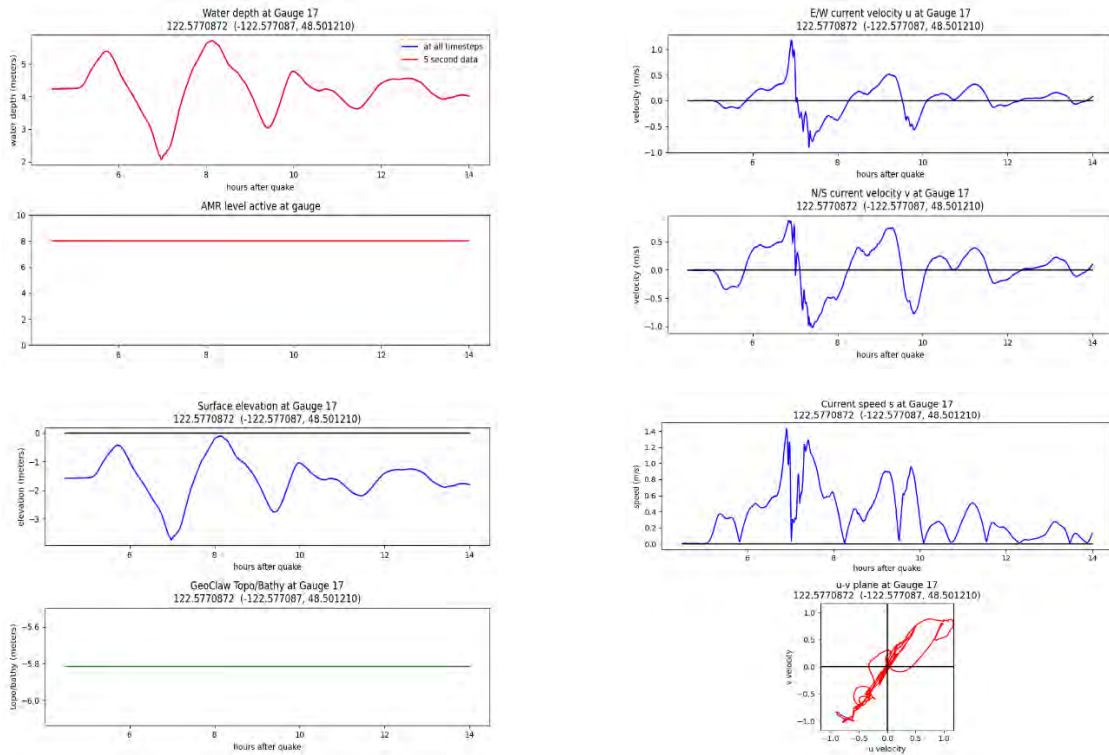
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

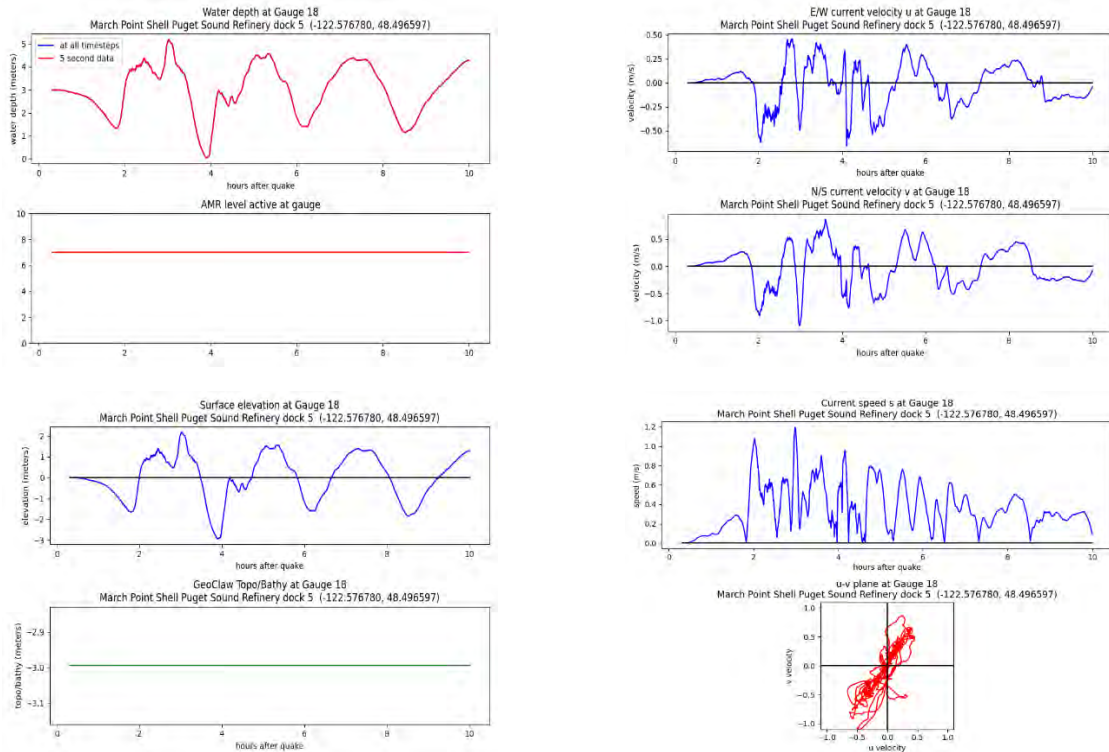


Alaska-Aleutian subduction zone scenario, MLW:

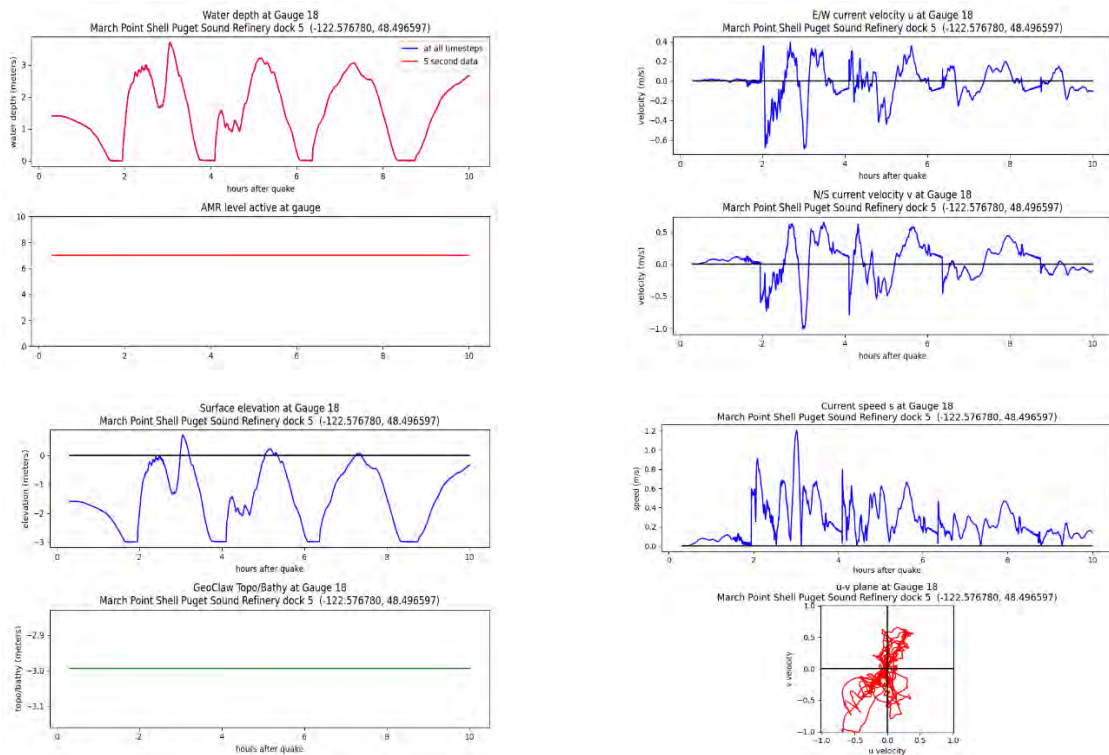


Gauge 18: March Point Shell Puget Sound Refinery dock 10

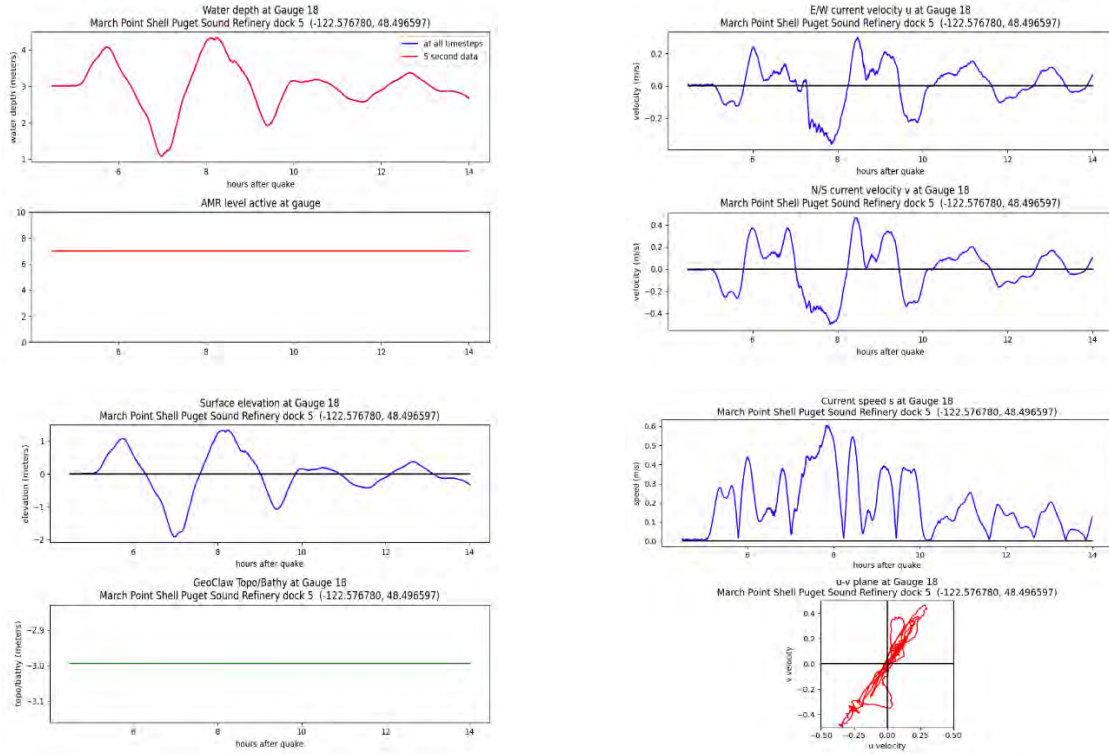
Cascadia subduction zone scenario, MHW:



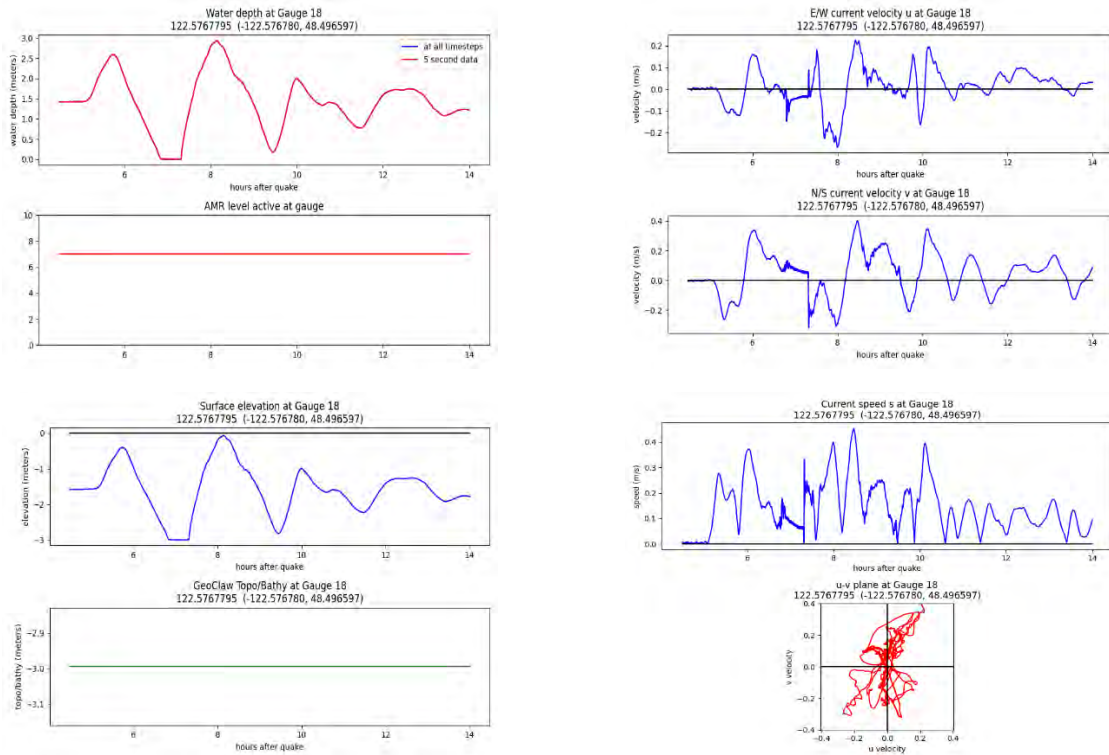
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

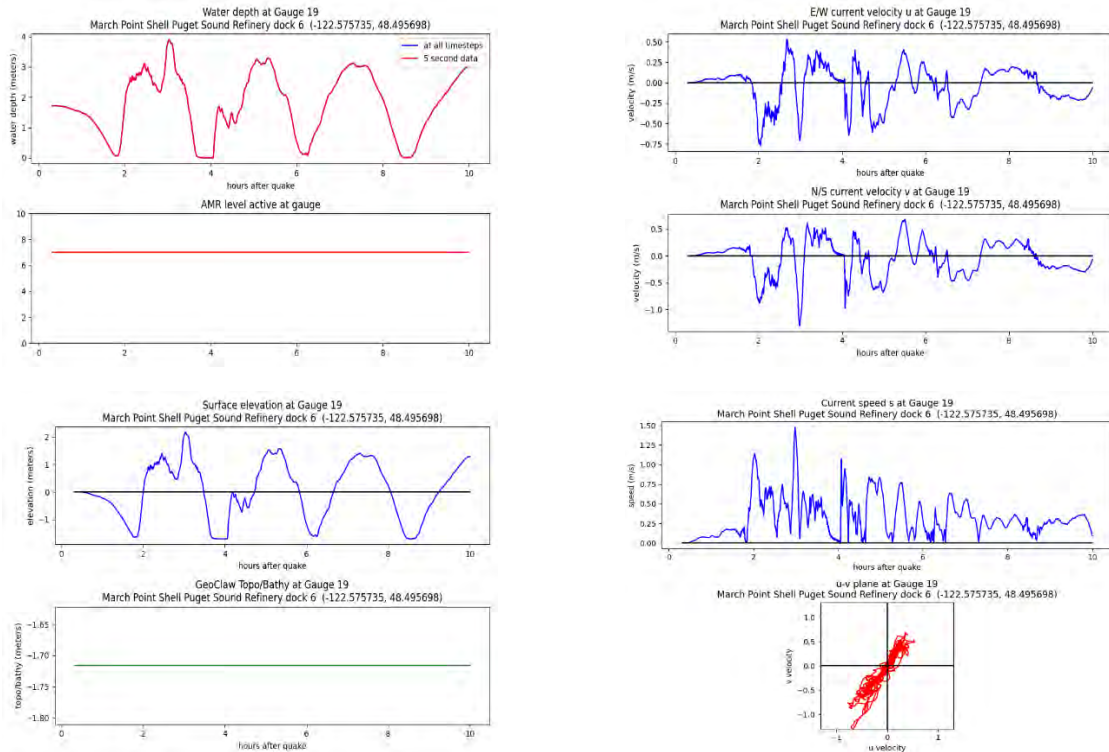


Alaska-Aleutian subduction zone scenario, MLW:

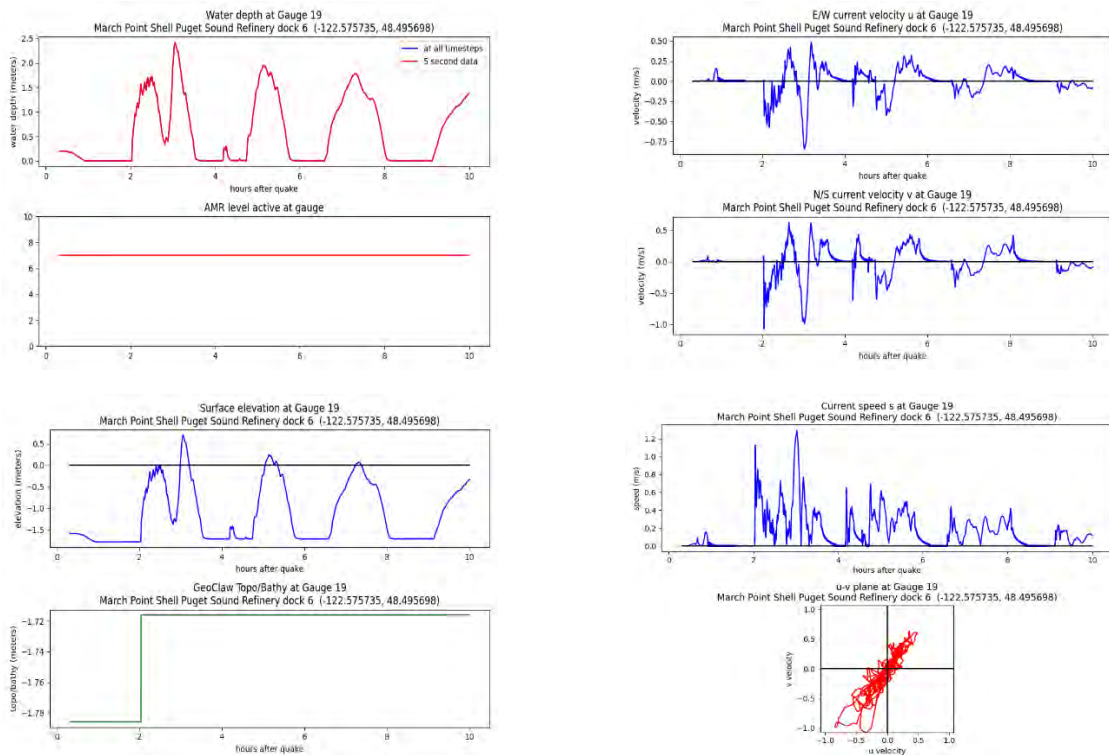


Gauge 19: March Point Shell Puget Sound Refinery dock 11

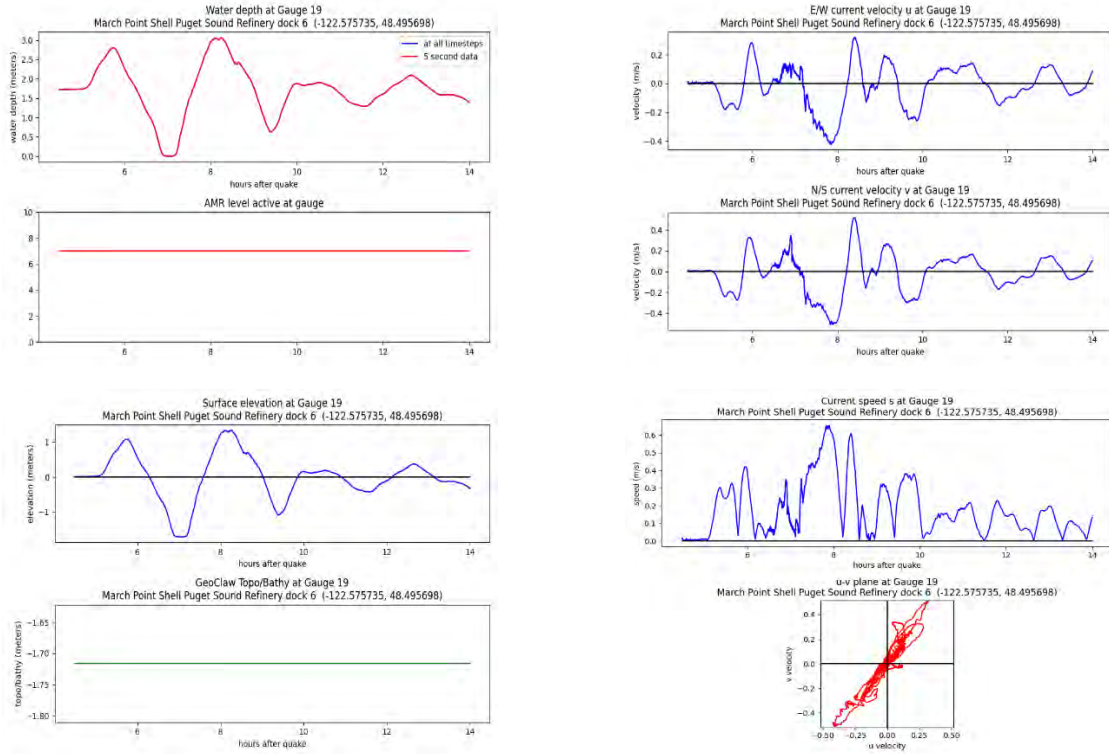
Cascadia subduction zone scenario, MHW:



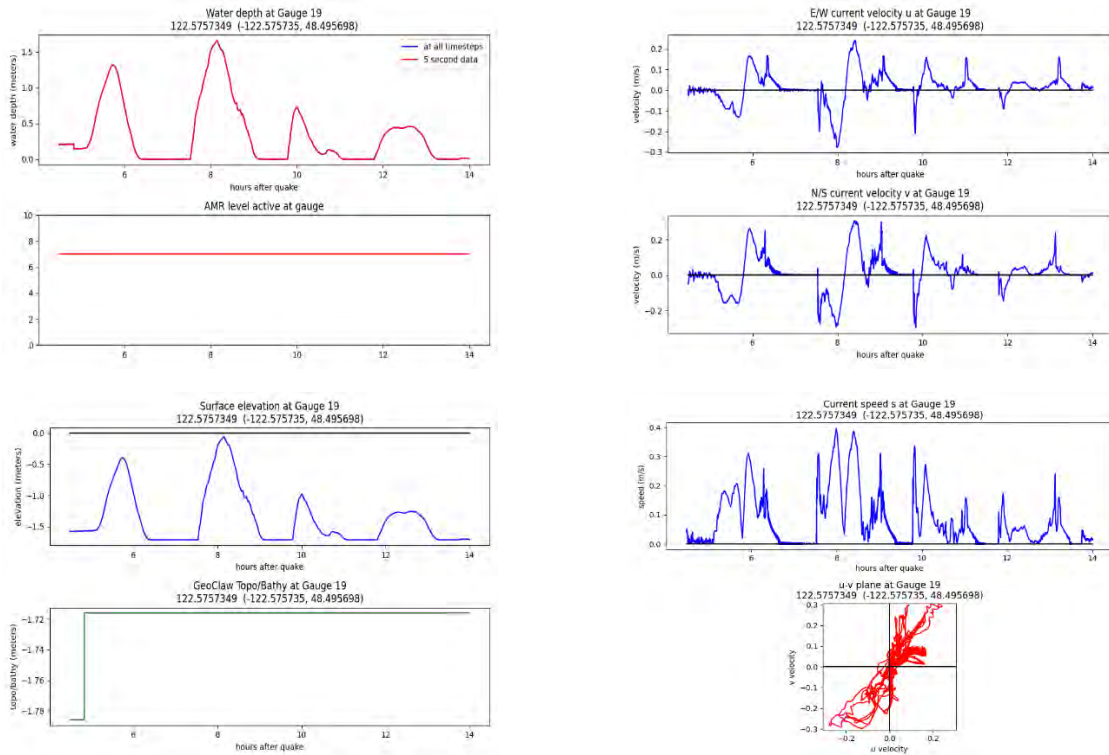
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

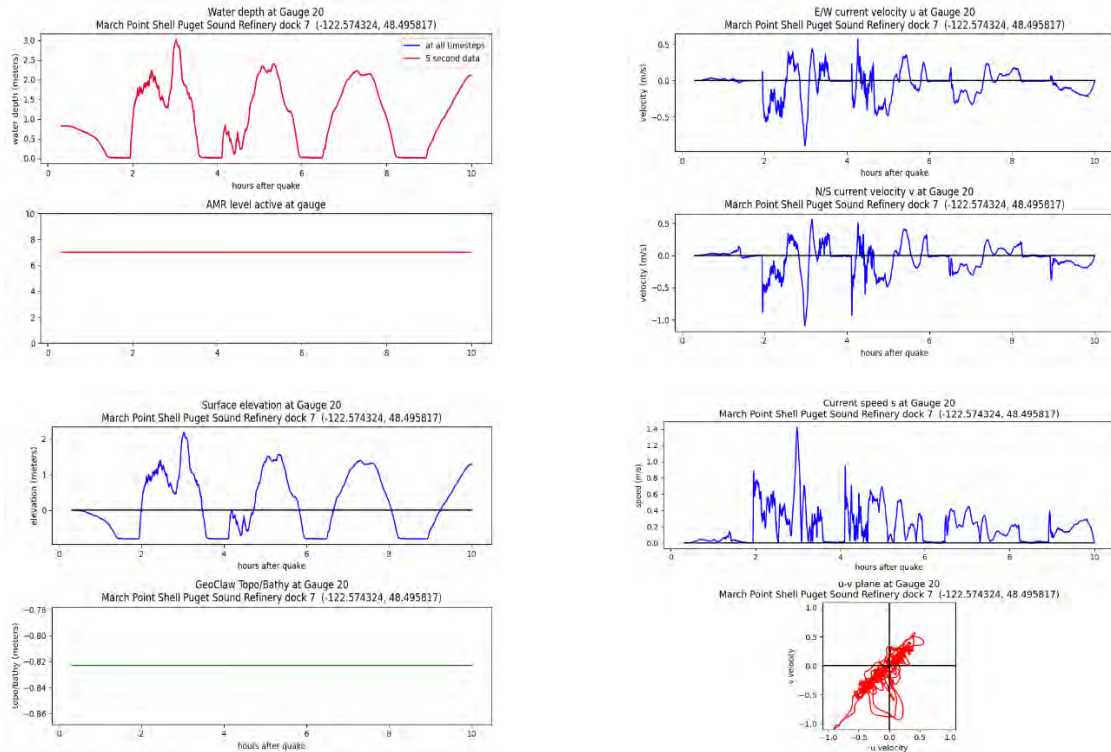


Alaska-Aleutian subduction zone scenario, MLW:

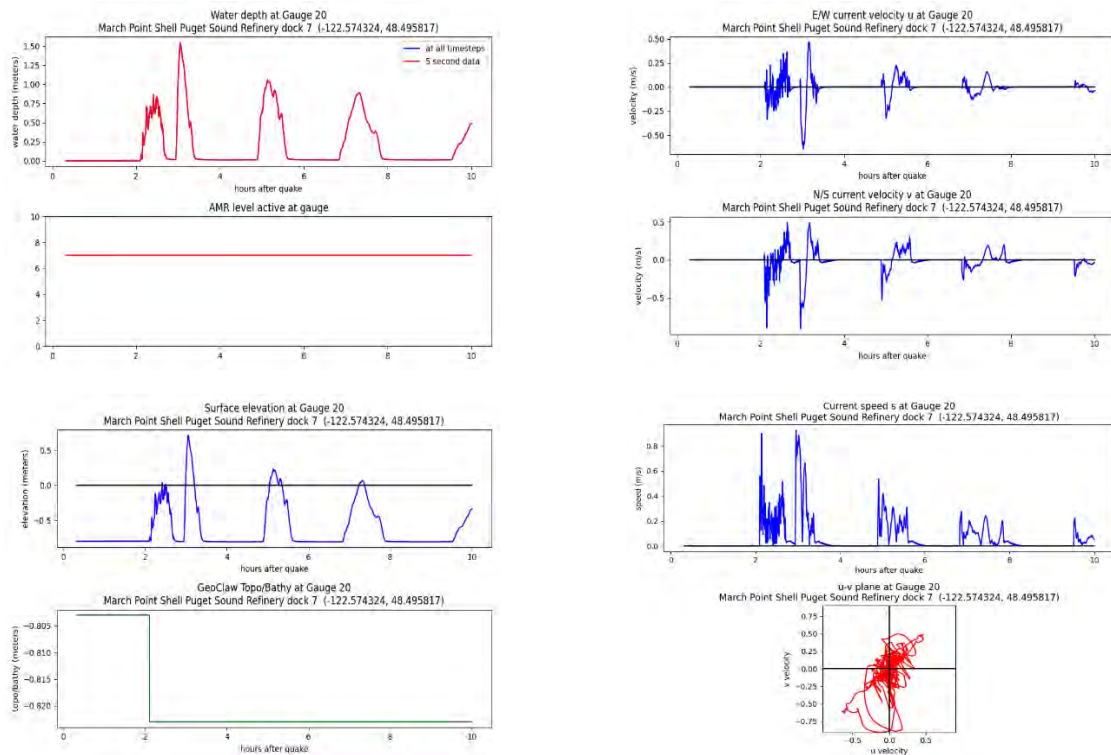


Gauge 20: Holly Frontier Anacortes

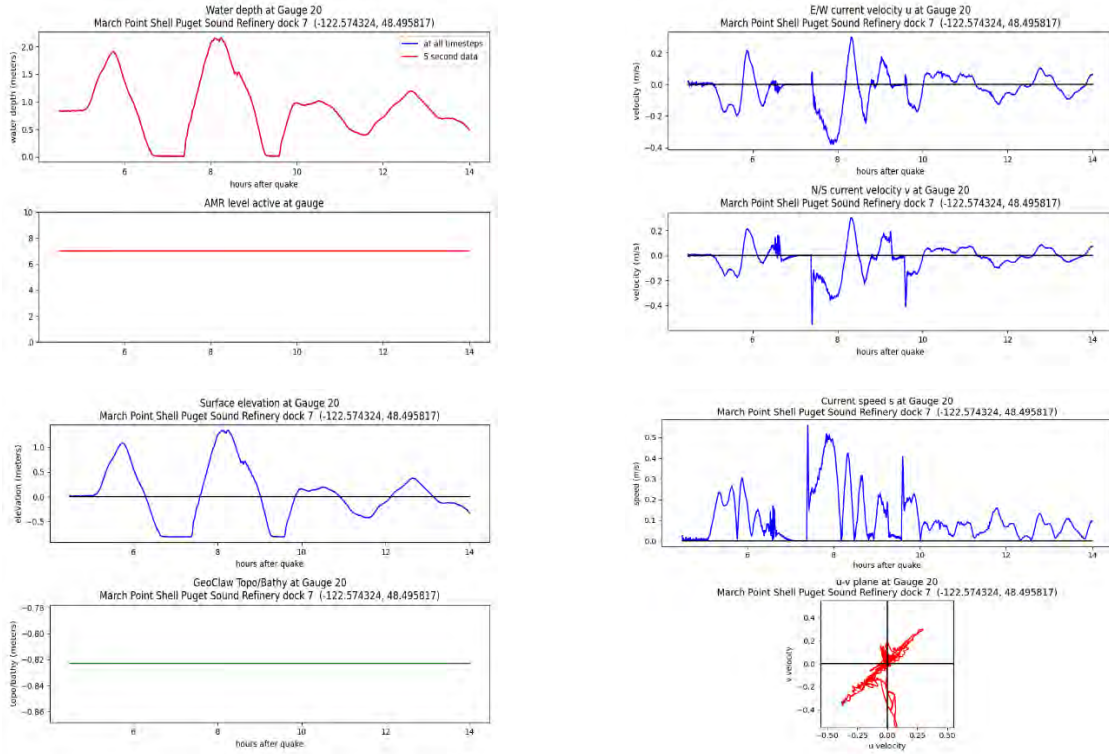
Cascadia subduction zone scenario, MHW:



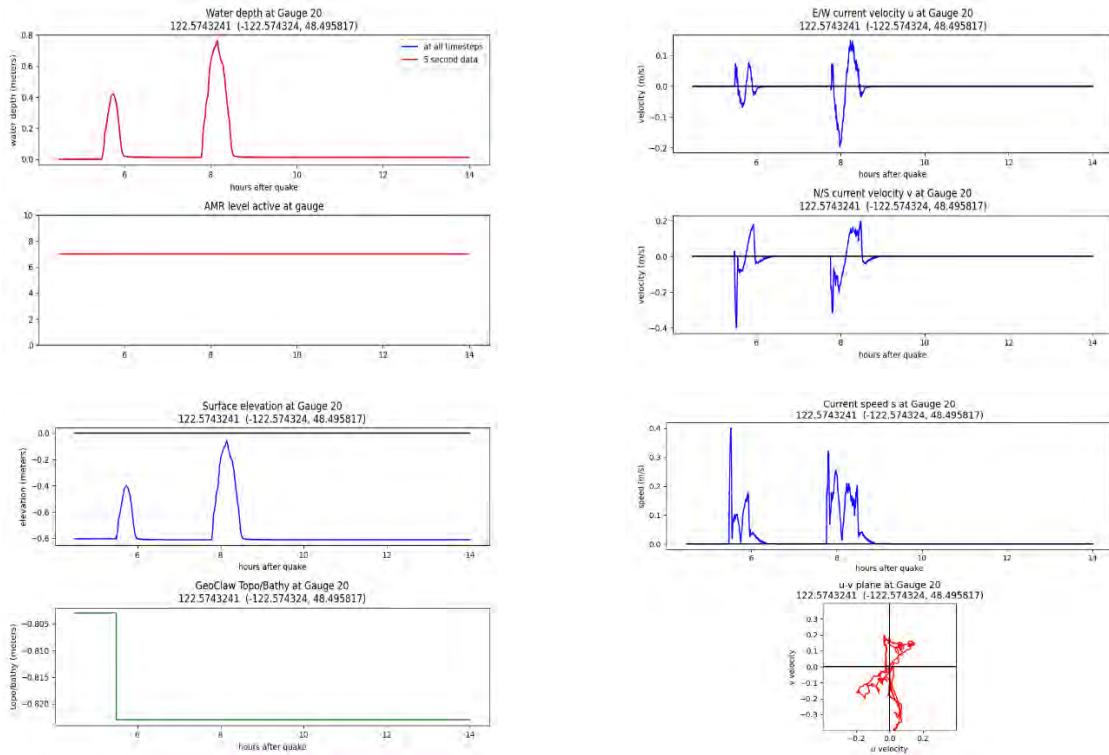
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

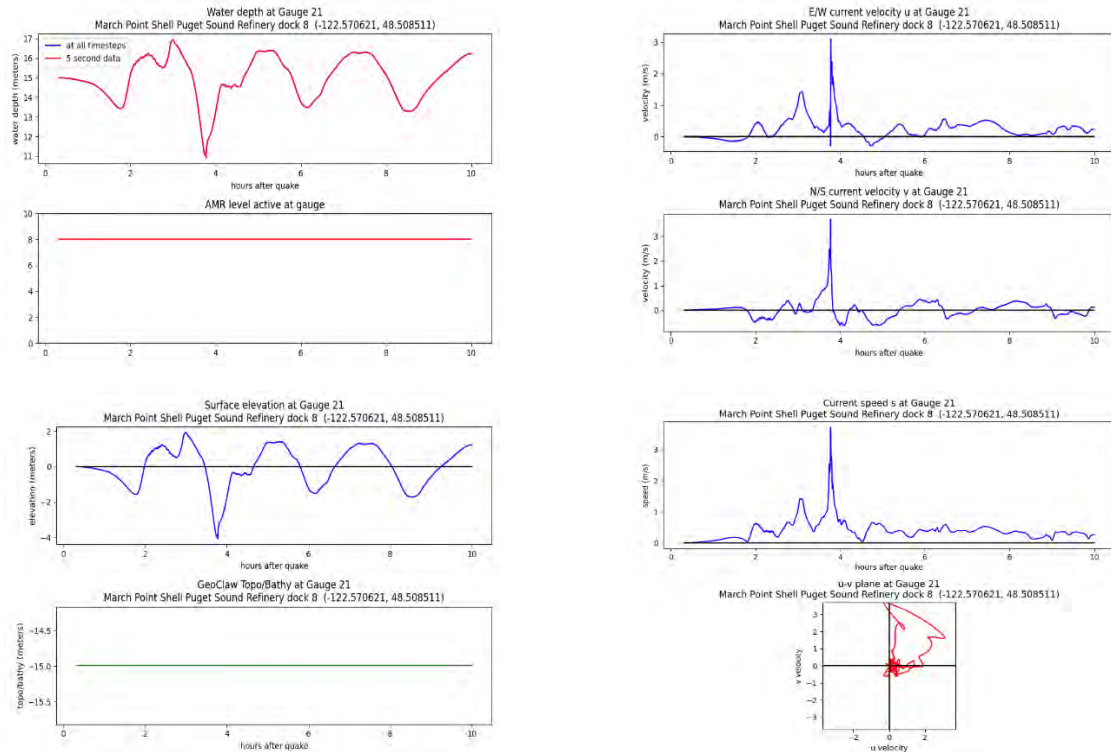


Alaska-Aleutian subduction zone scenario, MLW:

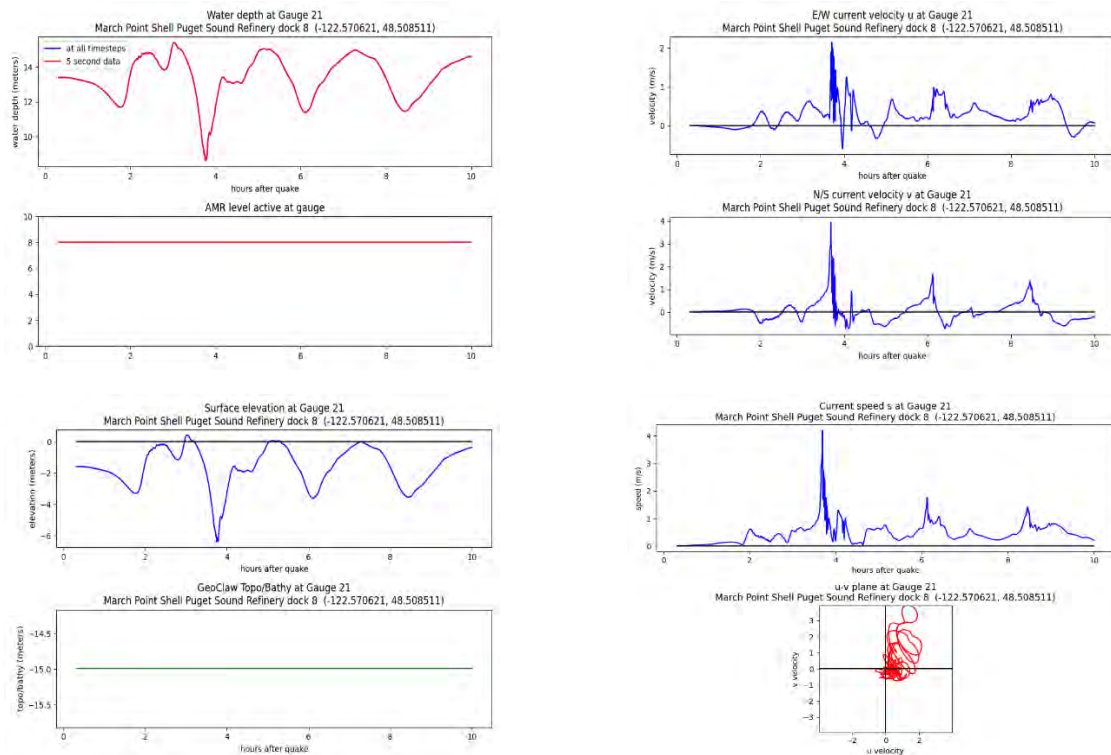


Gauge 21: Refinery dock east

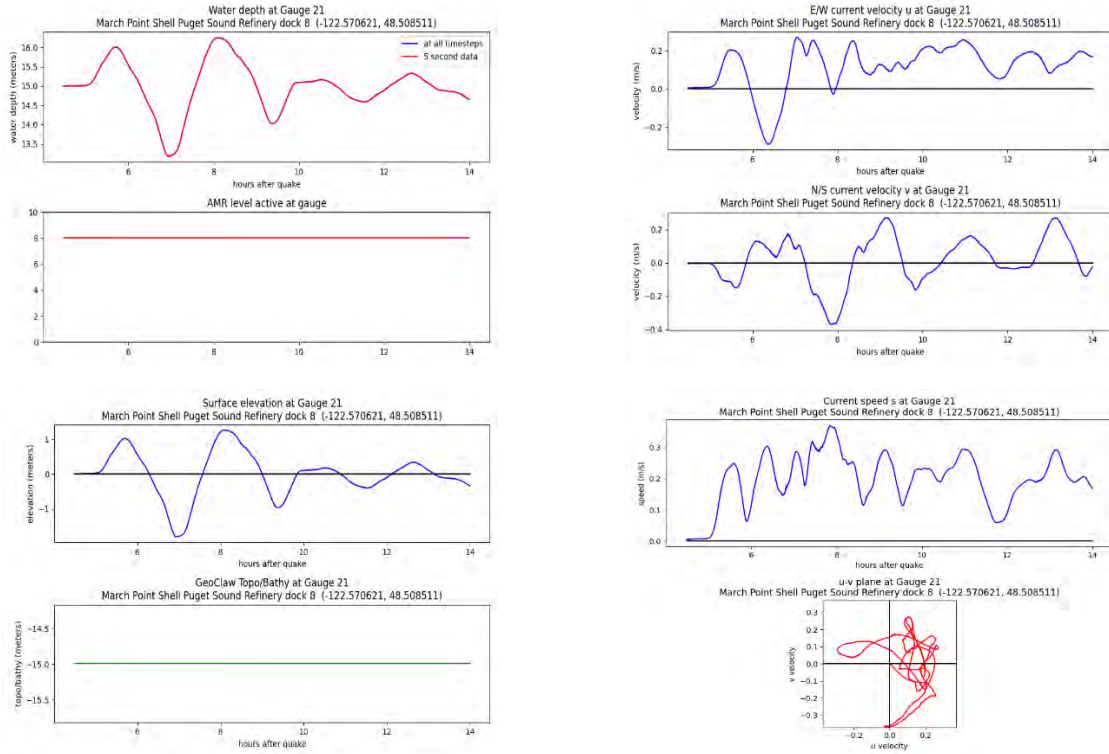
Cascadia subduction zone scenario, MHW:



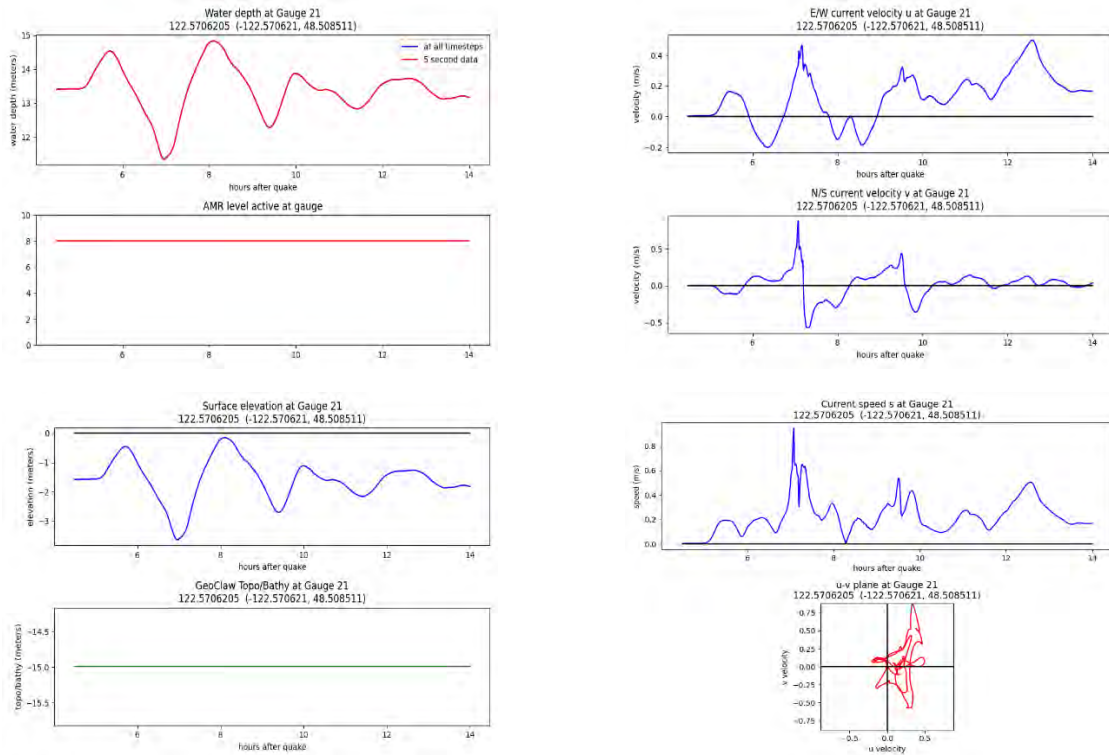
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

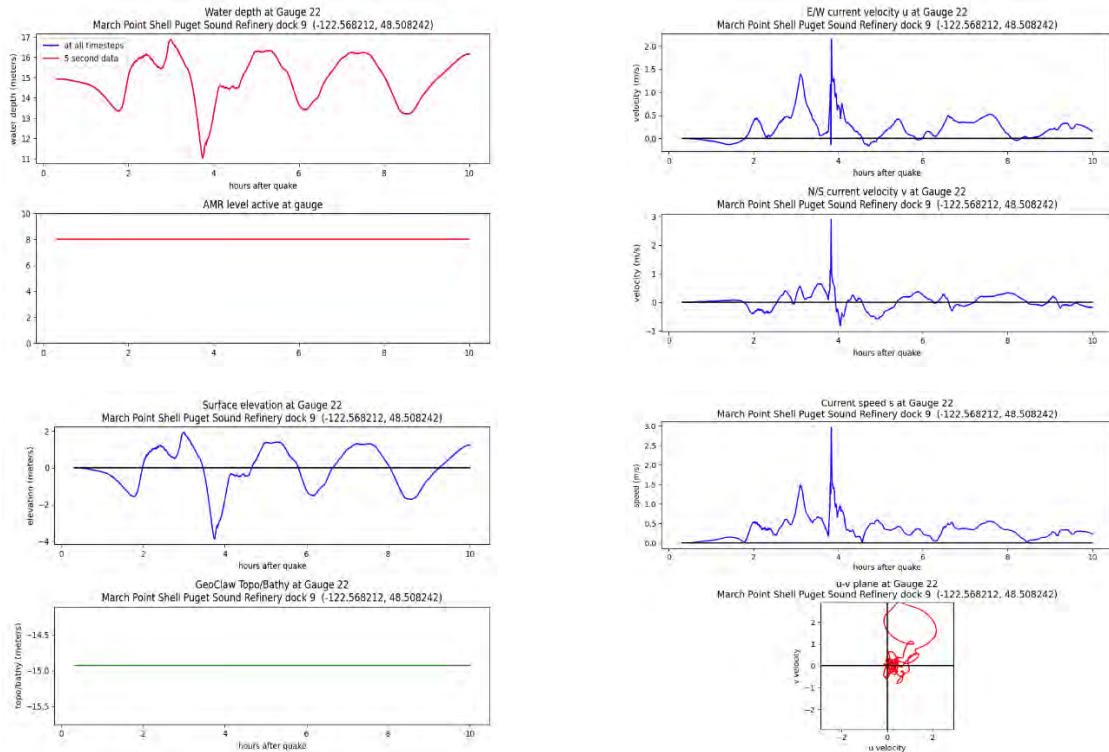


Alaska-Aleutian subduction zone scenario, MLW:

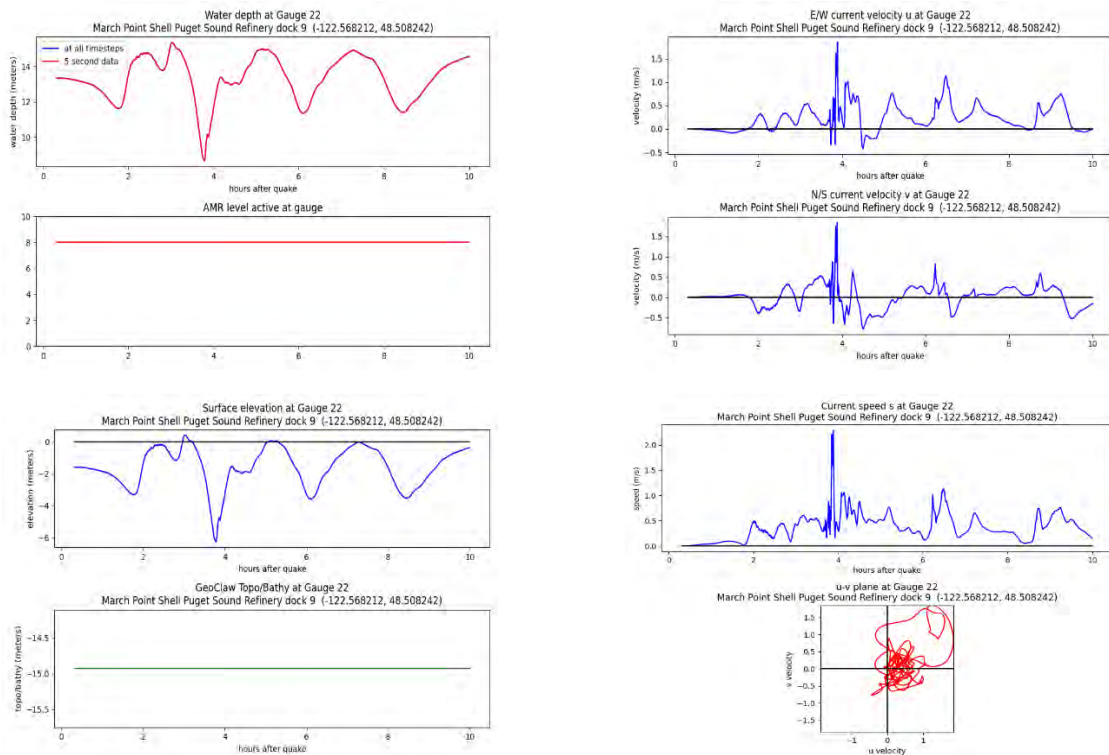


Gauge 22: Refinery dock east 2

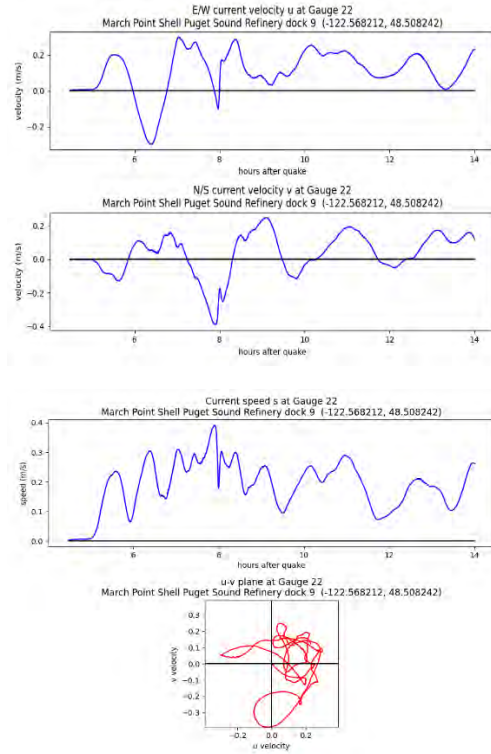
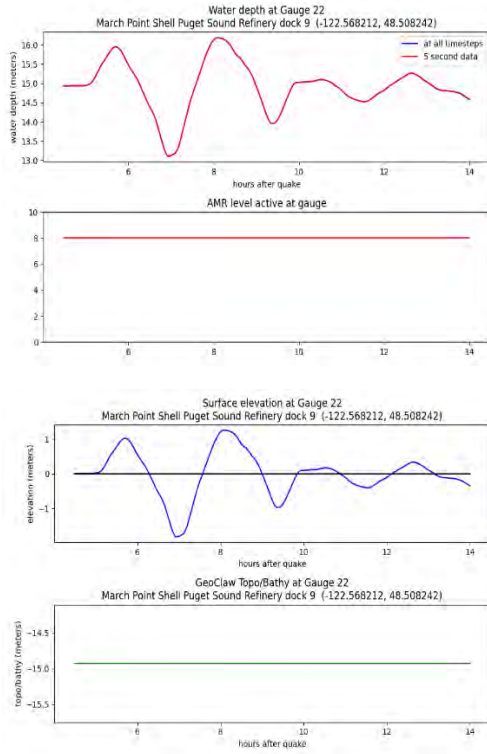
Cascadia subduction zone scenario, MHW:



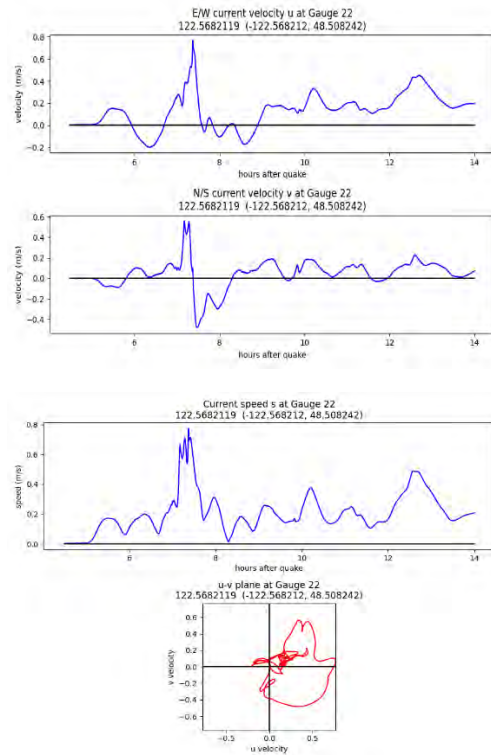
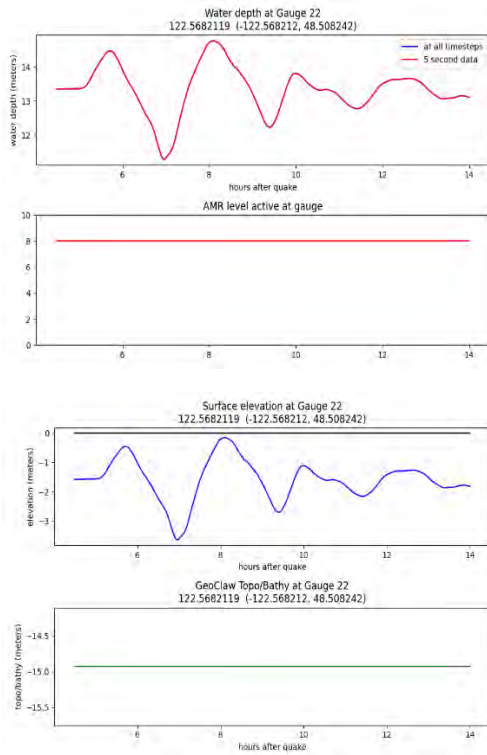
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

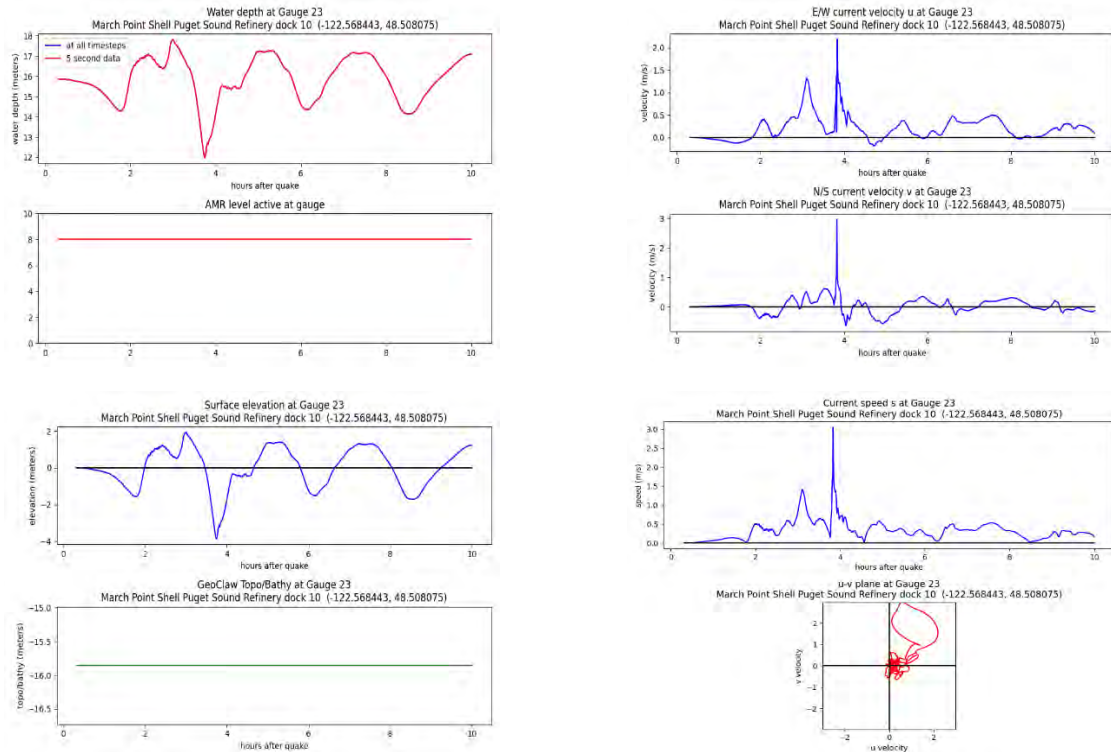


Alaska-Aleutian subduction zone scenario, MLW:

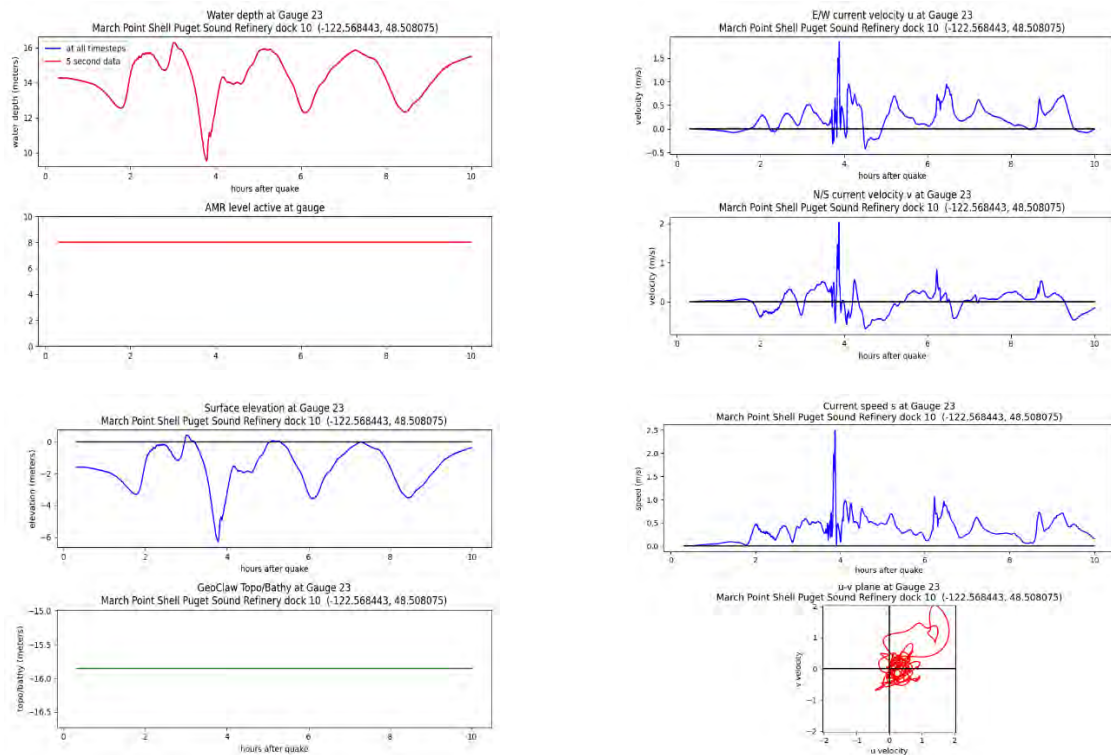


Gauge 23: Refinery dock east 3

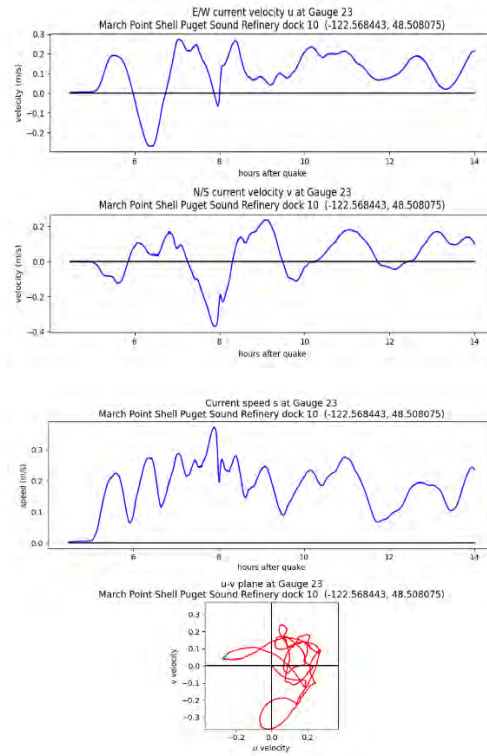
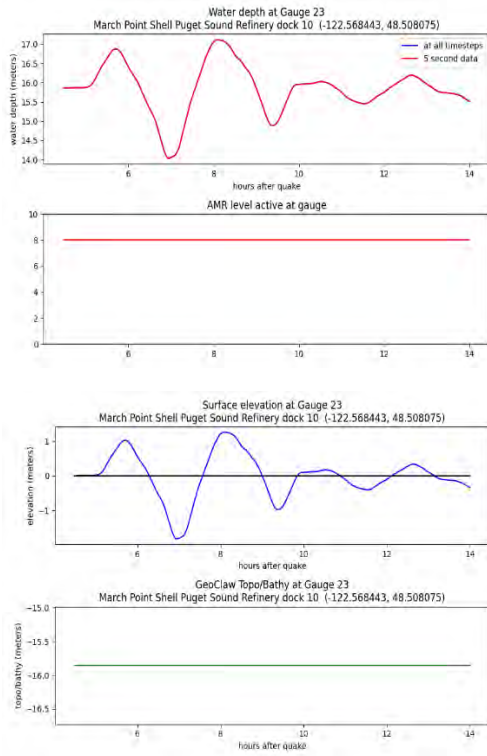
Cascadia subduction zone scenario, MHW:



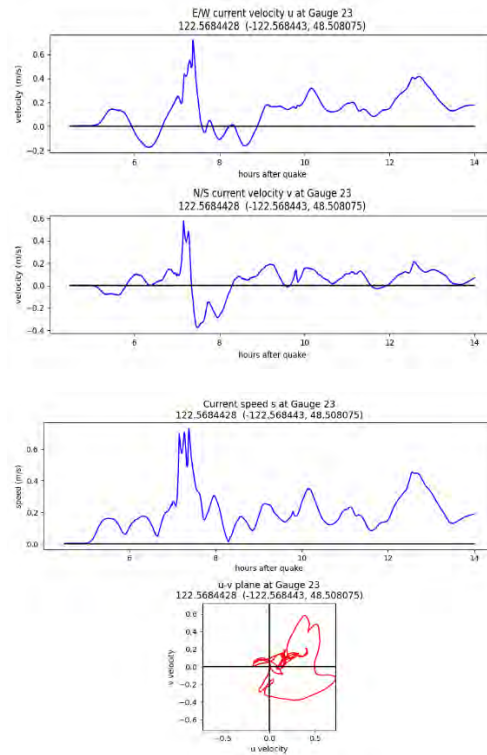
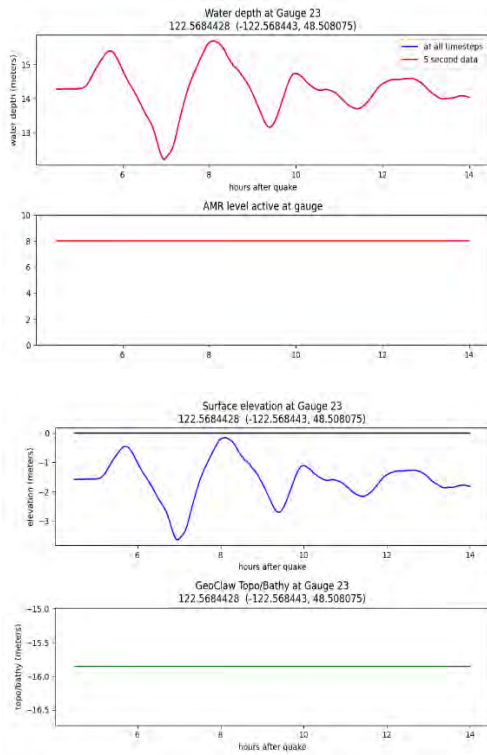
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

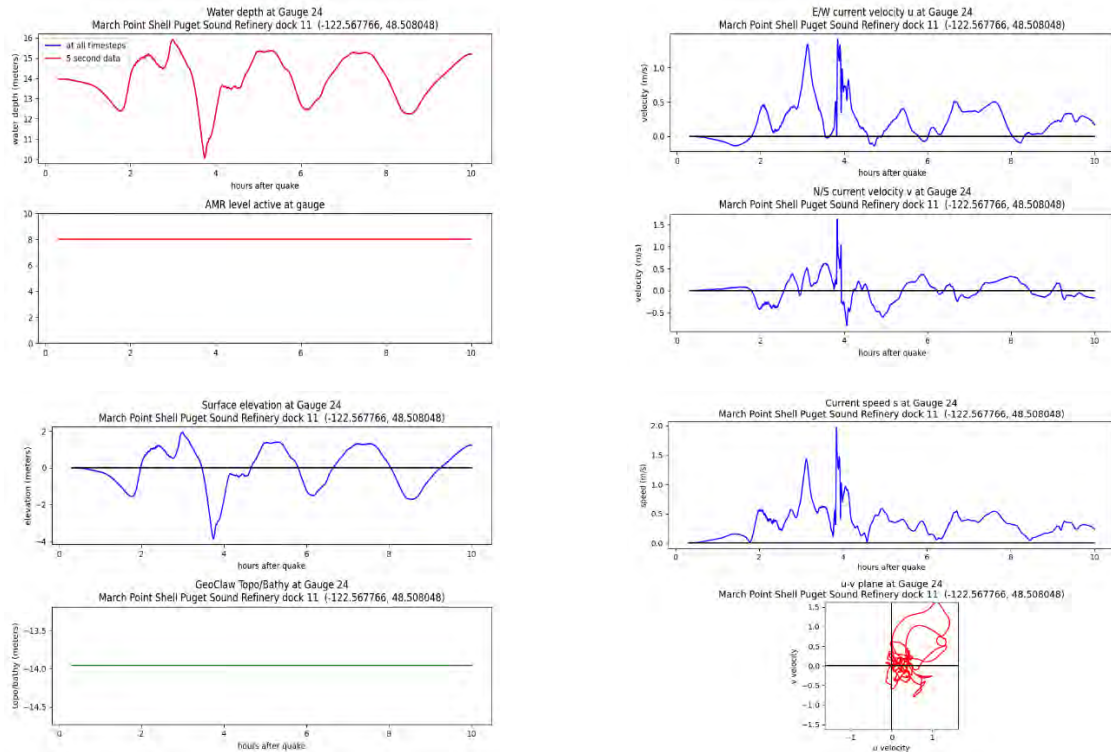


Alaska-Aleutian subduction zone scenario, MLW:

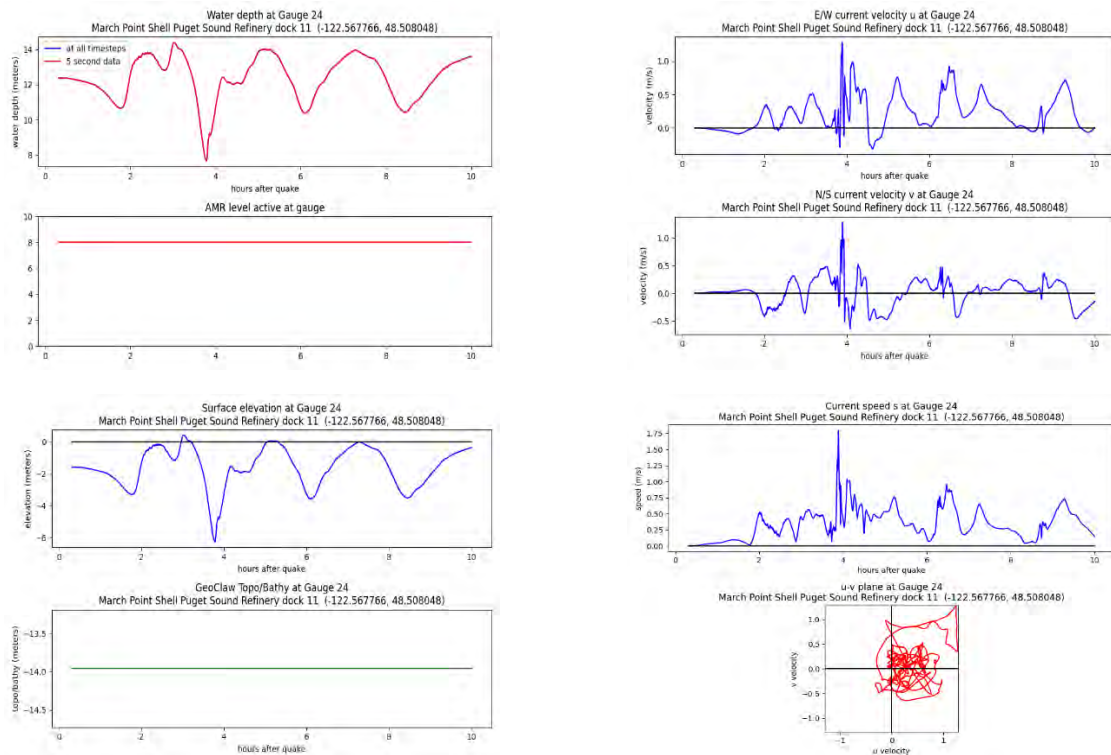


Gauge 24: Refinery dock east 4

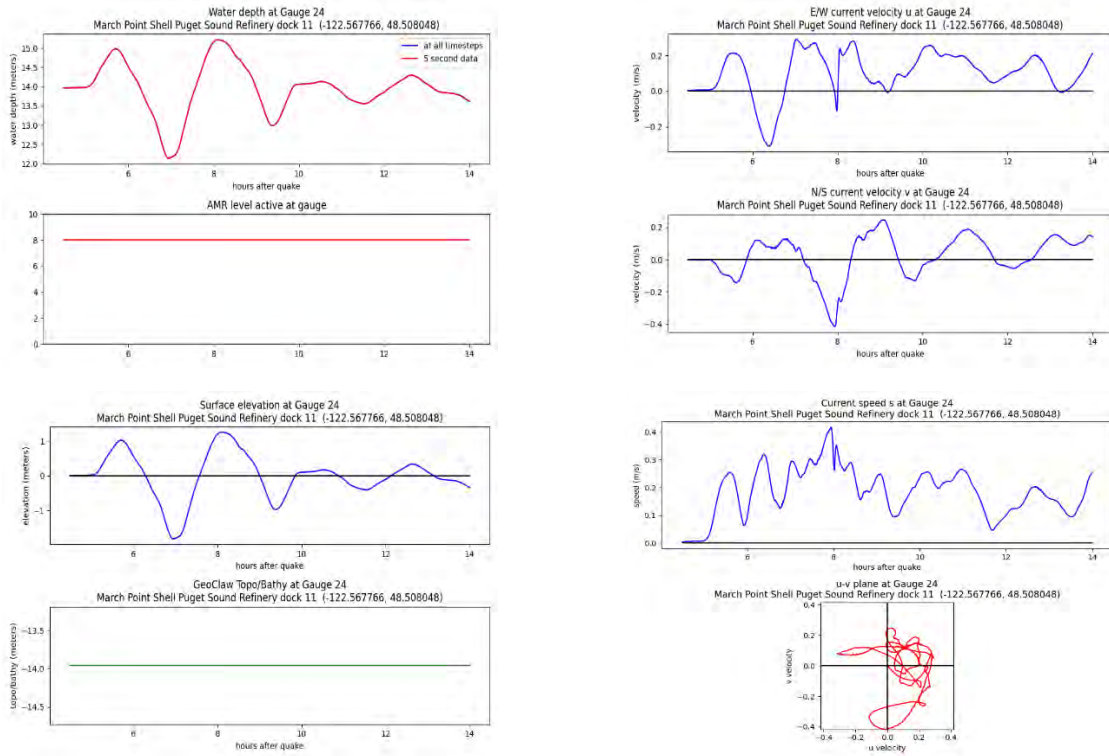
Cascadia subduction zone scenario, MHW:



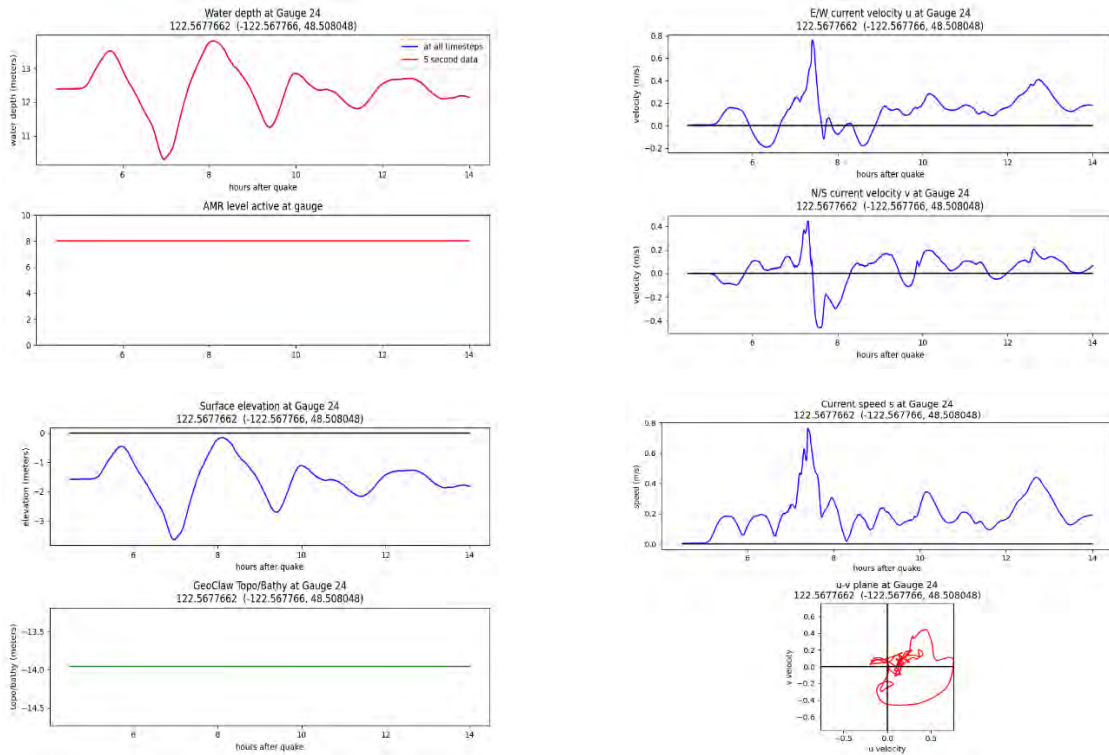
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

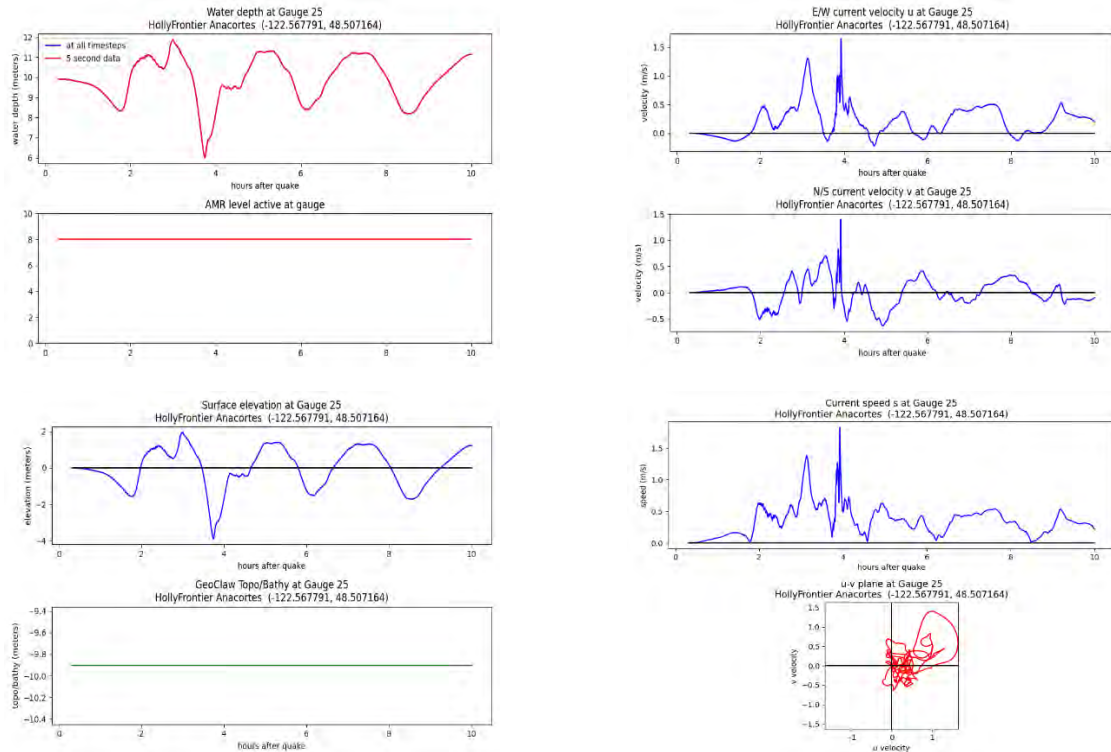


Alaska-Aleutian subduction zone scenario, MLW:

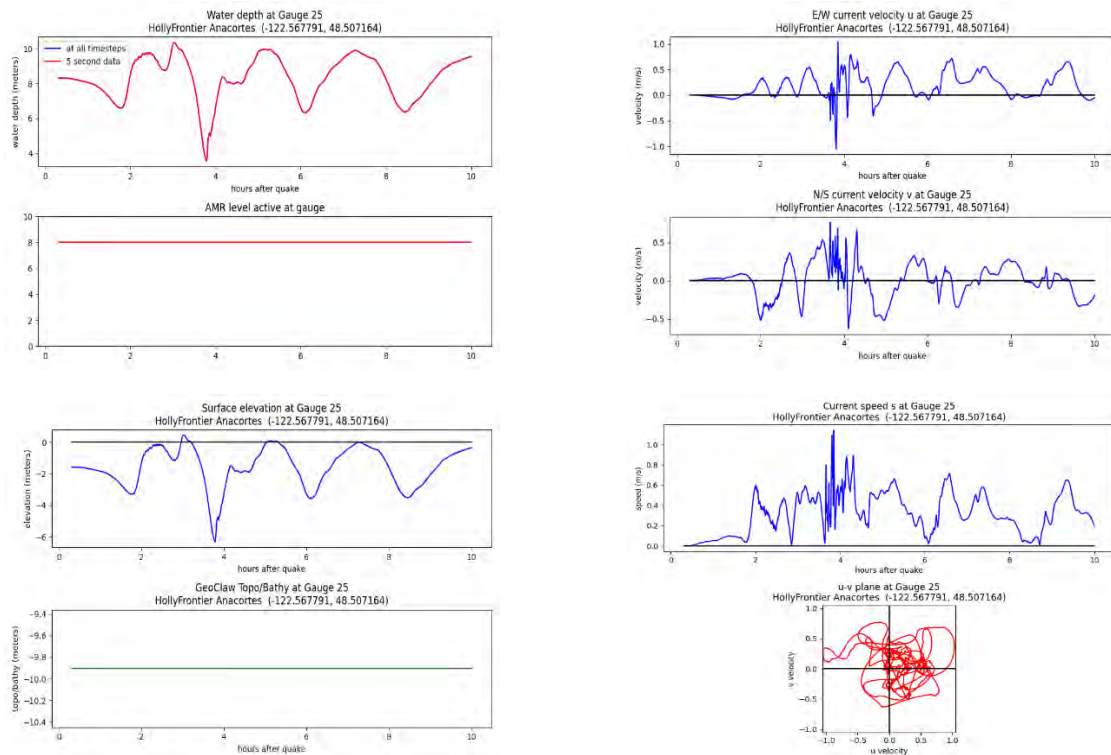


Gauge 25: Refinery dock east 5

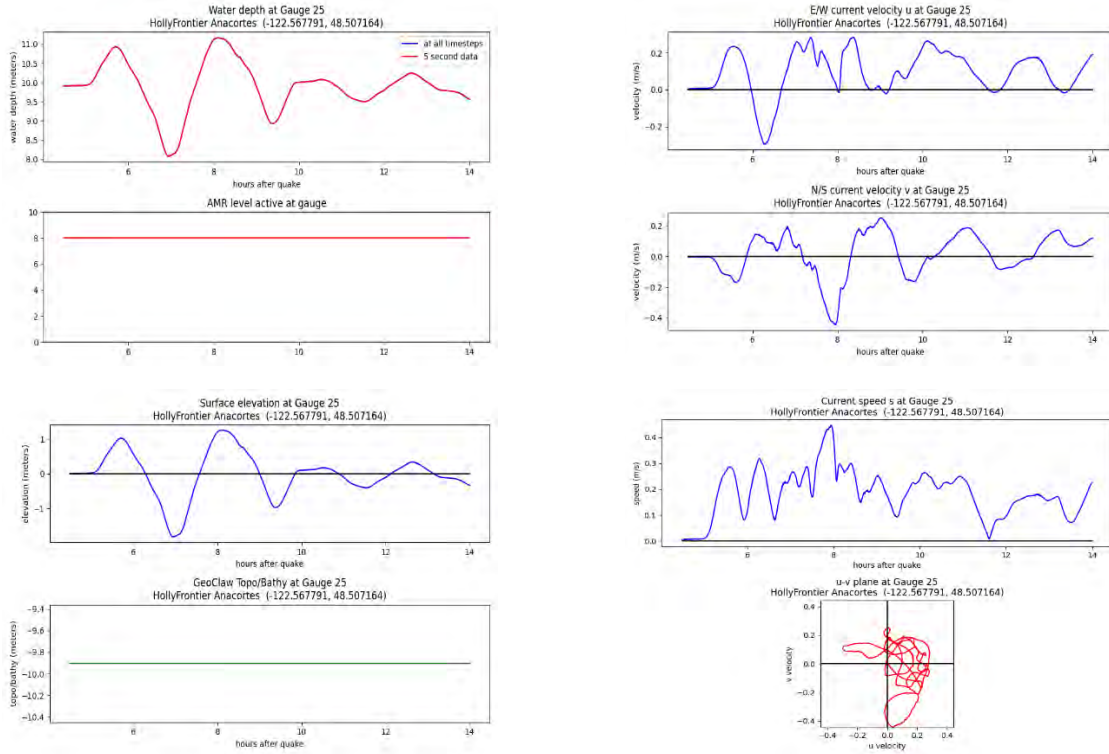
Cascadia subduction zone scenario, MHW:



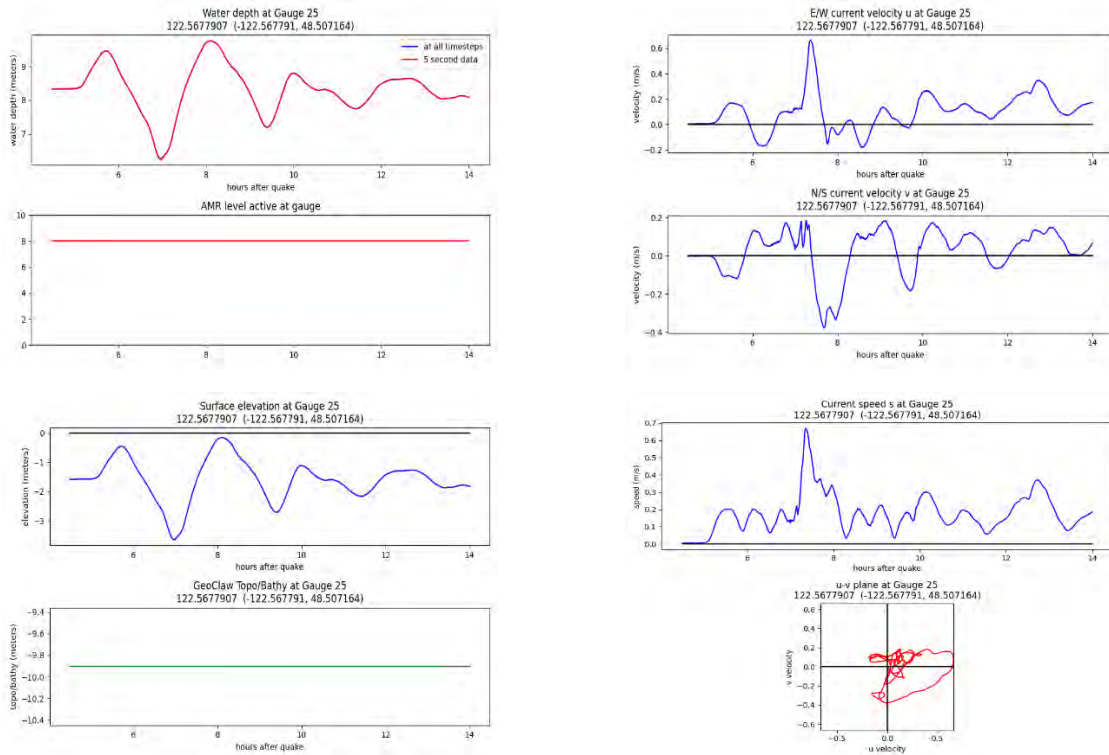
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

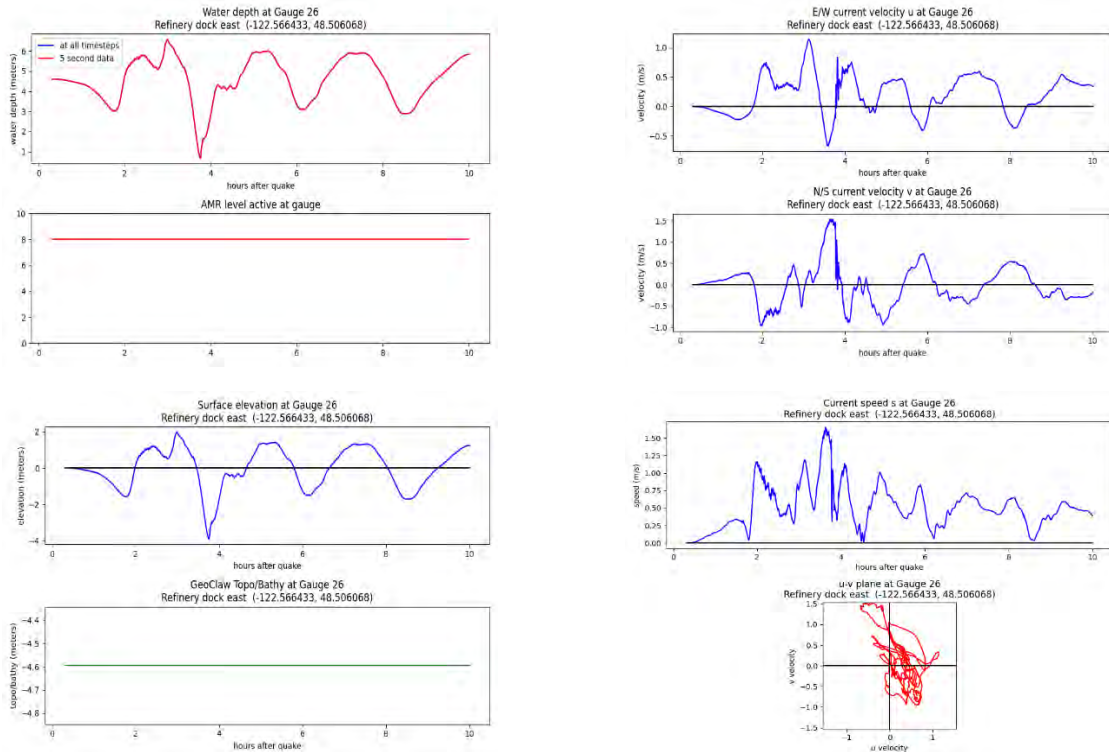


Alaska-Aleutian subduction zone scenario, MLW:

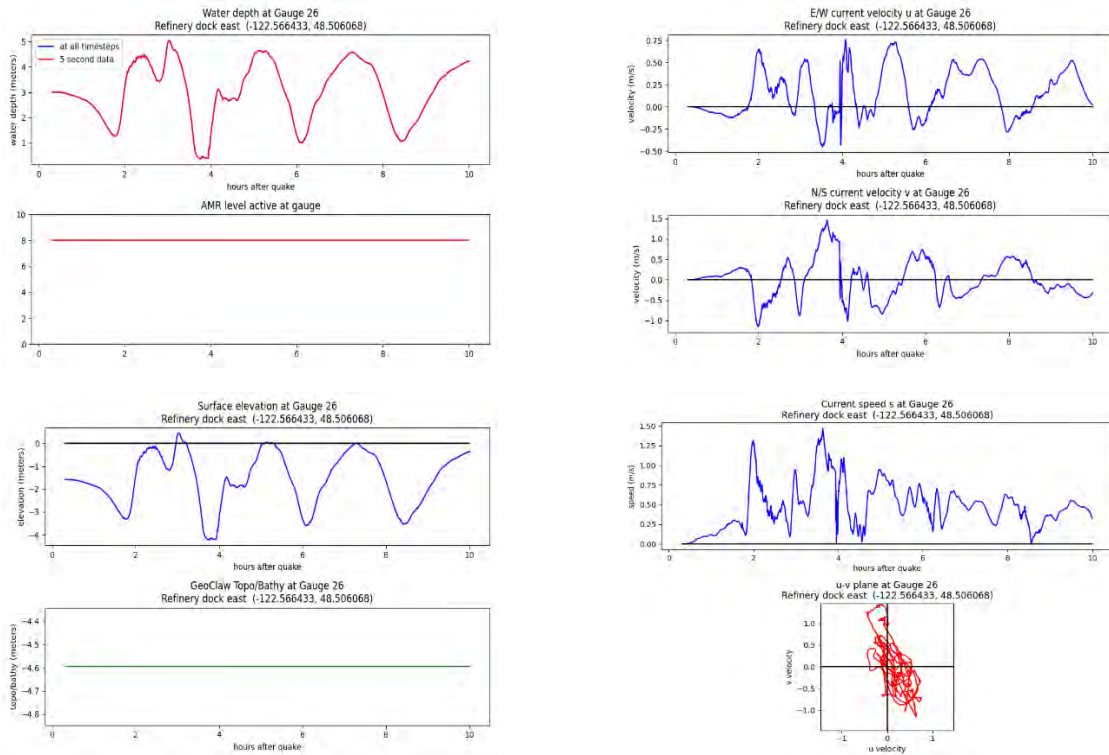


Gauge 26: Refinery dock east 6

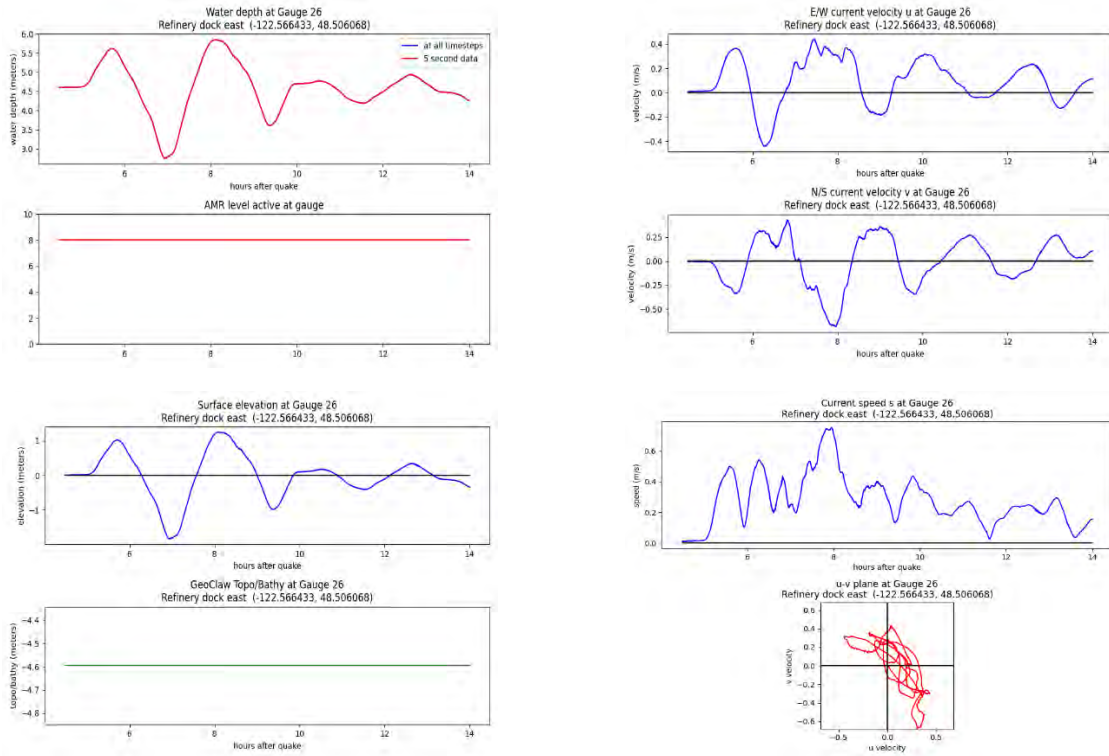
Cascadia subduction zone scenario, MHW:



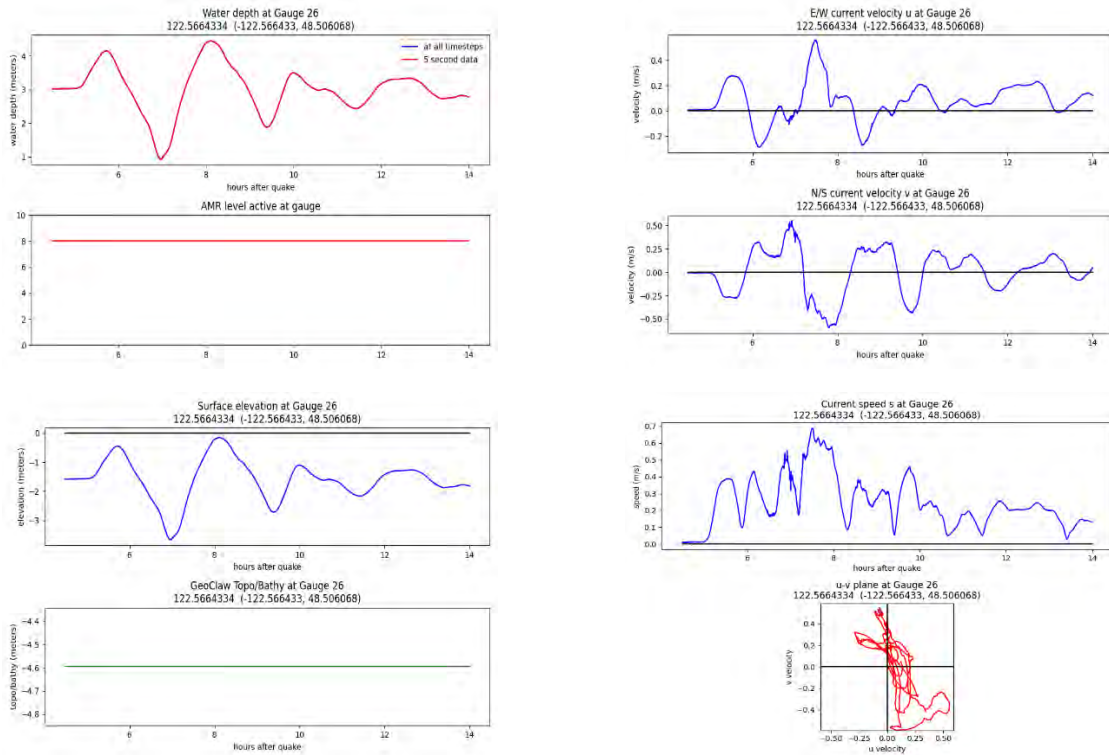
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

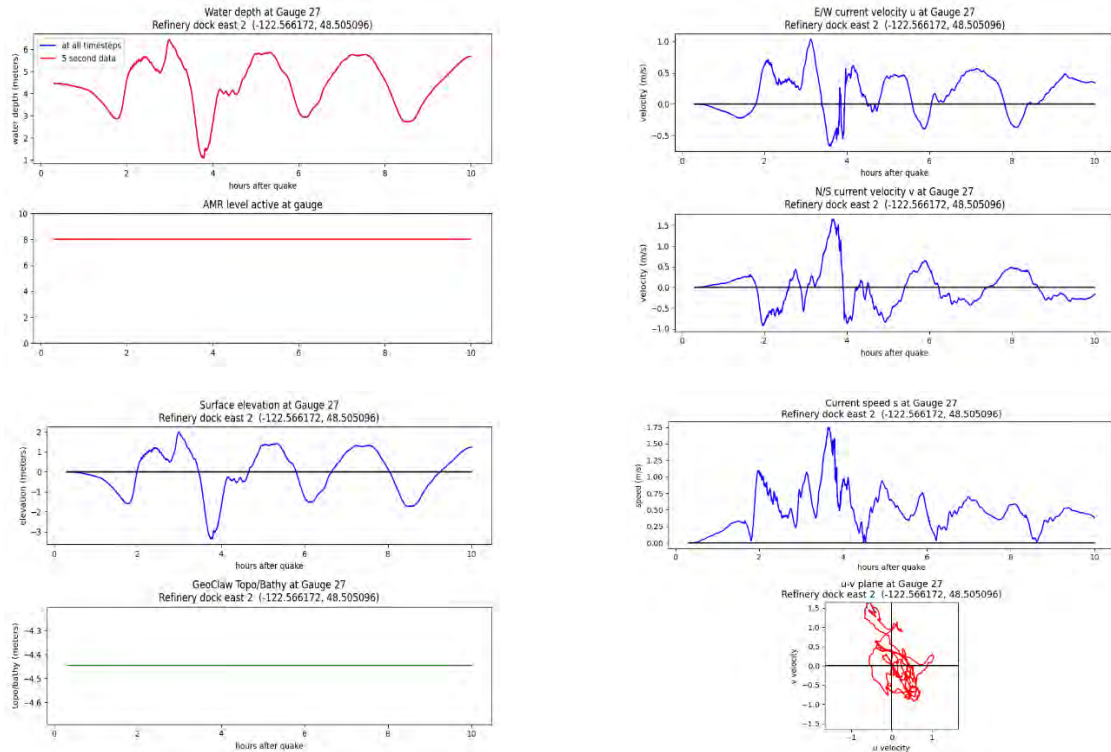


Alaska-Aleutian subduction zone scenario, MLW:

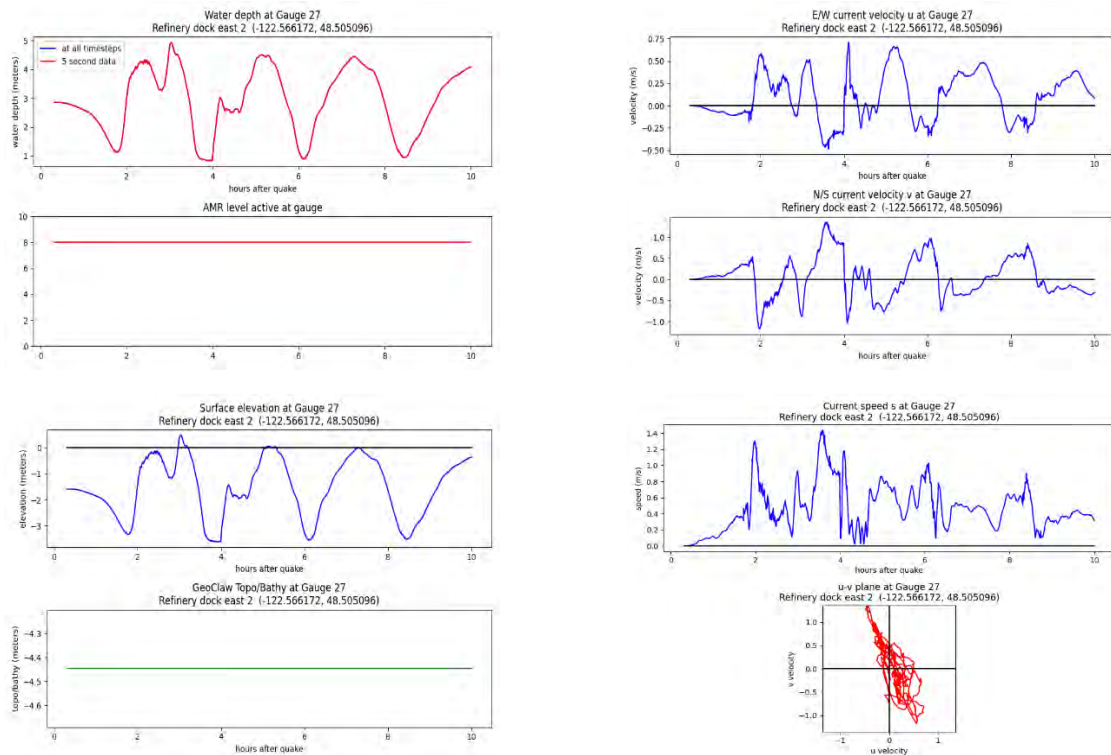


Gauge 27: Refinery dock east 7

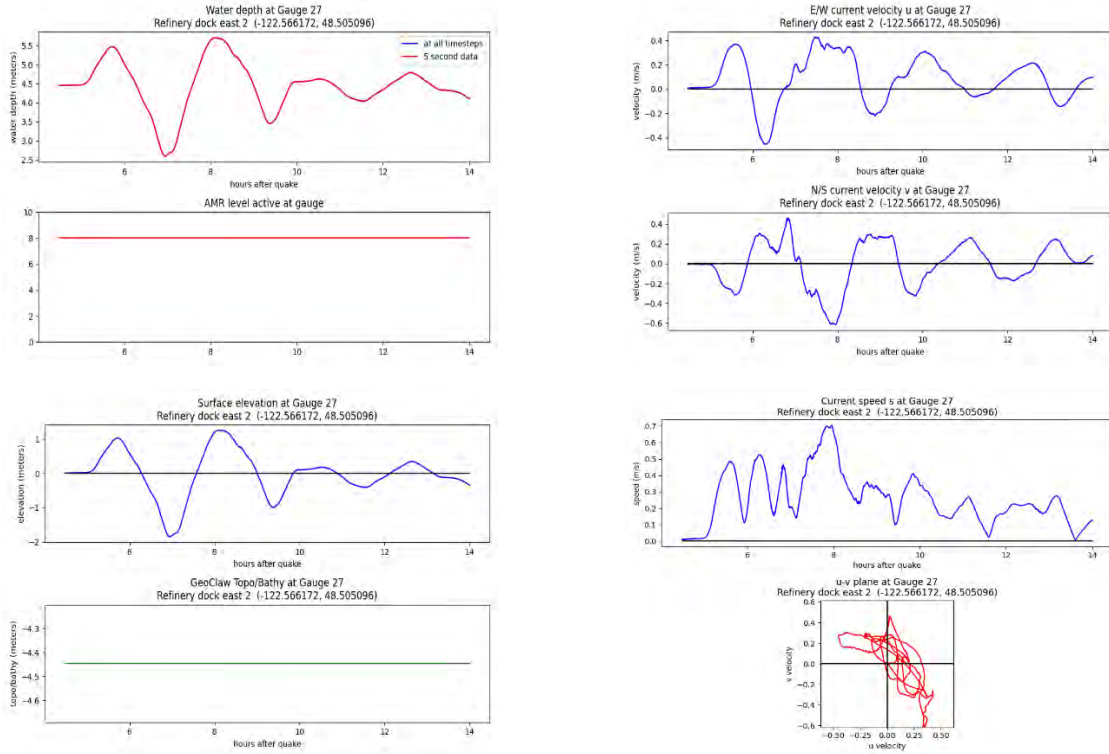
Cascadia subduction zone scenario, MHW:



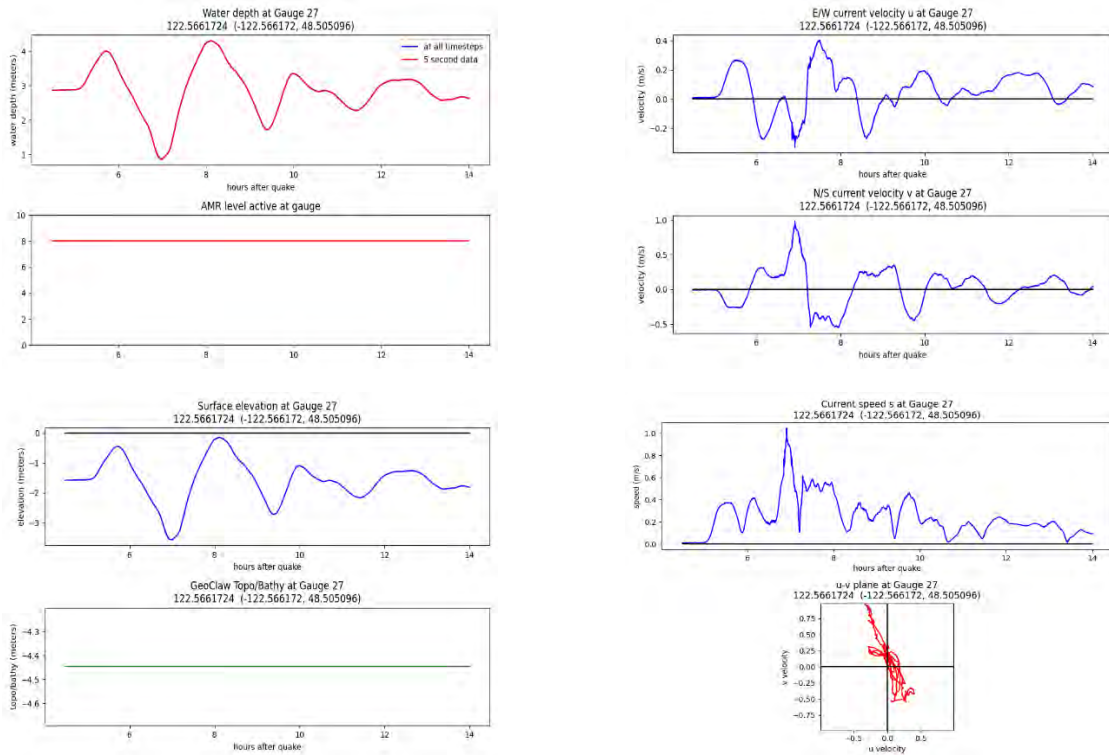
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

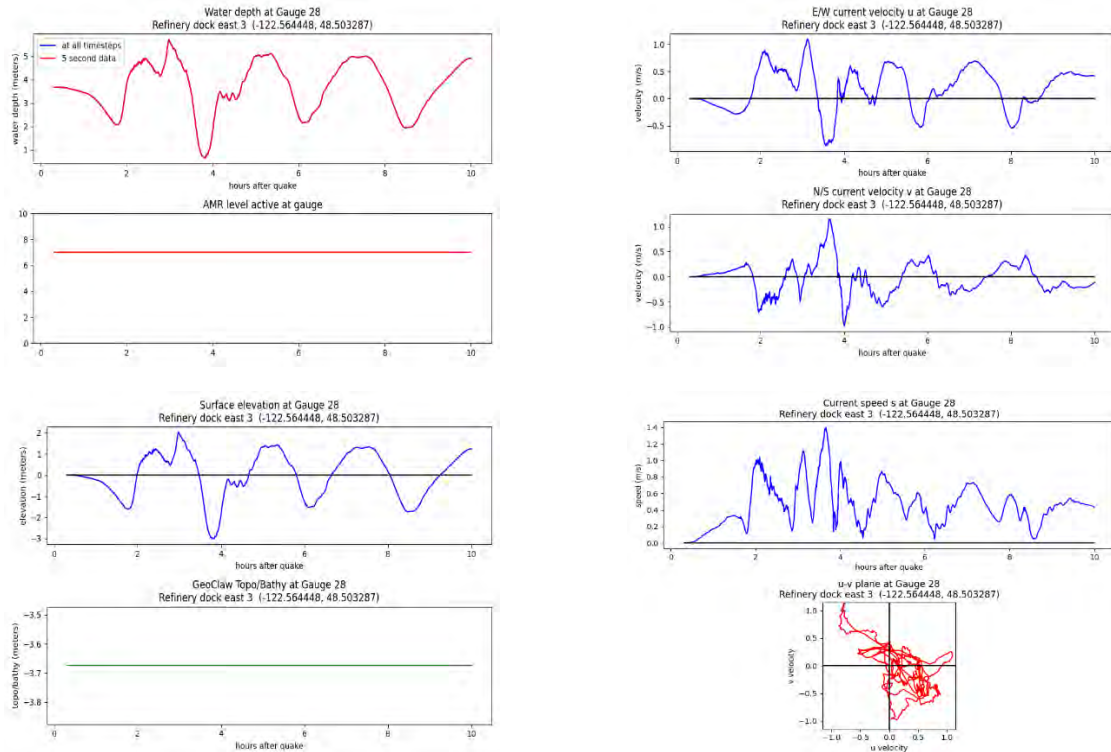


Alaska-Aleutian subduction zone scenario, MLW:

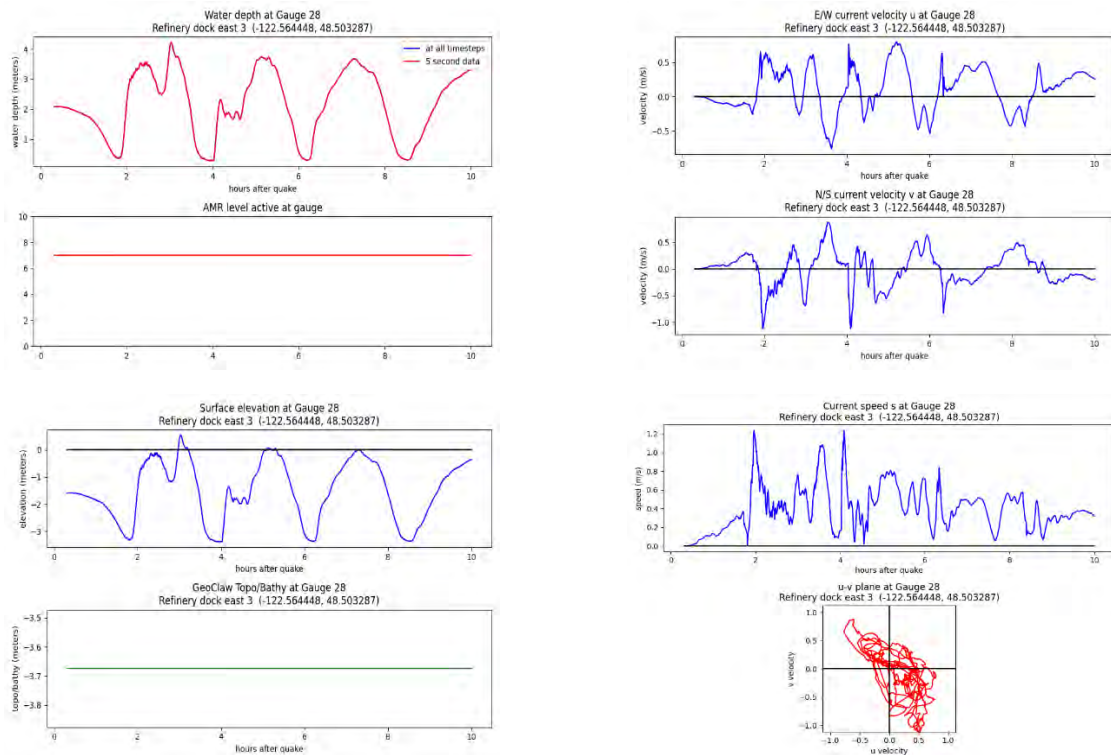


Gauge 28: Refinery dock east 8

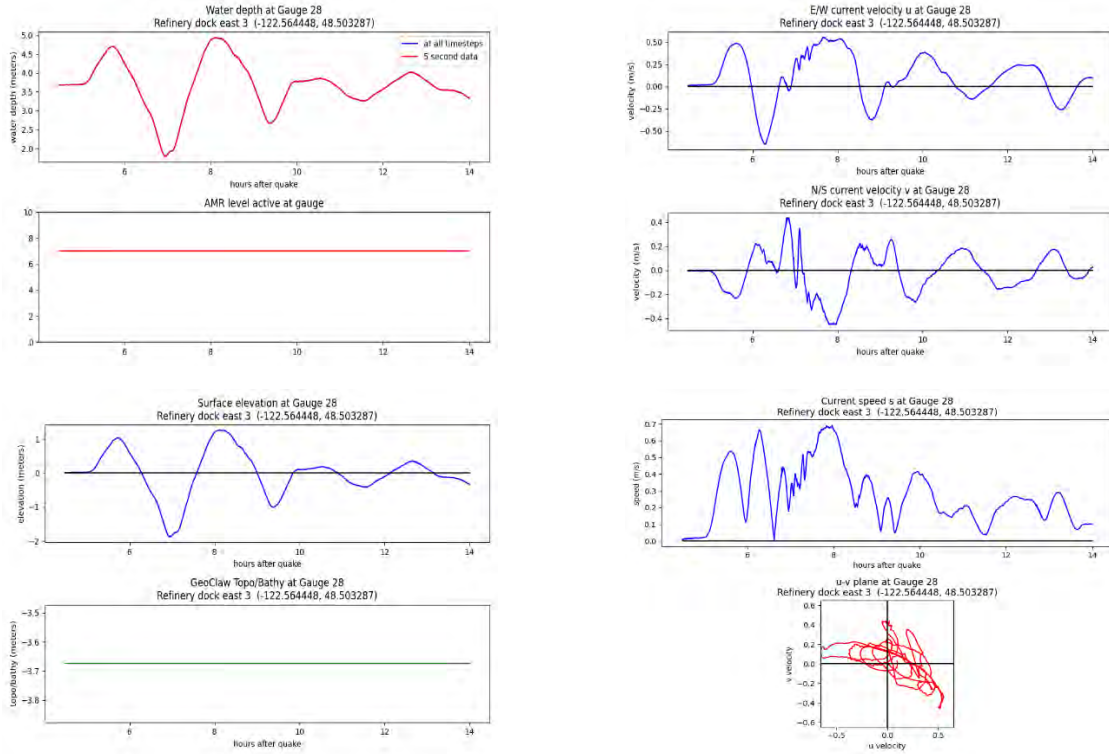
Cascadia subduction zone scenario, MHW:



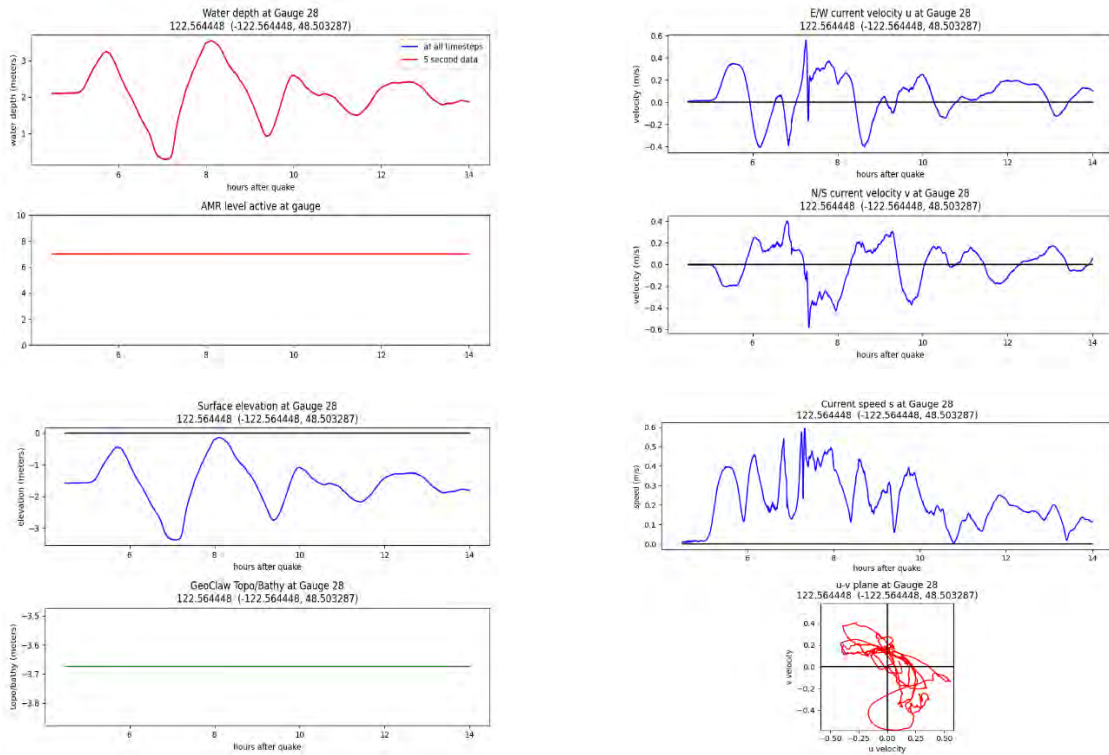
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

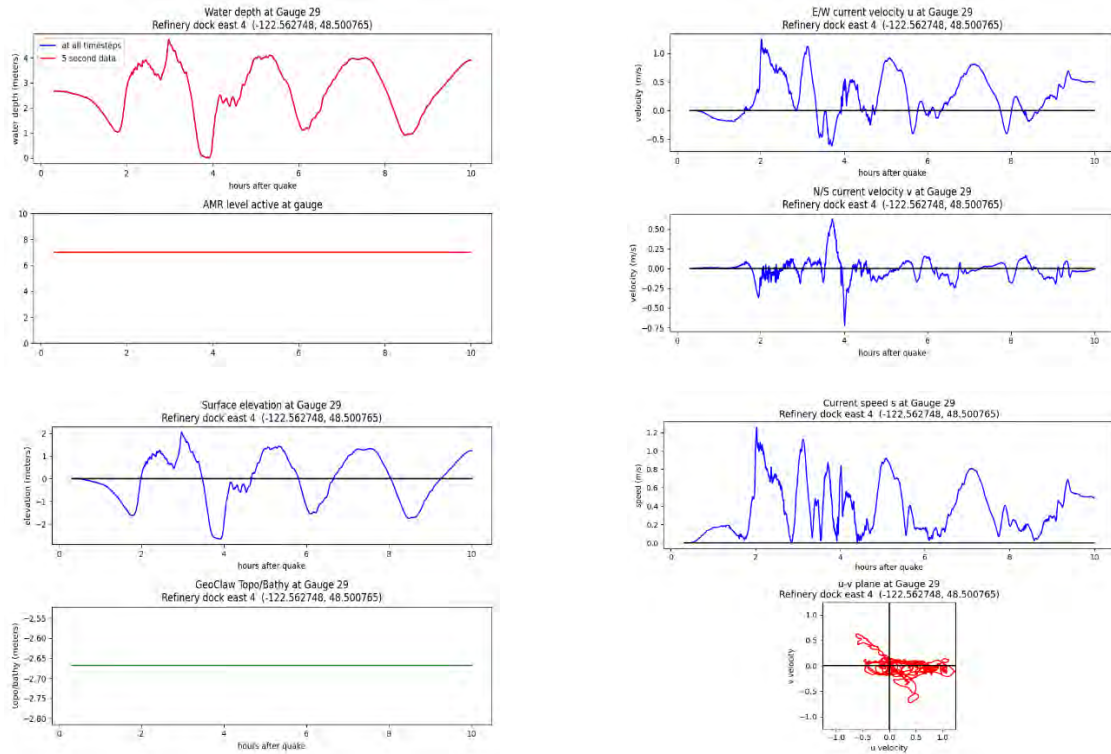


Alaska-Aleutian subduction zone scenario, MLW:

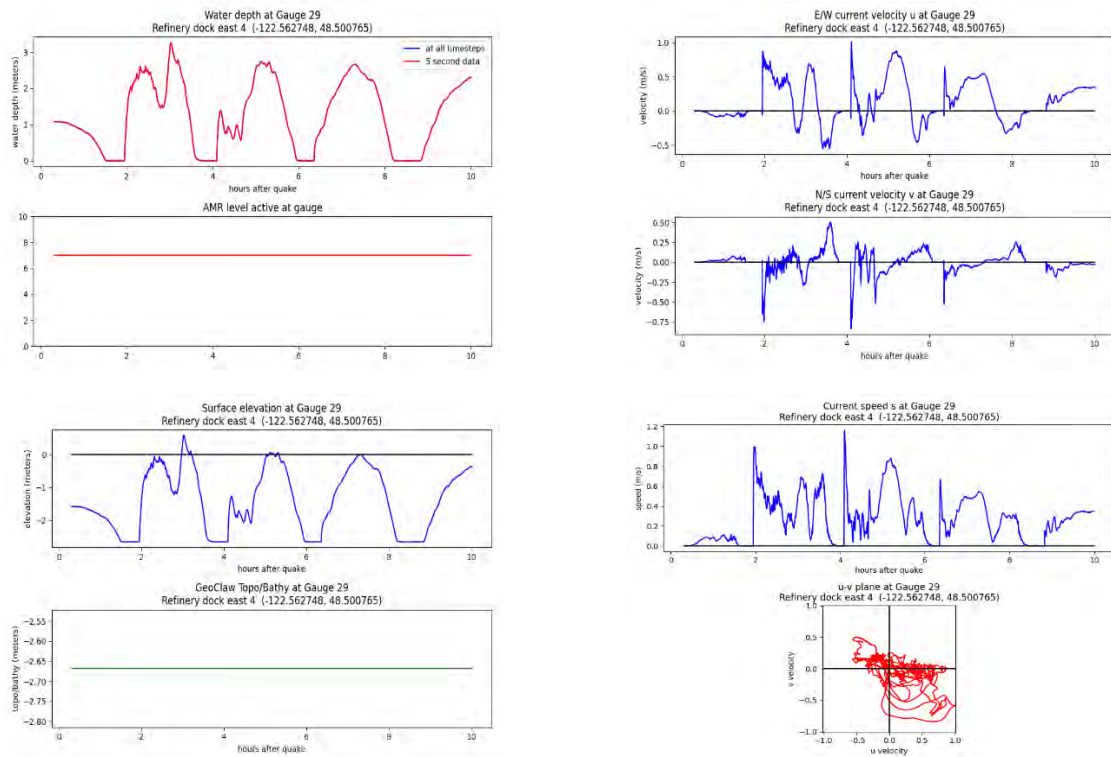


Gauge 29: Refinery dock east 9

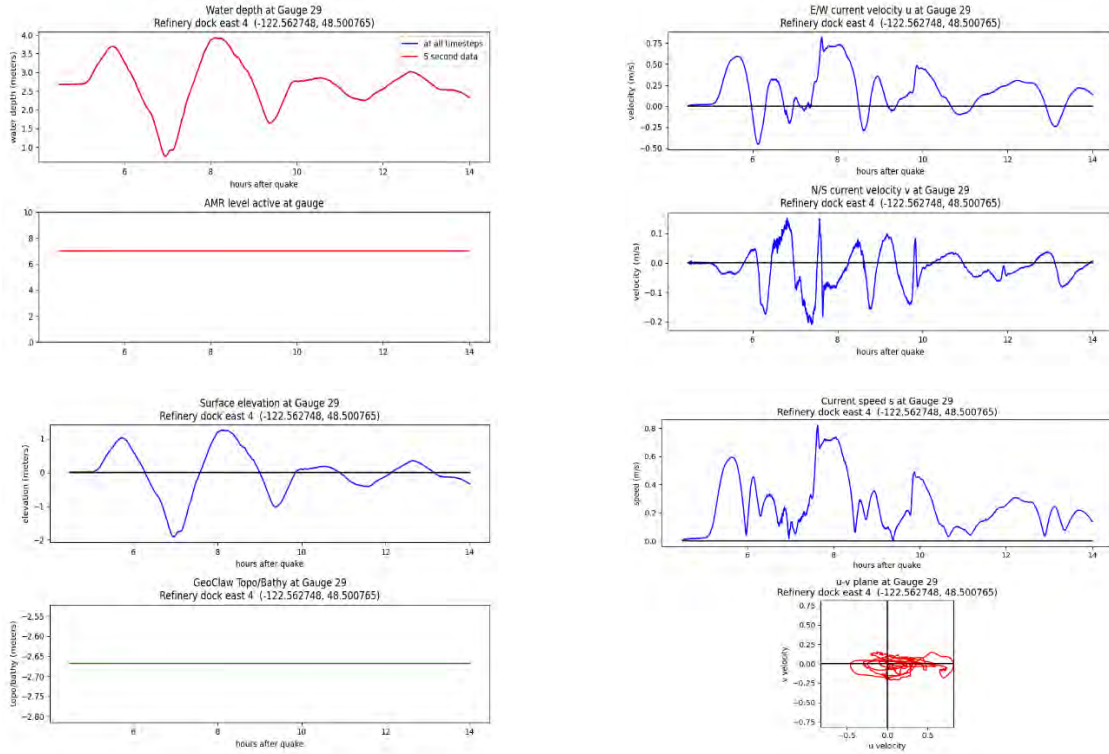
Cascadia subduction zone scenario, MHW:



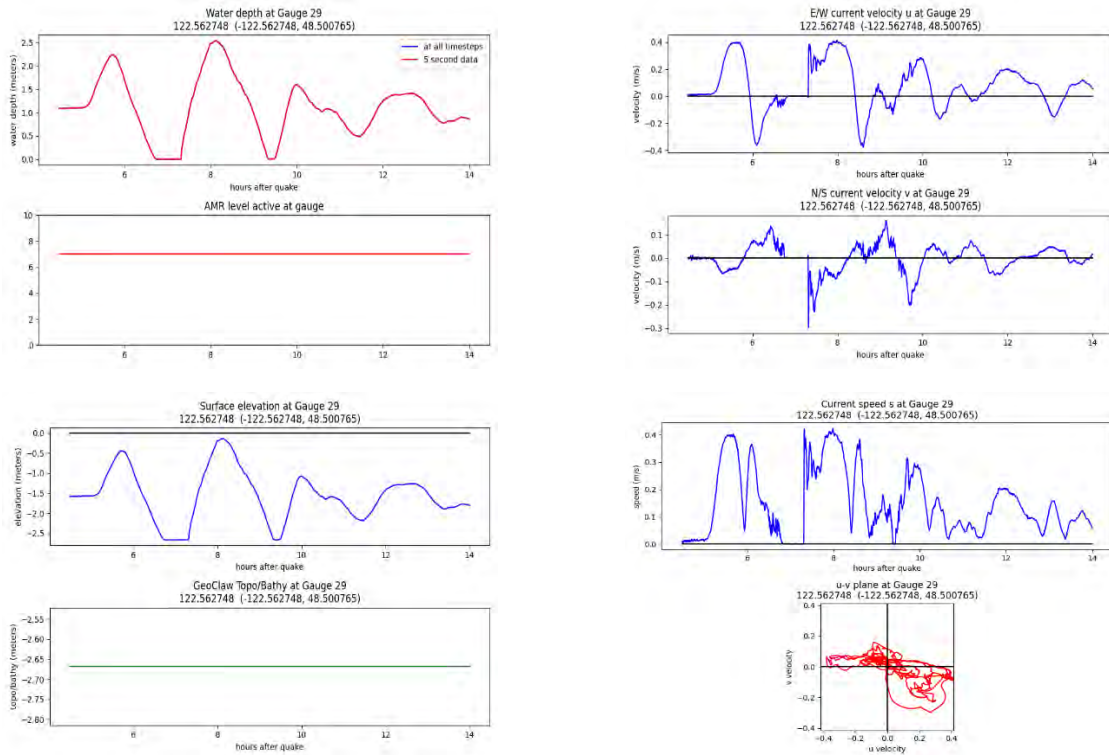
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

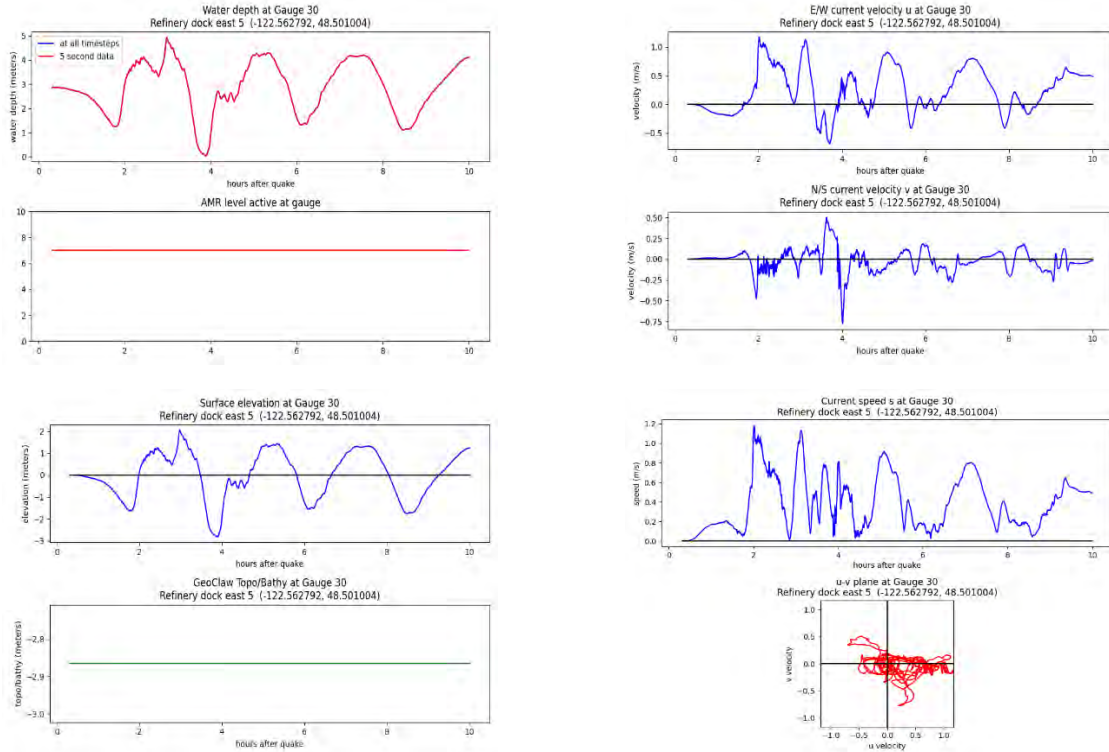


Alaska-Aleutian subduction zone scenario, MLW:

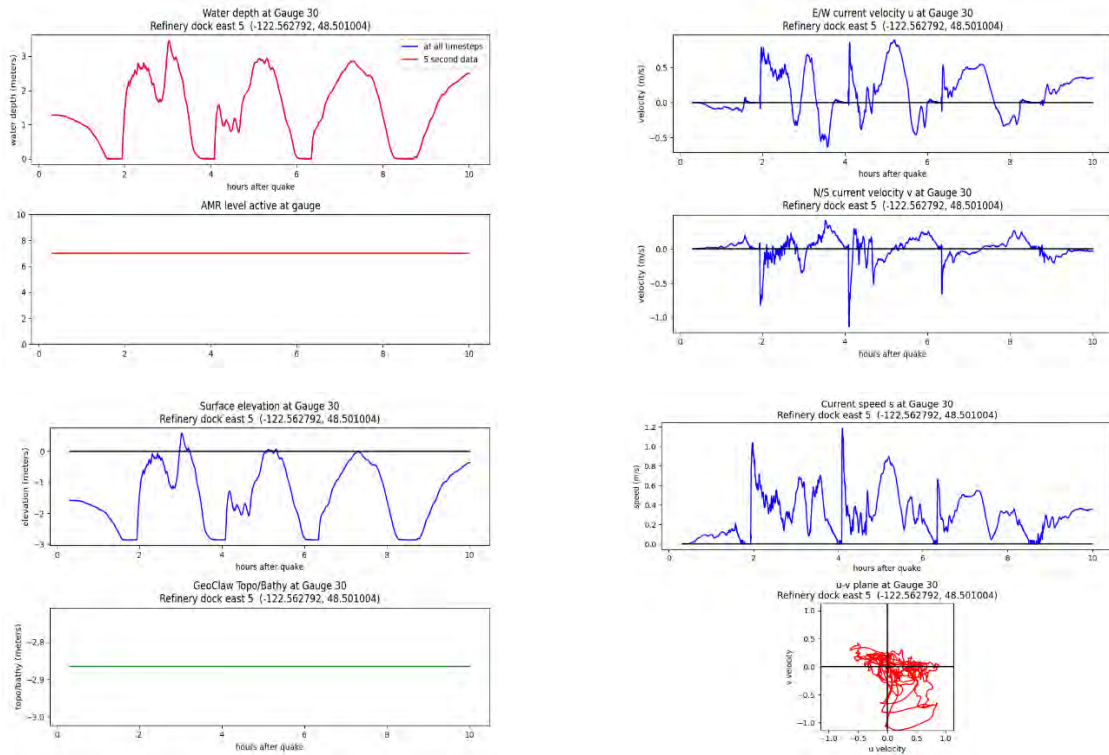


Gauge 30: Refinery dock east 10

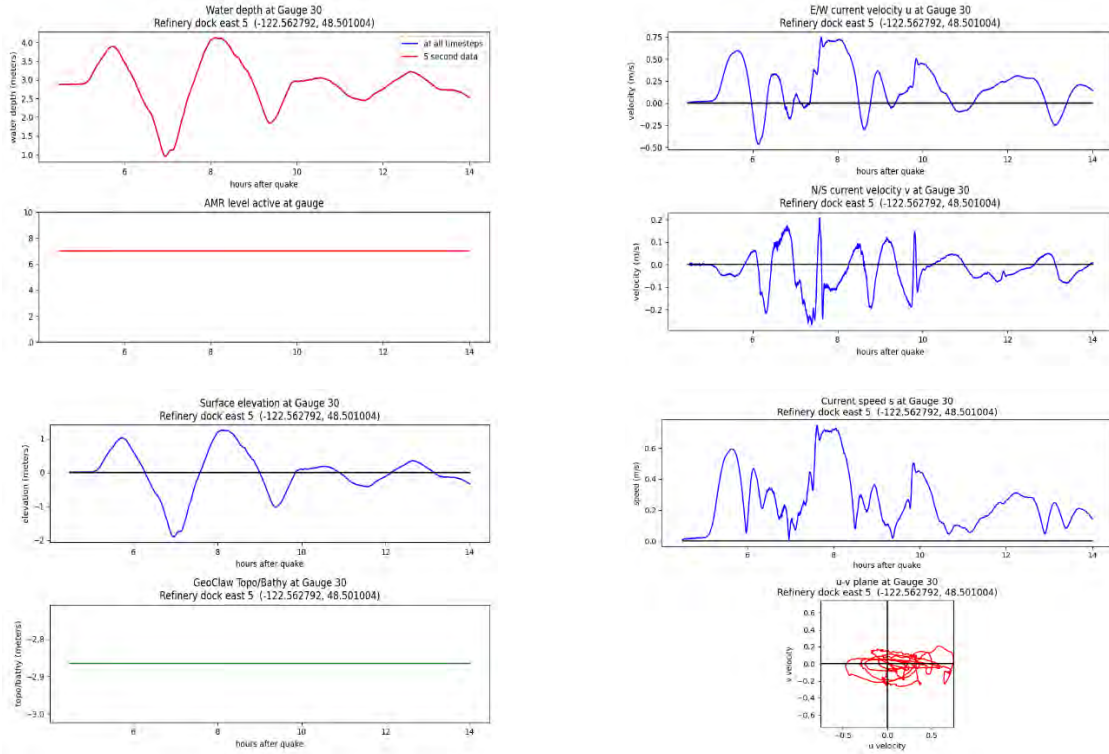
Cascadia subduction zone scenario, MHW:



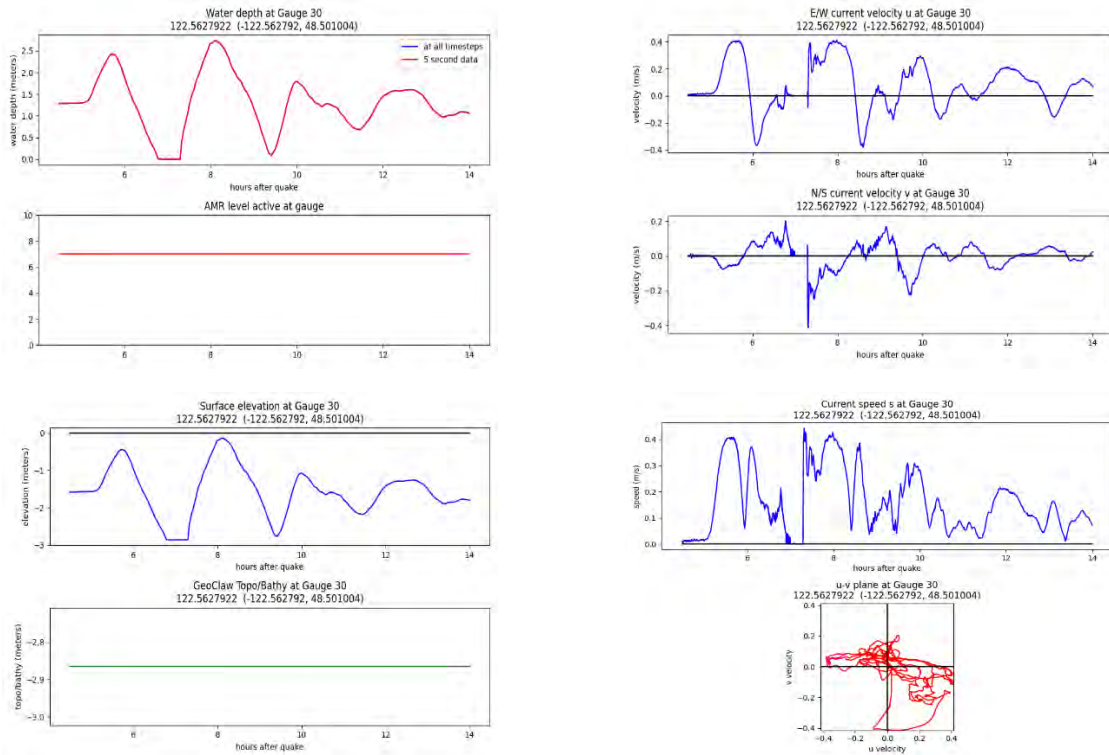
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

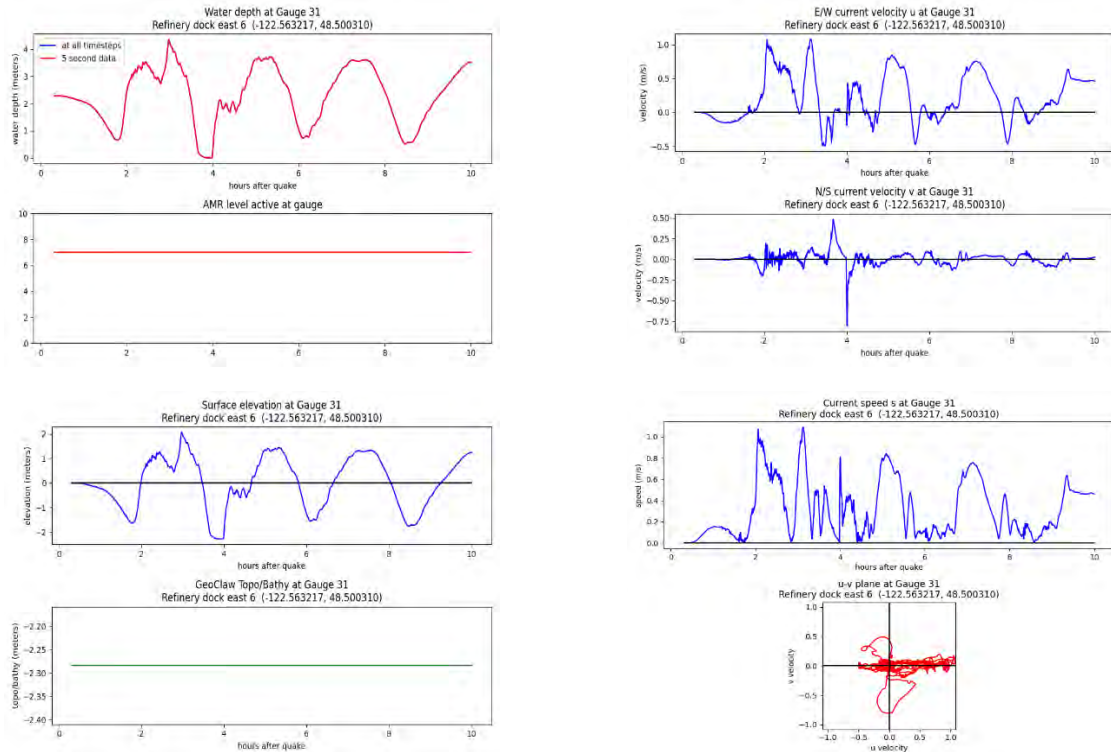


Alaska-Aleutian subduction zone scenario, MLW:

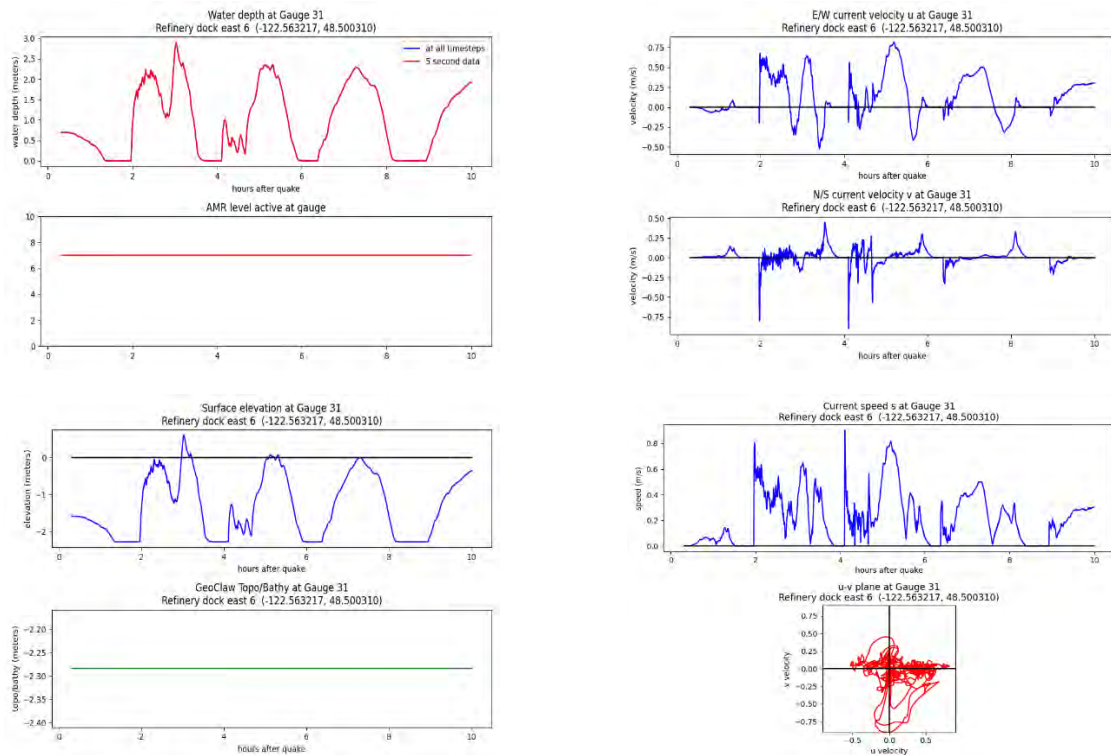


Gauge 31: Refinery dock east 11

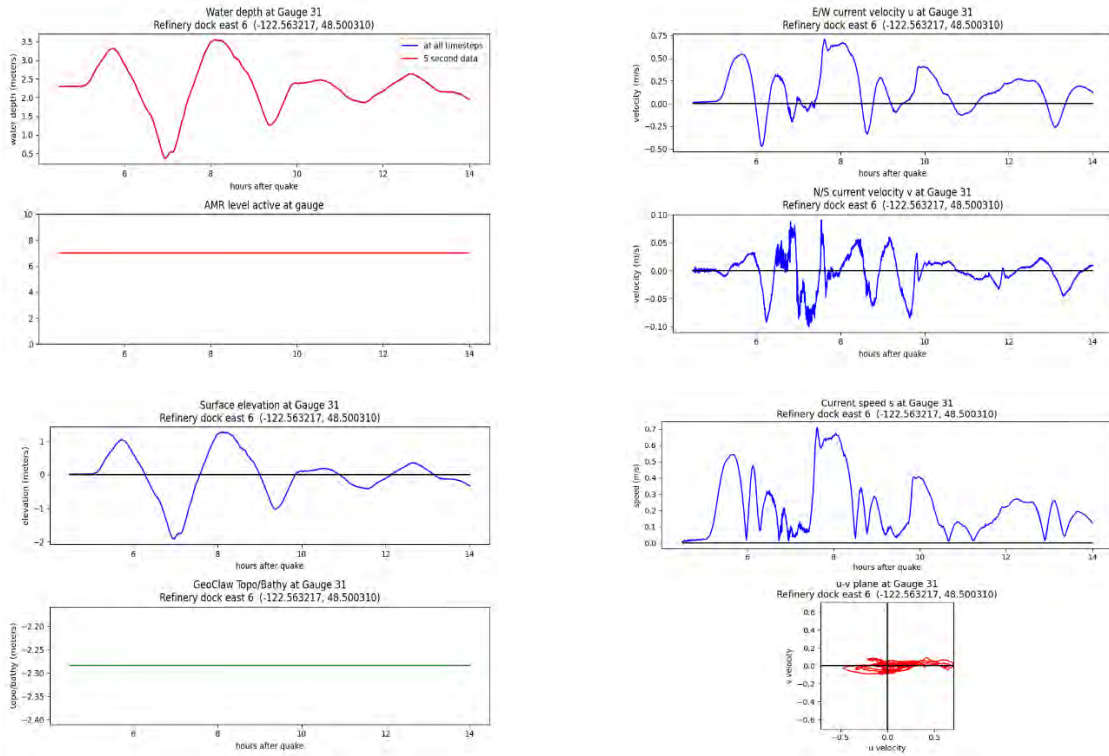
Cascadia subduction zone scenario, MHW:



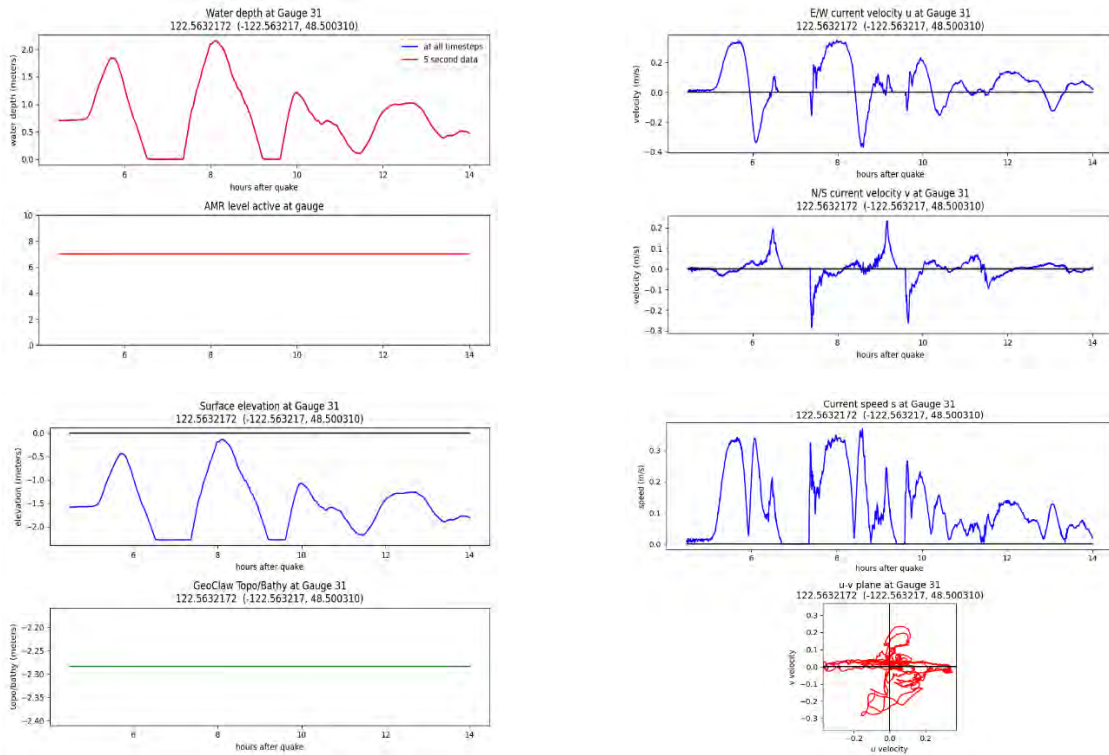
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

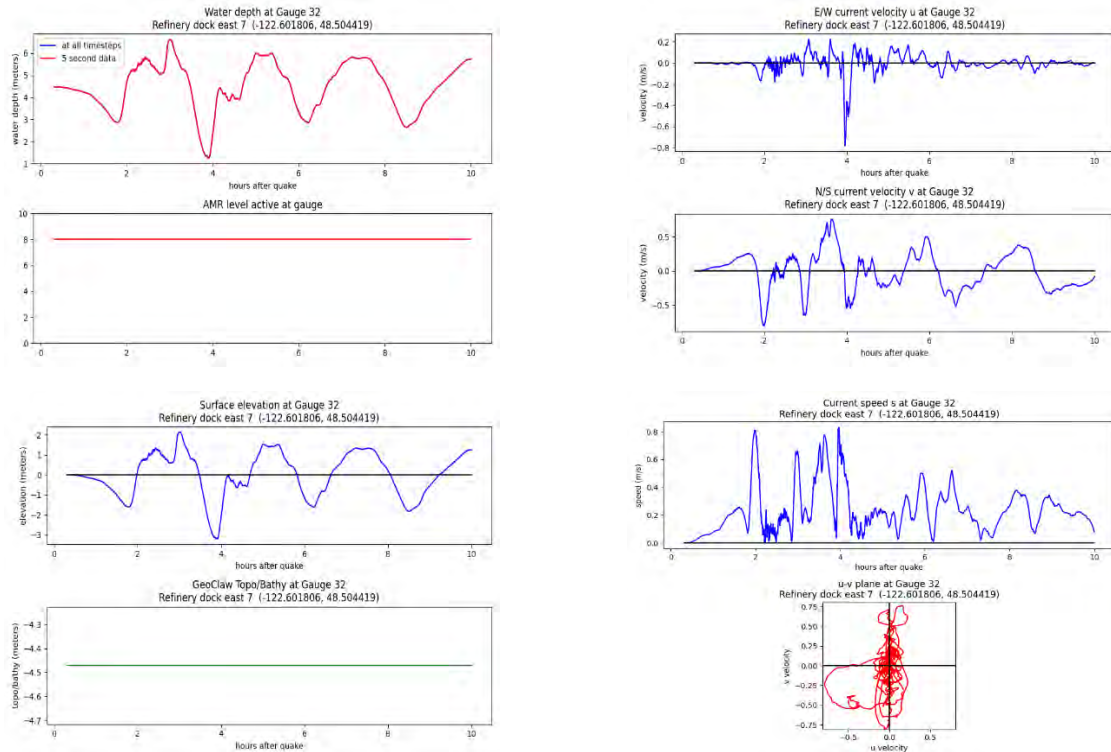


Alaska-Aleutian subduction zone scenario, MLW:

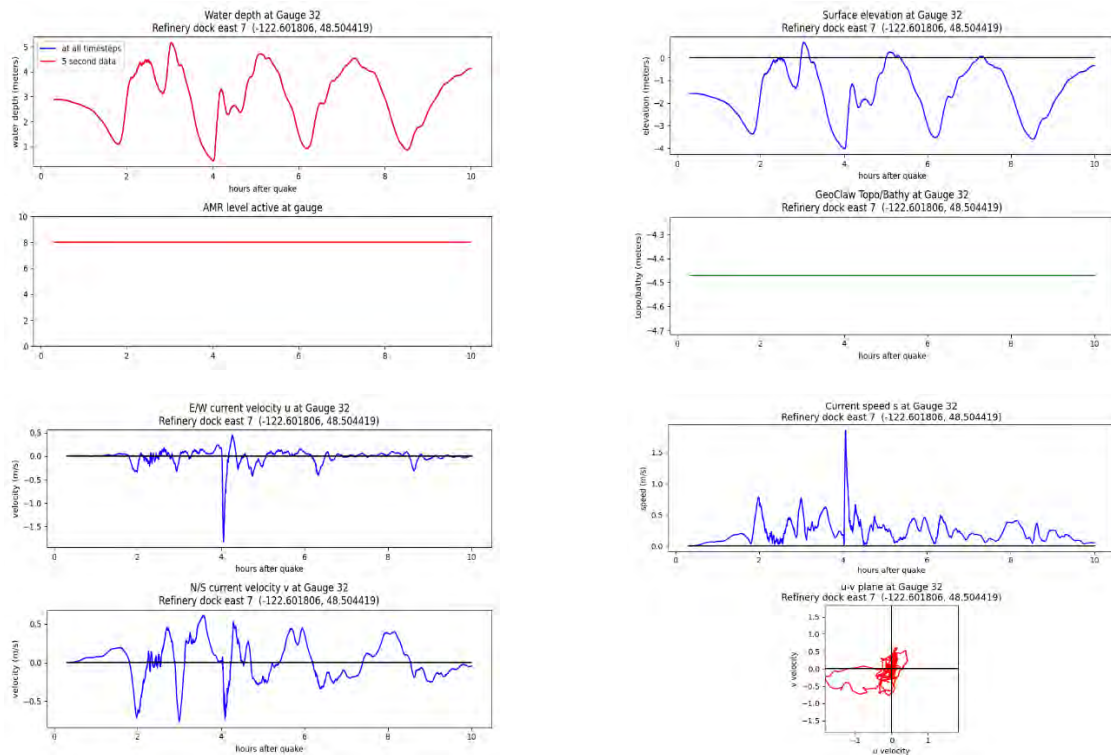


Gauge 32: Anacortes Marina northeast entrance

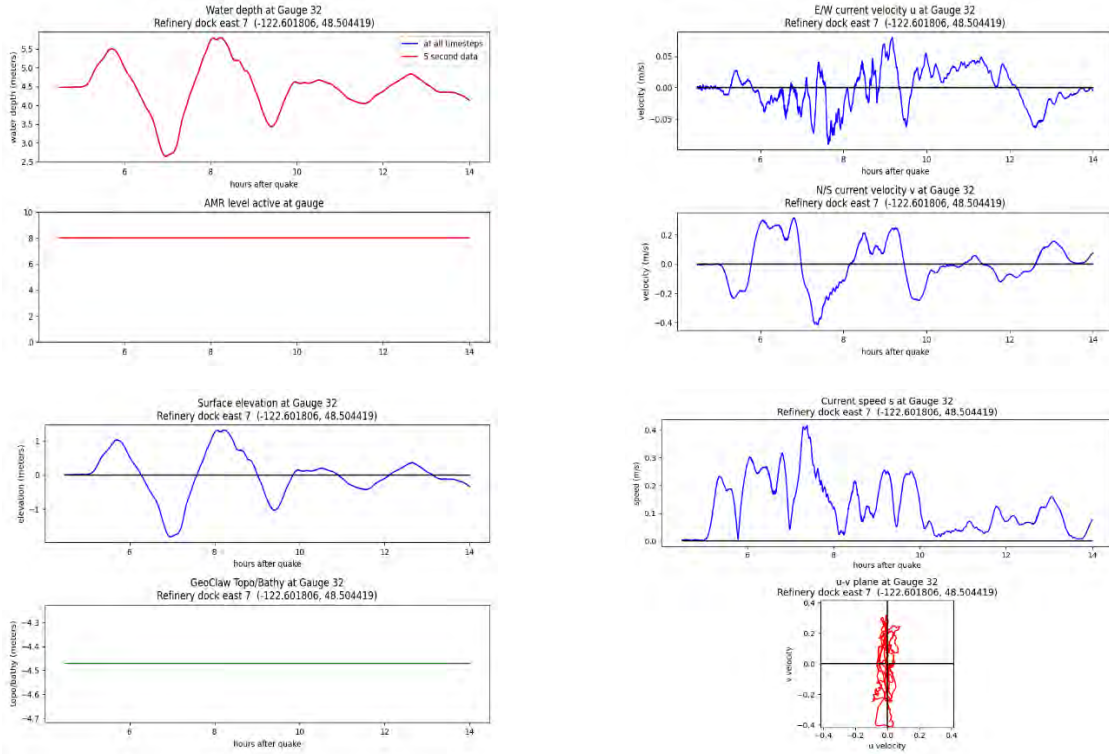
Cascadia subduction zone scenario, MHW:



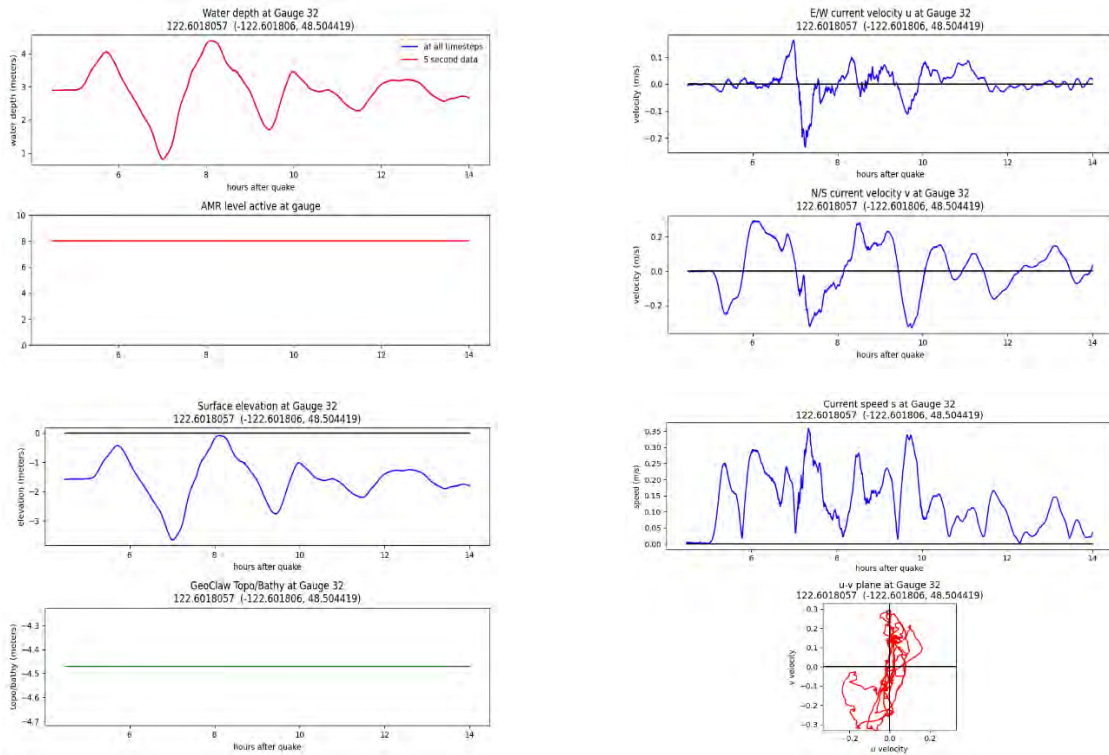
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

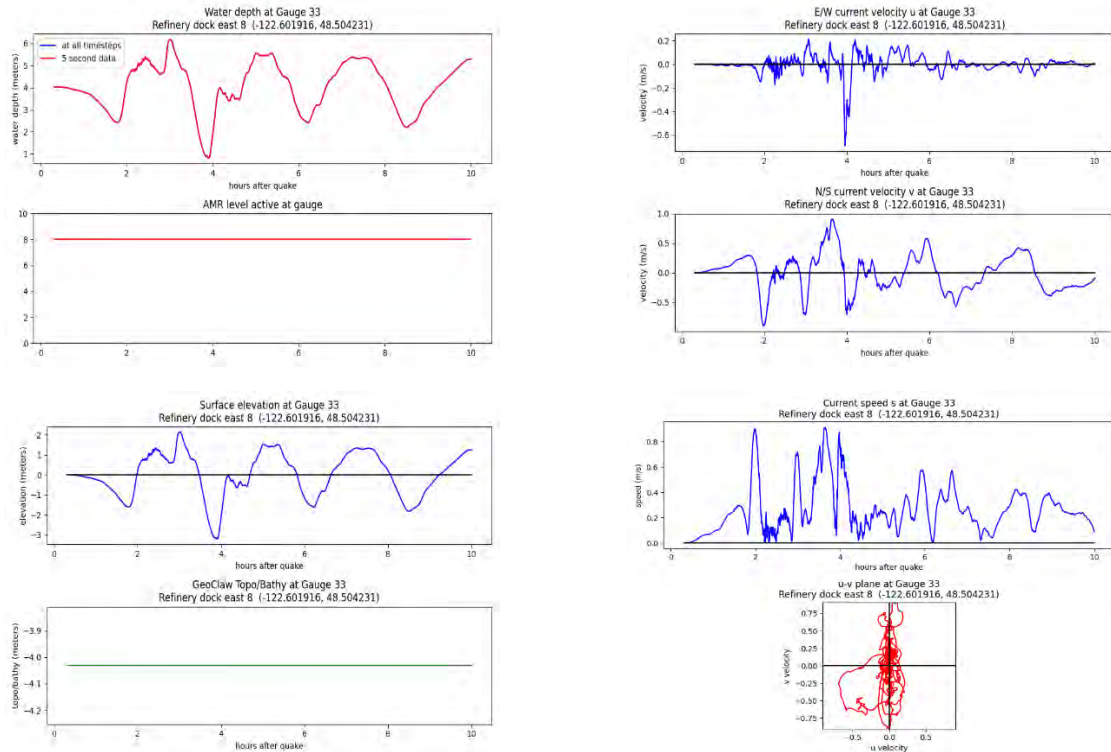


Alaska-Aleutian subduction zone scenario, MLW:

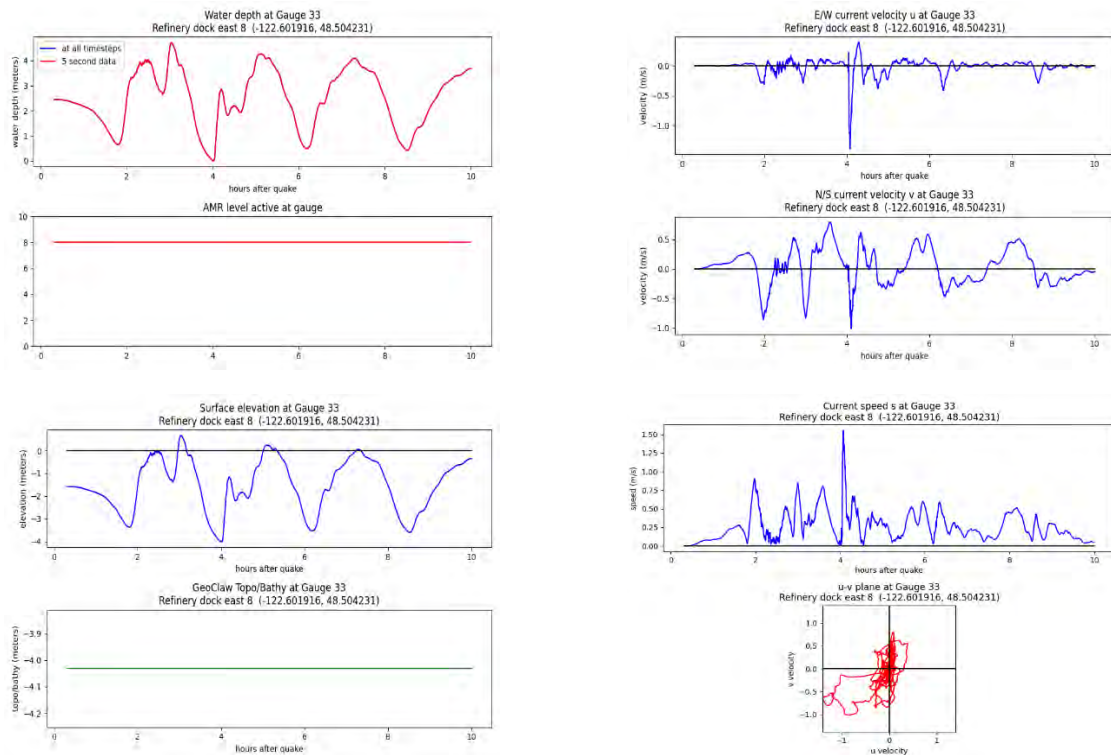


Gauge 33: Anacortes Marina northeast entrance 2

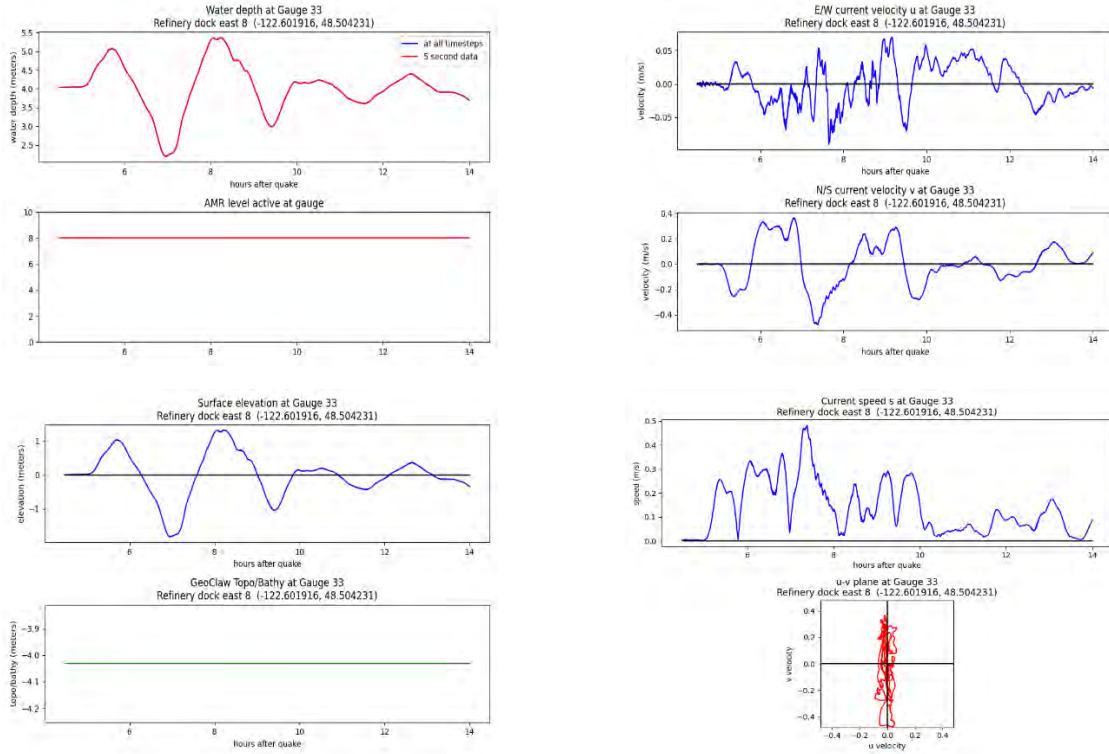
Cascadia subduction zone scenario, MHW:



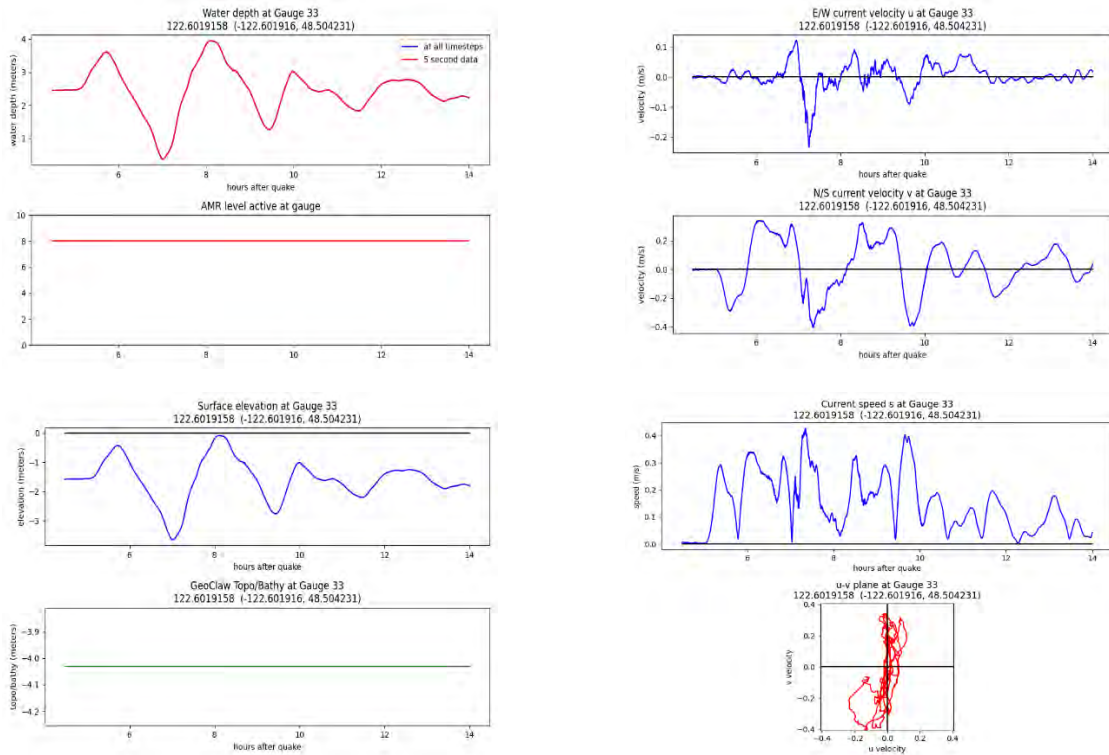
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

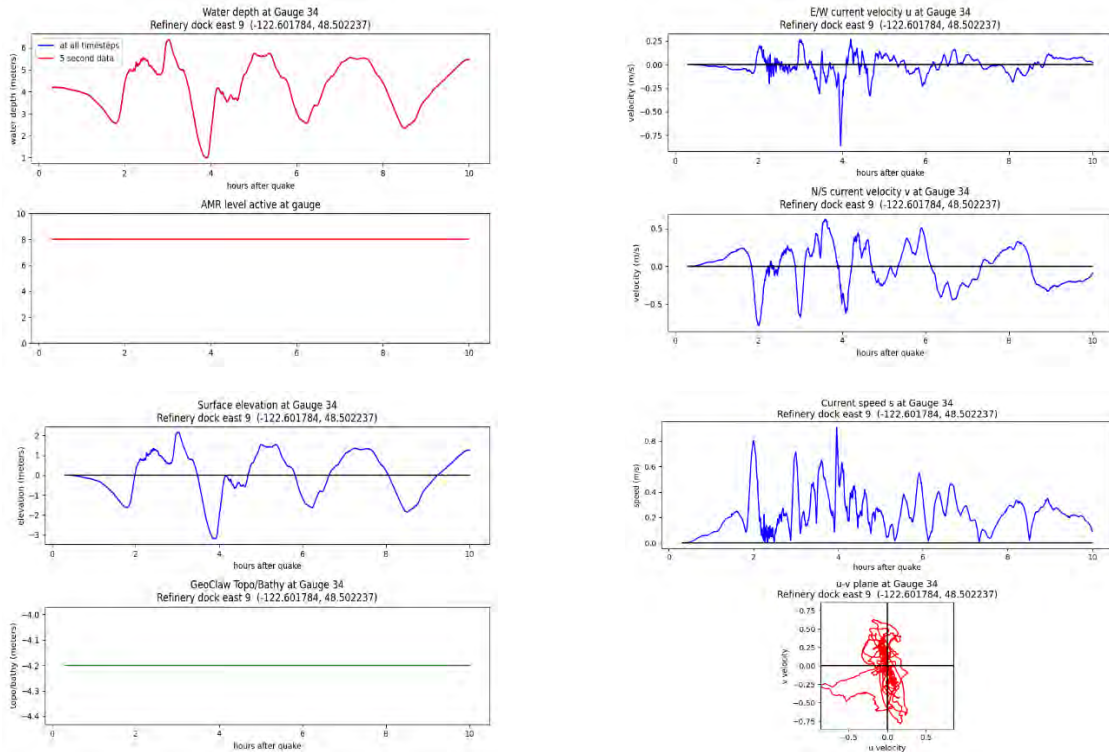


Alaska-Aleutian subduction zone scenario, MLW:

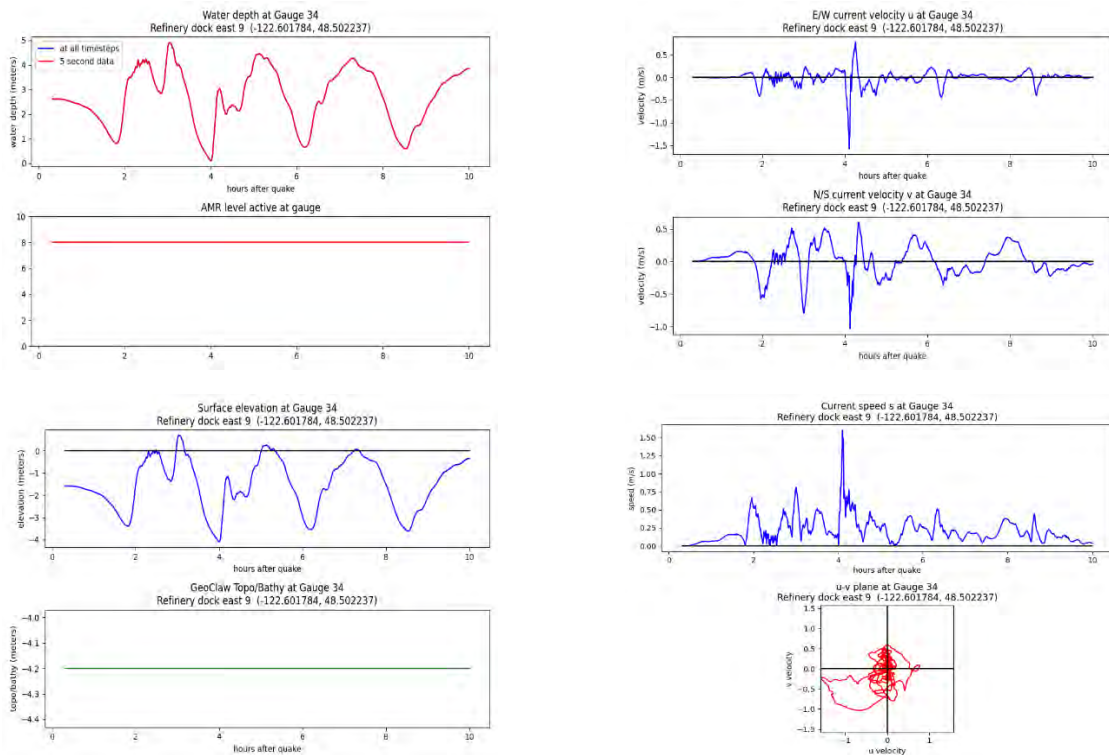


Gauge 34: Anacortes Marina southeast entrance

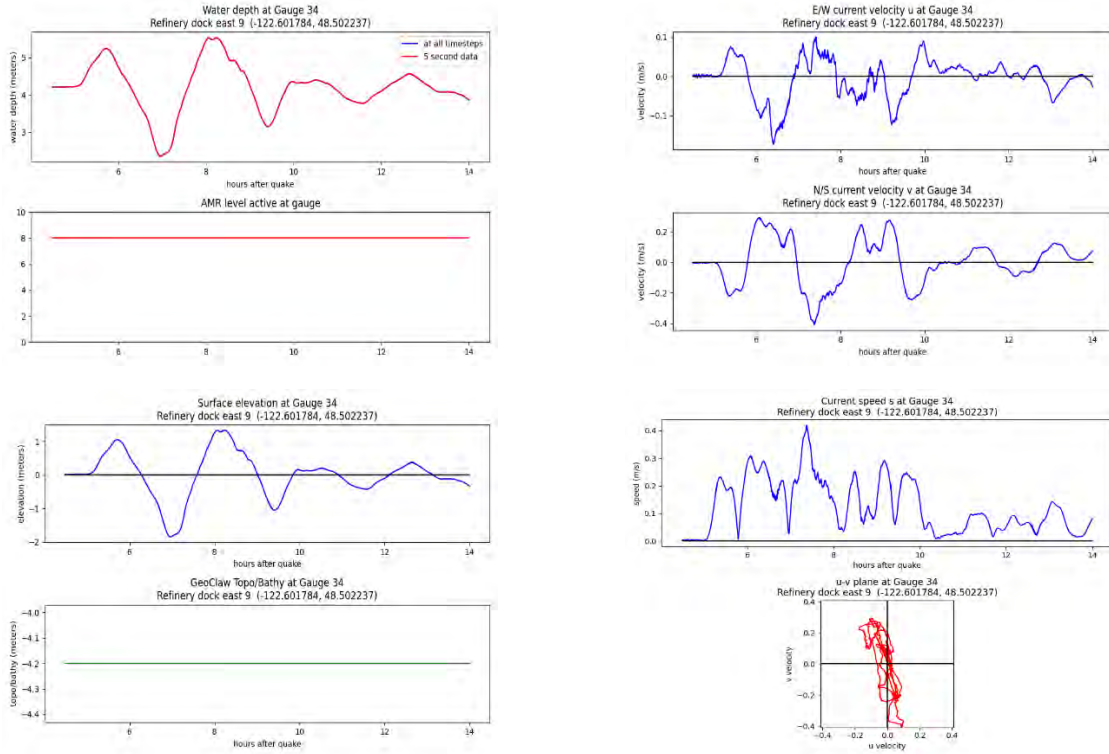
Cascadia subduction zone scenario, MHW:



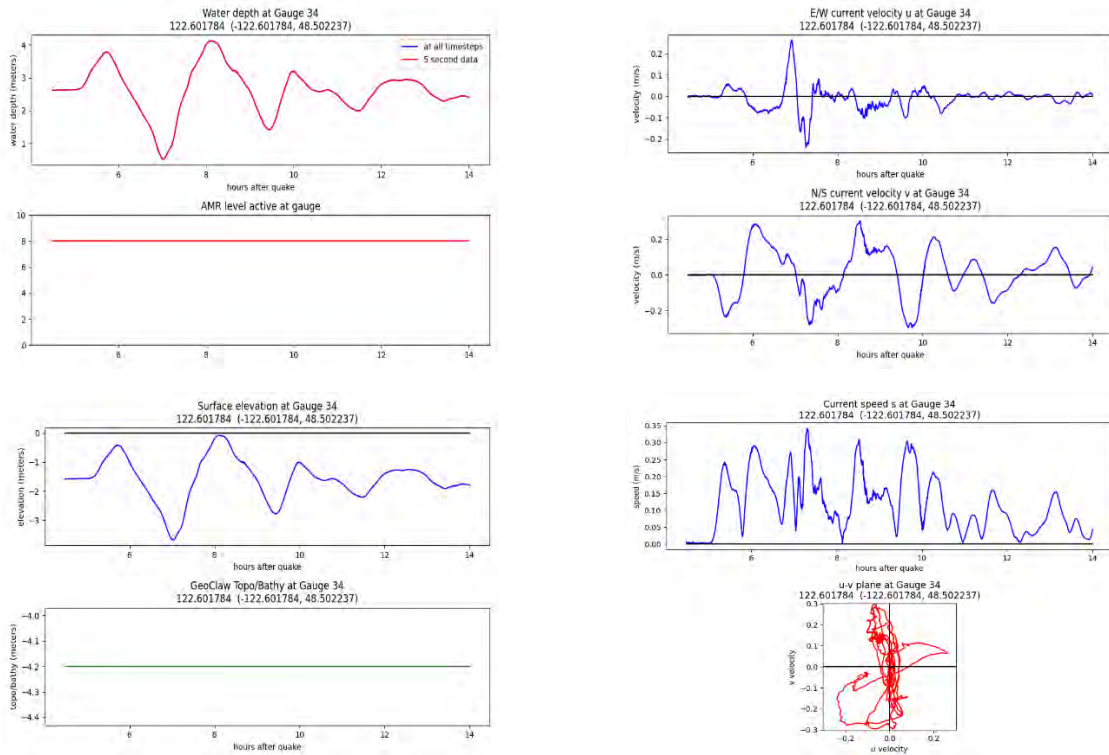
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

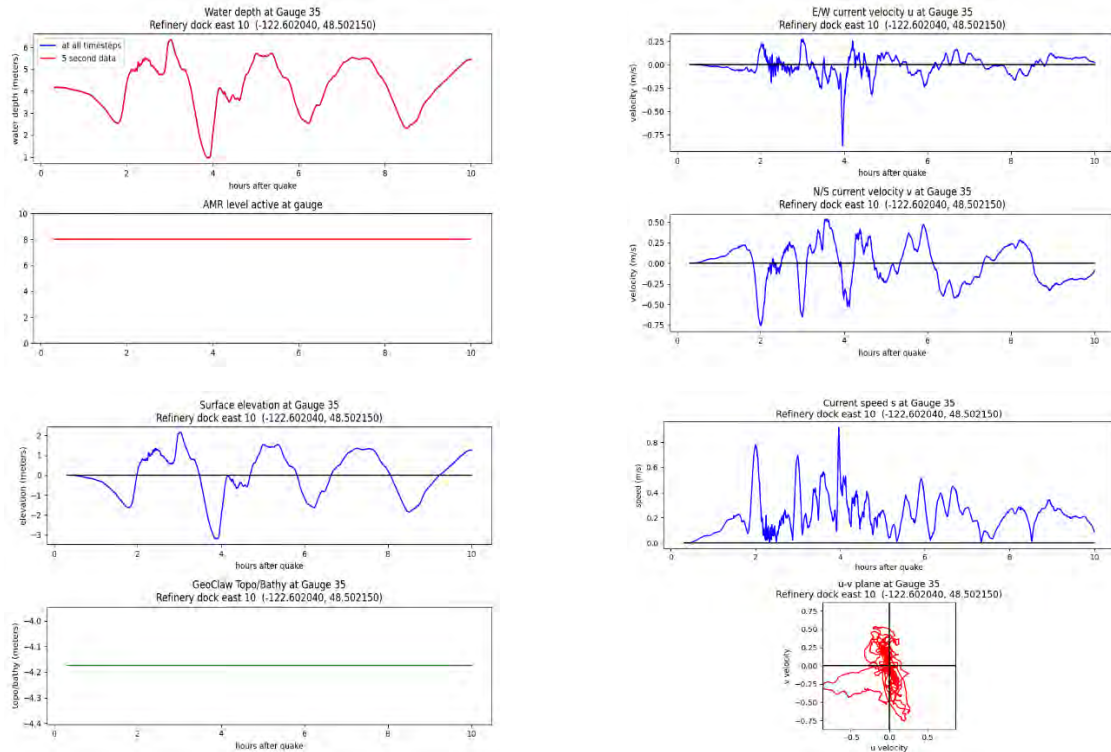


Alaska-Aleutian subduction zone scenario, MLW:

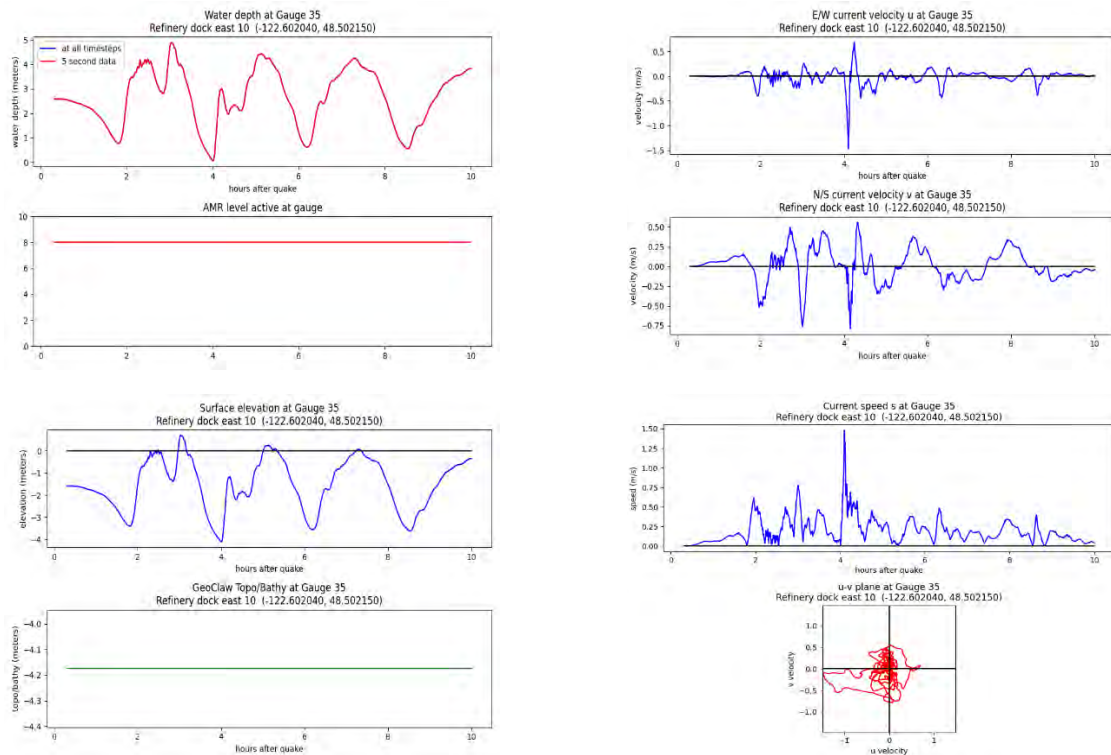


Gauge 35: Anacortes Marina southeast entrance 2

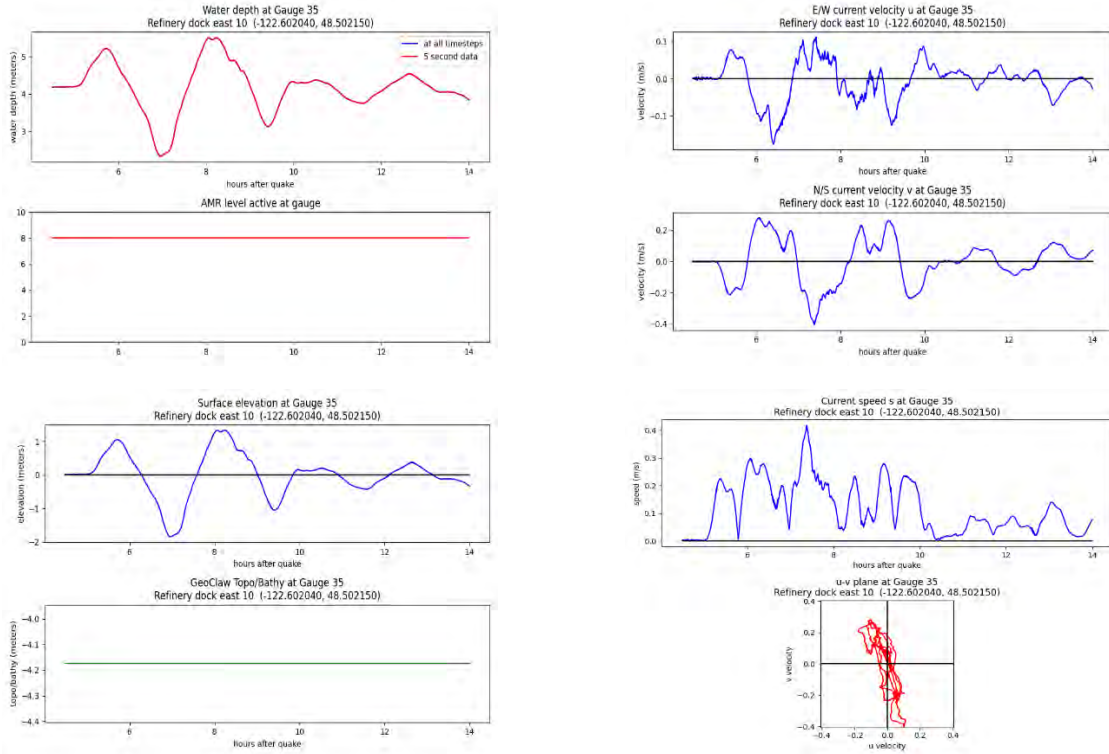
Cascadia subduction zone scenario, MHW:



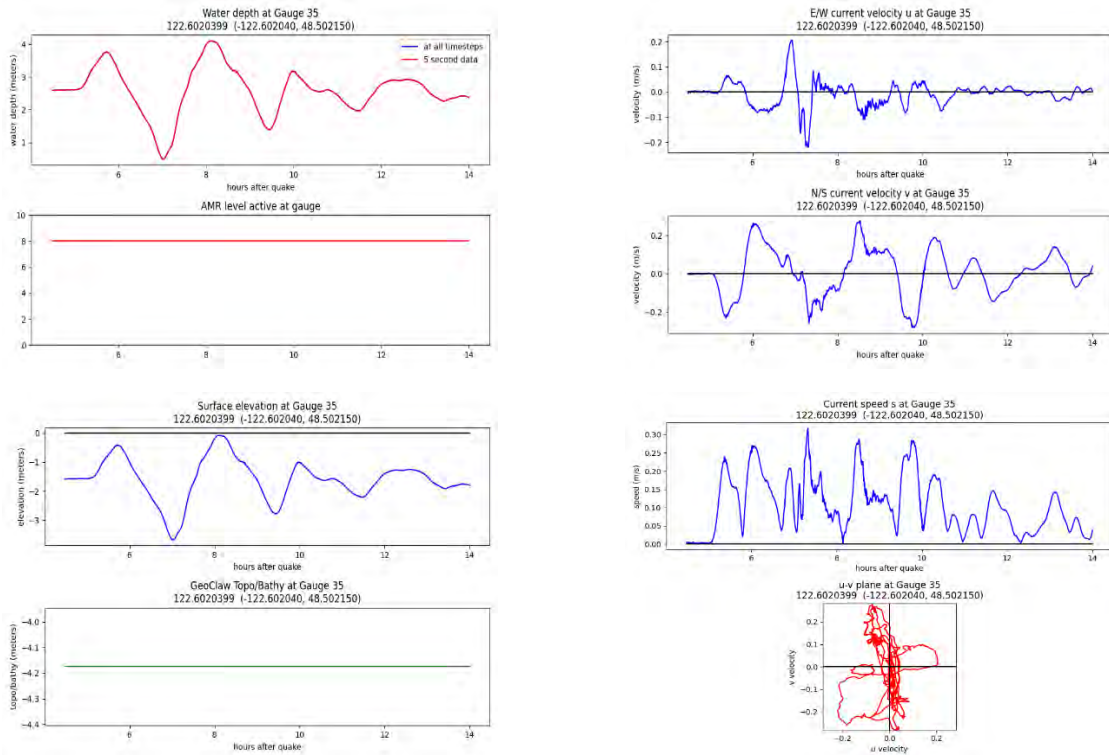
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

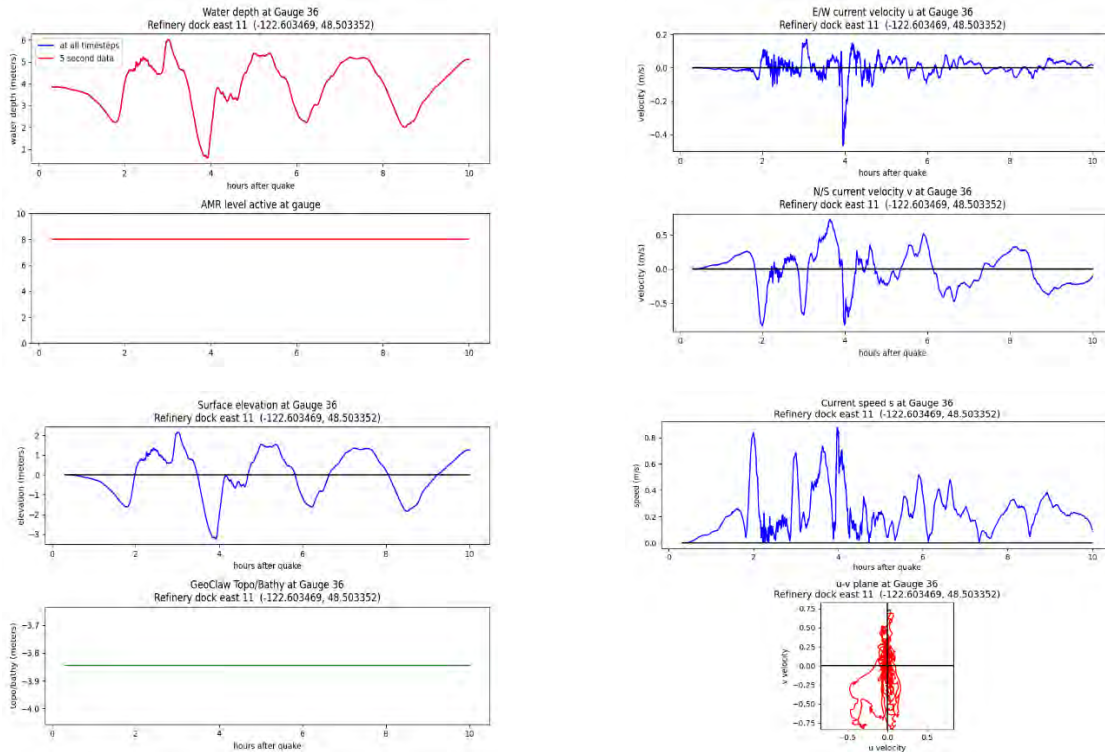


Alaska-Aleutian subduction zone scenario, MLW:

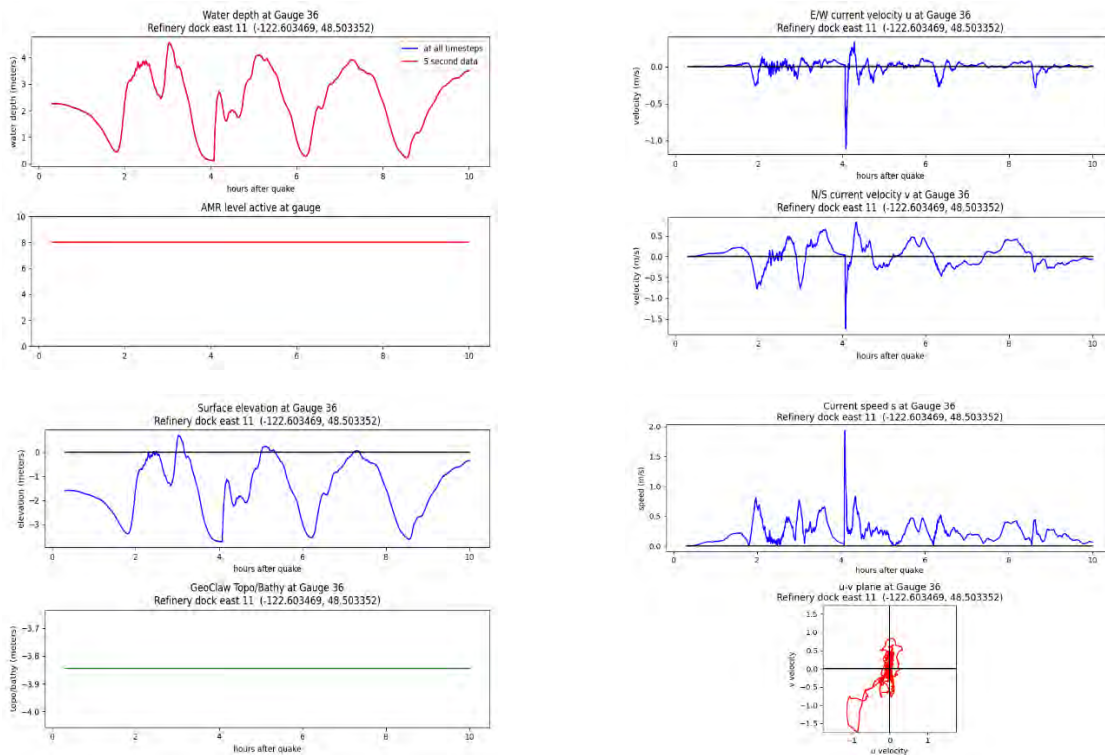


Gauge 36: Anacortes Marina center

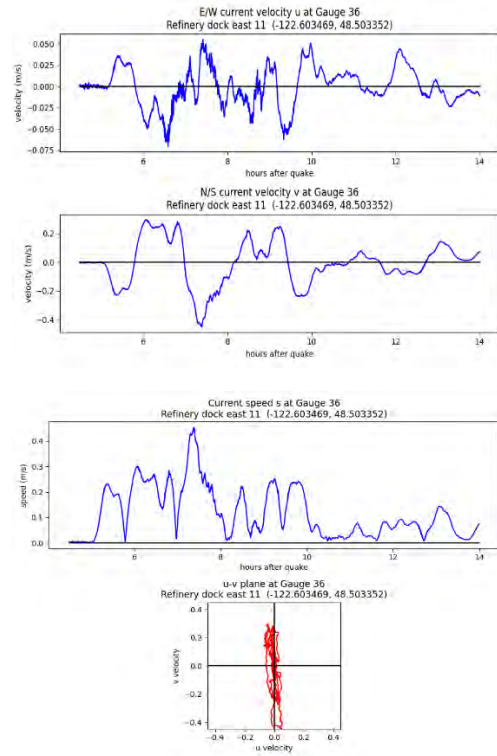
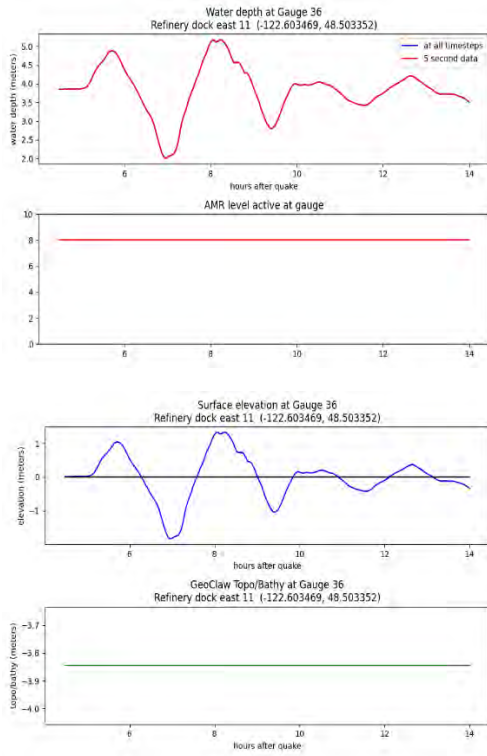
Cascadia subduction zone scenario, MHW:



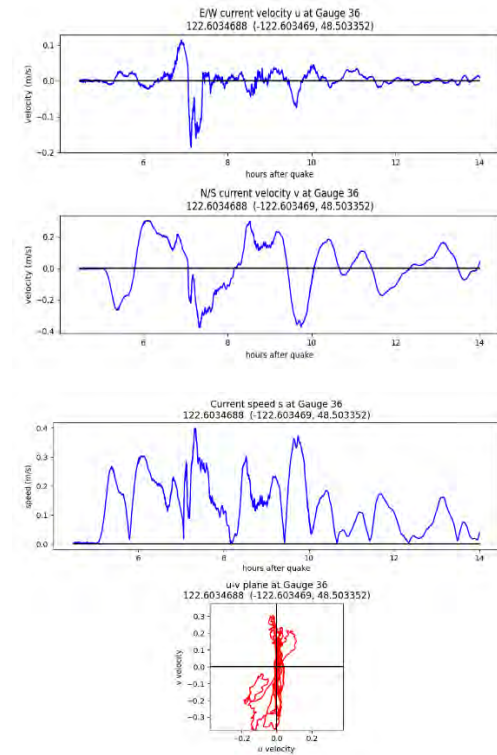
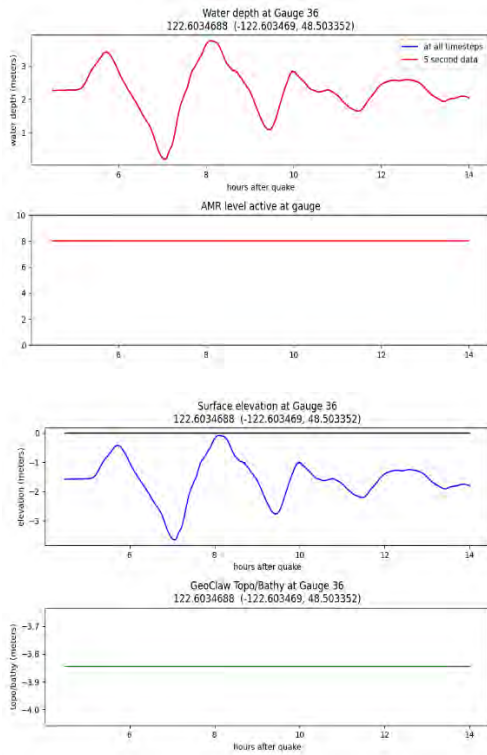
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

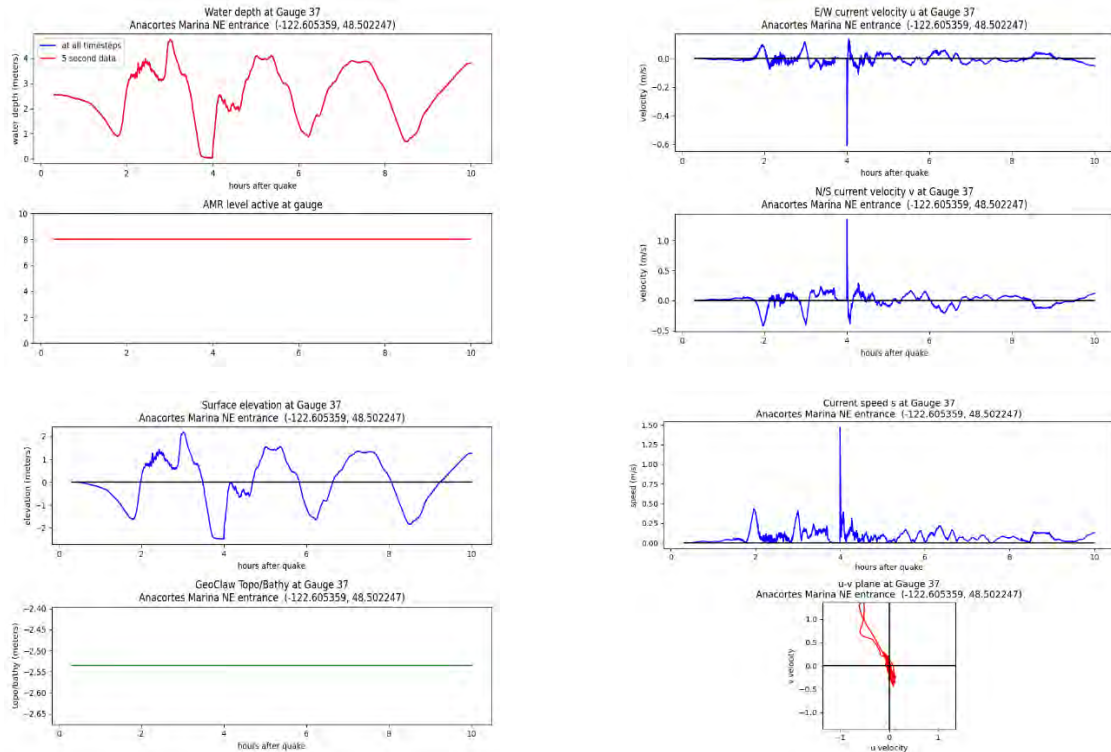


Alaska-Aleutian subduction zone scenario, MLW:

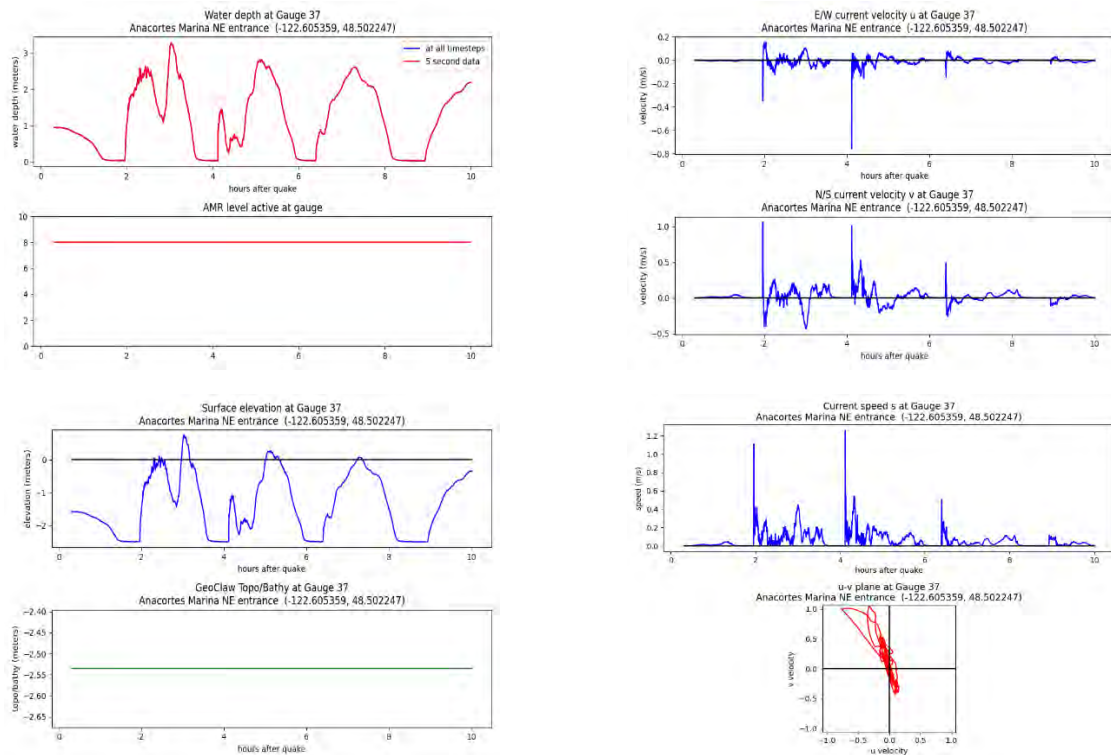


Gauge 37: Anacortes Marina southwest

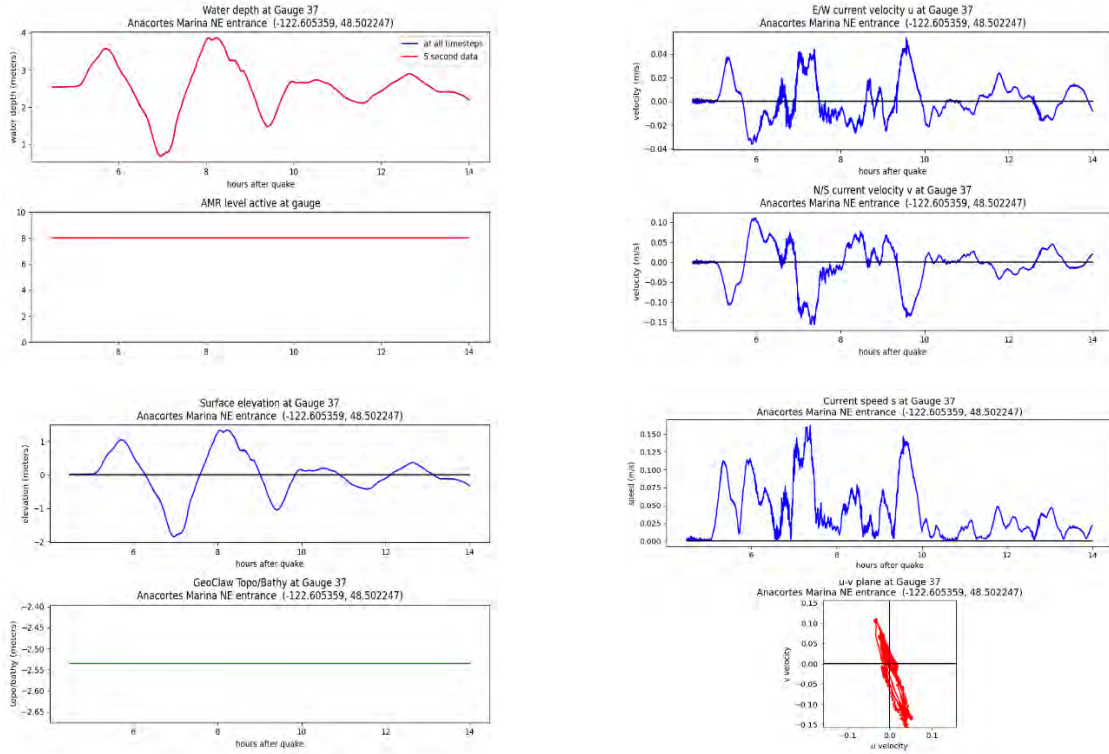
Cascadia subduction zone scenario, MHW:



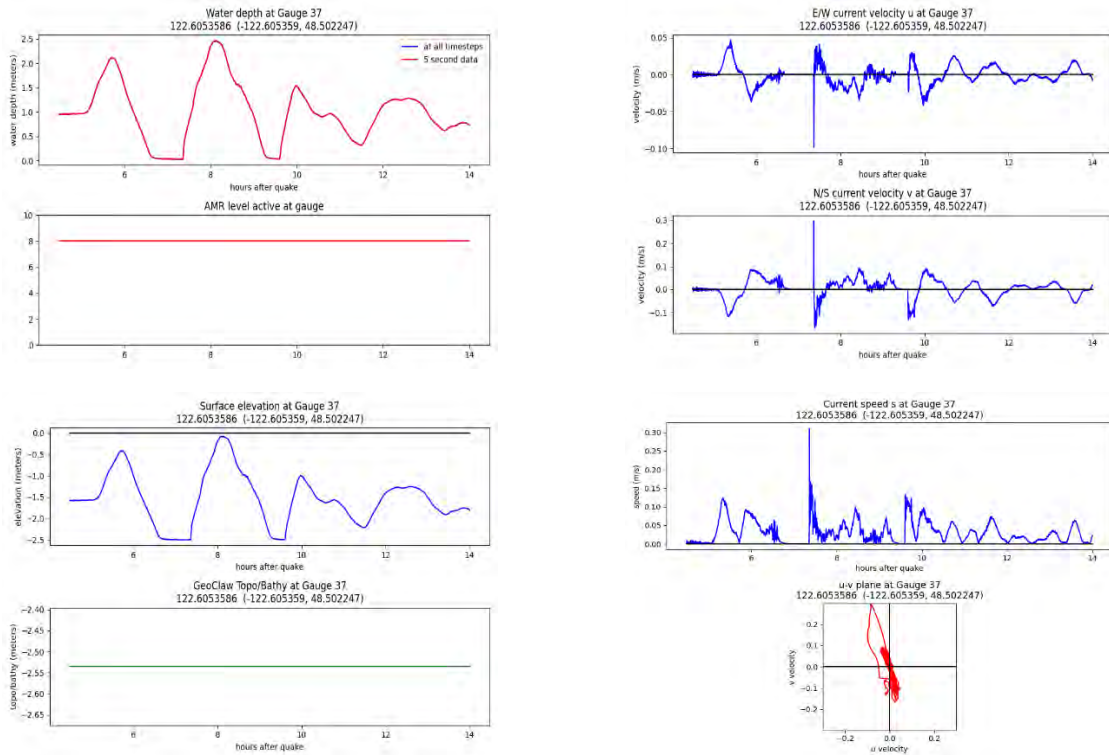
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

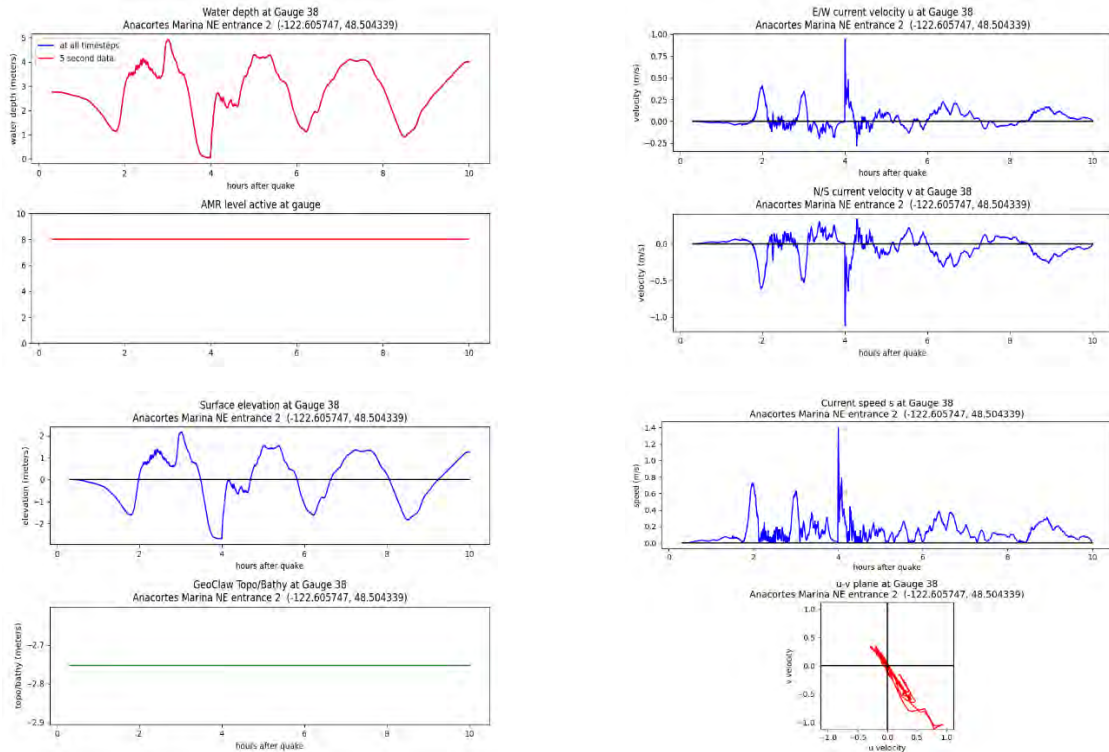


Alaska-Aleutian subduction zone scenario, MLW:

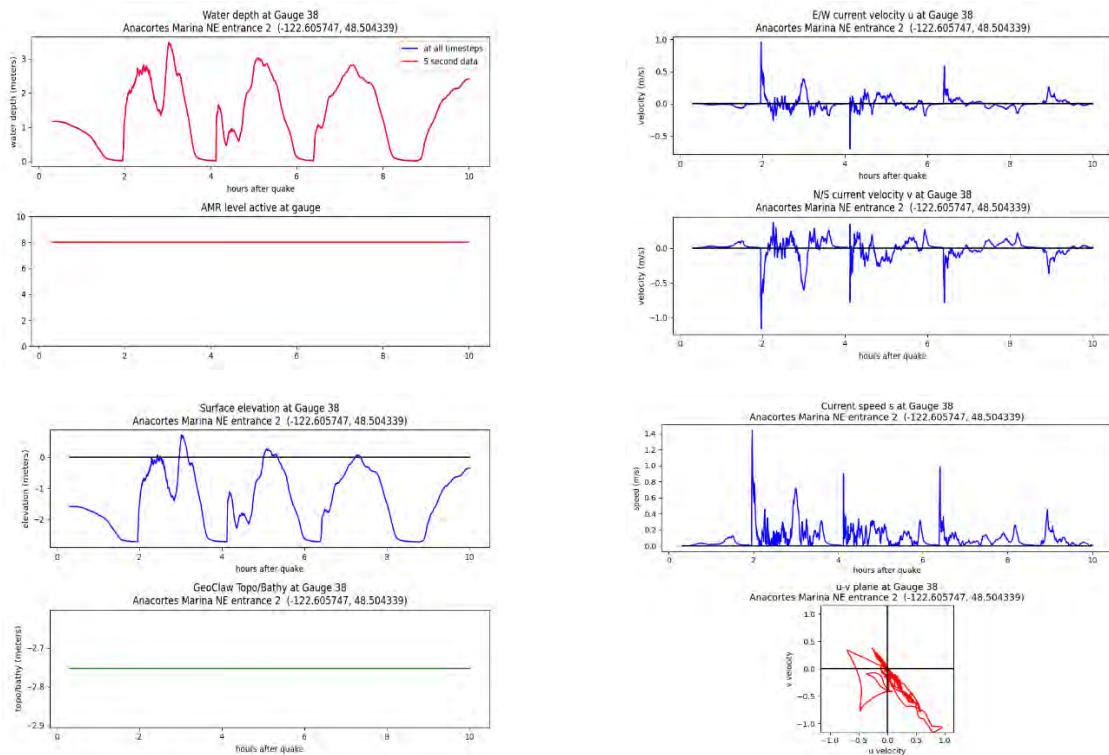


Gauge 38: Anacortes Marina northwest

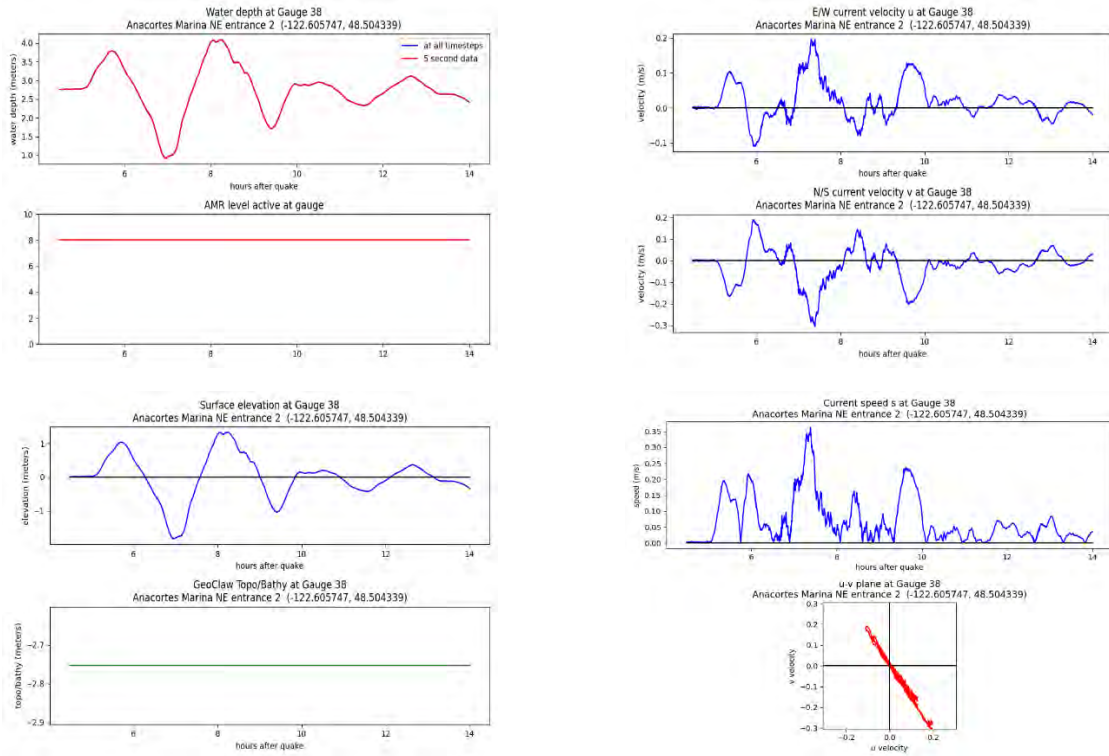
Cascadia subduction zone scenario, MHW:



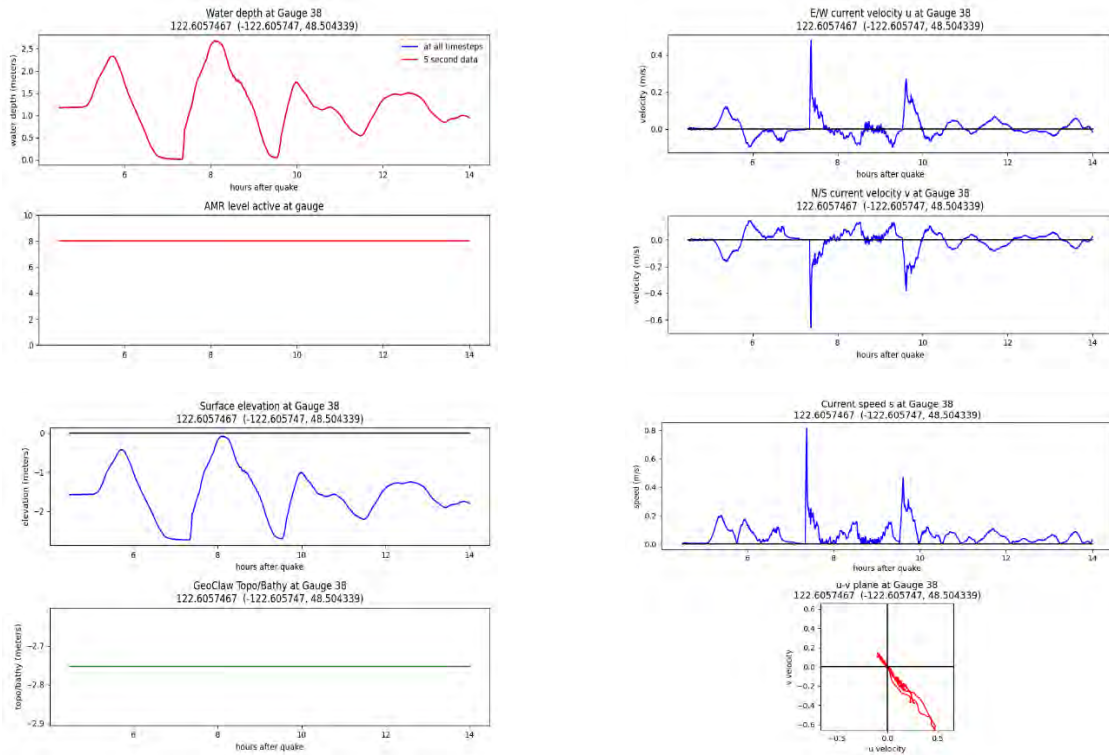
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

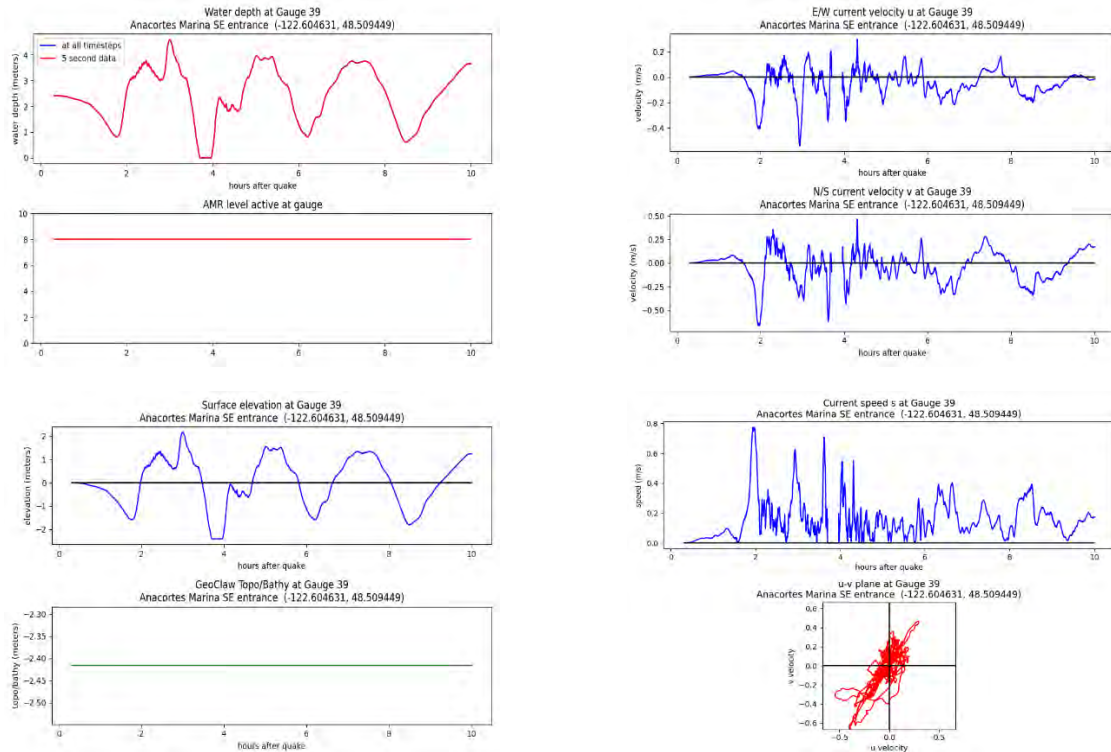


Alaska-Aleutian subduction zone scenario, MLW:

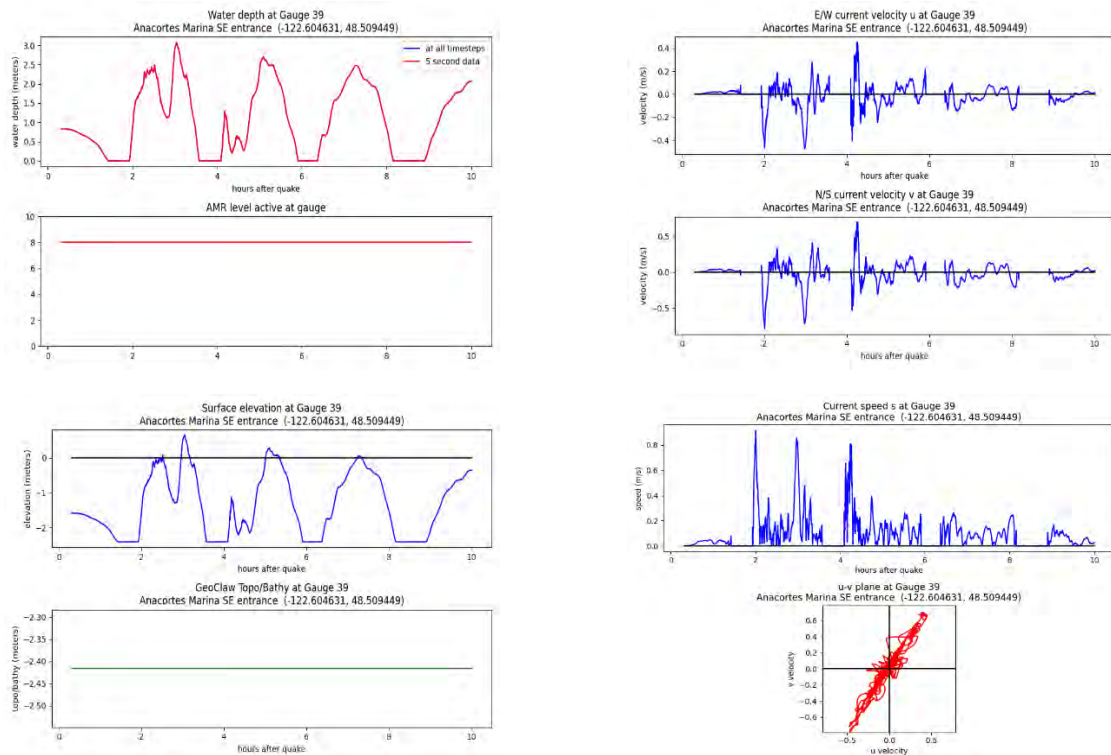


Gauge 39: Cap Sante Marina south jetty

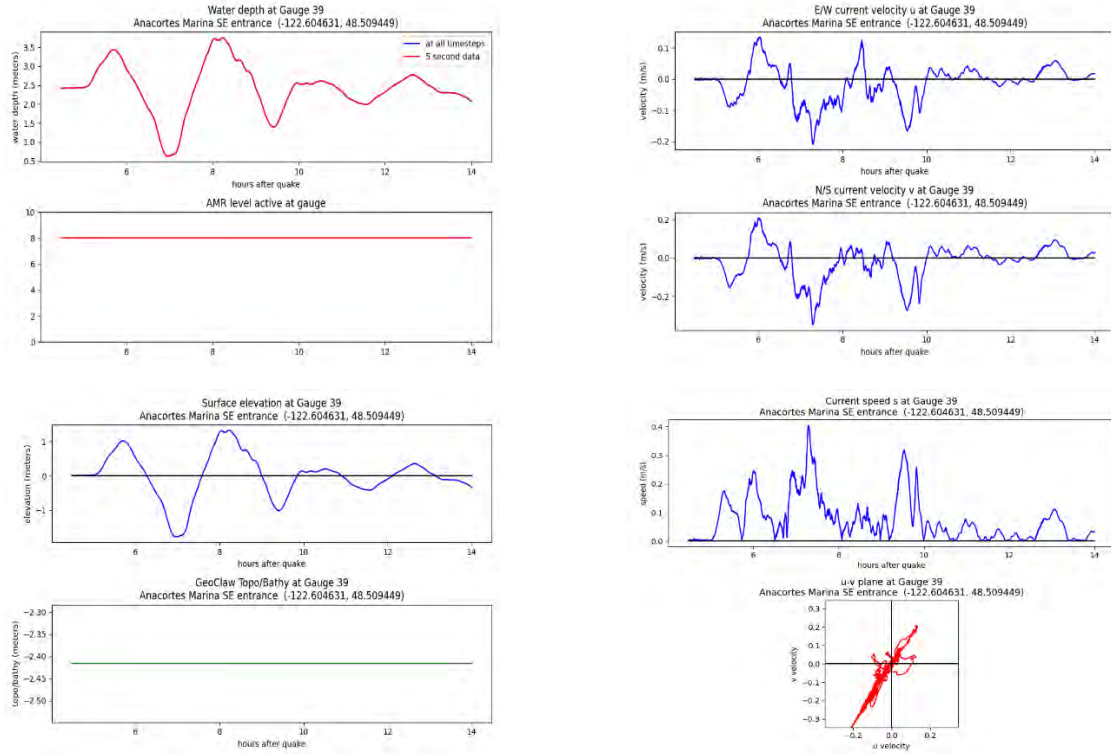
Cascadia subduction zone scenario, MHW:



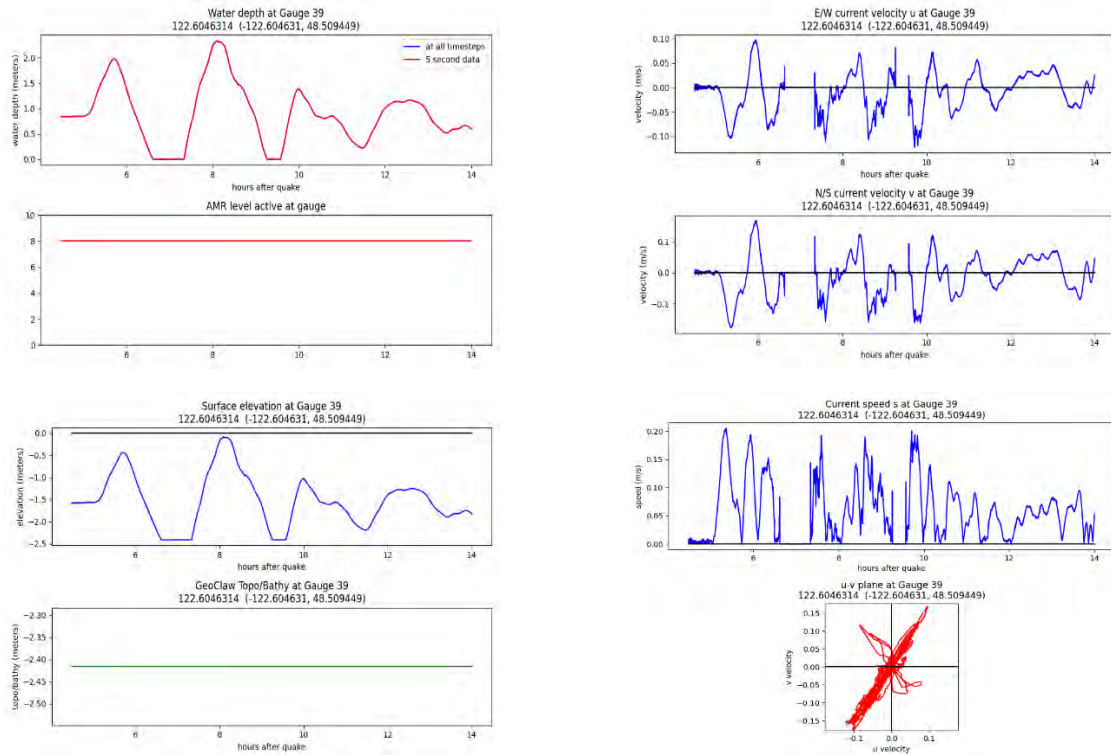
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

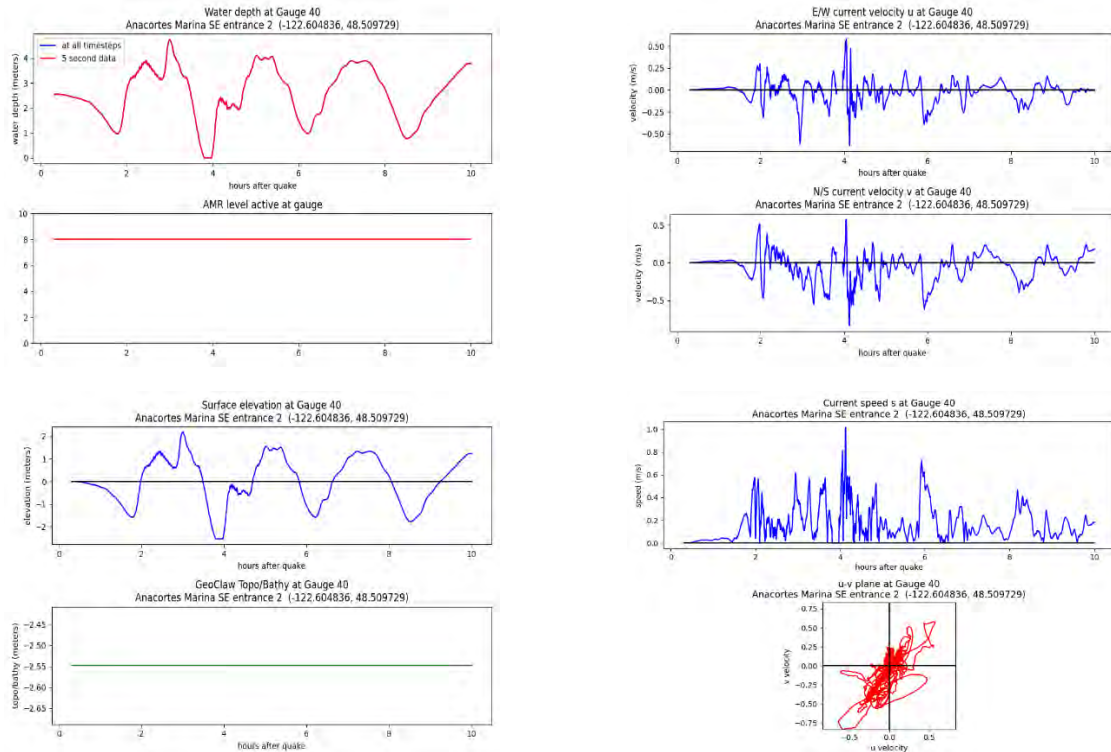


Alaska-Aleutian subduction zone scenario, MLW:

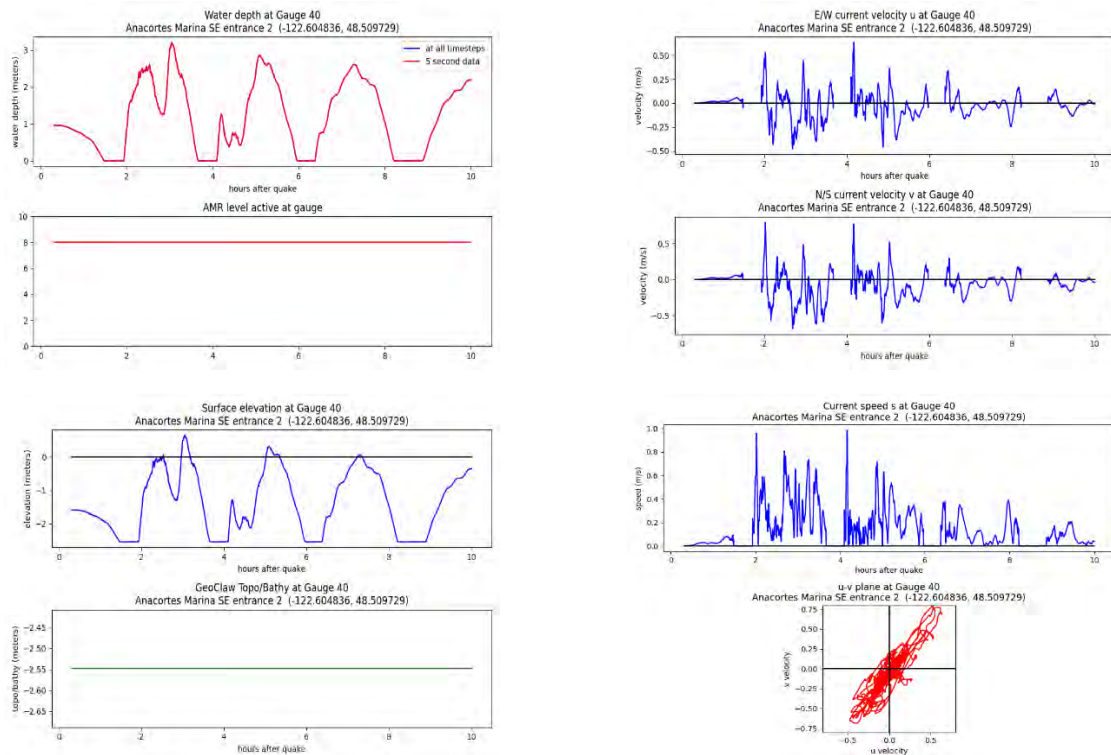


Gauge 40: Cap Sante Marina south jetty inside

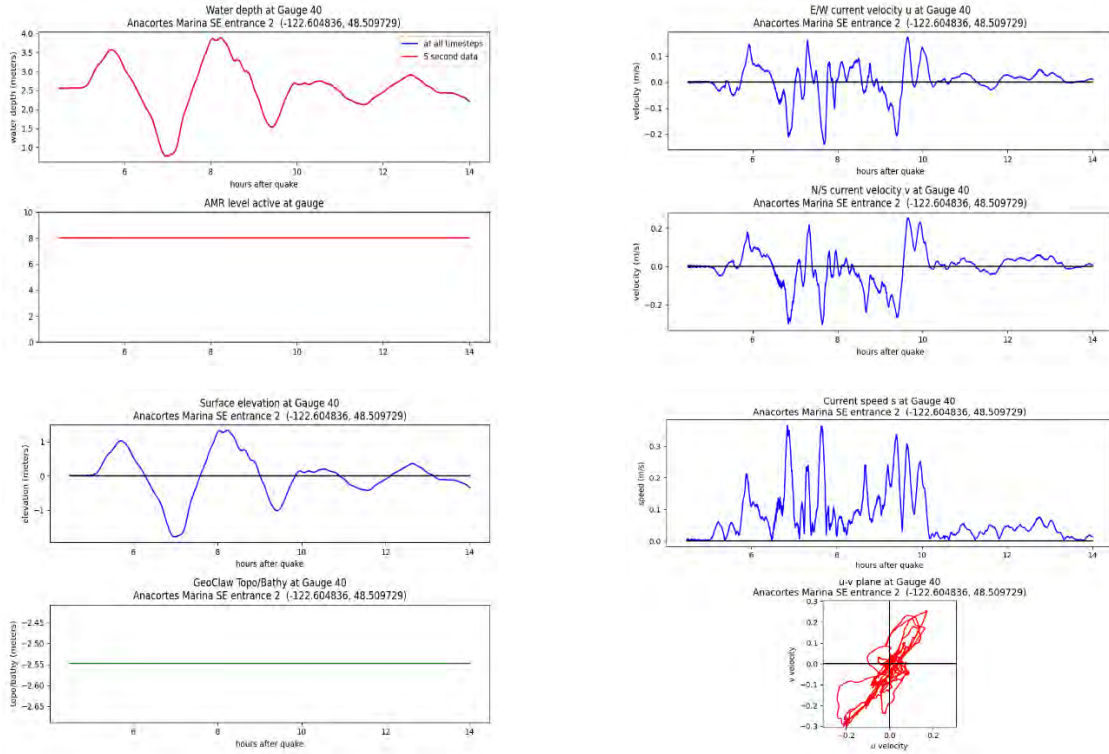
Cascadia subduction zone scenario, MHW:



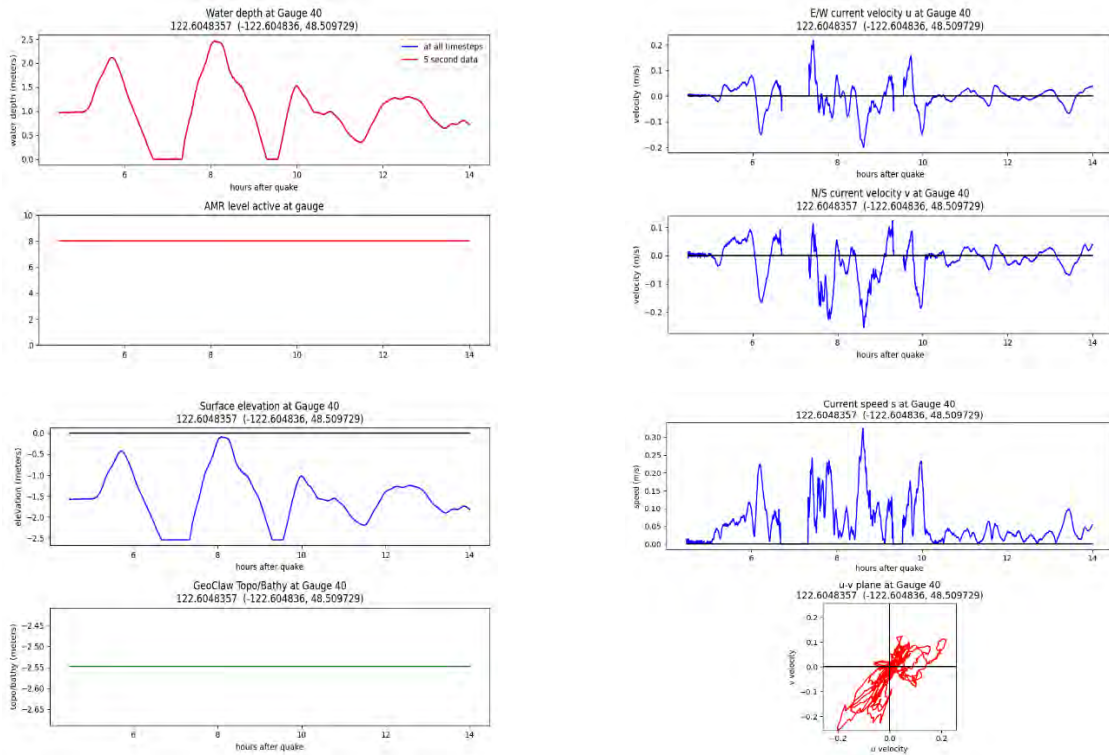
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

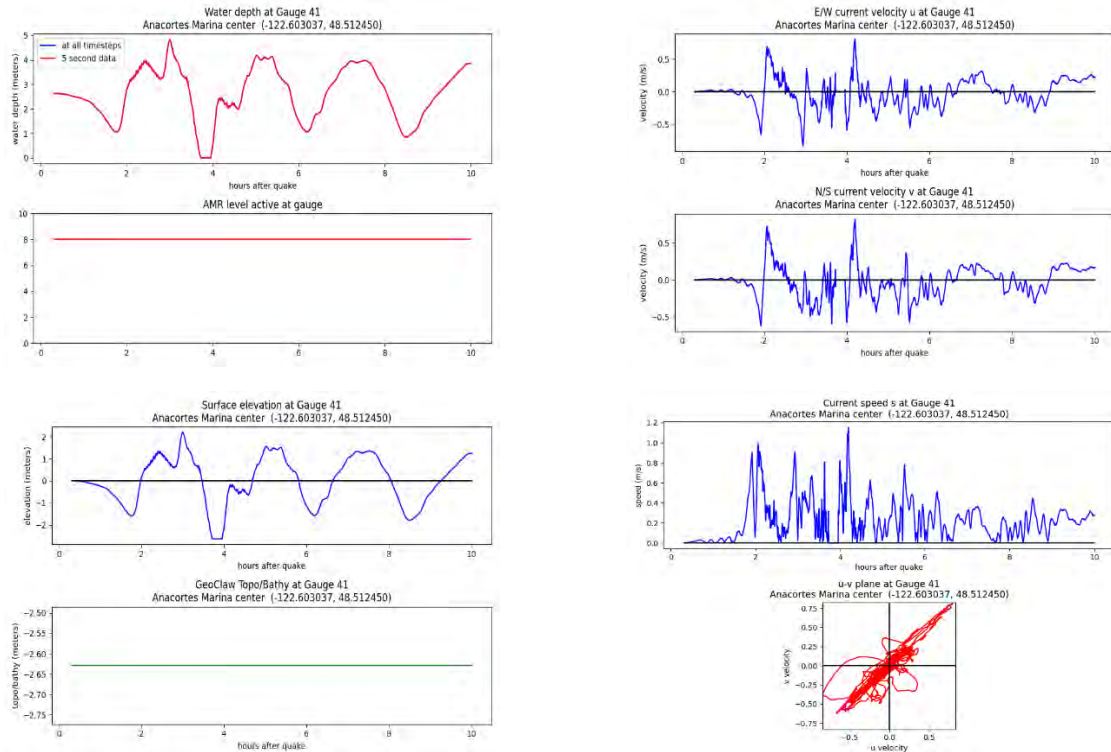


Alaska-Aleutian subduction zone scenario, MLW:

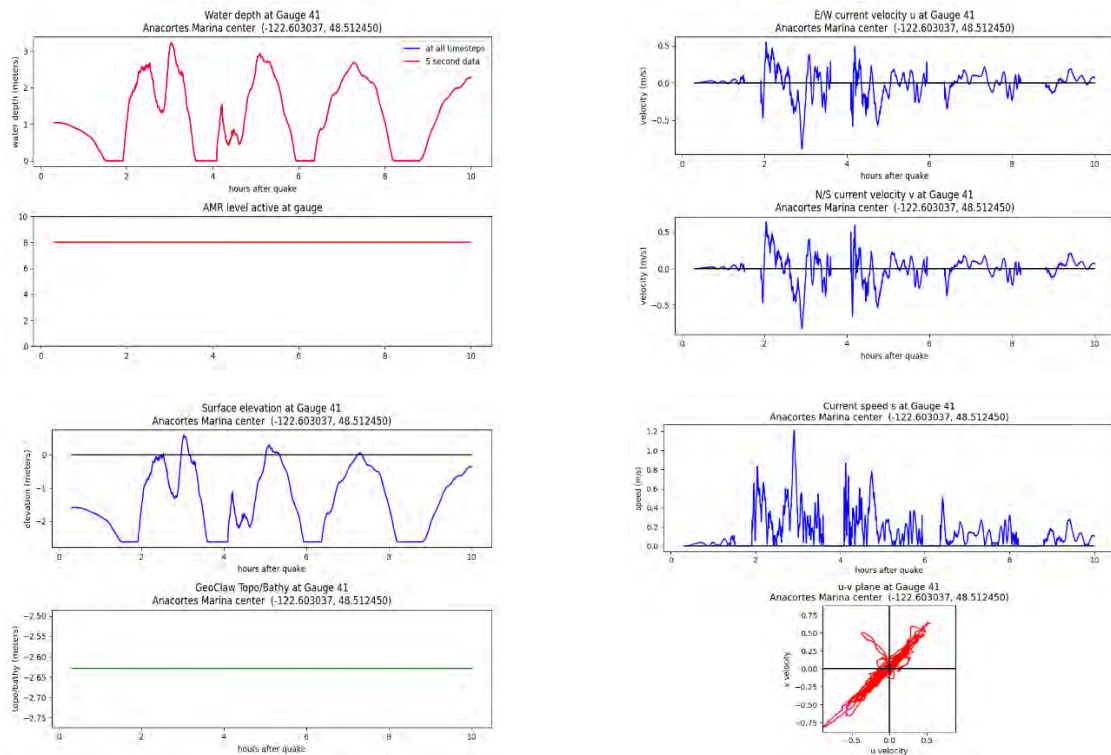


Gauge 41: Cap Sante Marina north jetty

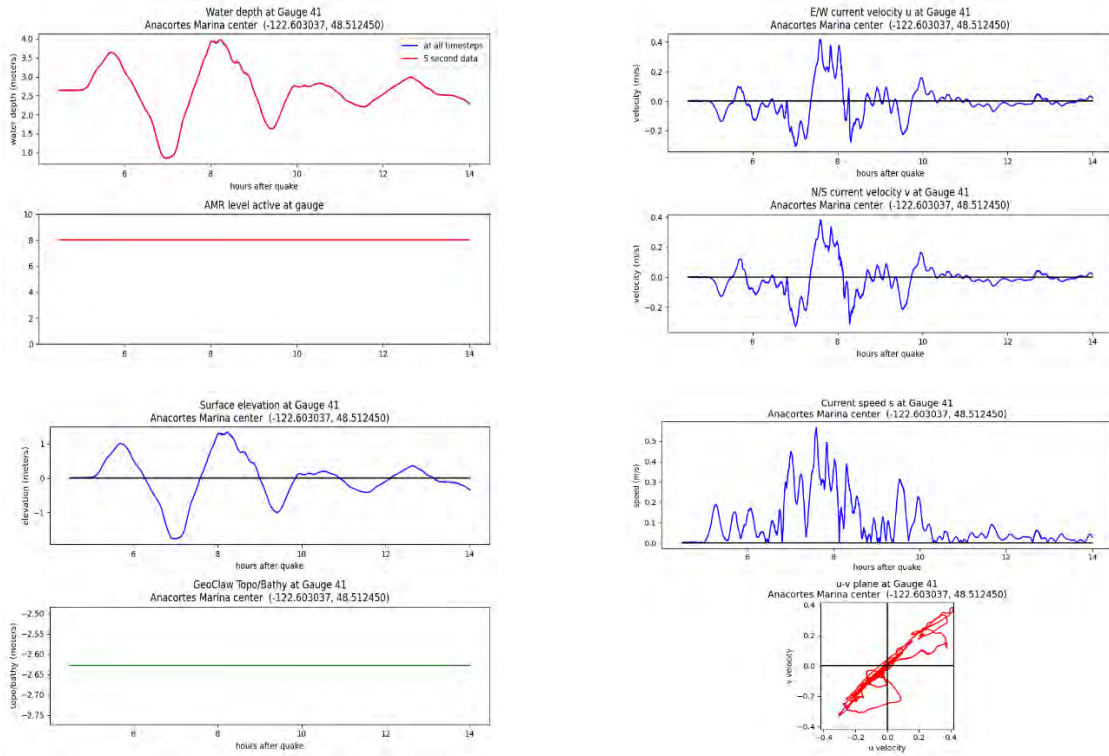
Cascadia subduction zone scenario, MHW:



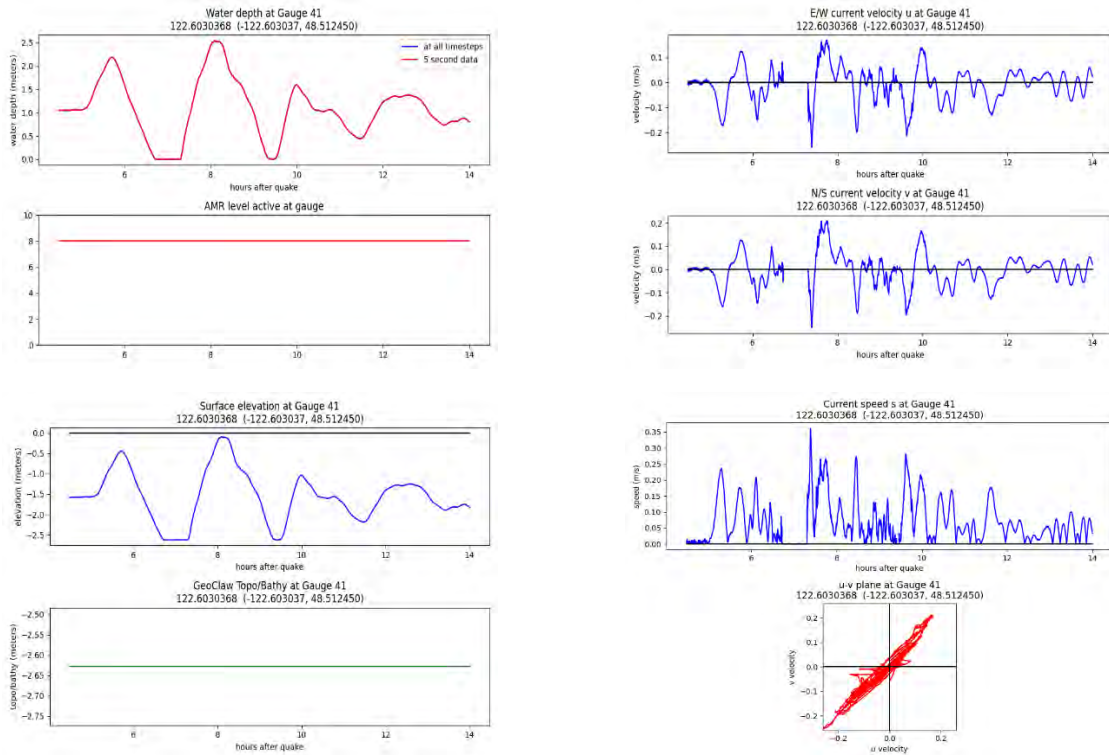
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

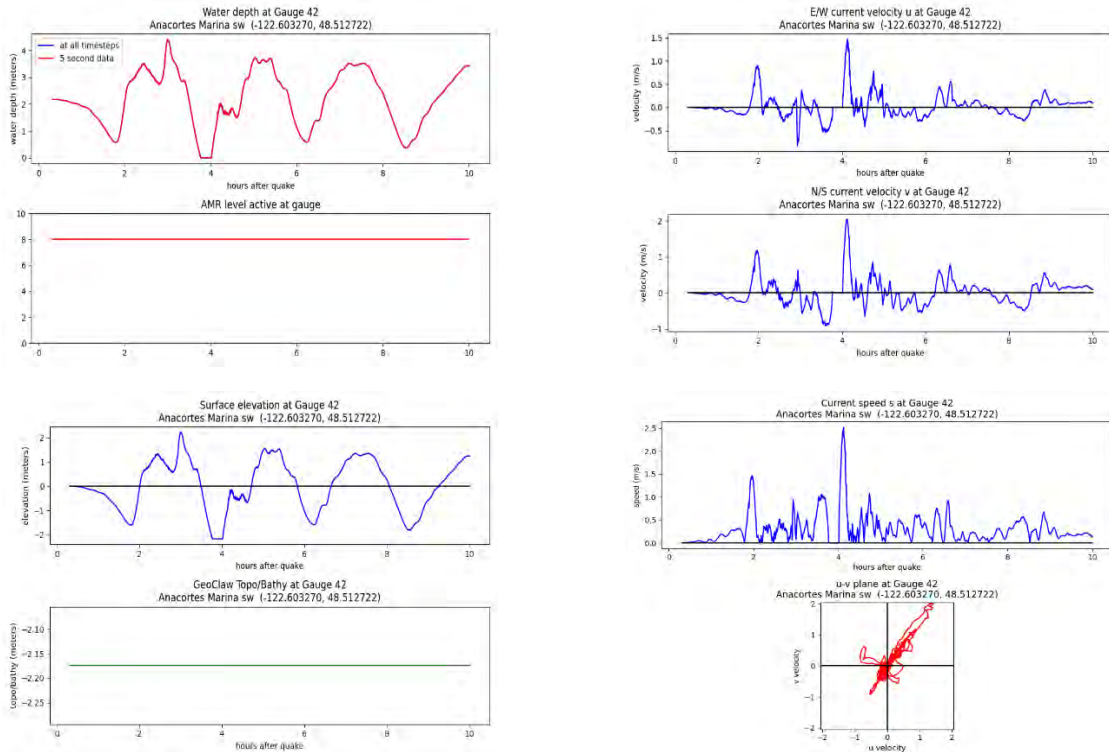


Alaska-Aleutian subduction zone scenario, MLW:

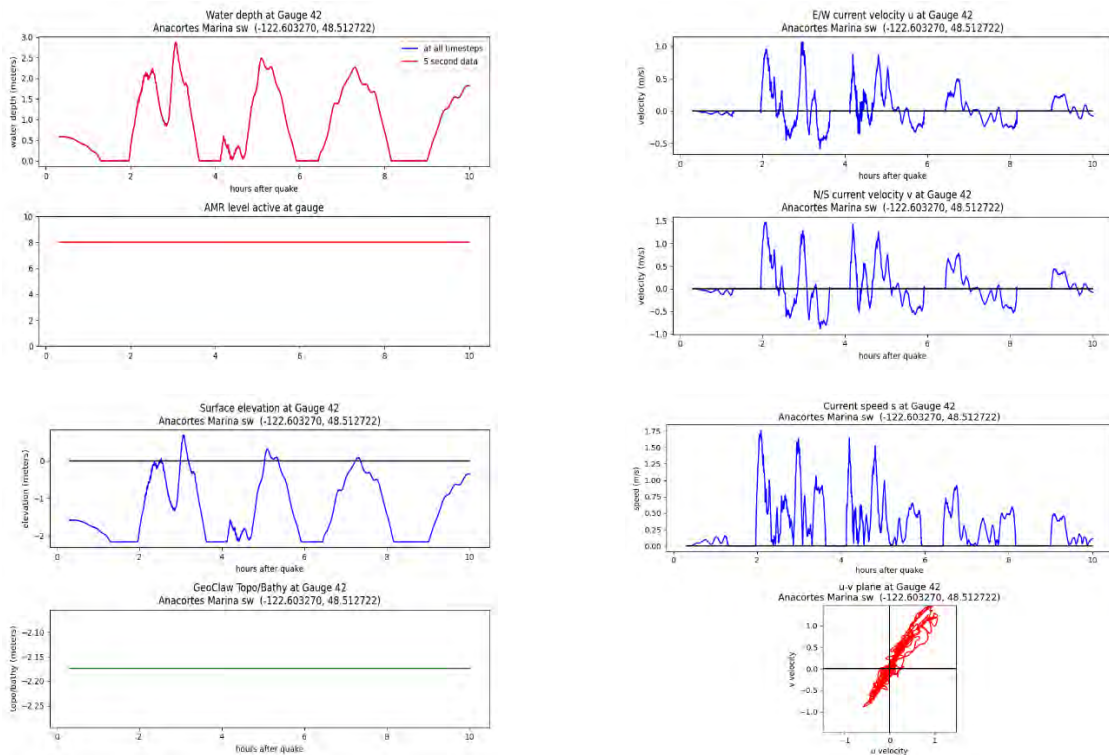


Gauge 42: Cap Sante Marina north jetty inside

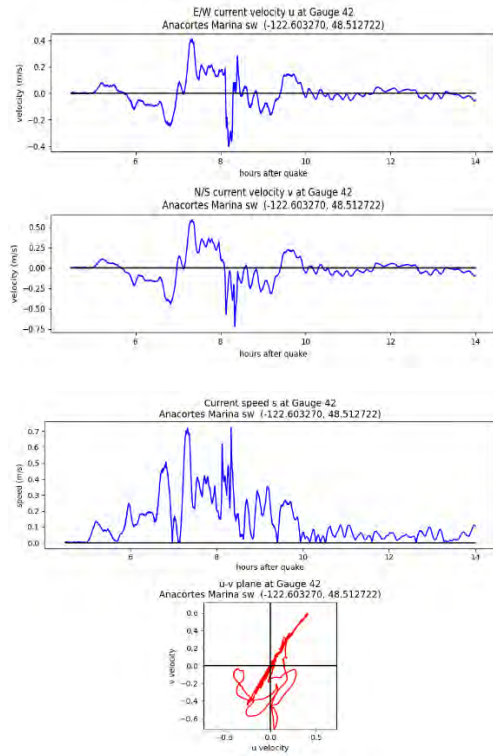
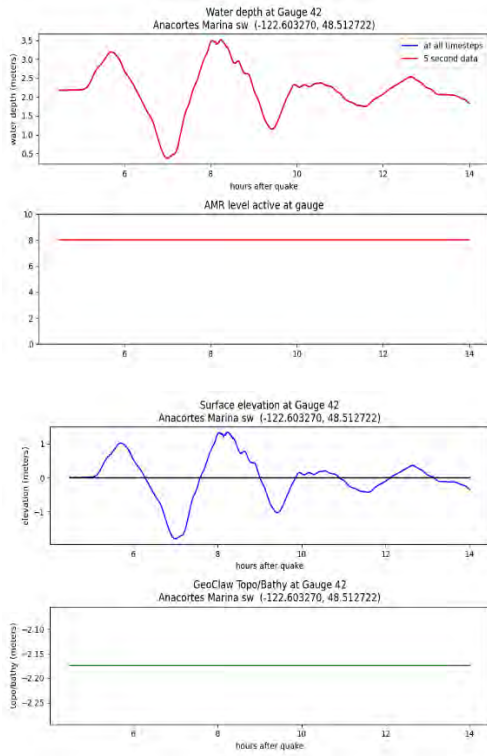
Cascadia subduction zone scenario, MHW:



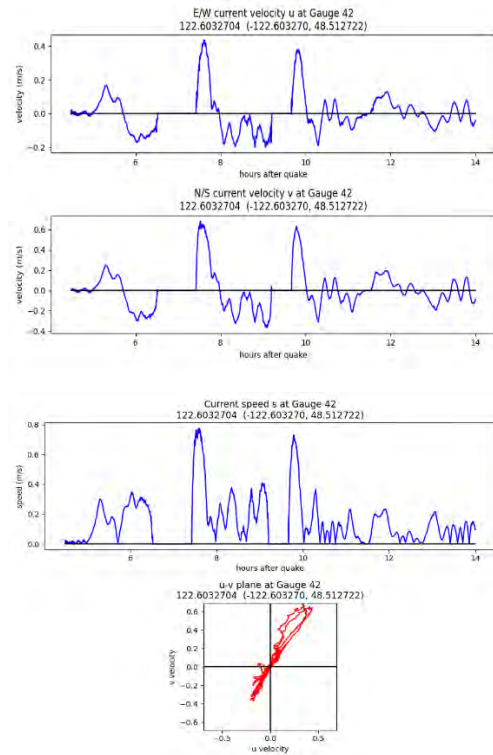
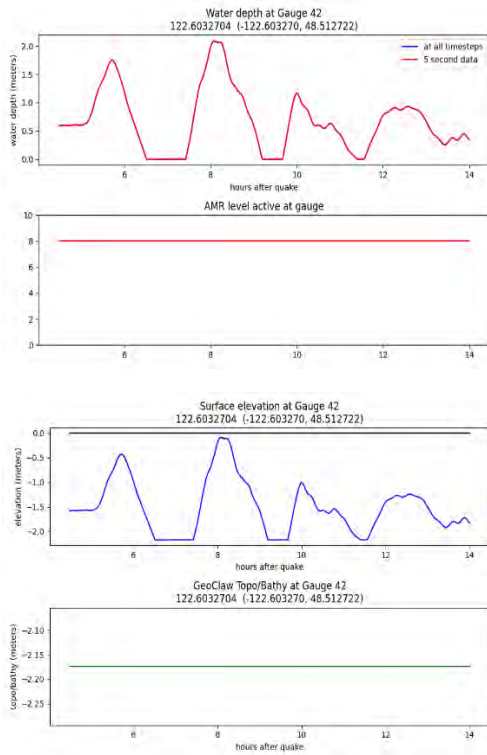
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

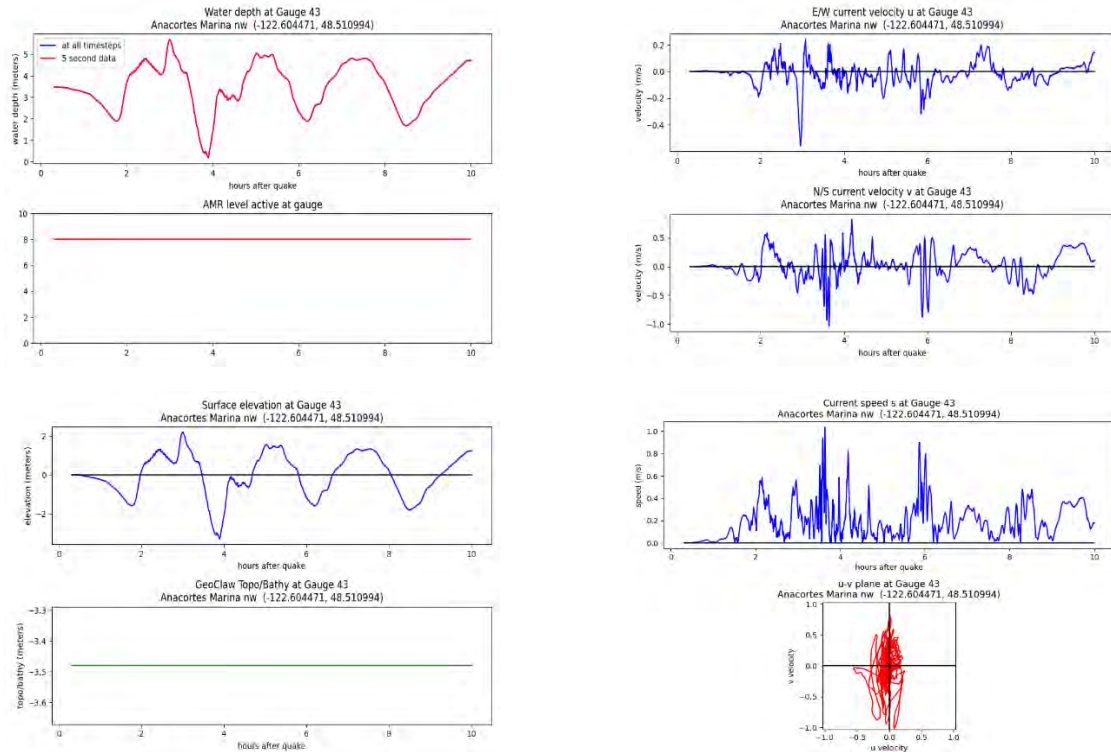


Alaska-Aleutian subduction zone scenario, MLW:

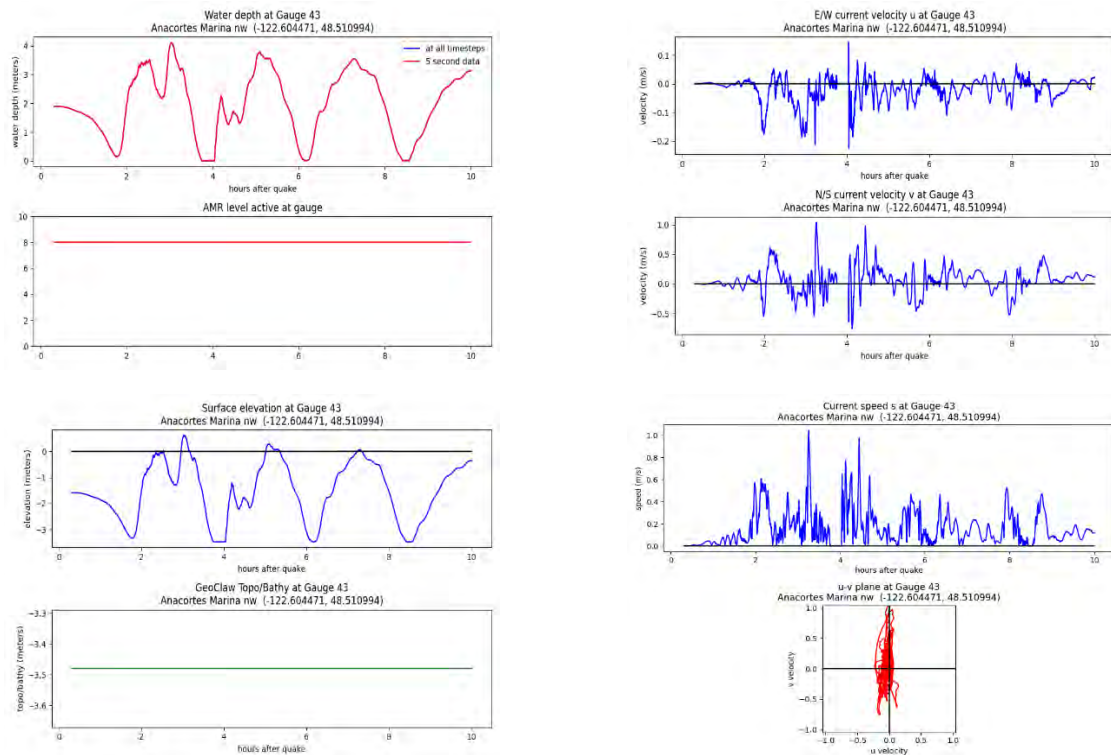


Gauge 43: Cap Sante Marina central jetty

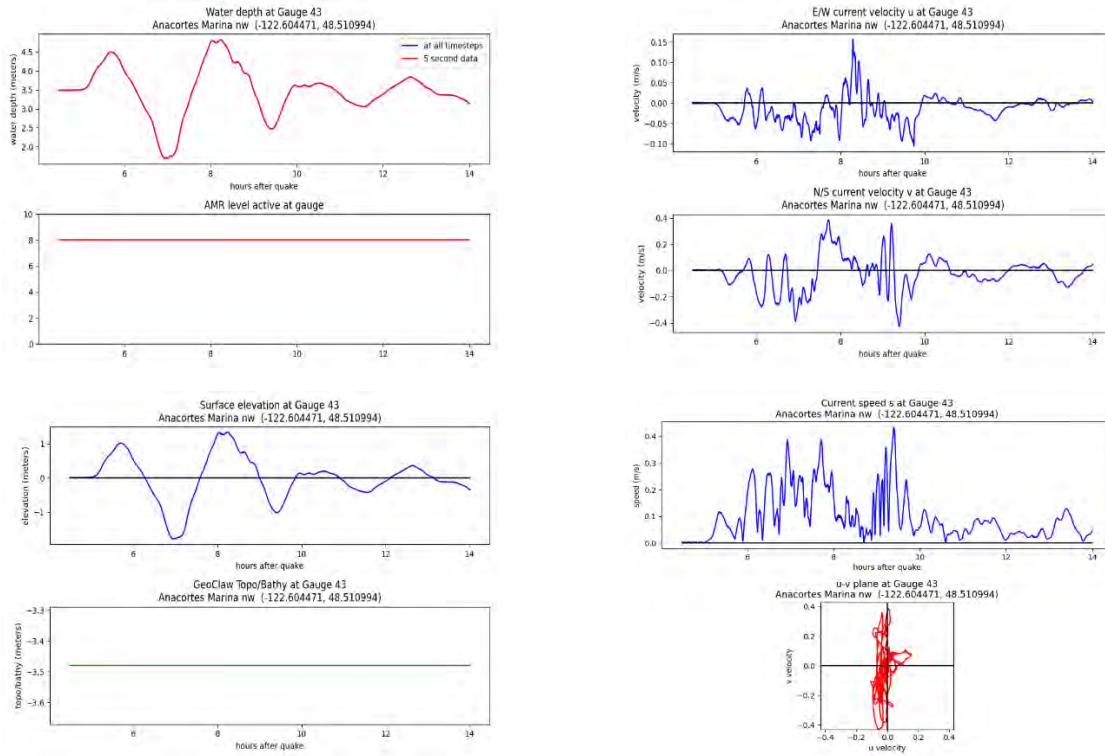
Cascadia subduction zone scenario, MHW:



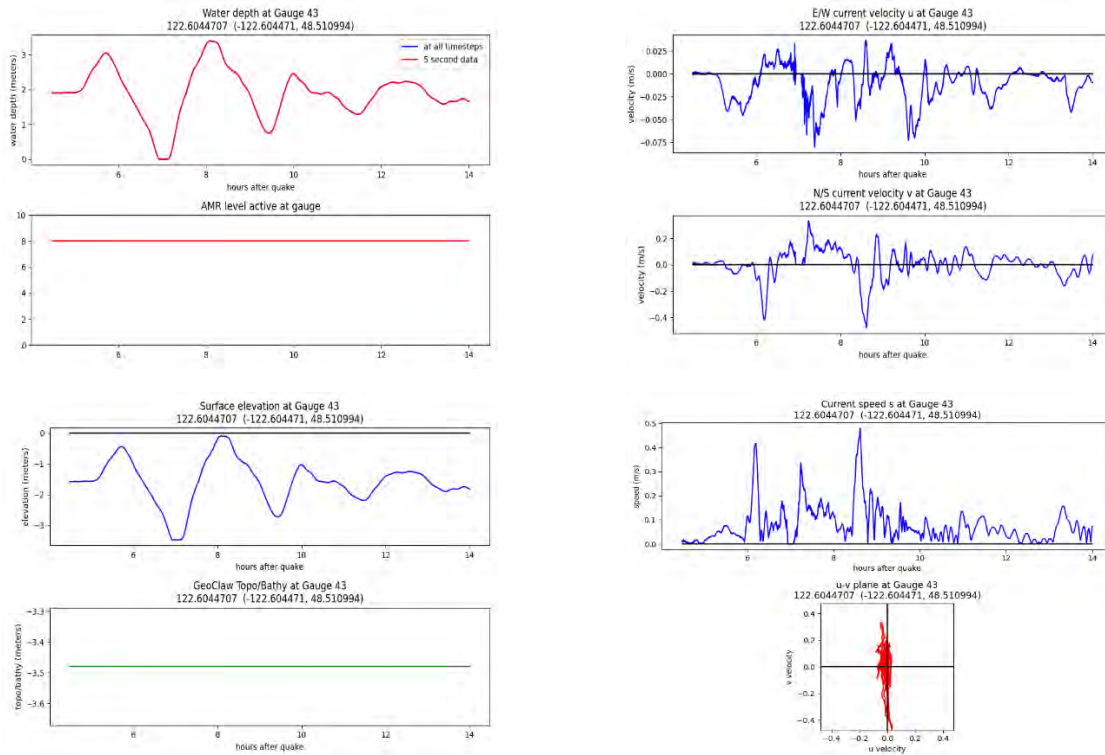
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

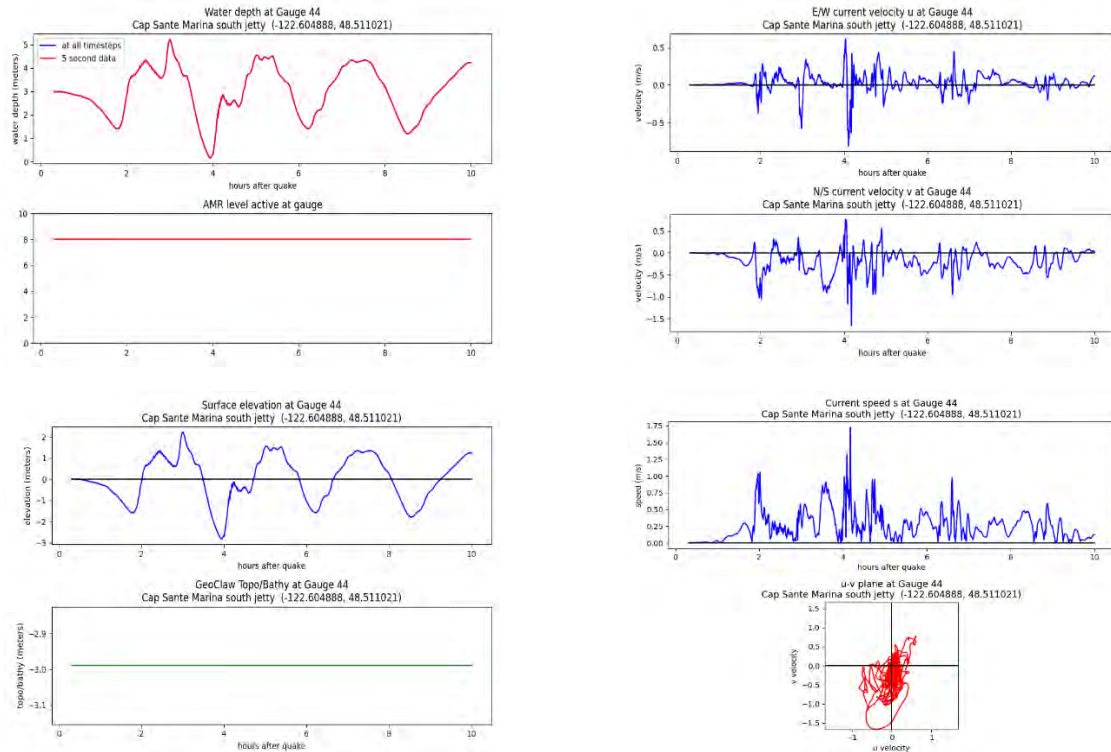


Alaska-Aleutian subduction zone scenario, MLW:

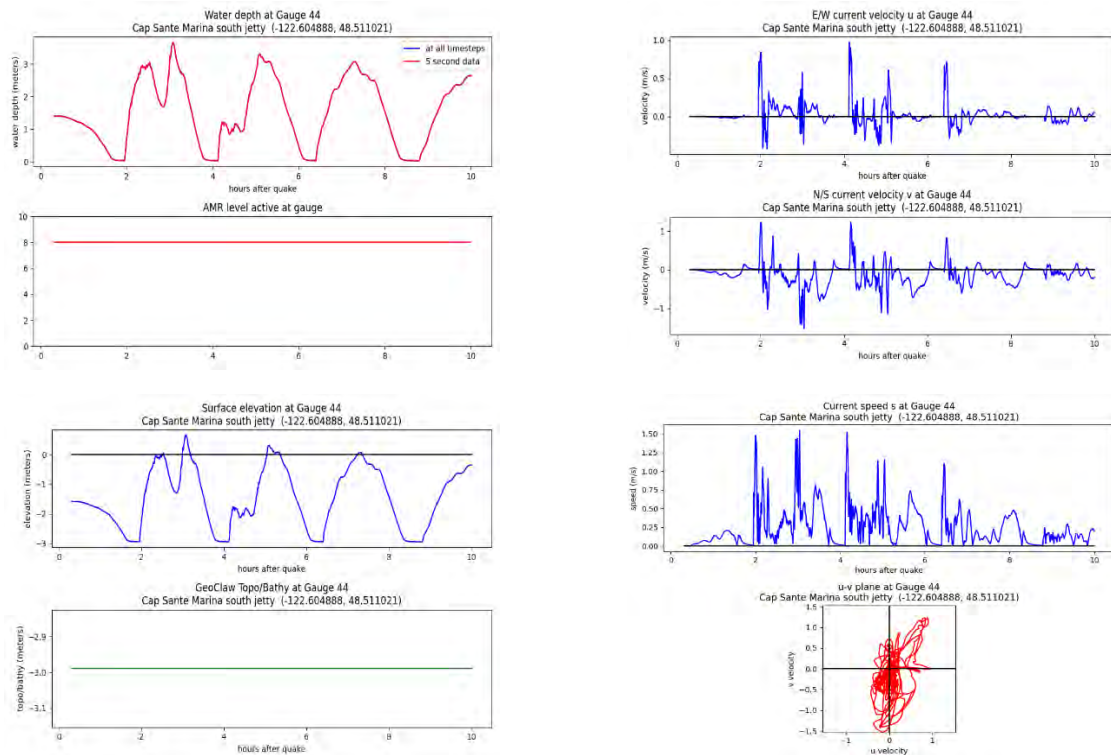


Gauge 44: Cap Sante Marina central jetty inside

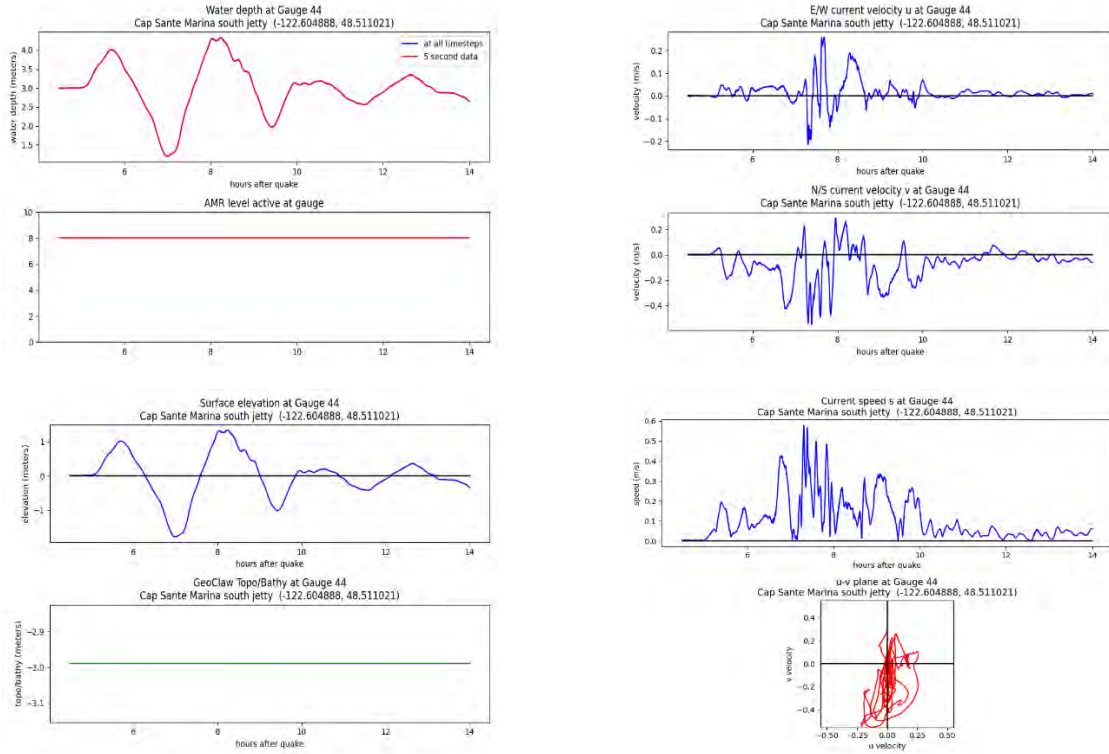
Cascadia subduction zone scenario, MHW:



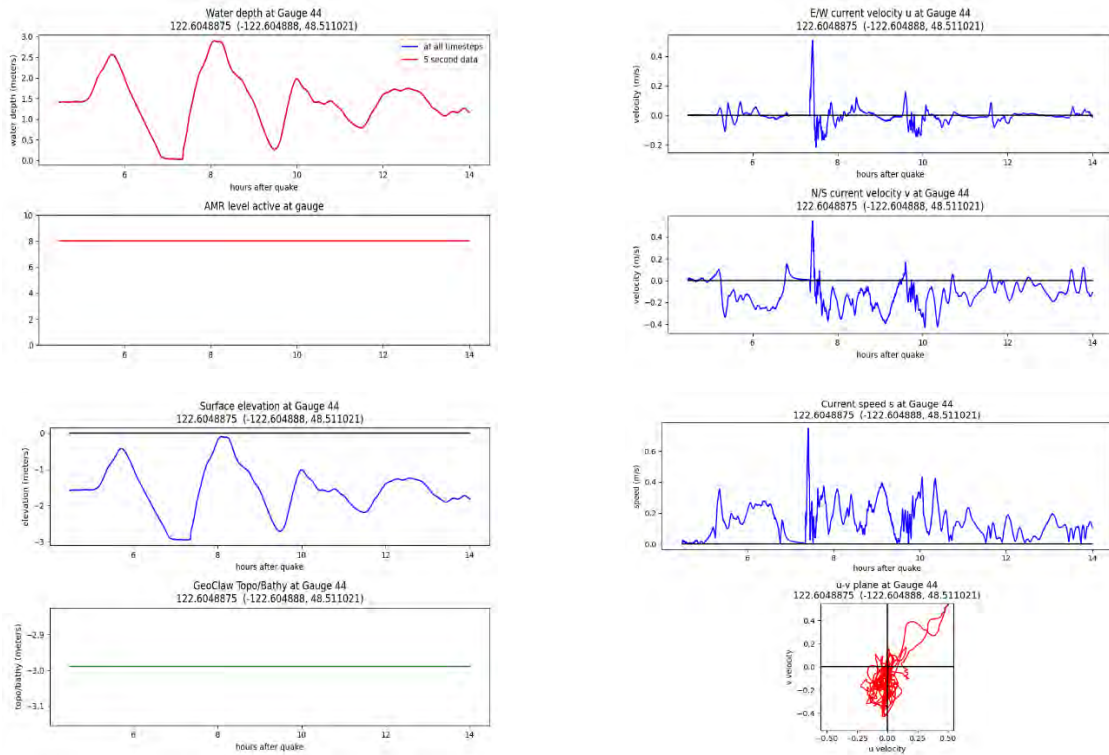
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

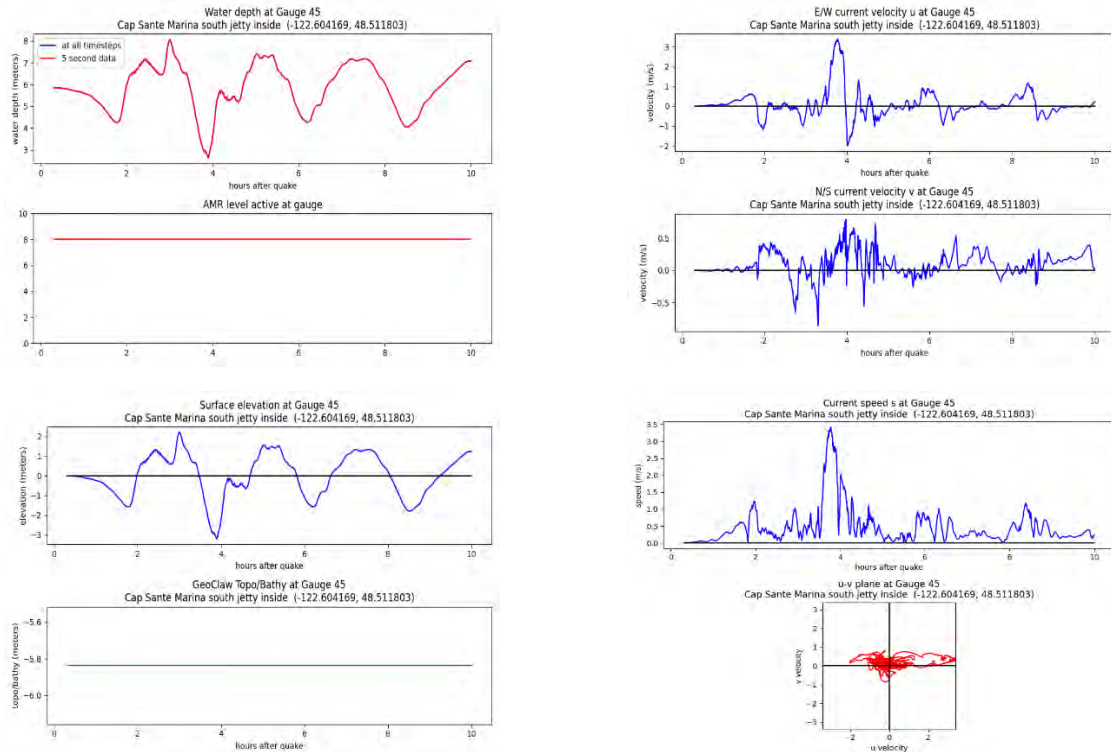


Alaska-Aleutian subduction zone scenario, MLW:

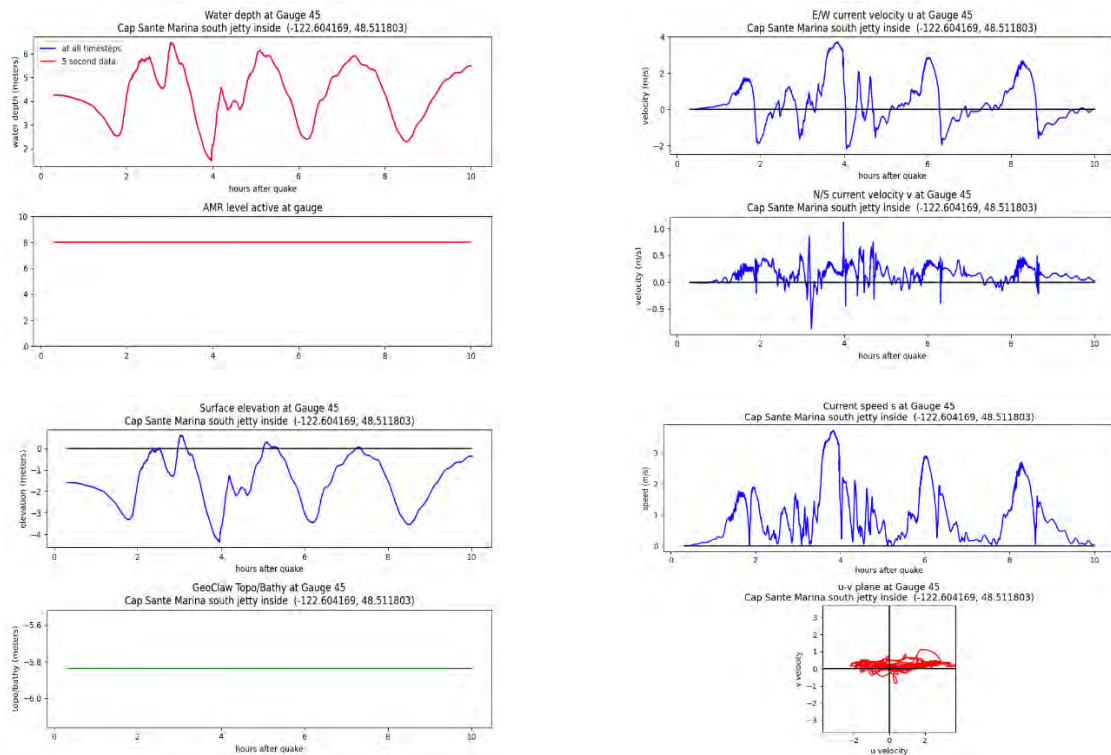


Gauge 45: Cap Sante Marina between north central jetty

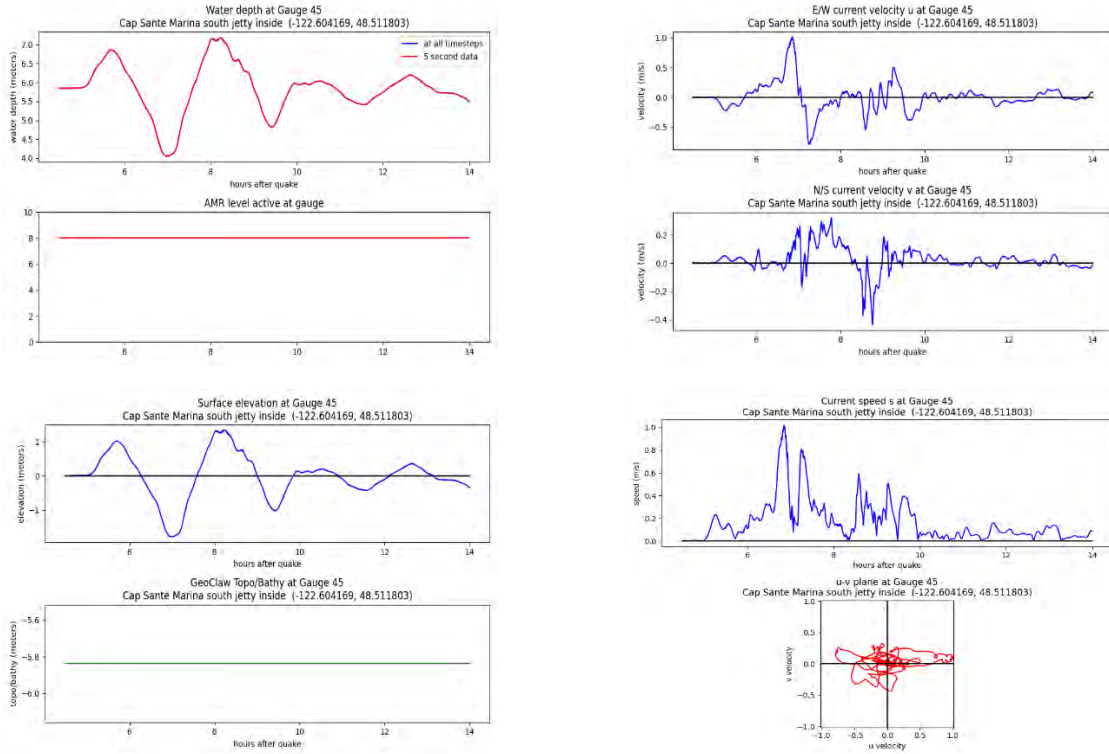
Cascadia subduction zone scenario, MHW:



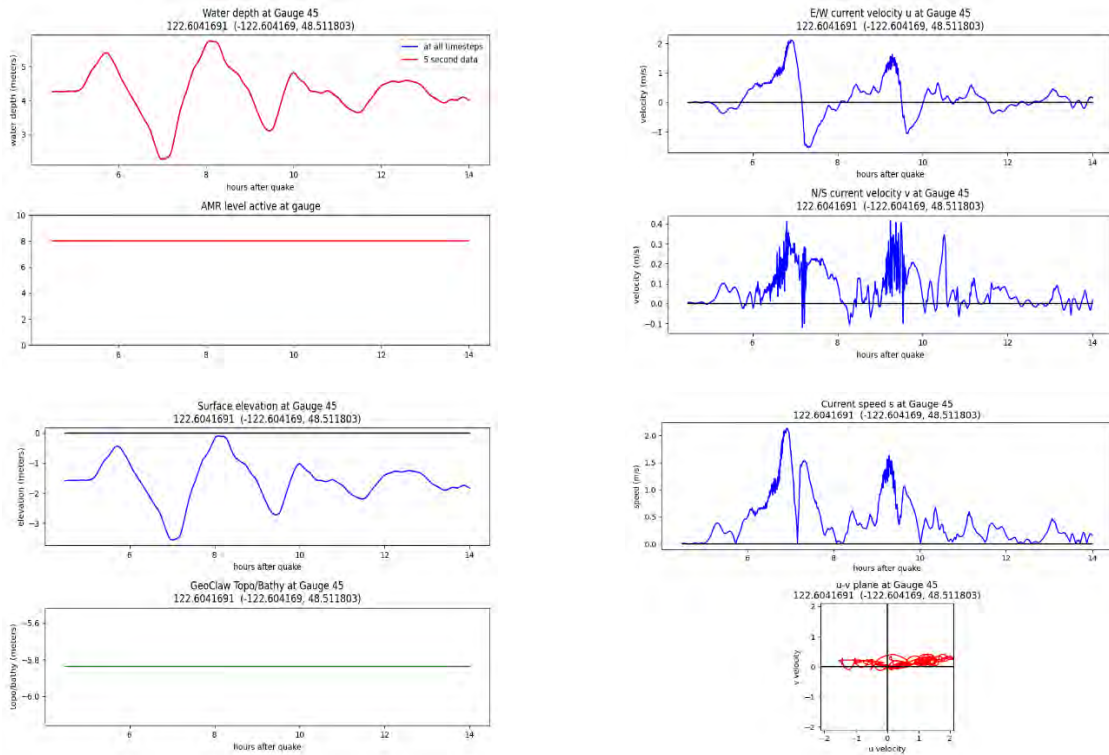
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

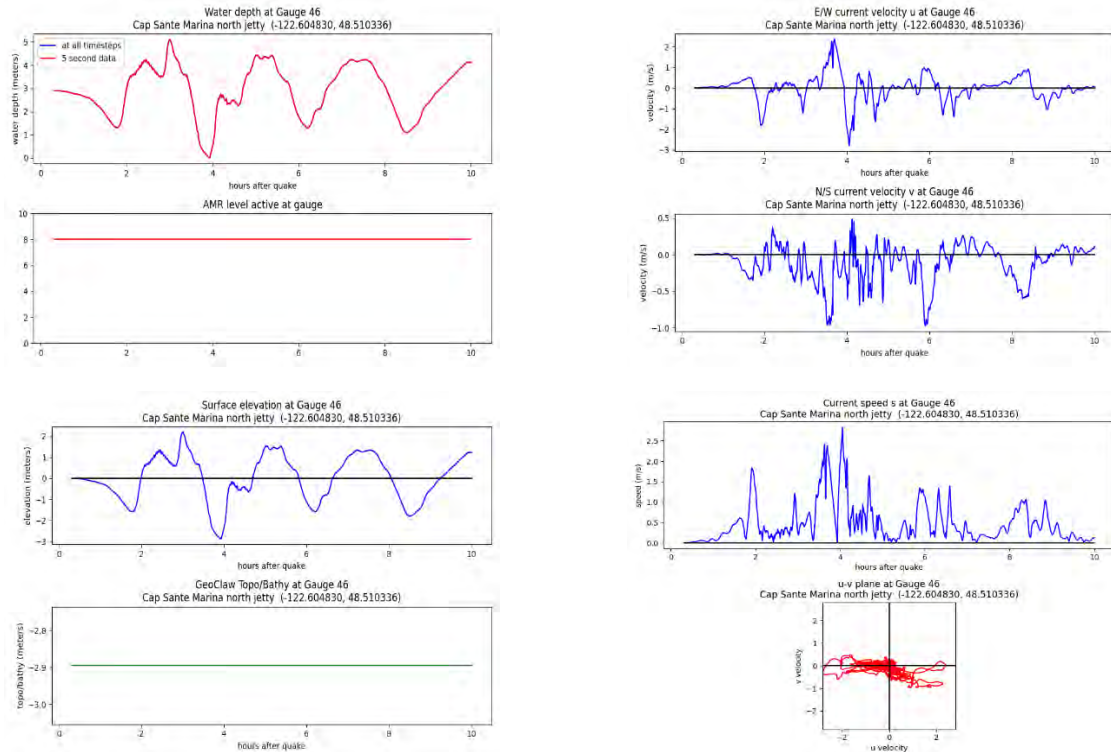


Alaska-Aleutian subduction zone scenario, MLW:

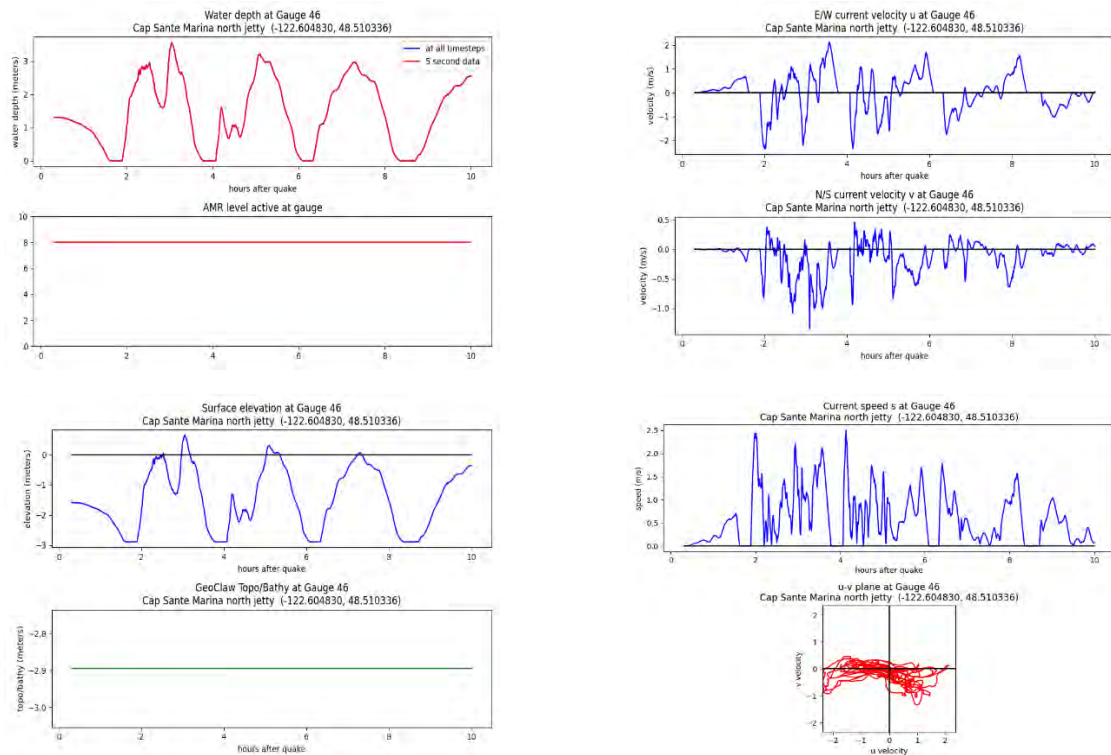


Gauge 46: Cap Sante Marina between south central jetty

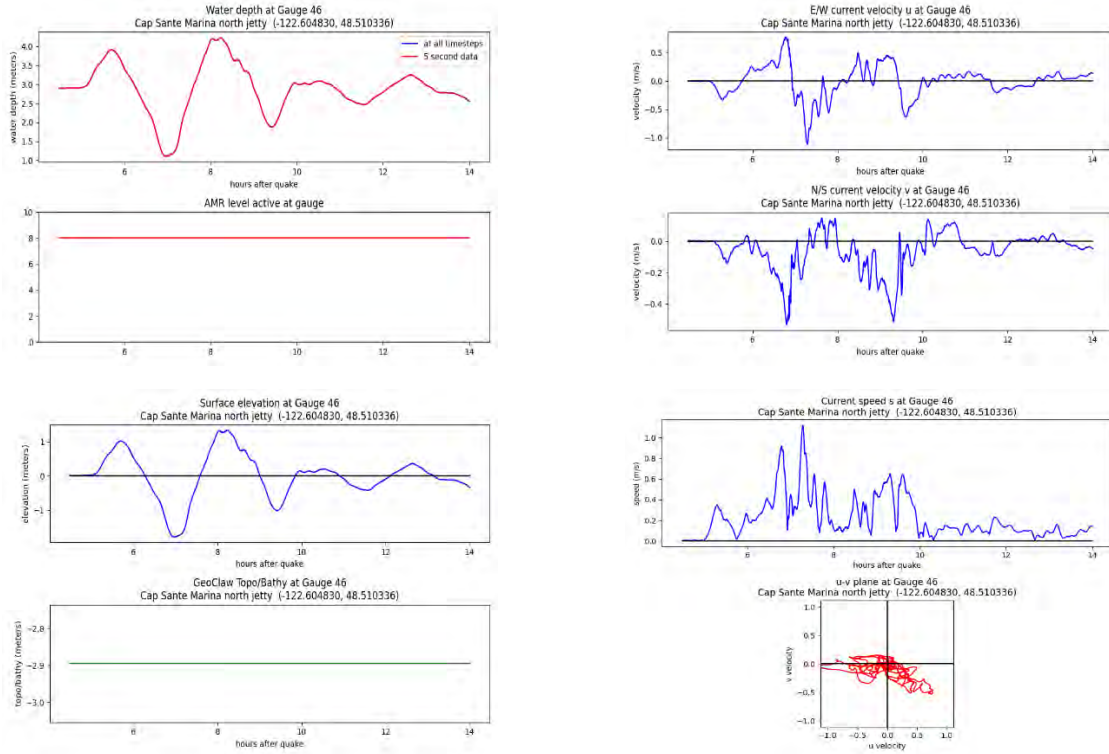
Cascadia subduction zone scenario, MHW:



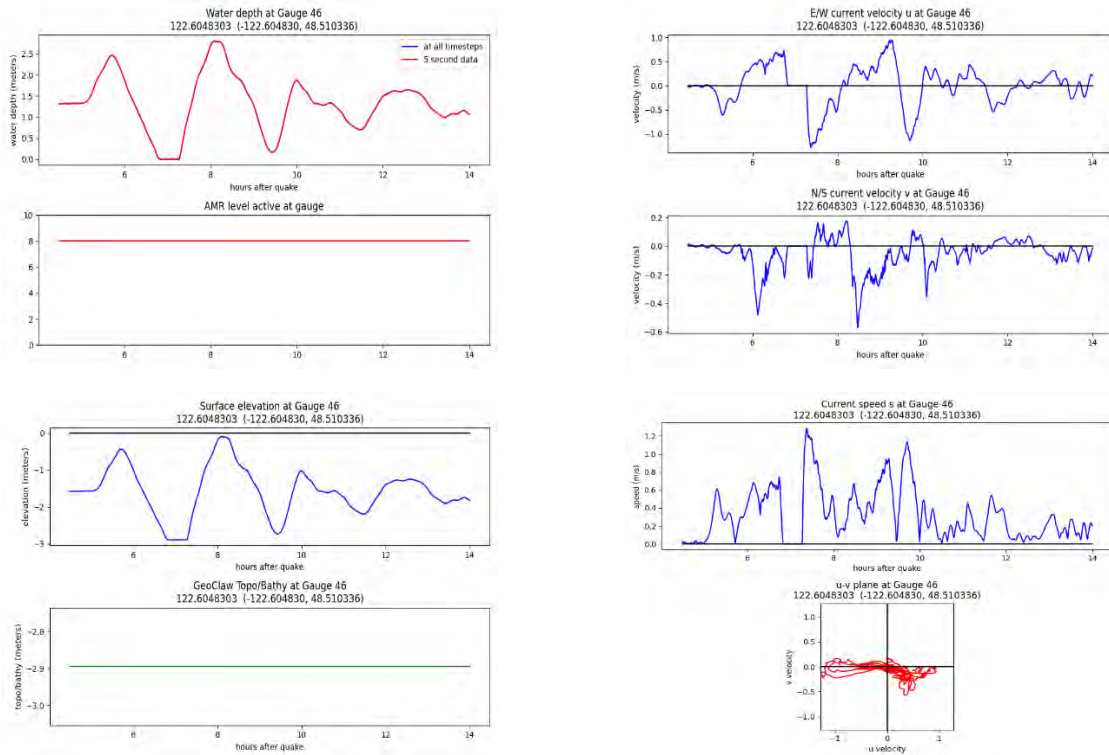
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

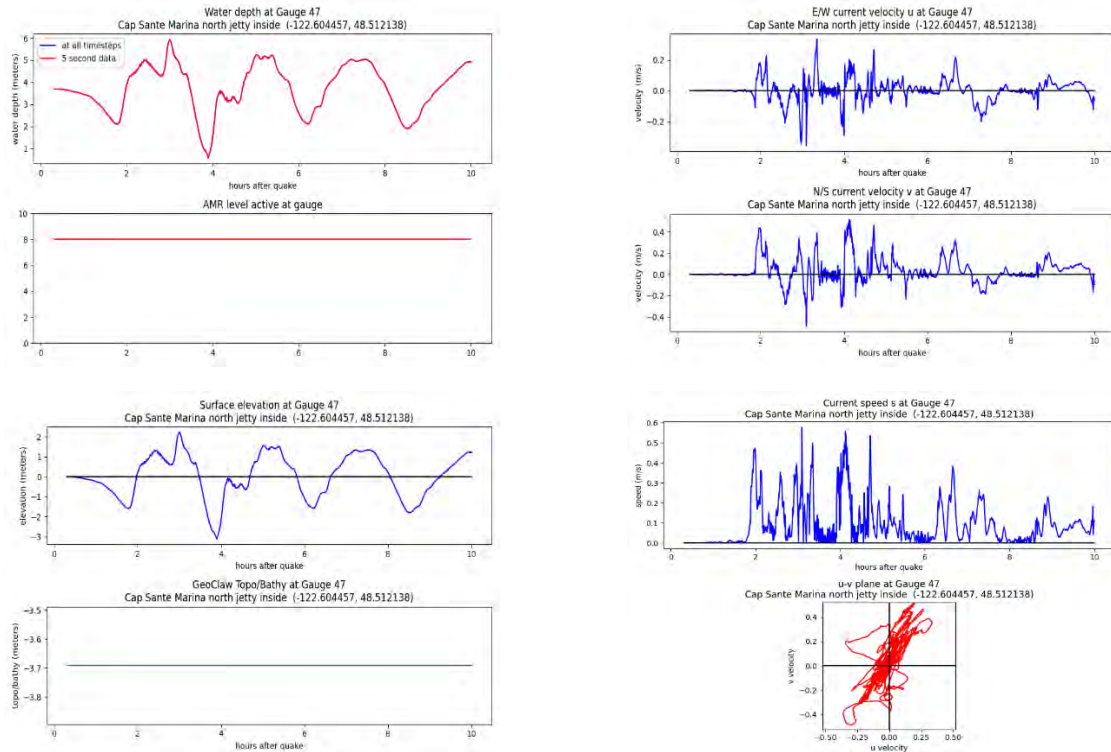


Alaska-Aleutian subduction zone scenario, MLW:

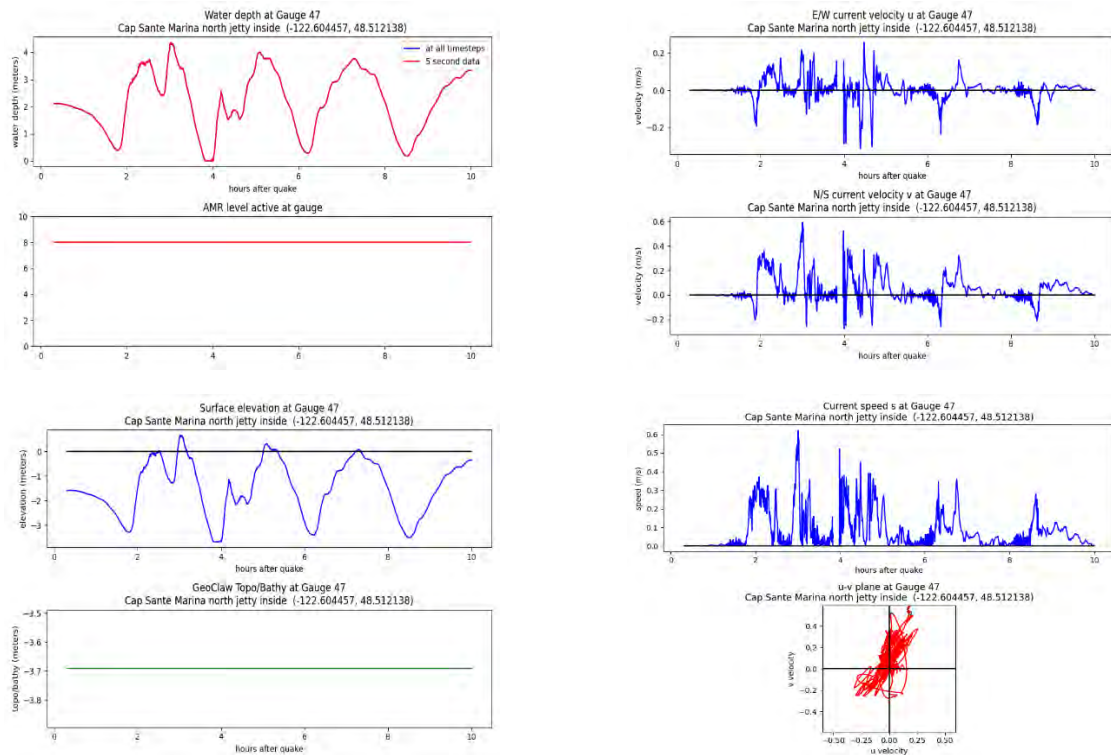


Gauge 47: Cap Sante Marina breakwater

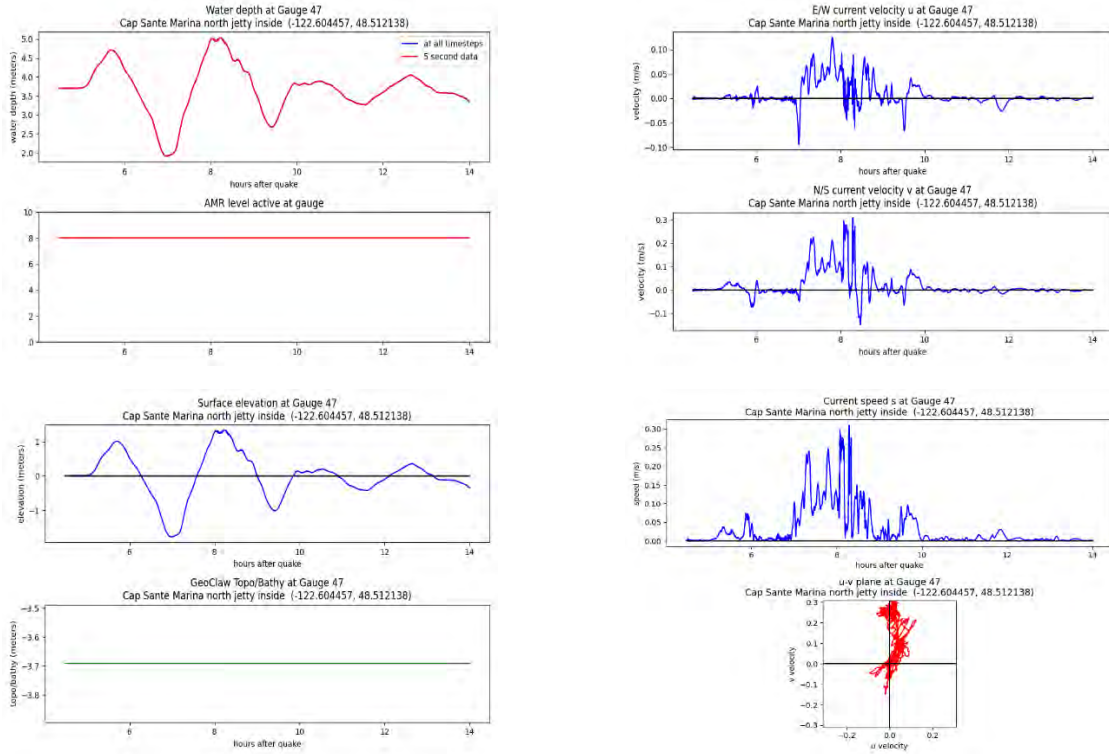
Cascadia subduction zone scenario, MHW:



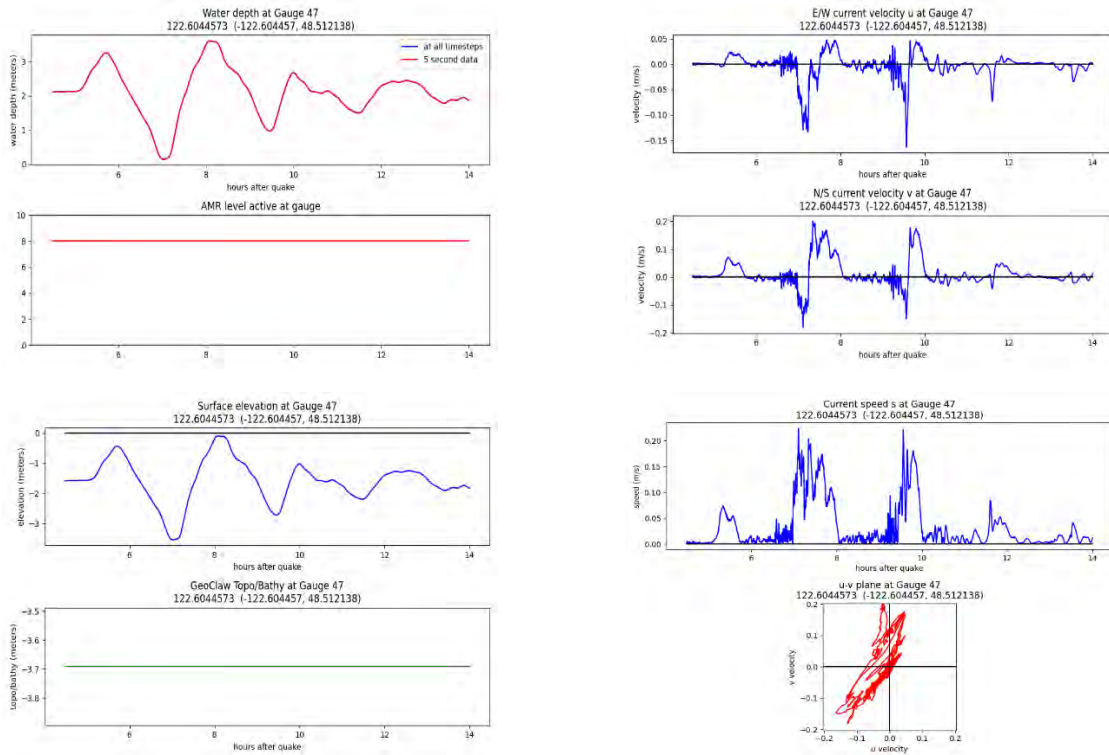
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

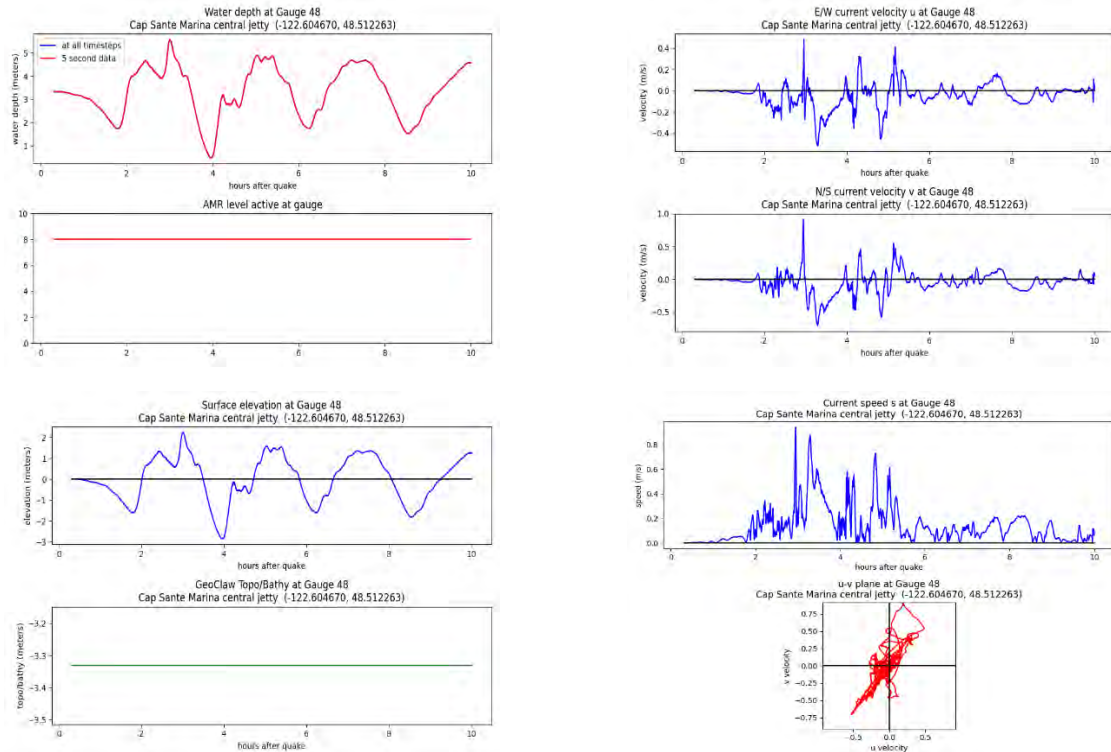


Alaska-Aleutian subduction zone scenario, MLW:

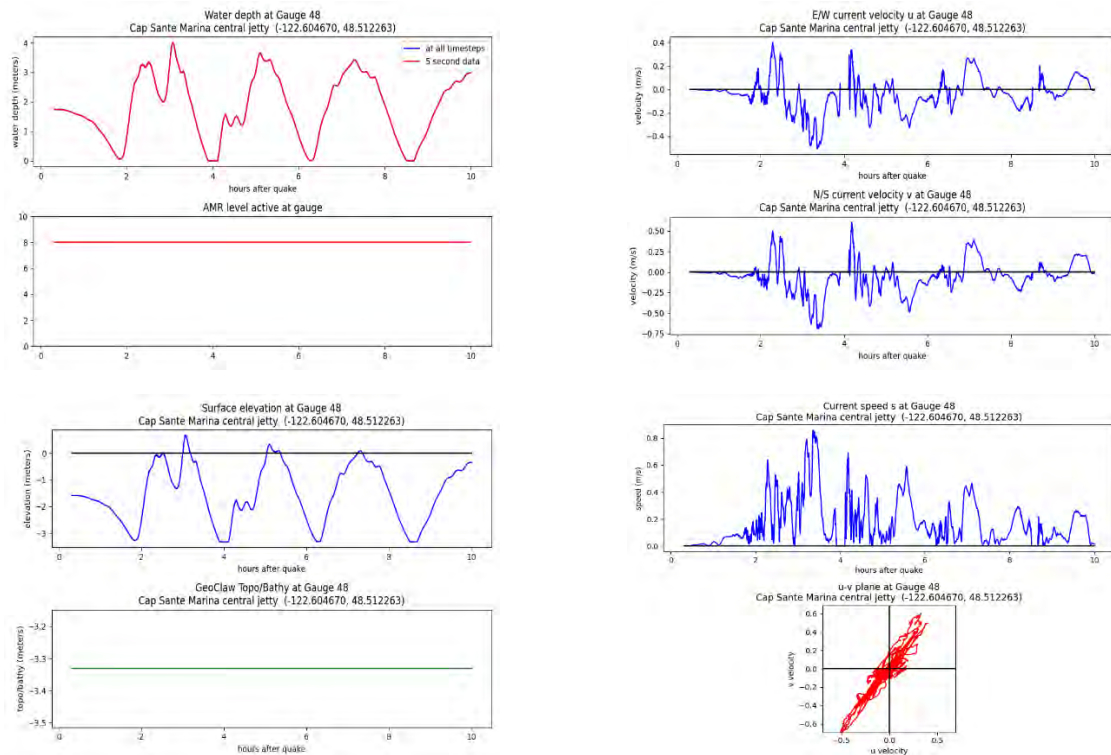


Gauge 48: Cap Sante Marina breakwater inside

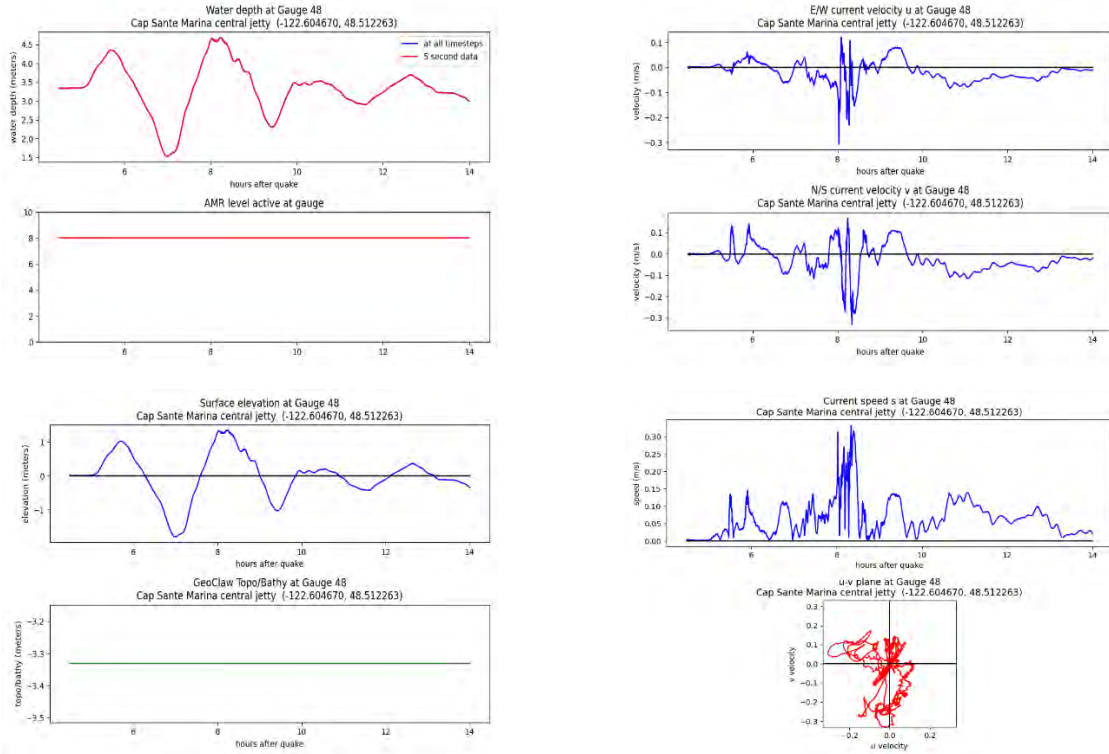
Cascadia subduction zone scenario, MHW:



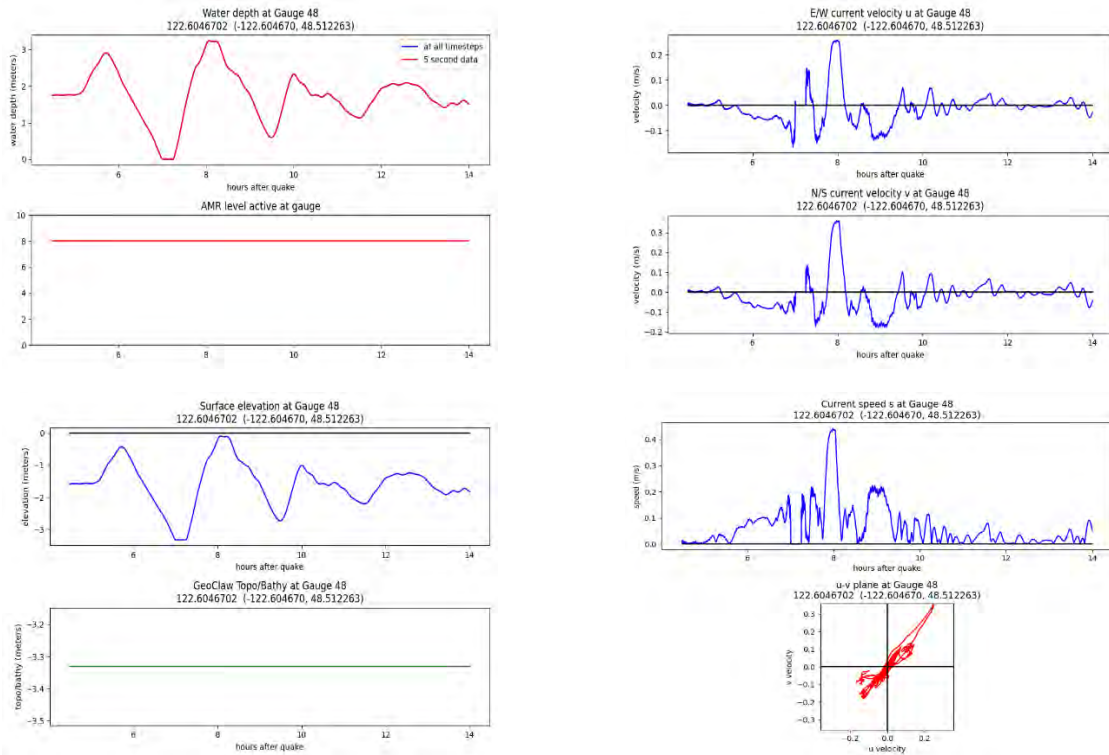
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

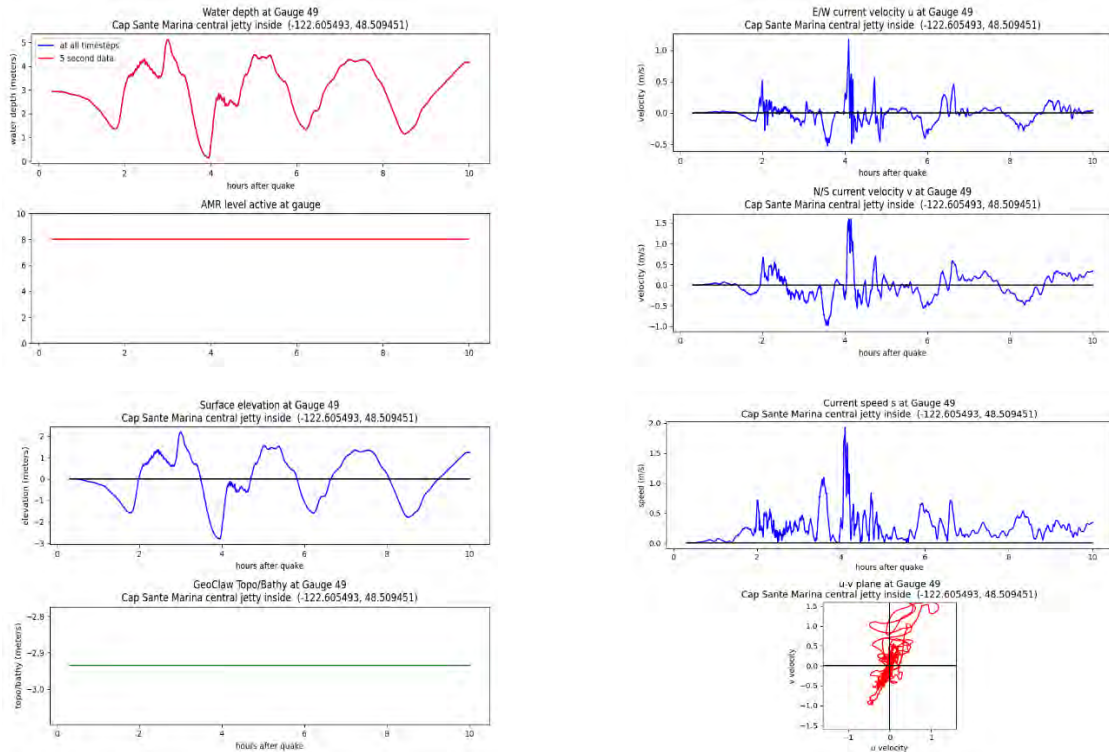


Alaska-Aleutian subduction zone scenario, MLW:

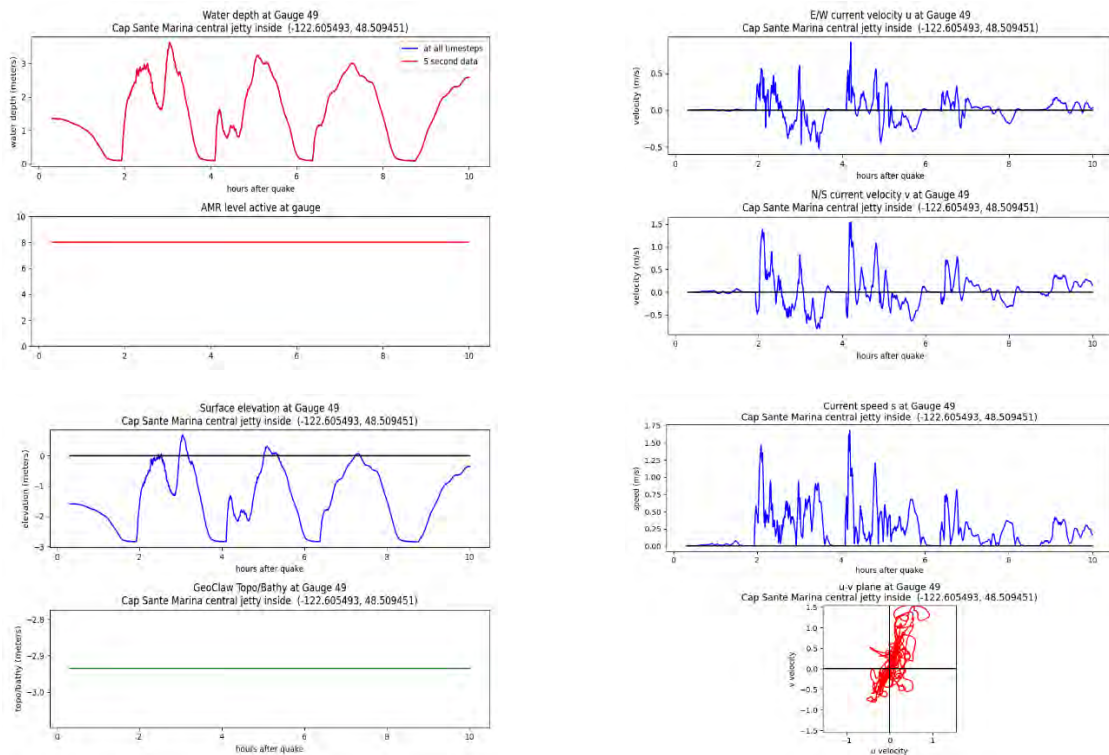


Gauge 49: Cap Sante Marina south breakwater

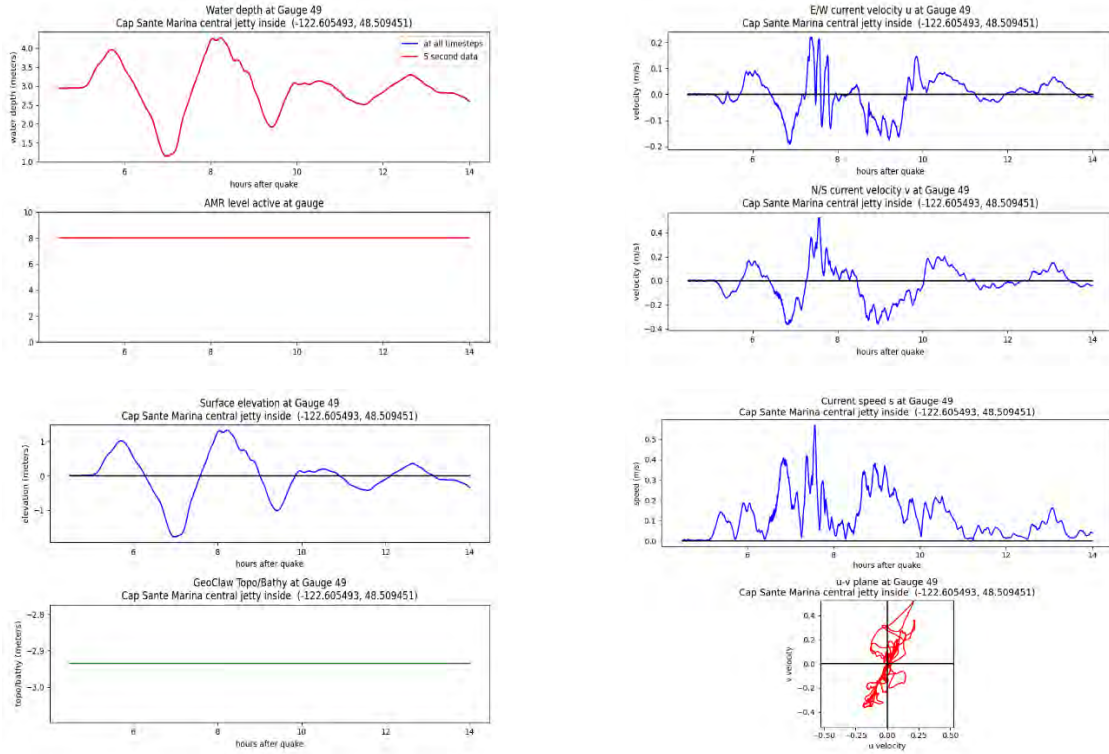
Cascadia subduction zone scenario, MHW:



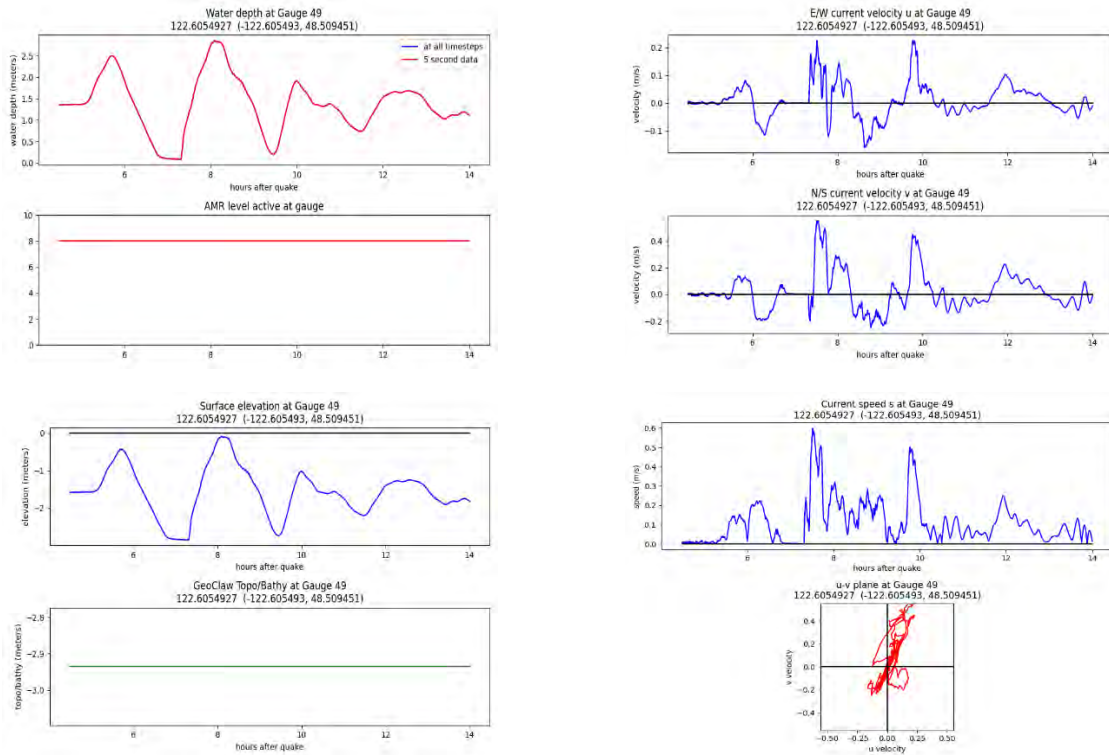
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

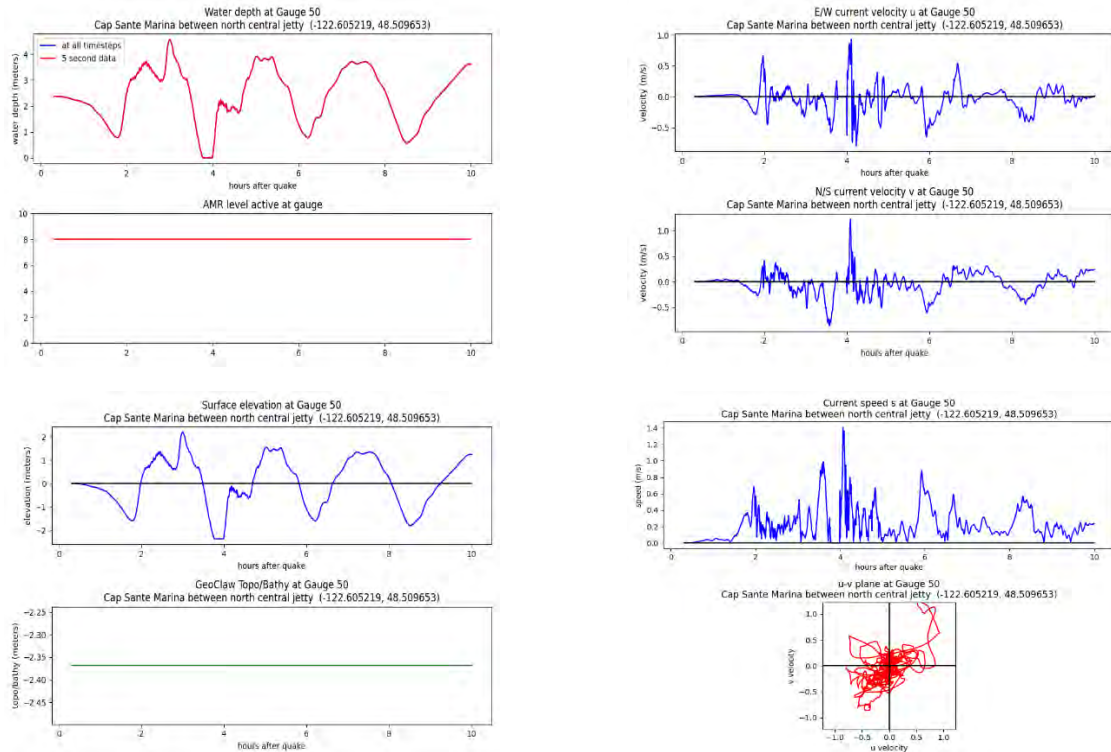


Alaska-Aleutian subduction zone scenario, MLW:

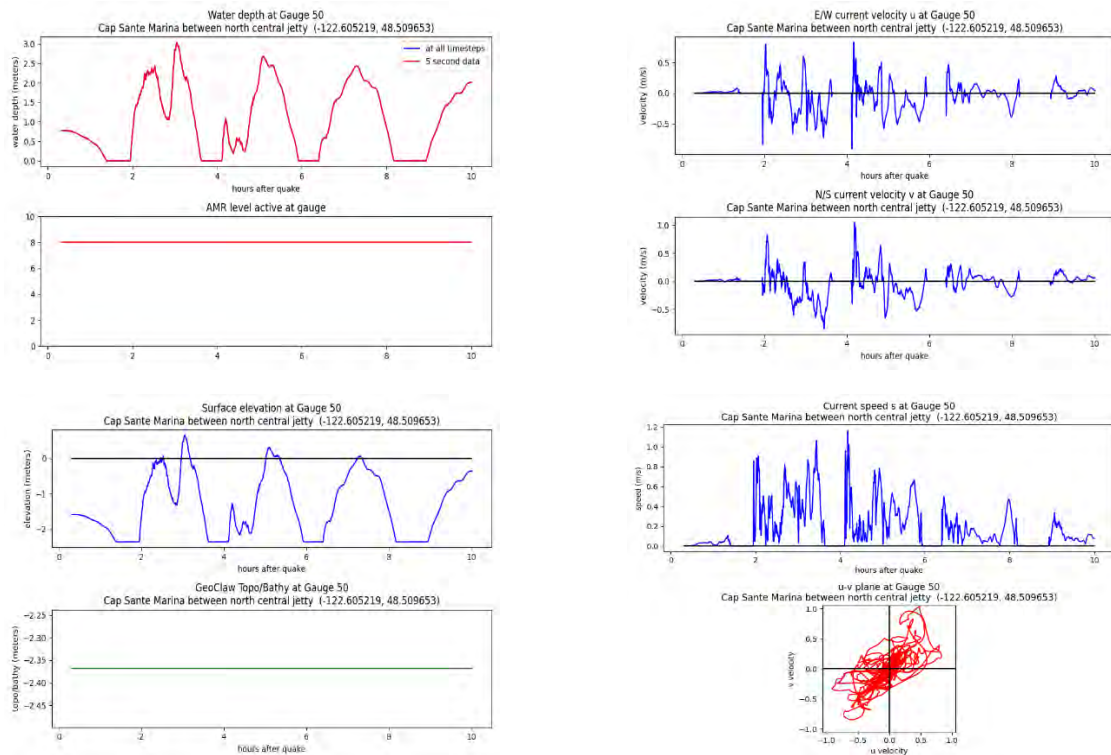


Gauge 50: Cap Sante Marina south breakwater inside

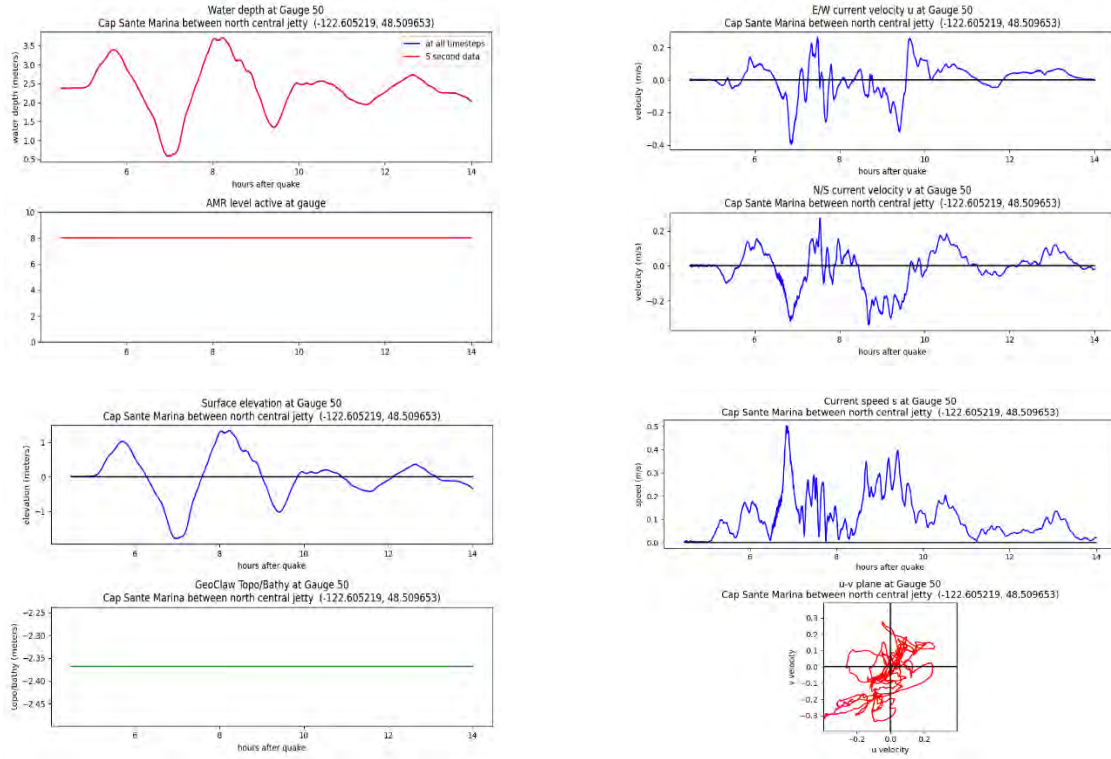
Cascadia subduction zone scenario, MHW:



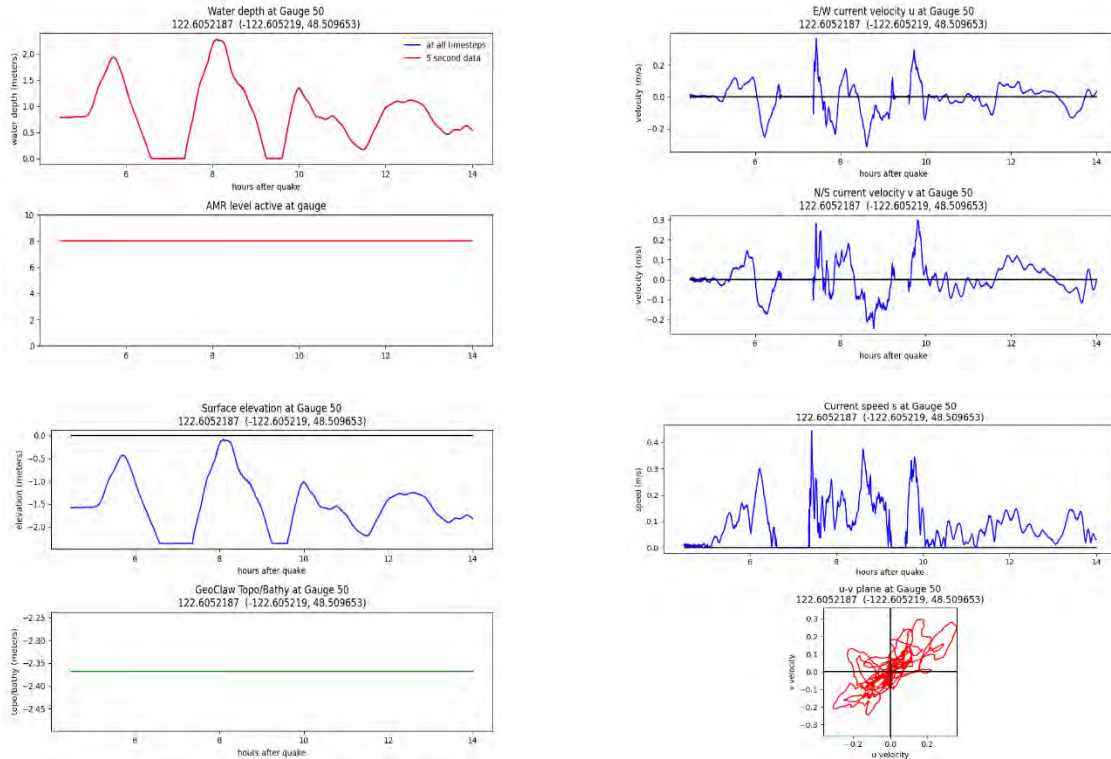
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

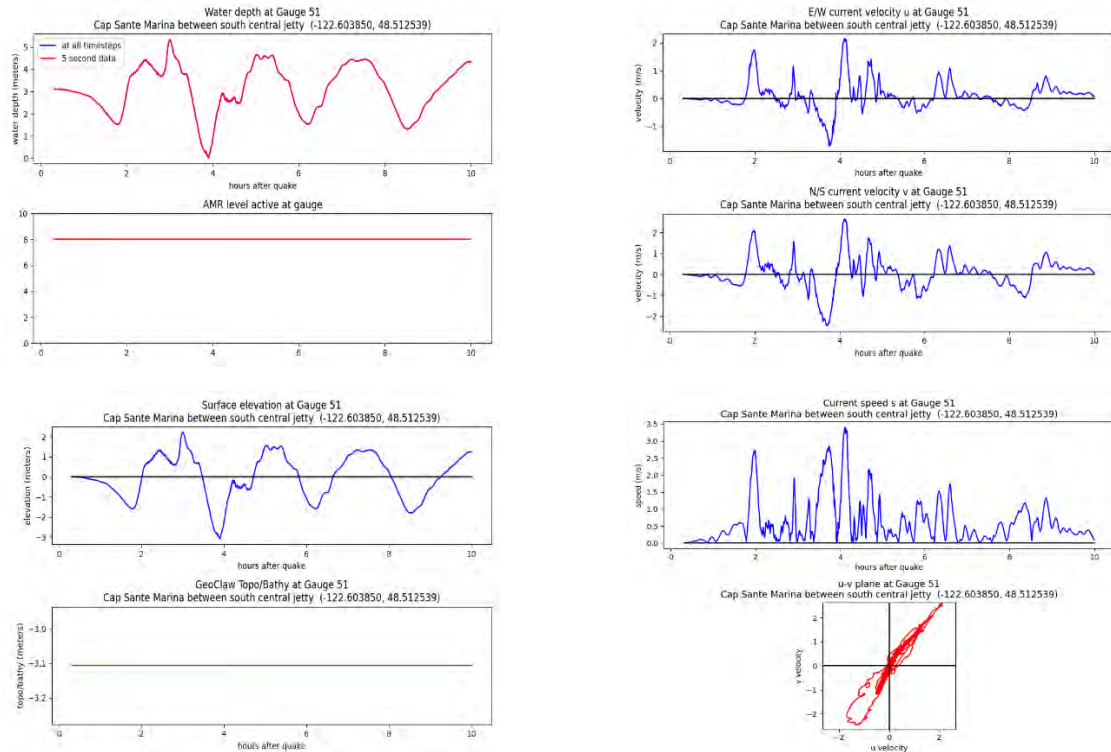


Alaska-Aleutian subduction zone scenario, MLW:

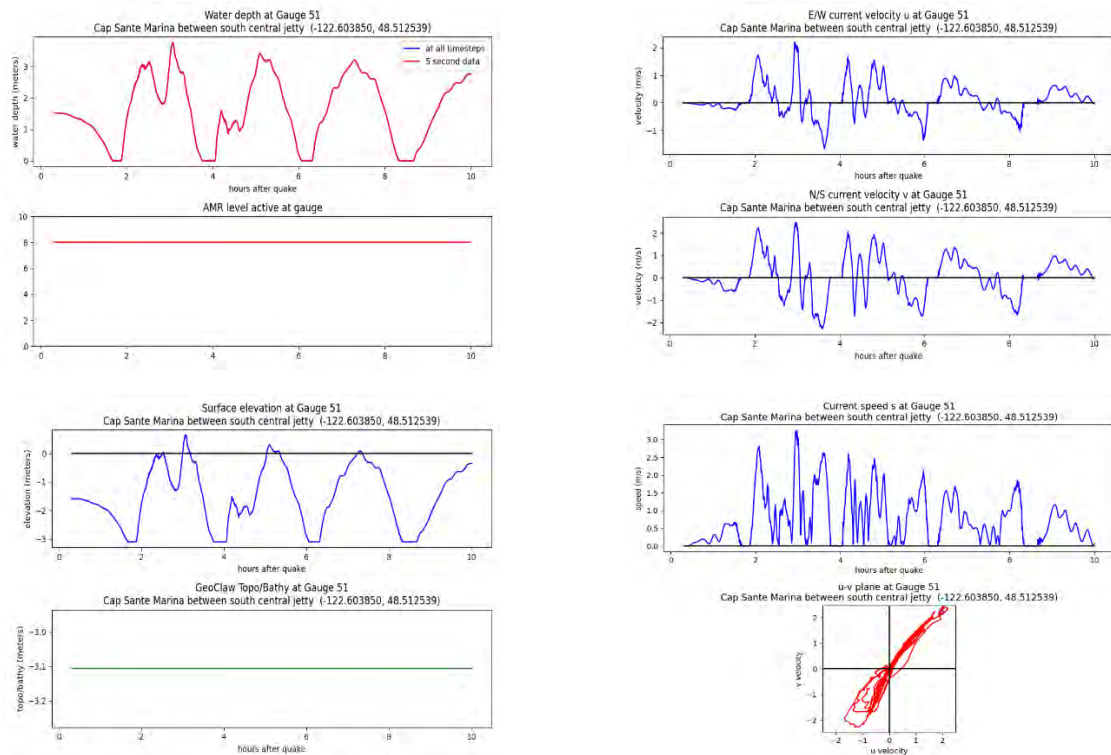


Gauge 51: Cap Sante Marina entrance north

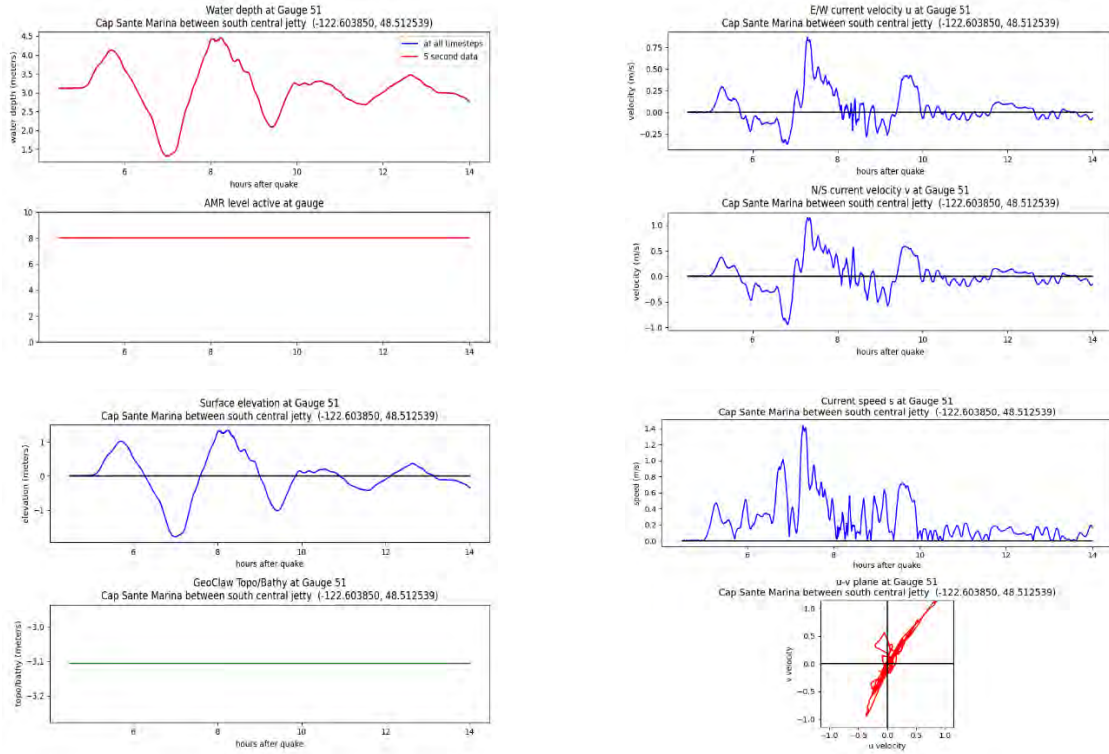
Cascadia subduction zone scenario, MHW:



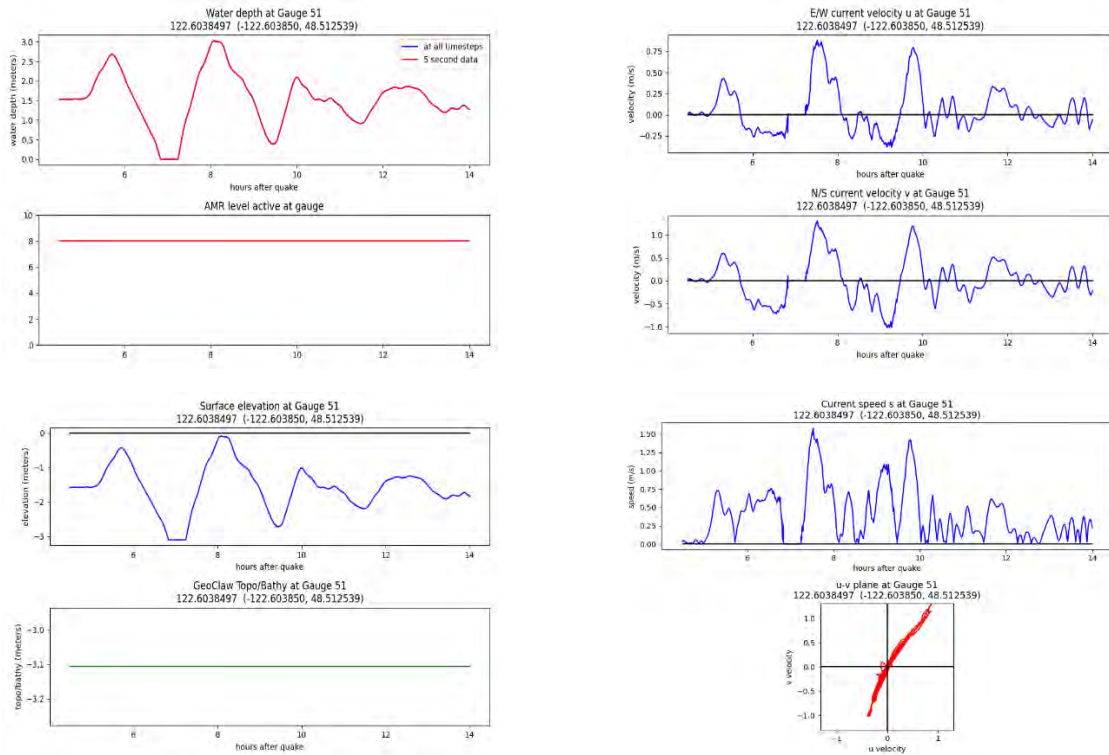
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

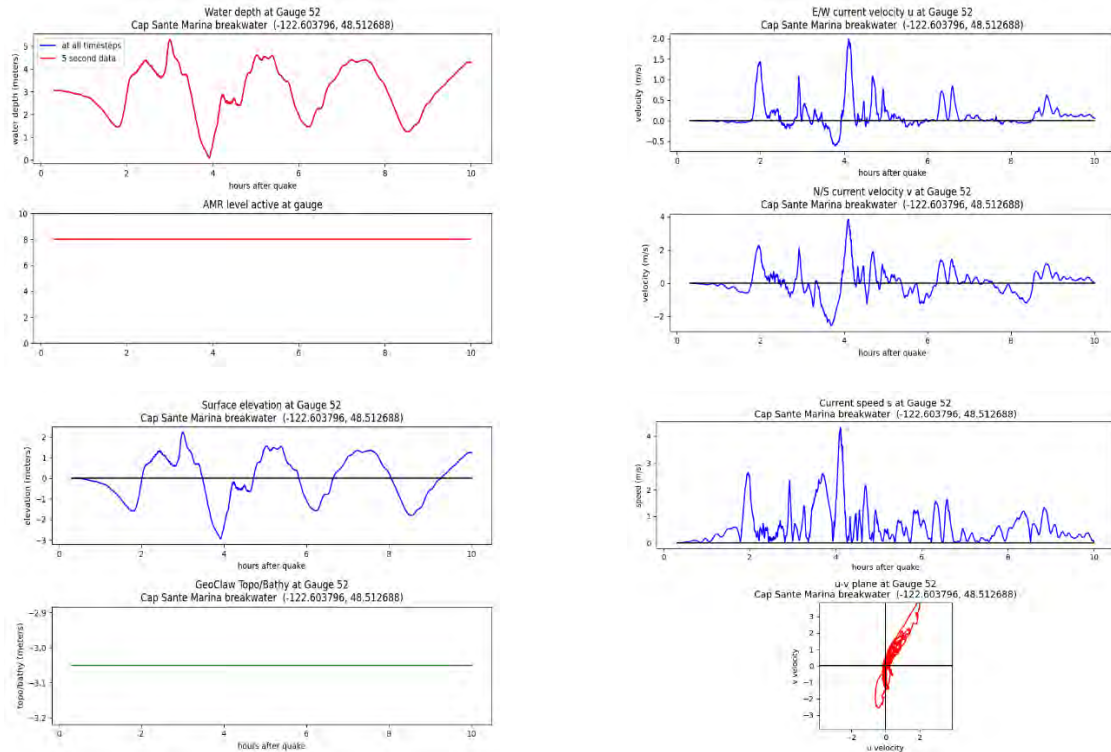


Alaska-Aleutian subduction zone scenario, MLW:

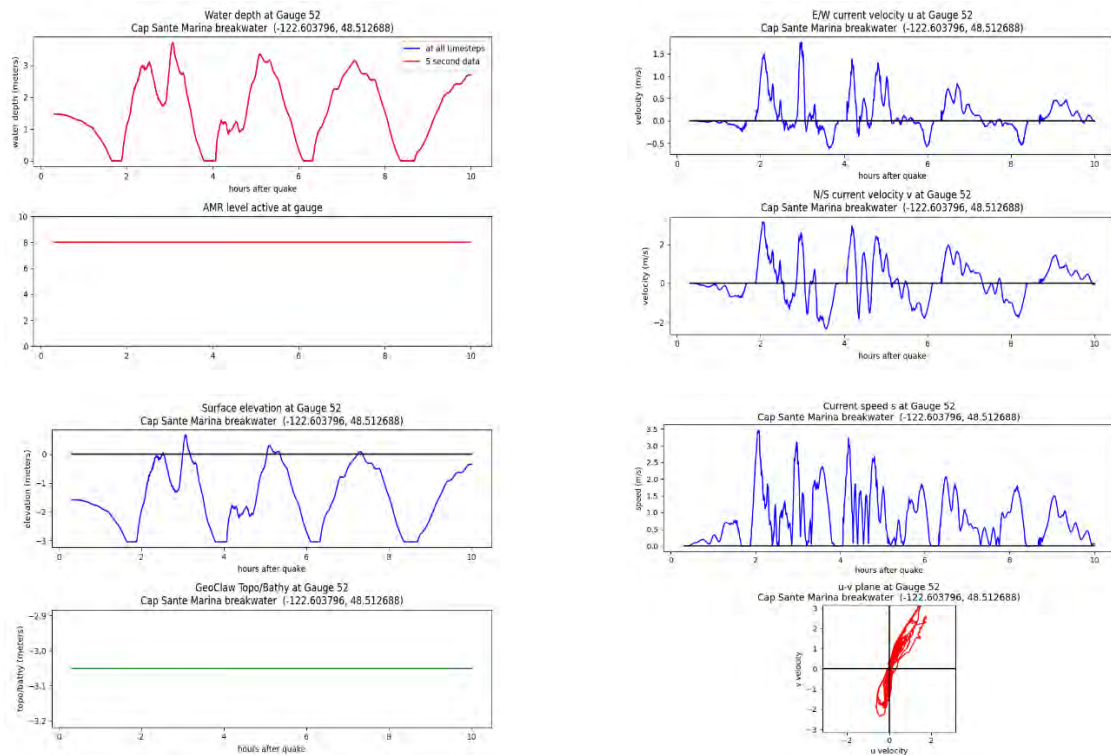


Gauge 52: Cap Sante Marina entrance north 2

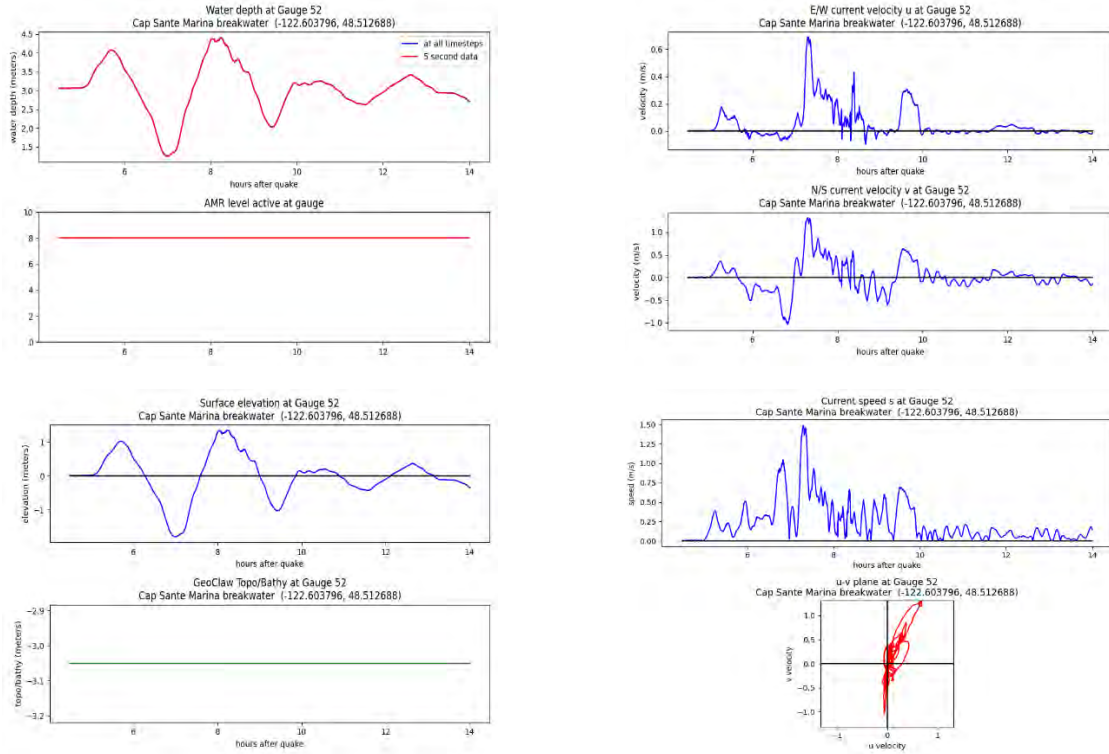
Cascadia subduction zone scenario, MHW:



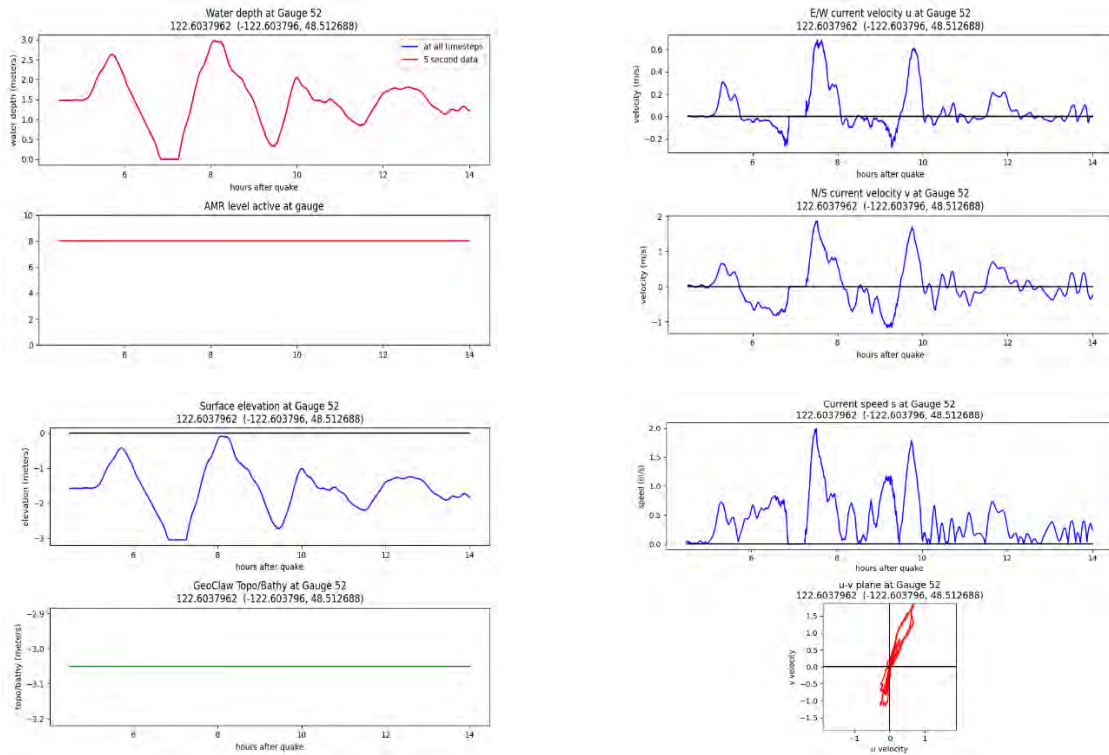
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

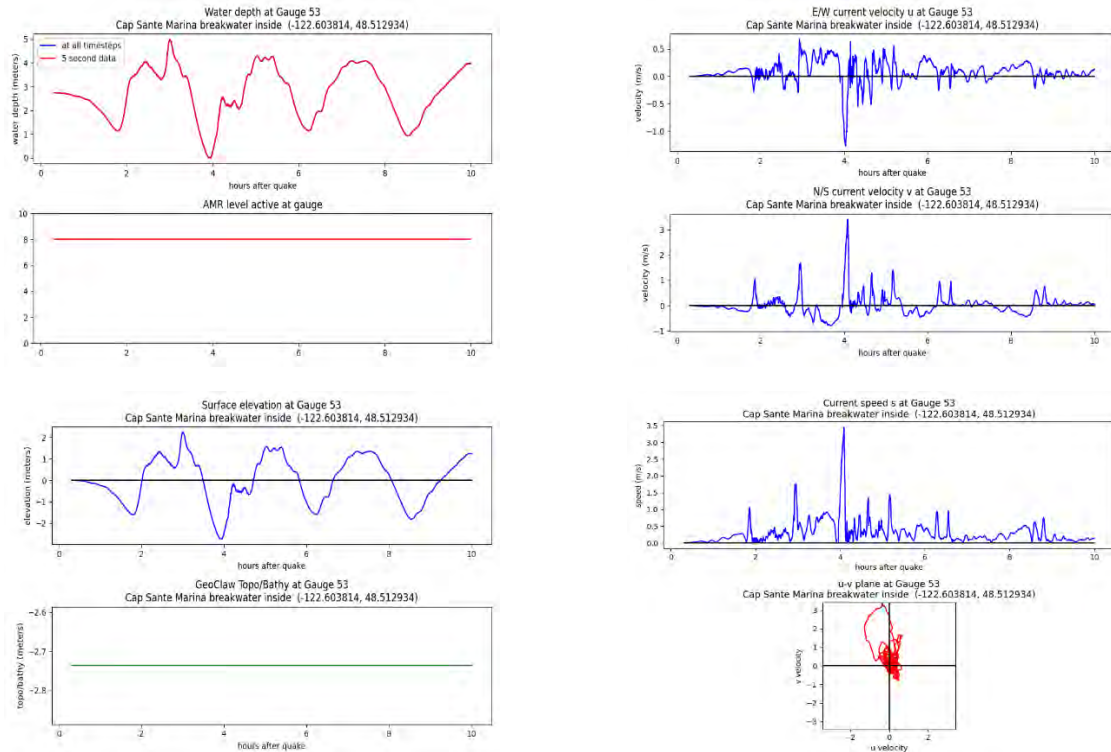


Alaska-Aleutian subduction zone scenario, MLW:

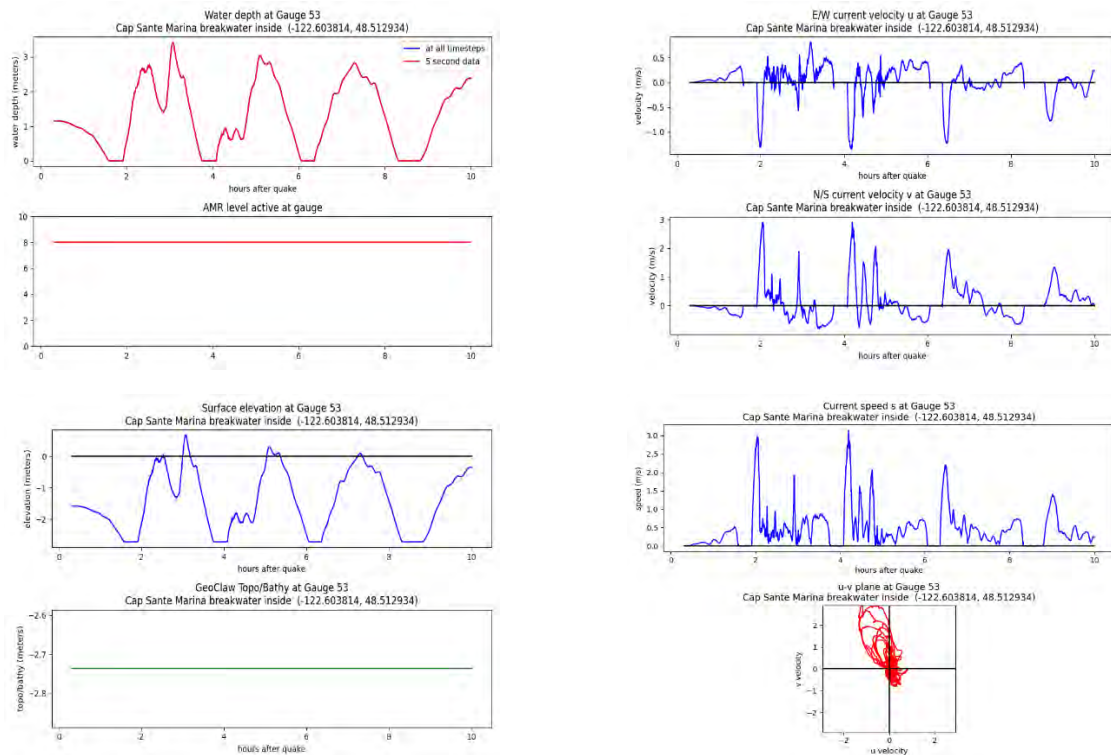


Gauge 53: Cap Sante Marina entrance north 3

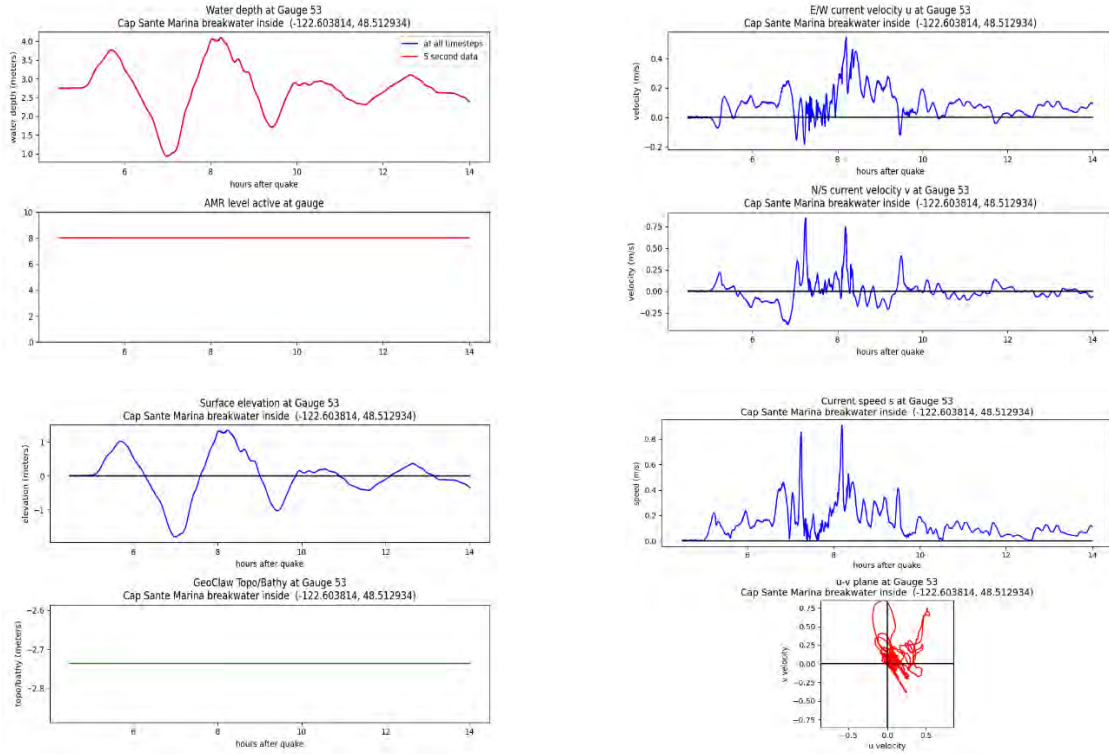
Cascadia subduction zone scenario, MHW:



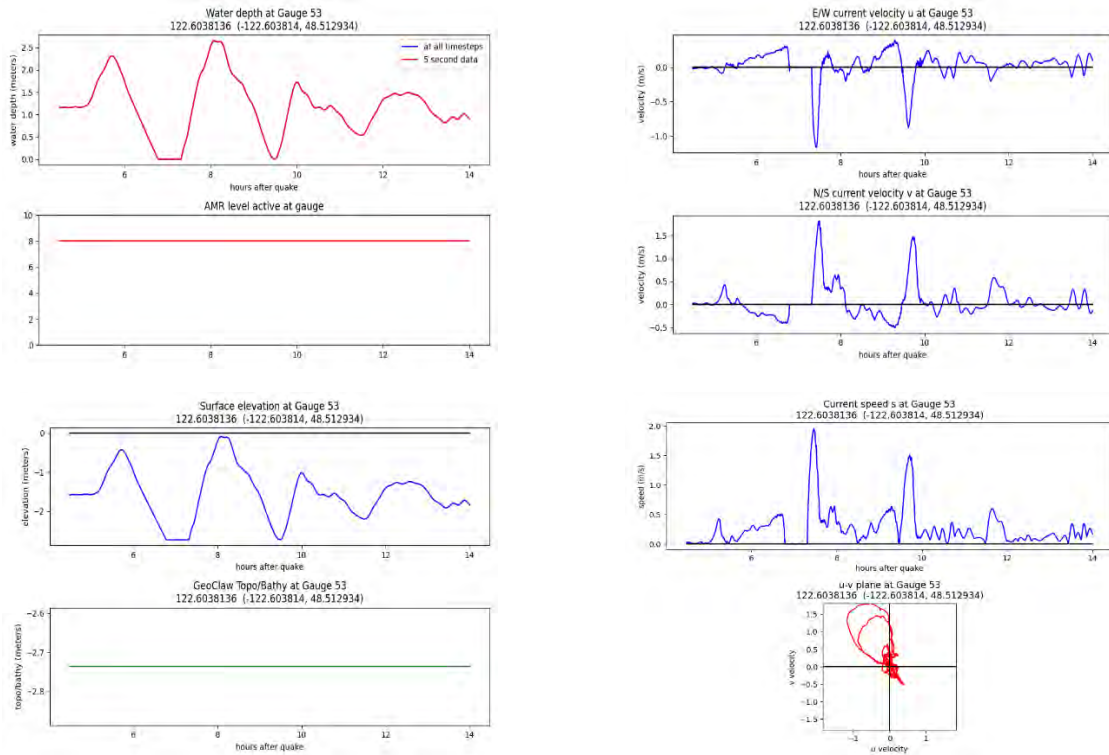
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

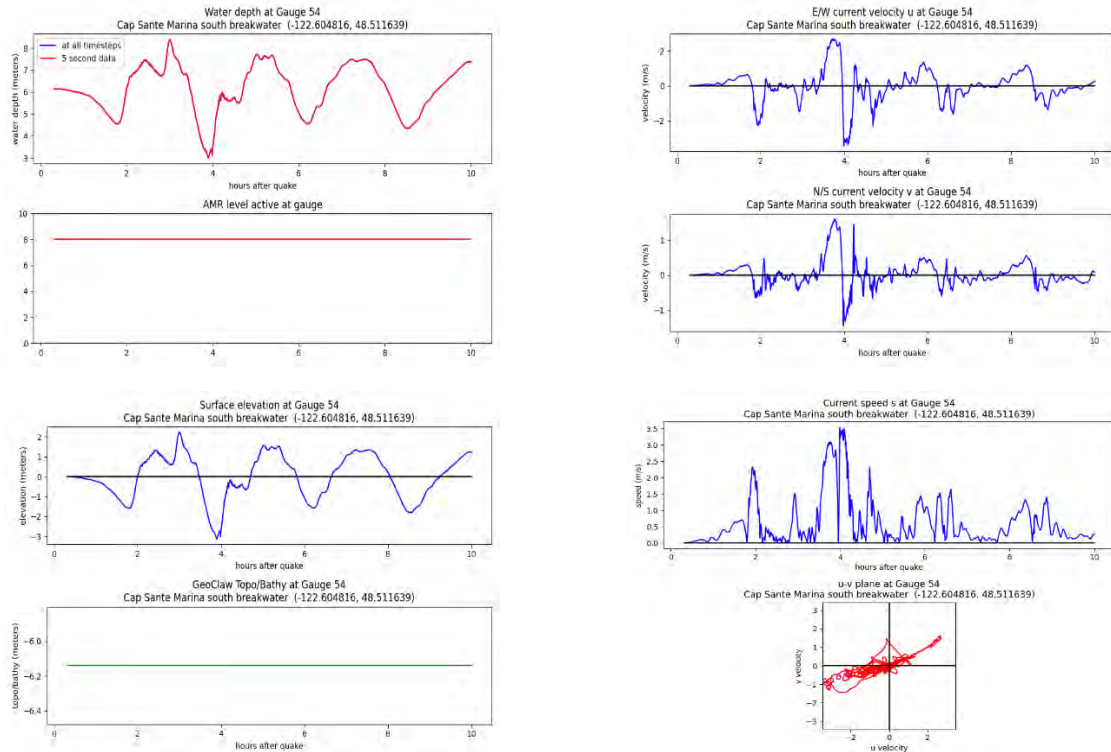


Alaska-Aleutian subduction zone scenario, MLW:

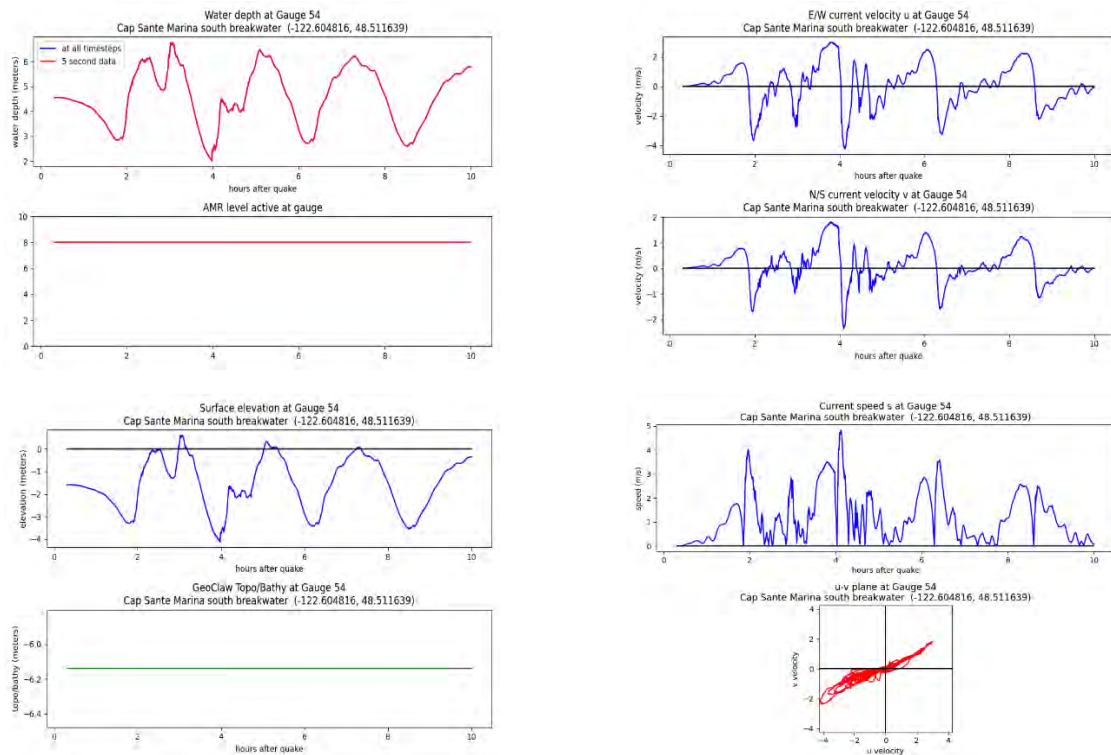


Gauge 54: Cap Sante Marina entrance south

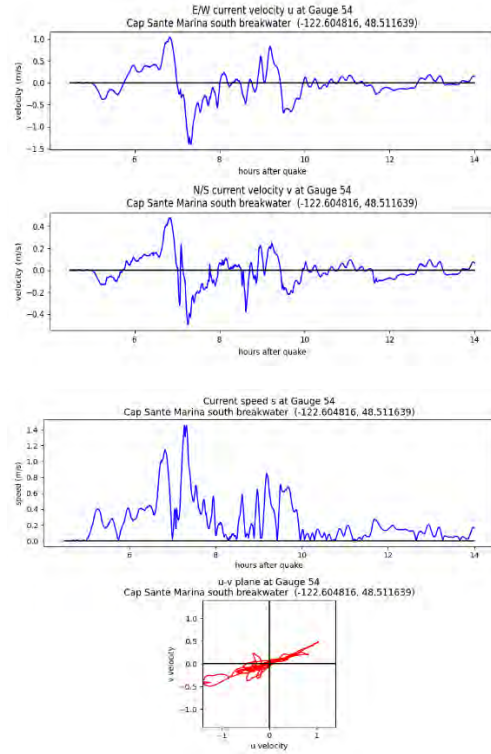
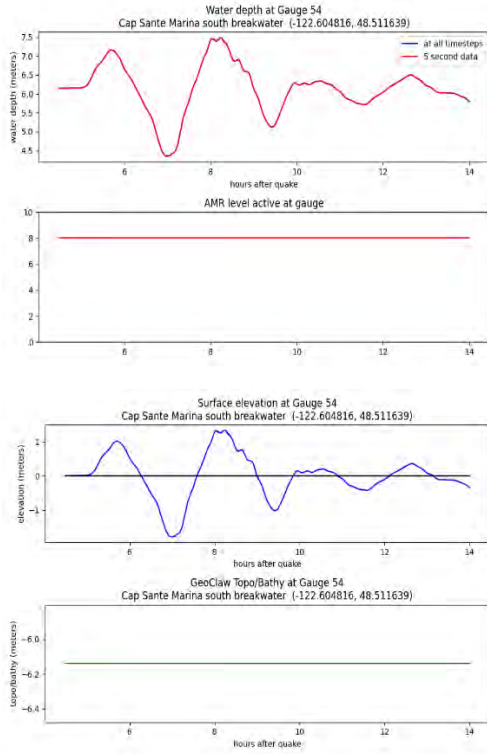
Cascadia subduction zone scenario, MHW:



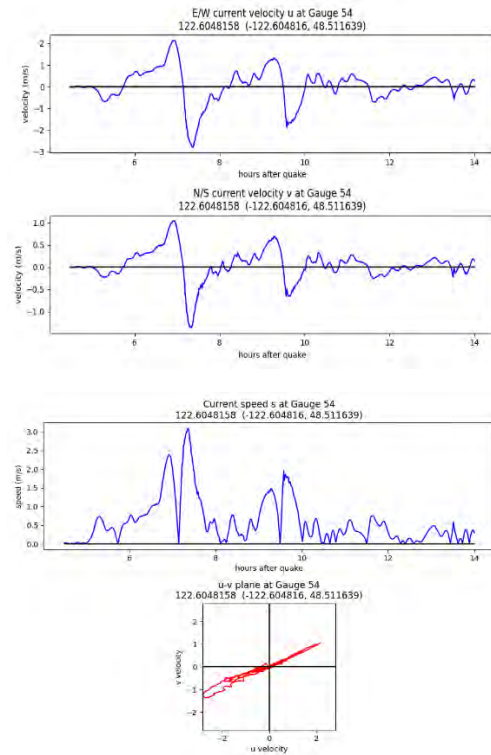
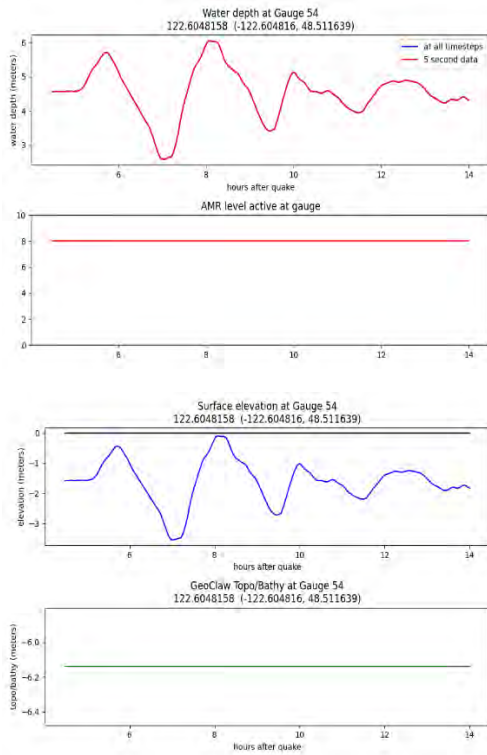
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

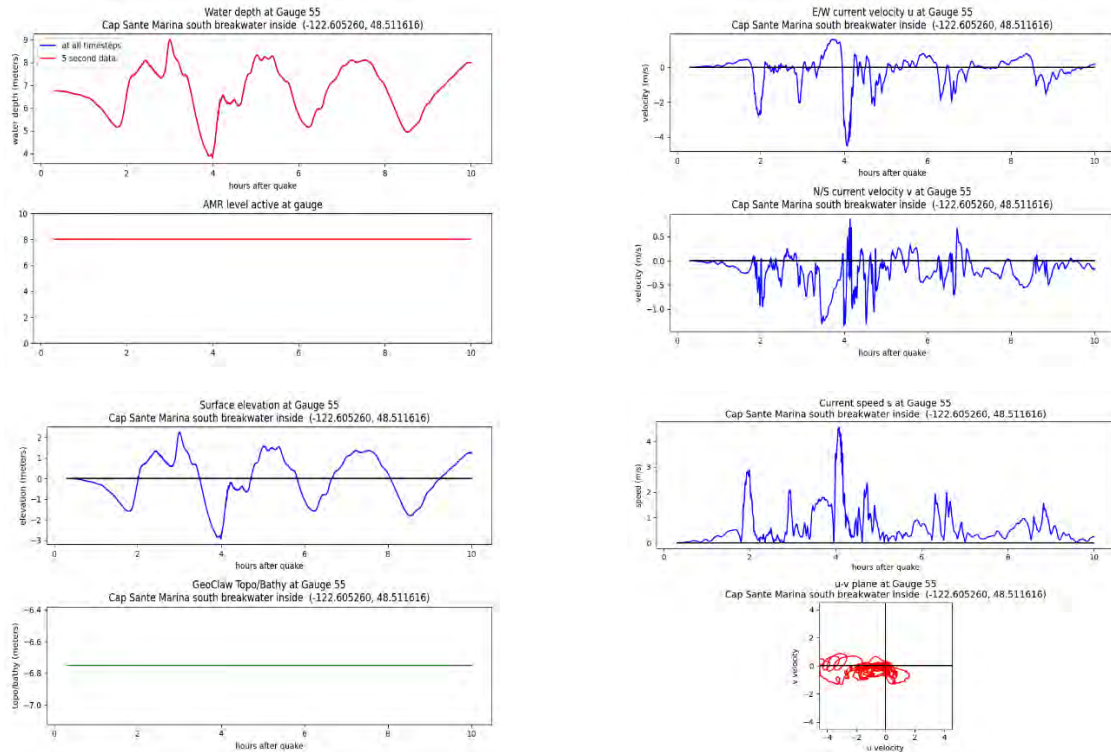


Alaska-Aleutian subduction zone scenario, MLW:

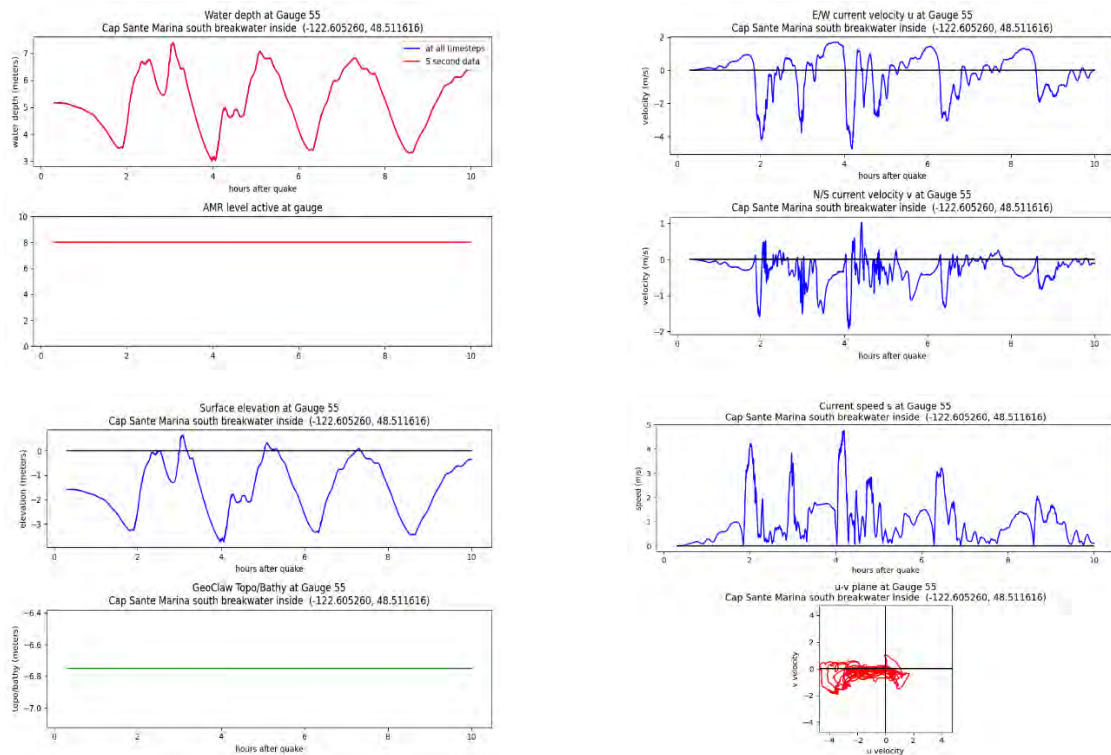


Gauge 55: Cap Sante Marina entrance south 2

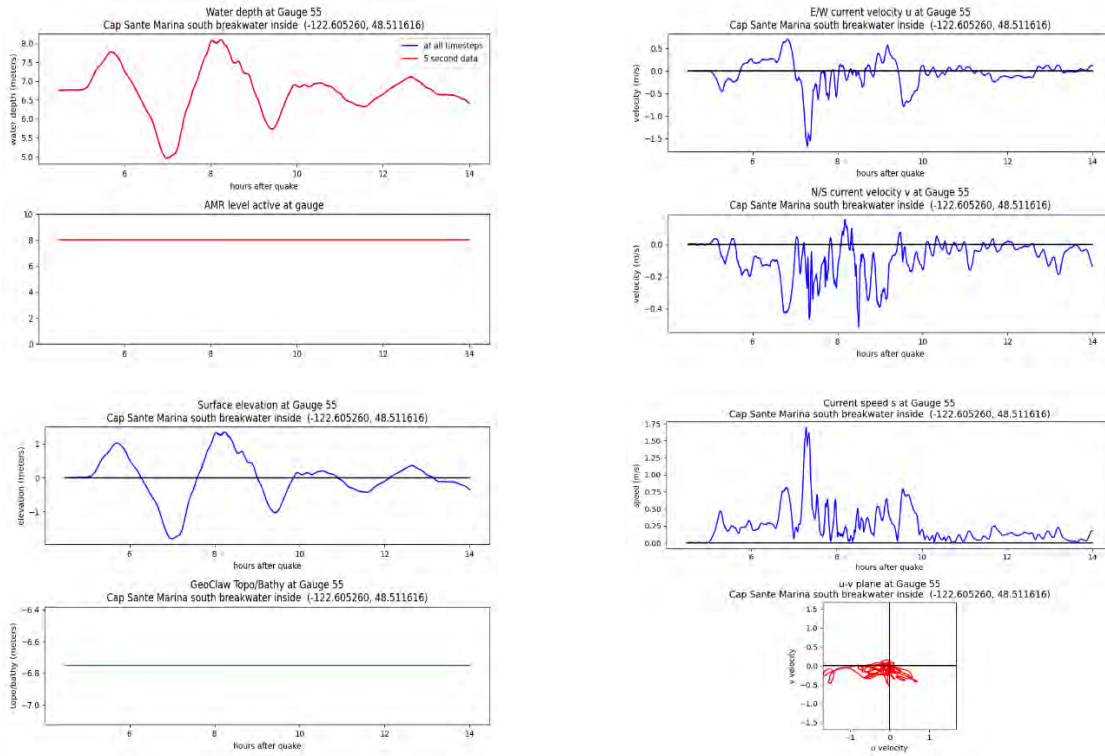
Cascadia subduction zone scenario, MHW:



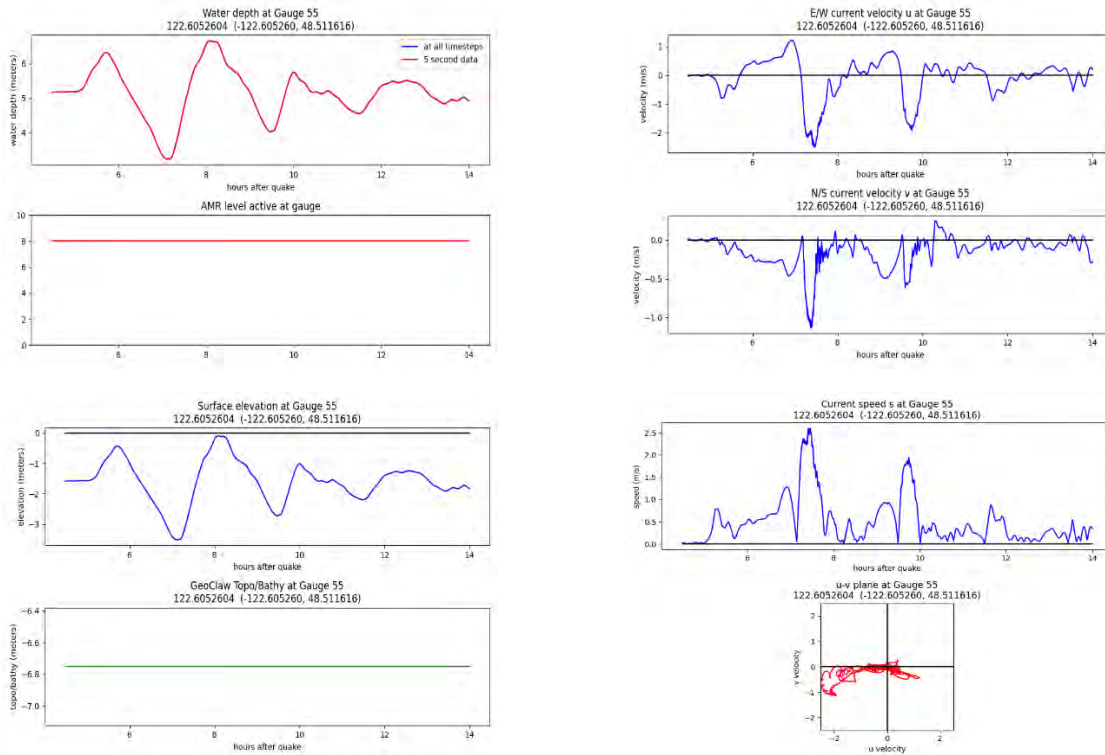
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

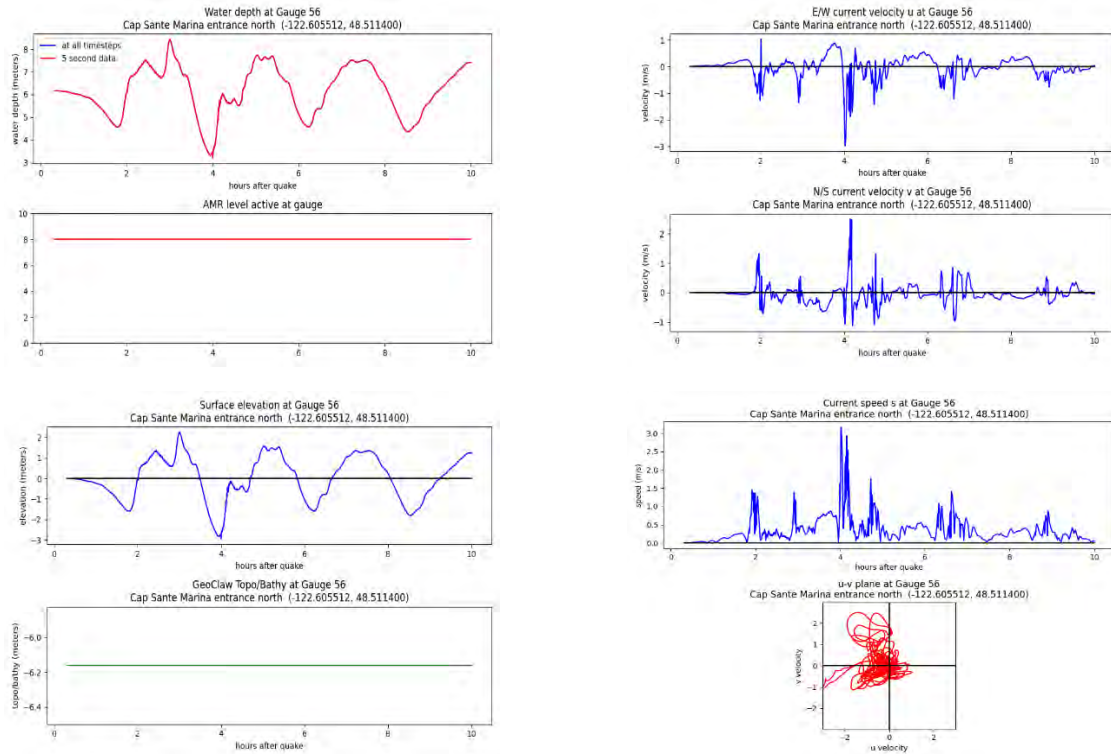


Alaska-Aleutian subduction zone scenario, MLW:

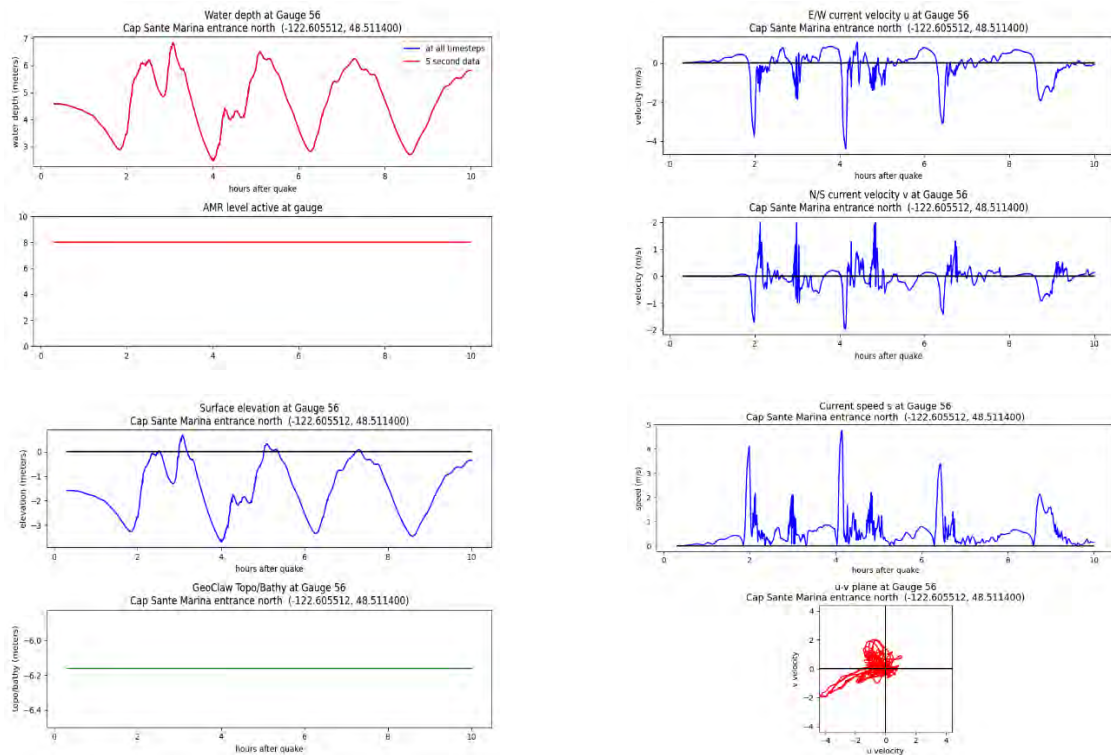


Gauge 56: Cap Sante Marina entrance south 3

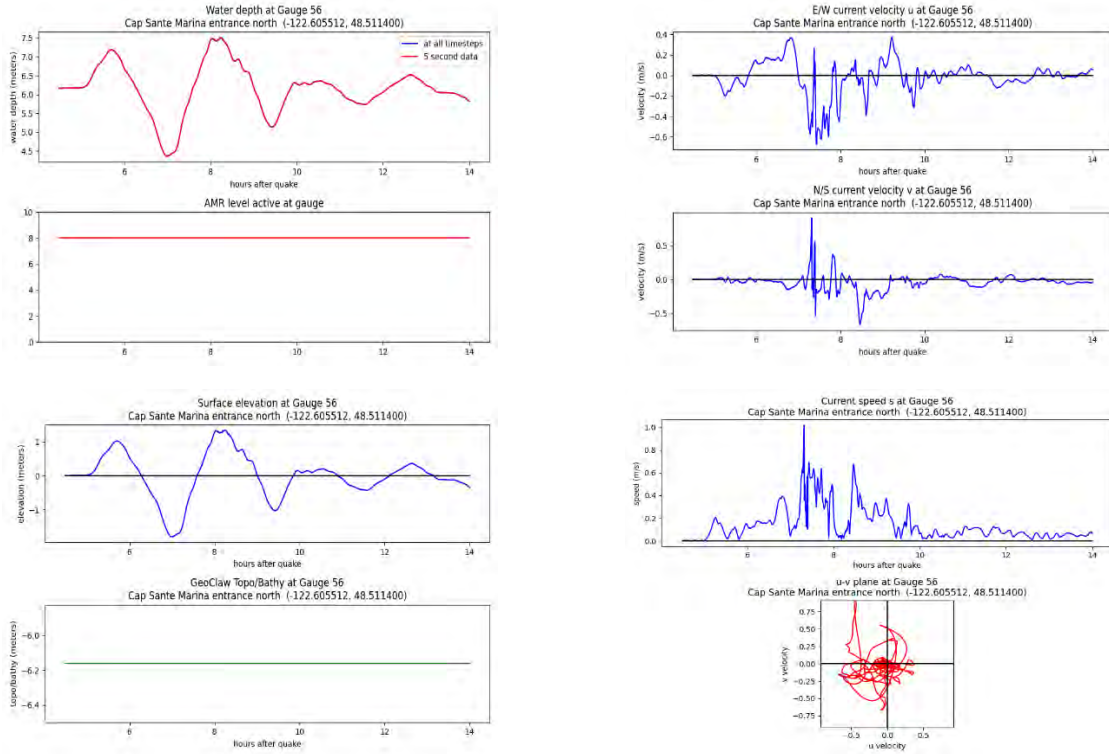
Cascadia subduction zone scenario, MHW:



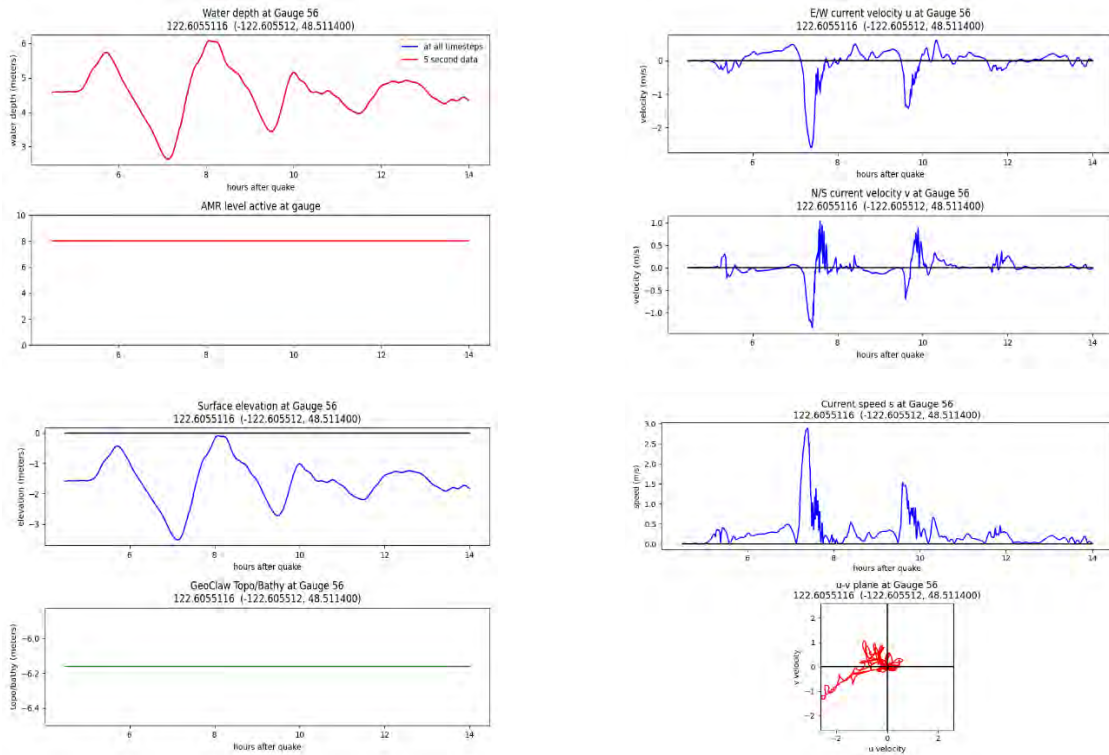
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

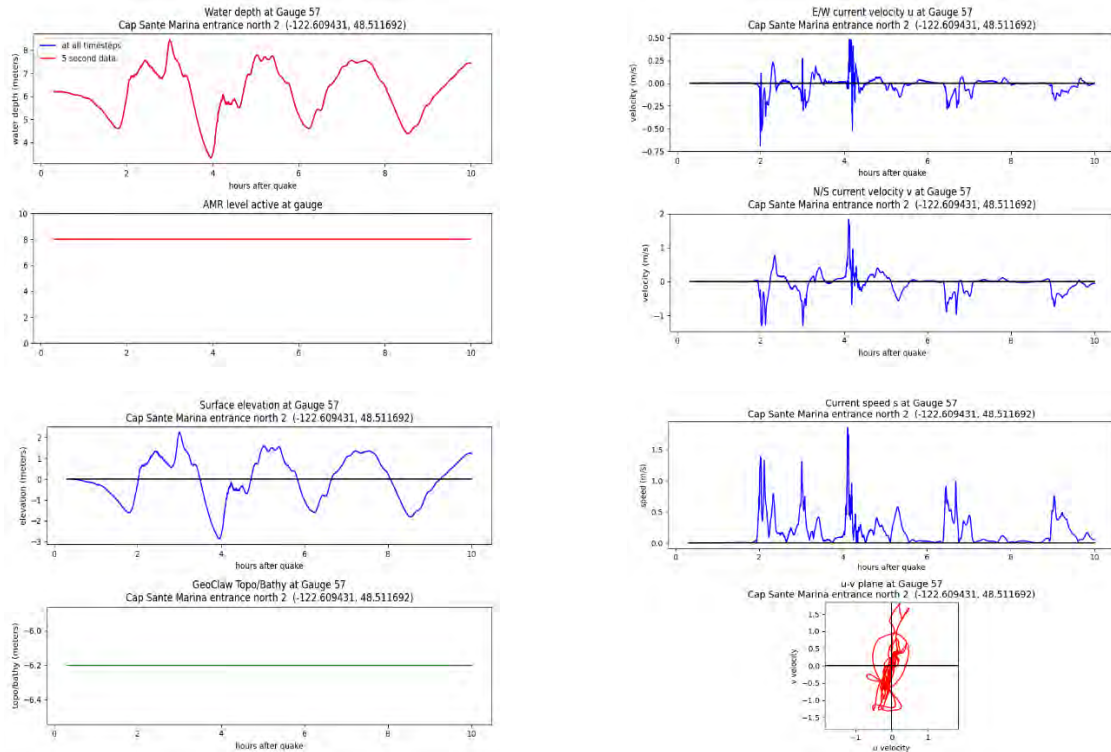


Alaska-Aleutian subduction zone scenario, MLW:

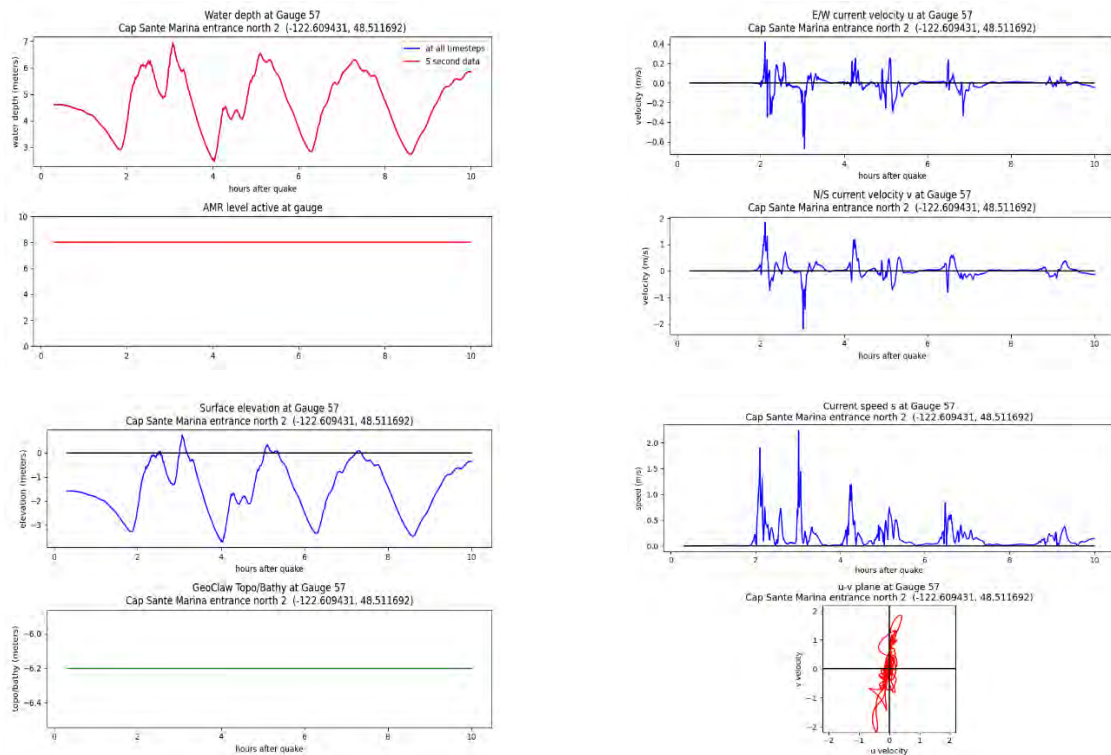


Gauge 57: Cap Sante Marina cranes (offshore)

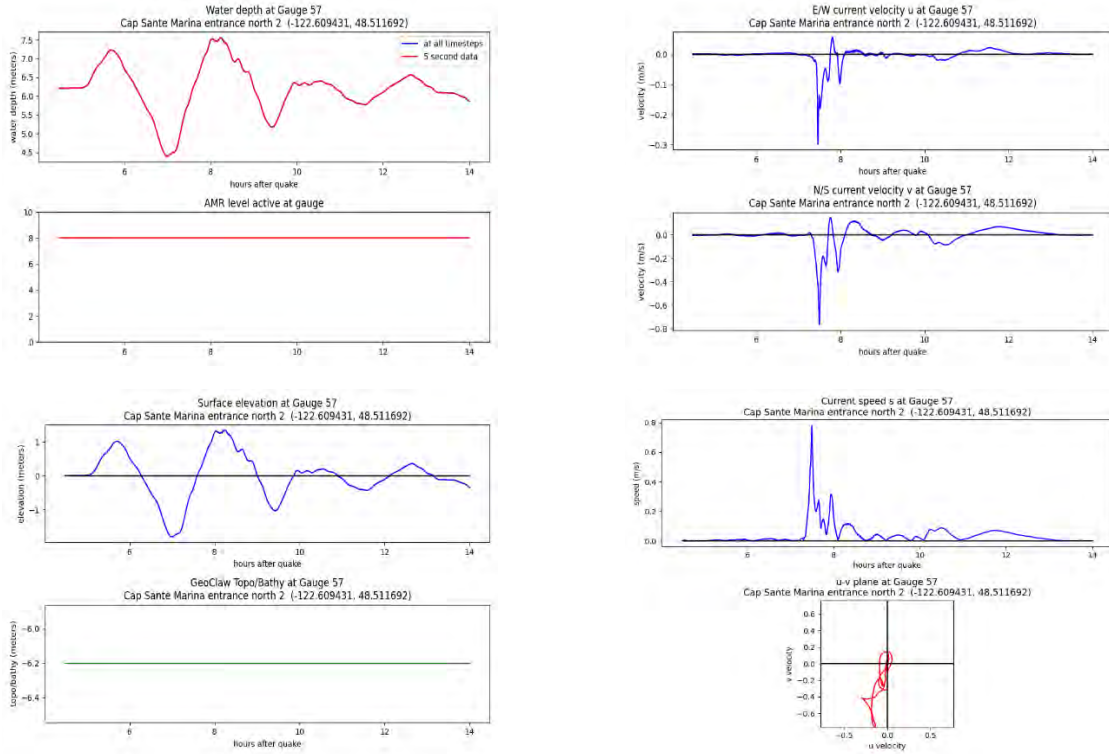
Cascadia subduction zone scenario, MHW:



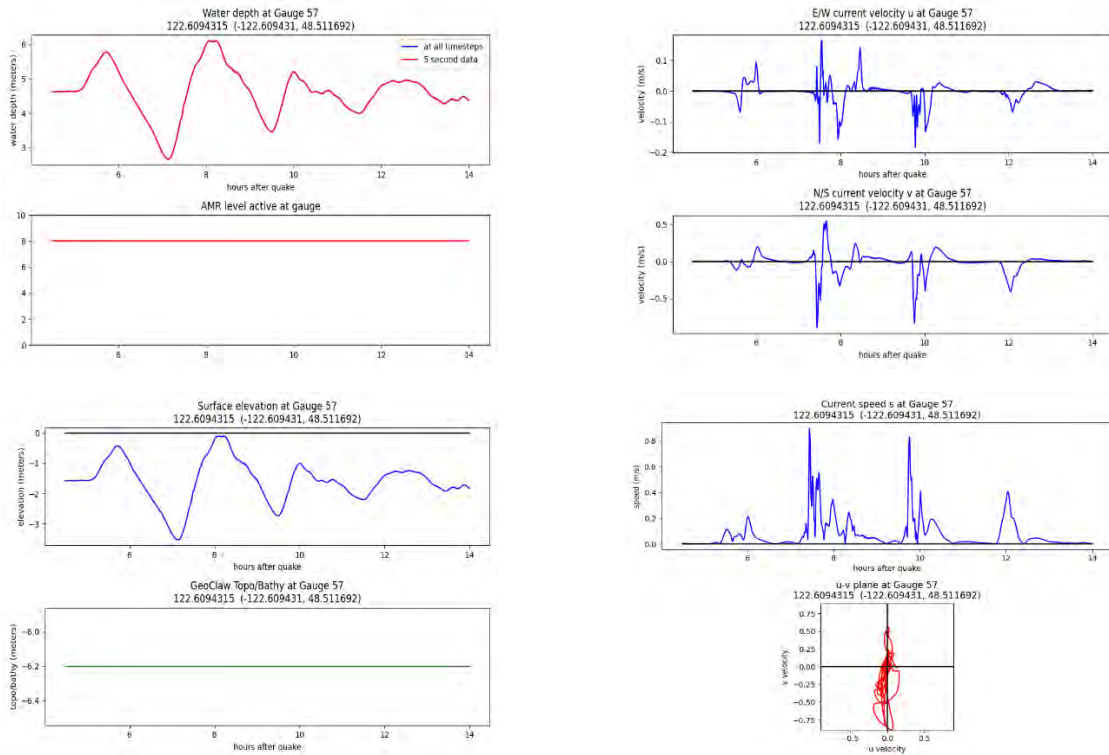
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

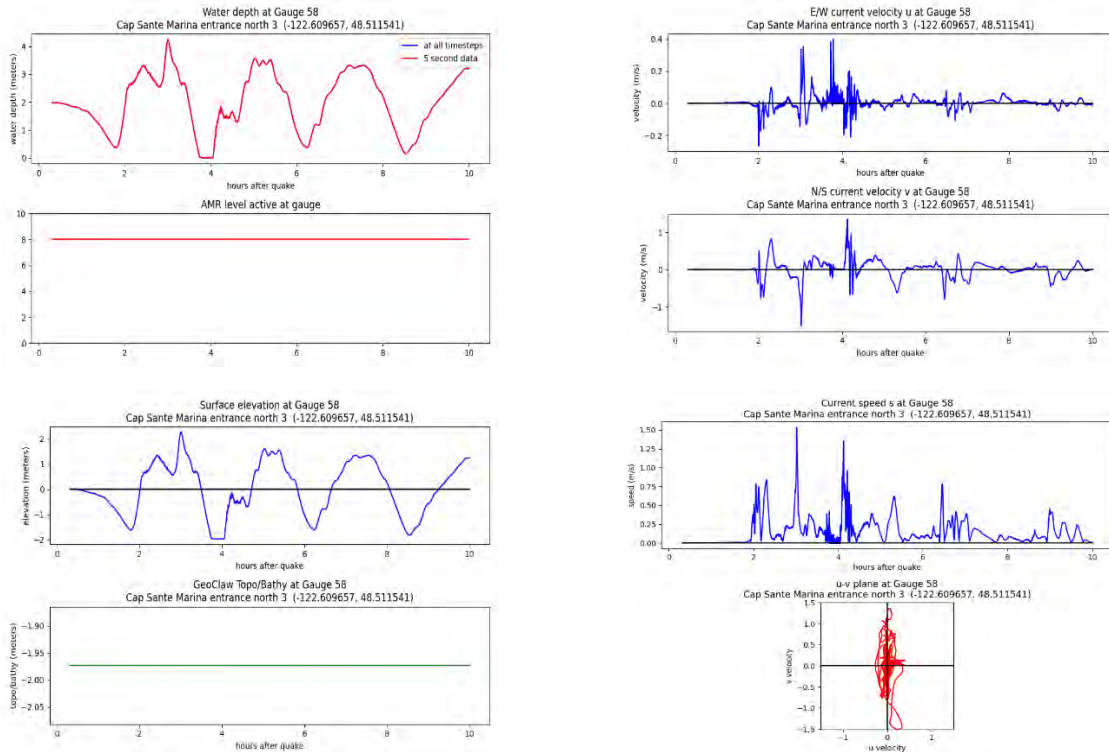


Alaska-Aleutian subduction zone scenario, MLW:

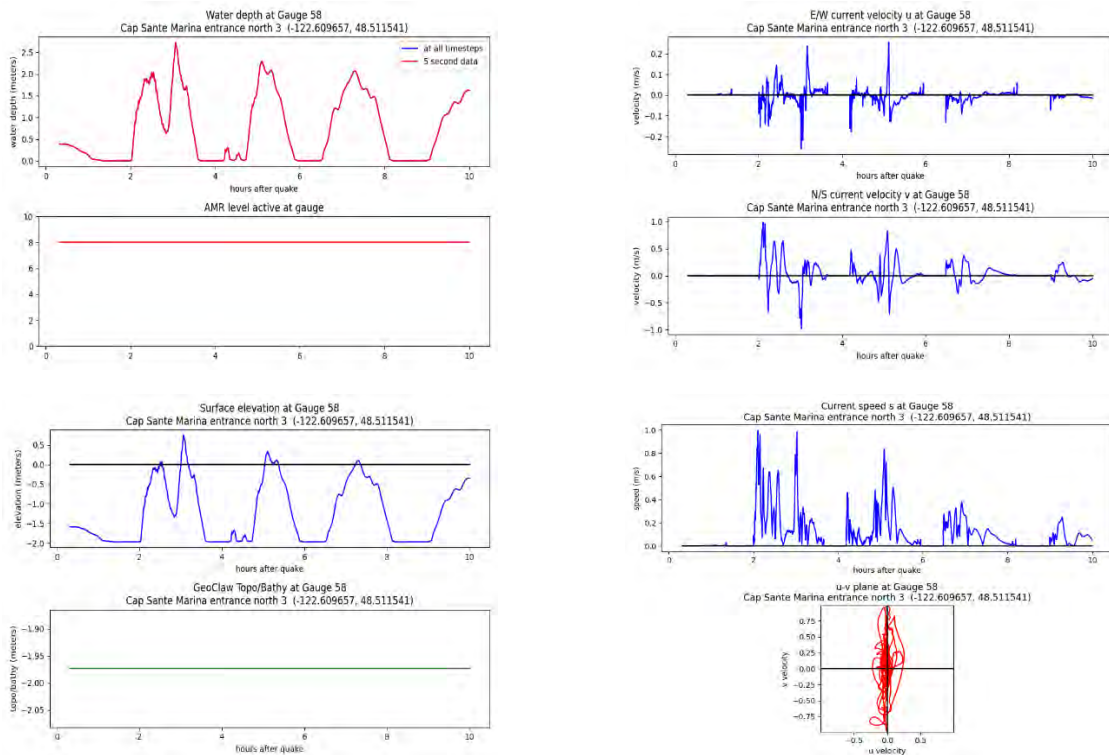


Gauge 58: Cap Sante Marina cranes

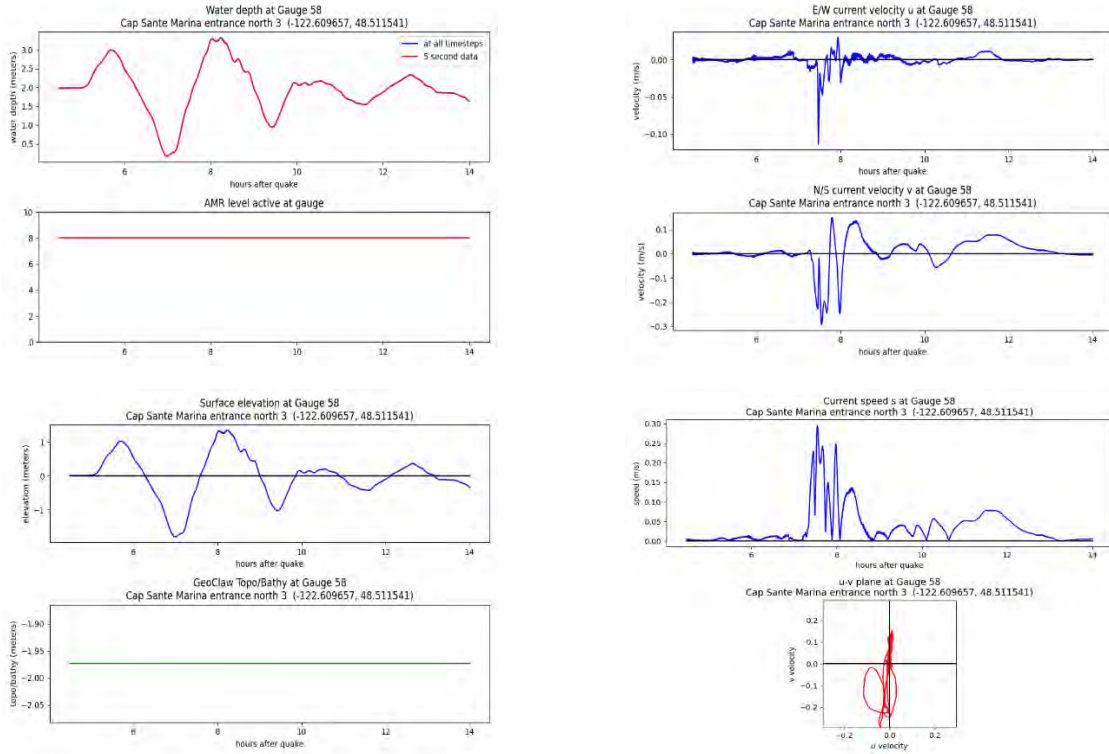
Cascadia subduction zone scenario, MHW:



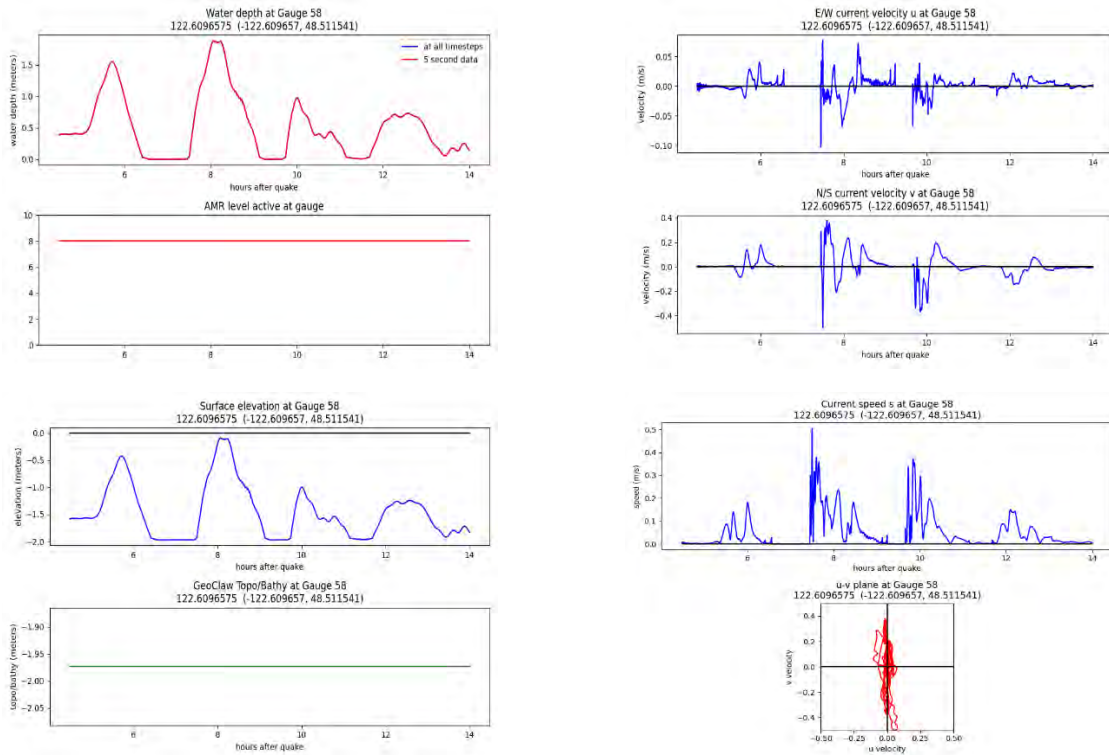
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

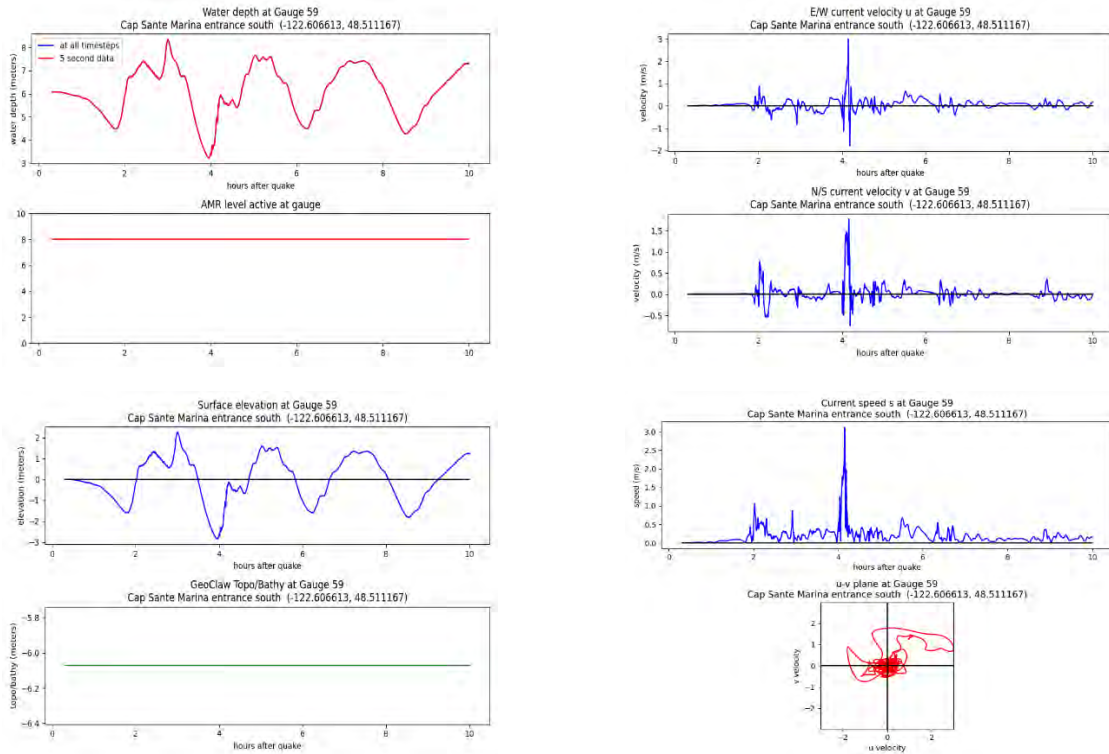


Alaska-Aleutian subduction zone scenario, MLW:

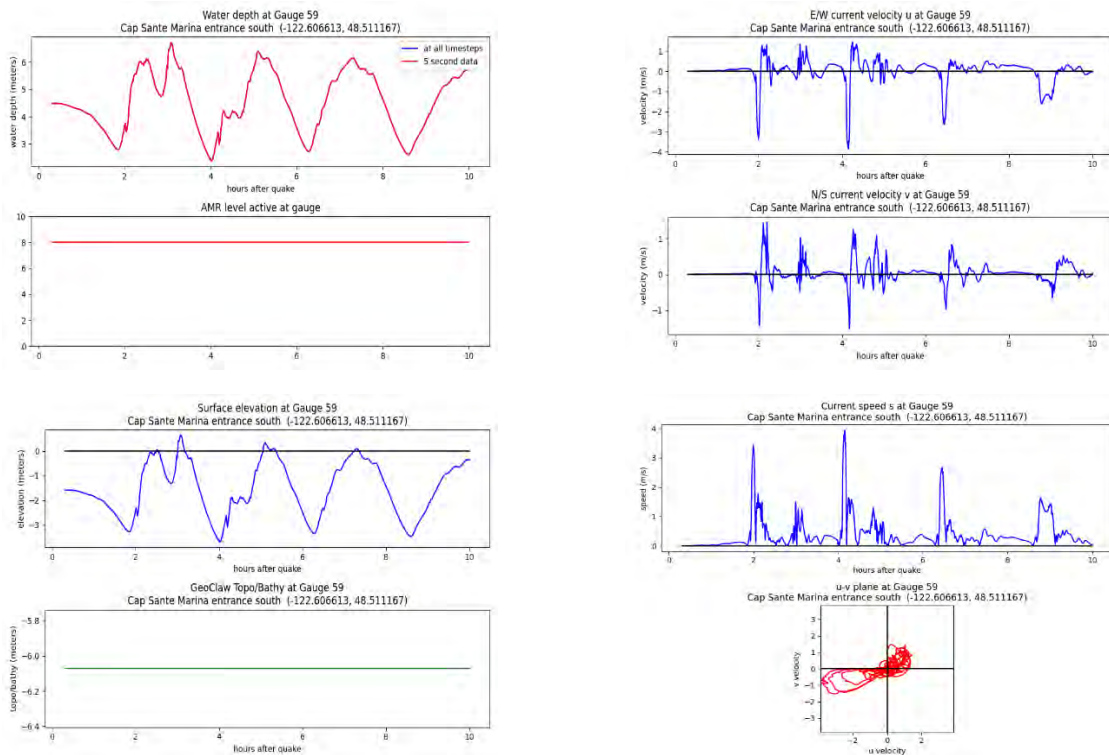


Gauge 59: Cap Sante Marina fuel dock north

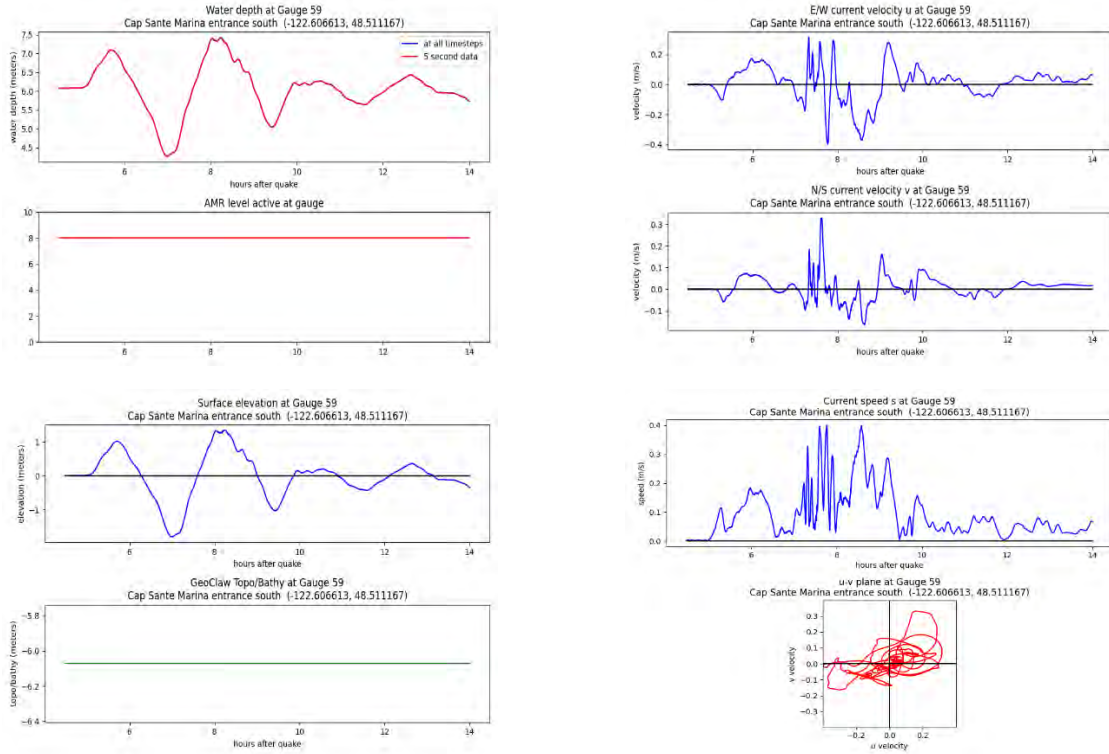
Cascadia subduction zone scenario, MHW:



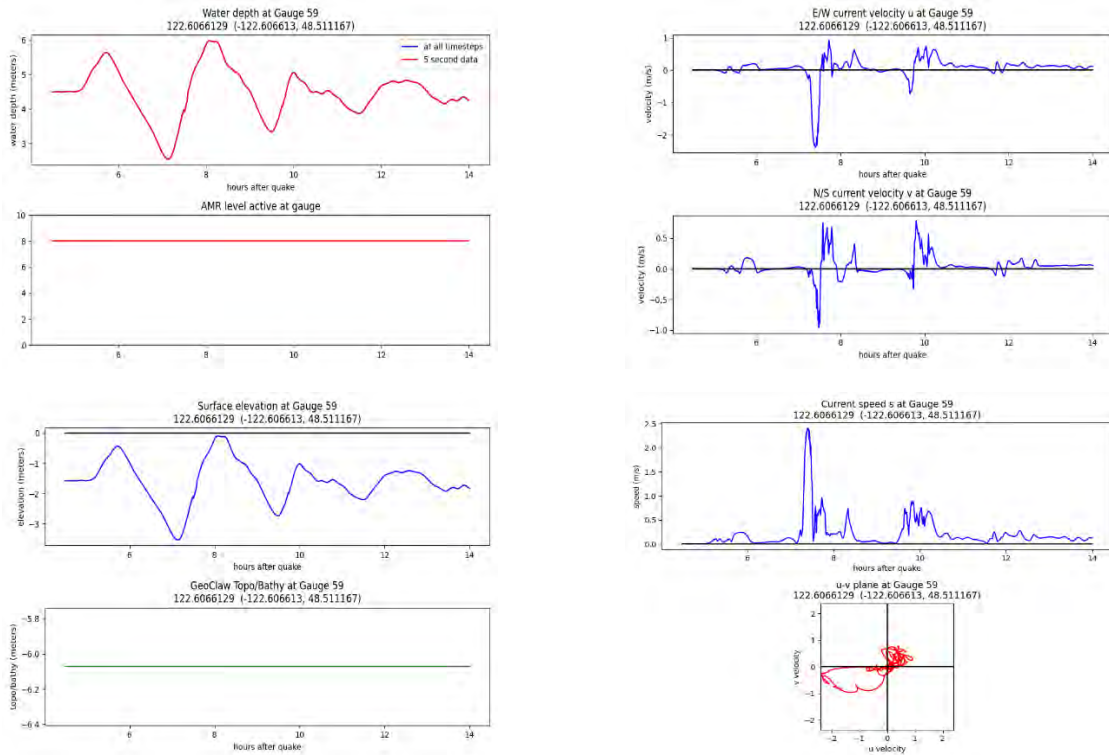
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

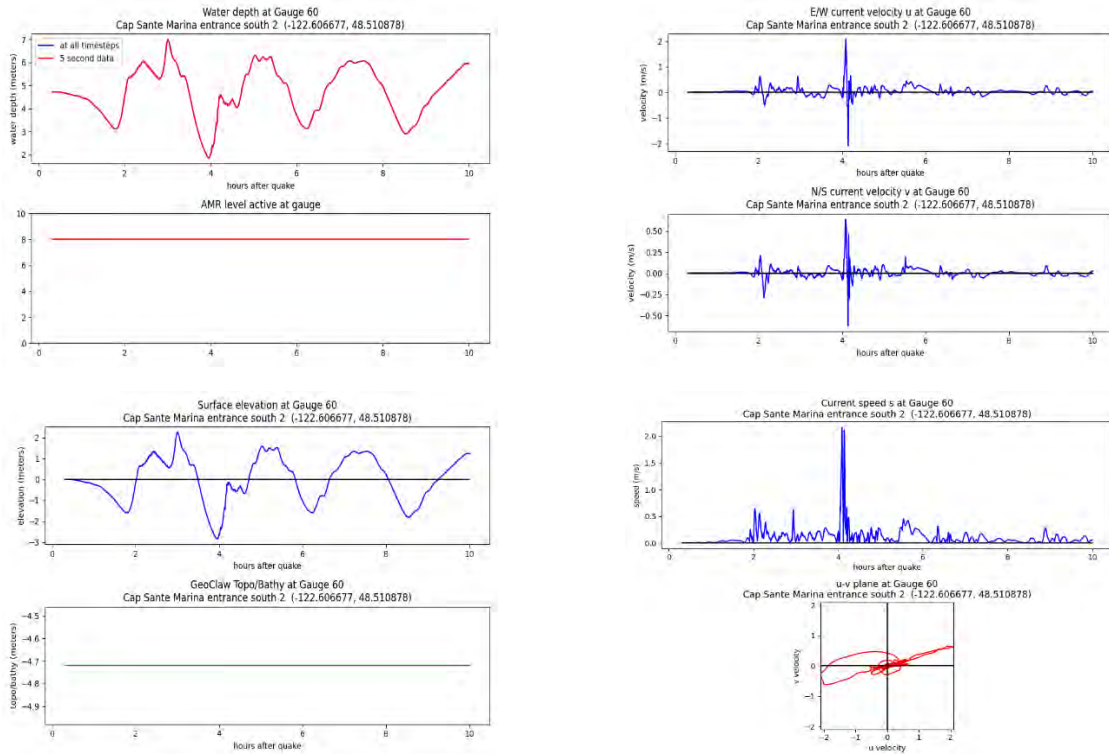


Alaska-Aleutian subduction zone scenario, MLW:

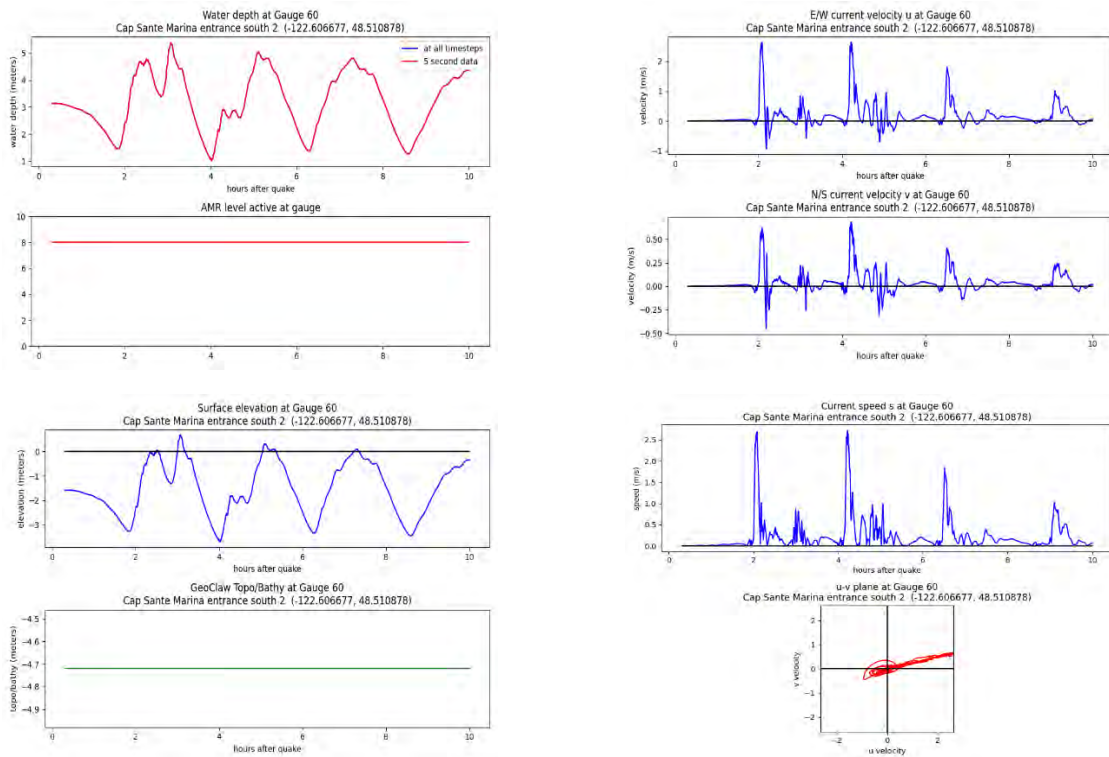


Gauge 60: Cap Sante Marina fuel dock south

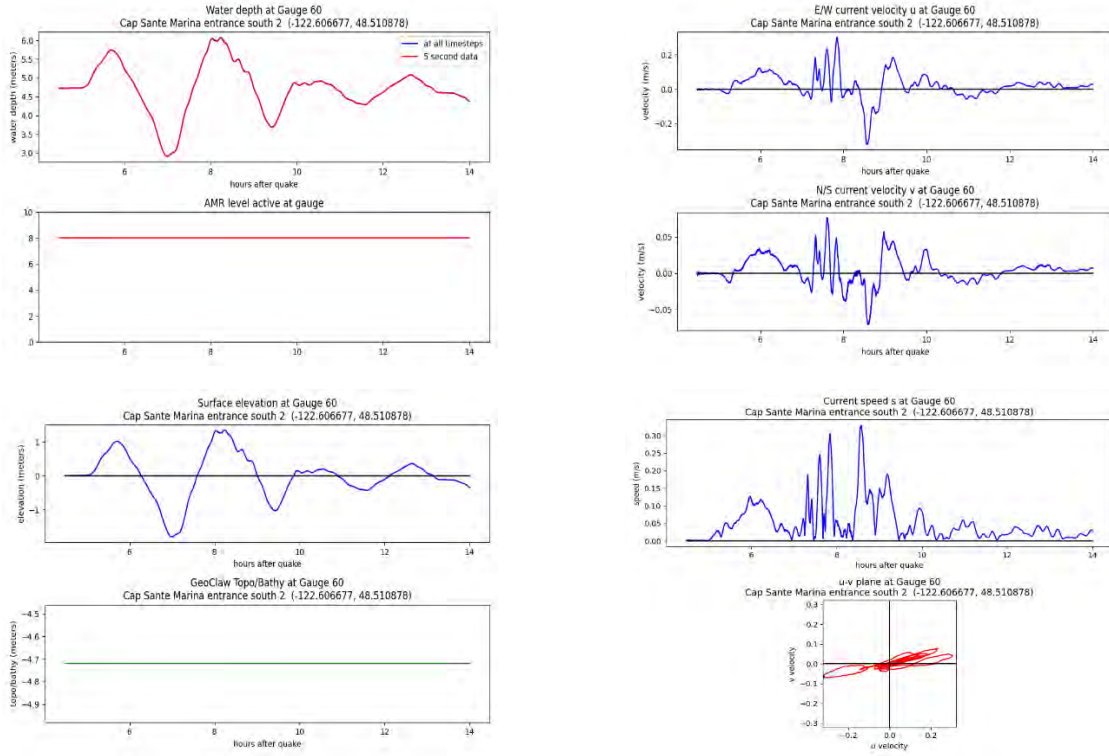
Cascadia subduction zone scenario, MHW:



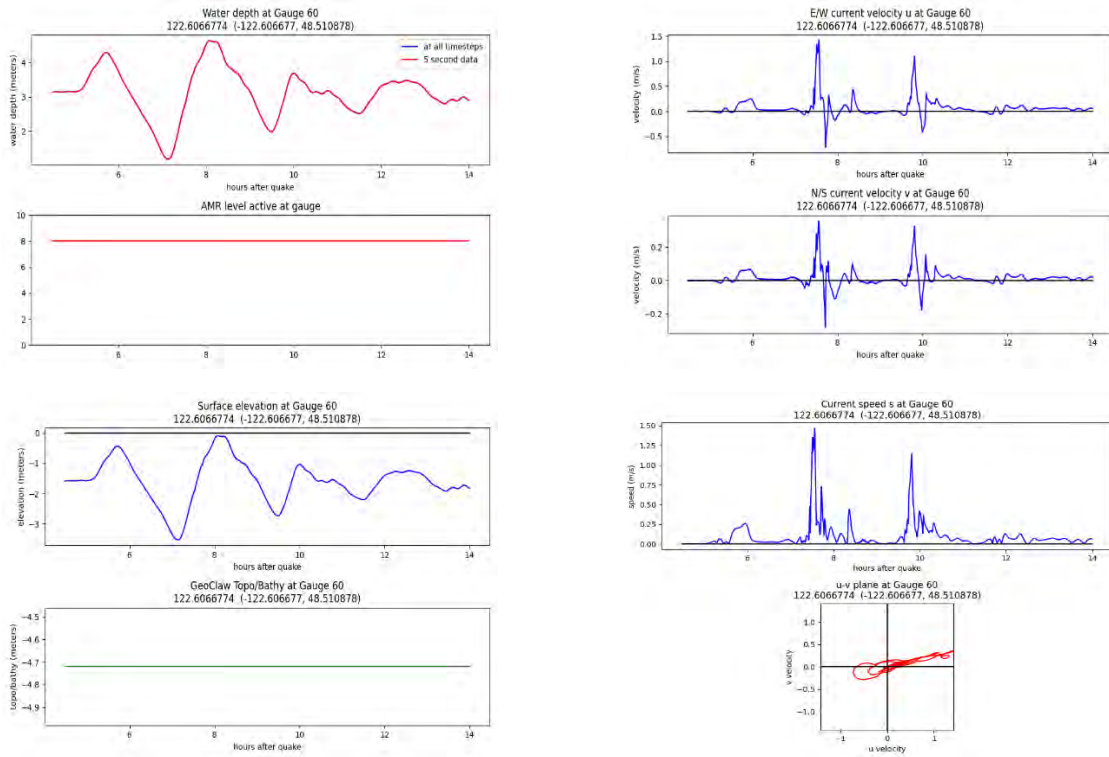
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

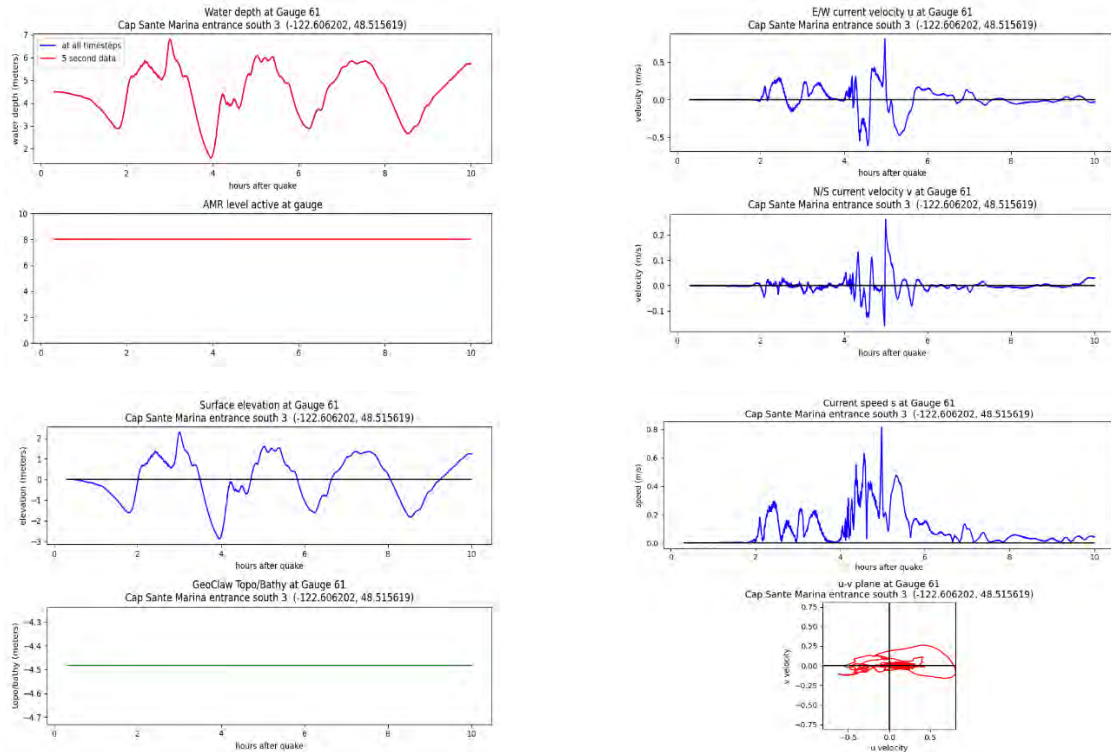


Alaska-Aleutian subduction zone scenario, MLW:

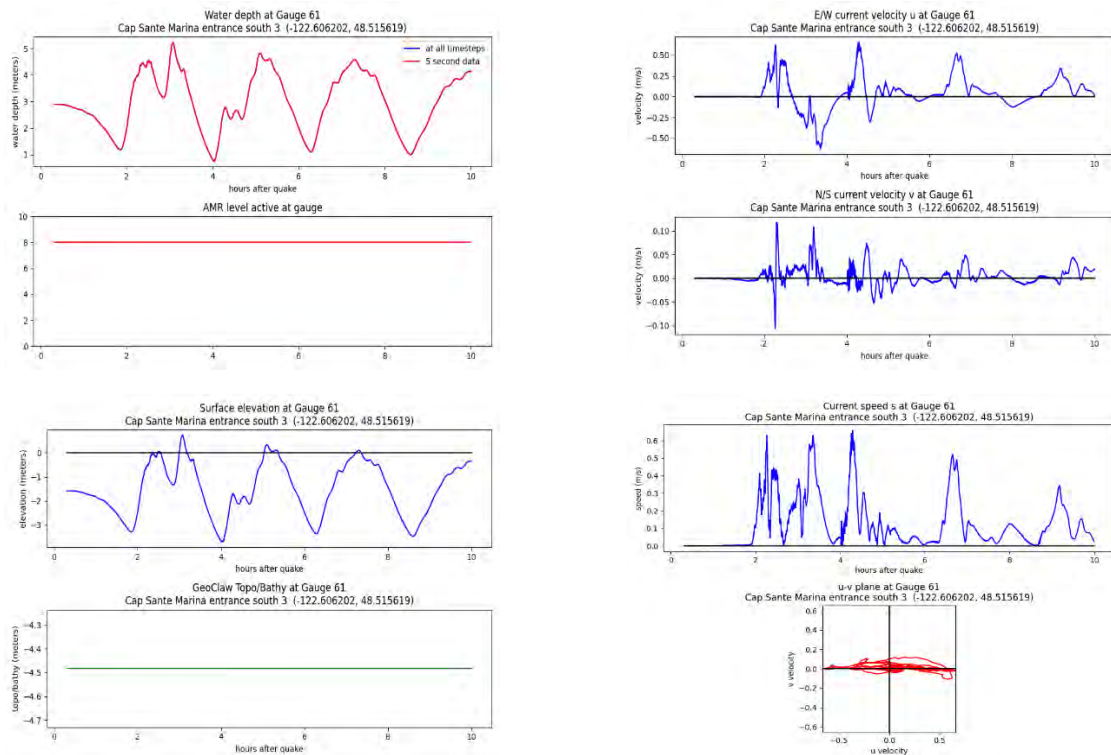


Gauge 61: Cap Sante Marina Beach (offshore)

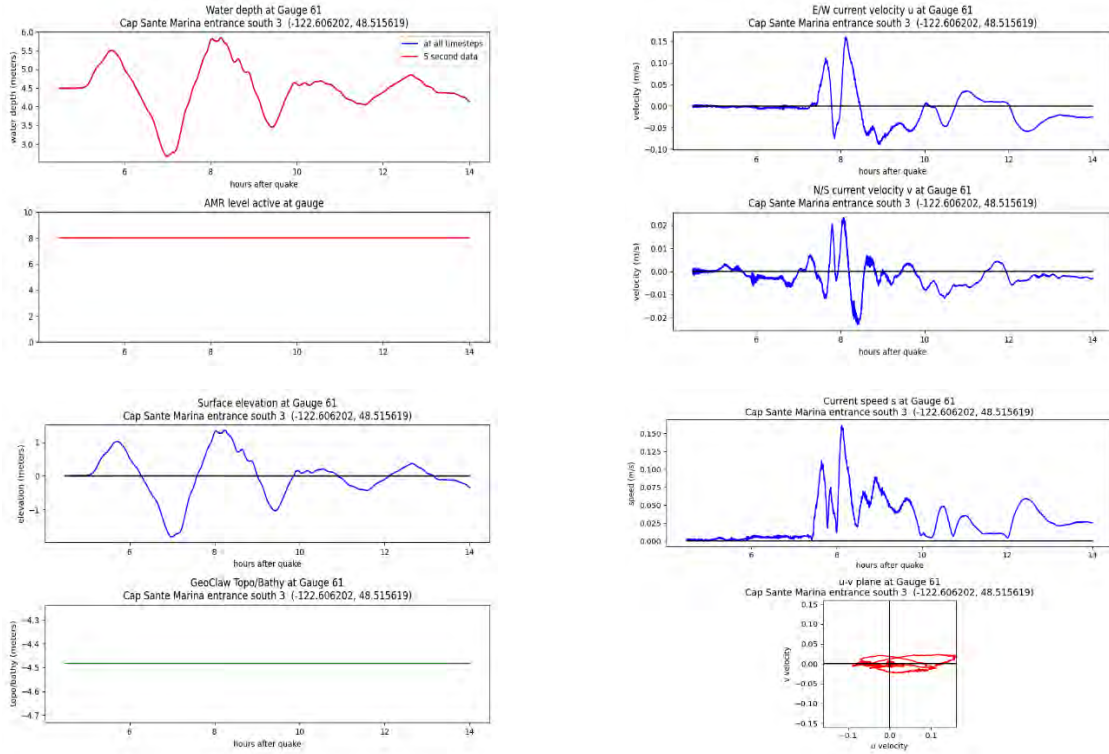
Cascadia subduction zone scenario, MHW:



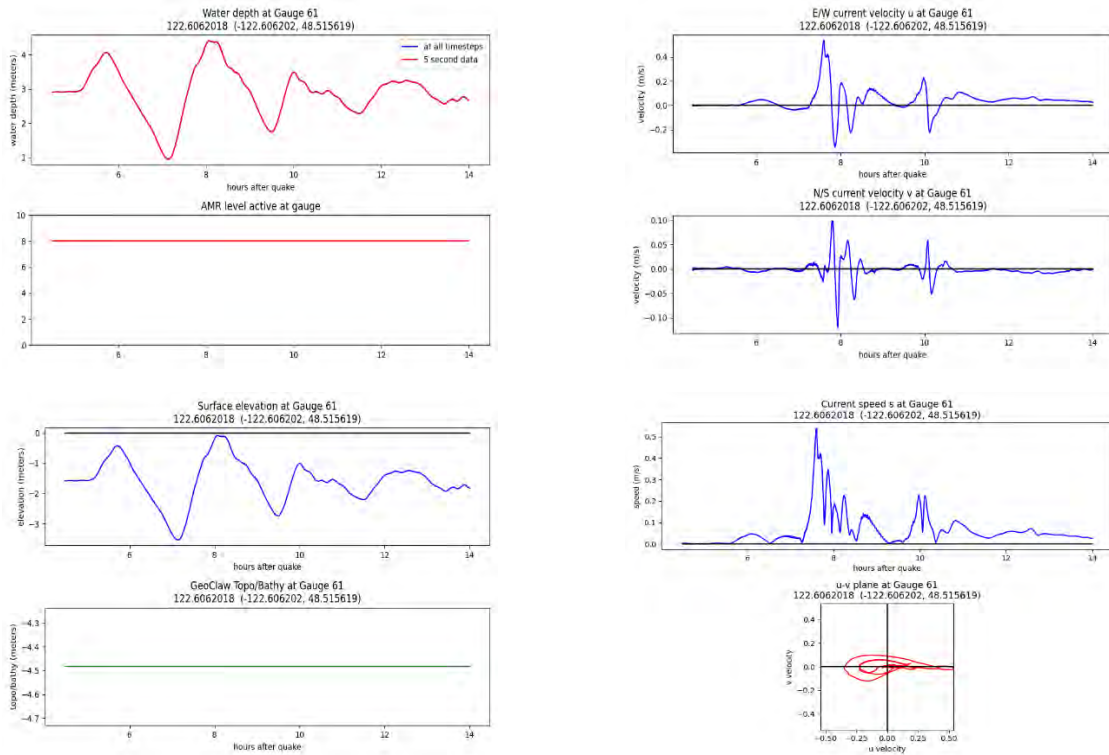
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

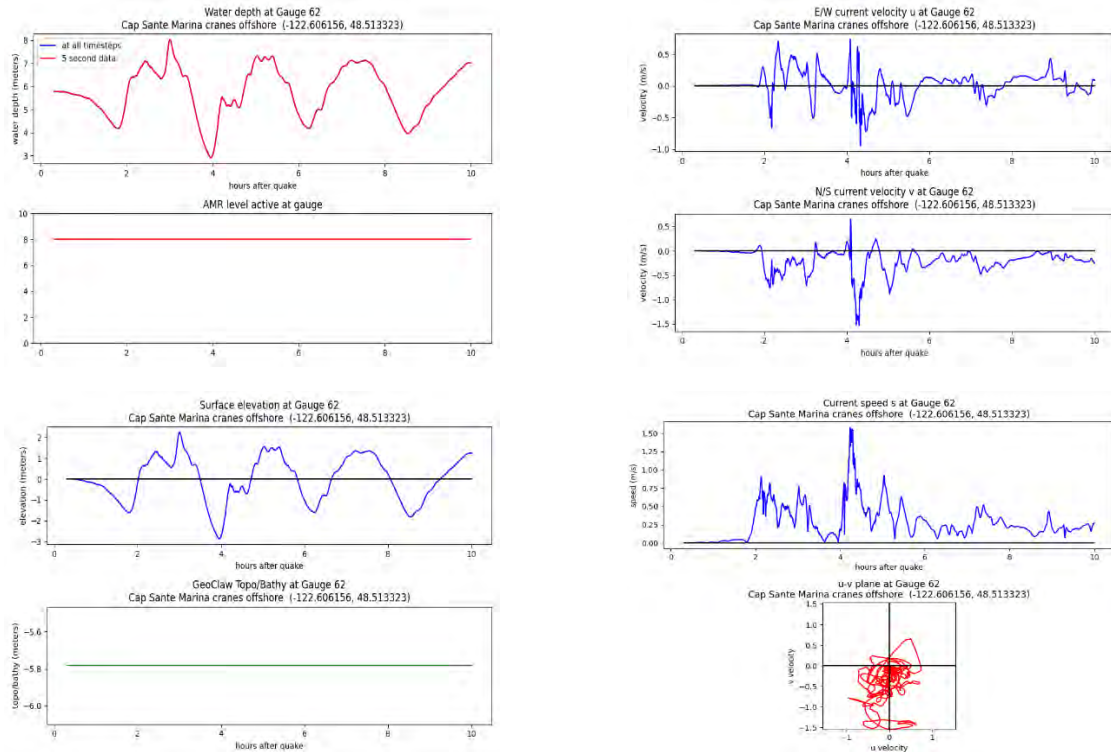


Alaska-Aleutian subduction zone scenario, MLW:

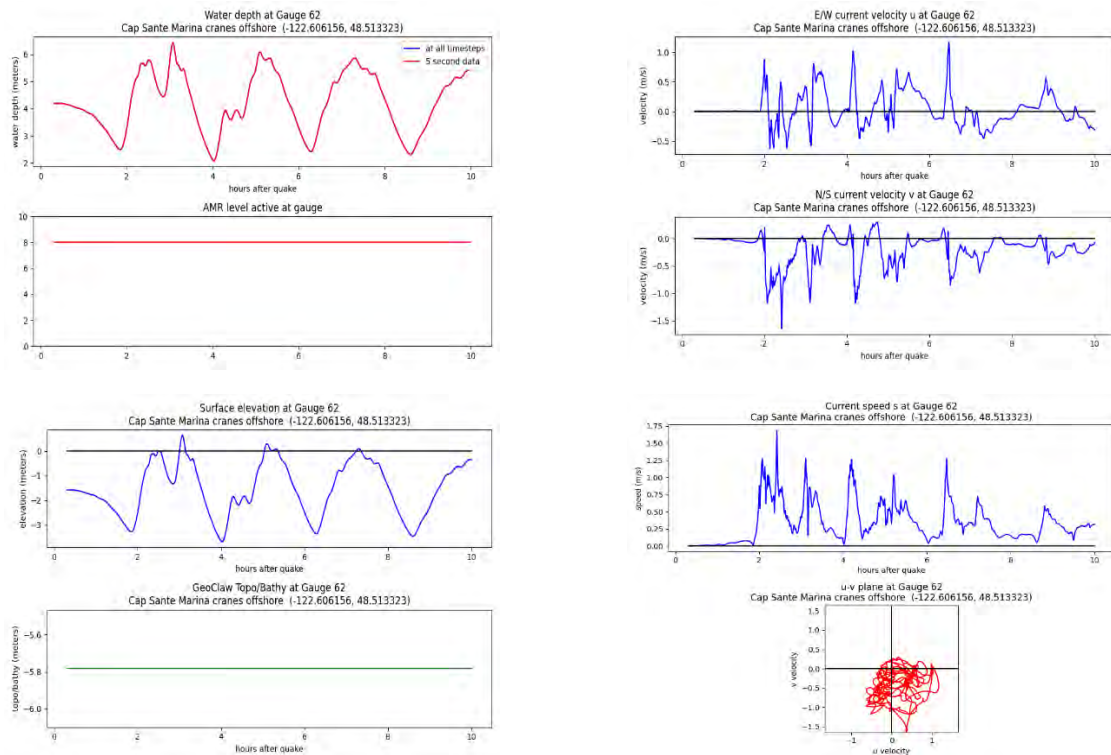


Gauge 62: Cap Sante Marina center

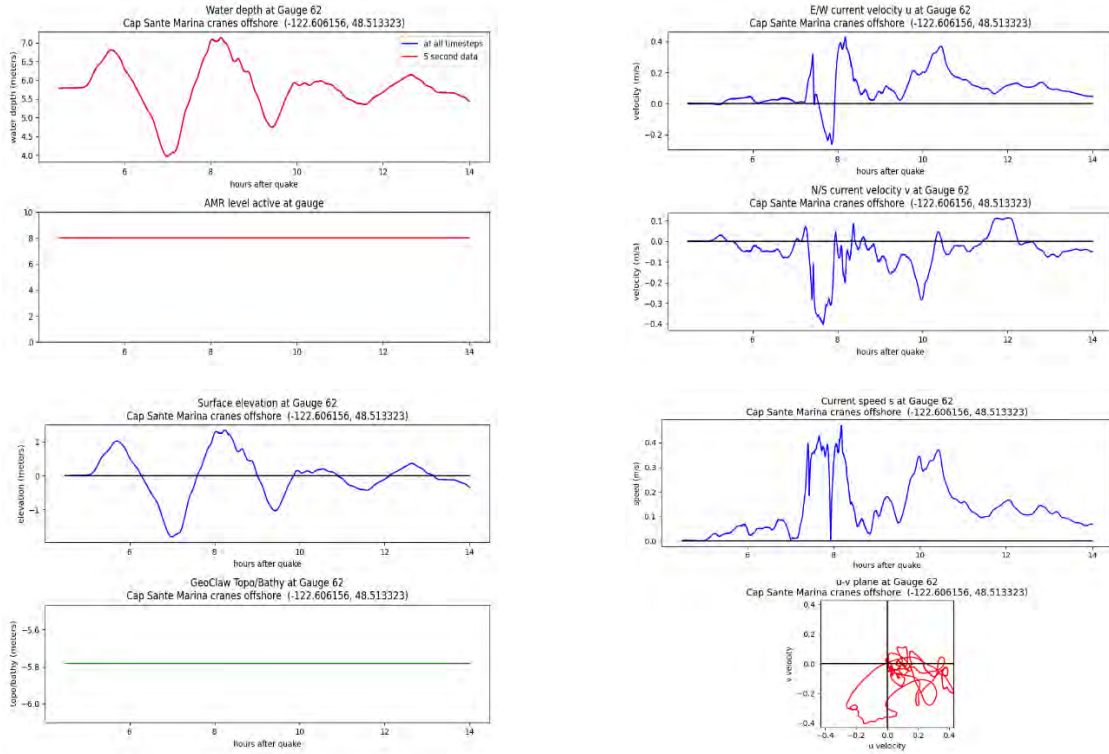
Cascadia subduction zone scenario, MHW:



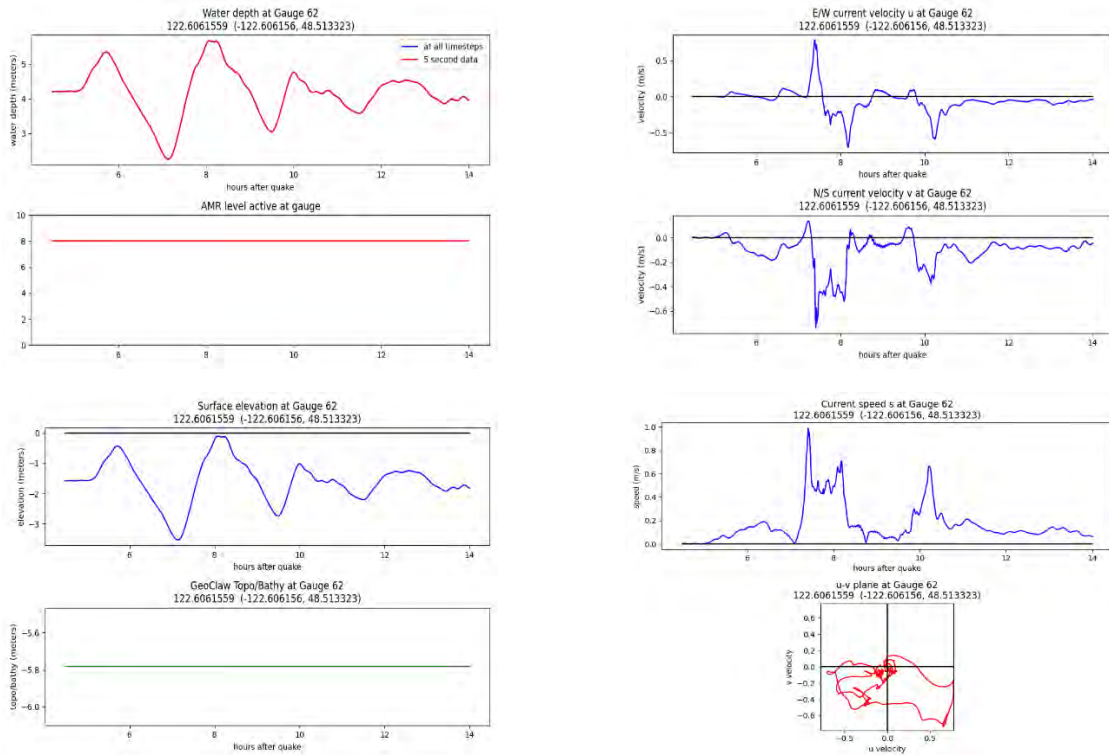
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

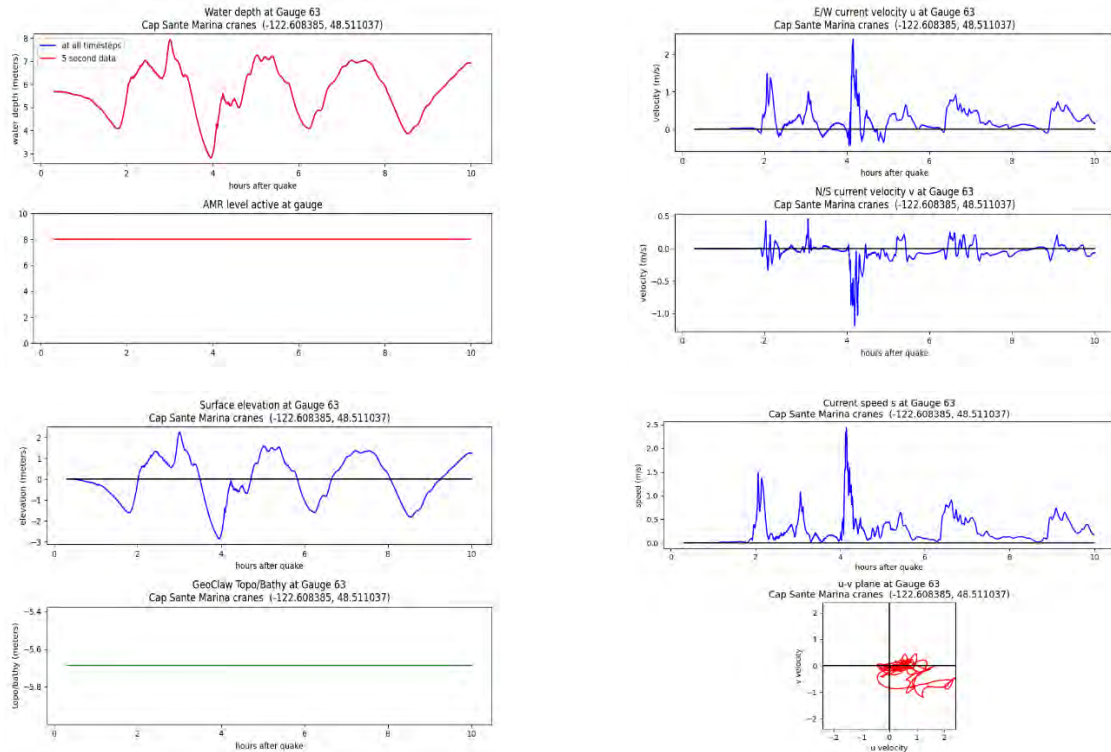


Alaska-Aleutian subduction zone scenario, MLW:

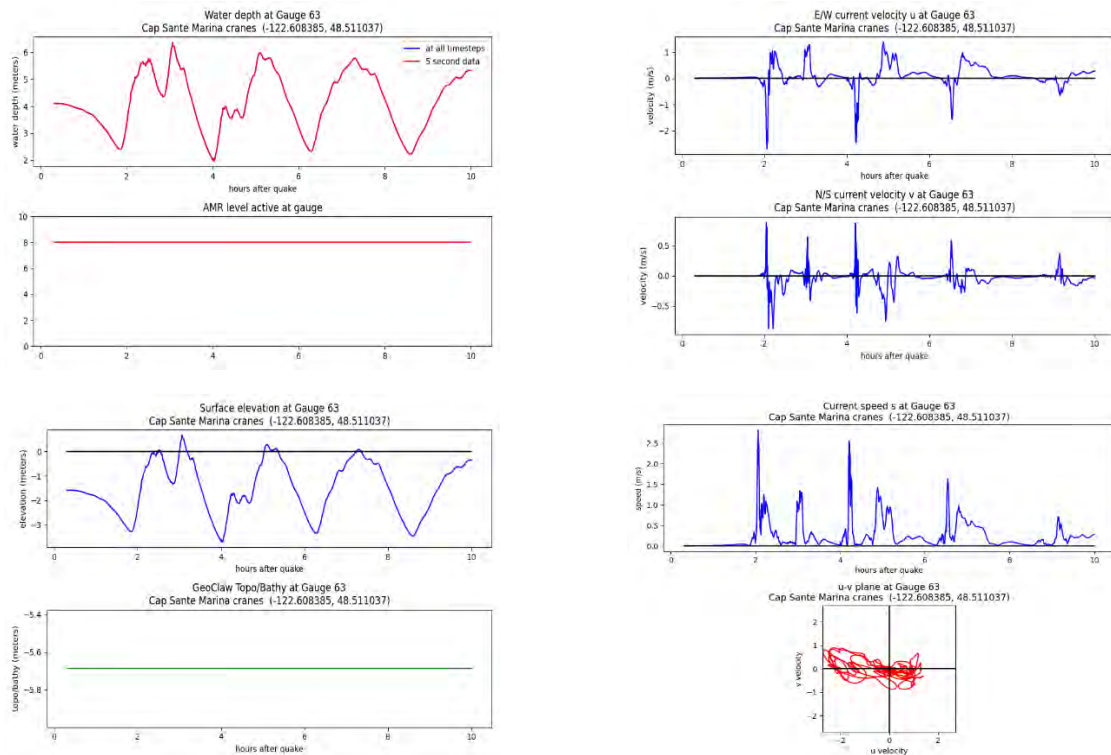


Gauge 63: Cap Sante Marina south

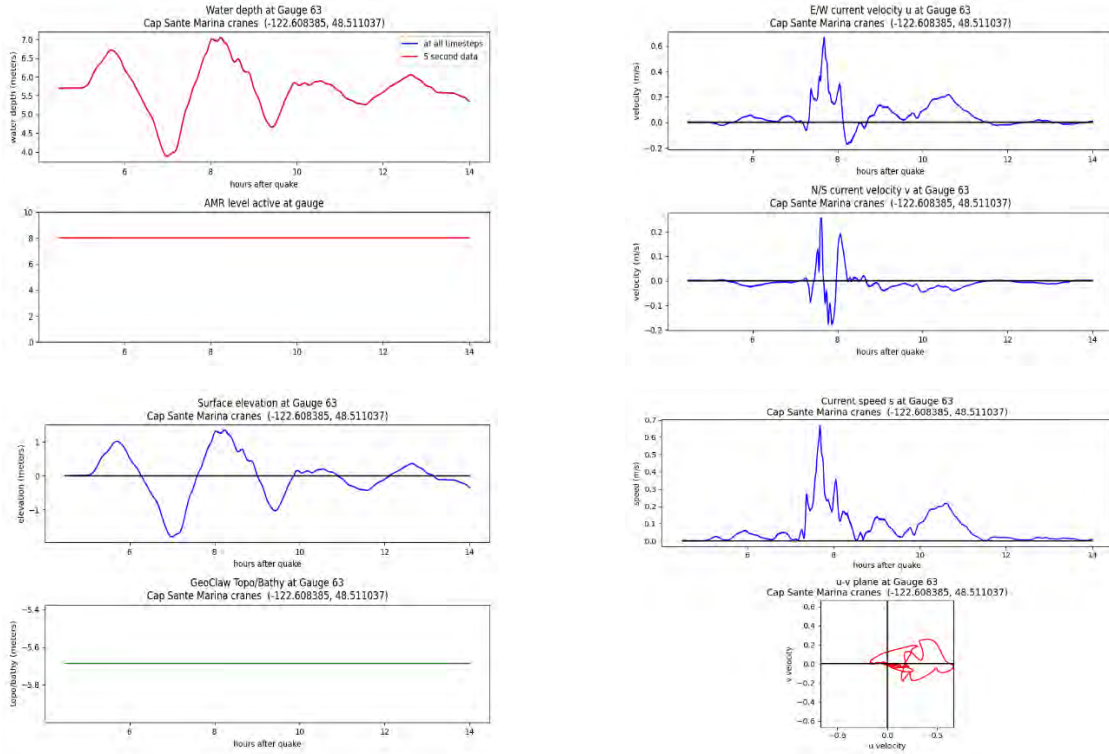
Cascadia subduction zone scenario, MHW:



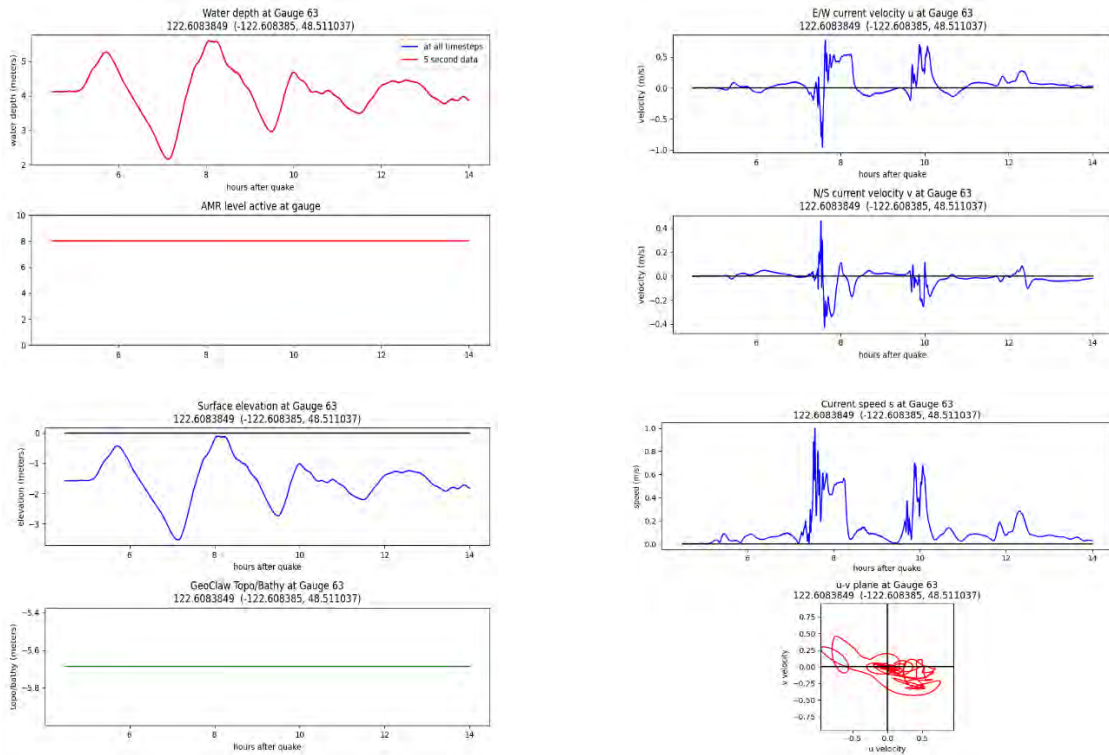
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

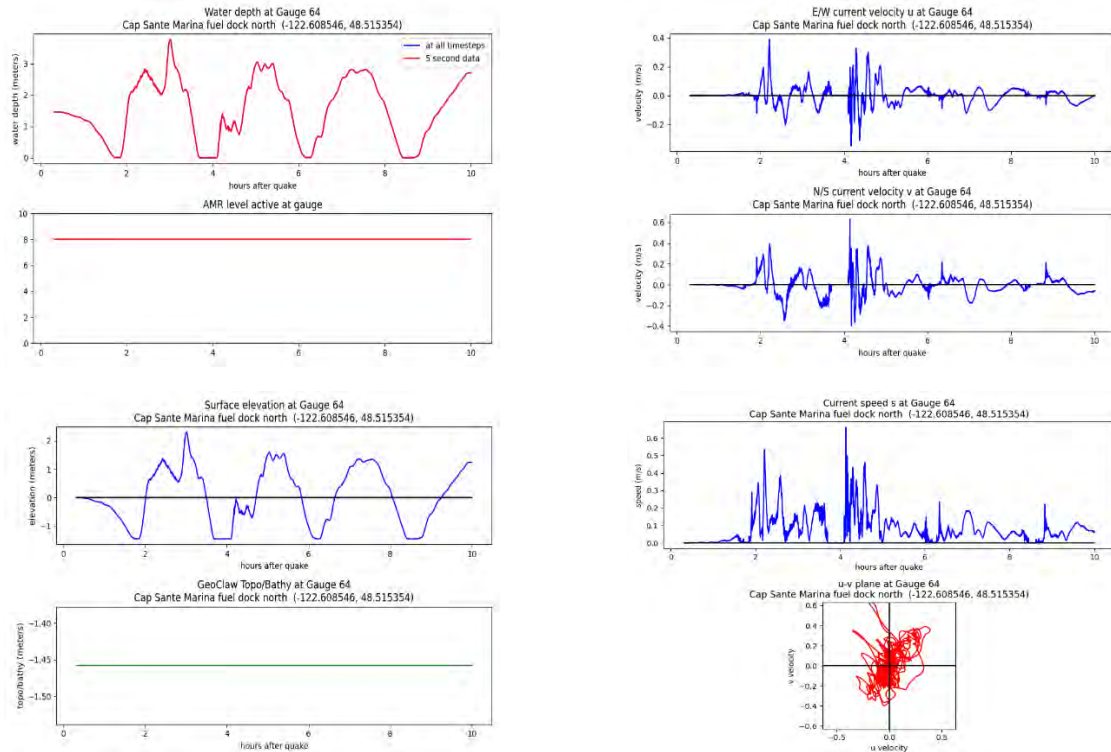


Alaska-Aleutian subduction zone scenario, MLW:

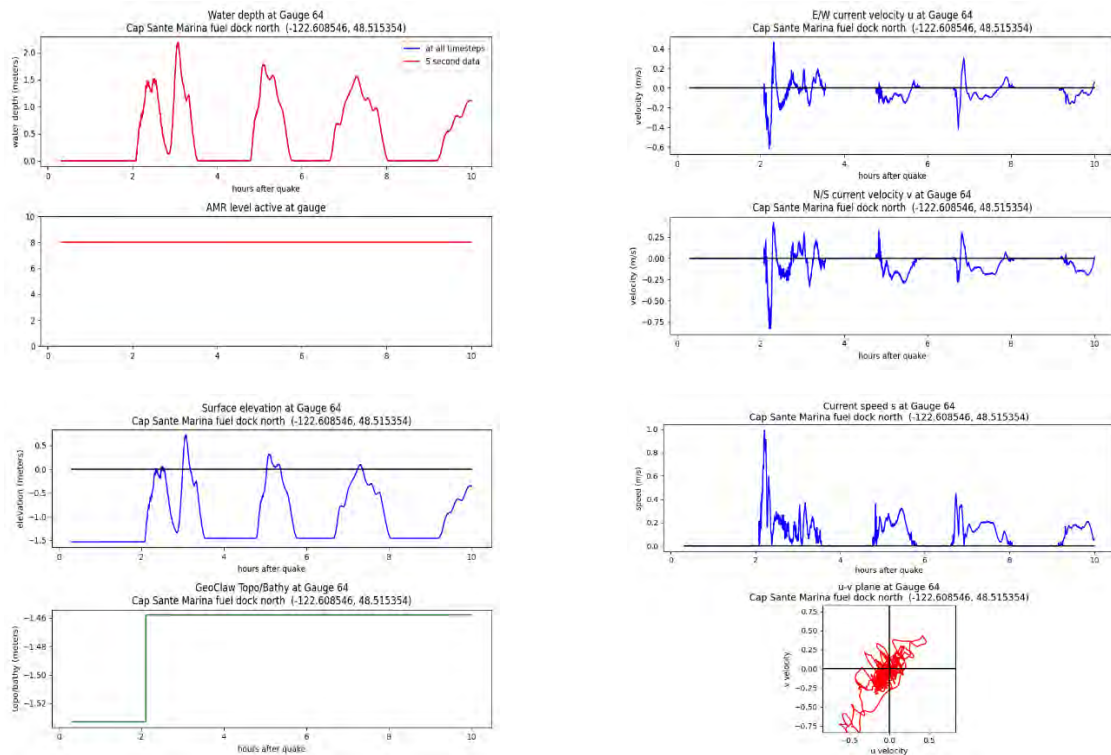


Gauge 64: Cap Sante Marina NW

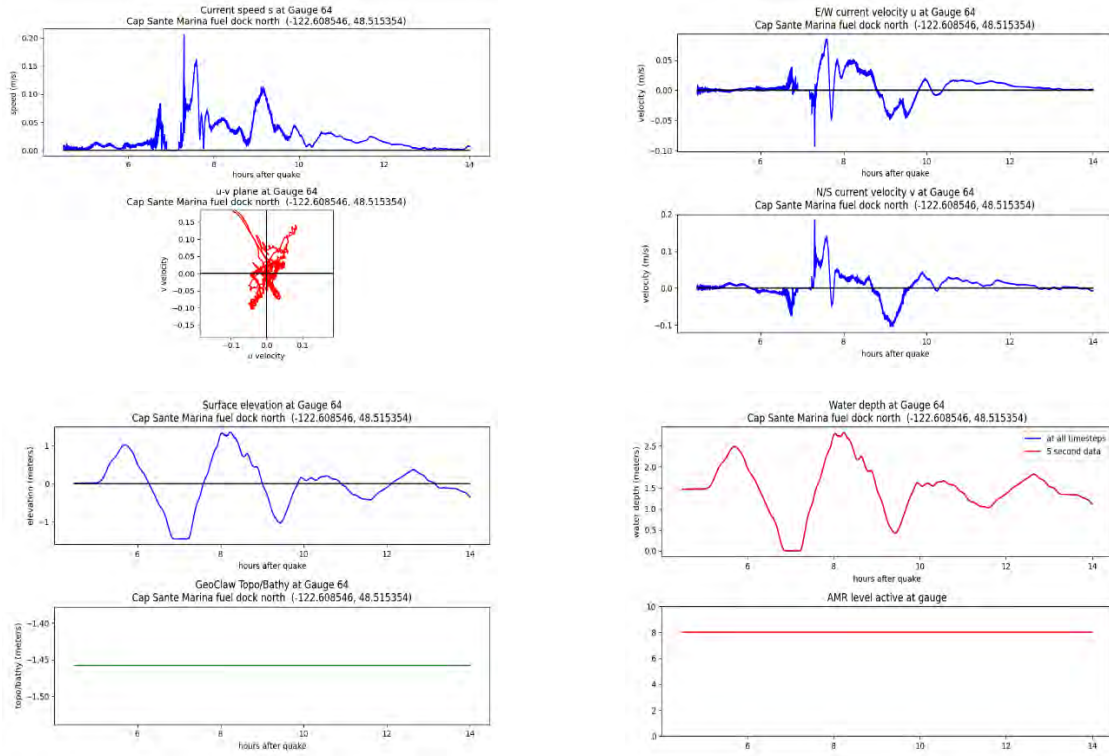
Cascadia subduction zone scenario, MHW:



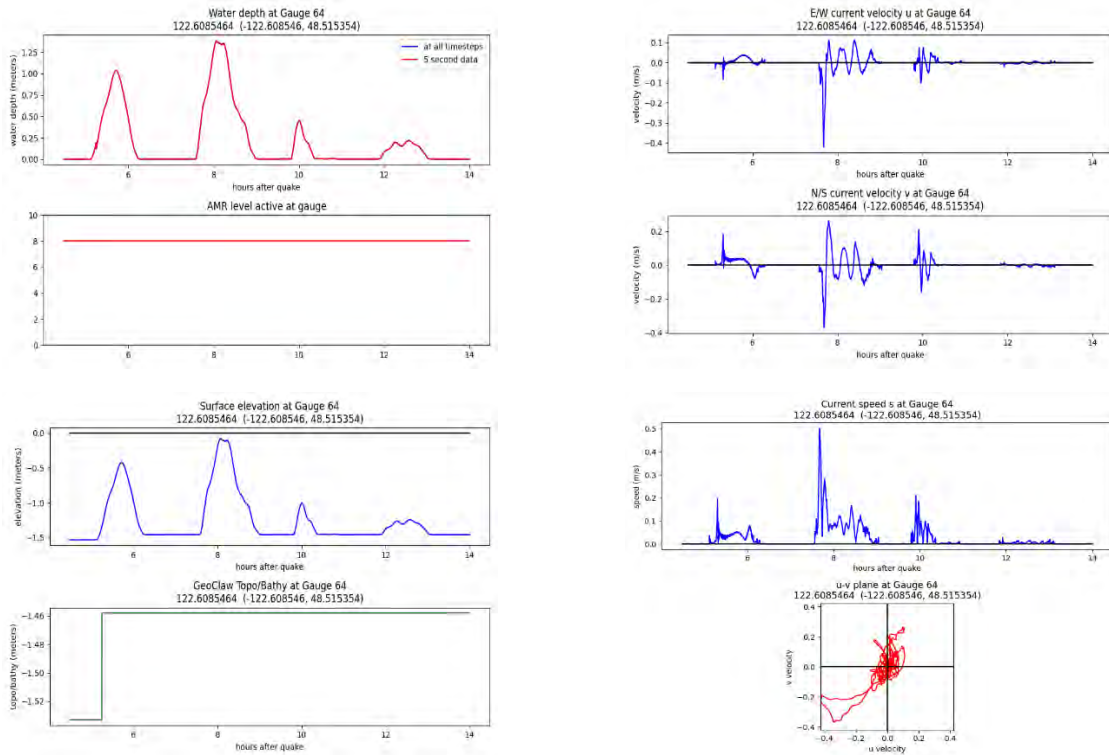
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

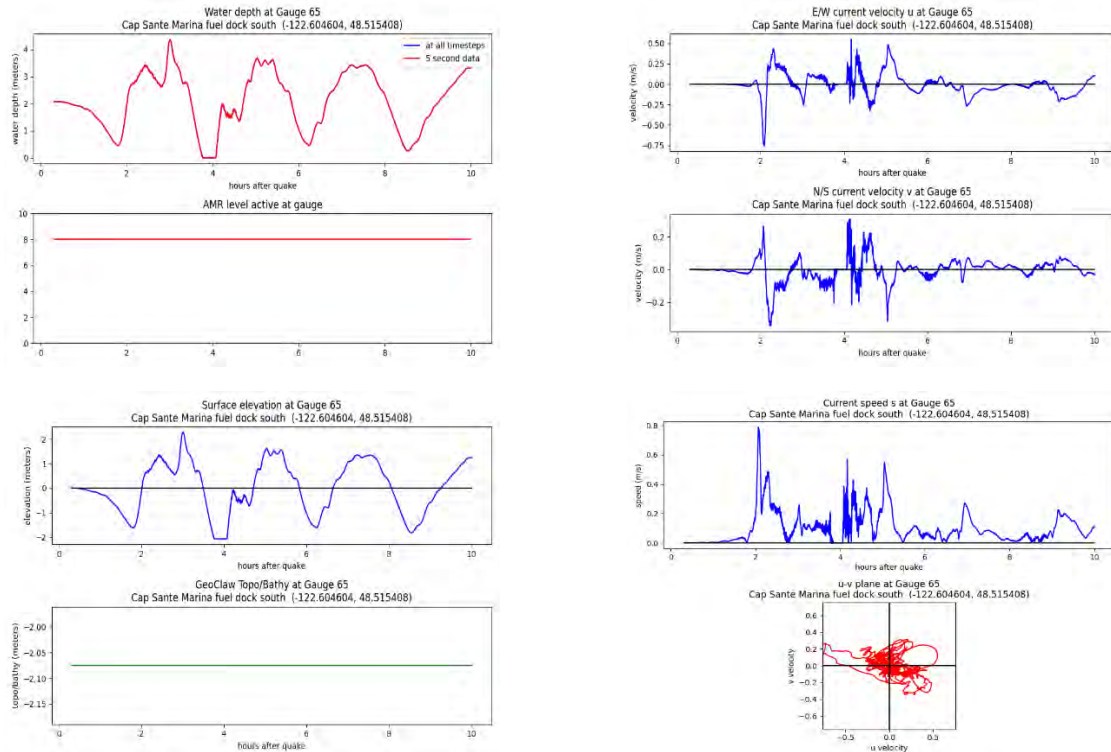


Alaska-Aleutian subduction zone scenario, MLW:

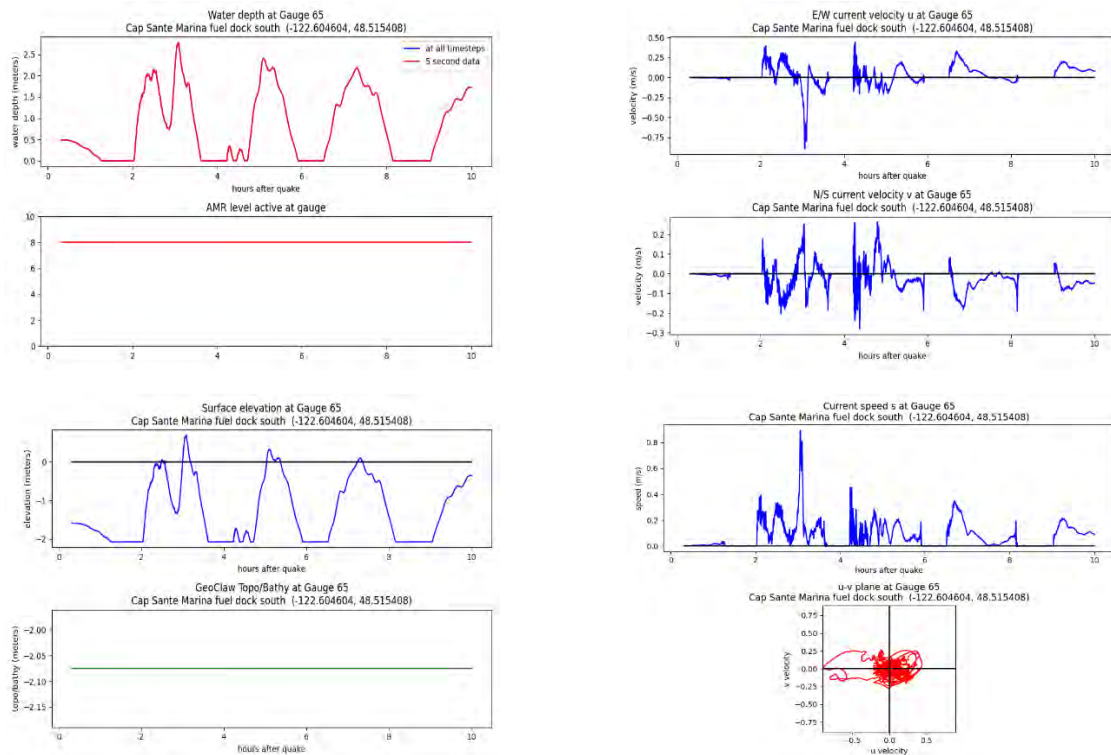


Gauge 65: Cap Sante Marina NE

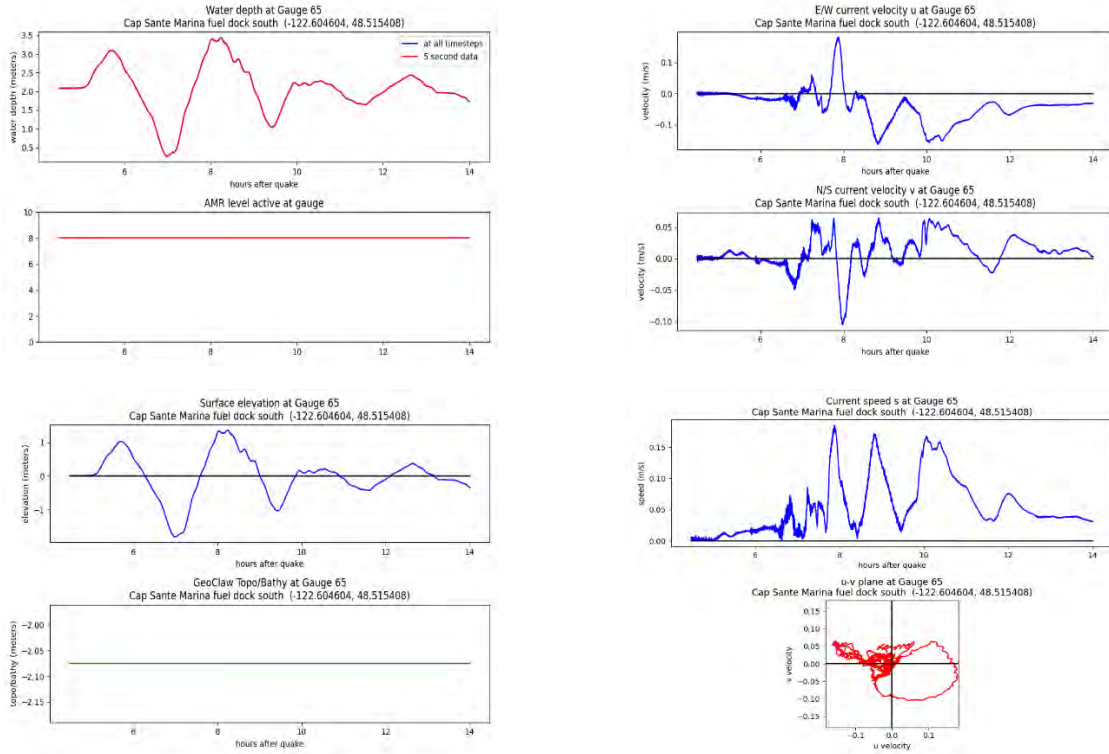
Cascadia subduction zone scenario, MHW:



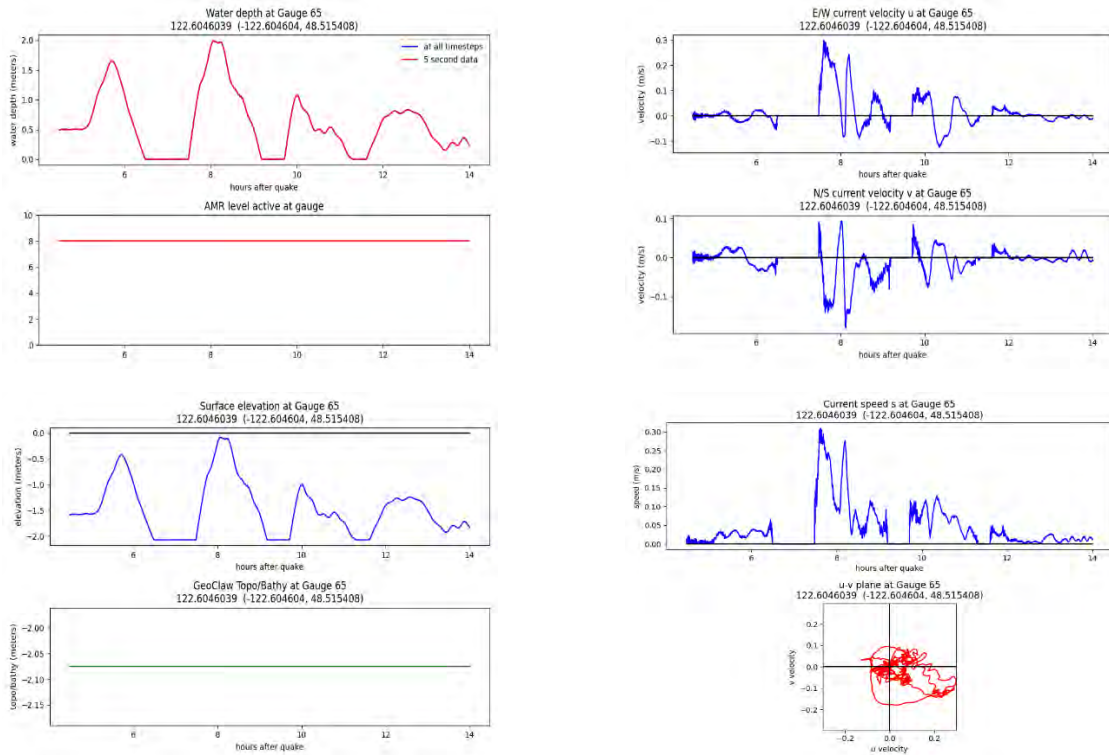
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

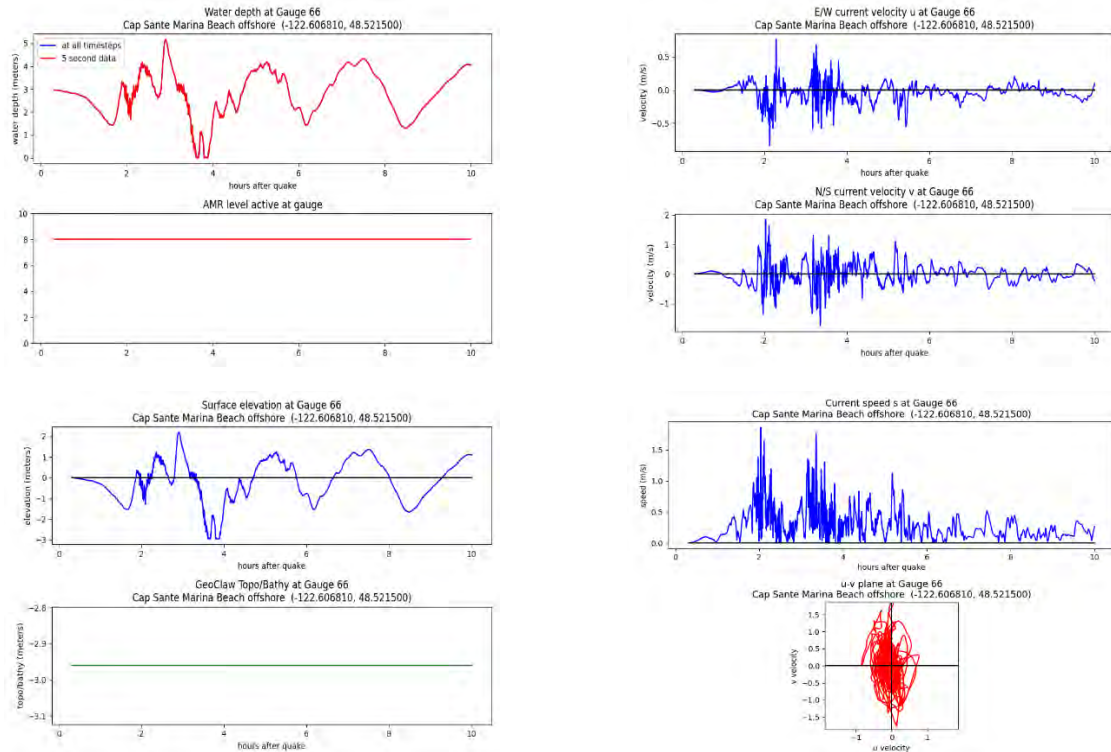


Alaska-Aleutian subduction zone scenario, MLW:

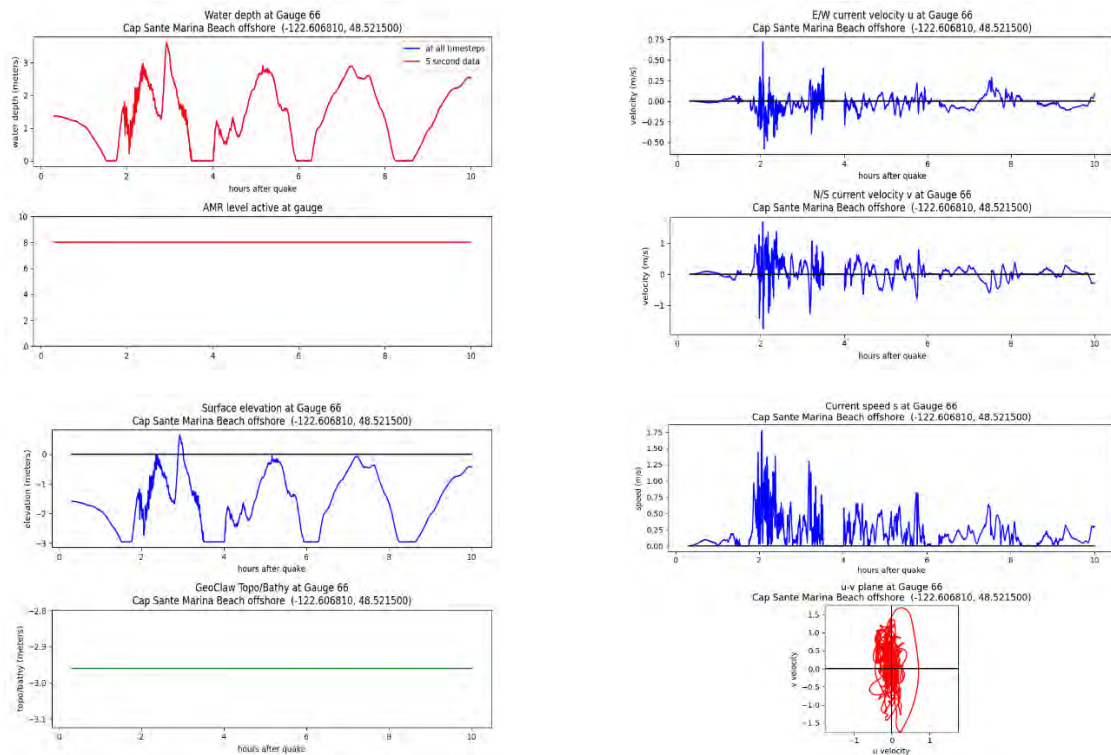


Gauge 66: Pier 2 east

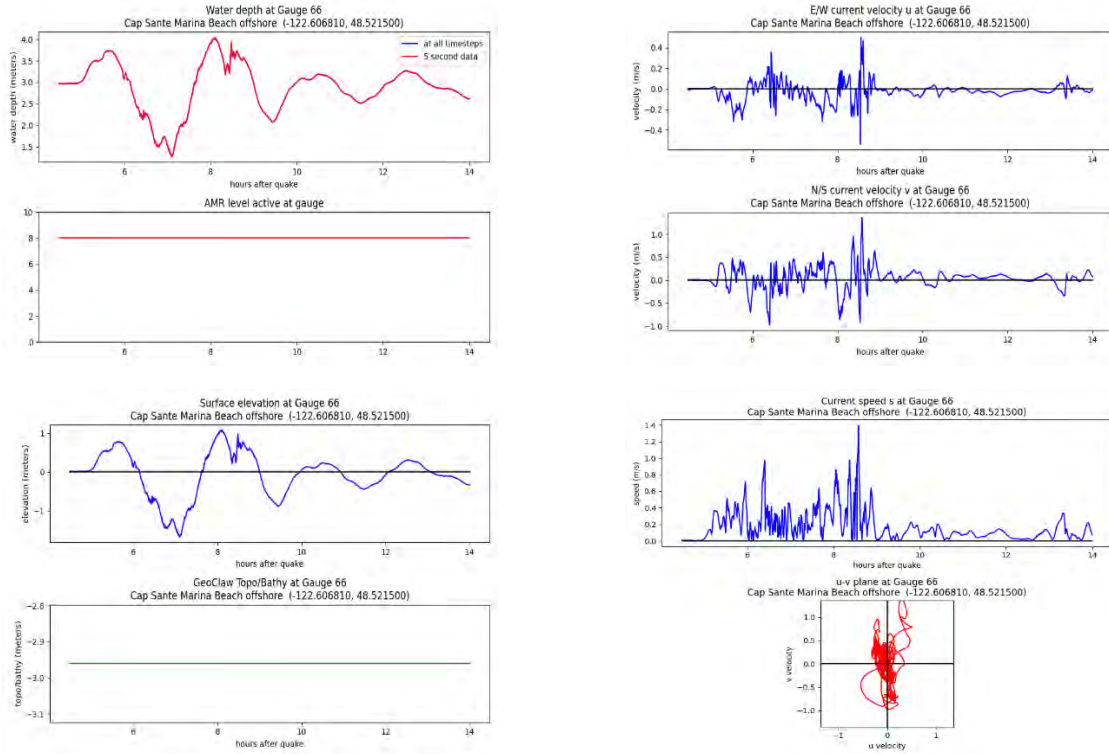
Cascadia subduction zone scenario, MHW:



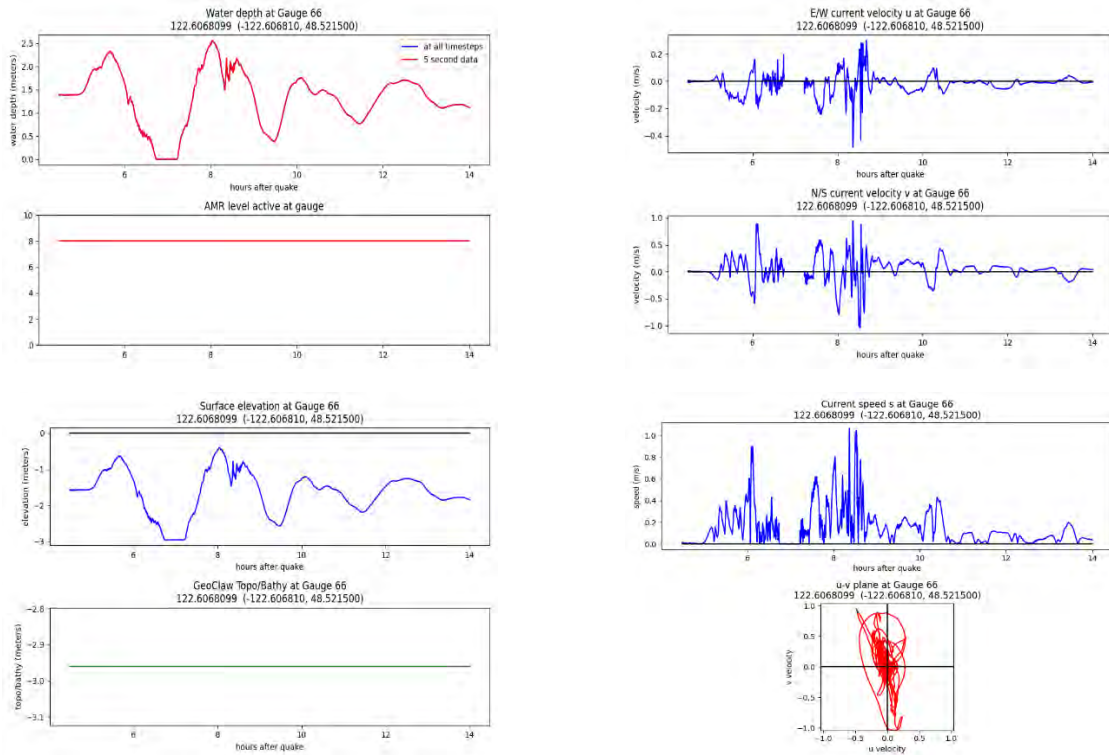
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

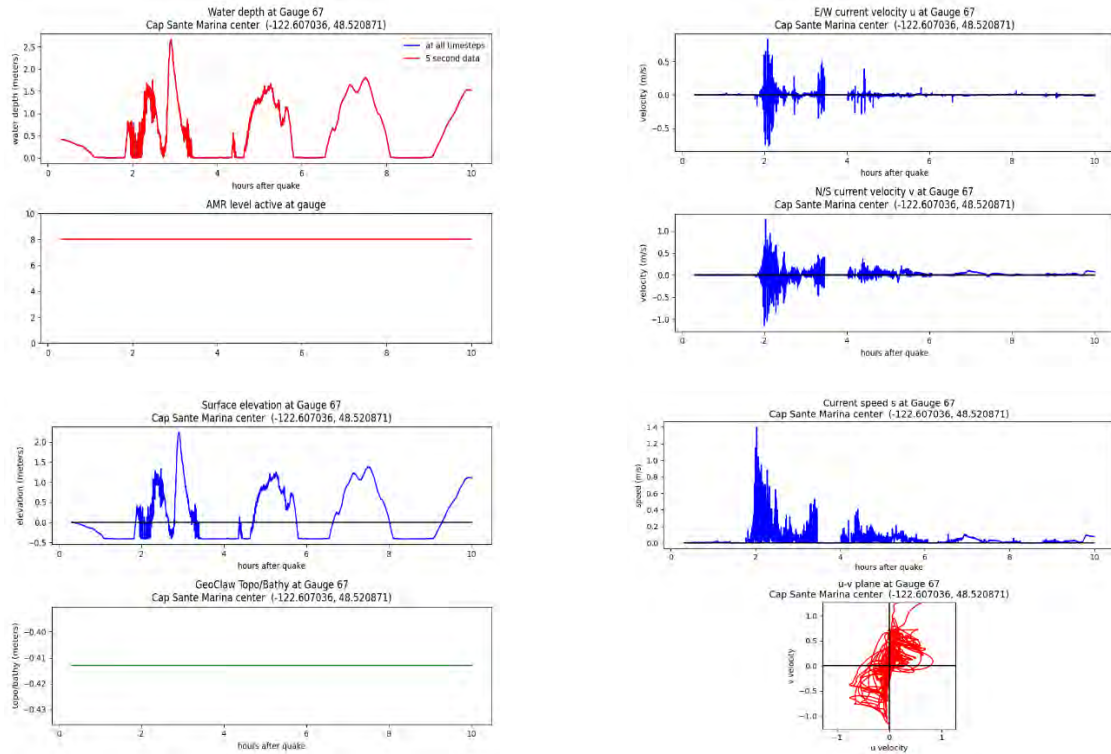


Alaska-Aleutian subduction zone scenario, MLW:

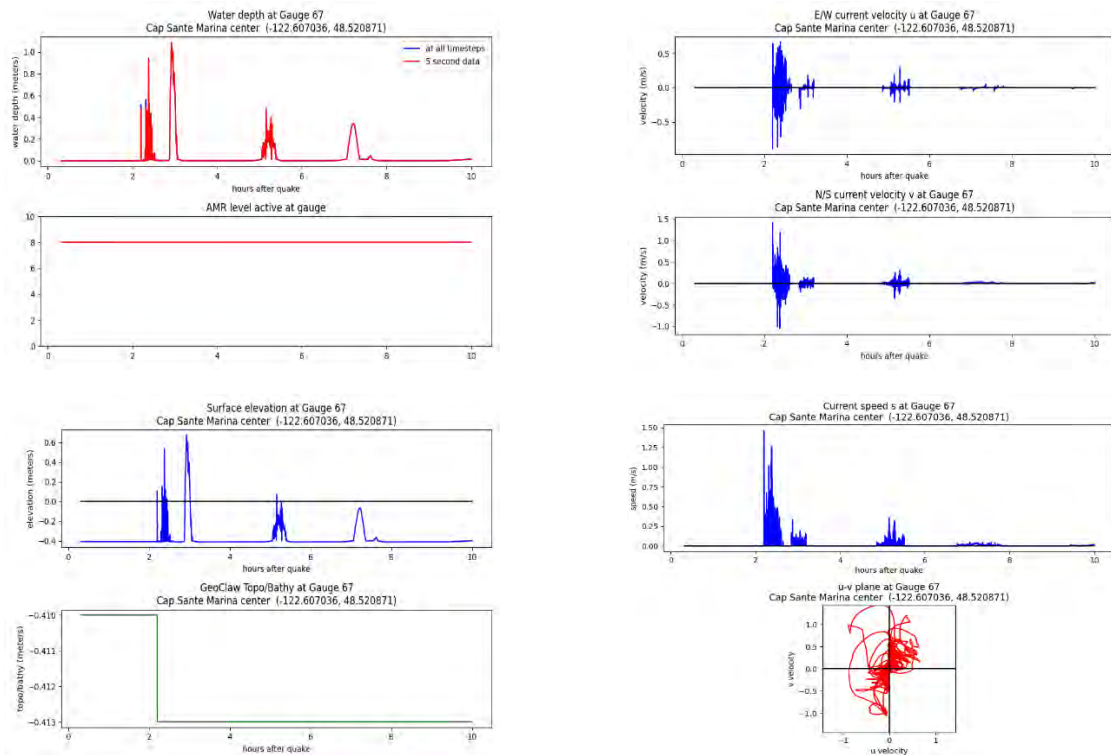


Gauge 67: Pier 2 east 2

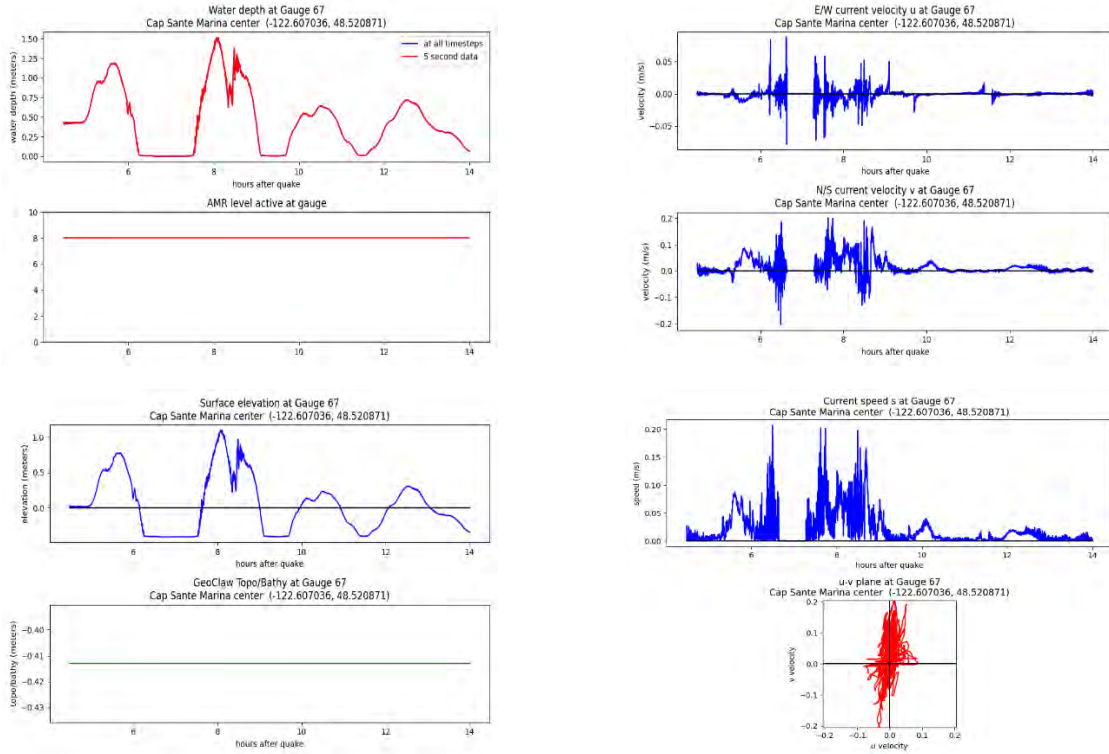
Cascadia subduction zone scenario, MHW:



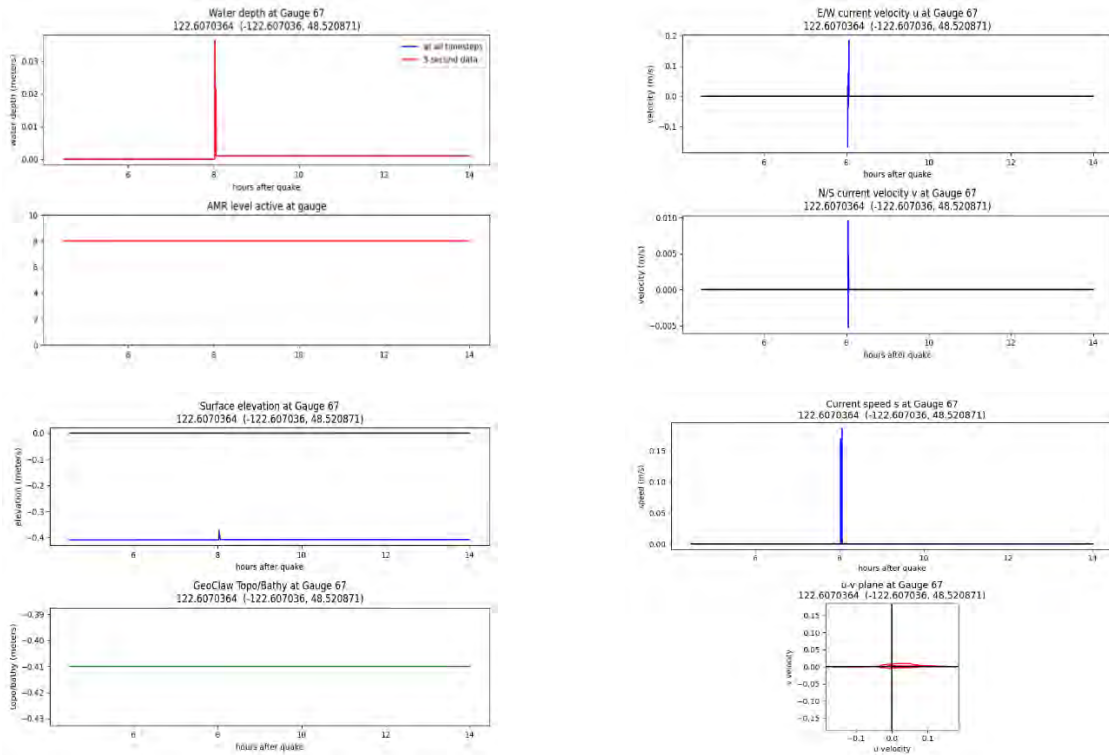
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

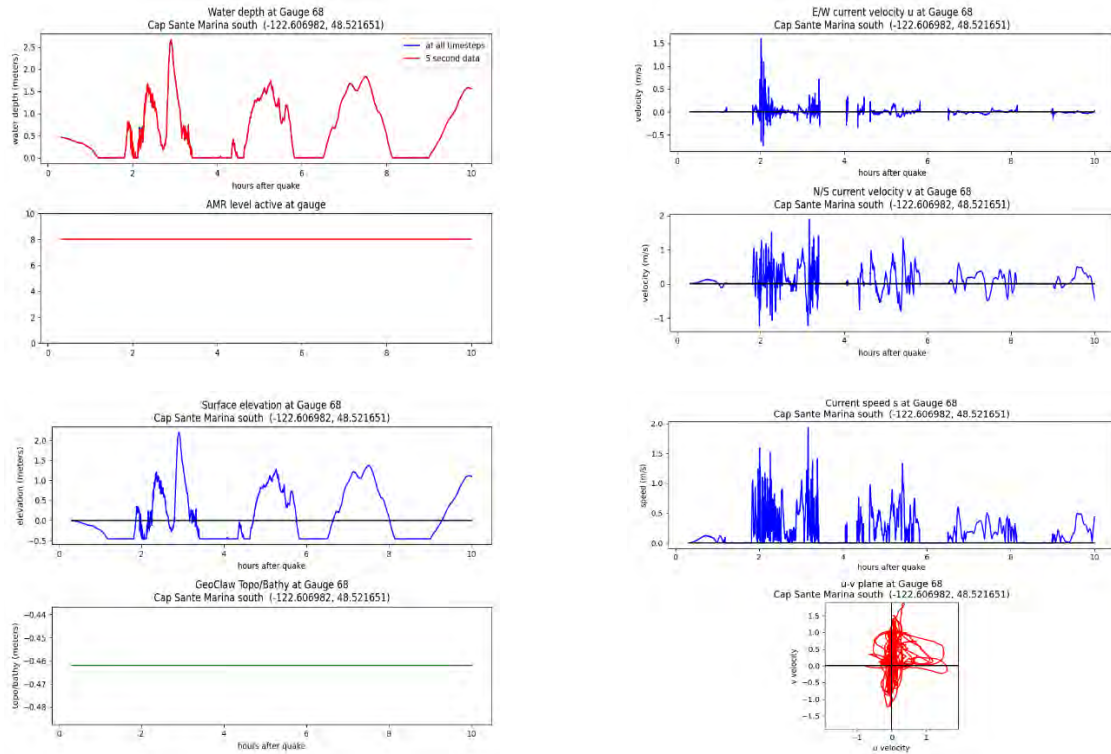


Alaska-Aleutian subduction zone scenario, MLW:

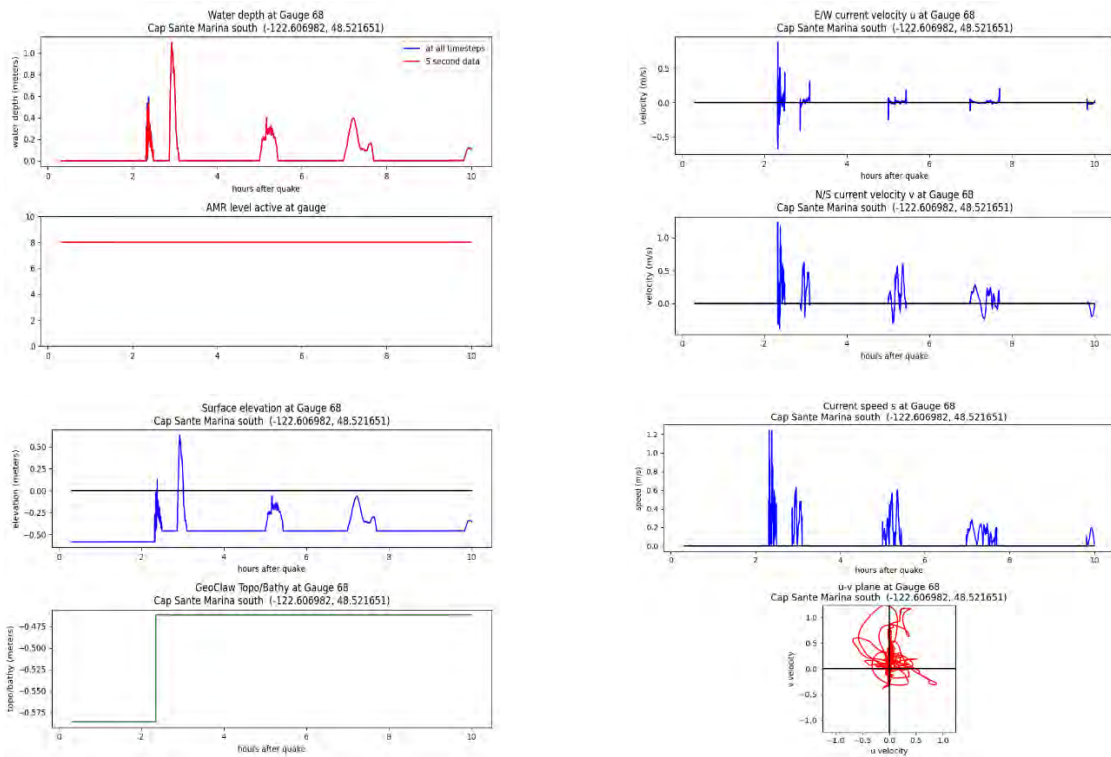


Gauge 68: Pier 2 east 3

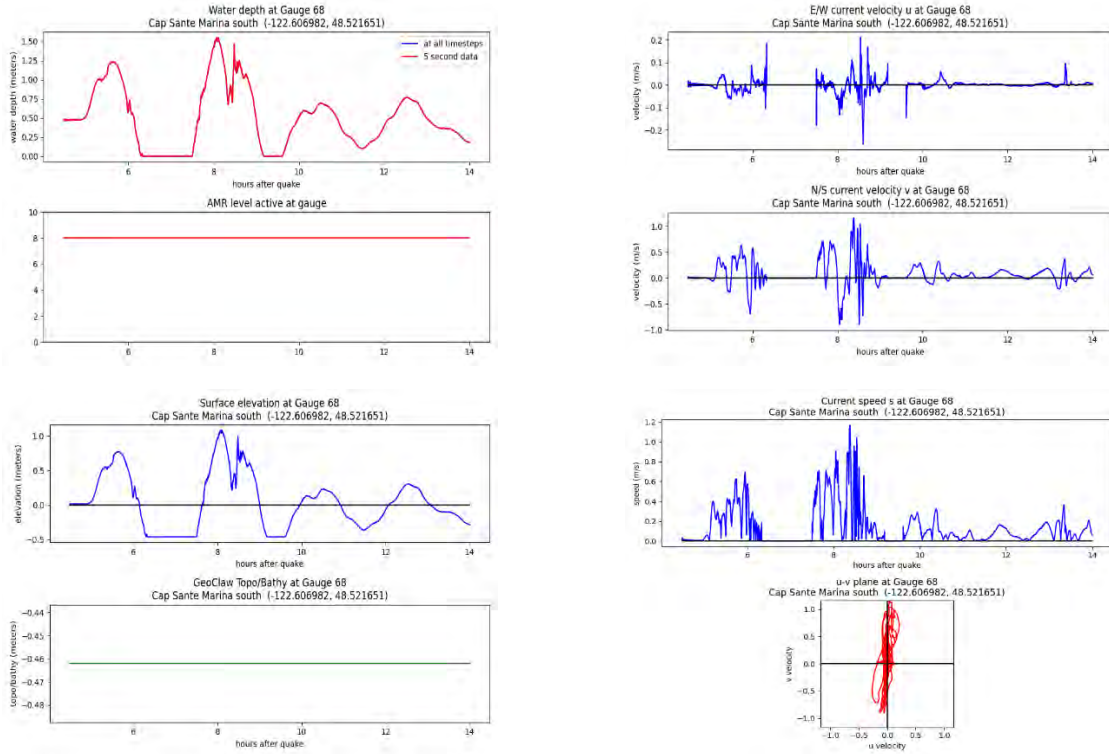
Cascadia subduction zone scenario, MHW:



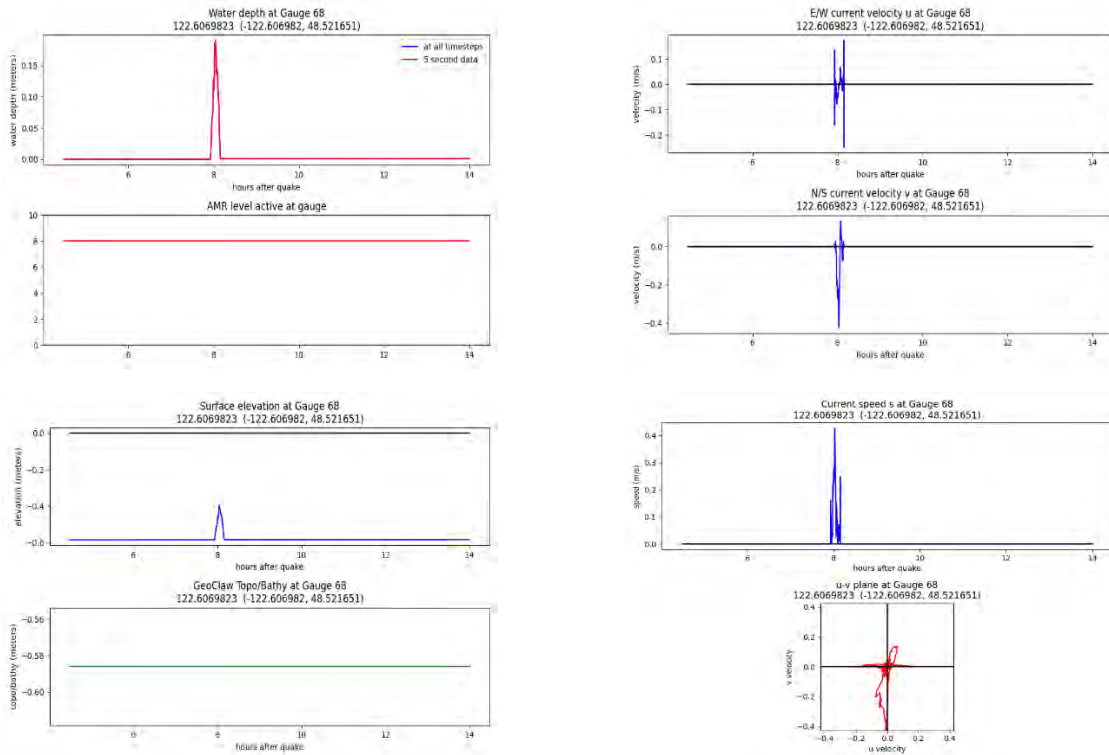
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

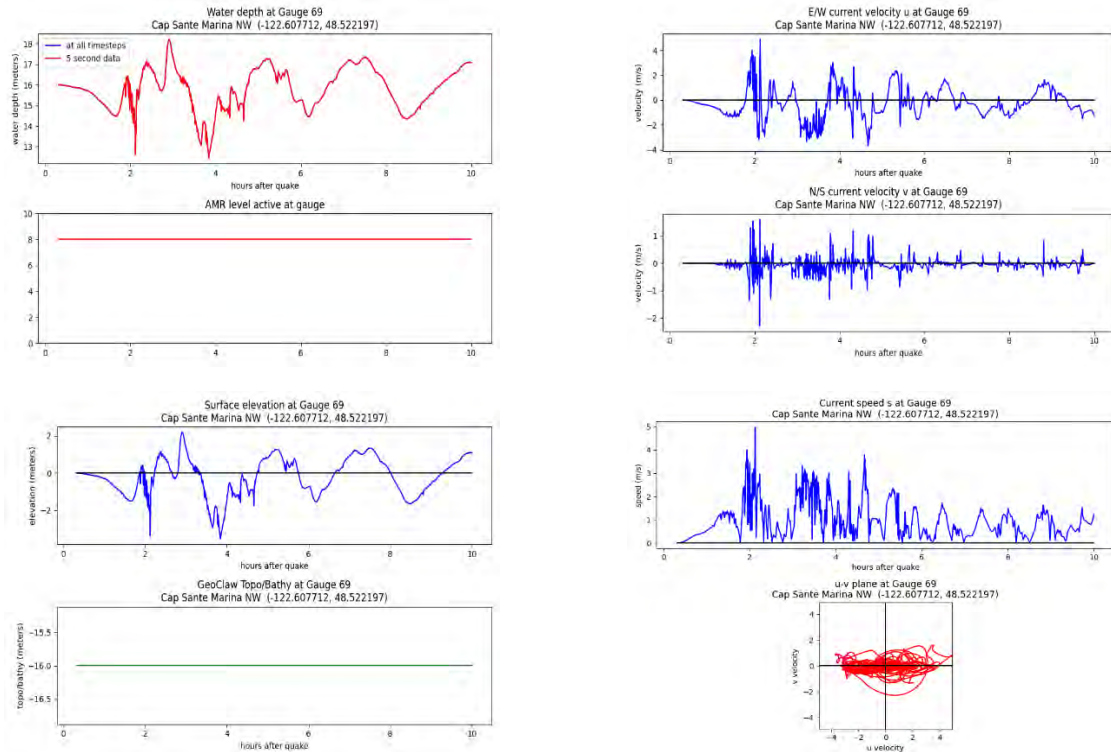


Alaska-Aleutian subduction zone scenario, MLW:

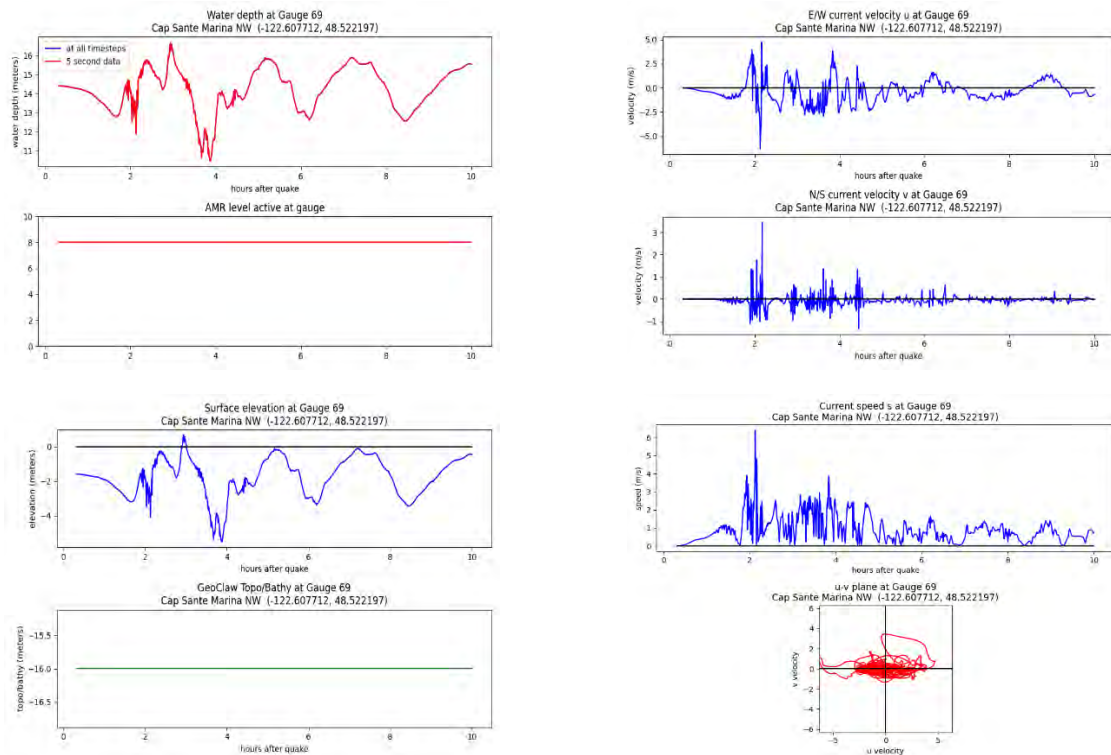


Gauge 69: Pier 2 north

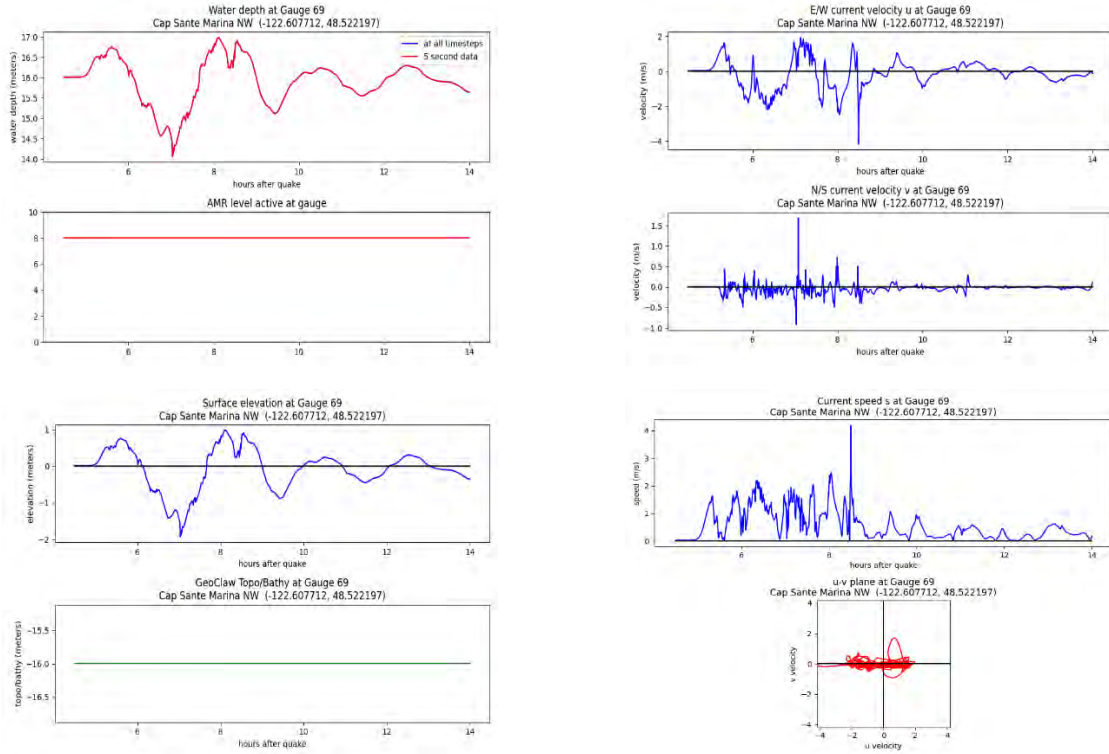
Cascadia subduction zone scenario, MHW:



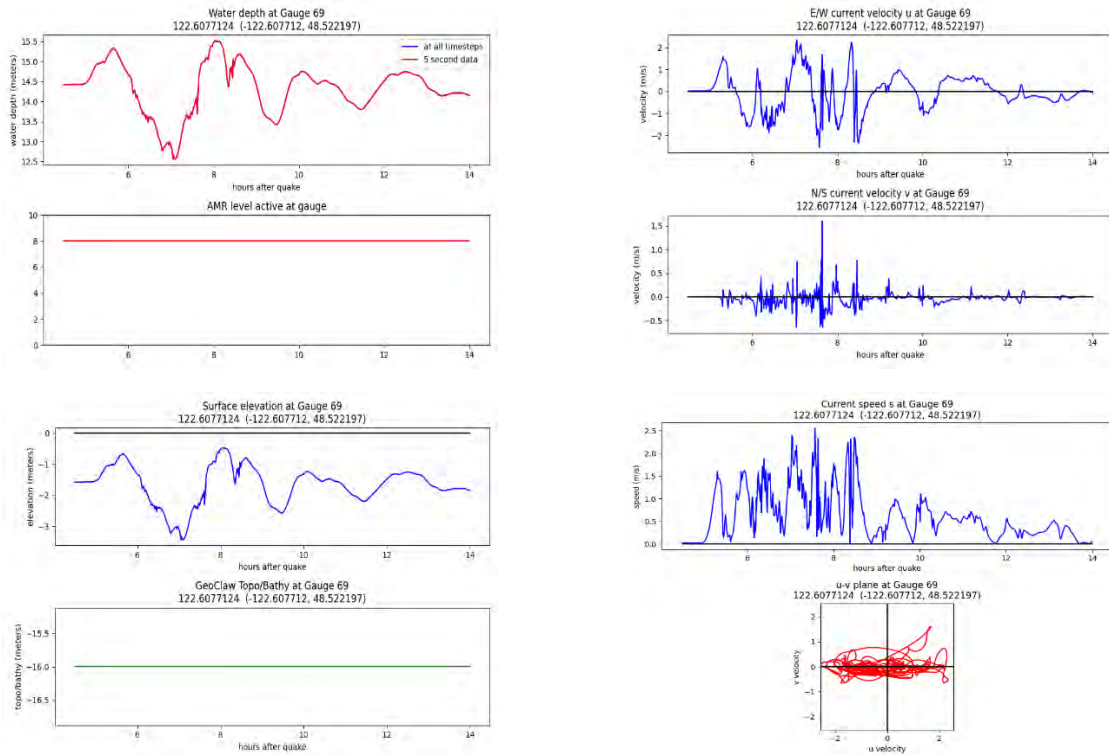
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

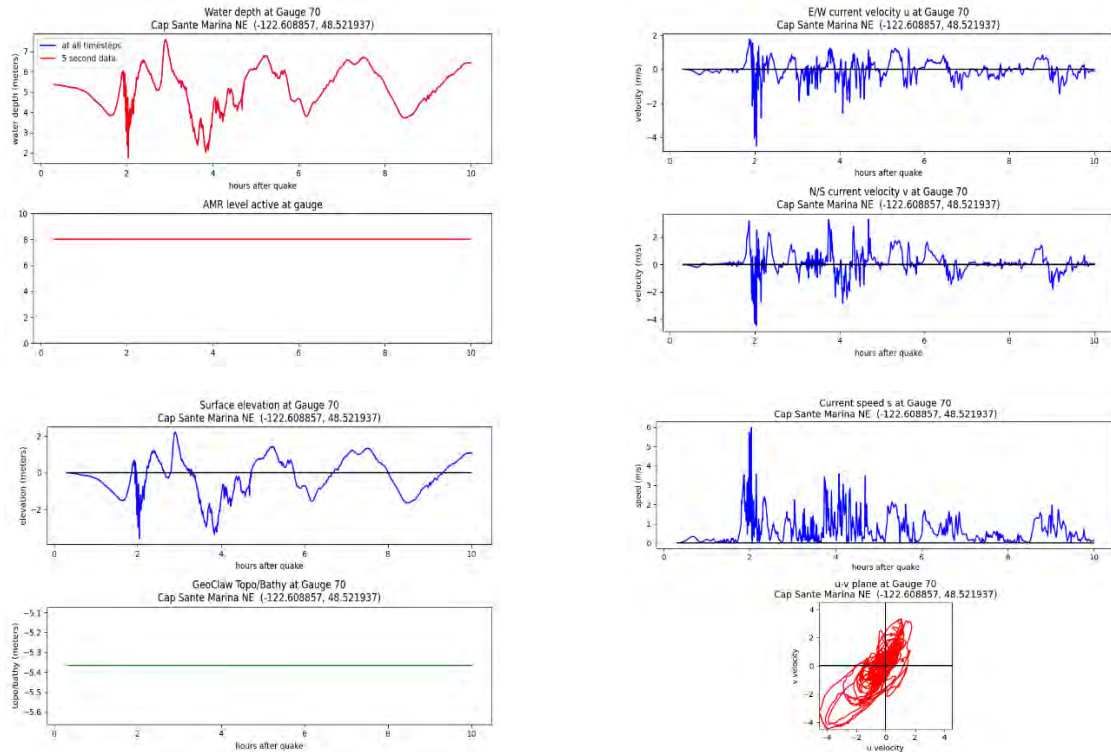


Alaska-Aleutian subduction zone scenario, MLW:

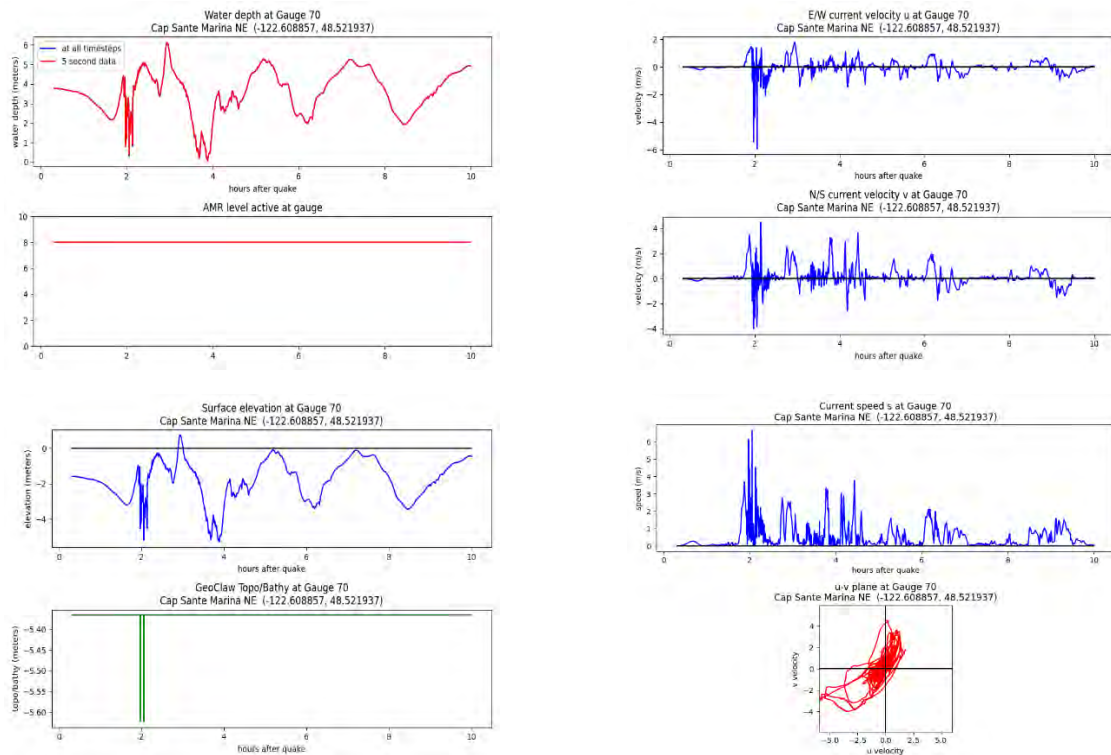


Gauge 70: Pier 2 west

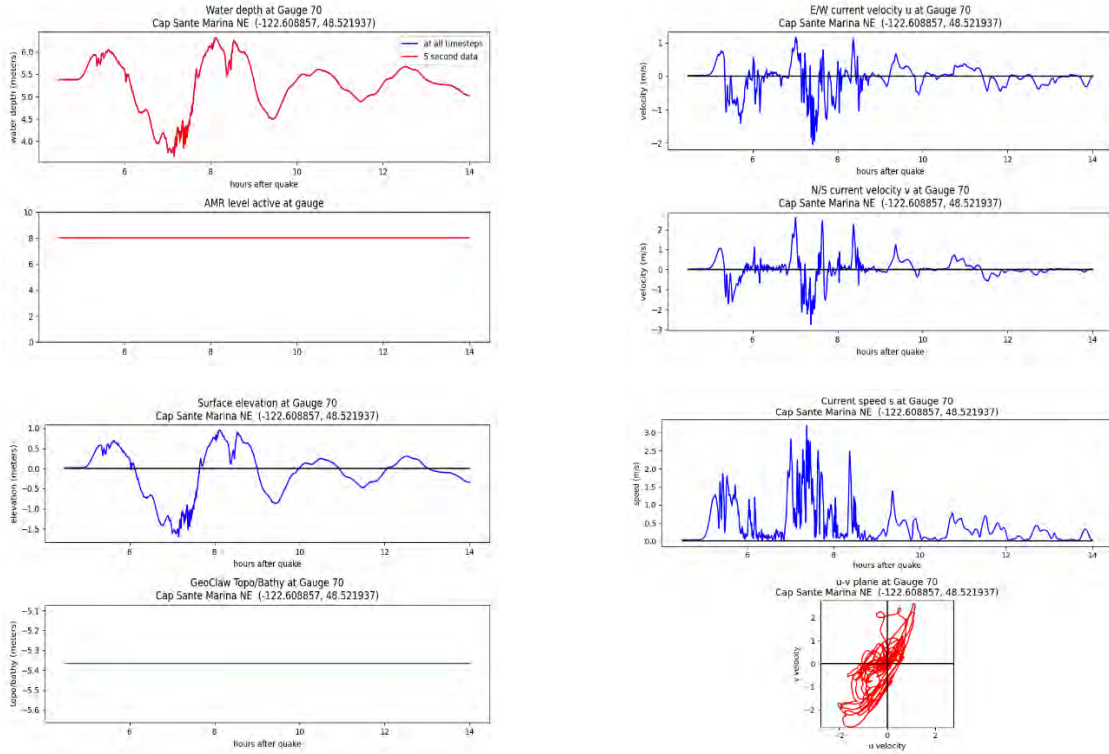
Cascadia subduction zone scenario, MHW:



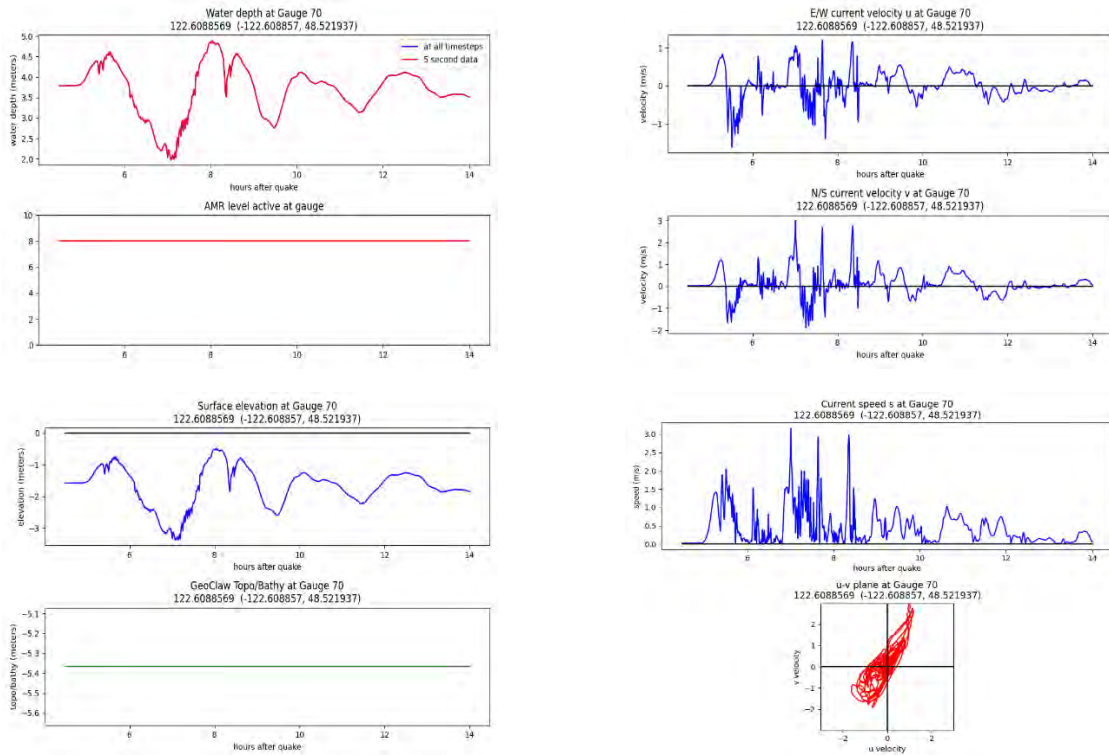
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

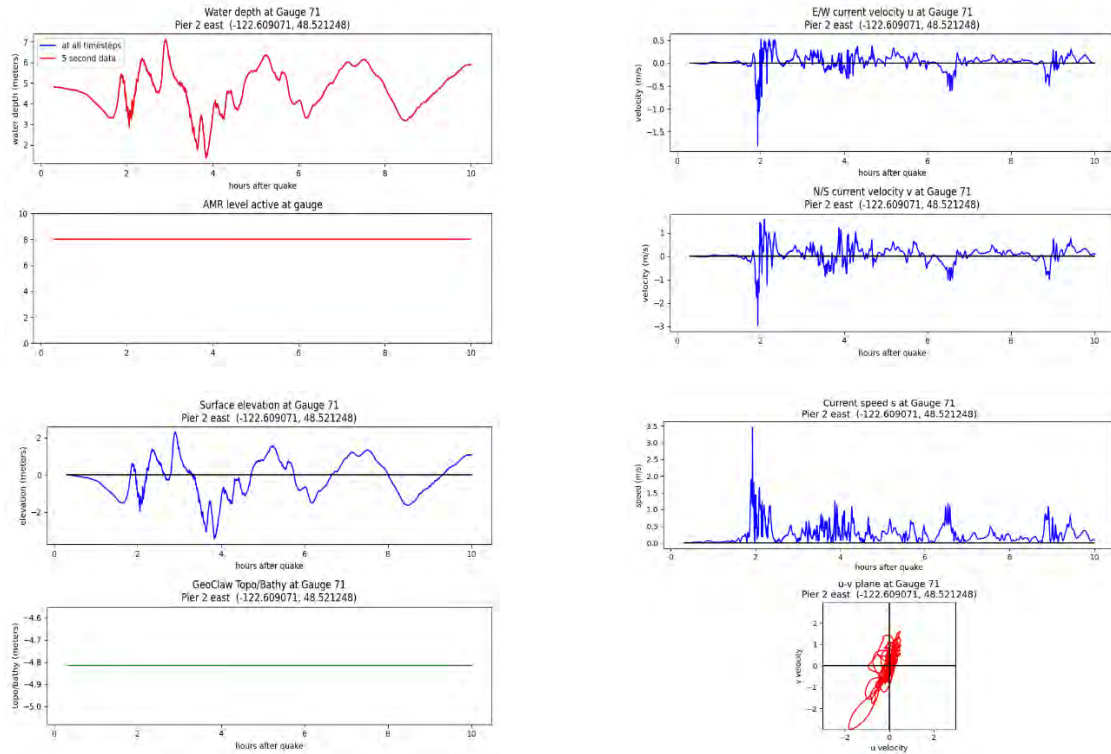


Alaska-Aleutian subduction zone scenario, MLW:

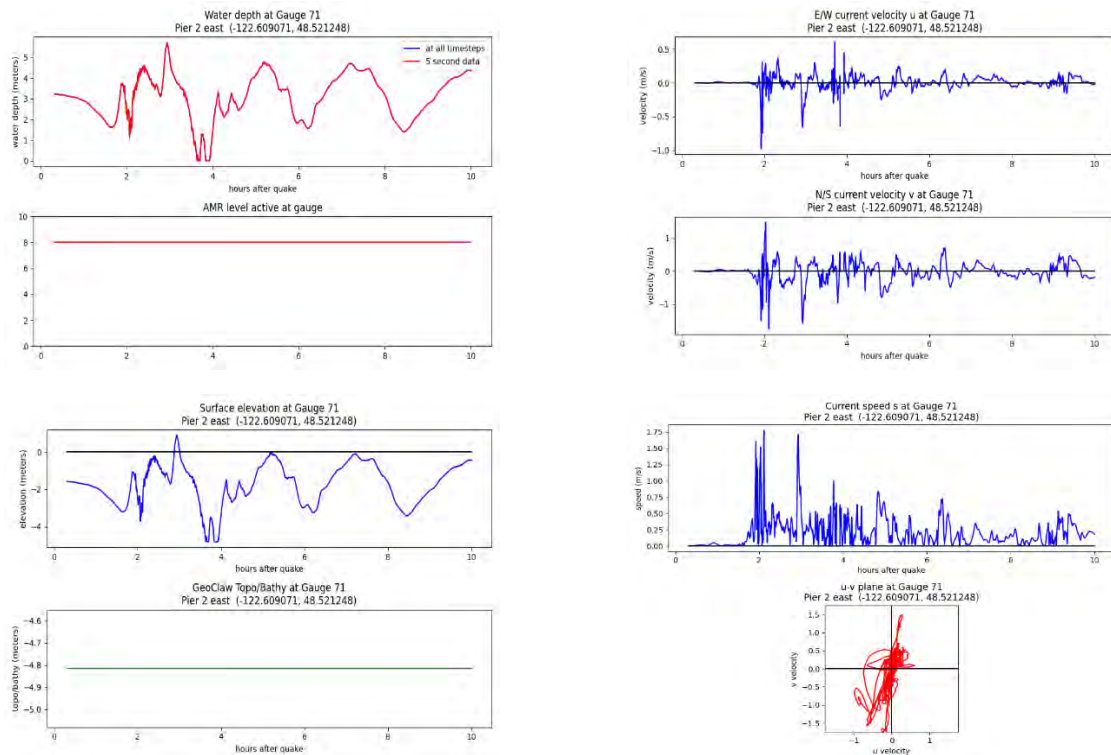


Gauge 71: Pier 2 west 2

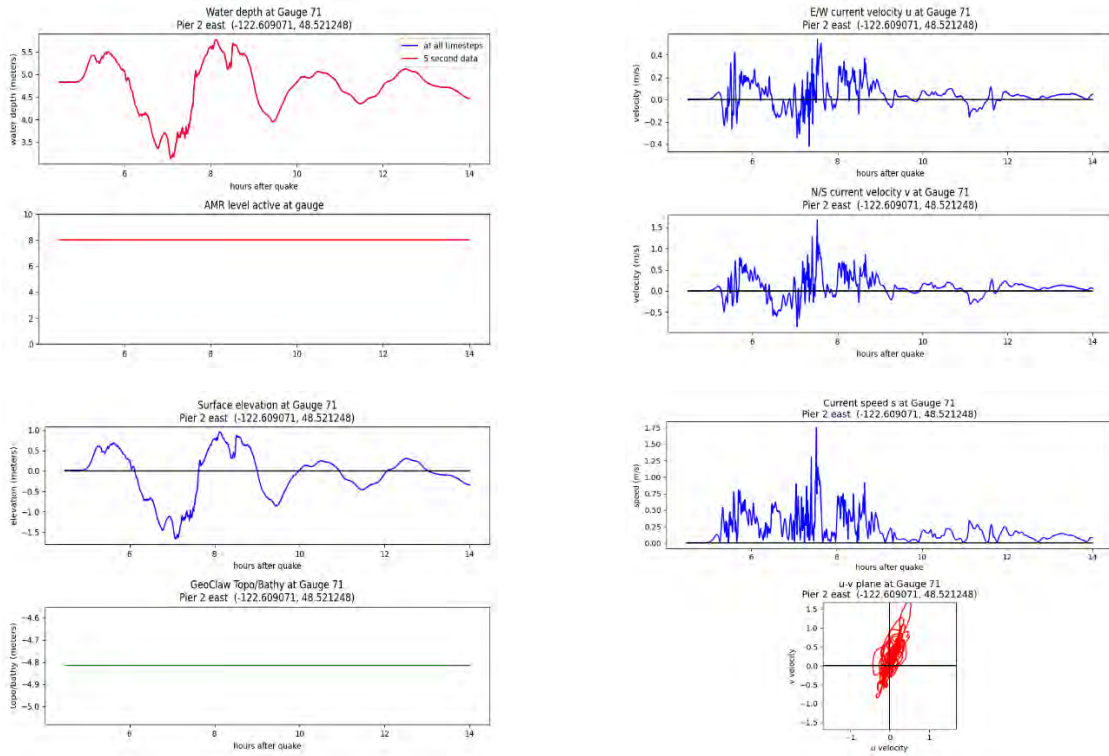
Cascadia subduction zone scenario, MHW:



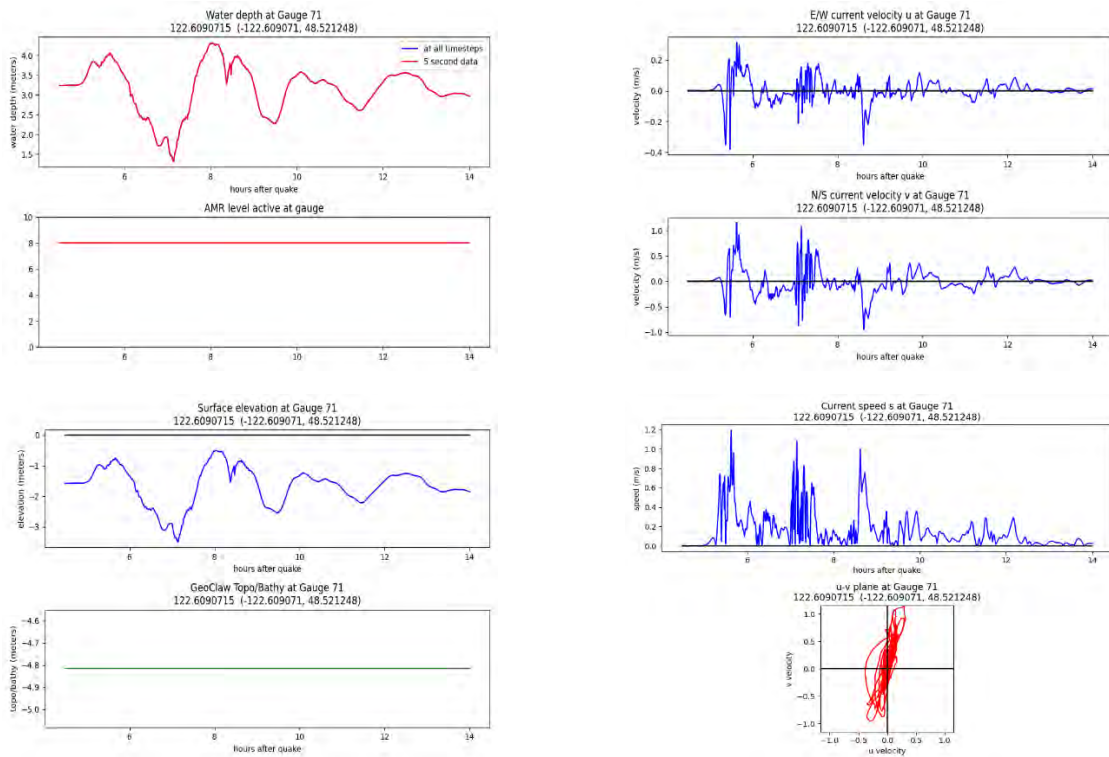
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

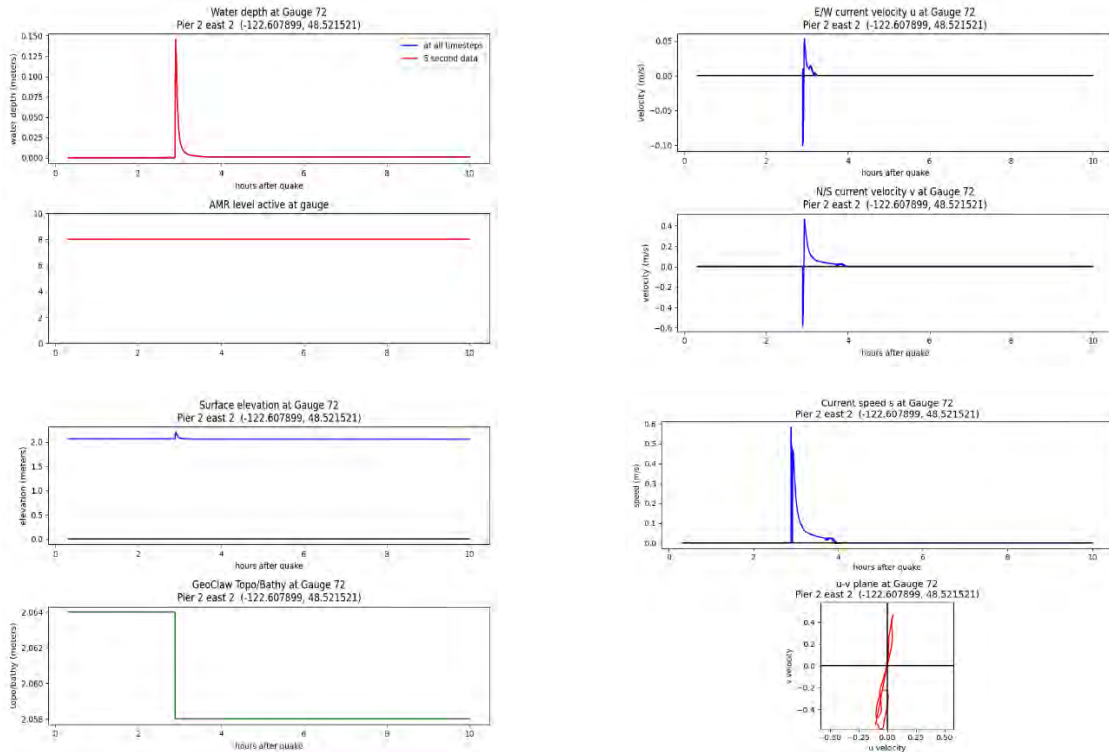


Alaska-Aleutian subduction zone scenario, MLW:

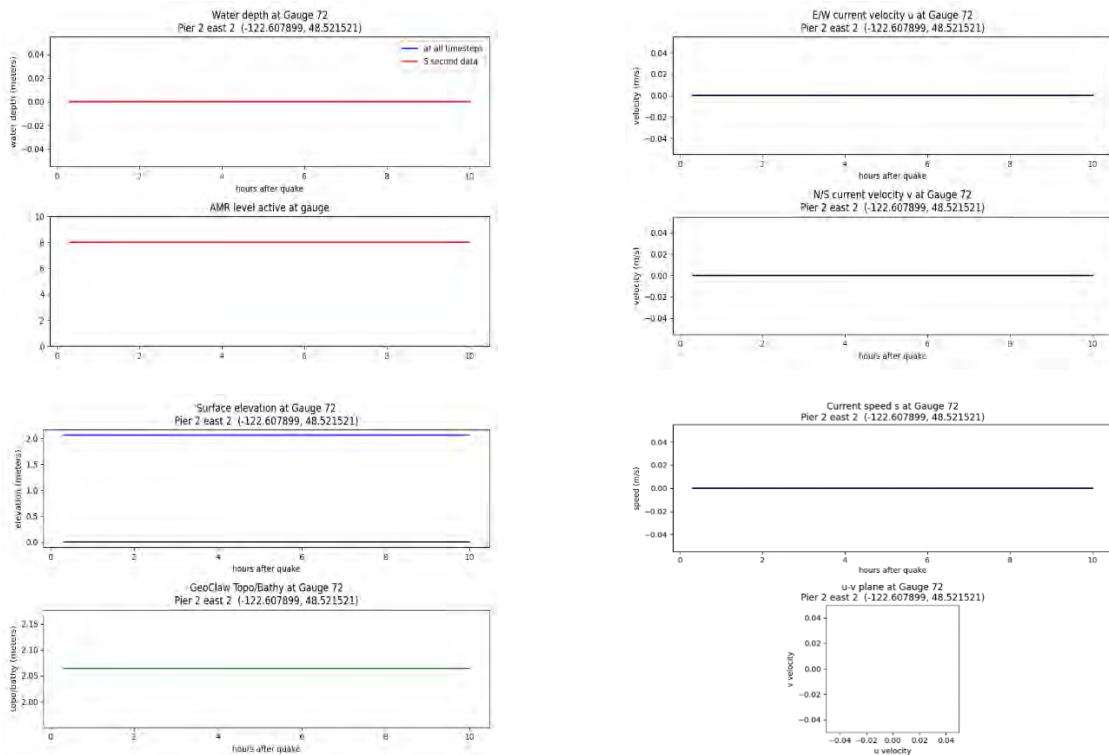


Gauge 72: Pier 2 (onshore)

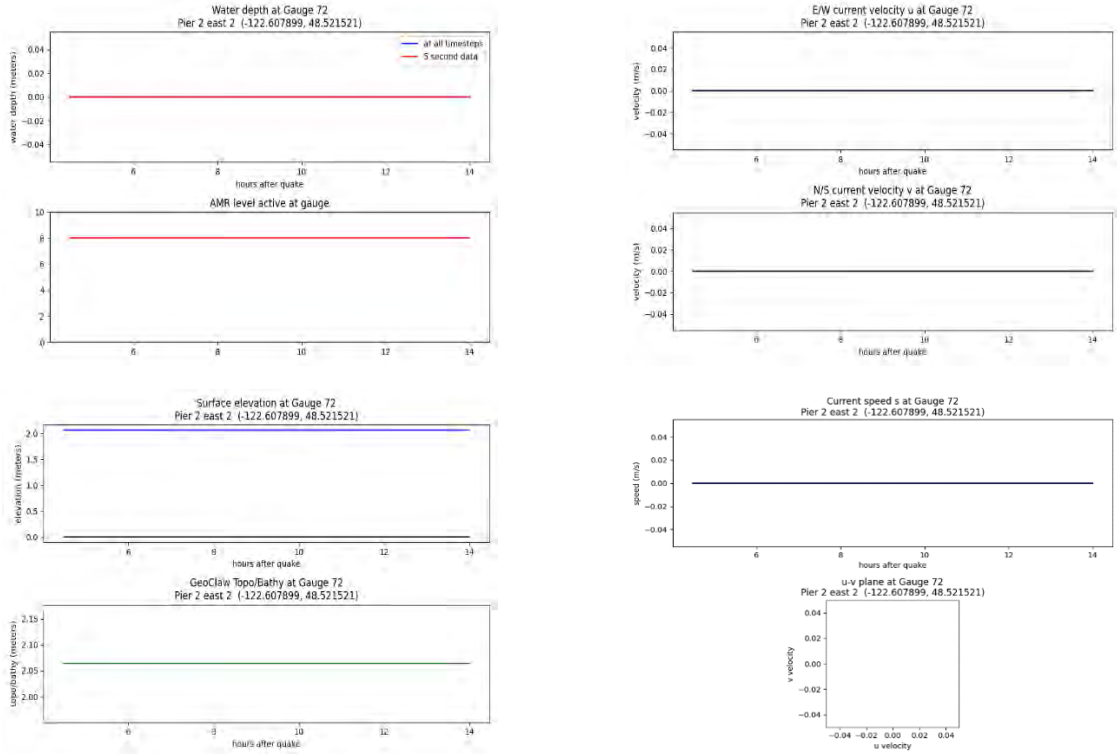
Cascadia subduction zone scenario, MHW:



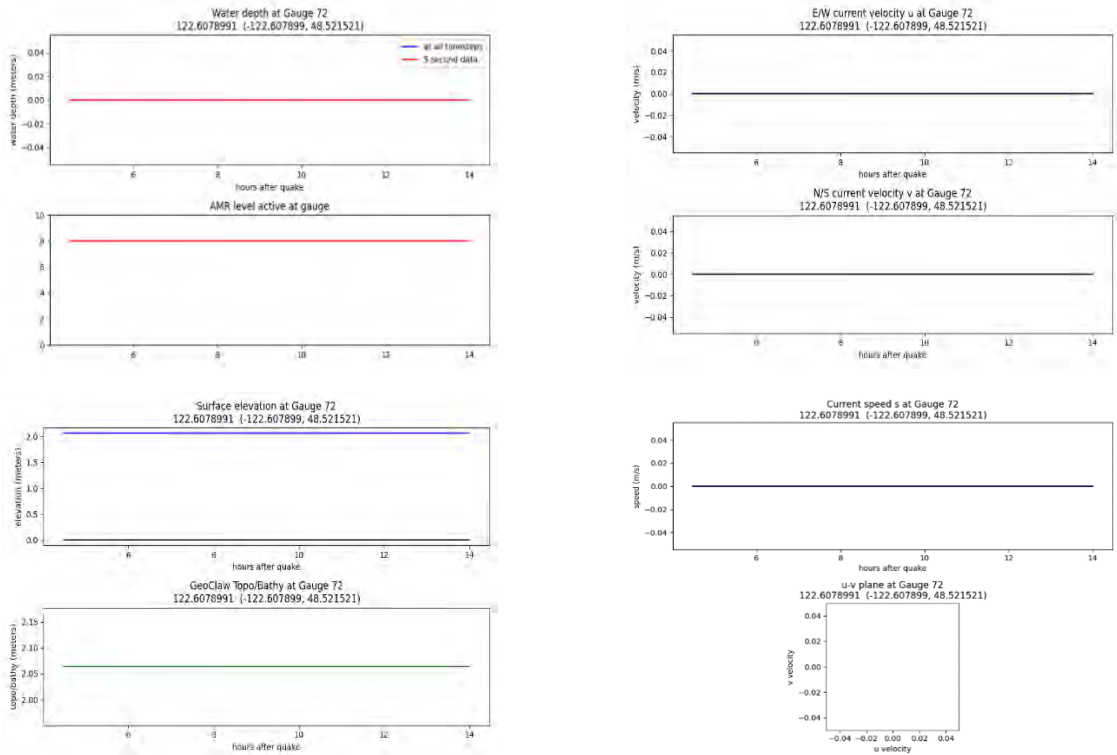
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

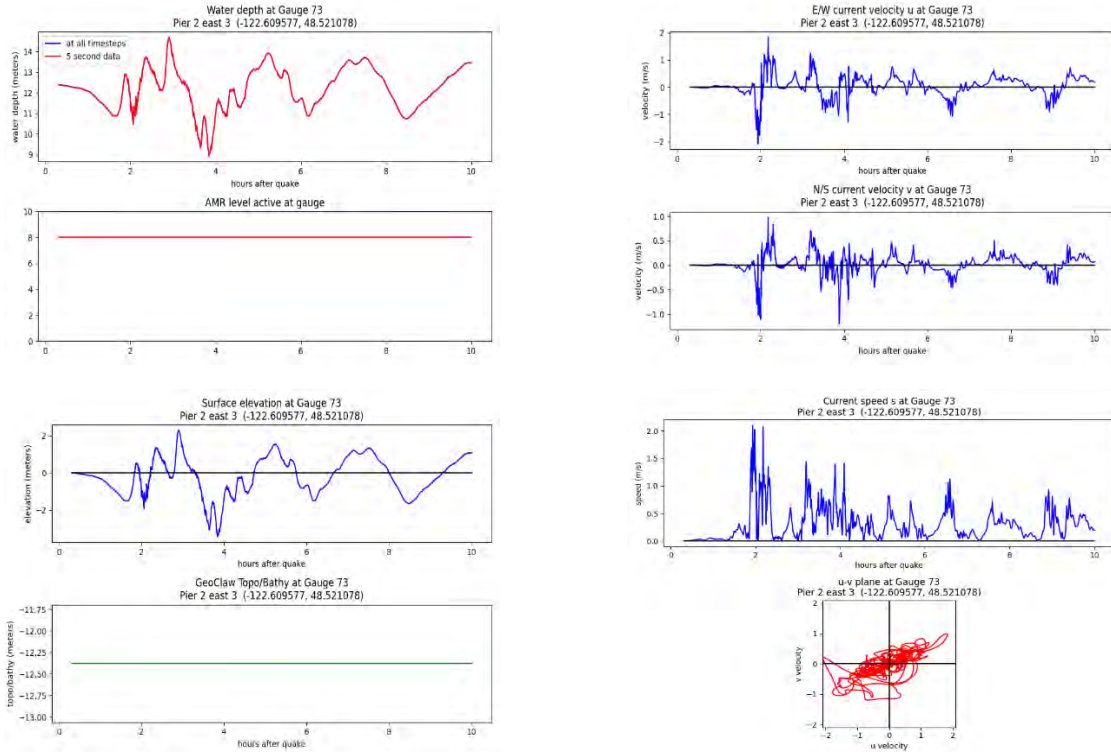


Alaska-Aleutian subduction zone scenario, MLW:

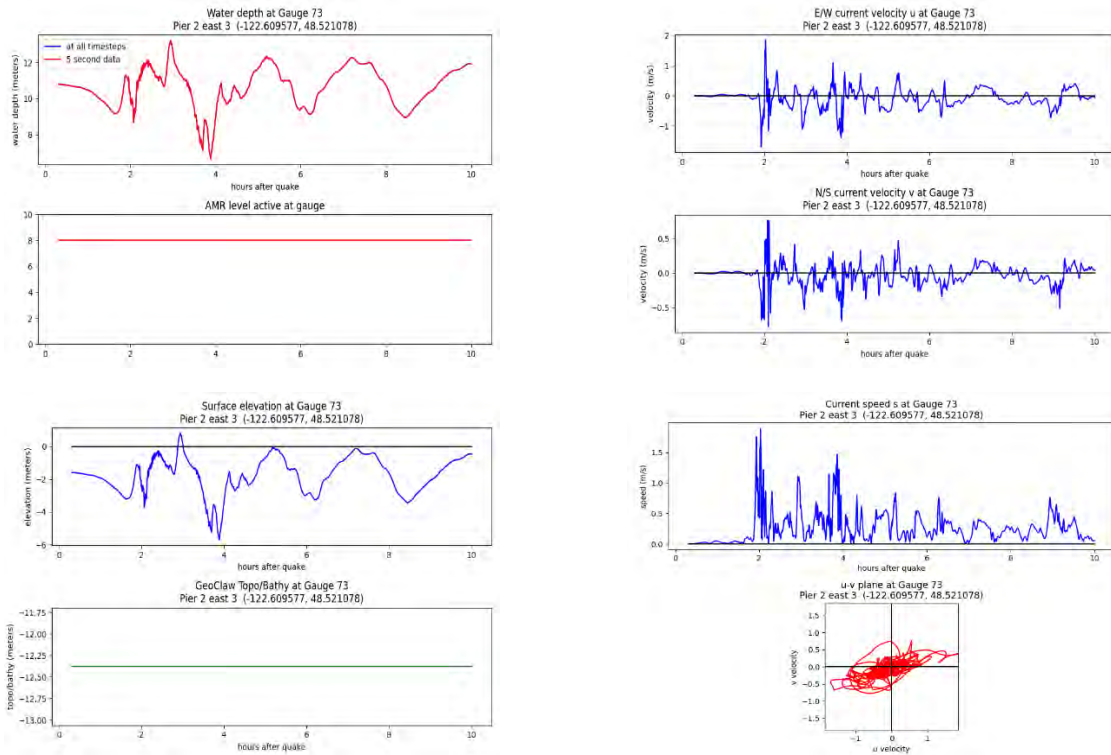


Gauge 73: Port of Anacortes

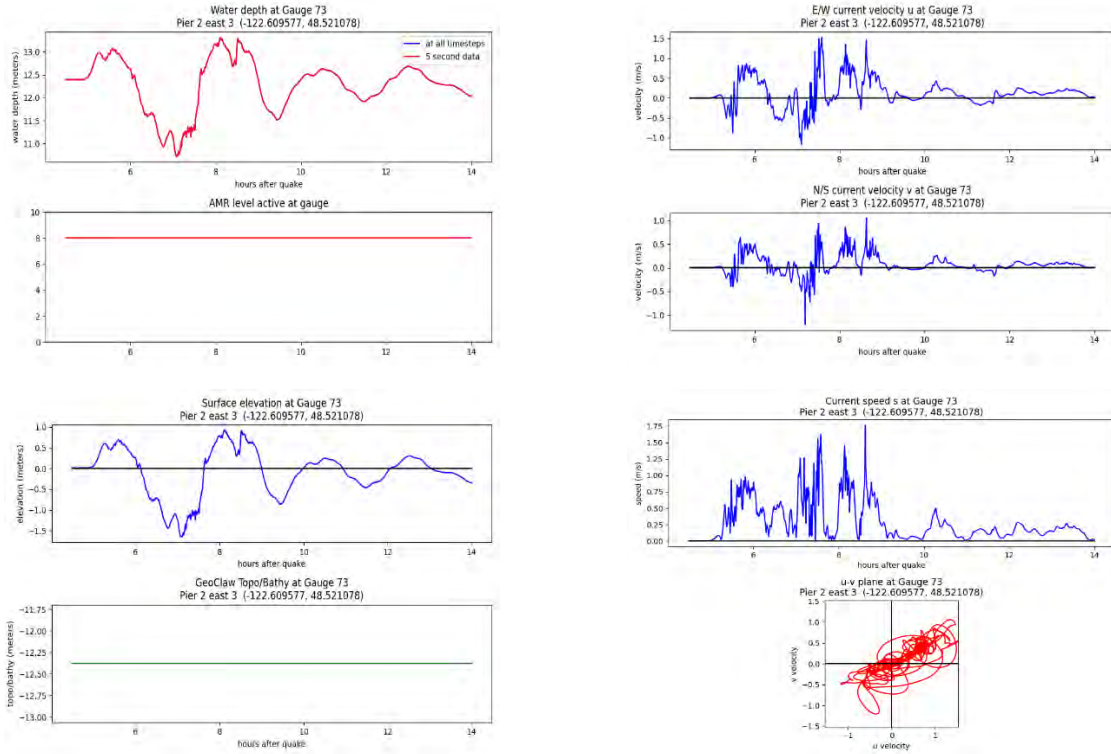
Cascadia subduction zone scenario, MHW:



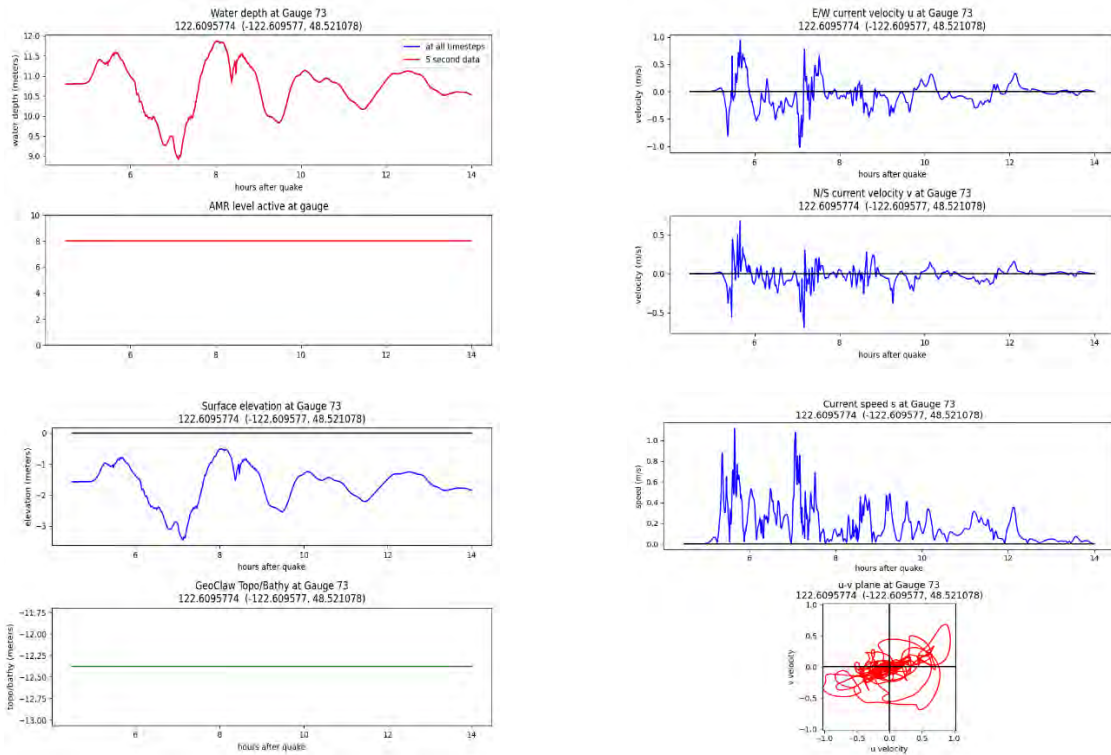
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

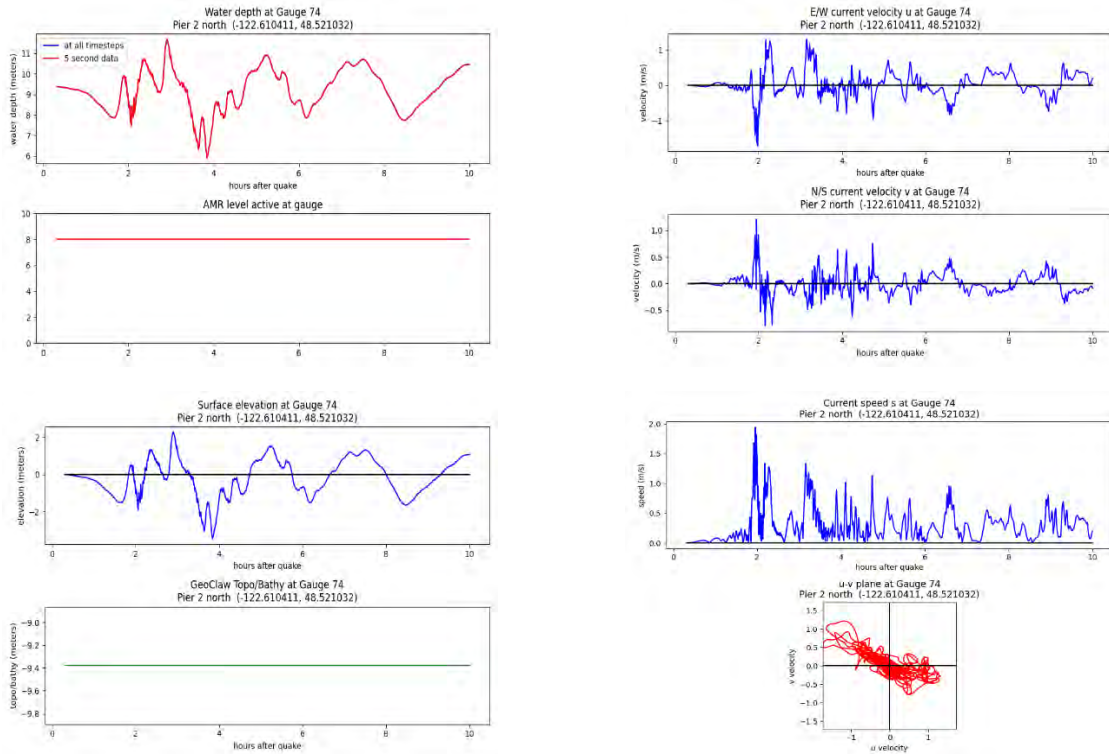


Alaska-Aleutian subduction zone scenario, MLW:

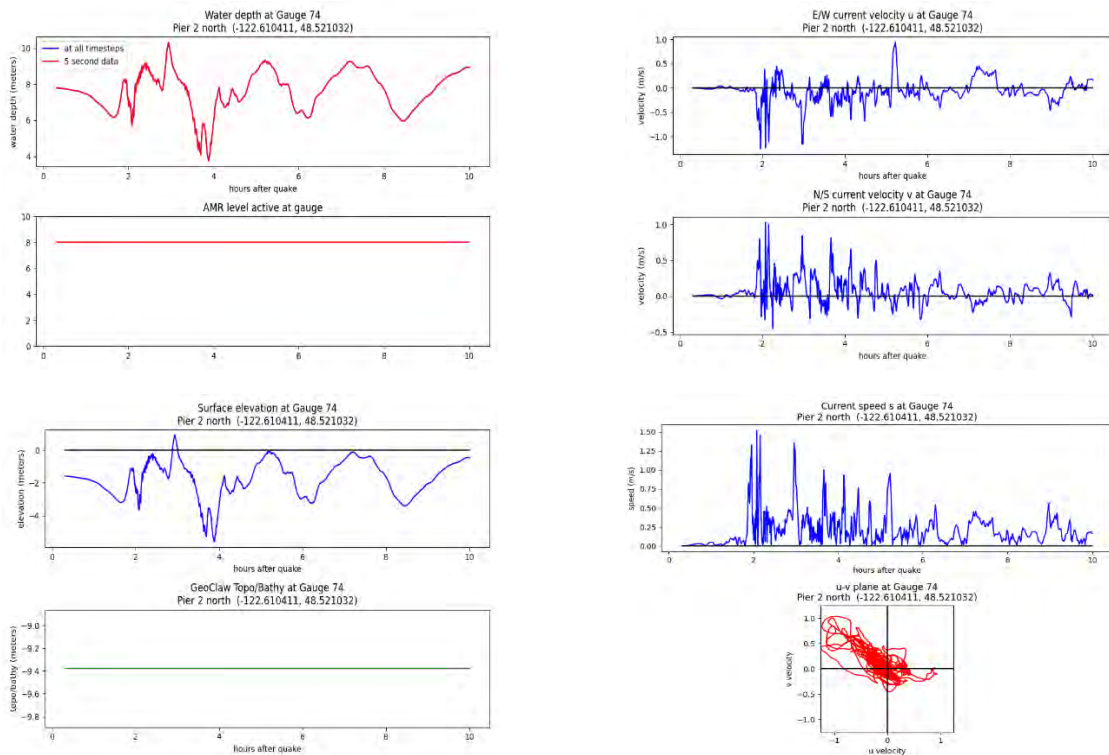


Gauge 74: Port of Anacortes 2

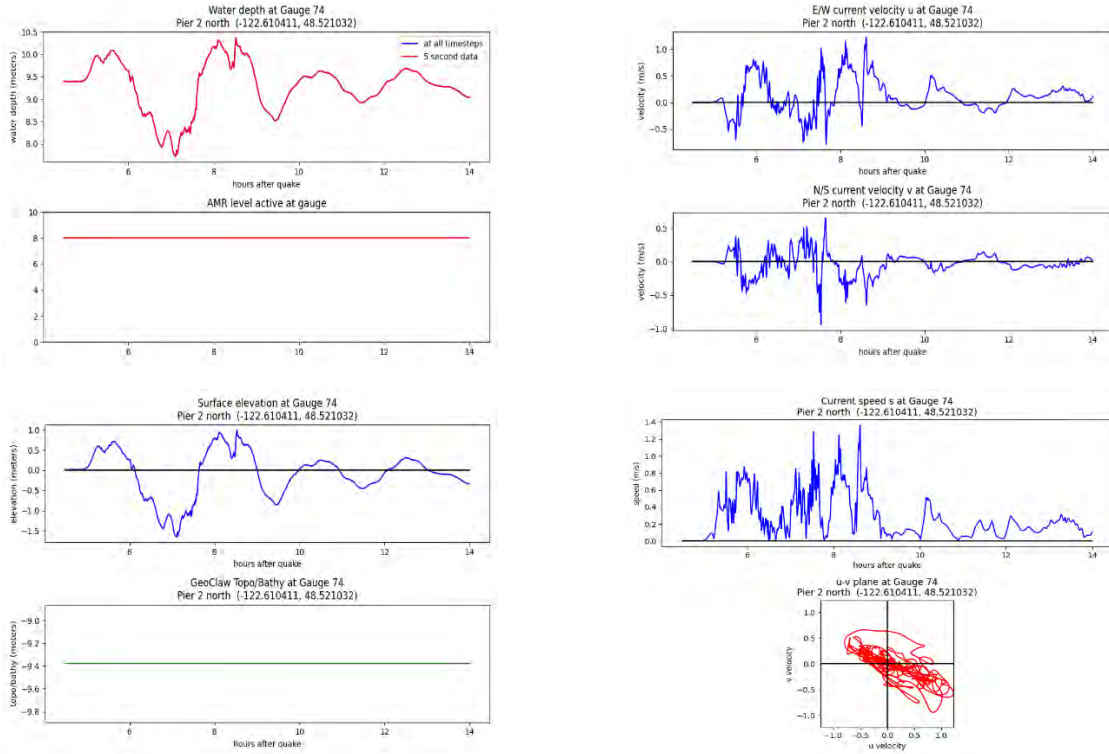
Cascadia subduction zone scenario, MHW:



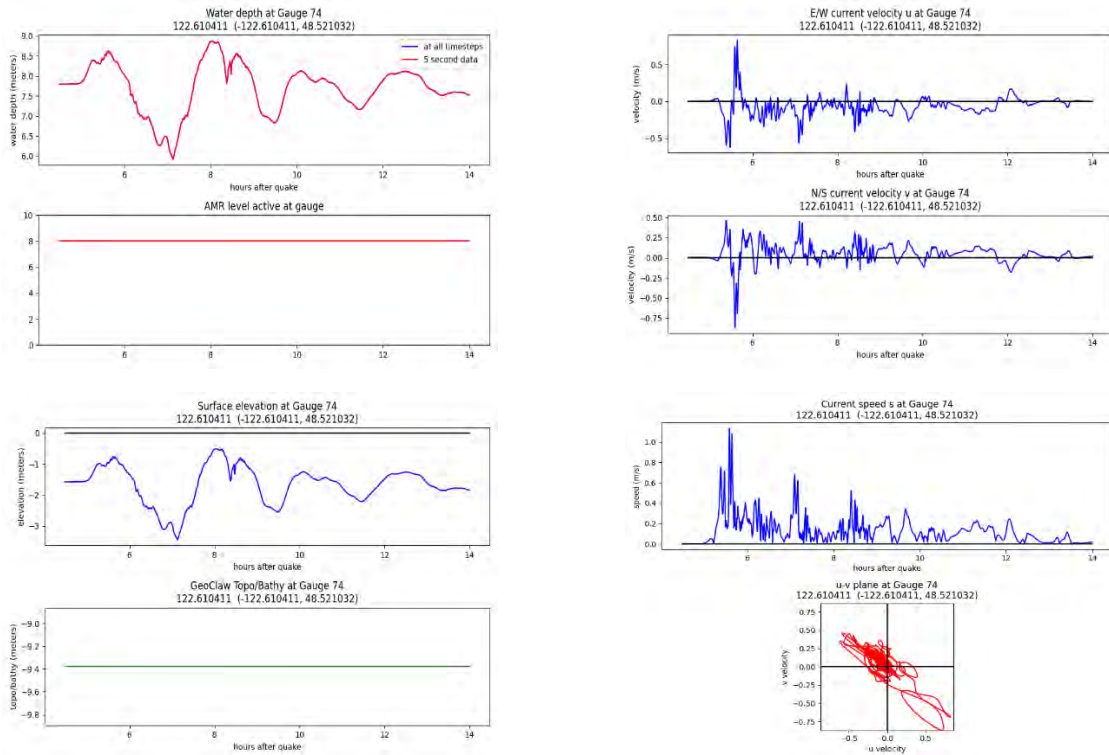
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

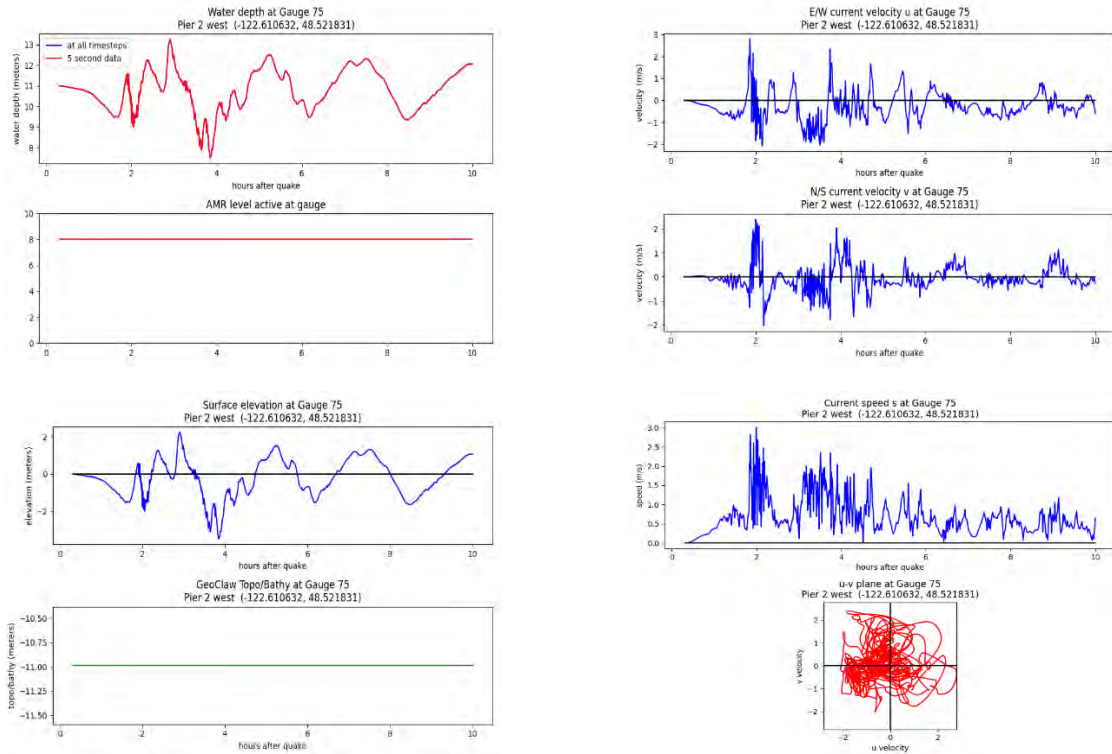


Alaska-Aleutian subduction zone scenario, MLW:

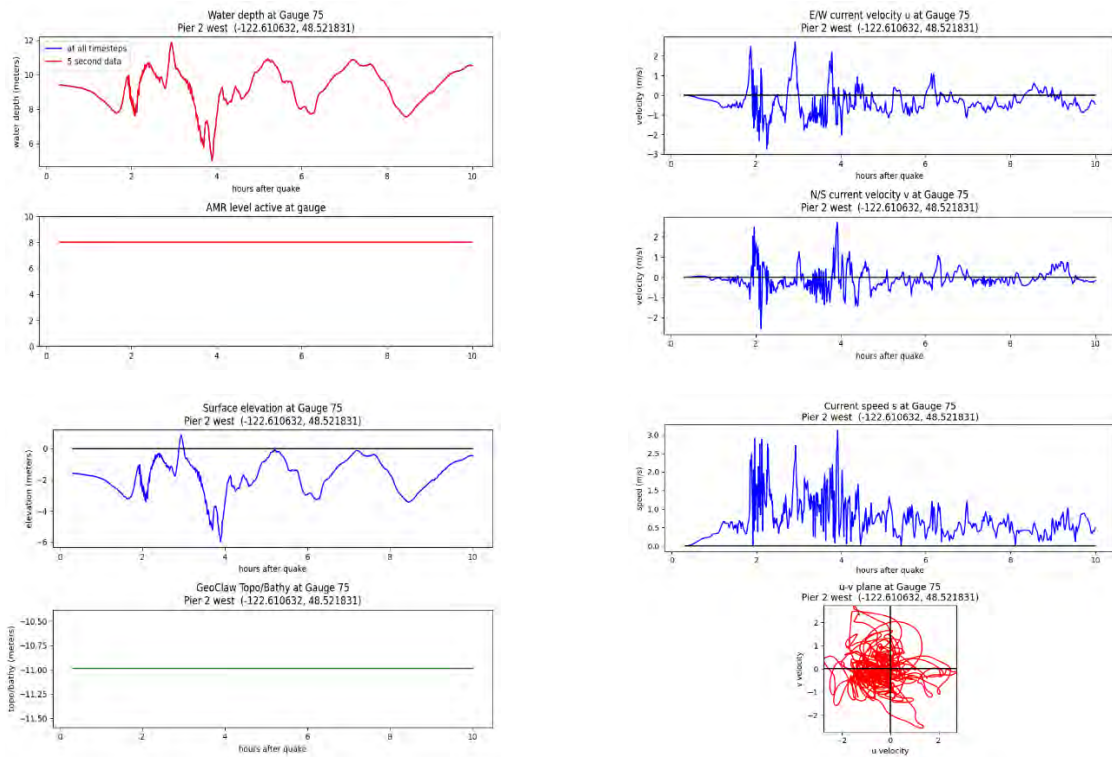


Gauge 75: Pier 1 east

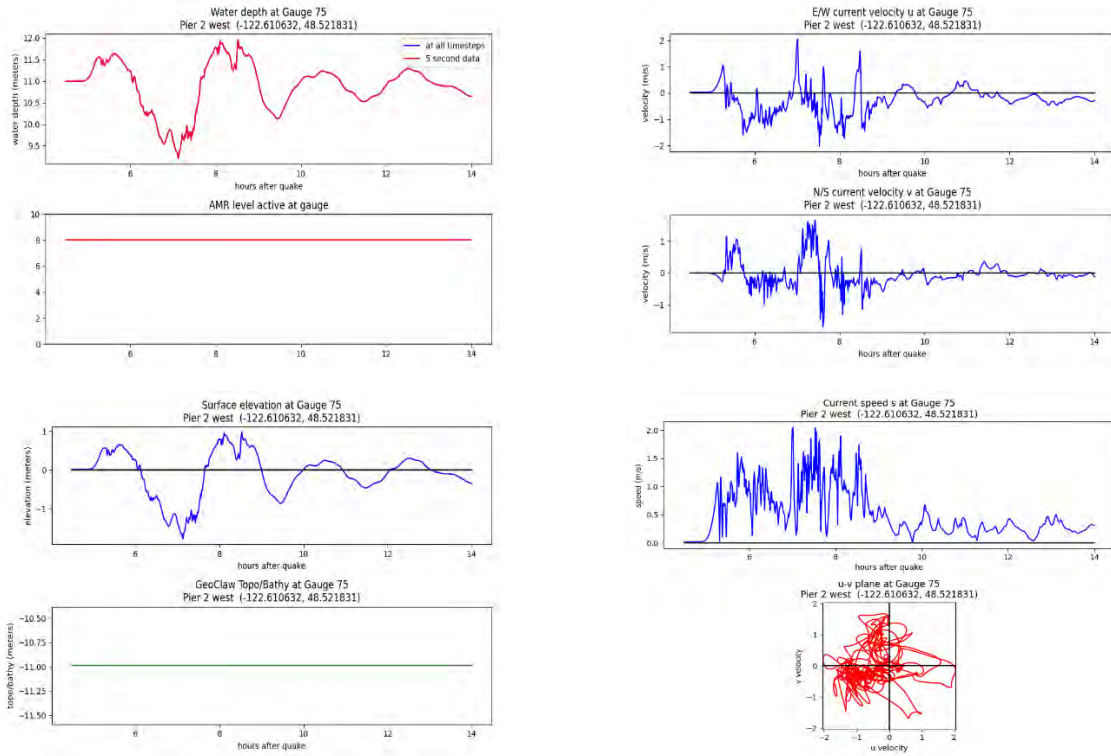
Cascadia subduction zone scenario, MHW:



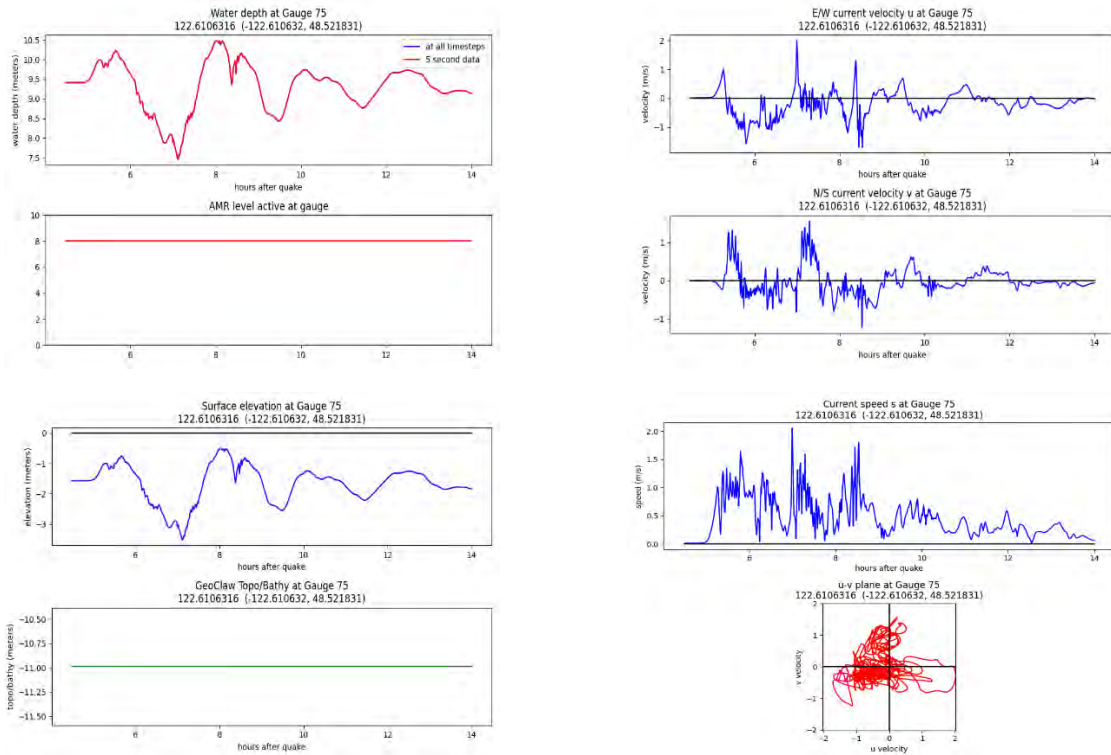
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

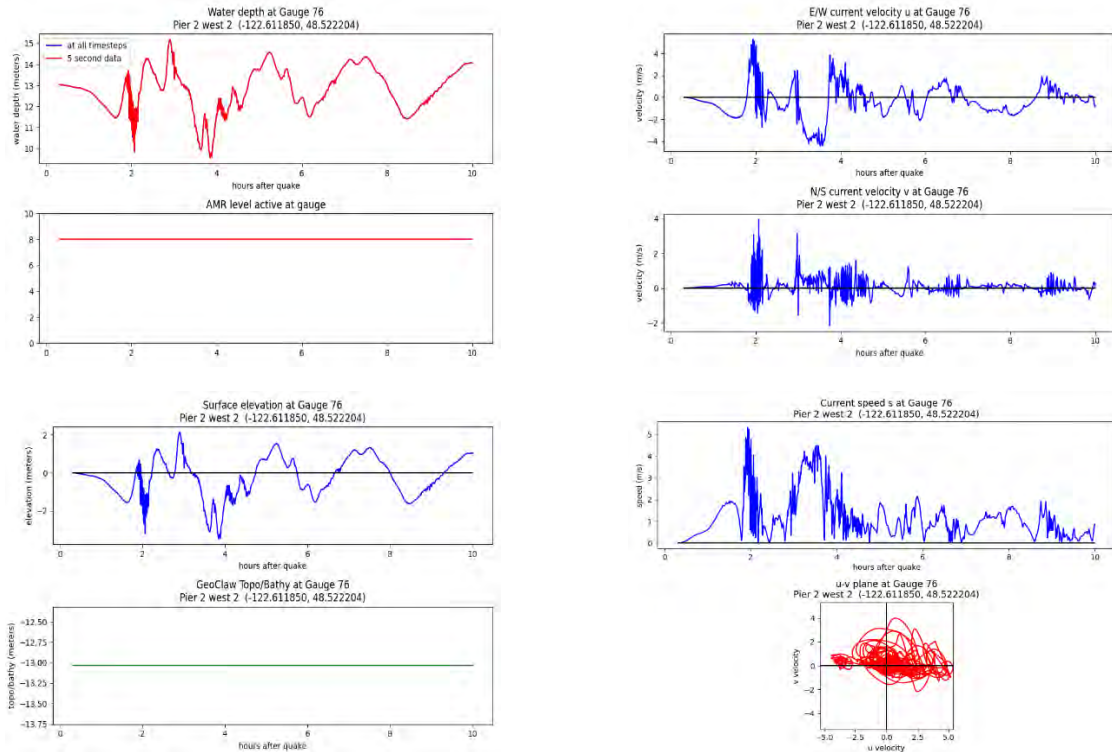


Alaska-Aleutian subduction zone scenario, MLW:

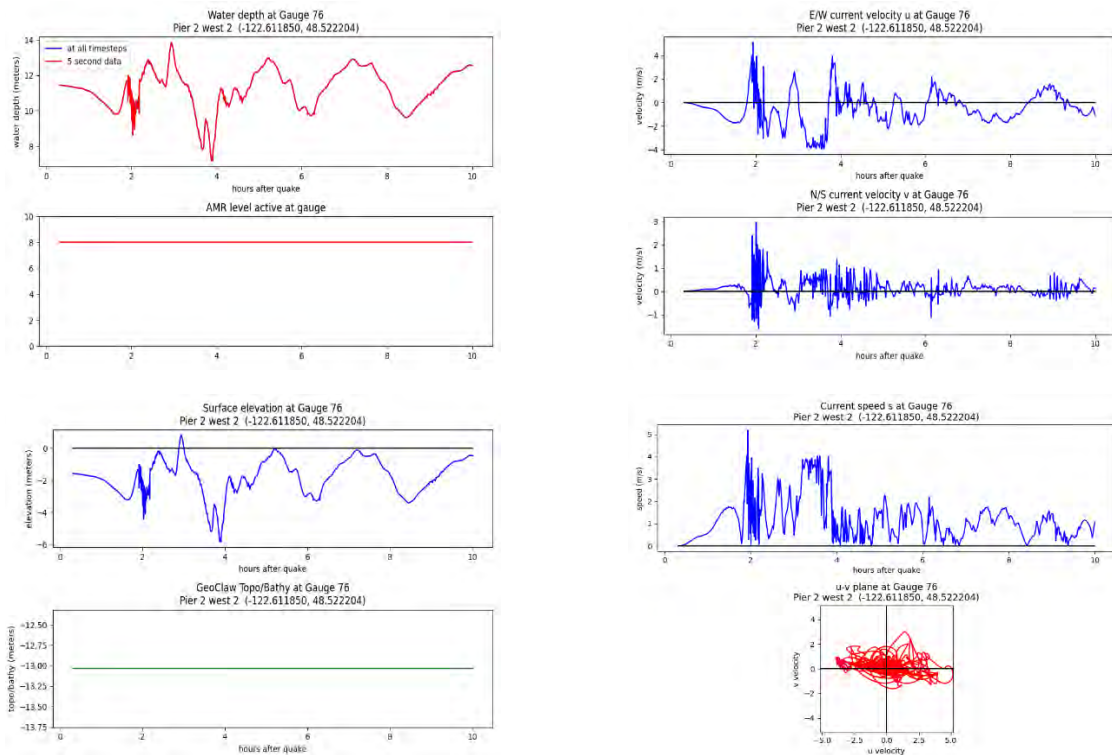


Gauge 76: Pier 1 north

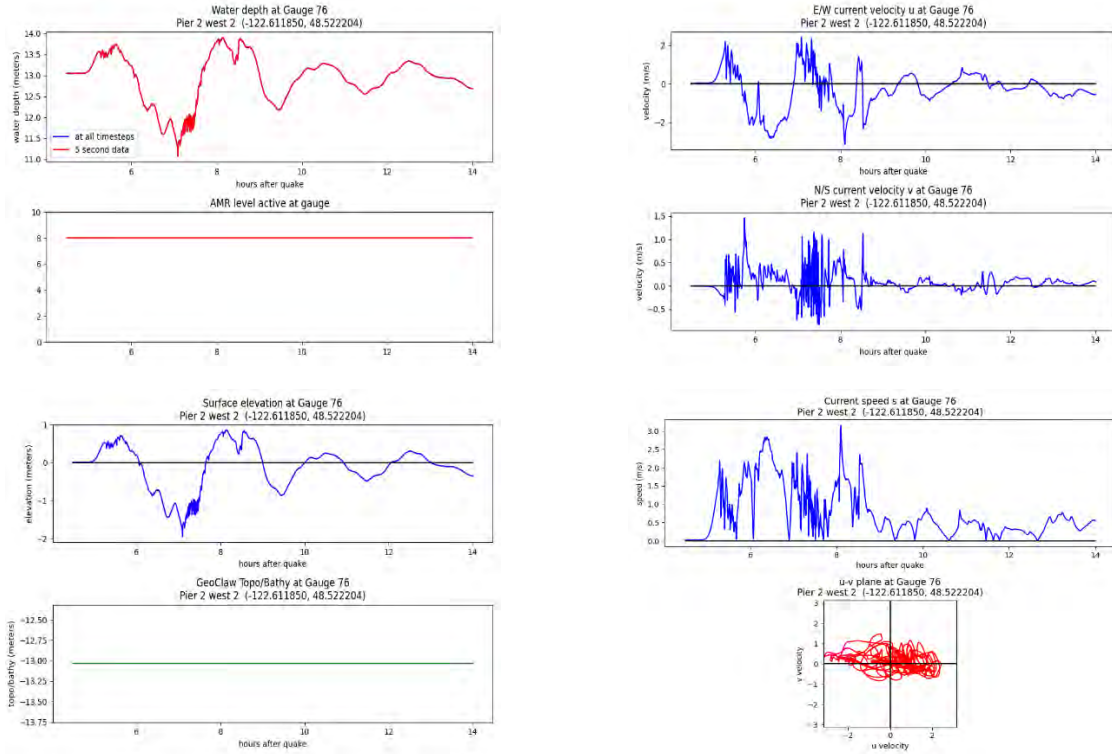
Cascadia subduction zone scenario, MHW:



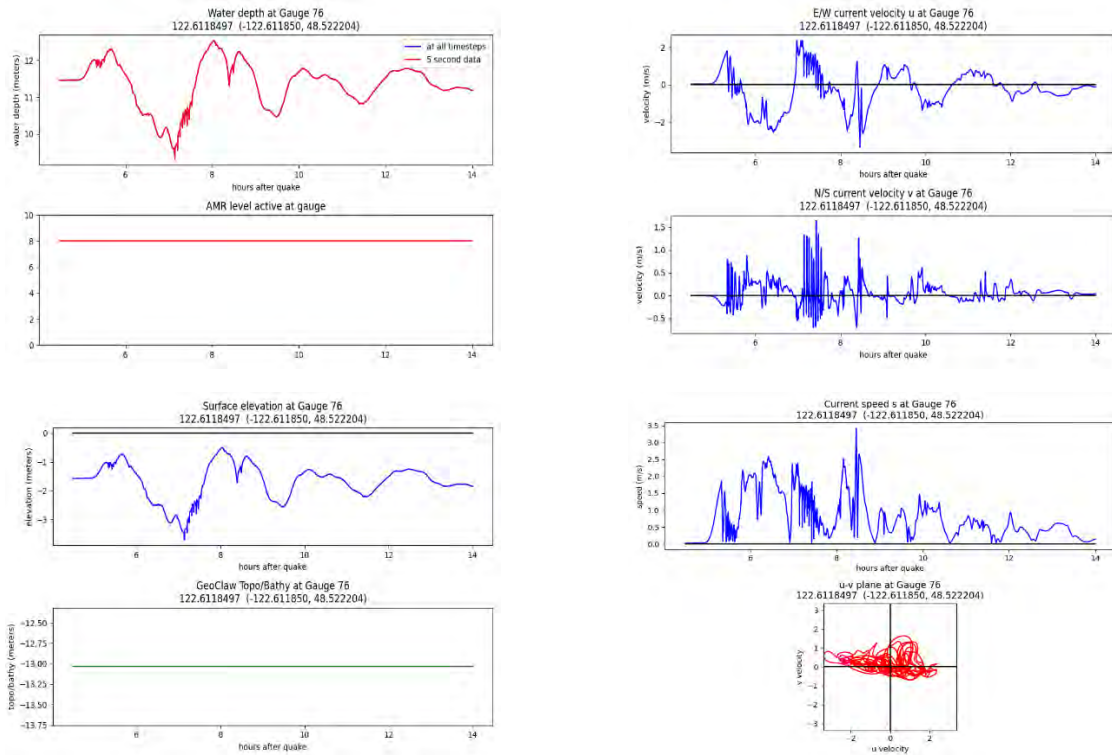
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

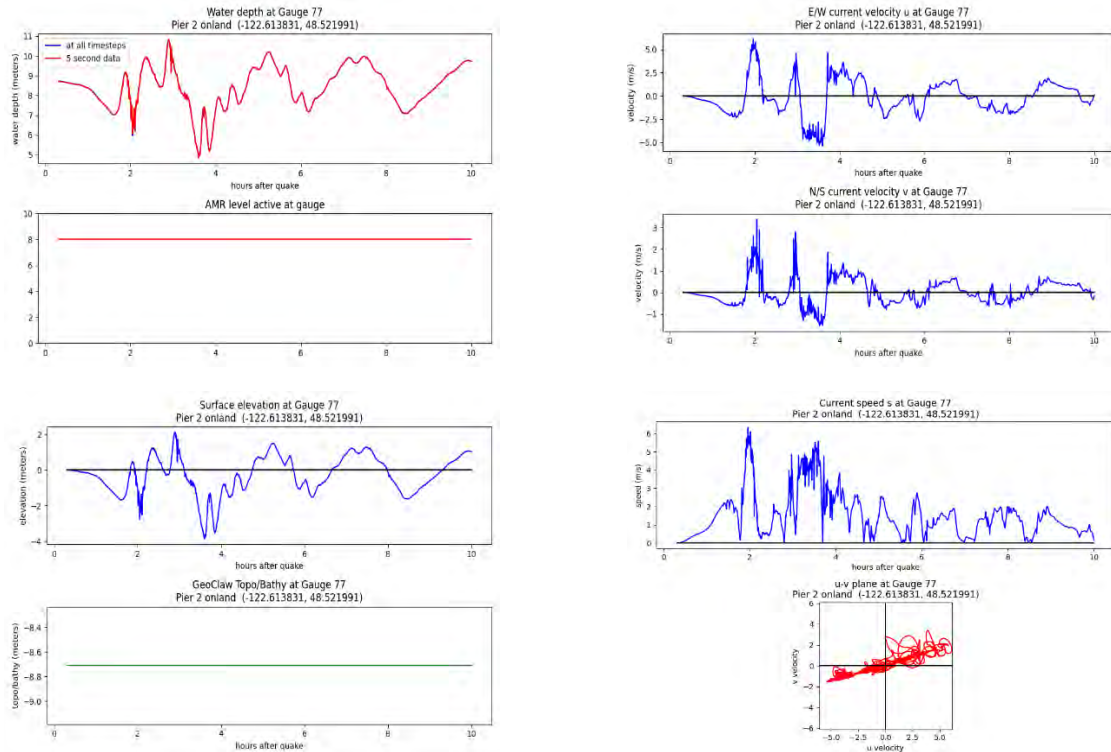


Alaska-Aleutian subduction zone scenario, MLW:

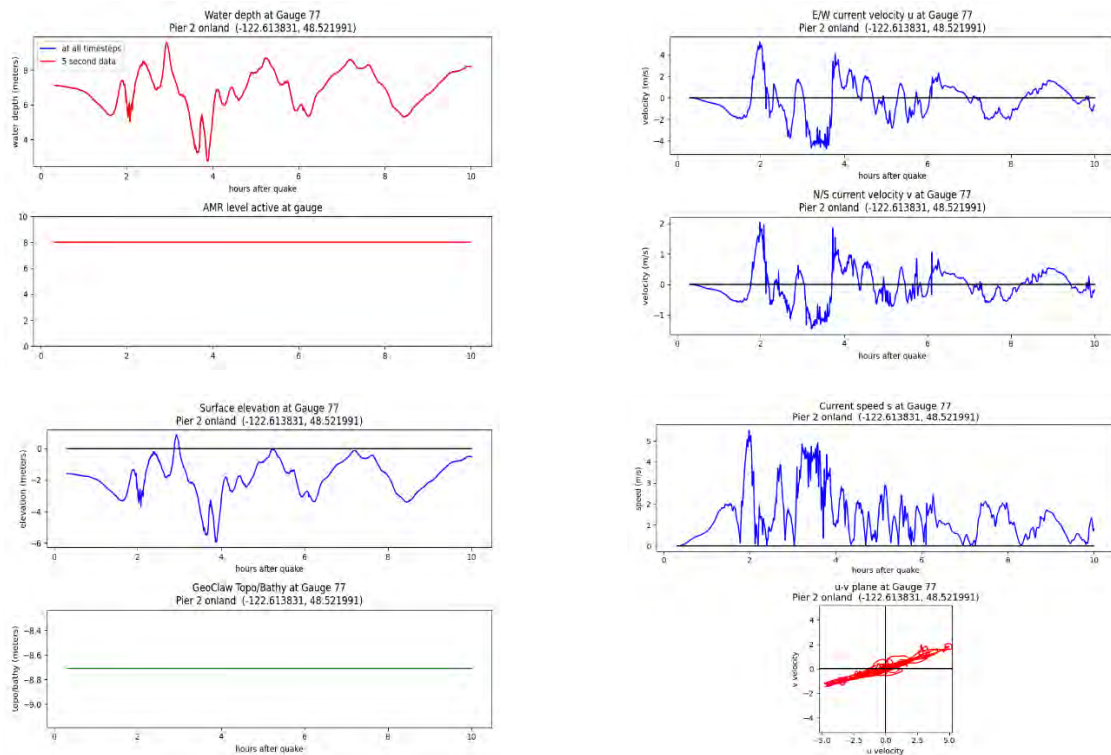


Gauge 77: Pier 1 west

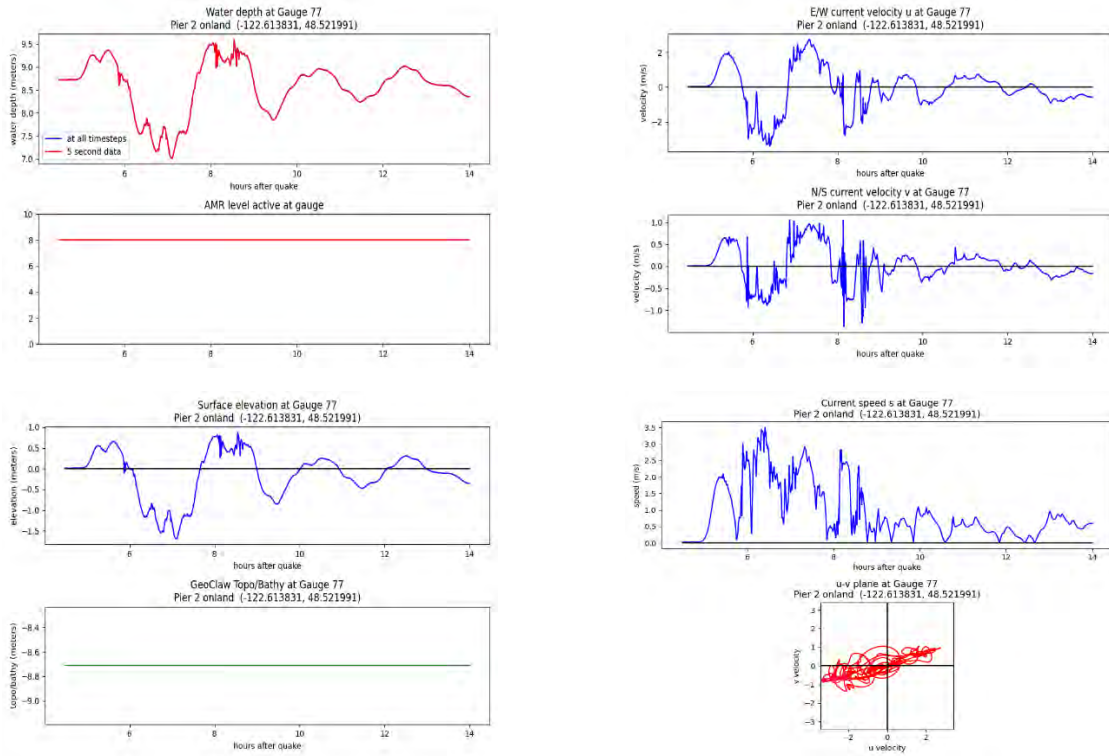
Cascadia subduction zone scenario, MHW:



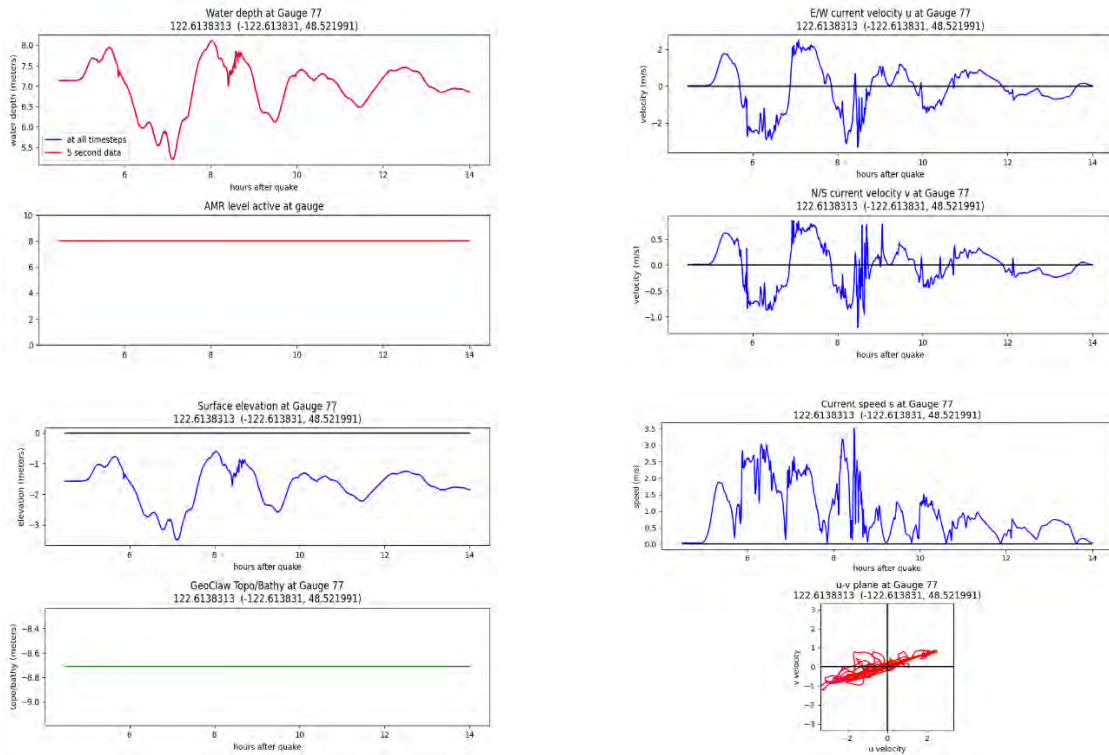
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

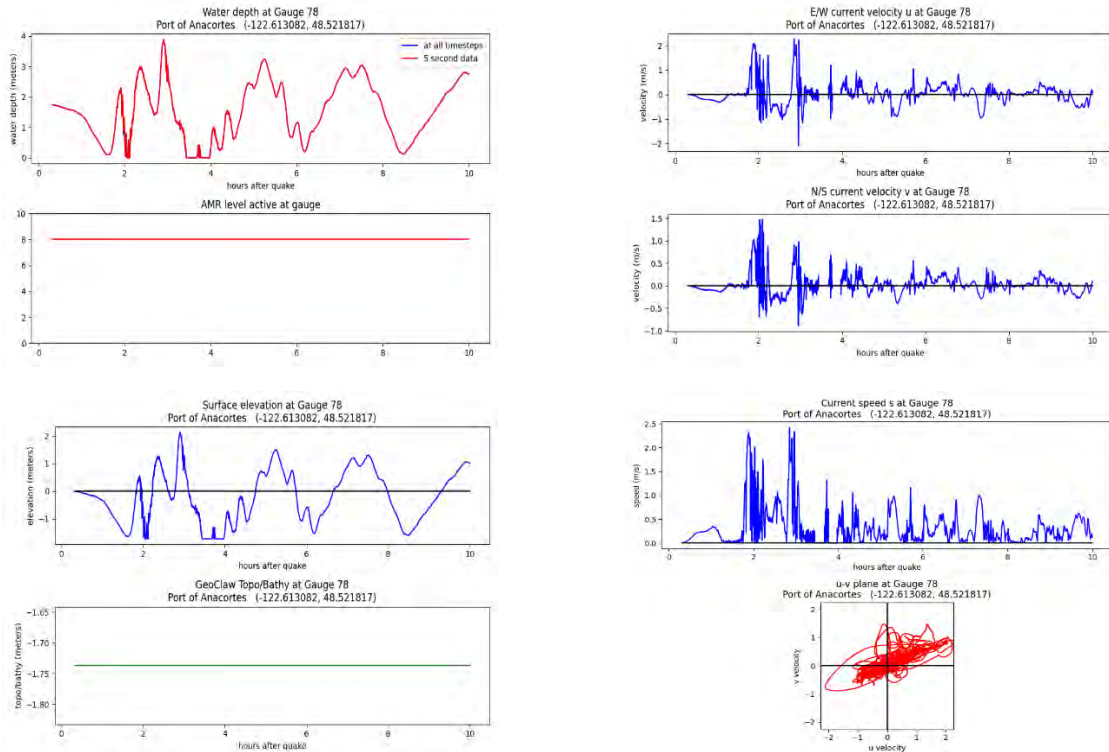


Alaska-Aleutian subduction zone scenario, MLW:

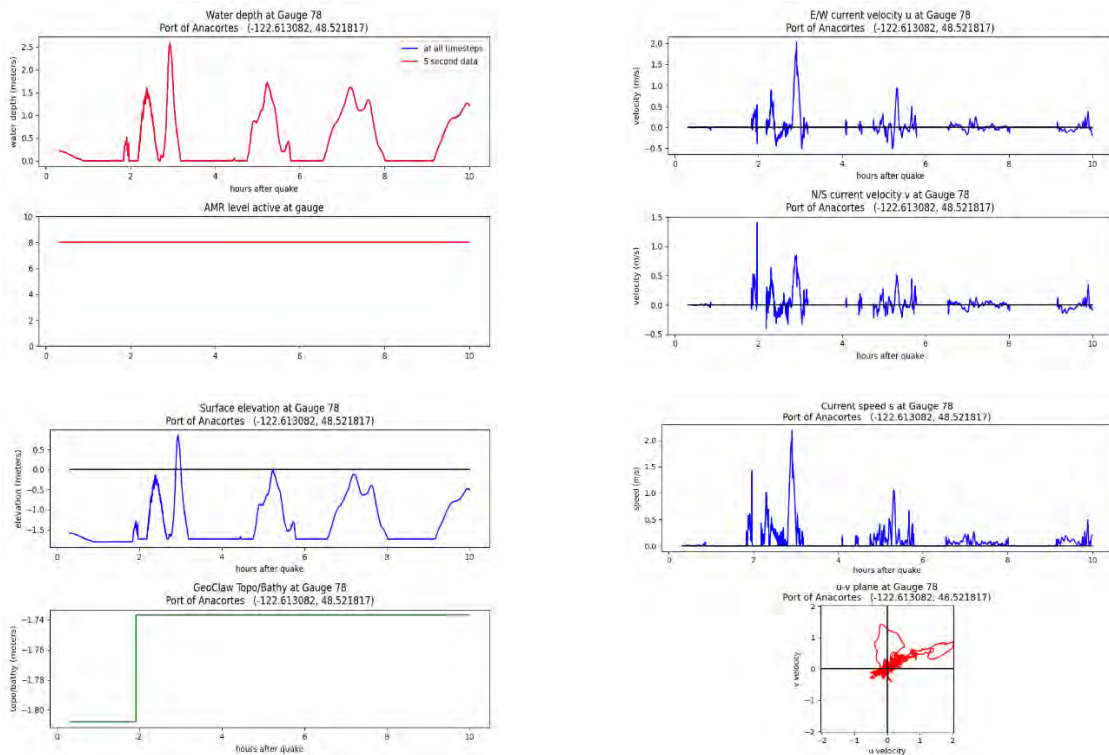


Gauge 78: Pier 1 west 2

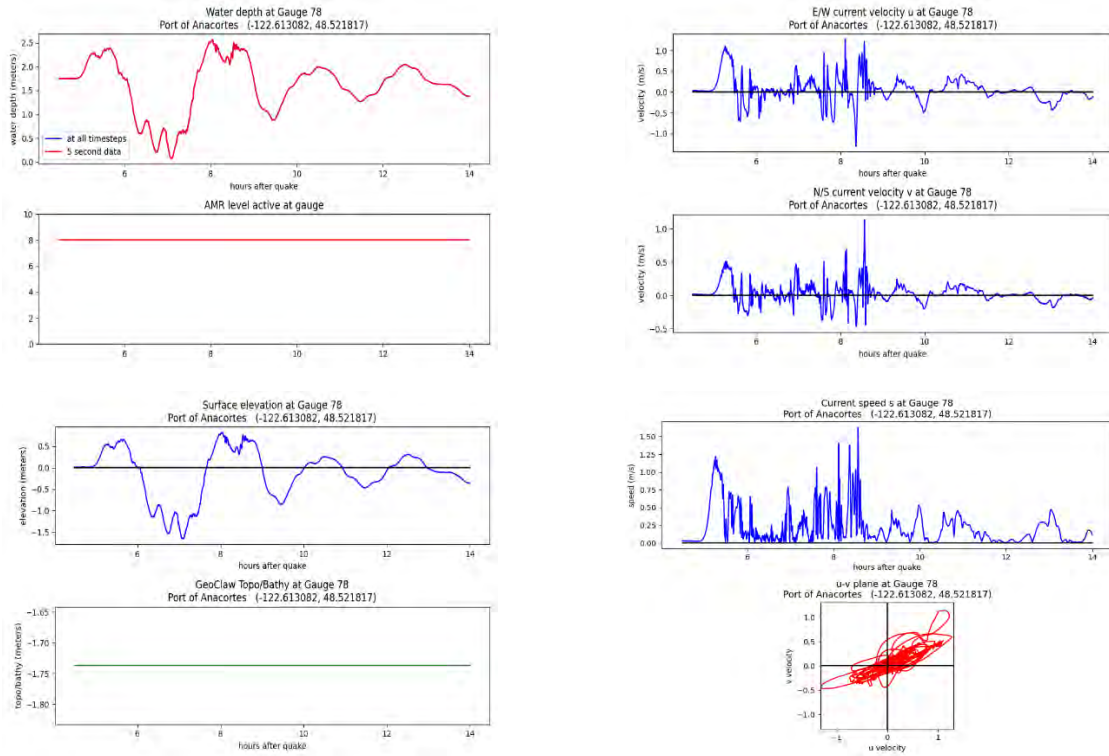
Cascadia subduction zone scenario, MHW:



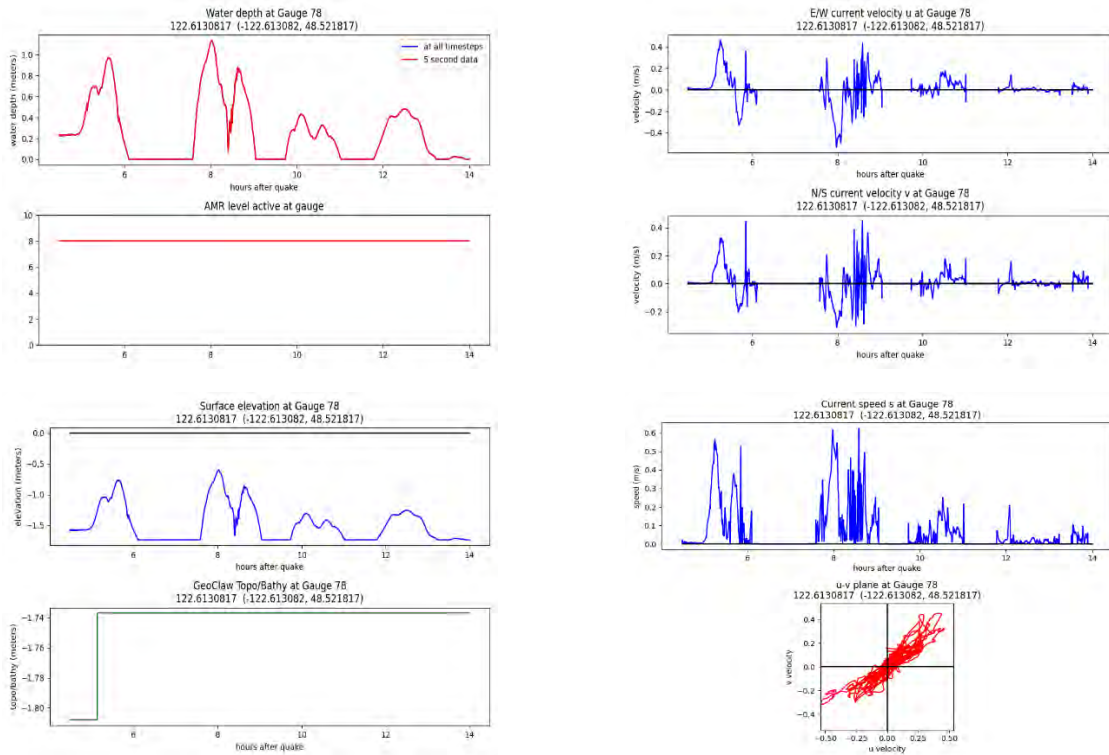
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

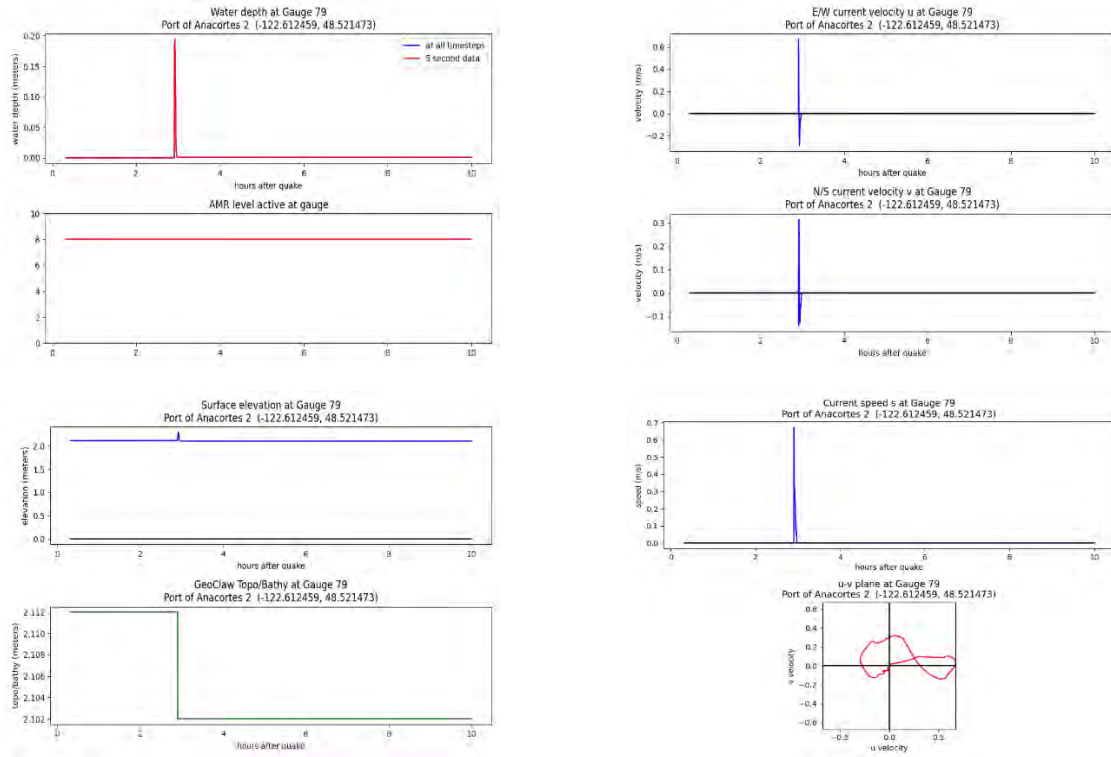


Alaska-Aleutian subduction zone scenario, MLW:

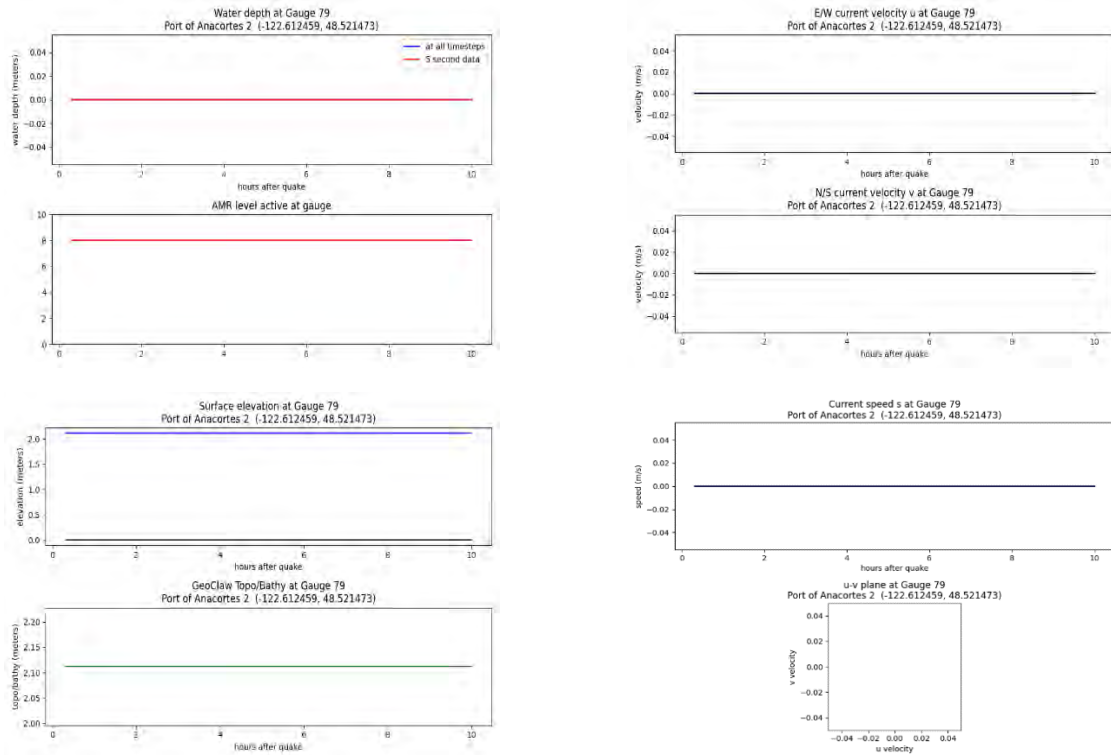


Gauge 79: Pier 1 Railroad/Commercial Ave (onshore)

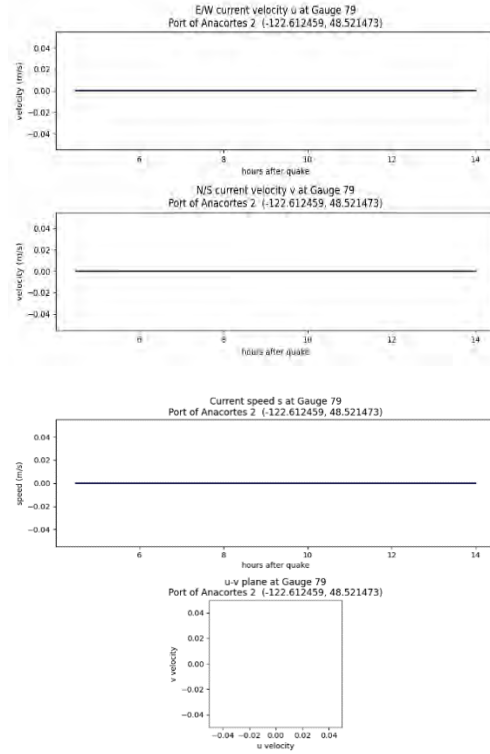
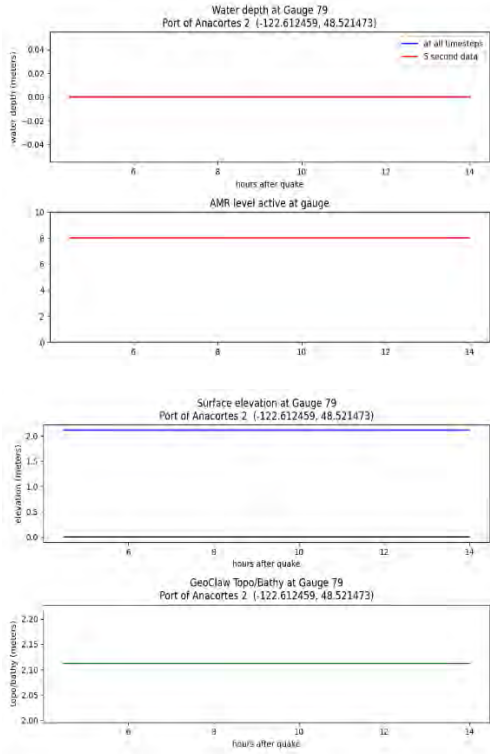
Cascadia subduction zone scenario, MHW:



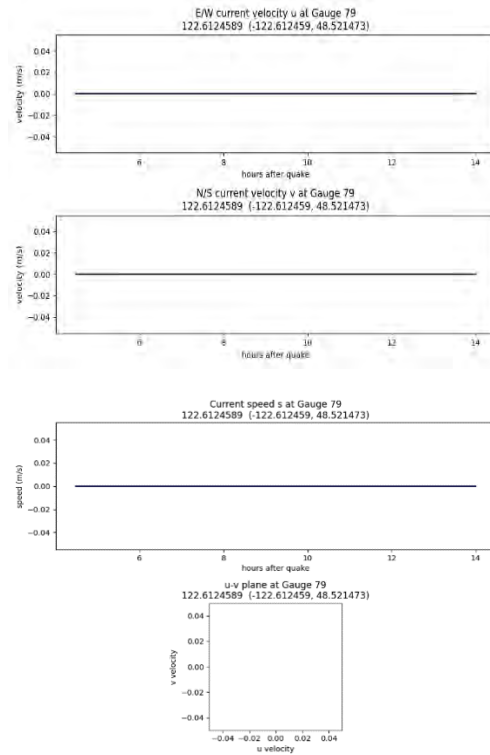
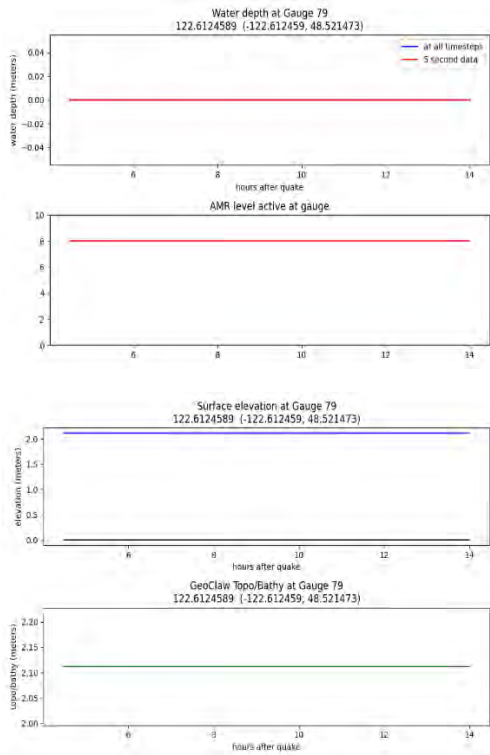
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

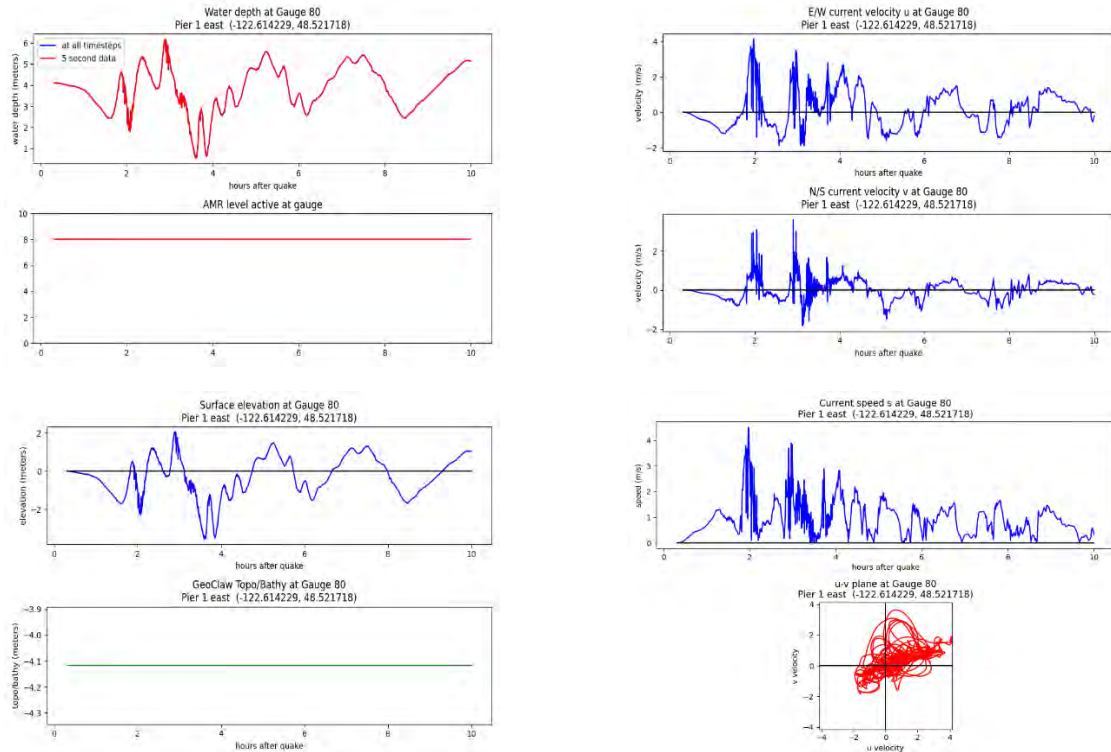


Alaska-Aleutian subduction zone scenario, MLW:

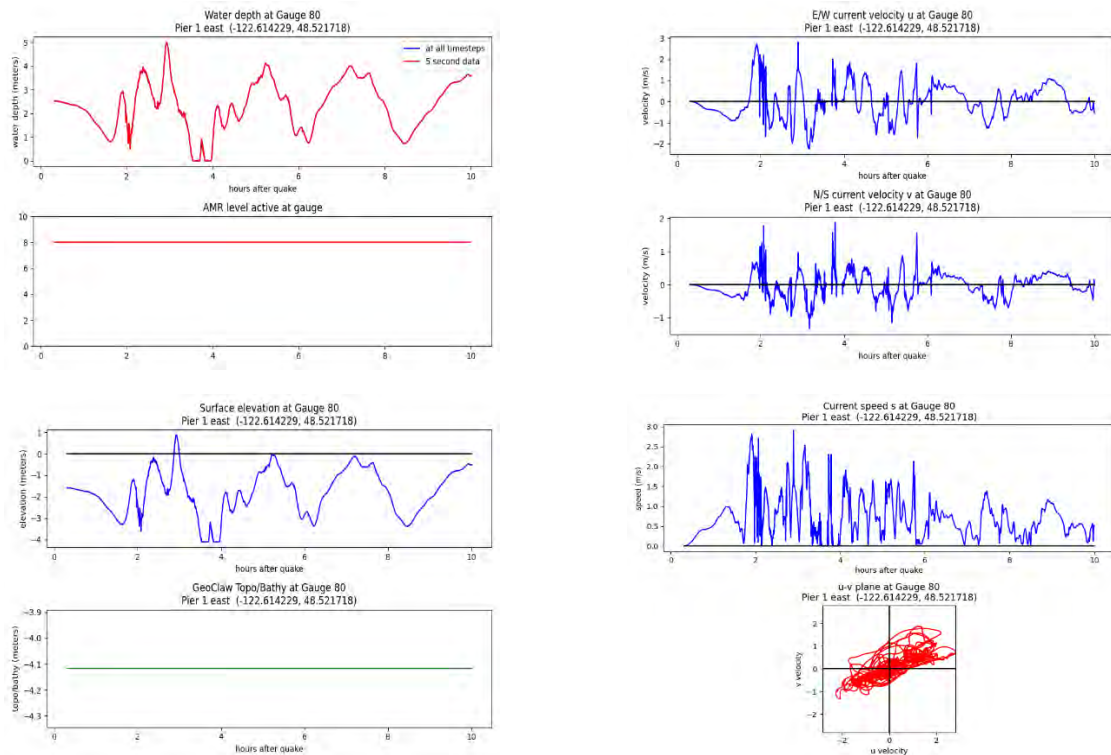


Gauge 80: Curtis Wharf east

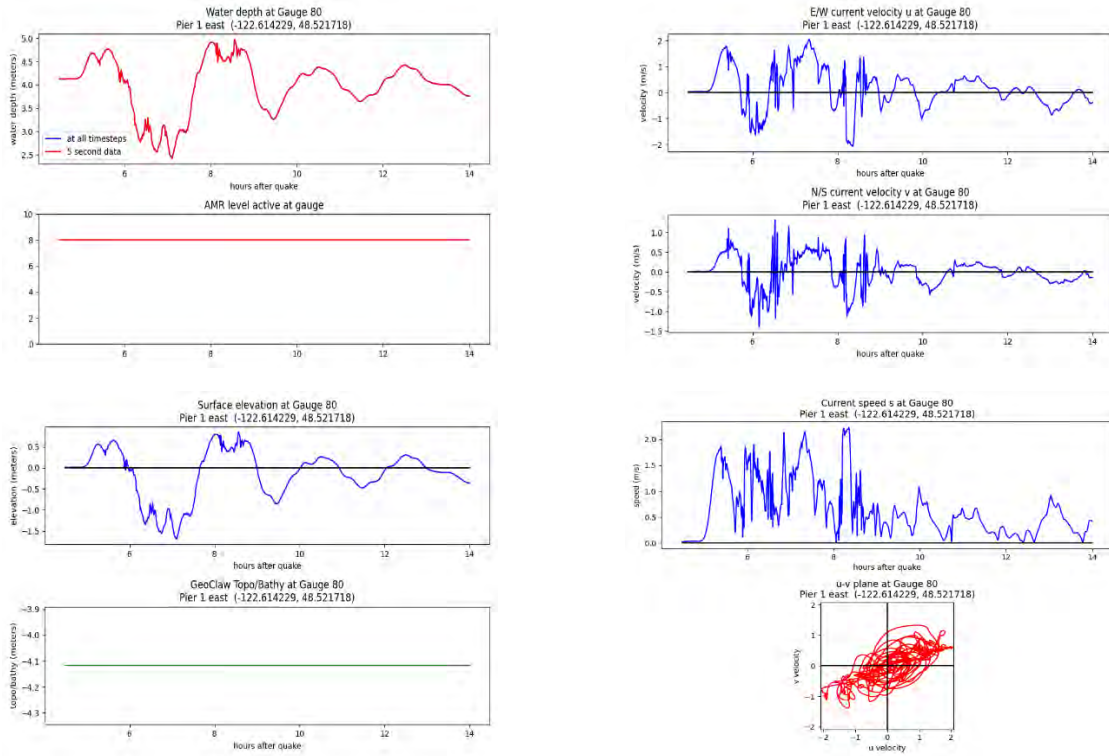
Cascadia subduction zone scenario, MHW:



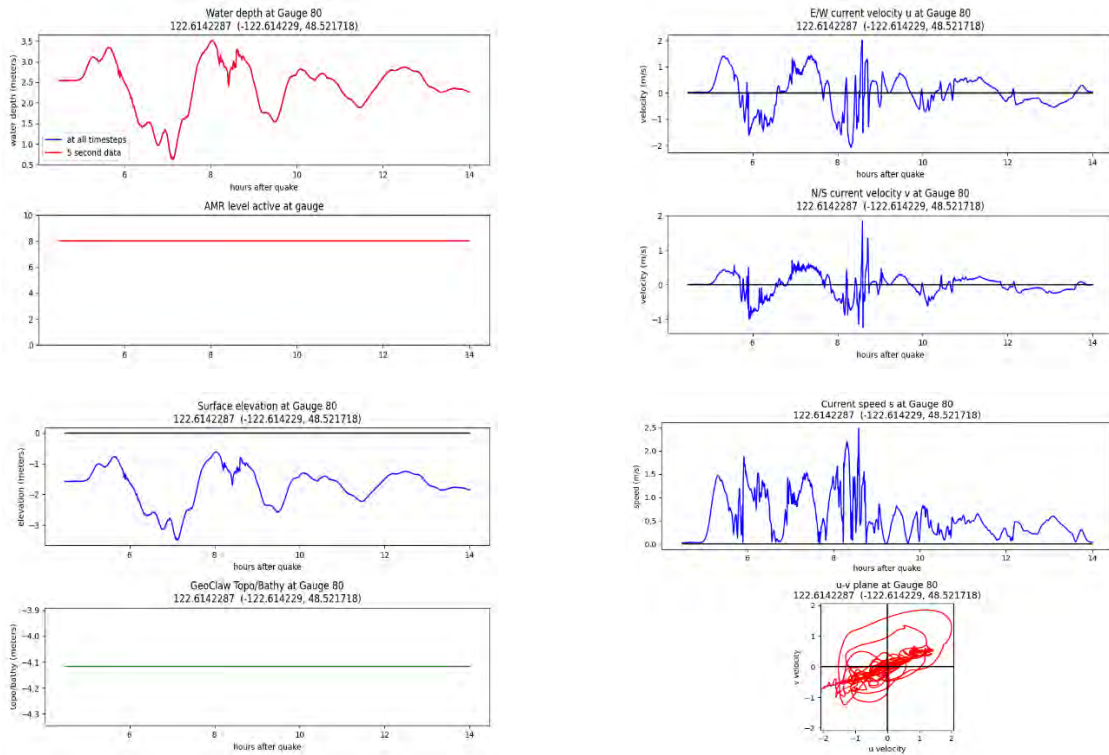
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

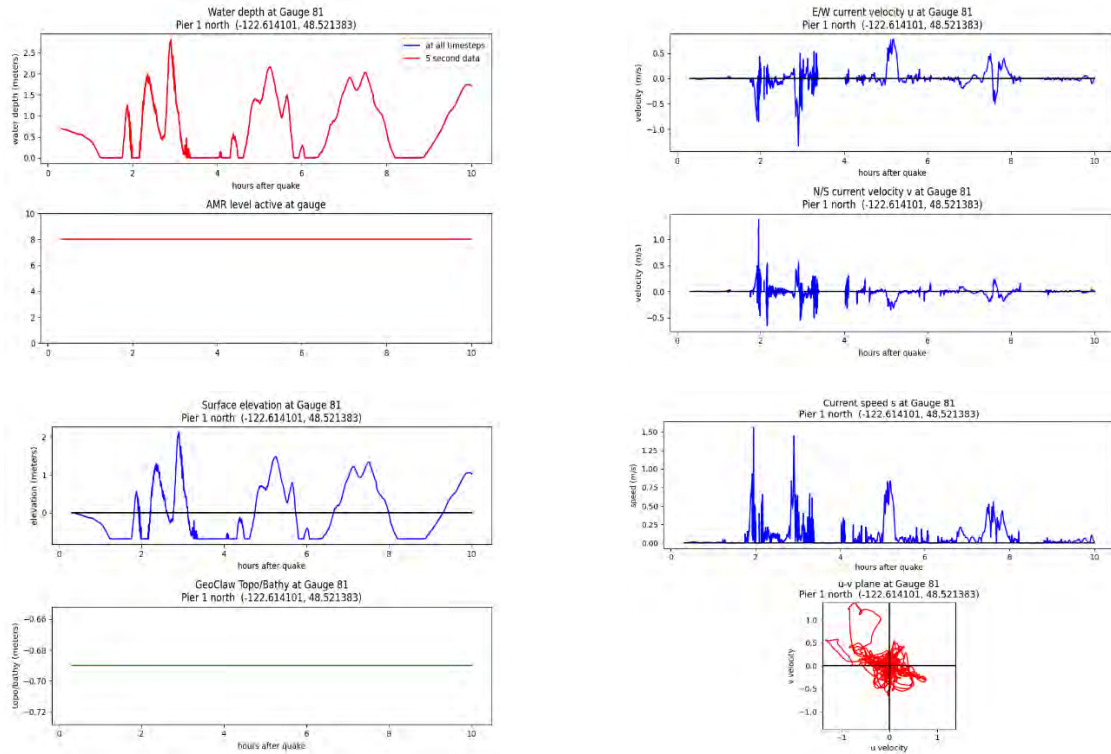


Alaska-Aleutian subduction zone scenario, MLW:

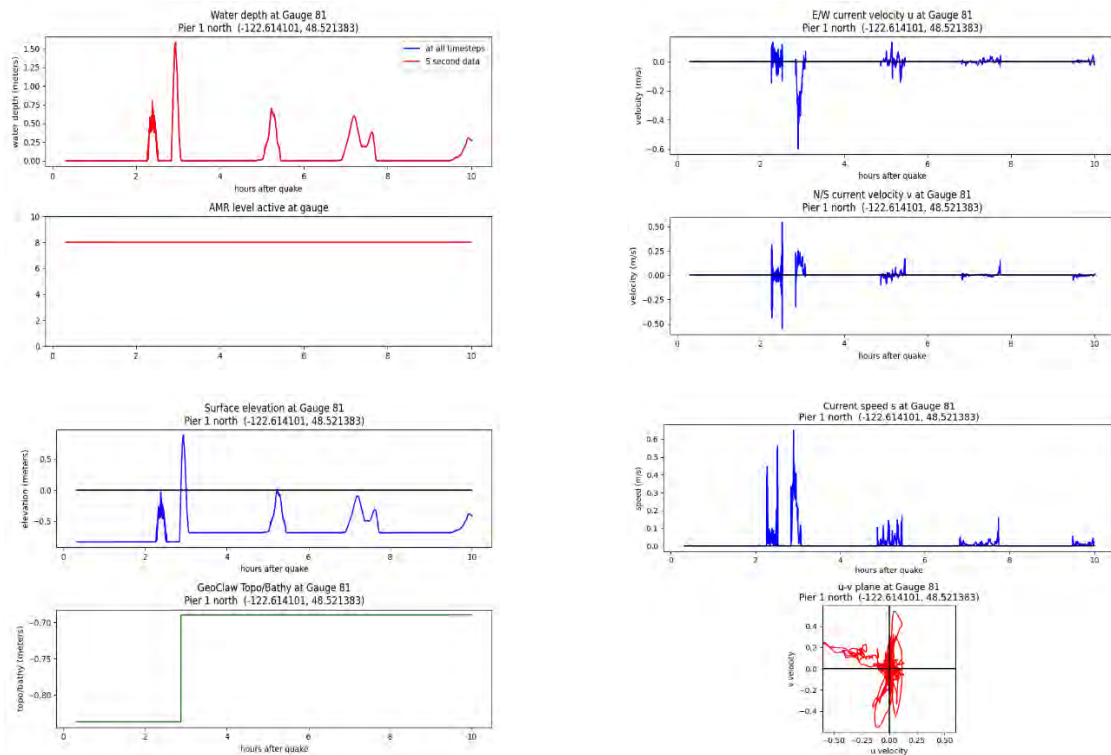


Gauge 81: Curtis Wharf east 2

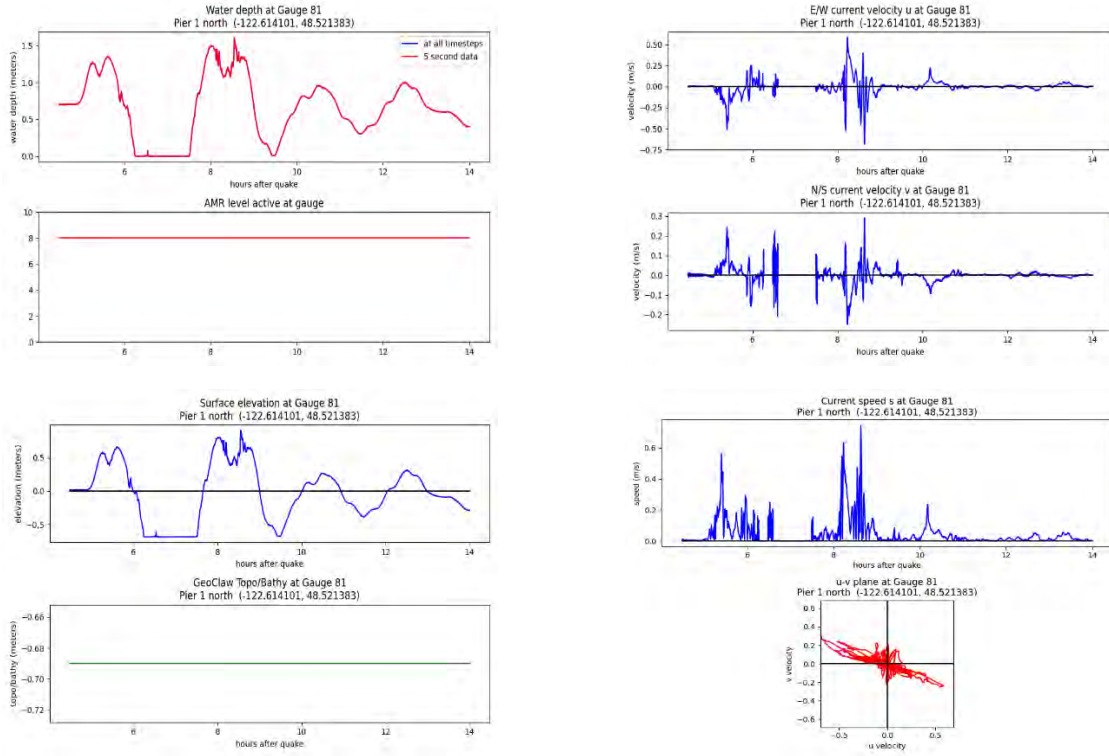
Cascadia subduction zone scenario, MHW:



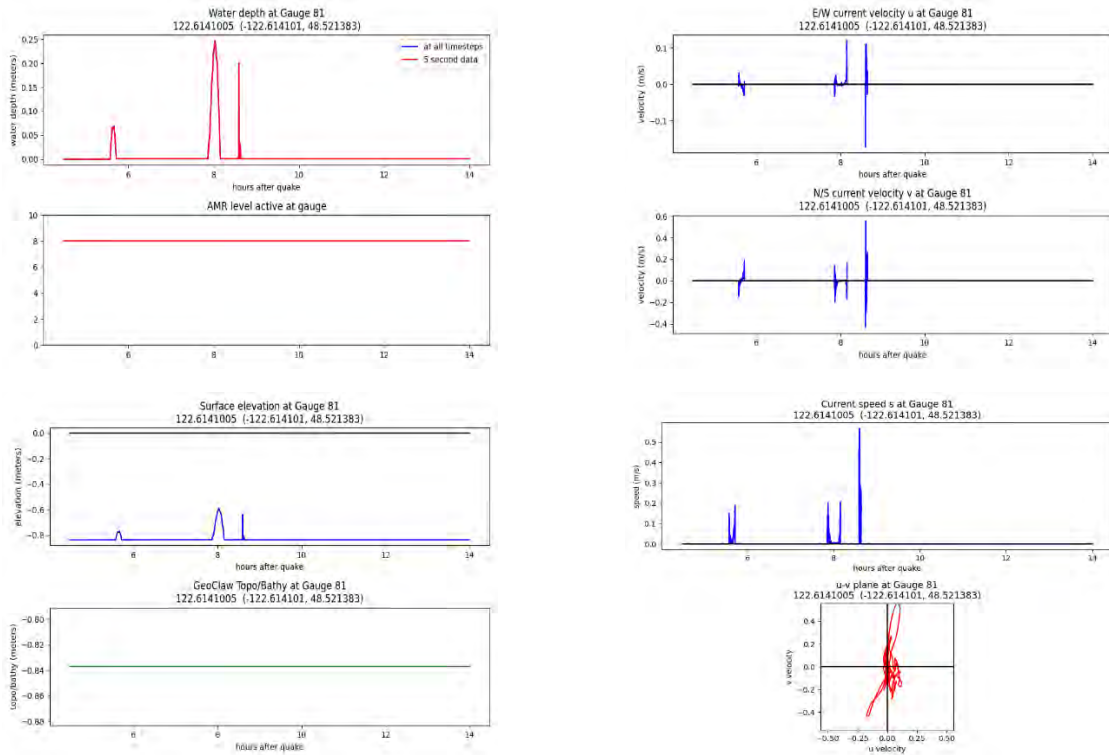
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

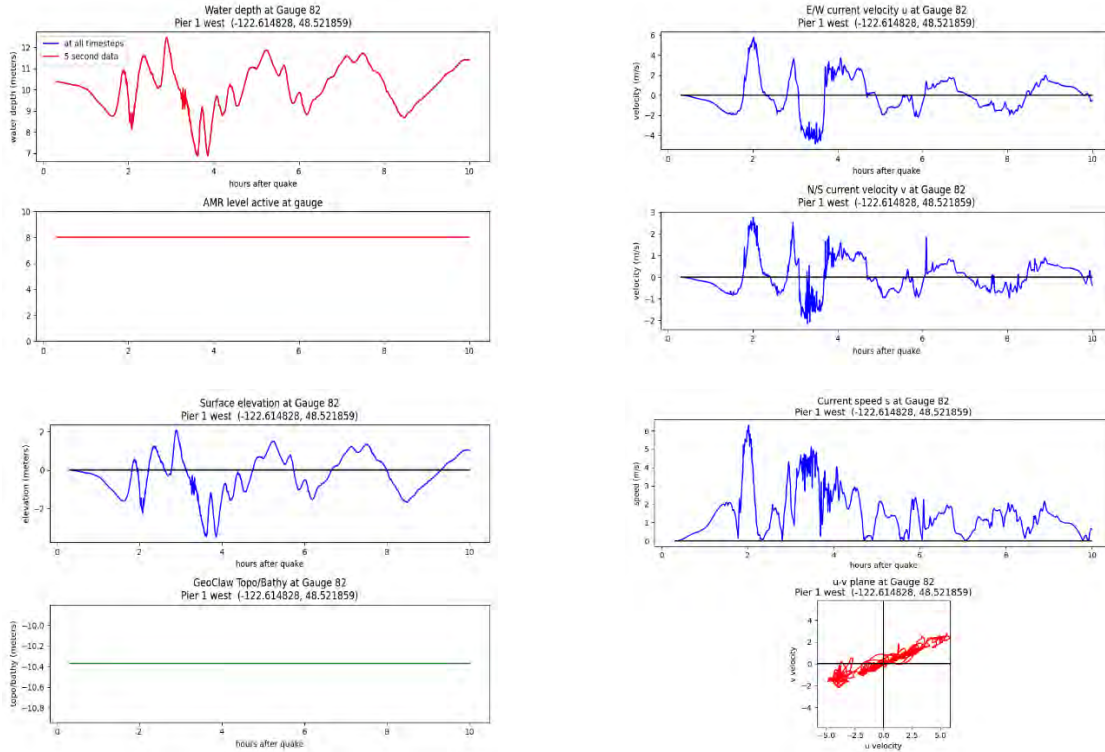


Alaska-Aleutian subduction zone scenario, MLW:

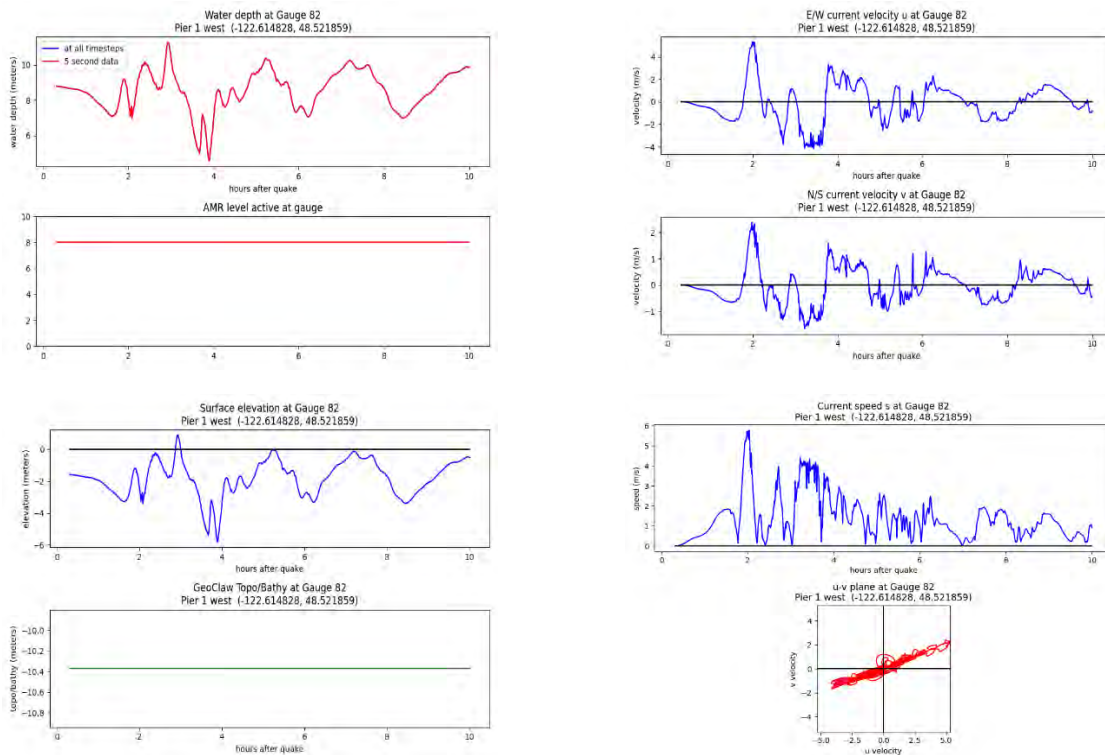


Gauge 82: Curtis Wharf north

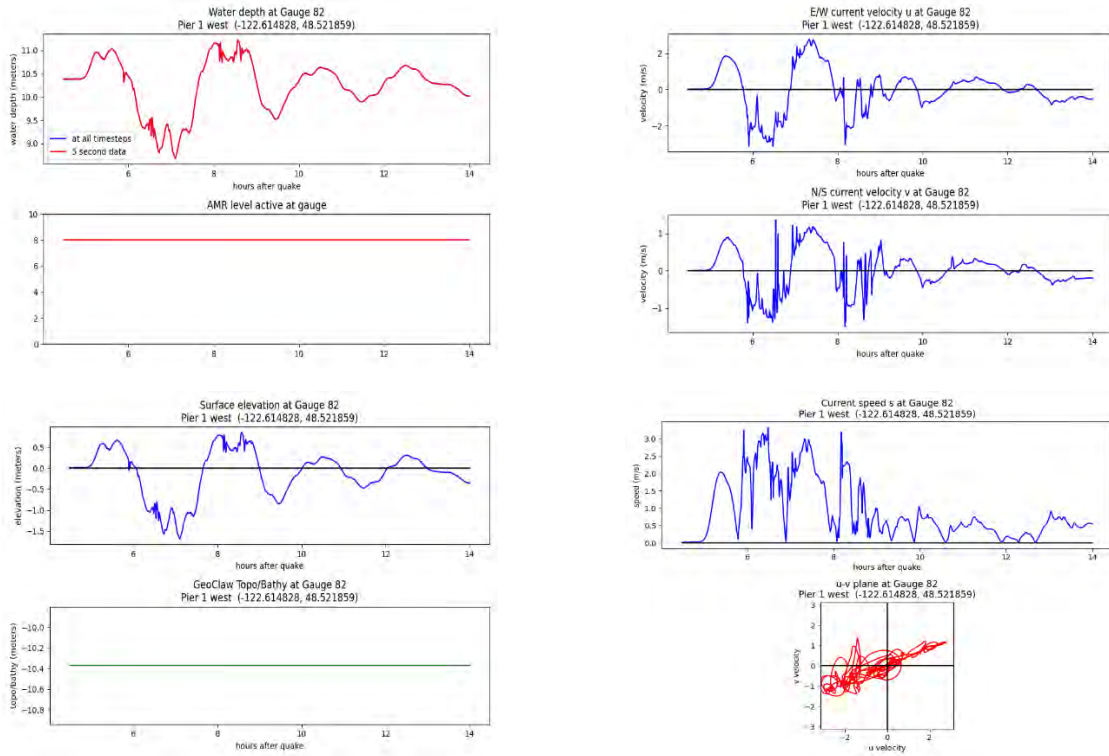
Cascadia subduction zone scenario, MHW:



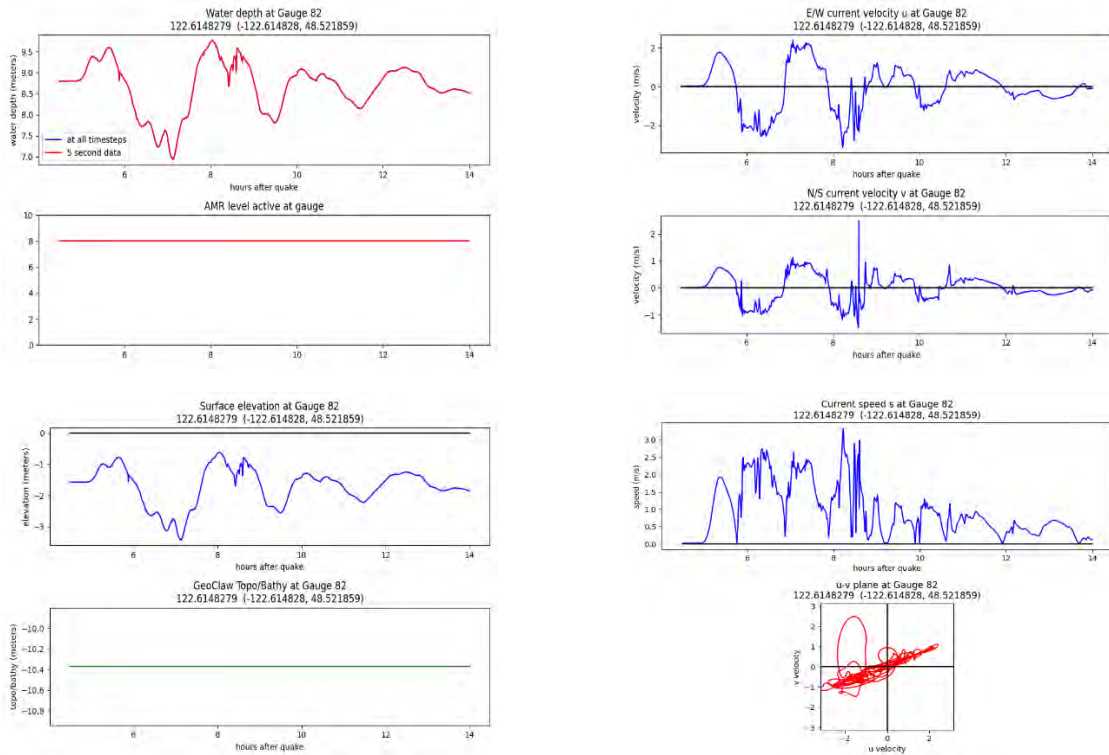
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

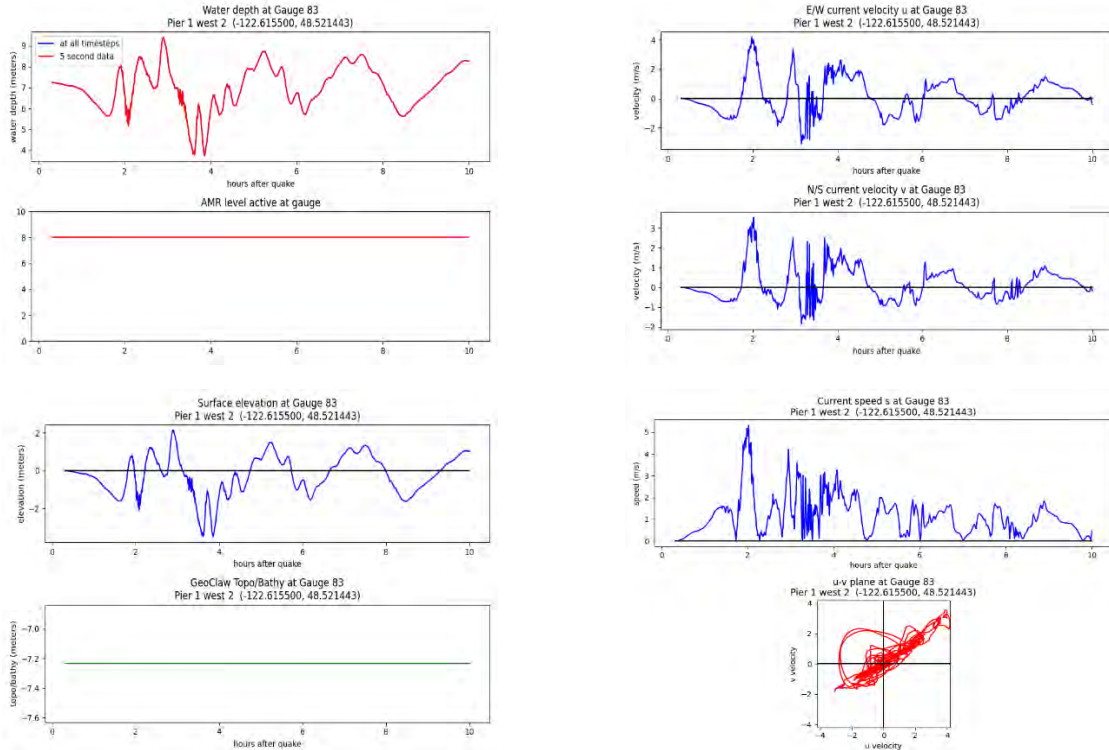


Alaska-Aleutian subduction zone scenario, MLW:

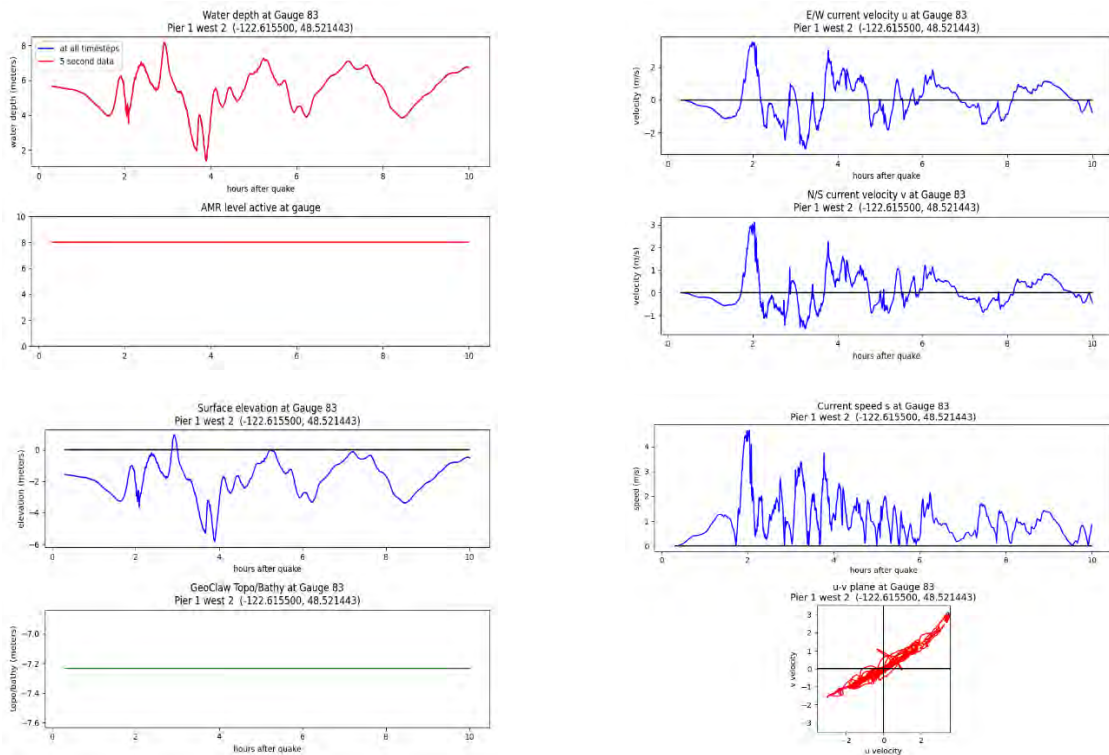


Gauge 83: Curtis Wharf west

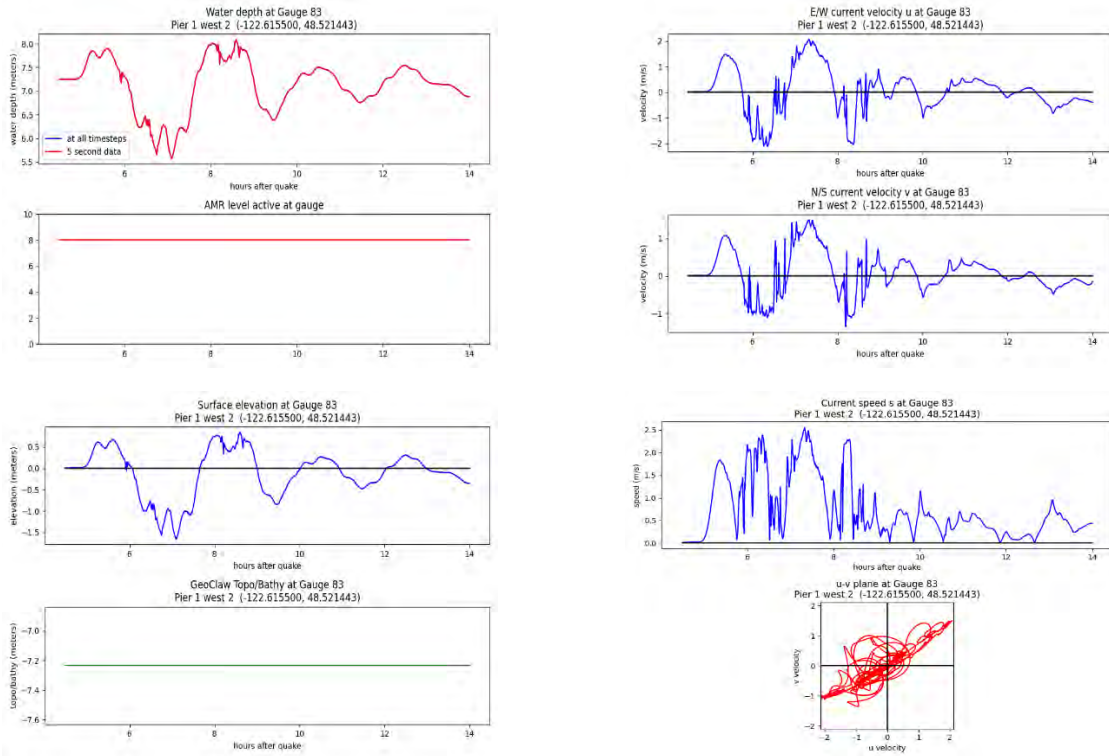
Cascadia subduction zone scenario, MHW:



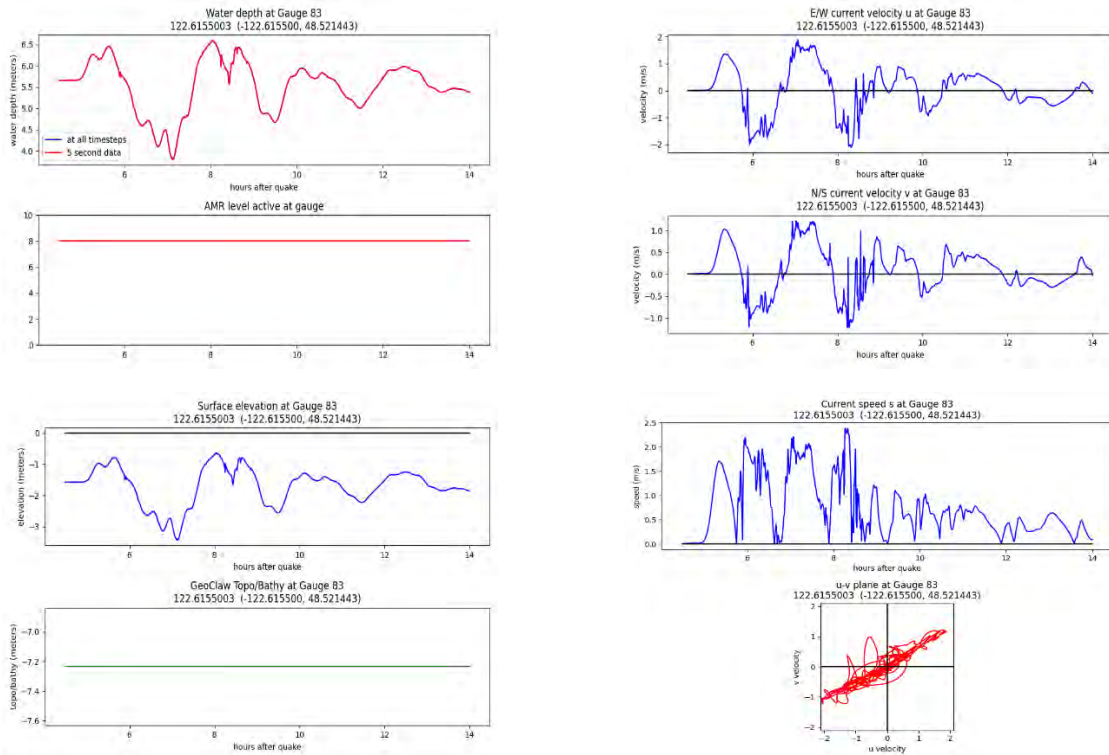
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

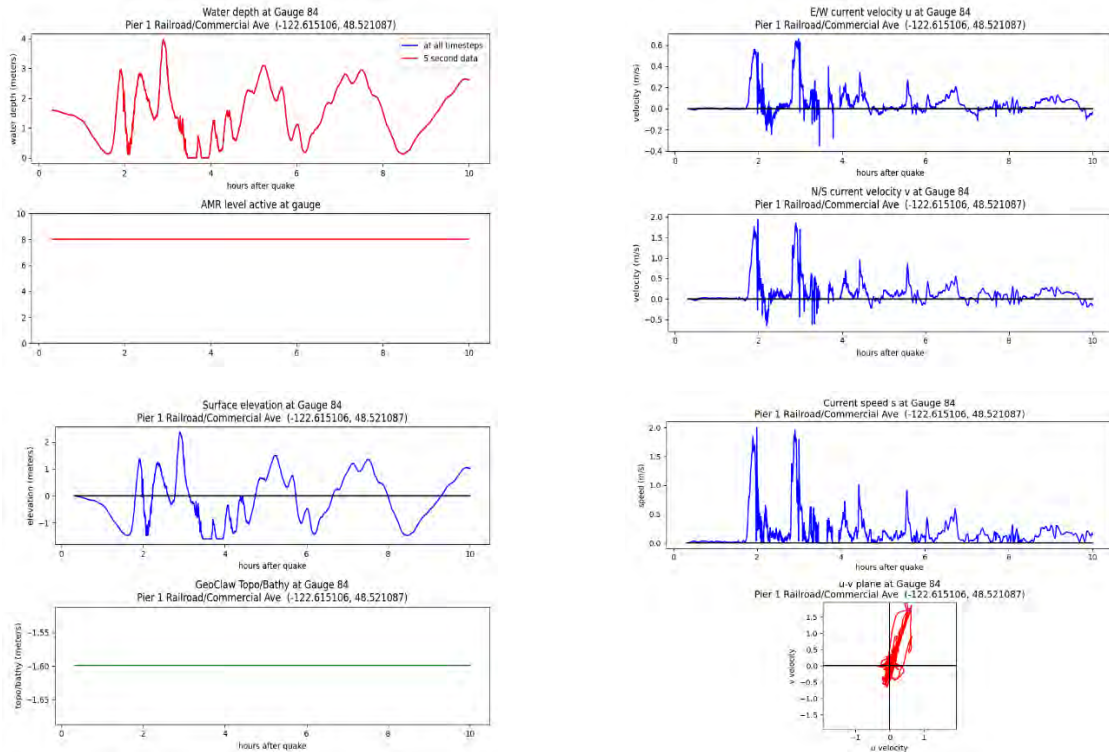


Alaska-Aleutian subduction zone scenario, MLW:

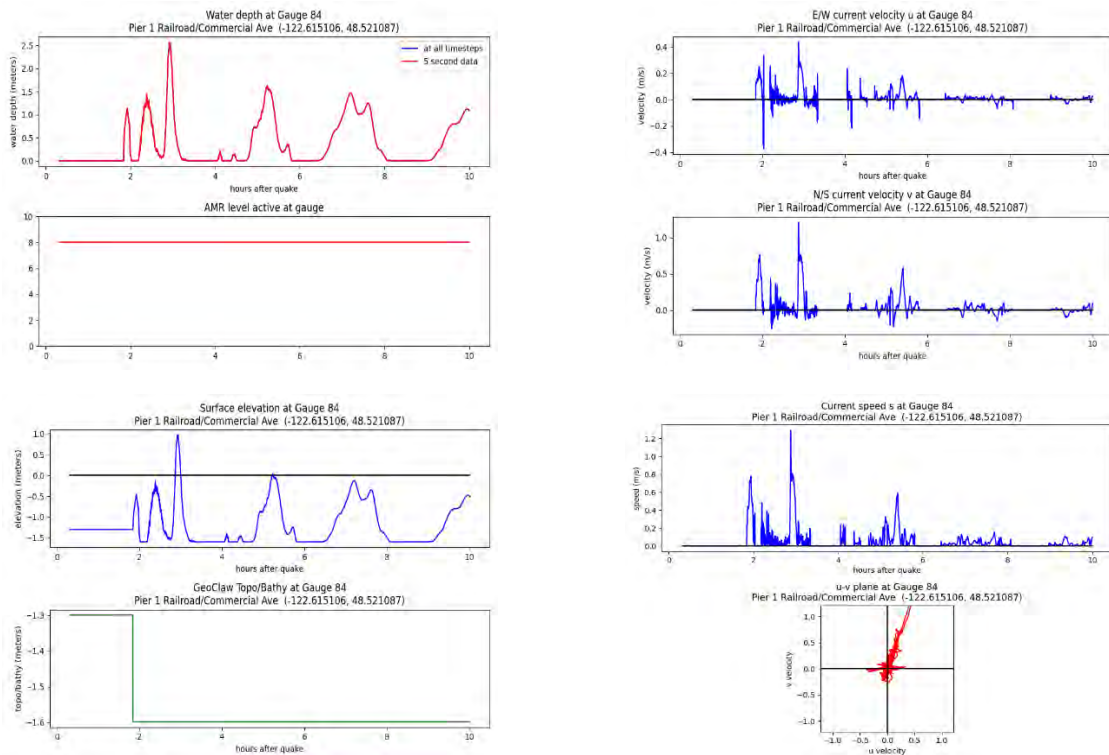


Gauge 84: Curtis Wharf west 2

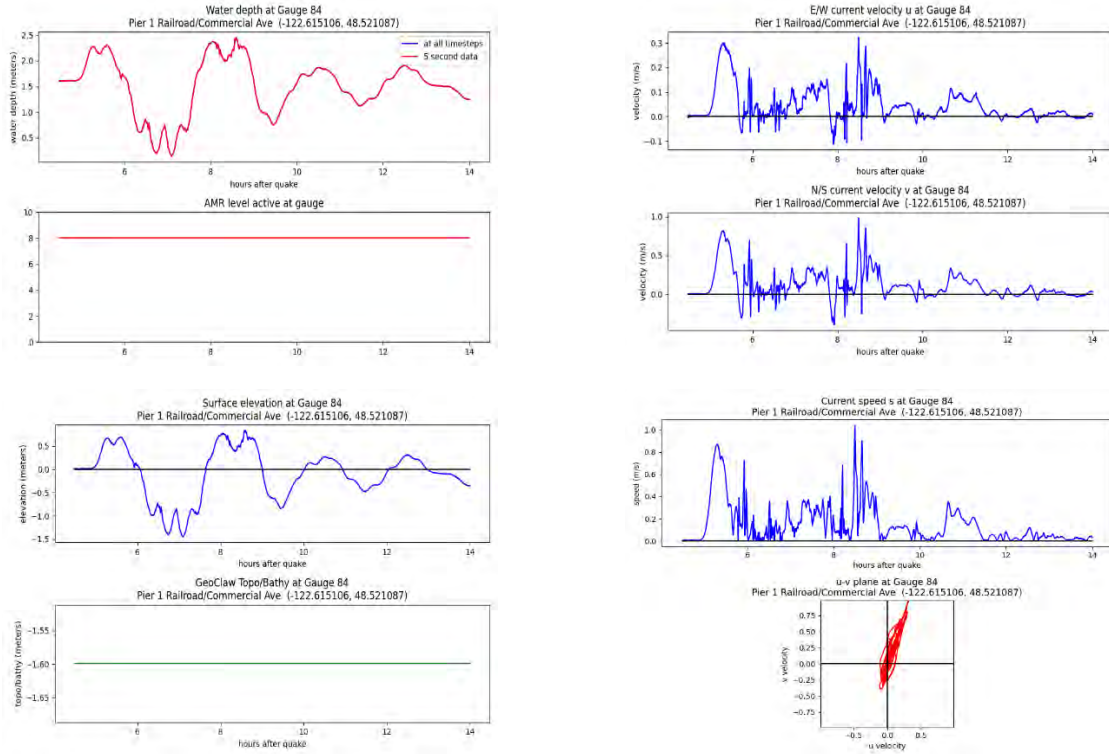
Cascadia subduction zone scenario, MHW:



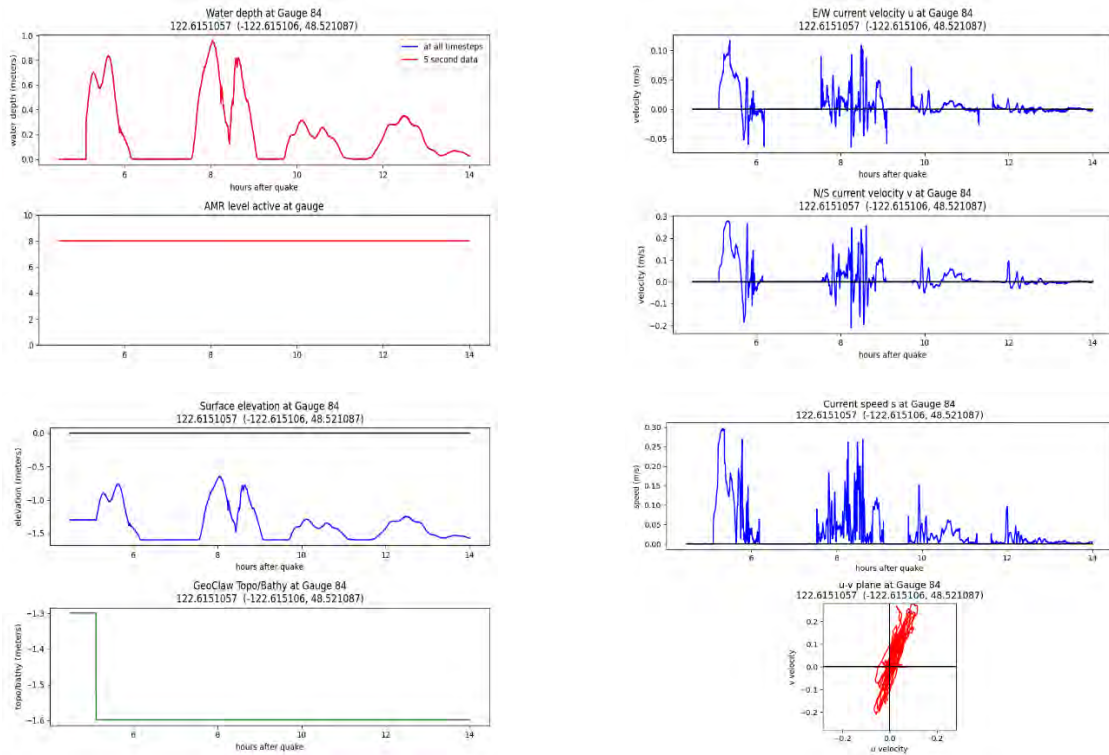
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

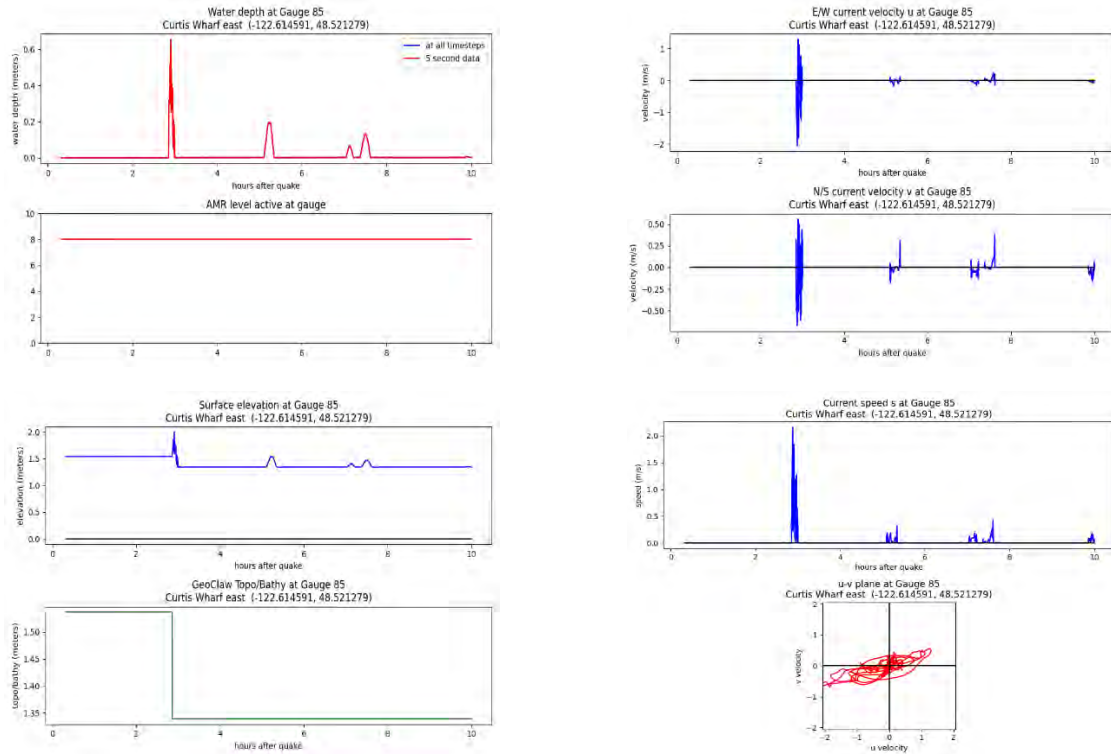


Alaska-Aleutian subduction zone scenario, MLW:

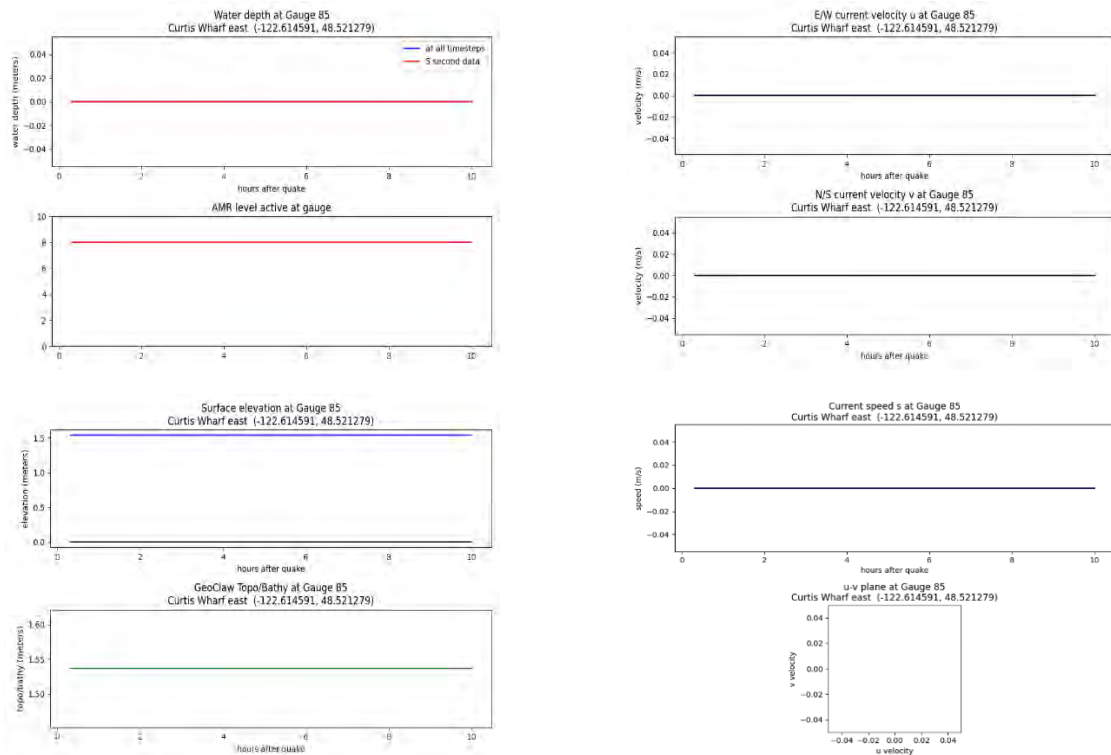


Gauge 85: Curtis Wharf (onshore)

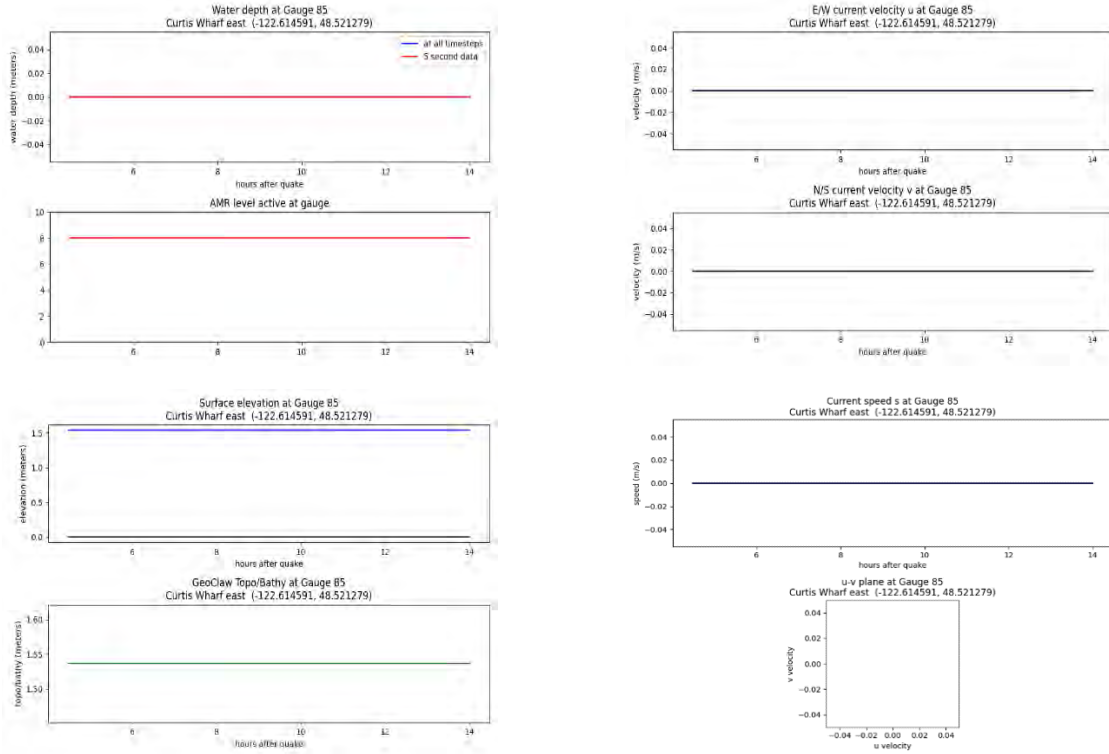
Cascadia subduction zone scenario, MHW:



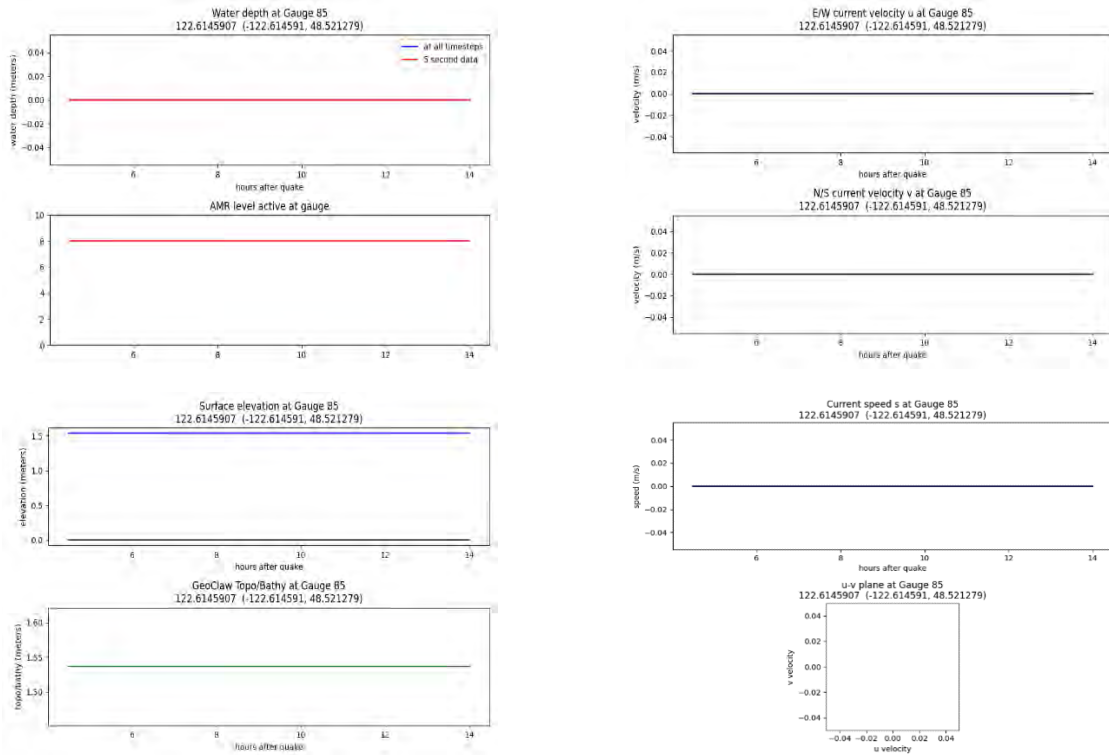
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

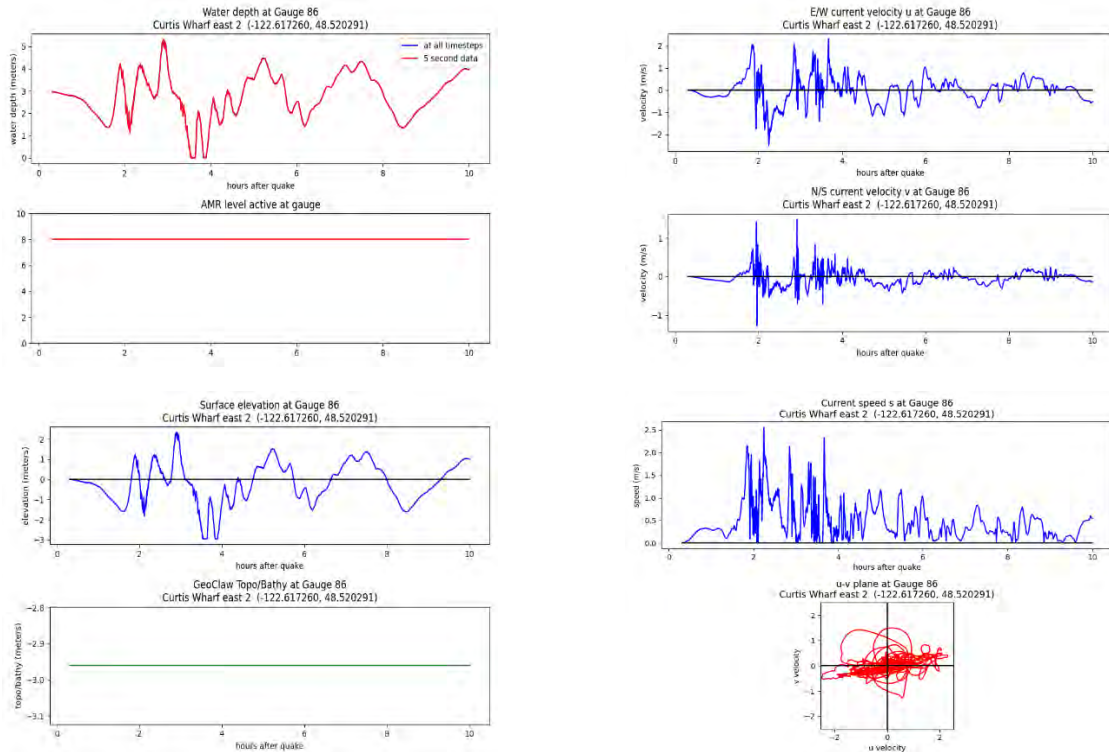


Alaska-Aleutian subduction zone scenario, MLW:

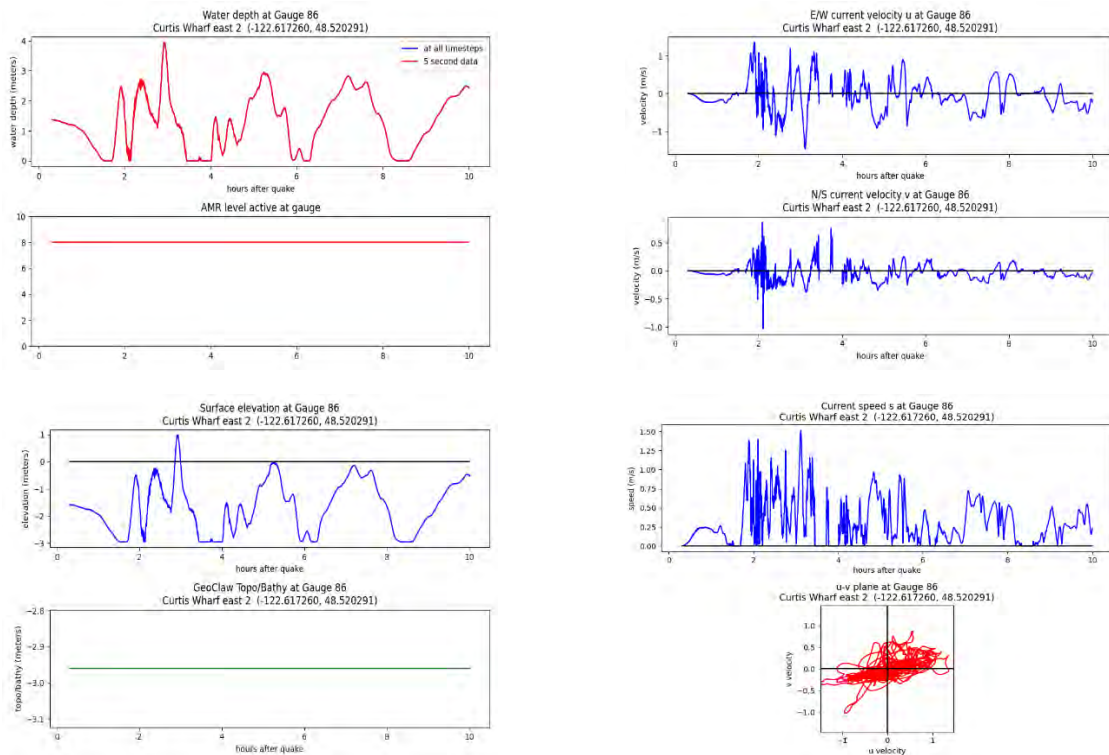


Gauge 86: Trident Seafoods east

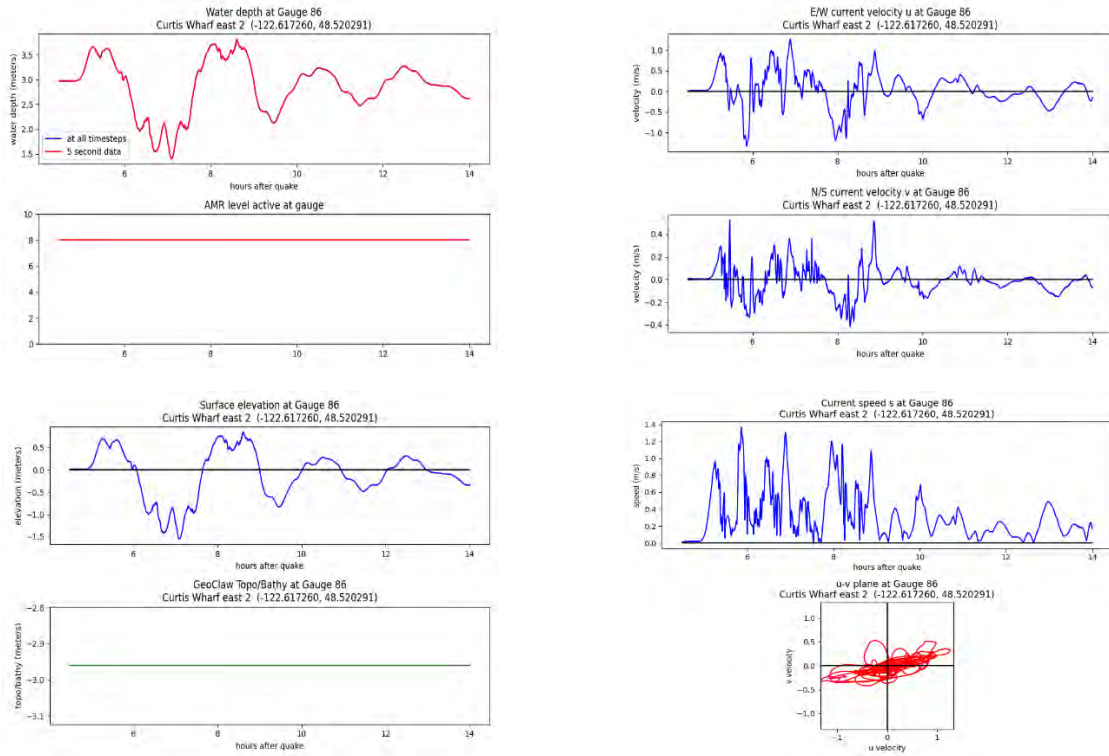
Cascadia subduction zone scenario, MHW:



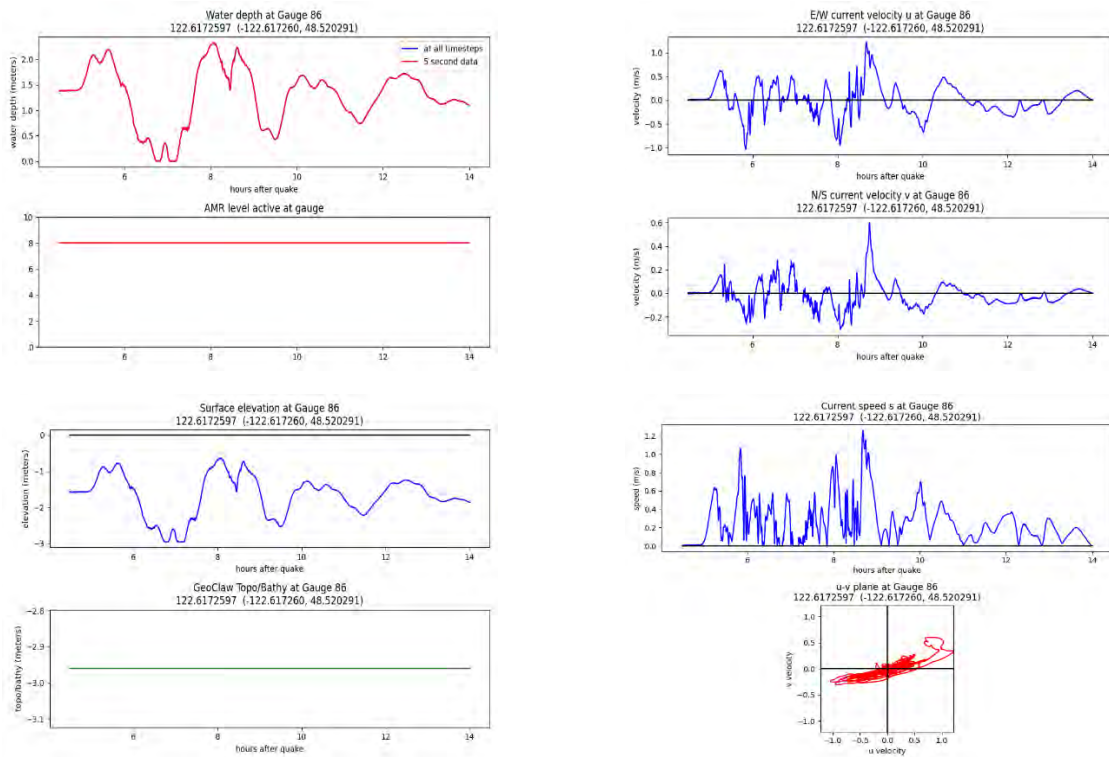
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

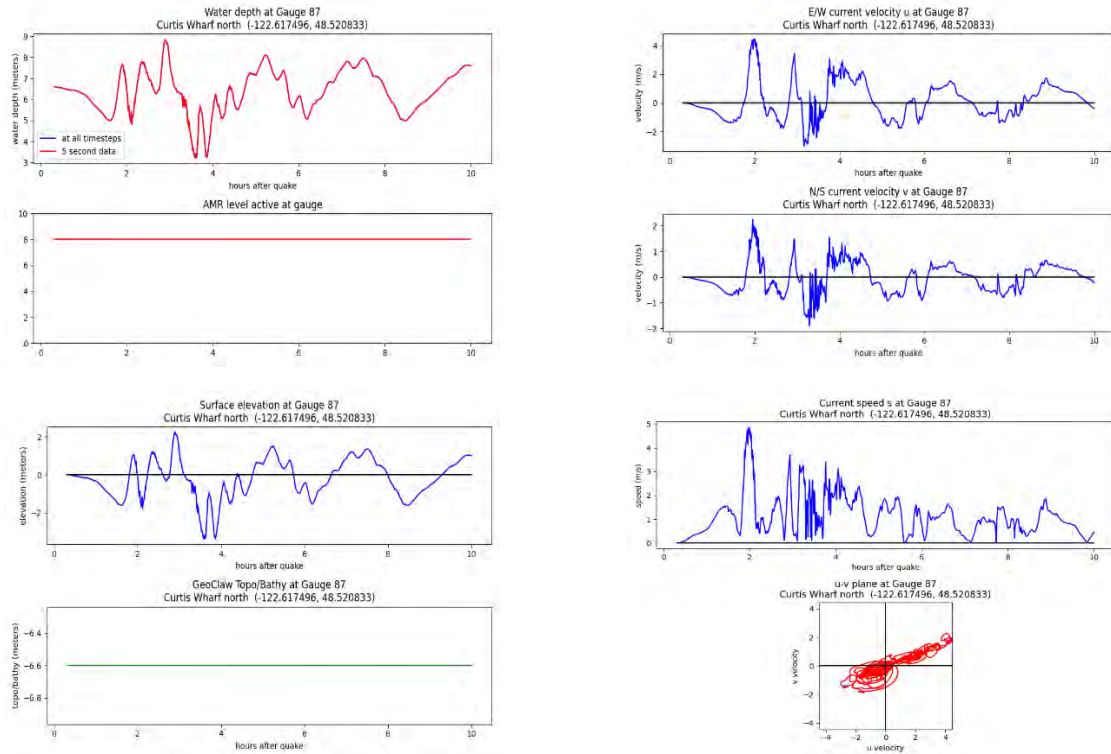


Alaska-Aleutian subduction zone scenario, MLW:

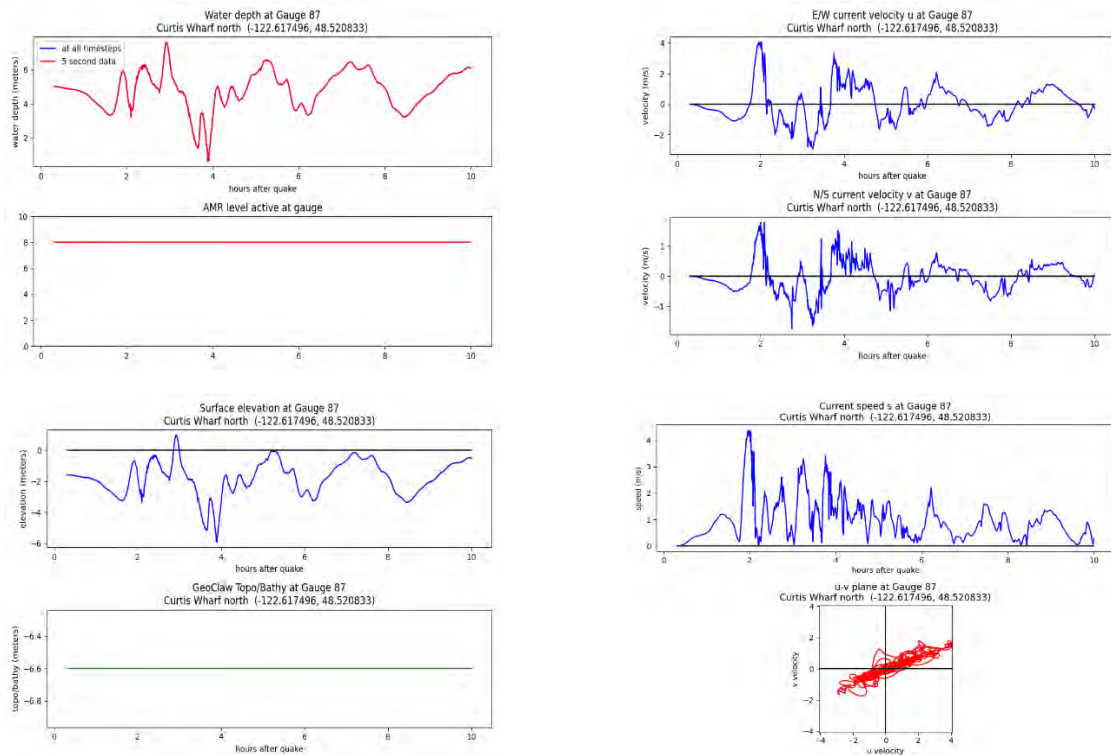


Gauge 87: Trident Seafoods north

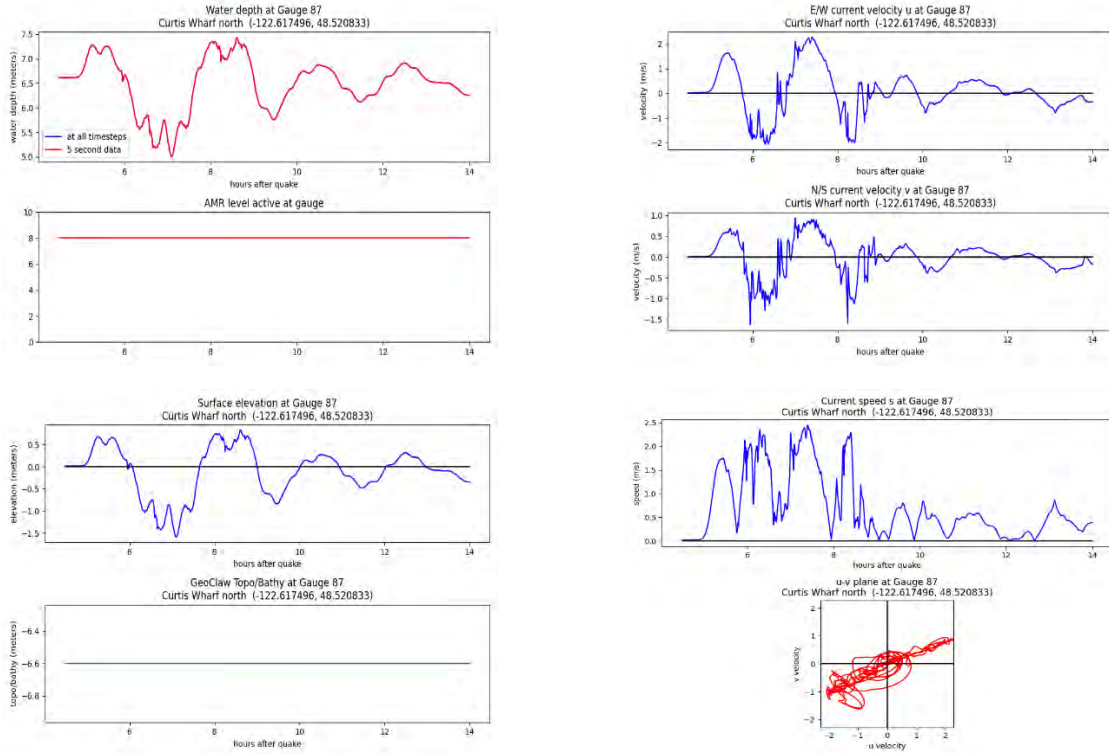
Cascadia subduction zone scenario, MHW:



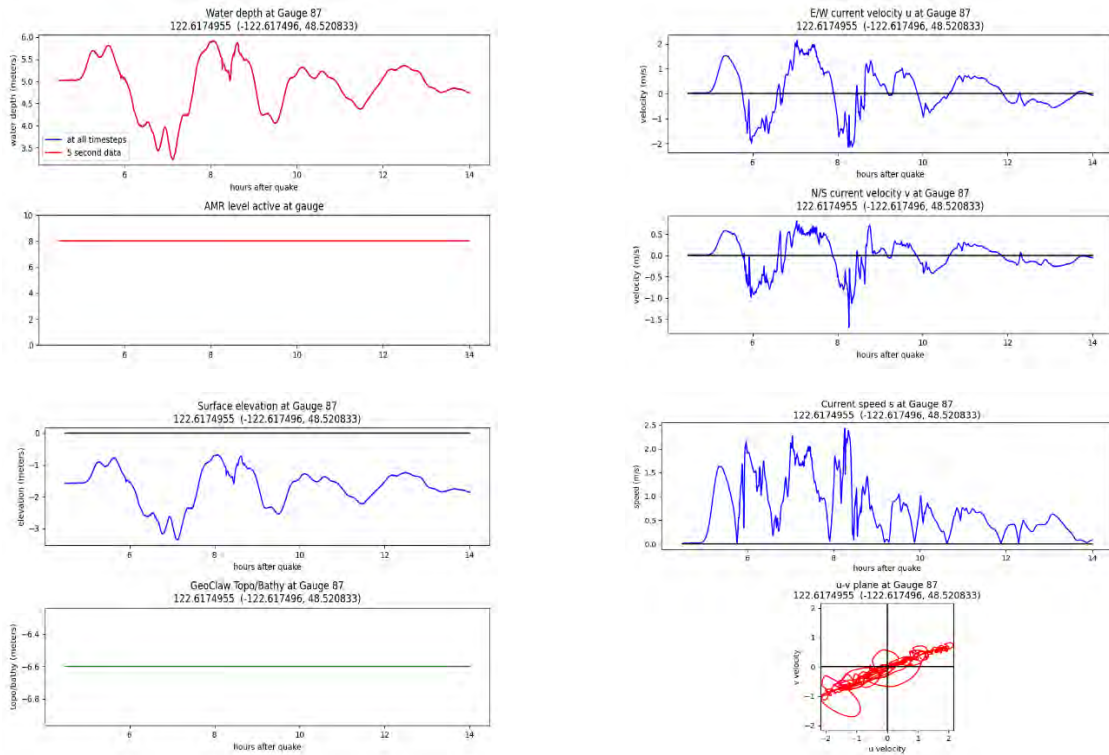
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

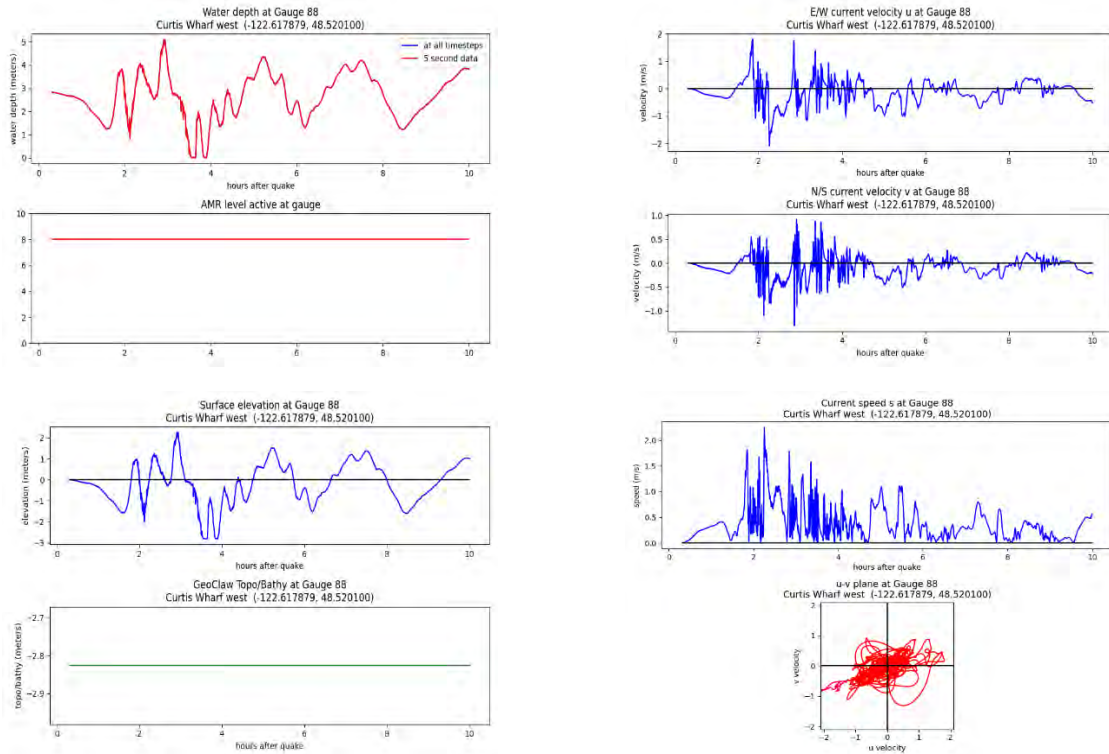


Alaska-Aleutian subduction zone scenario, MLW:

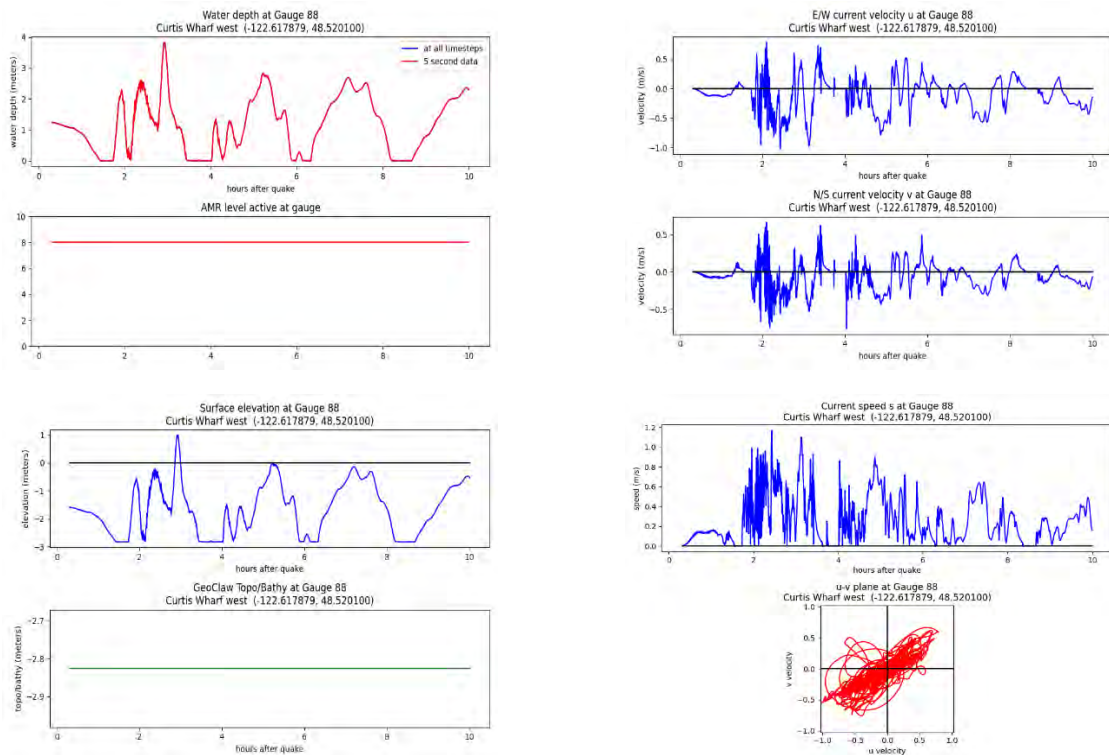


Gauge 88: Trident Seafoods west

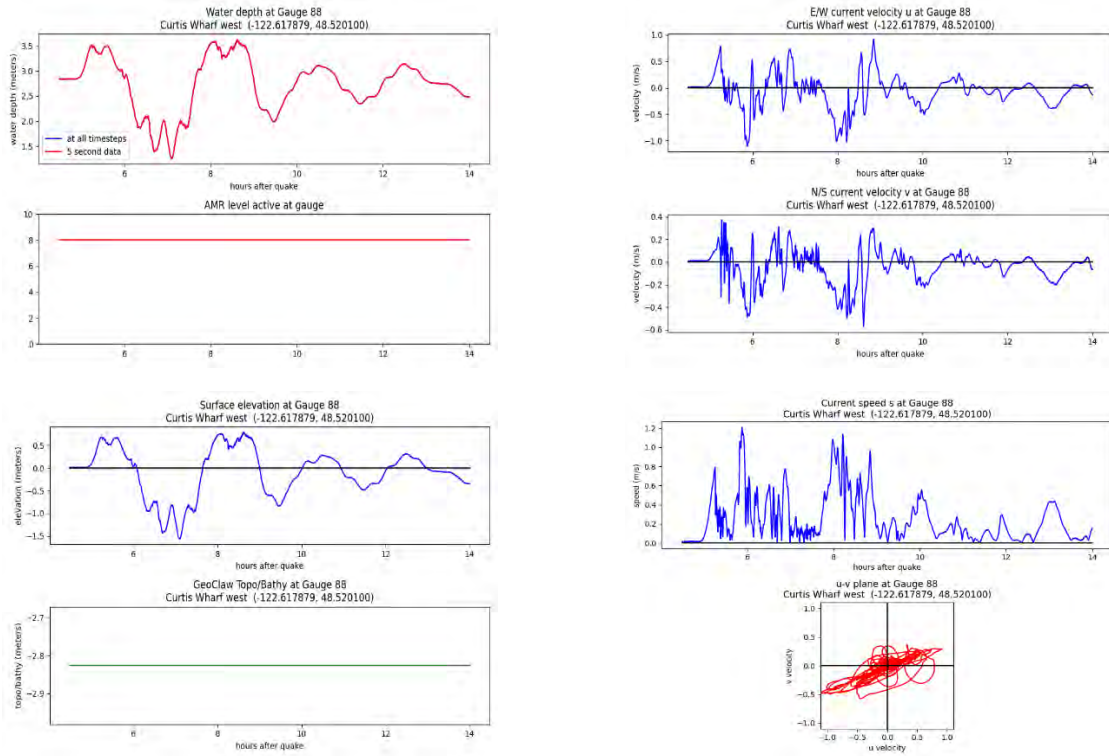
Cascadia subduction zone scenario, MHW:



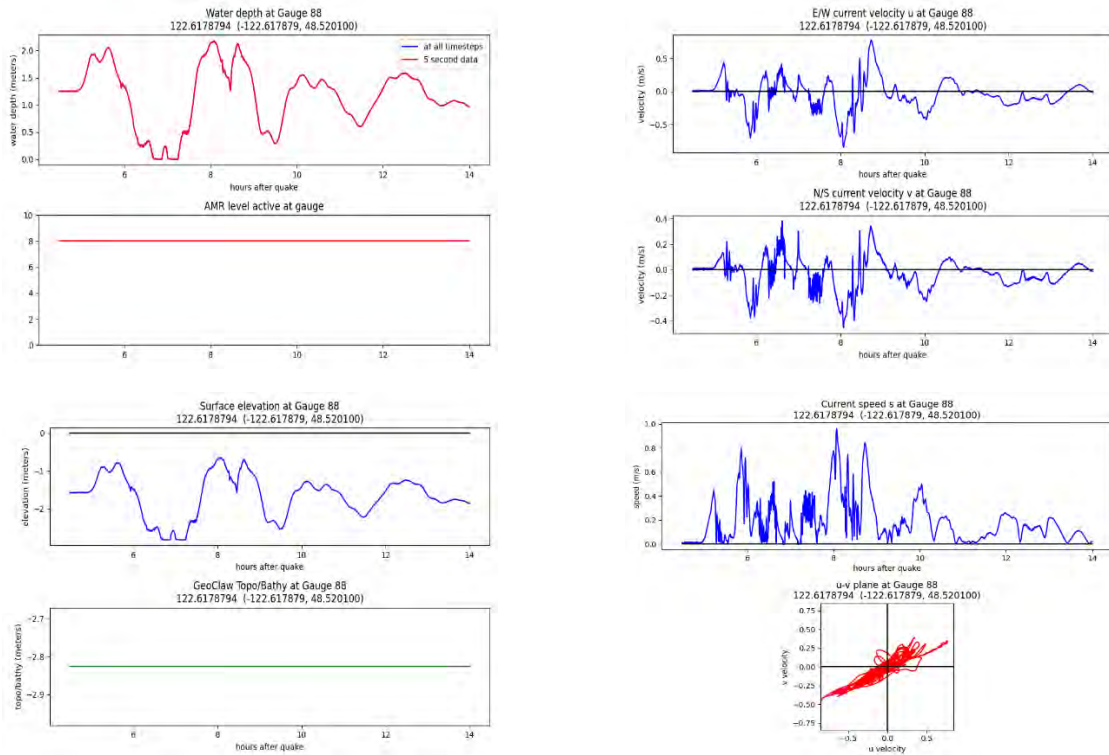
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

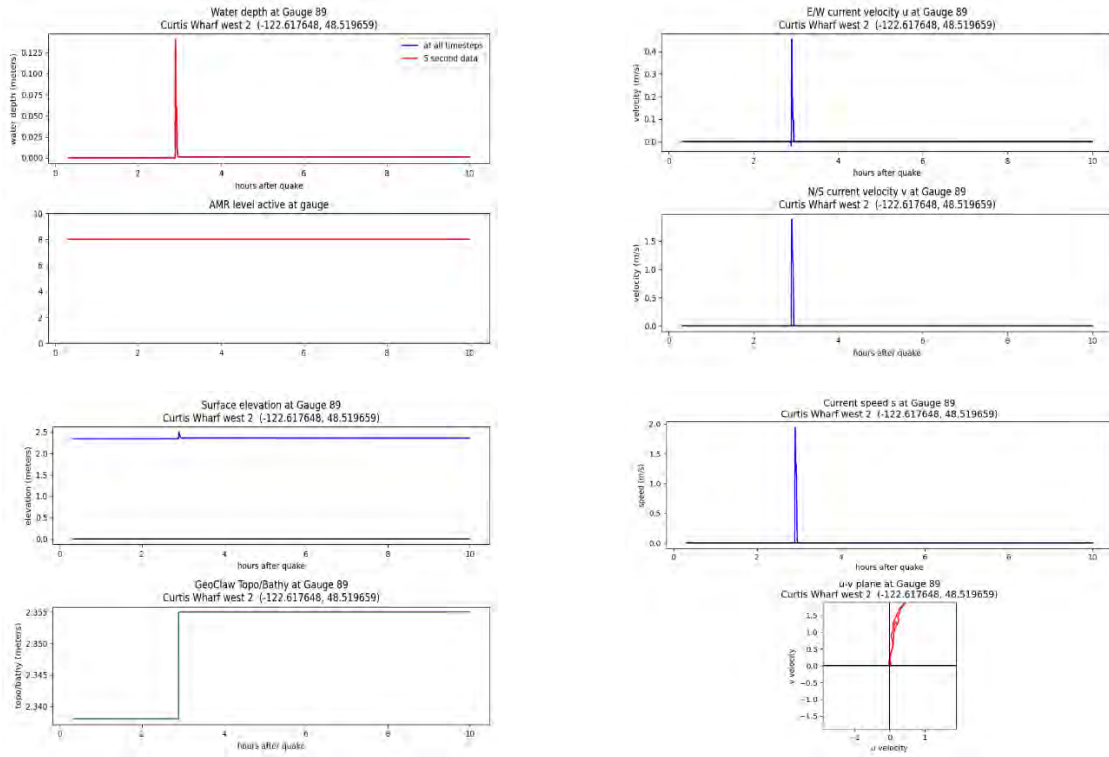


Alaska-Aleutian subduction zone scenario, MLW:

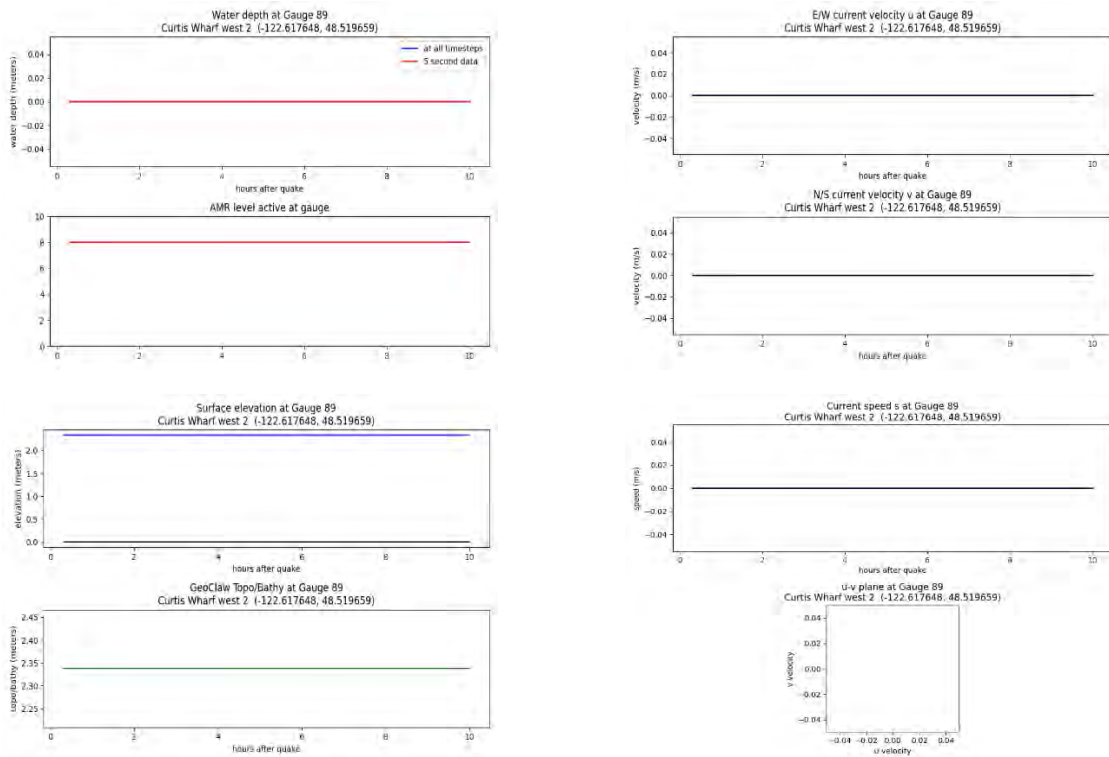


Gauge 89: Trident Seafood (onshore)

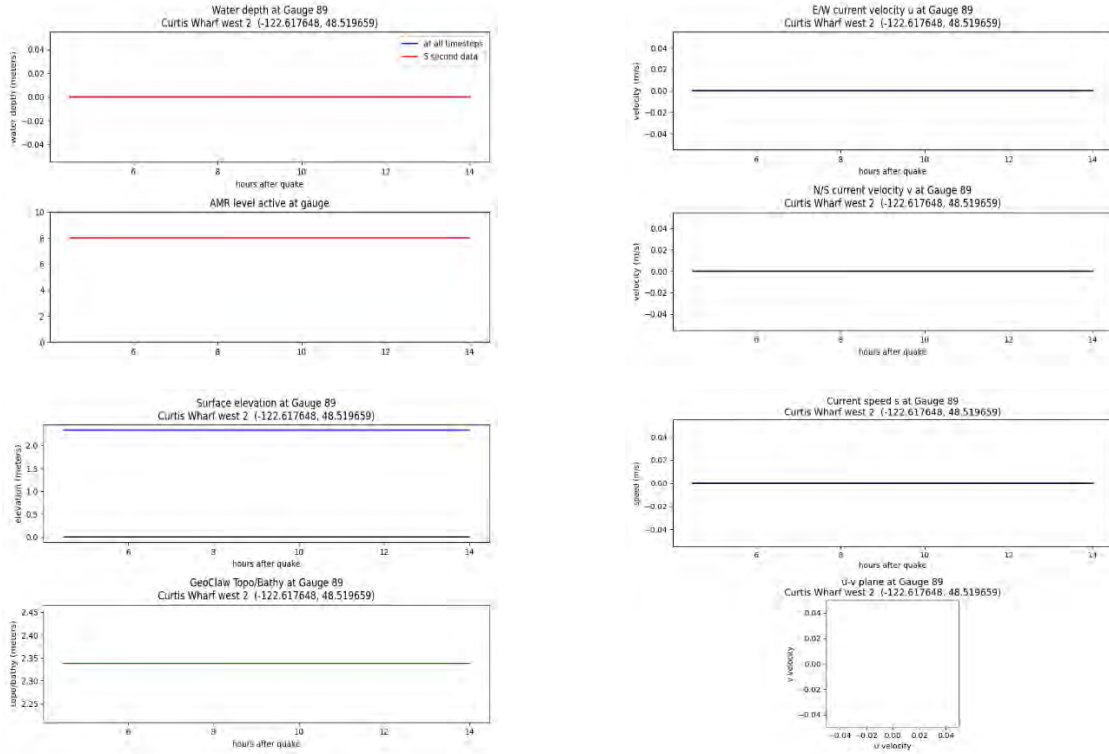
Cascadia subduction zone scenario, MHW:



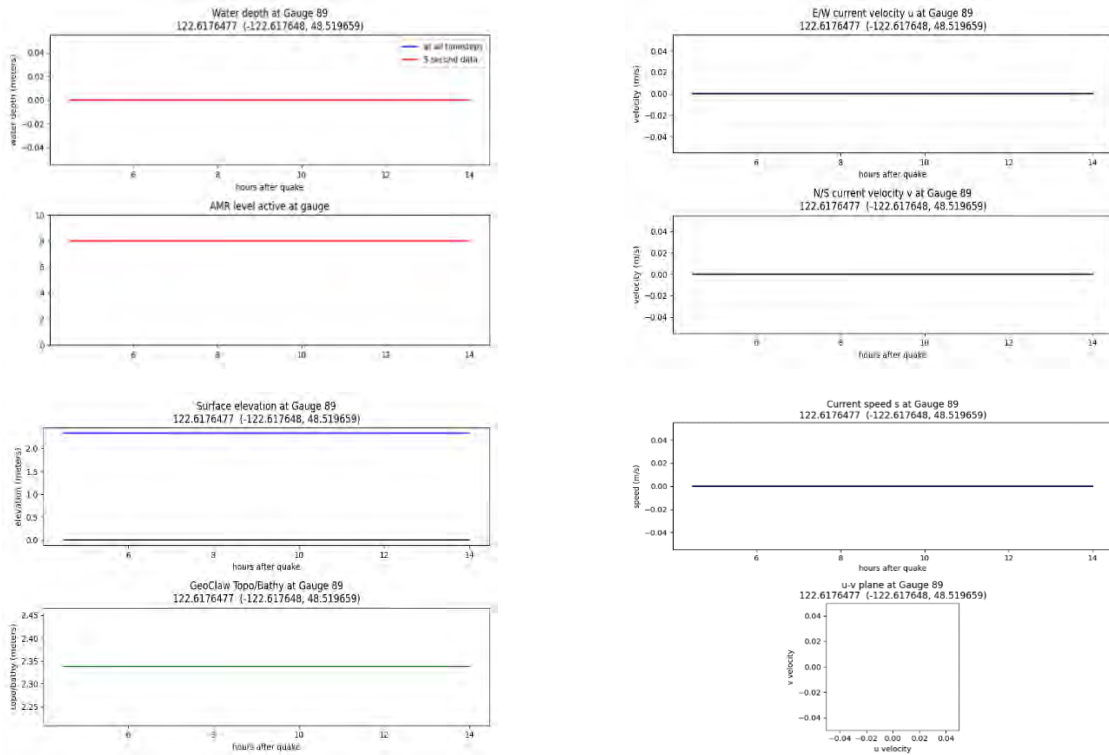
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

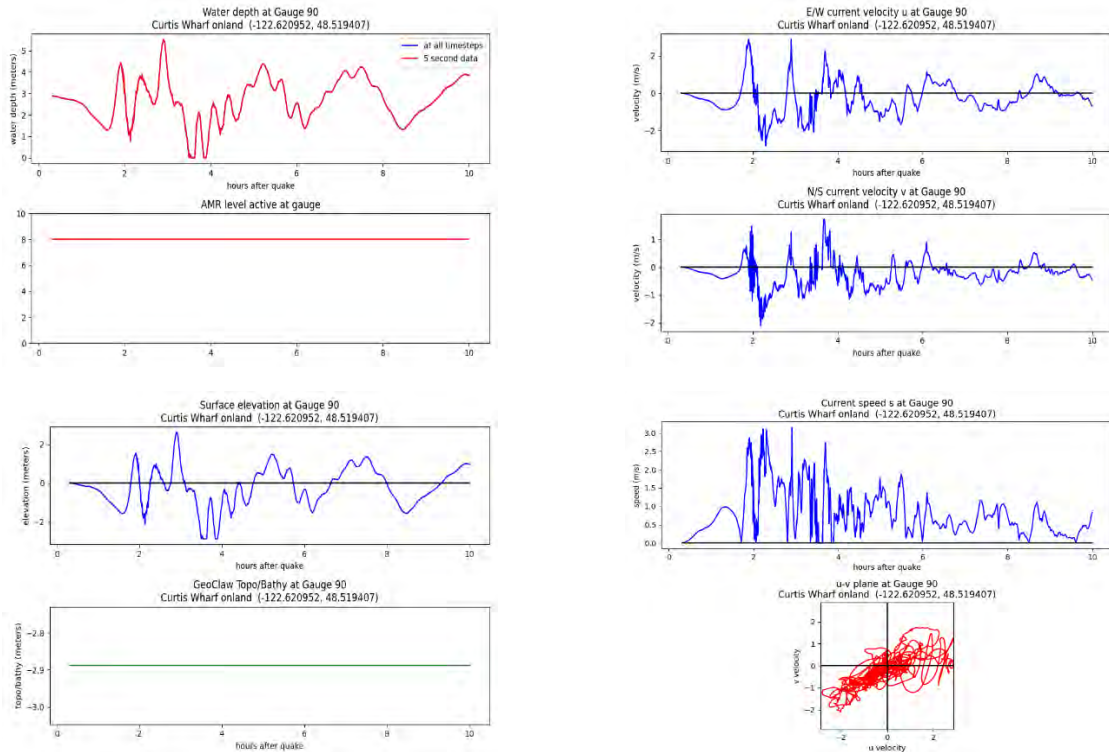


Alaska-Aleutian subduction zone scenario, MLW:

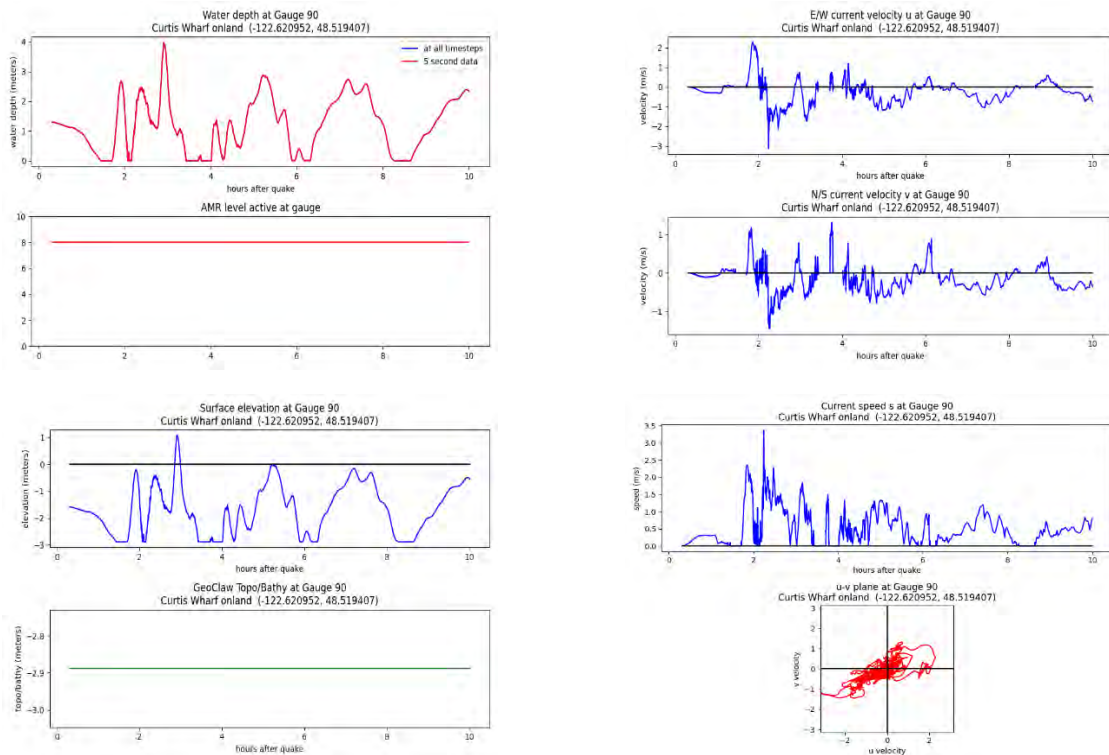


Gauge 90: Anchor Cove Marina east

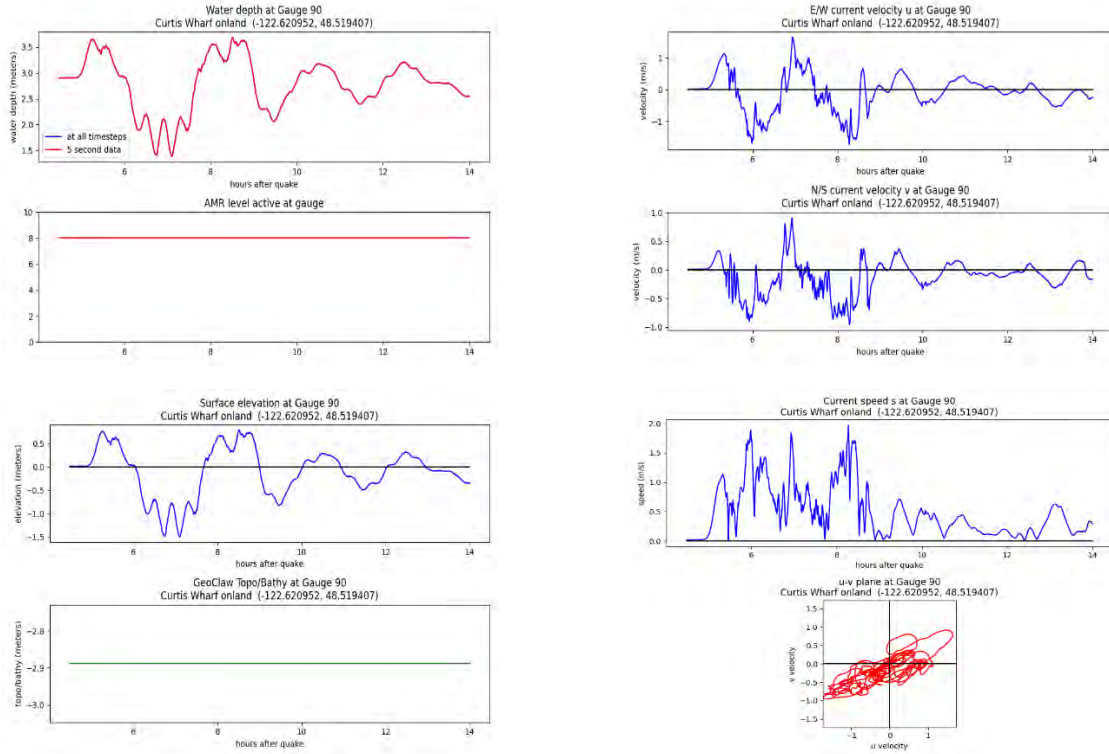
Cascadia subduction zone scenario, MHW:



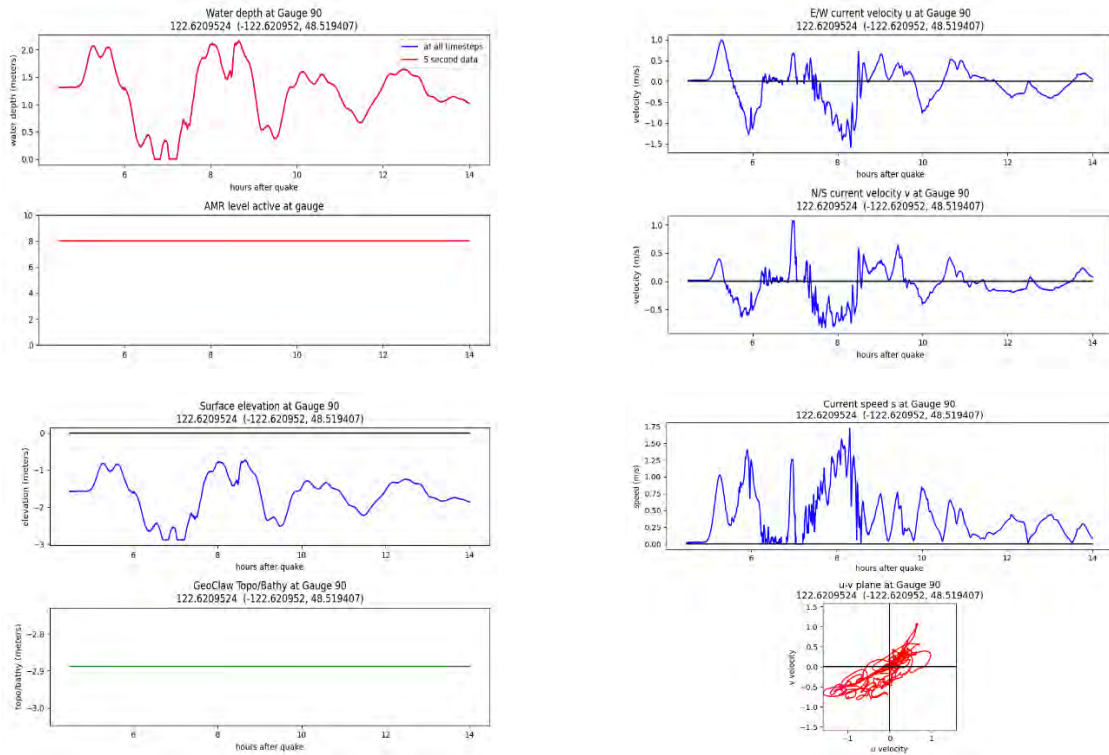
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

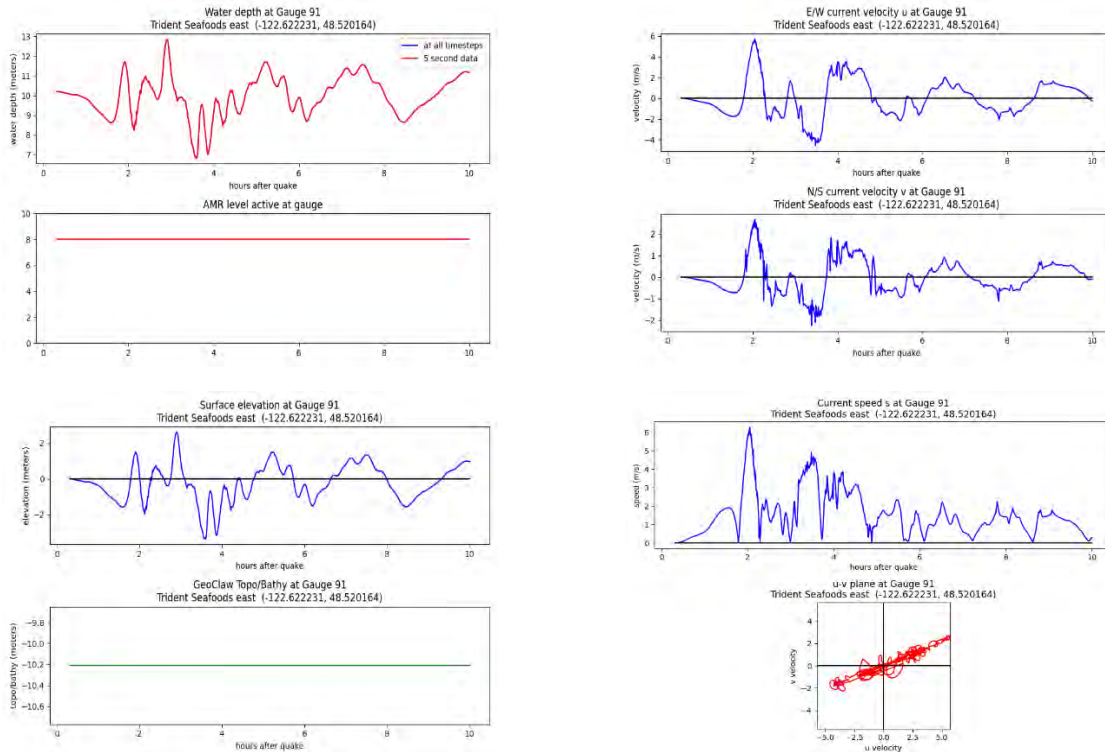


Alaska-Aleutian subduction zone scenario, MLW:

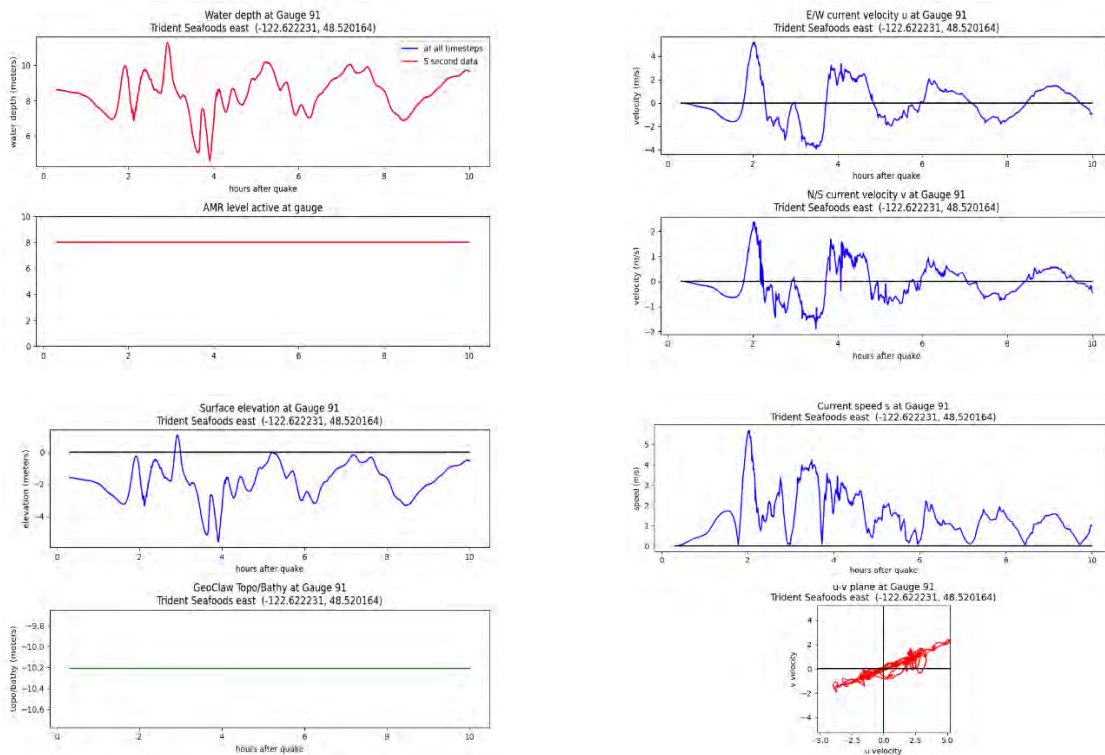


Gauge 91: Anchor Cove Marina north outside

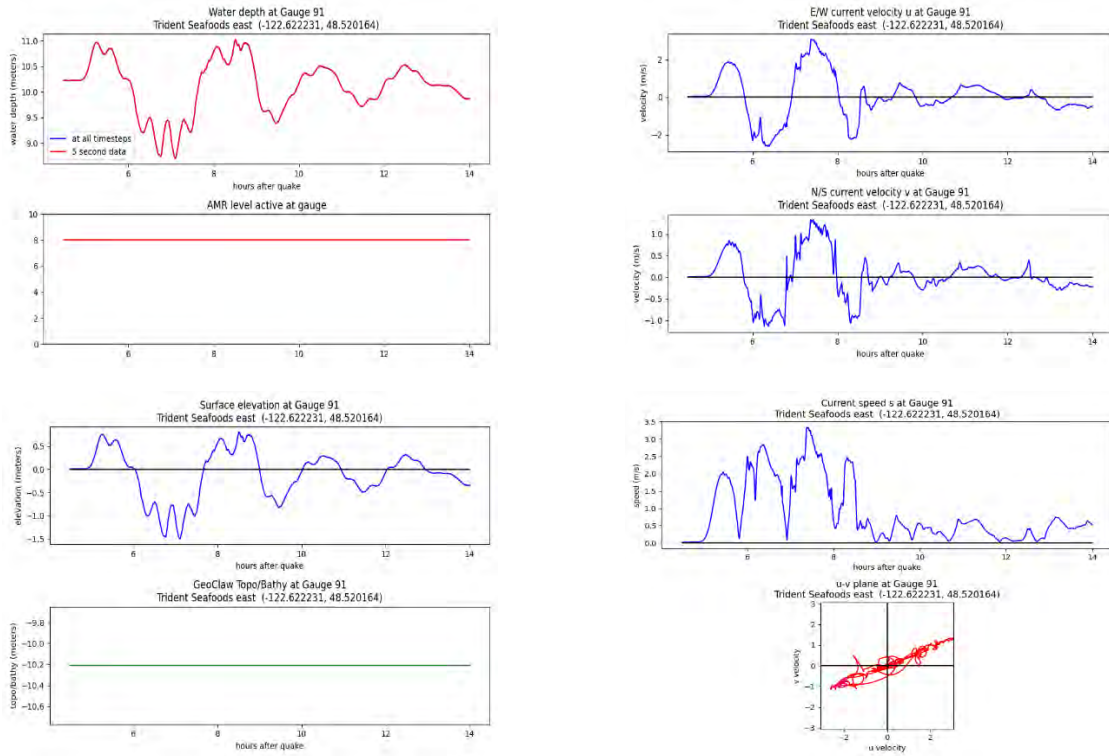
Cascadia subduction zone scenario, MHW:



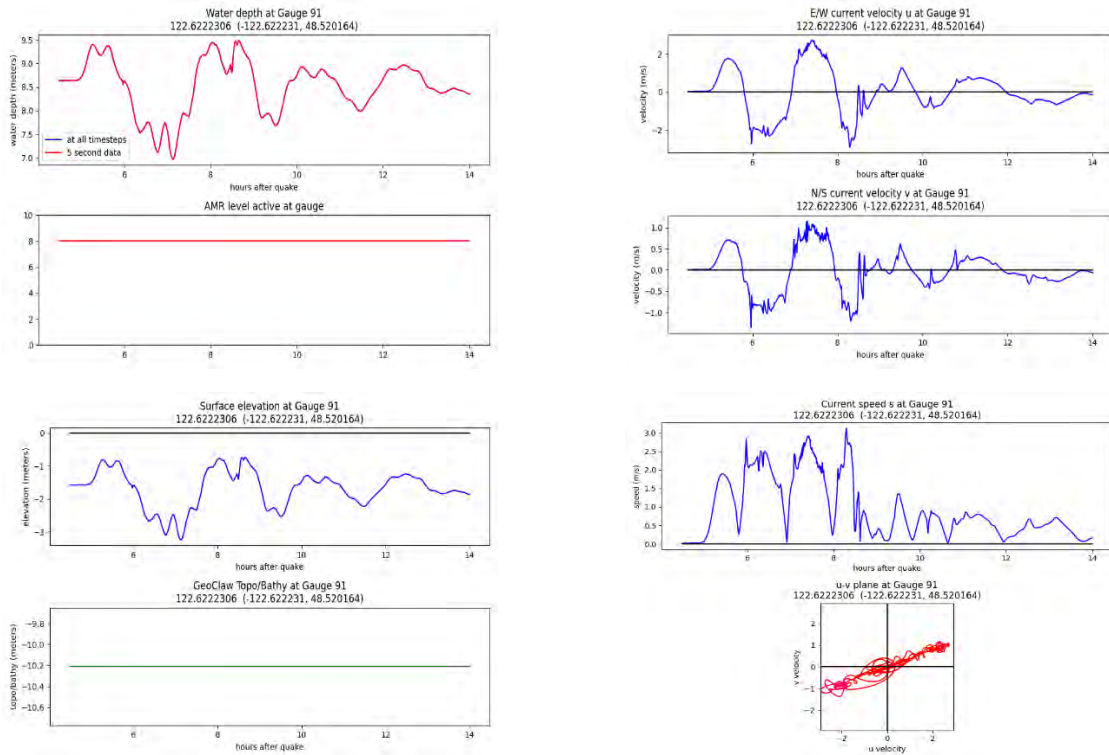
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

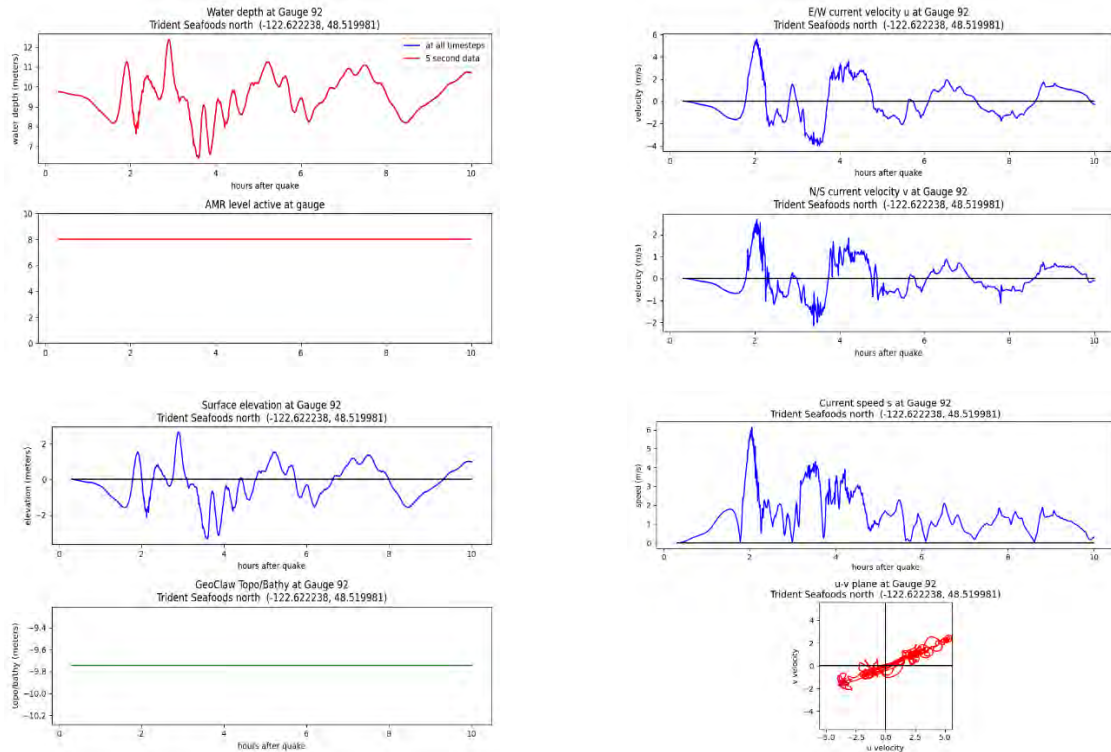


Alaska-Aleutian subduction zone scenario, MLW:

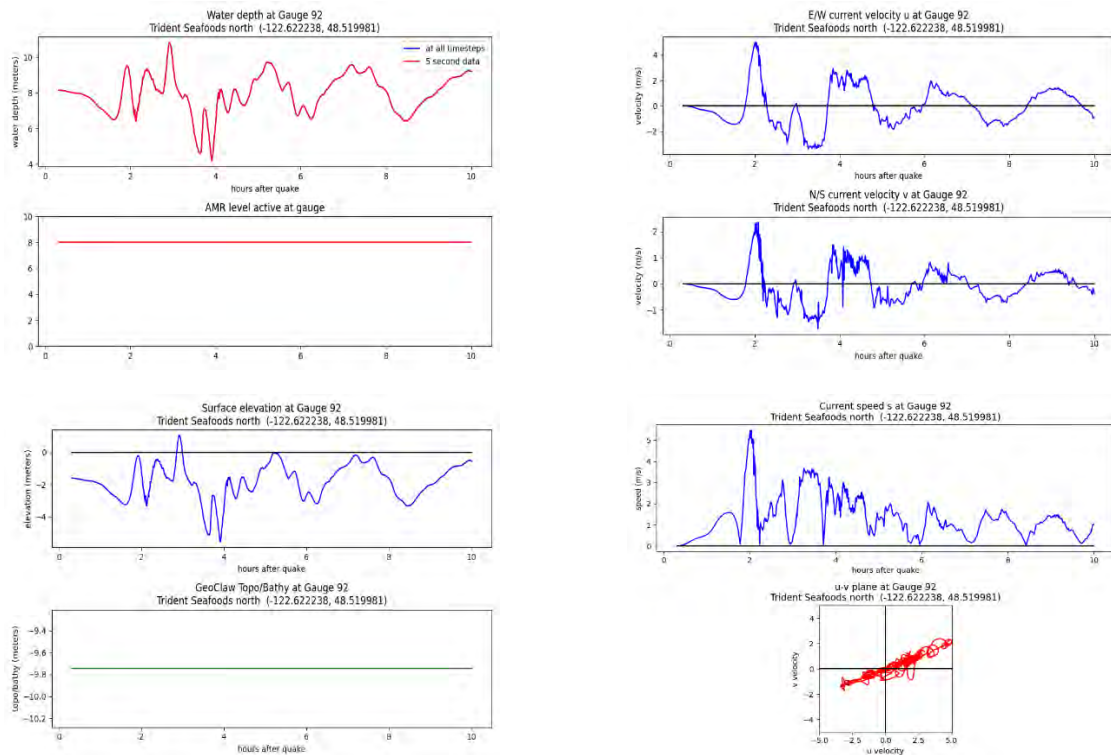


Gauge 92: Anchor Cove Marina north inside

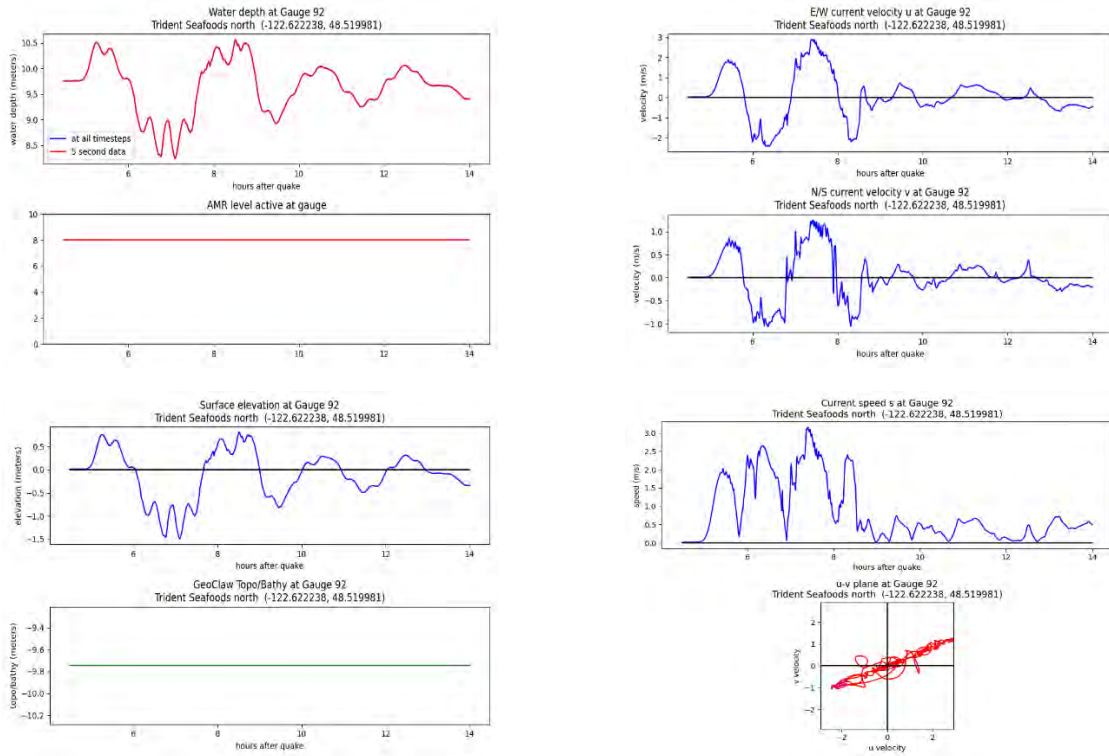
Cascadia subduction zone scenario, MHW:



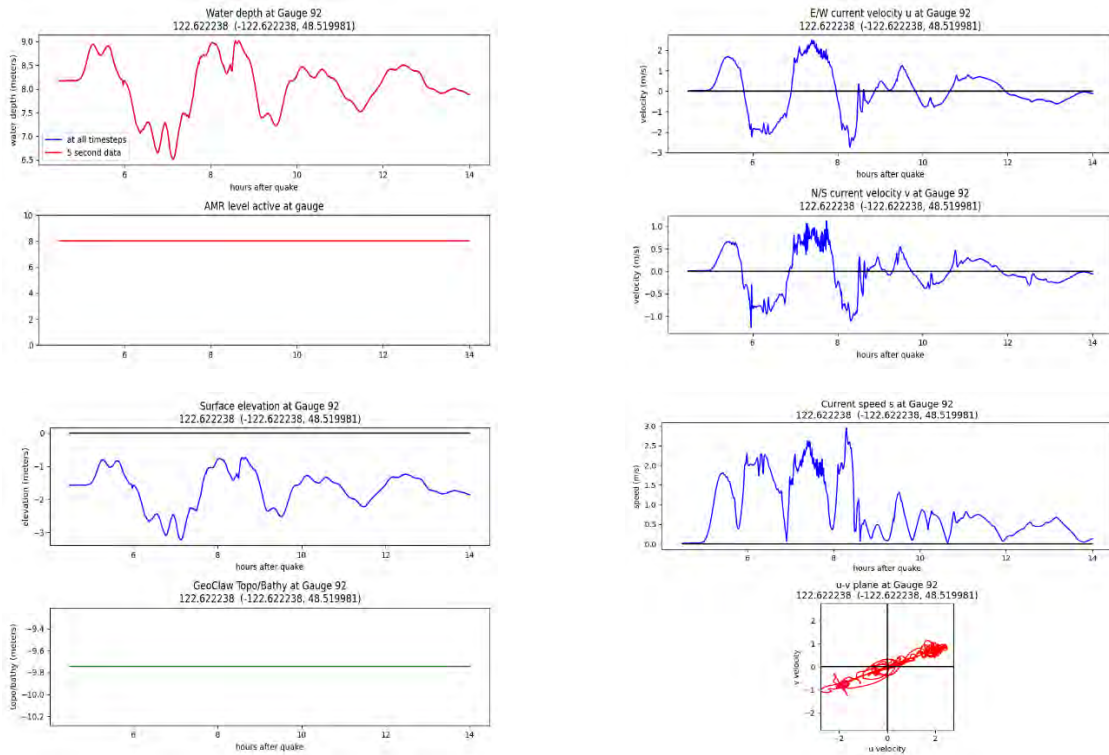
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

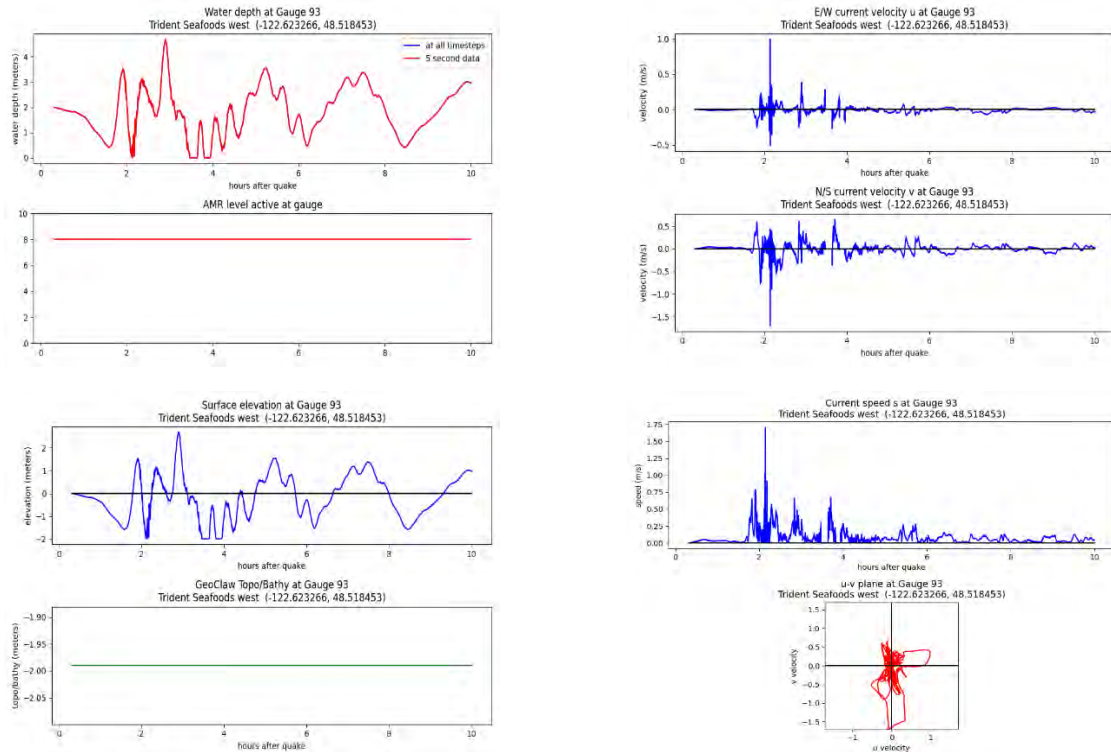


Alaska-Aleutian subduction zone scenario, MLW:

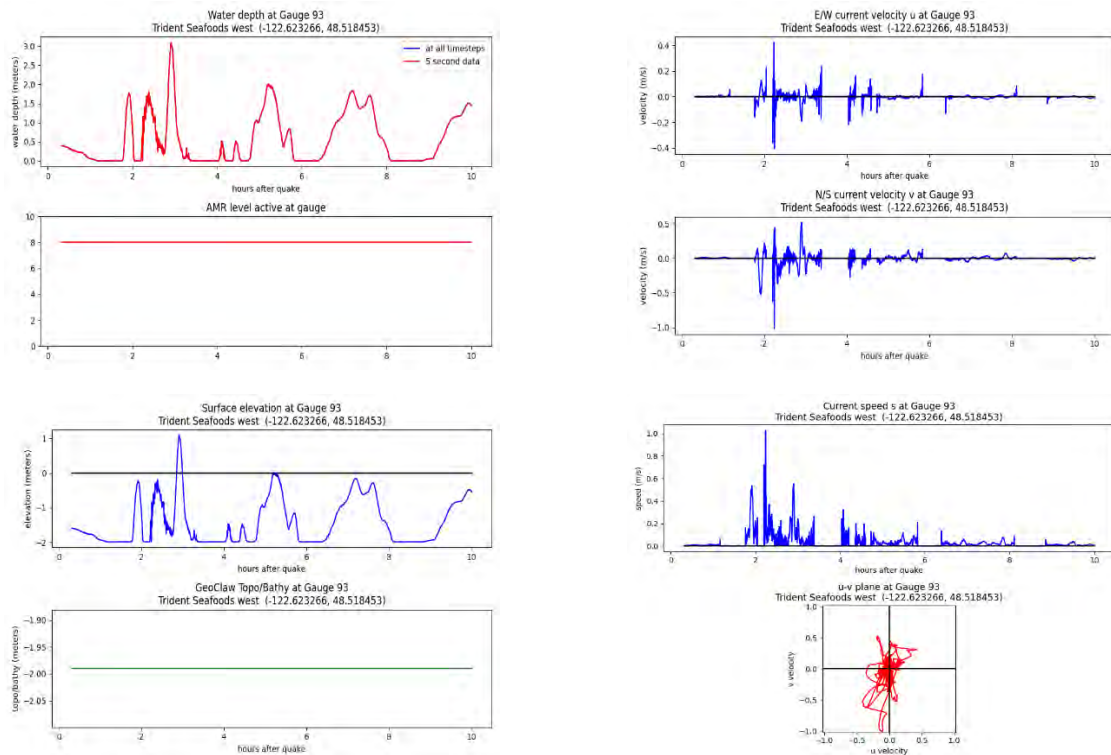


Gauge 93: Anchor Cove Marina west

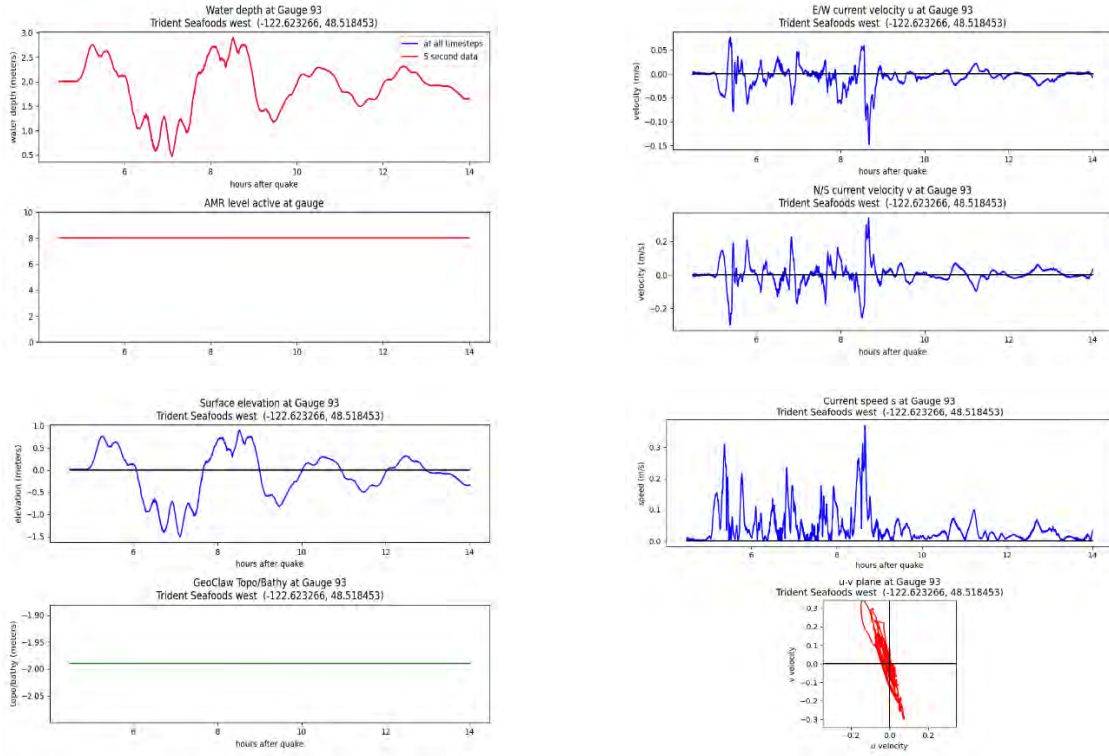
Cascadia subduction zone scenario, MHW:



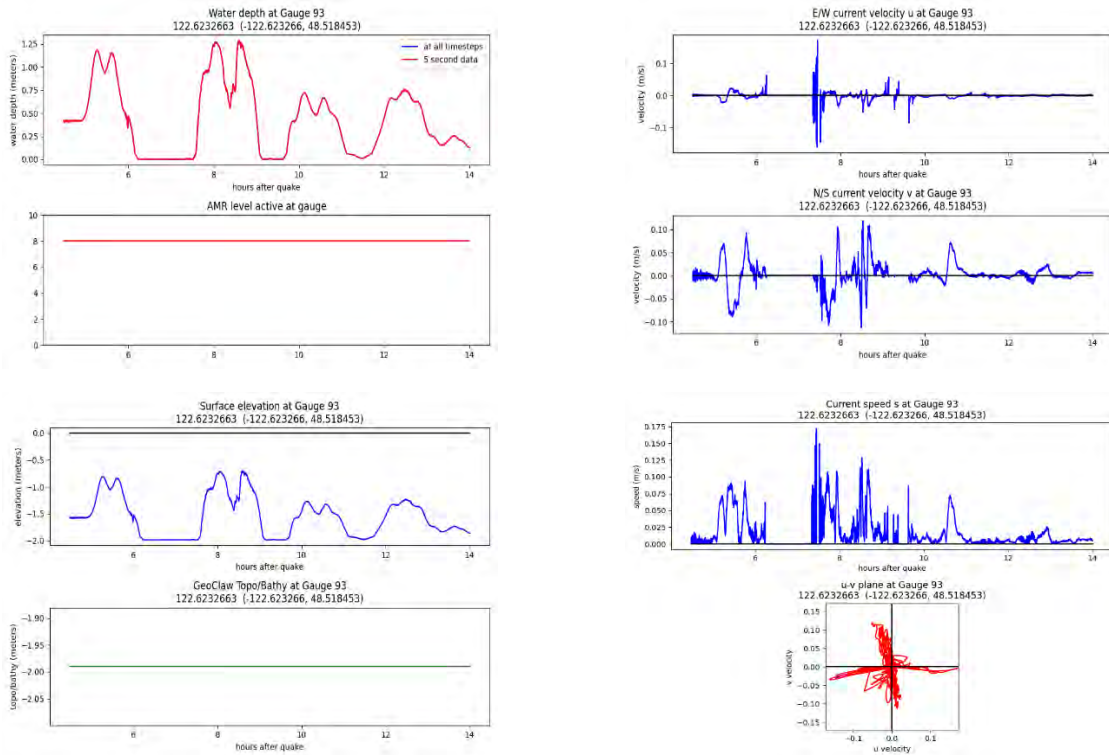
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

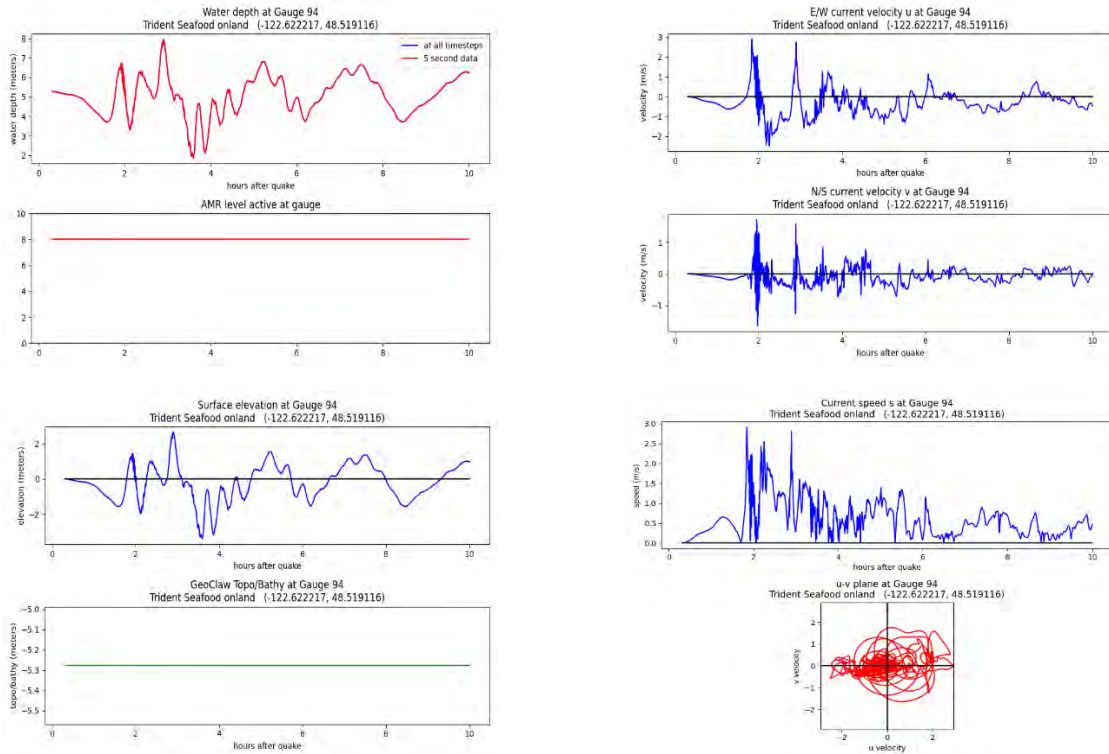


Alaska-Aleutian subduction zone scenario, MLW:

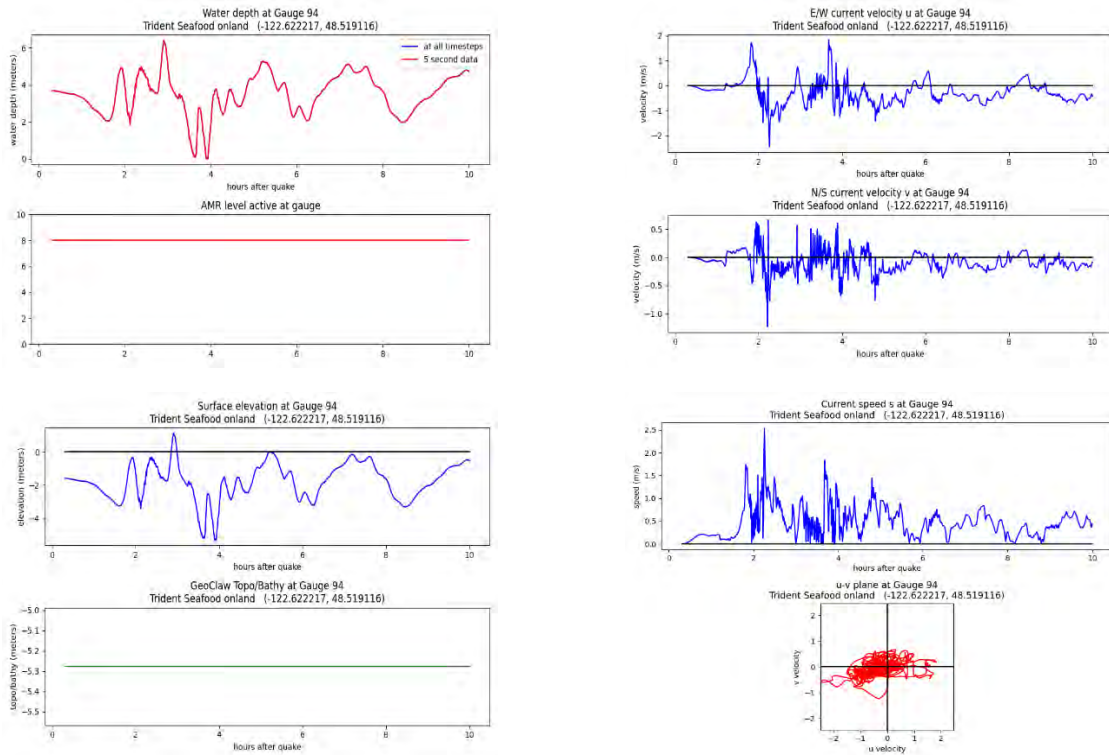


Gauge 94: Anchor Cove Marina center

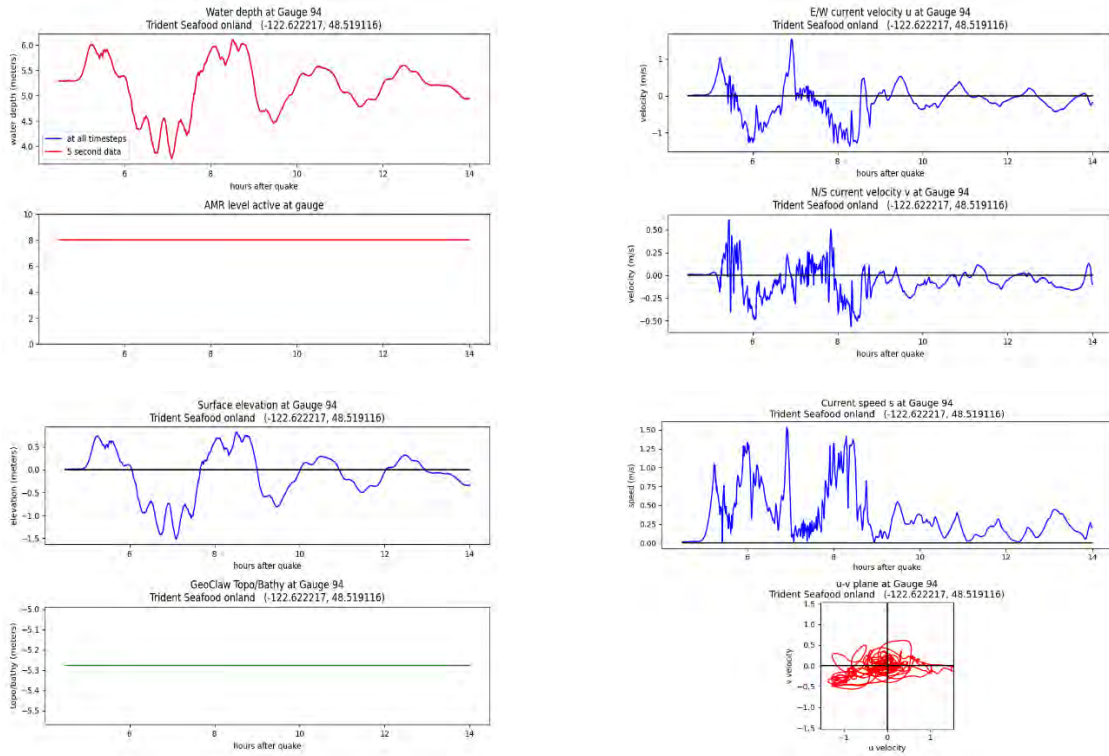
Cascadia subduction zone scenario, MHW:



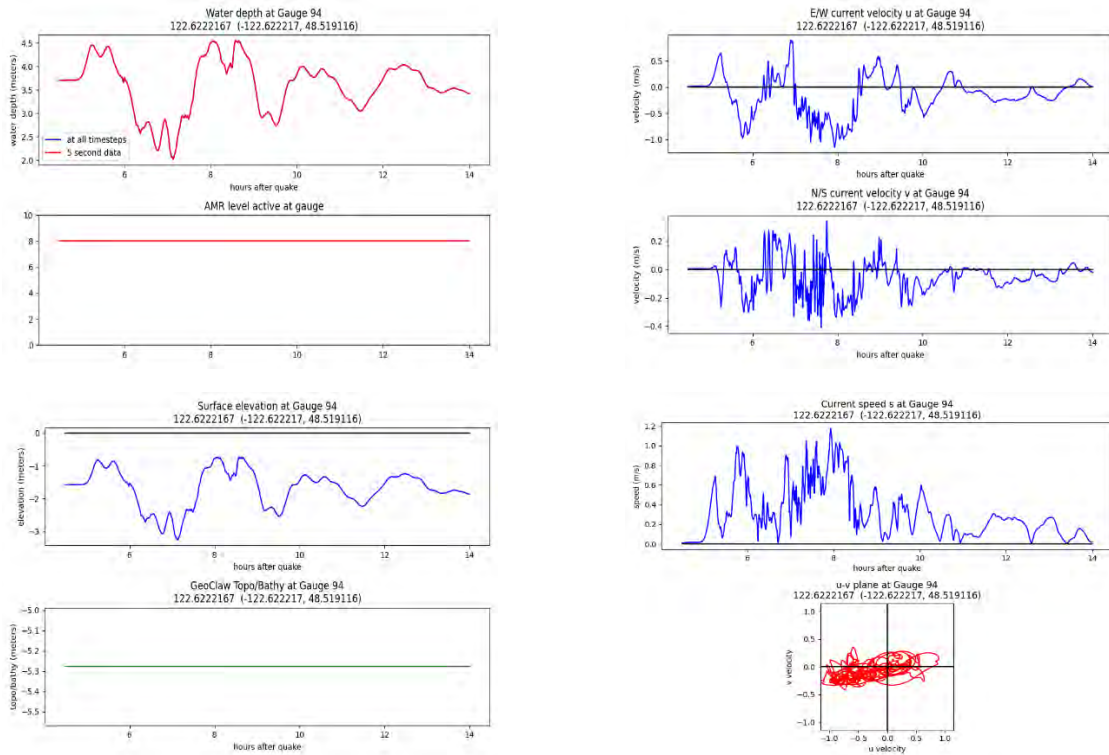
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

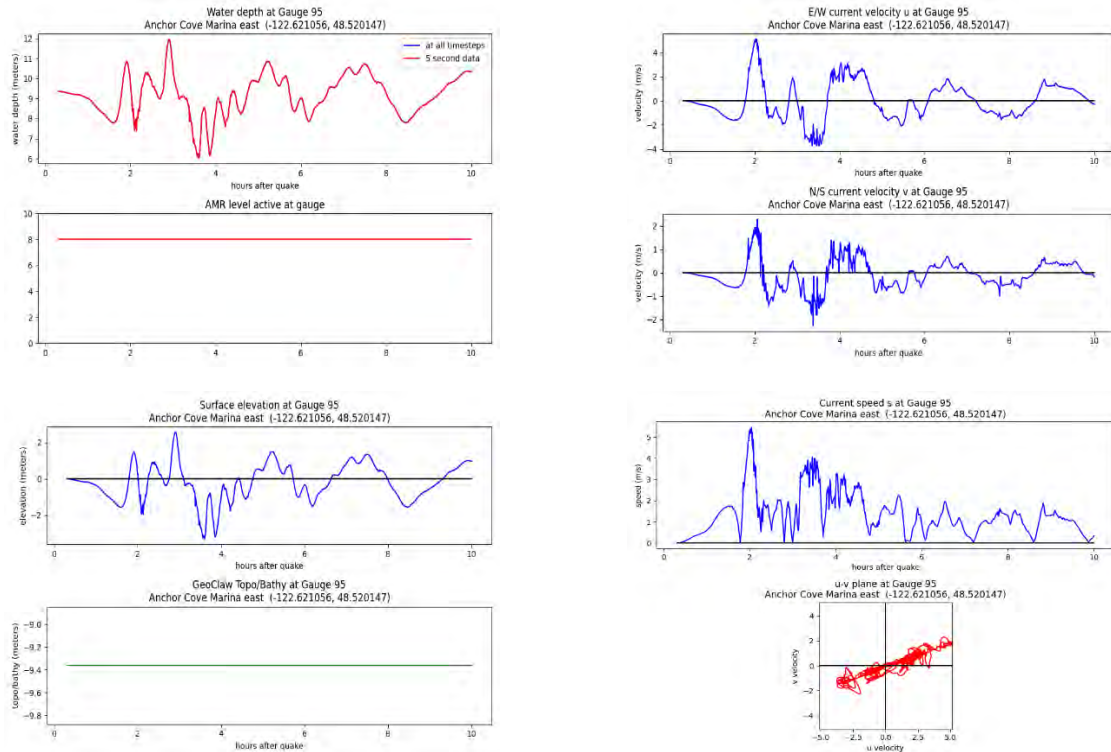


Alaska-Aleutian subduction zone scenario, MLW:

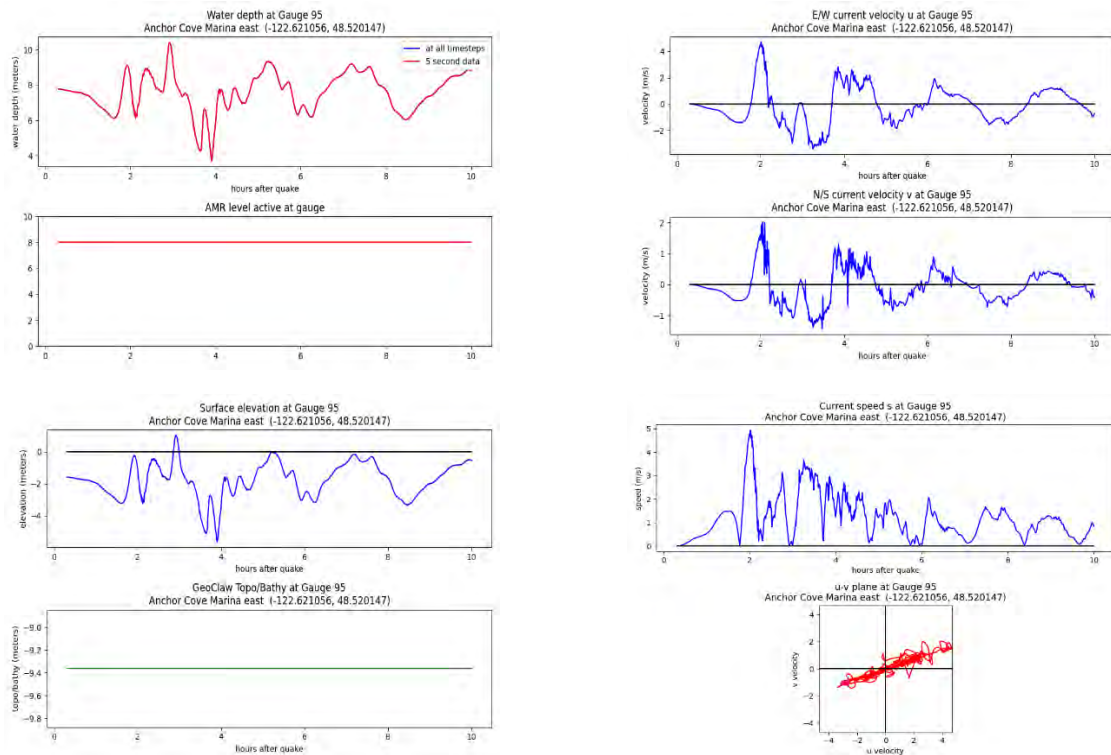


Gauge 95: Anchor Cove Marina entrance

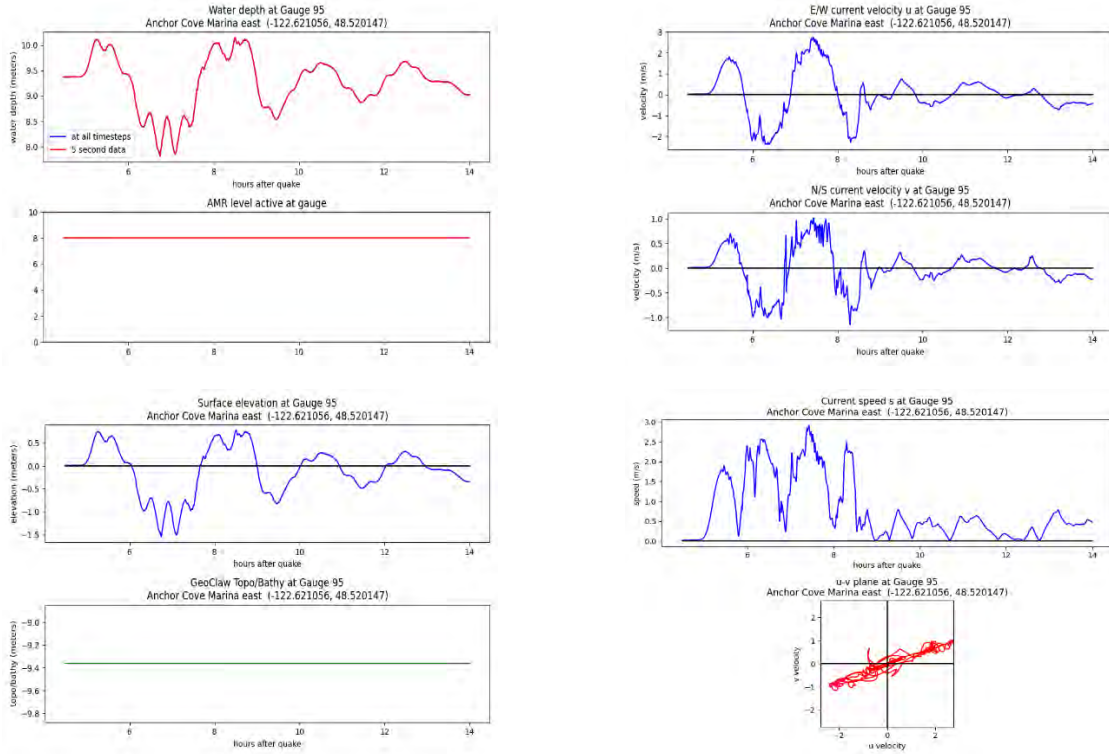
Cascadia subduction zone scenario, MHW:



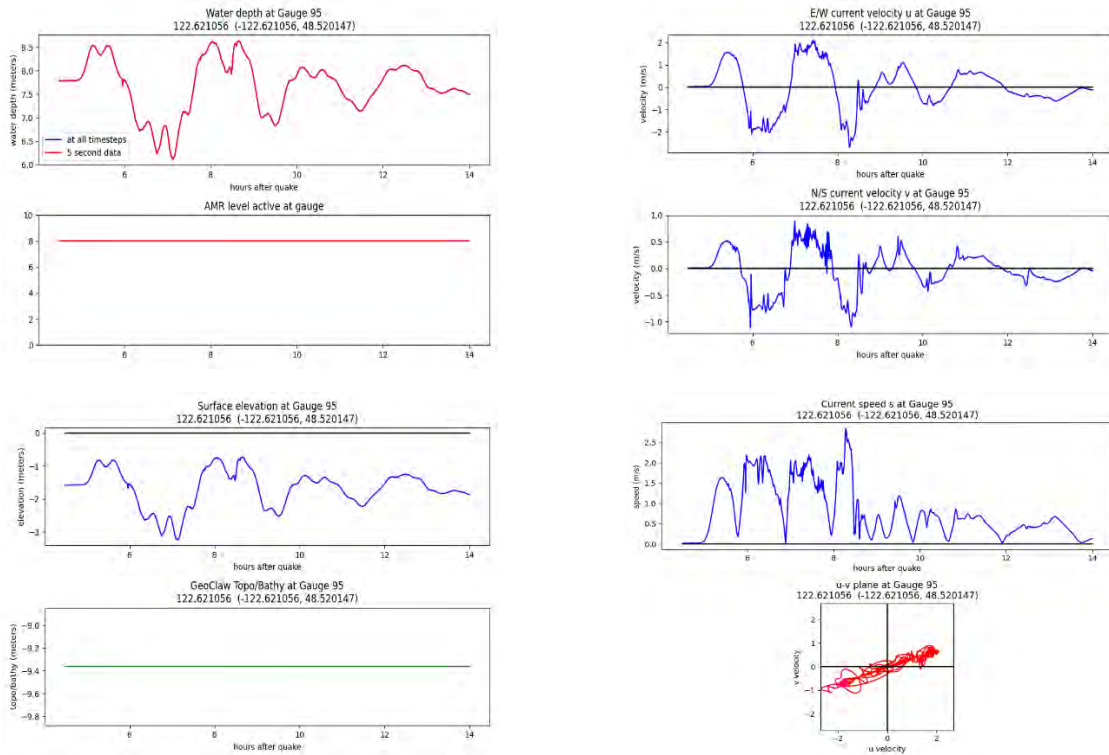
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

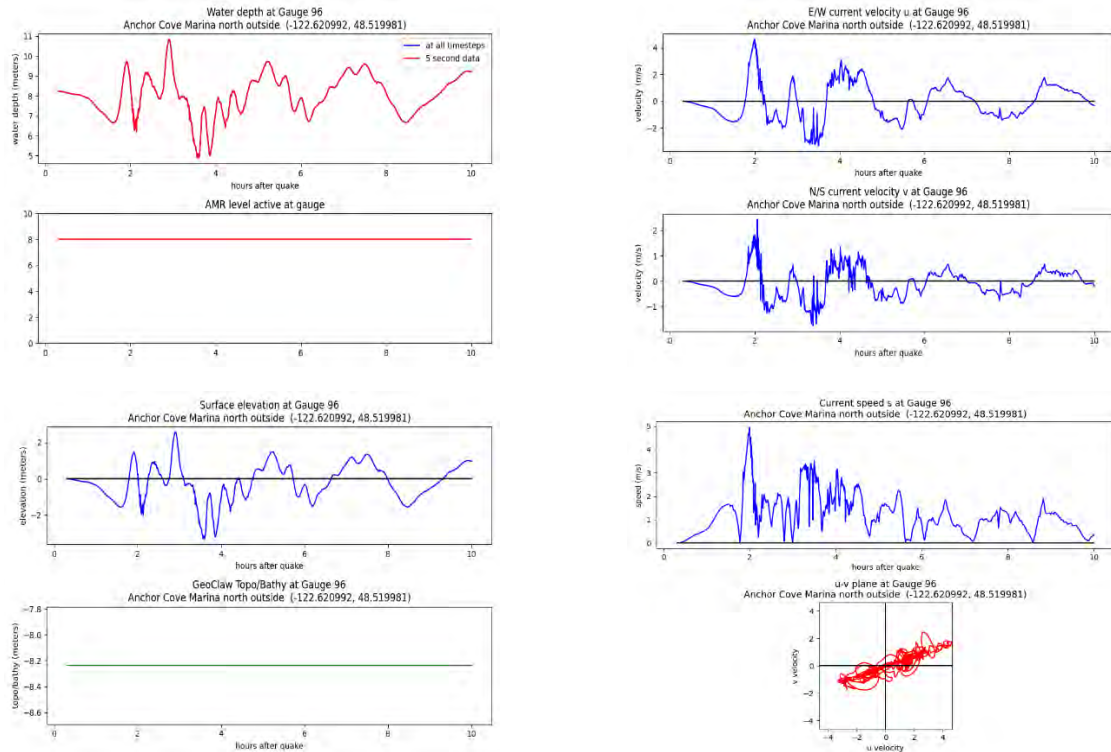


Alaska-Aleutian subduction zone scenario, MLW:

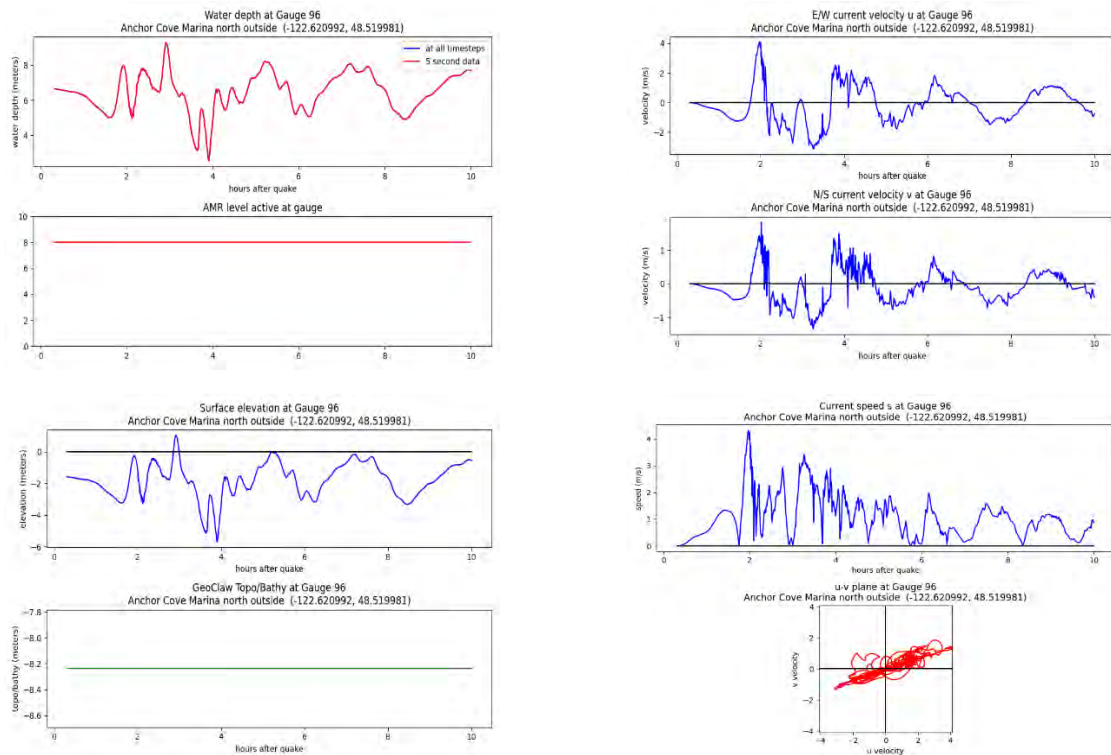


Gauge 96: Anchor Cove Marina entrance 2

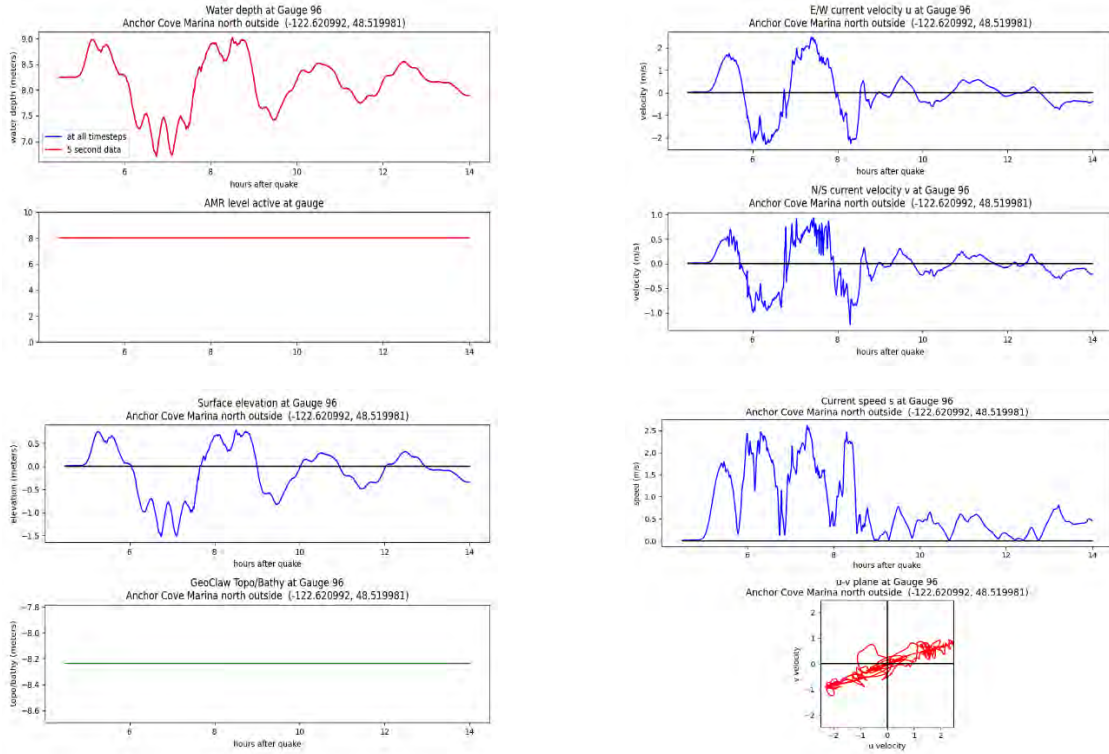
Cascadia subduction zone scenario, MHW:



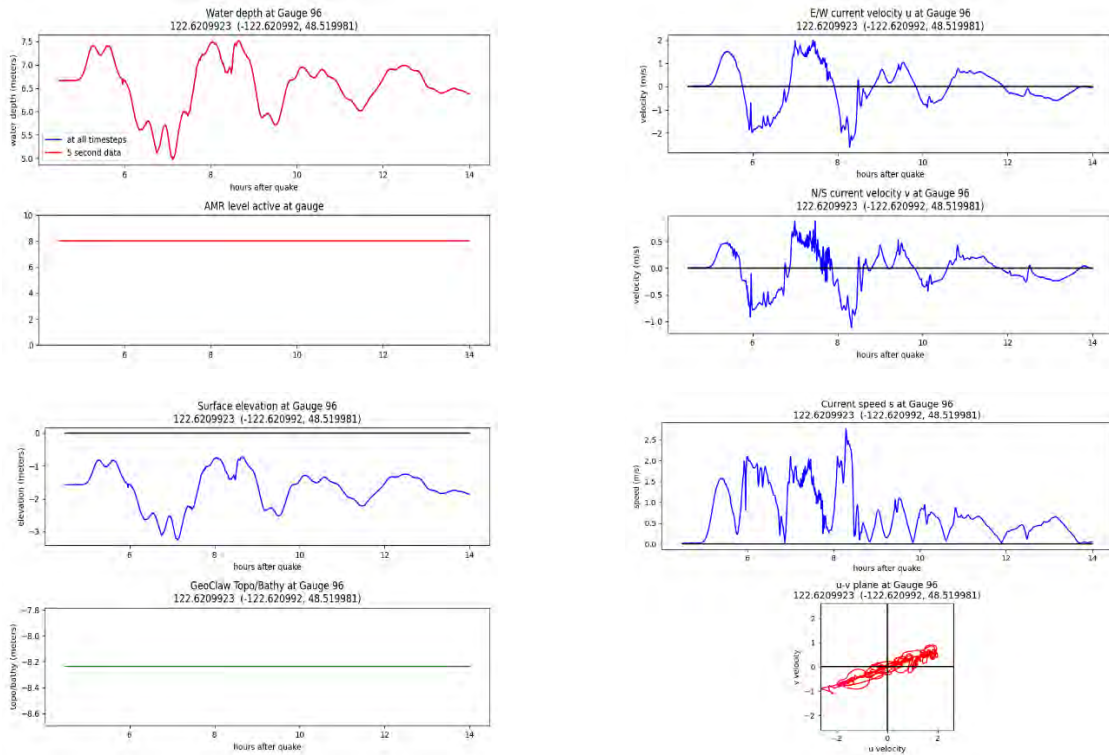
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

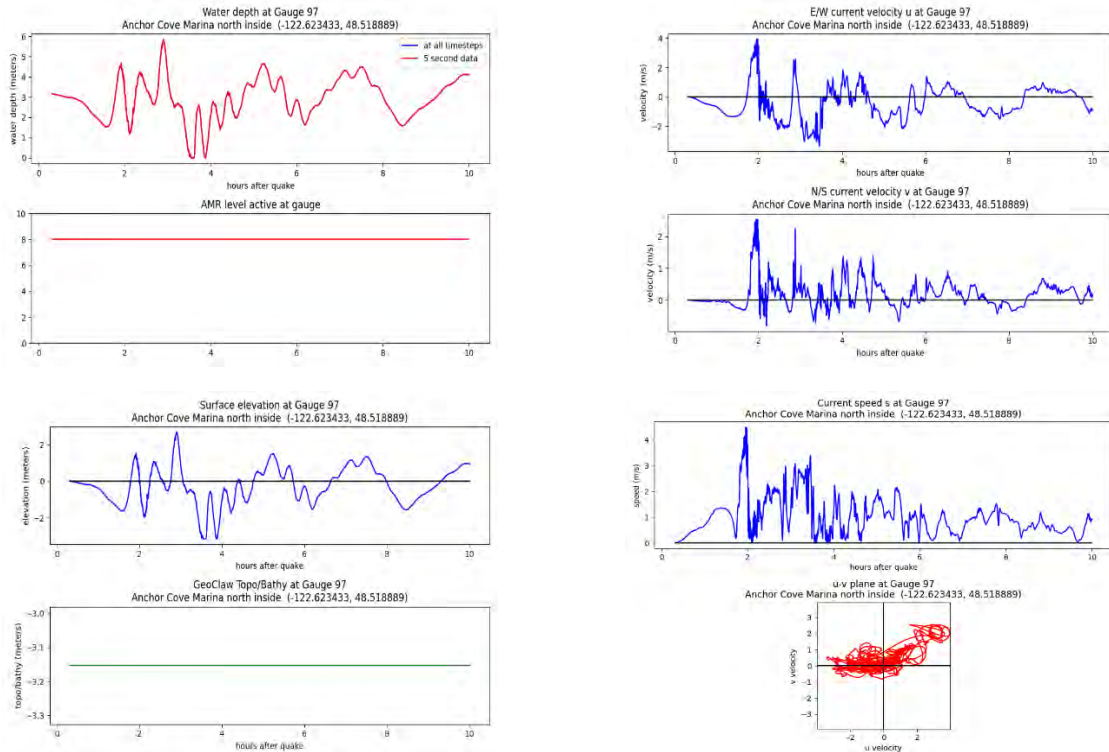


Alaska-Aleutian subduction zone scenario, MLW:

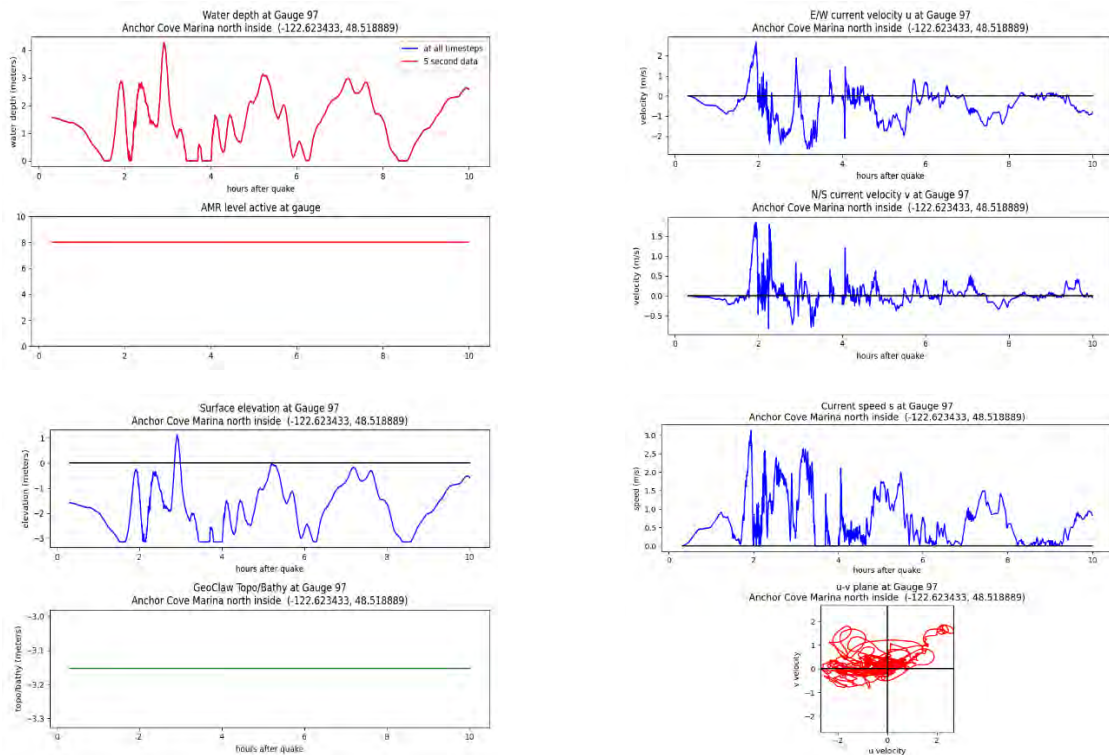


Gauge 97: Guemes Island Ferry Terminal east

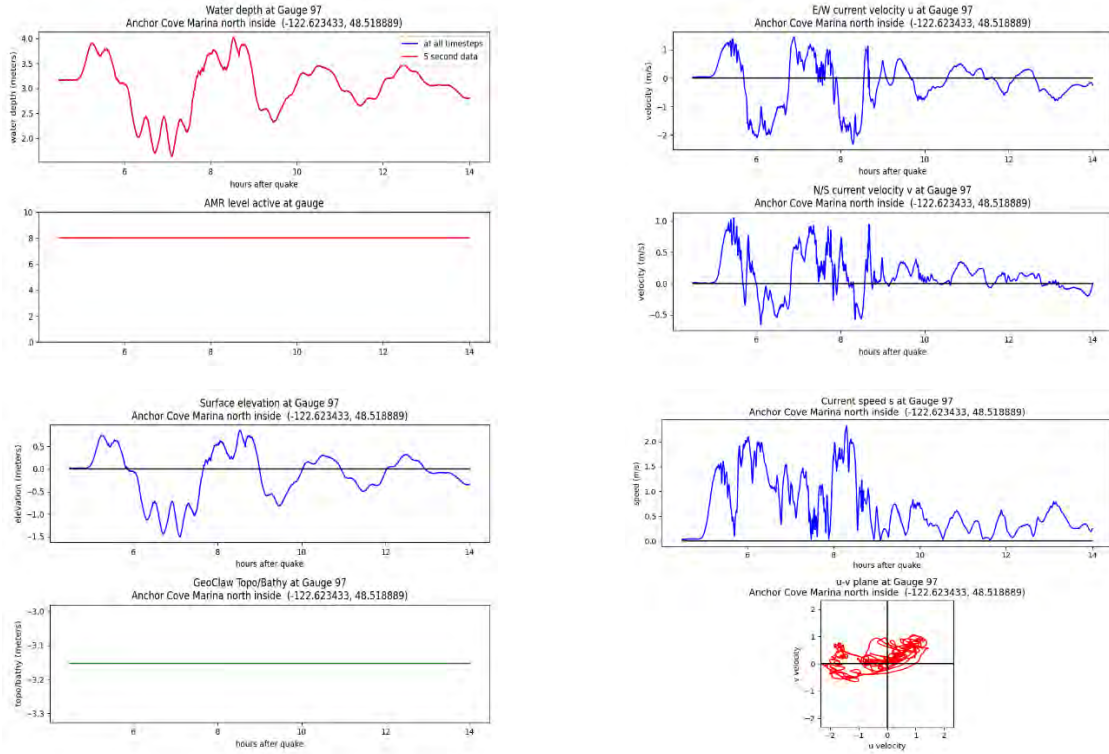
Cascadia subduction zone scenario, MHW:



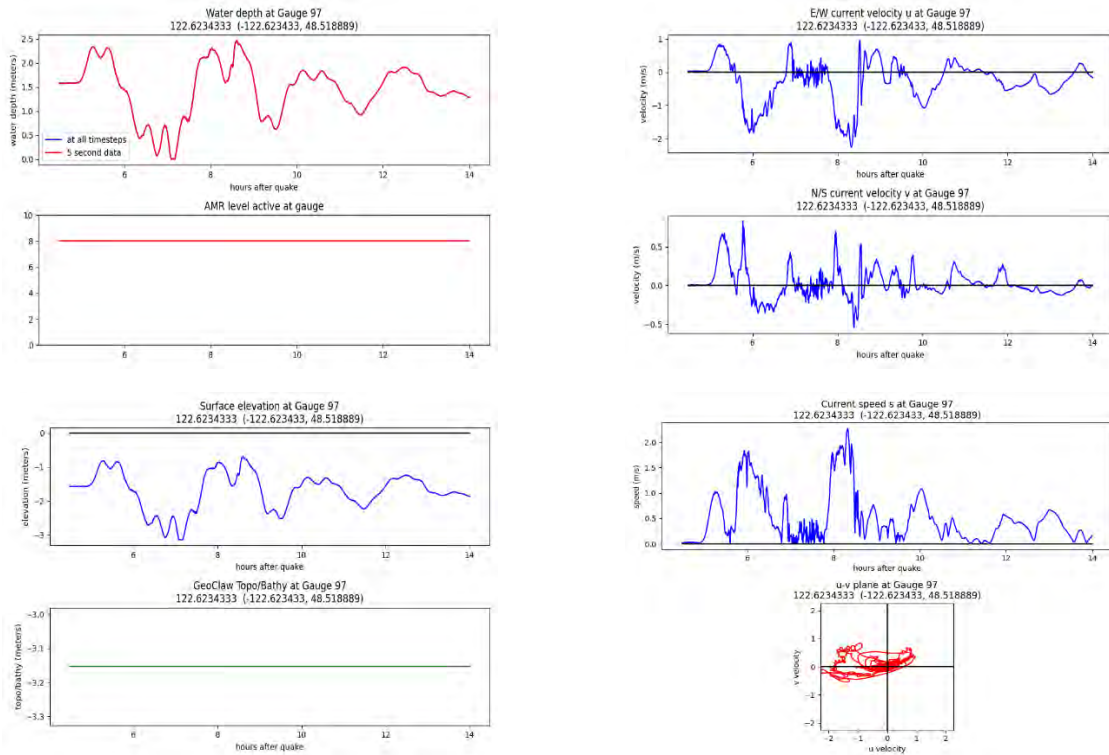
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

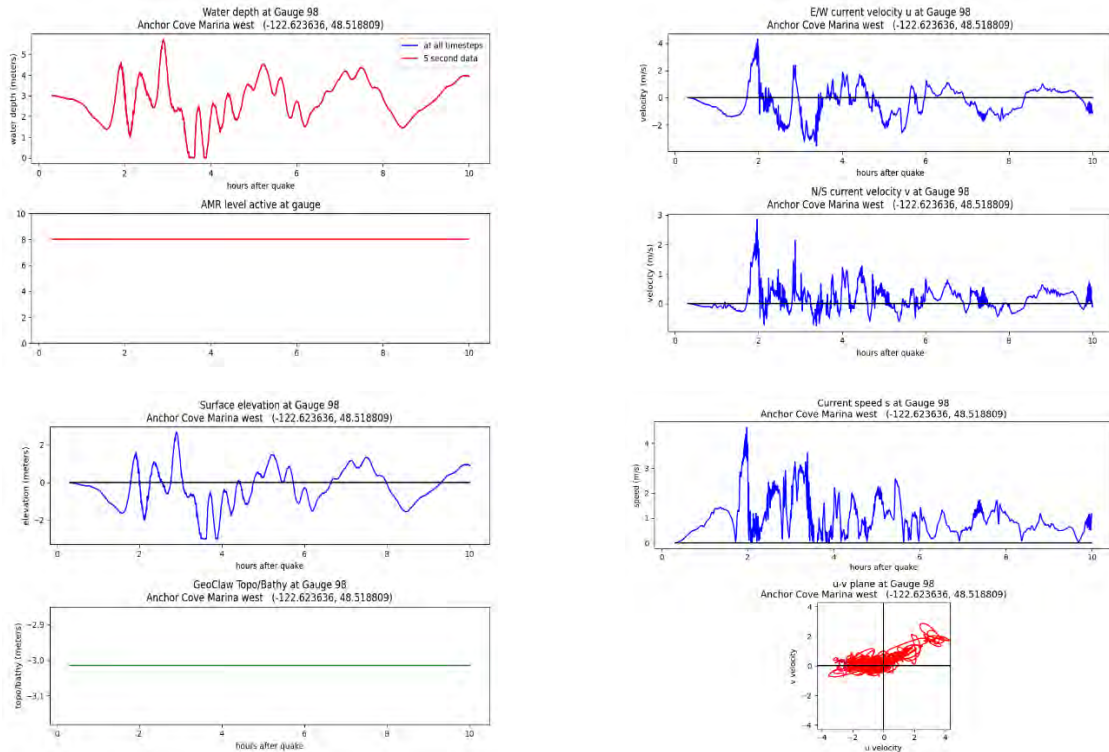


Alaska-Aleutian subduction zone scenario, MLW:

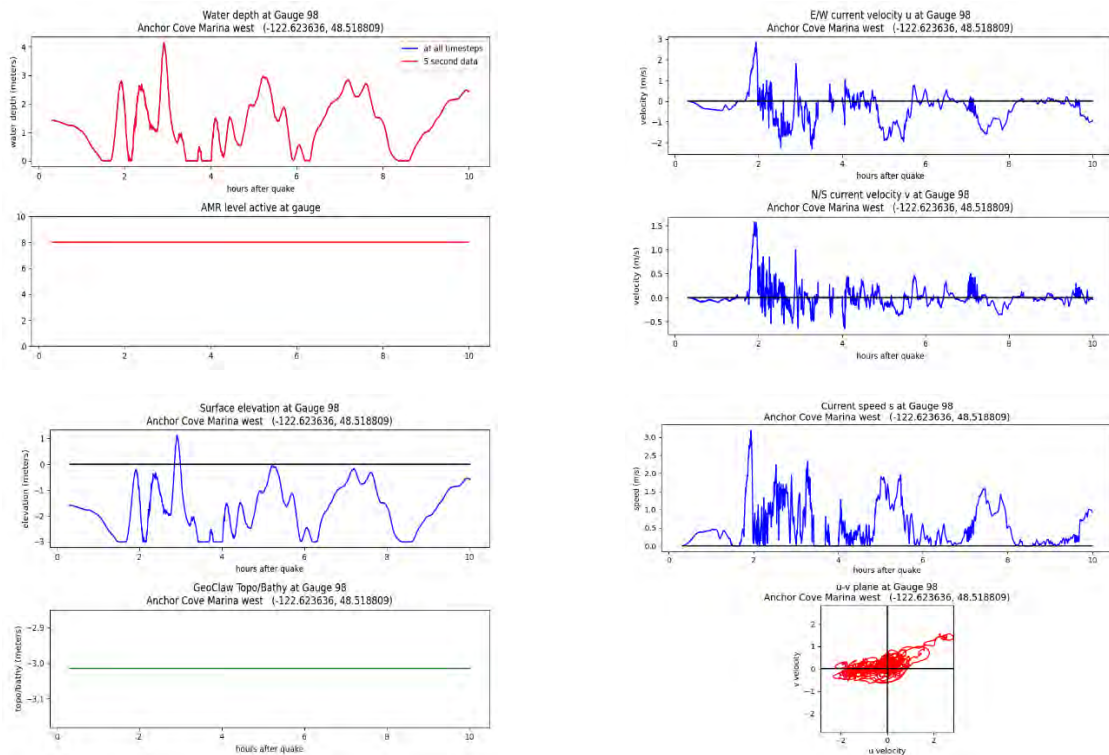


Gauge 98: Guemes Island Ferry Terminal west

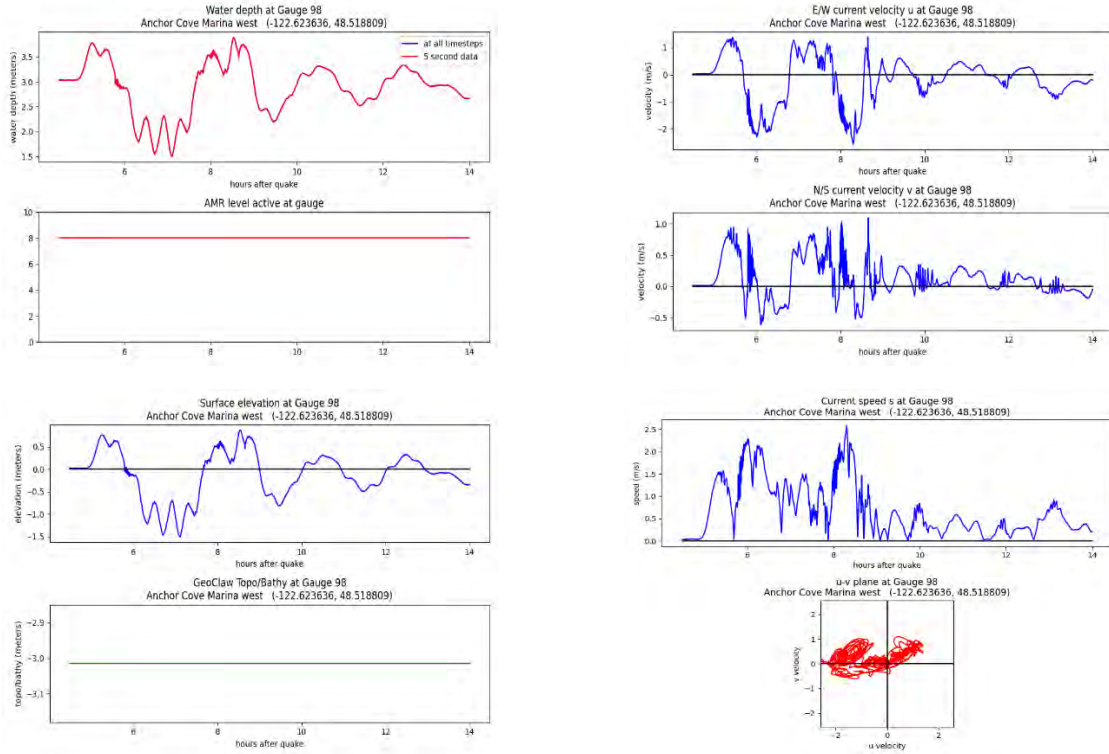
Cascadia subduction zone scenario, MHW:



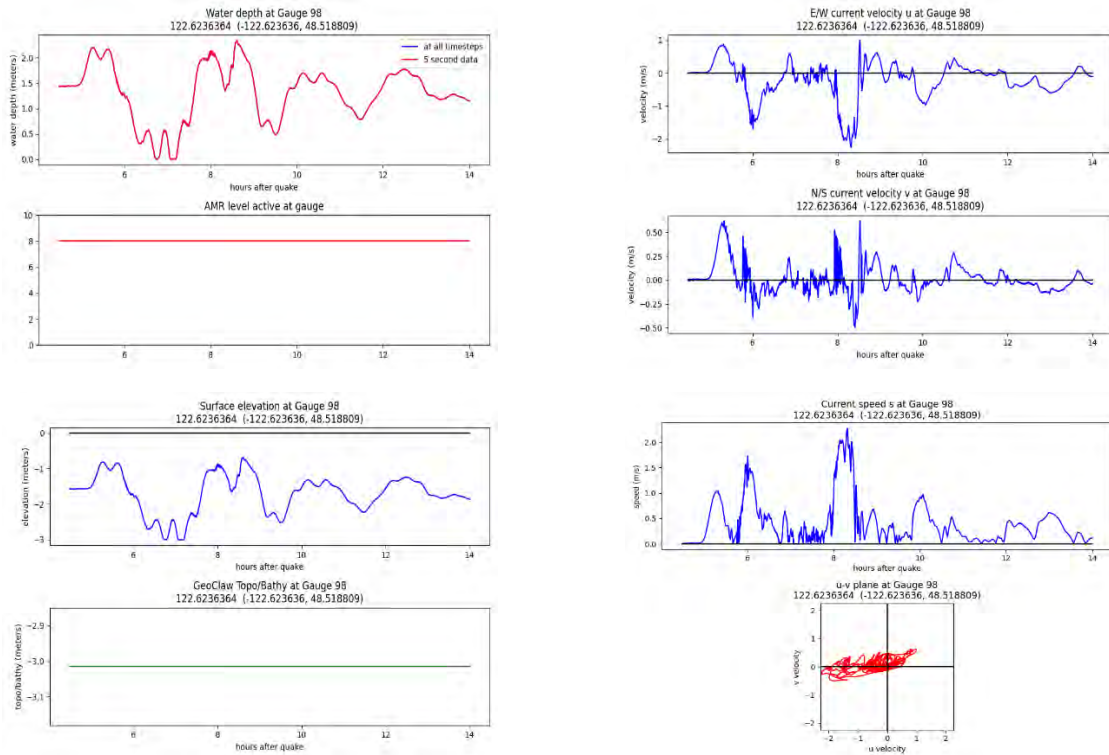
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

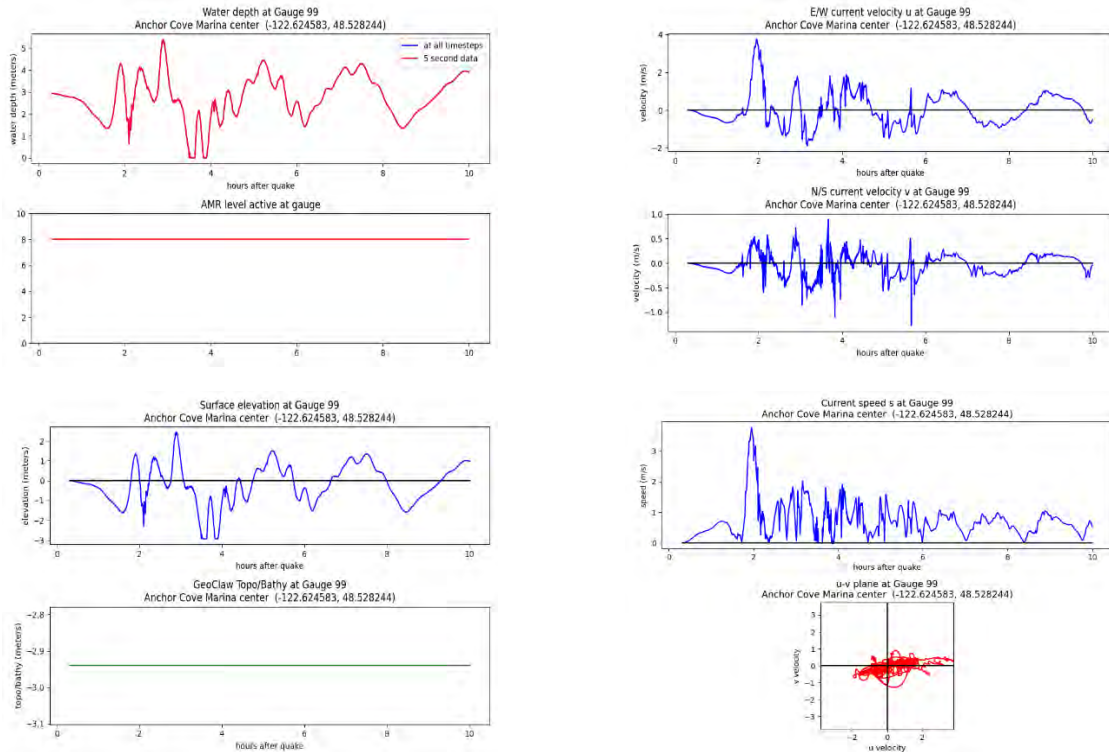


Alaska-Aleutian subduction zone scenario, MLW:

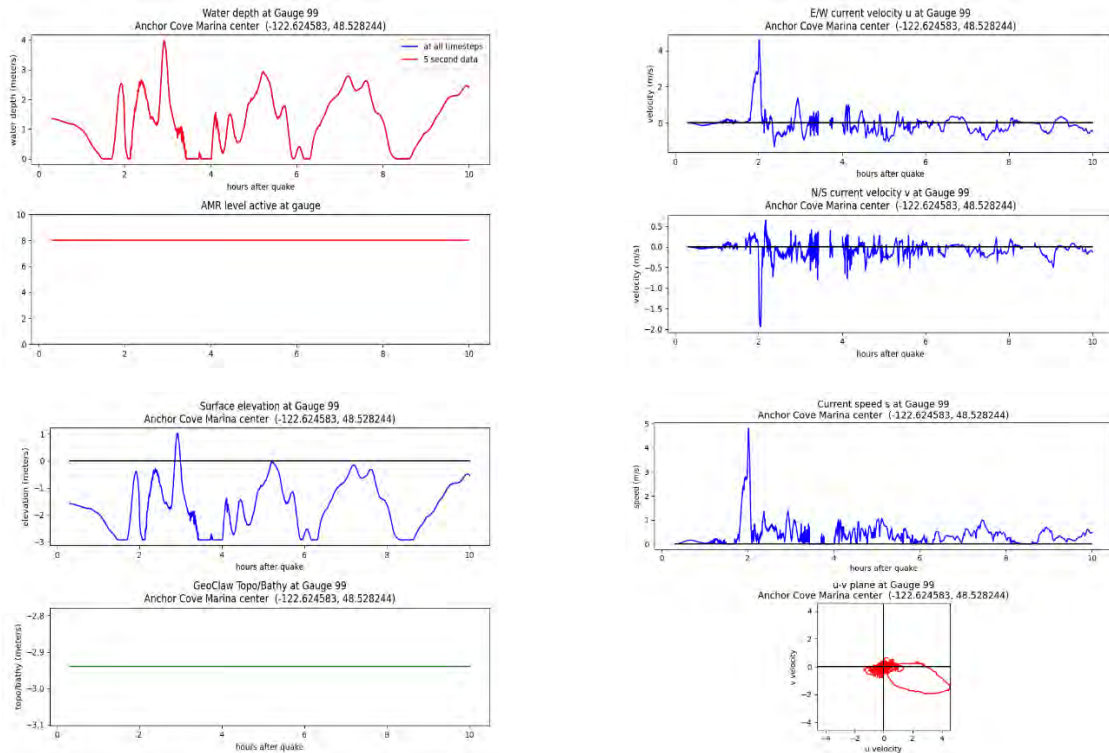


Gauge 99: Guemes Island Ferry Terminal Guemes east

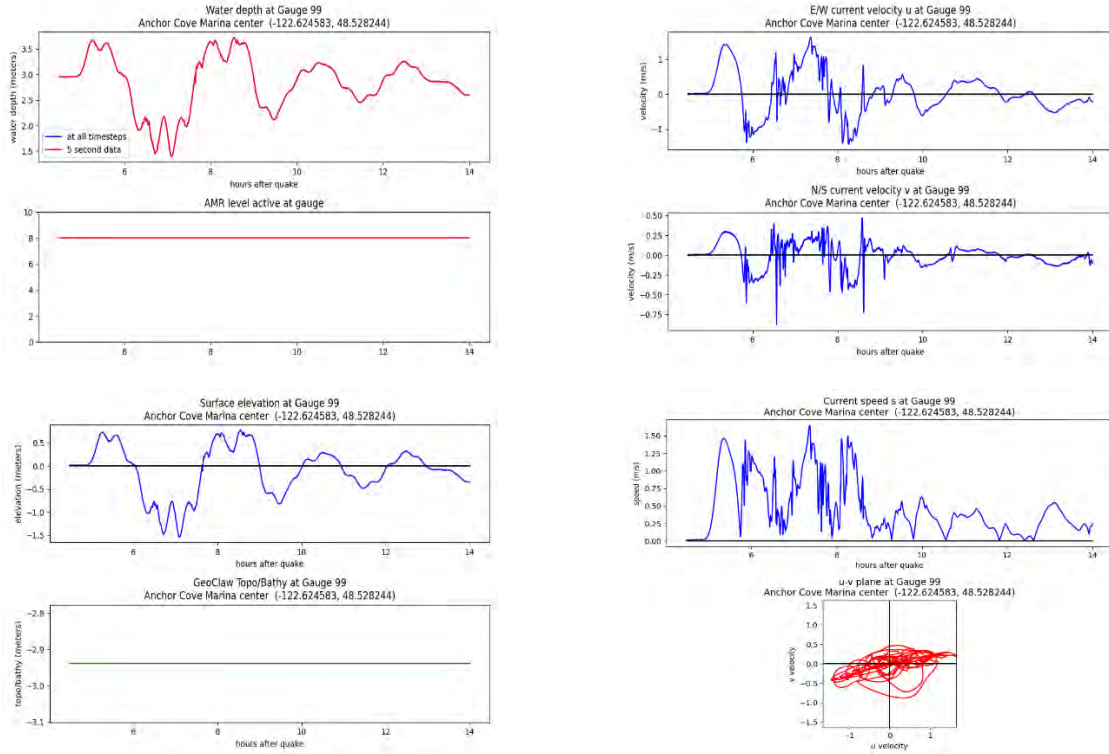
Cascadia subduction zone scenario, MHW:



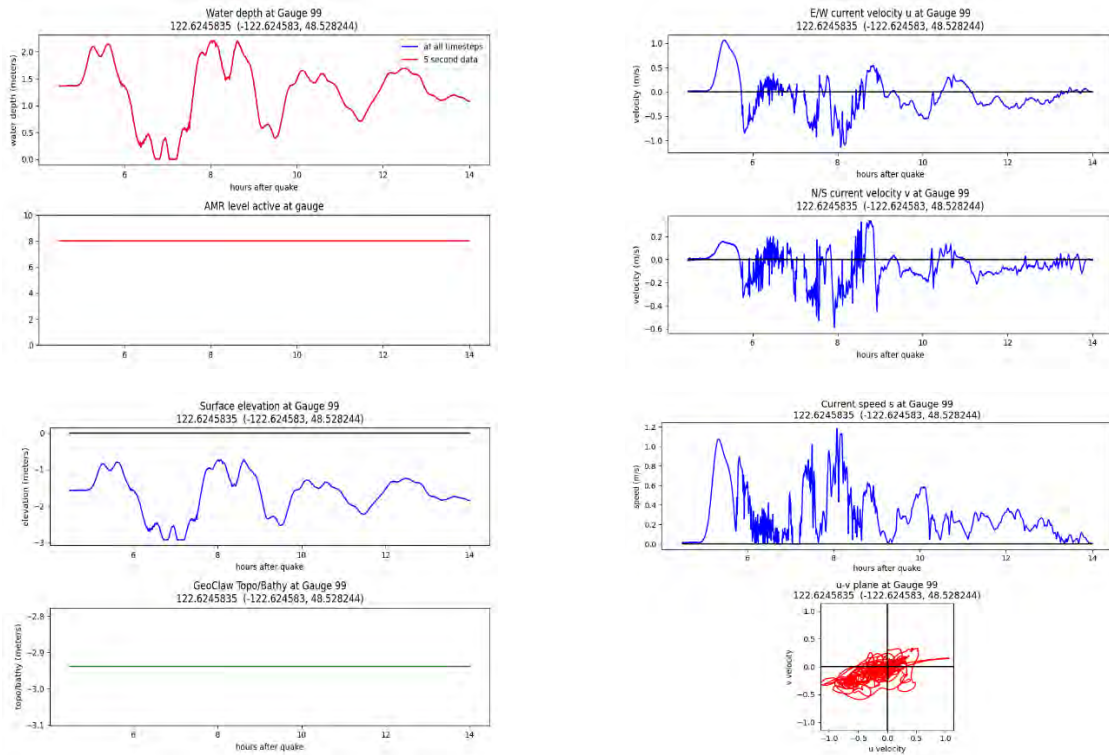
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

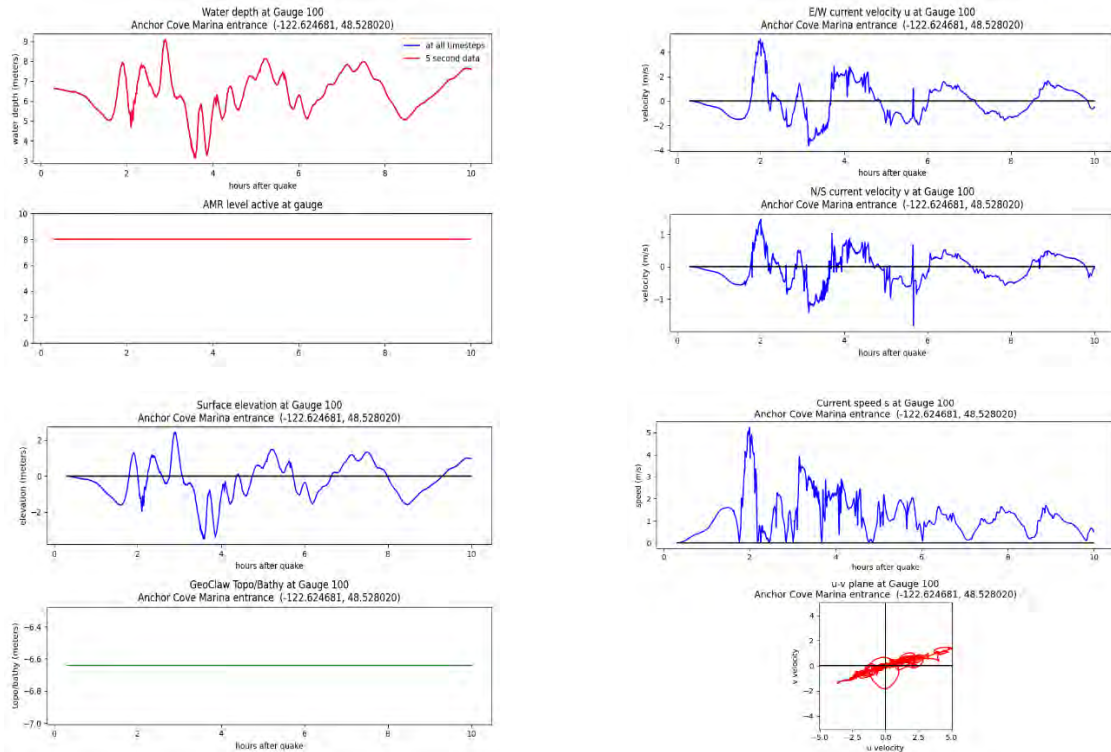


Alaska-Aleutian subduction zone scenario, MLW:

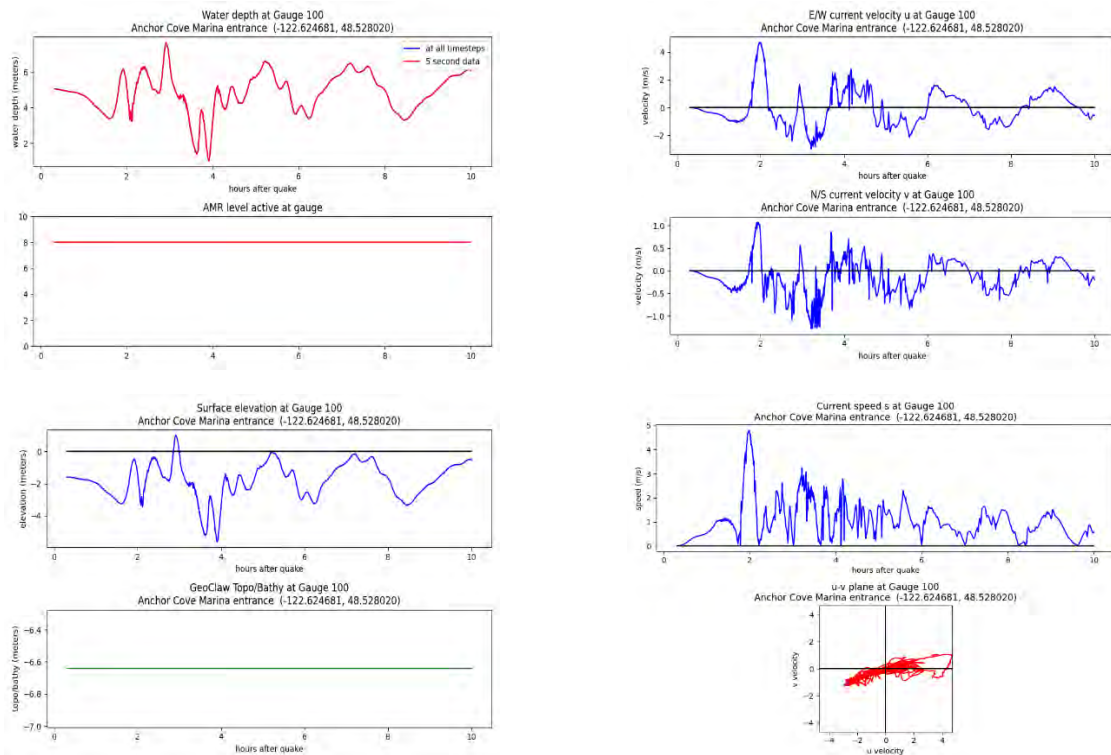


Gauge 100: Guemes Island Ferry Terminal Guemes north

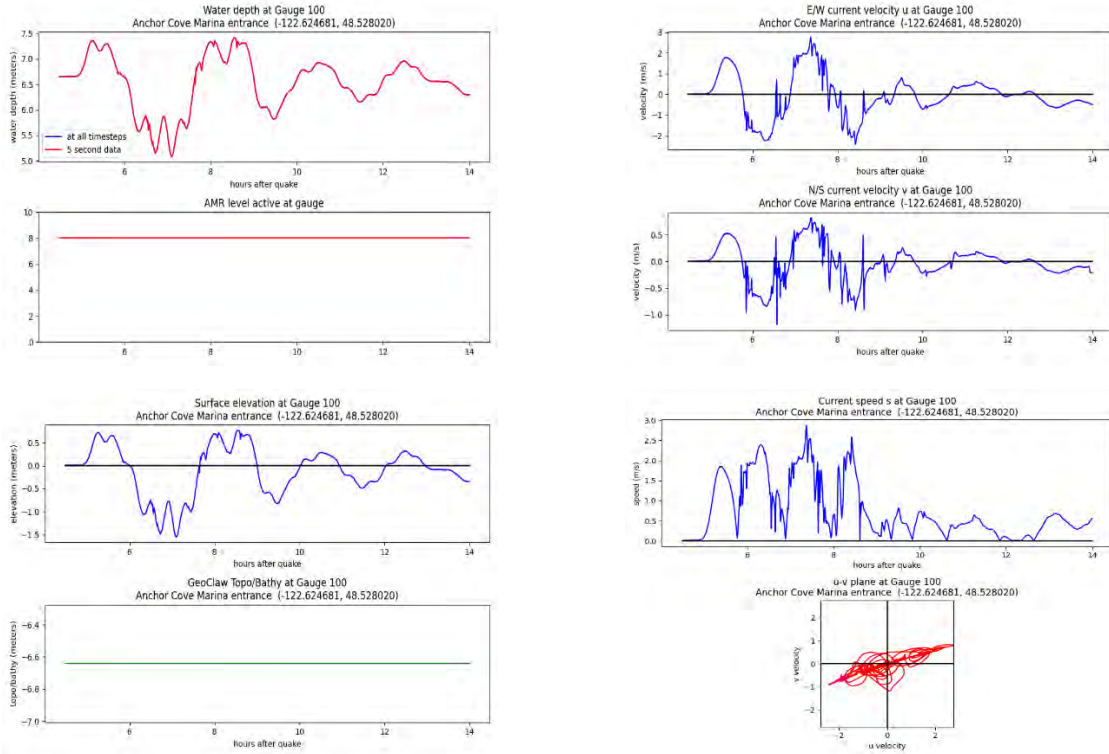
Cascadia subduction zone scenario, MHW:



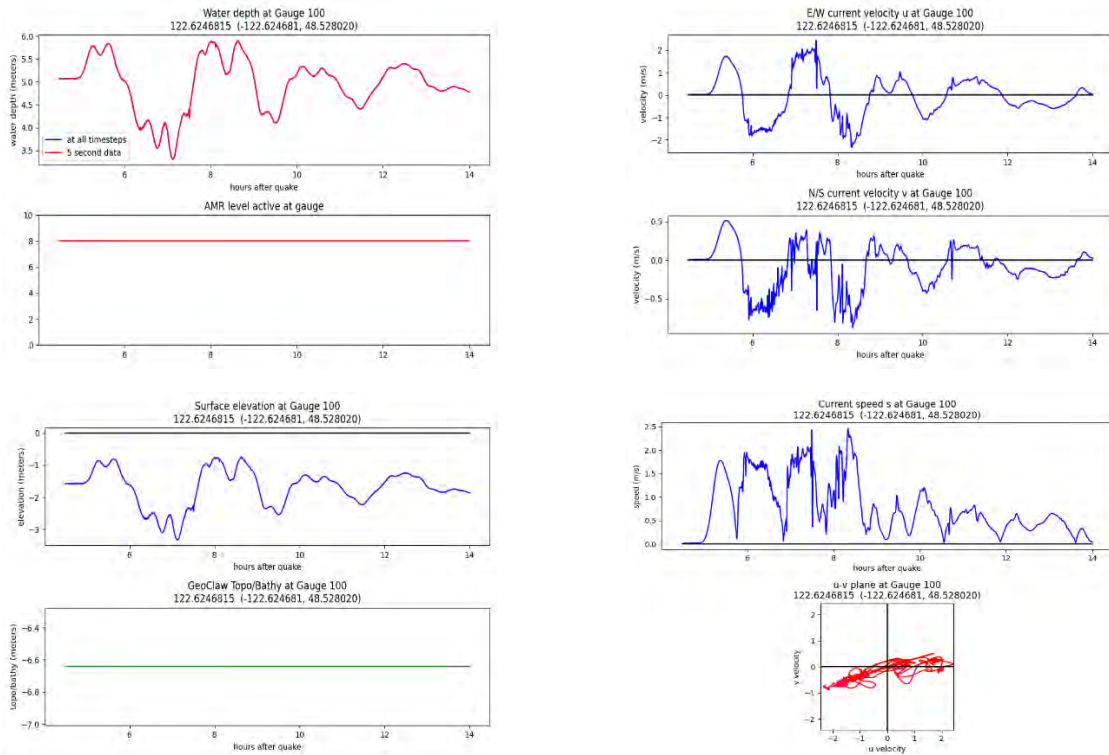
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

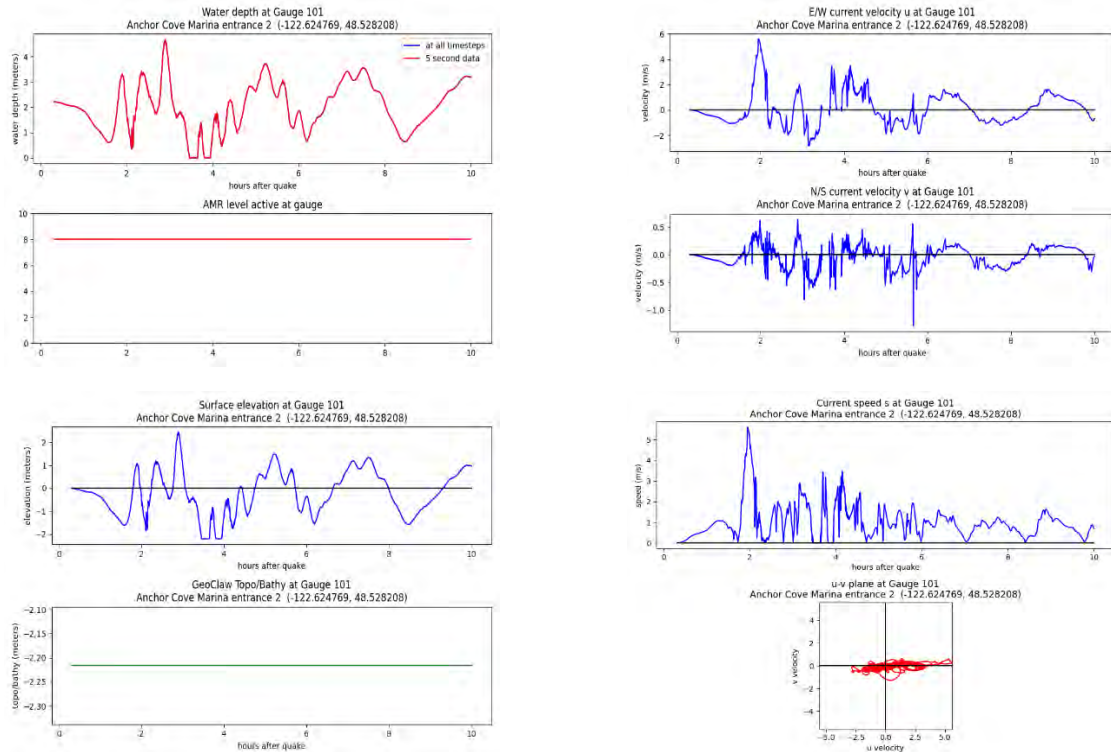


Alaska-Aleutian subduction zone scenario, MLW:

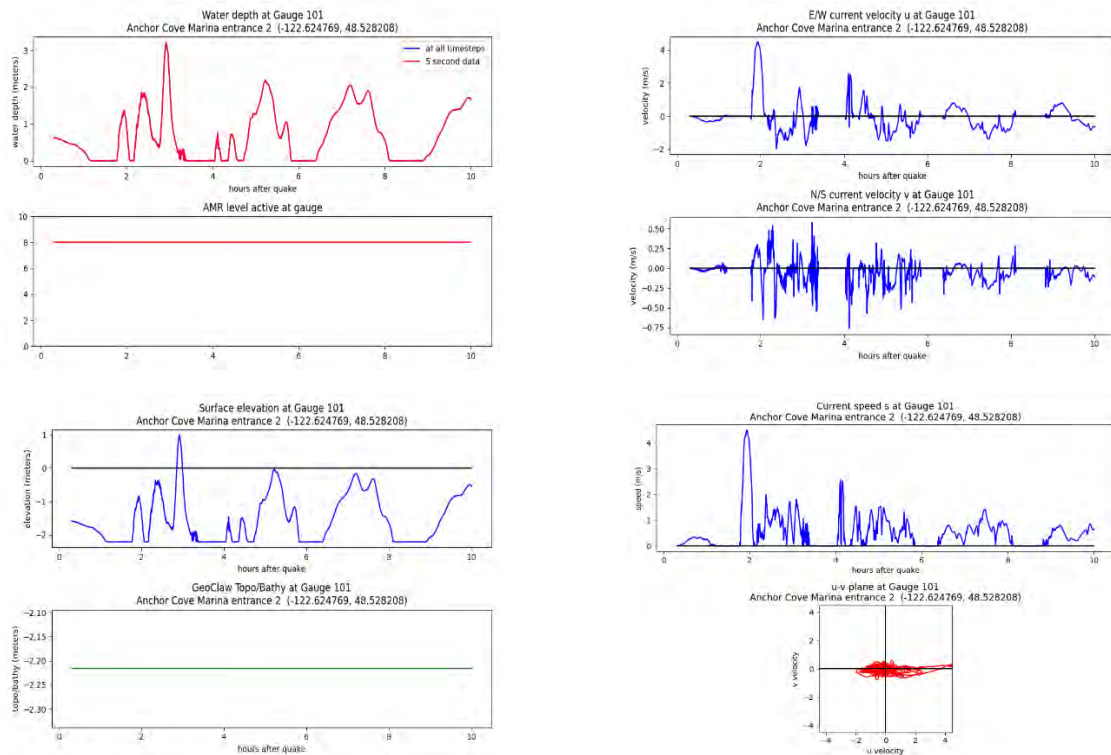


Gauge 101: Guemes Island Ferry Terminal Guemes west

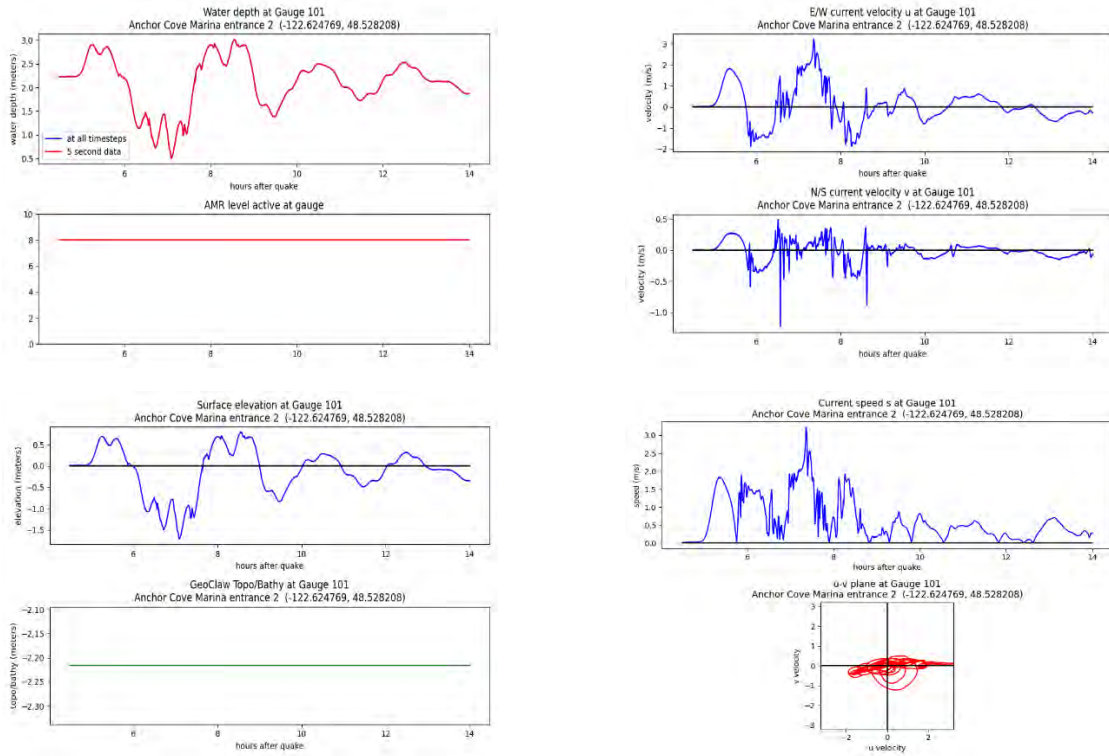
Cascadia subduction zone scenario, MHW:



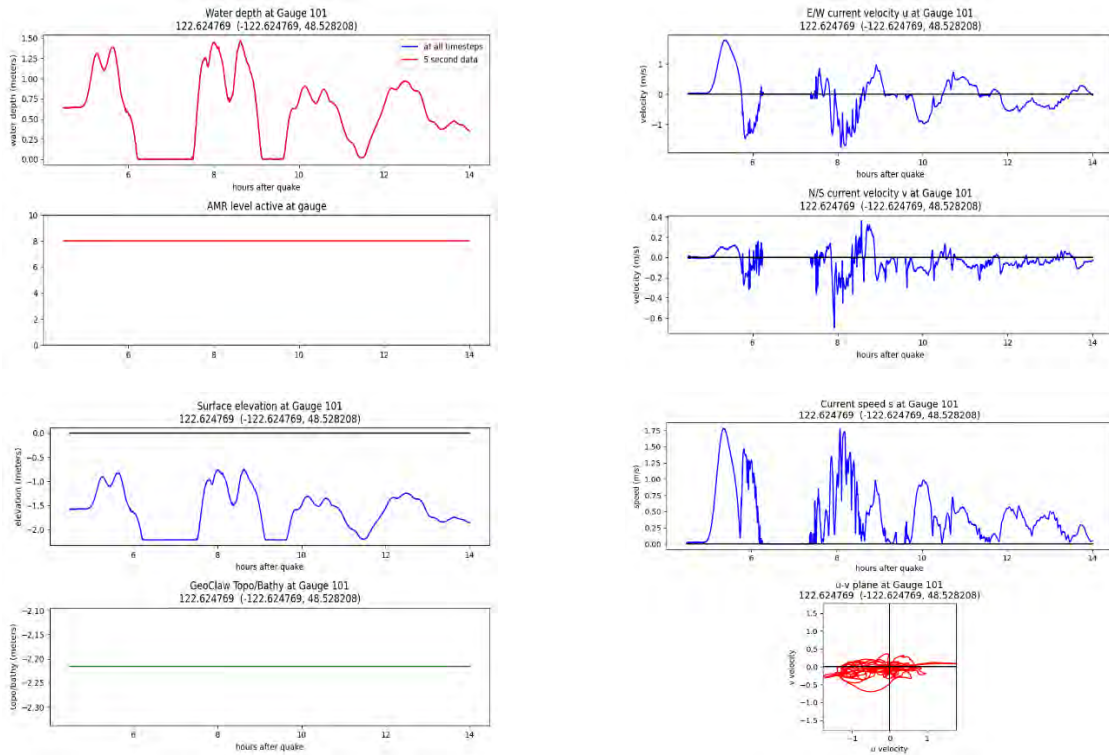
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

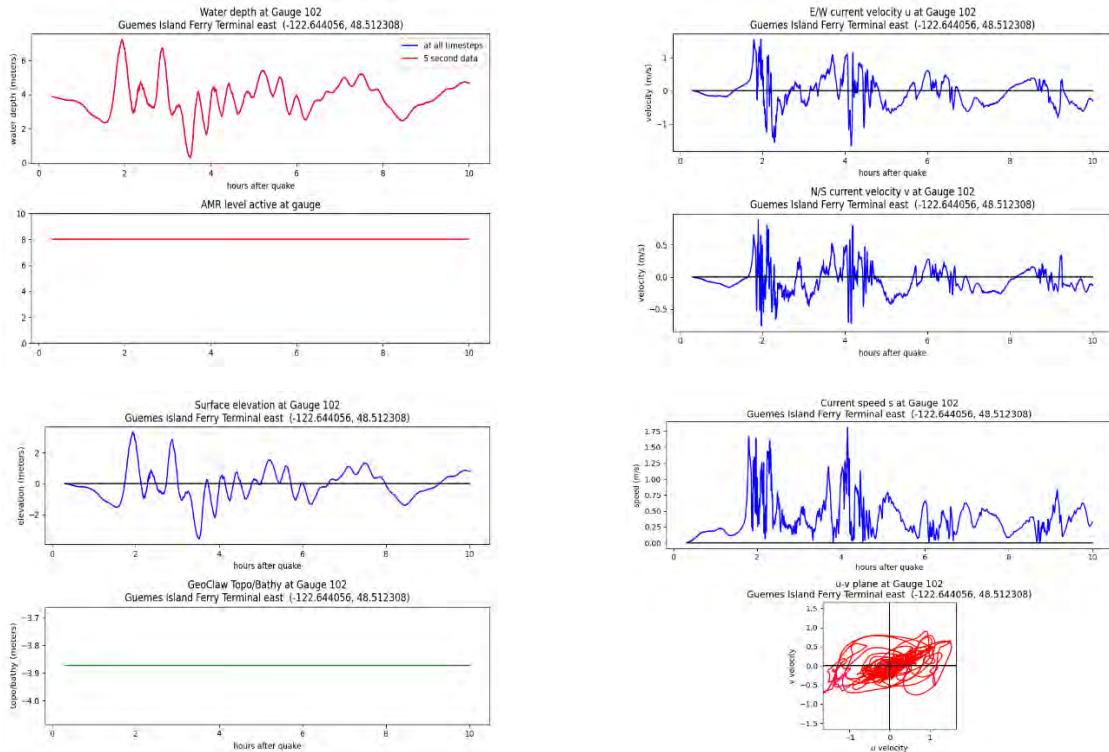


Alaska-Aleutian subduction zone scenario, MLW:

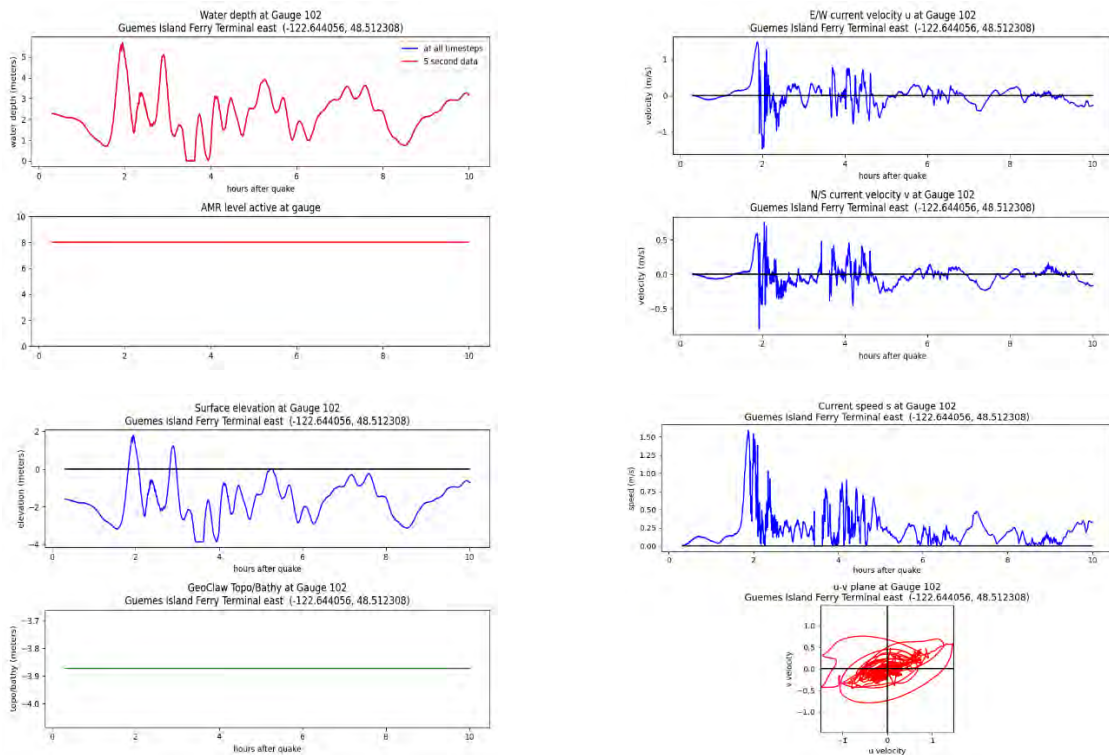


Gauge 102: Lovric's marina east

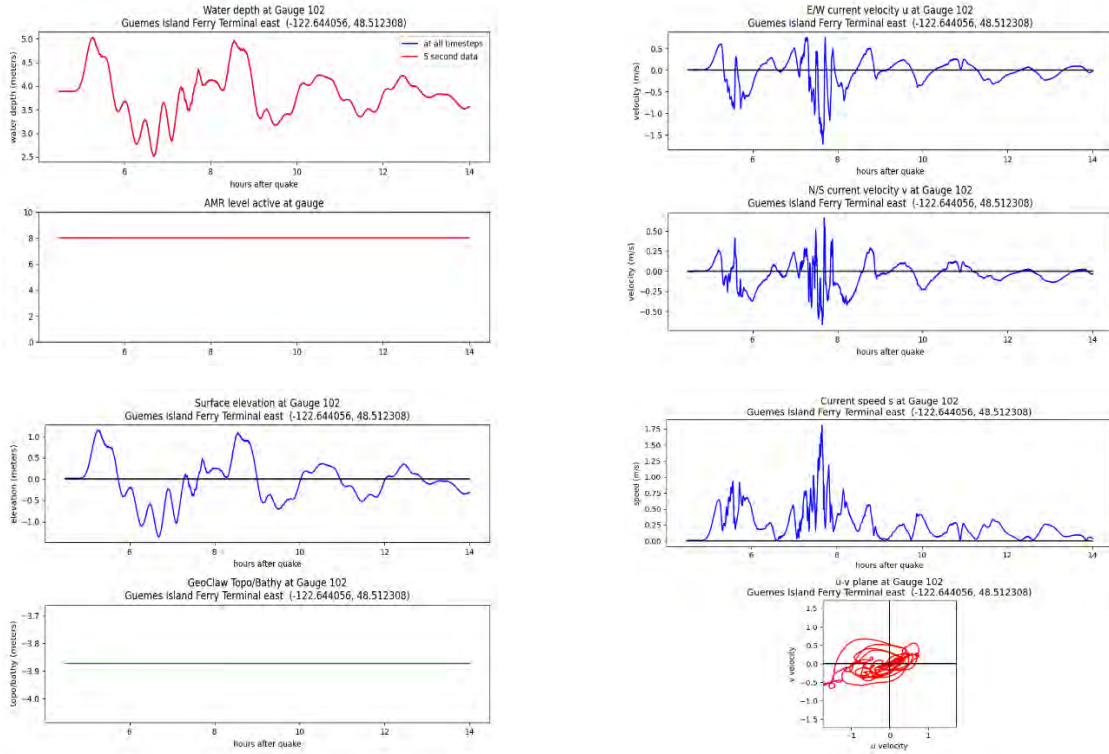
Cascadia subduction zone scenario, MHW:



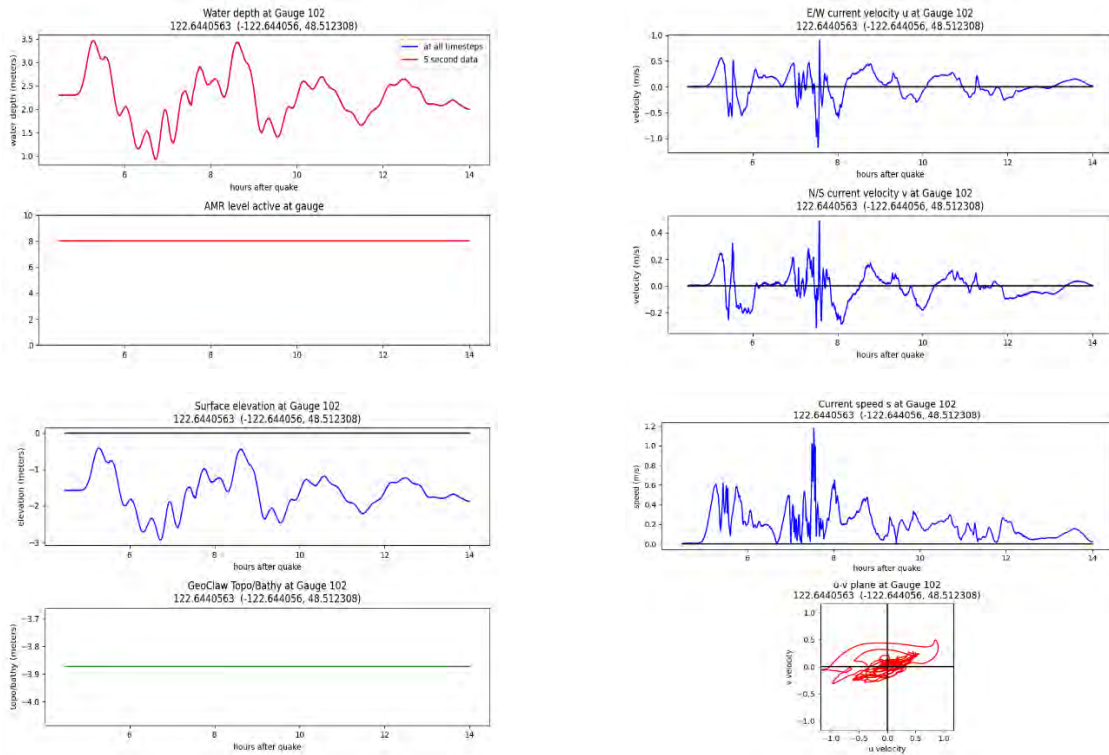
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

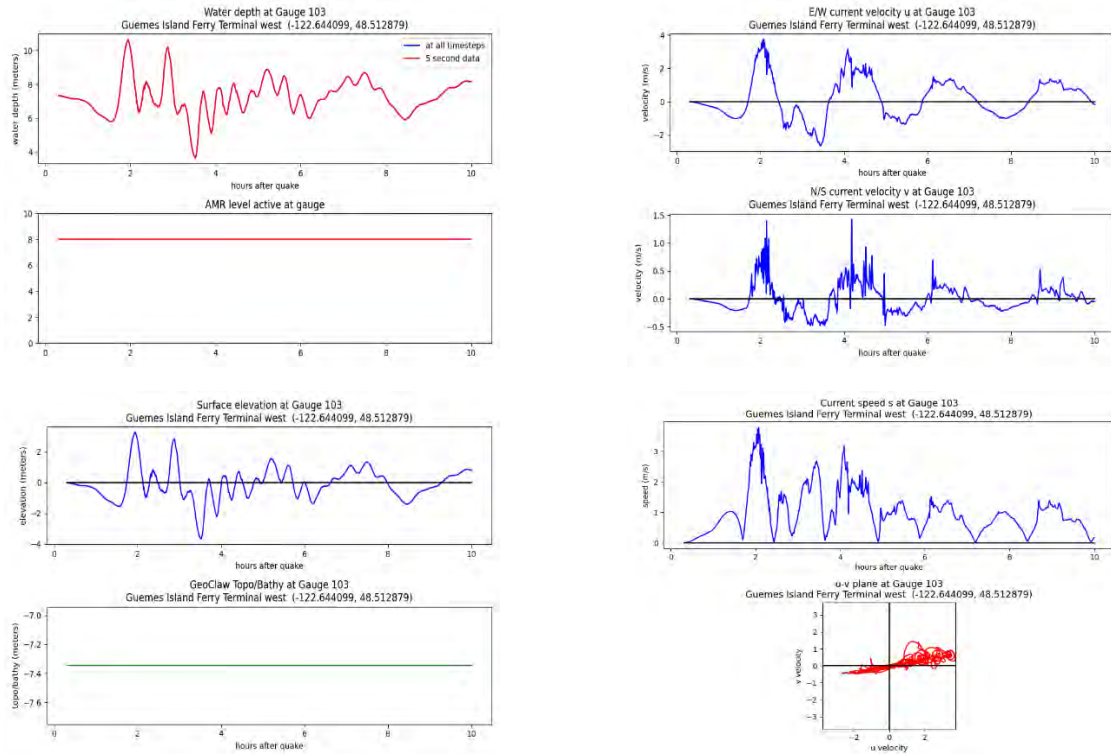


Alaska-Aleutian subduction zone scenario, MLW:

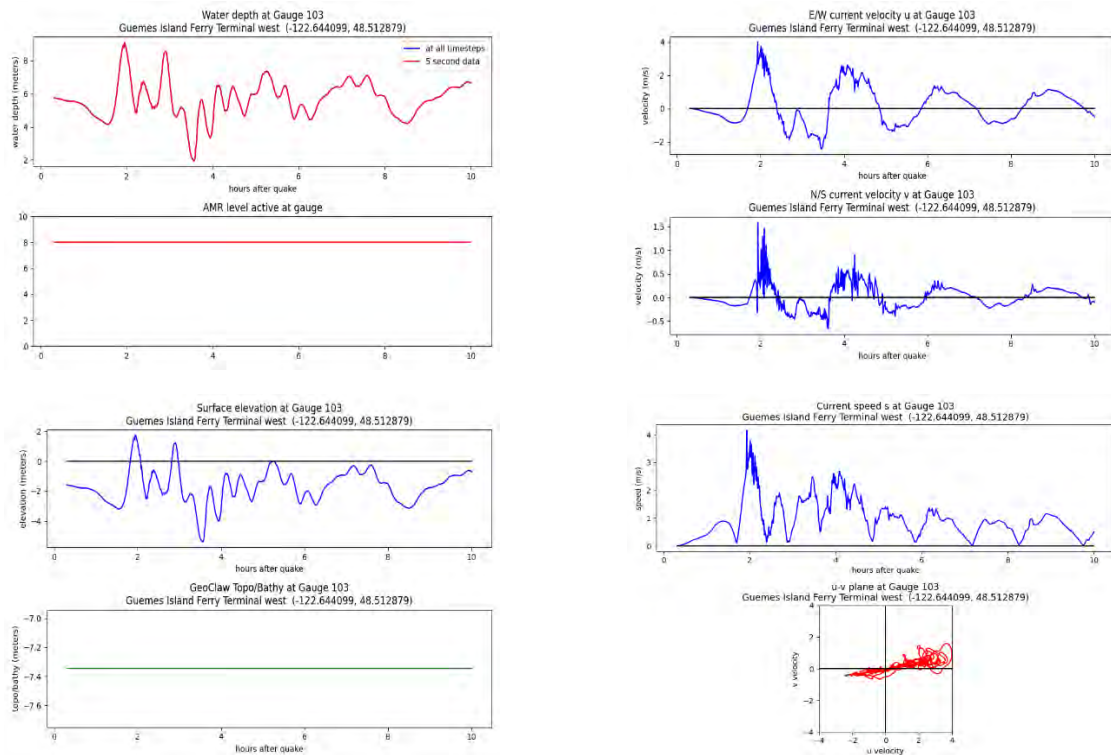


Gauge 103: Lovric's marina east outside

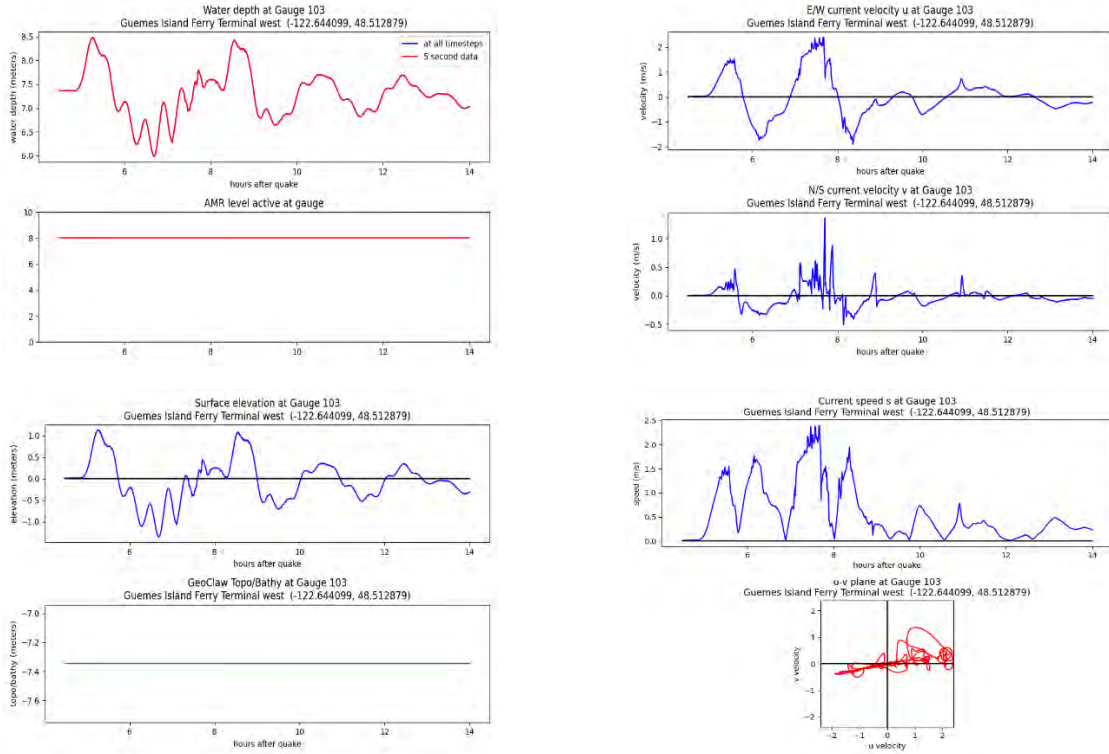
Cascadia subduction zone scenario, MHW:



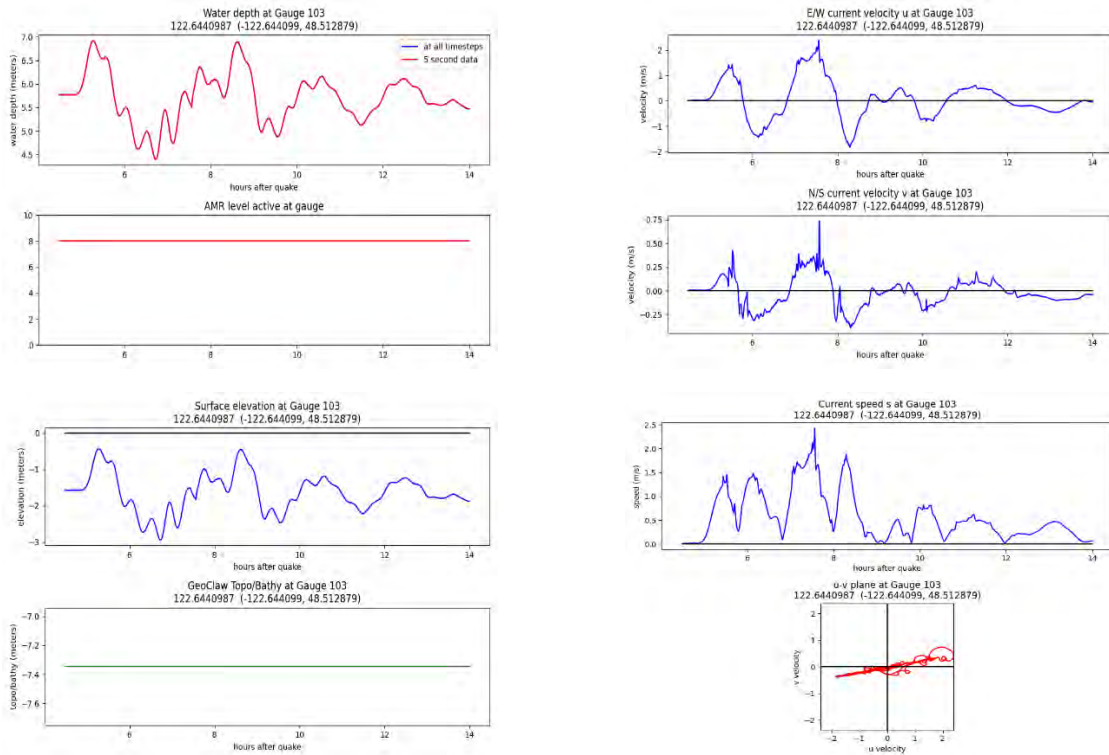
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

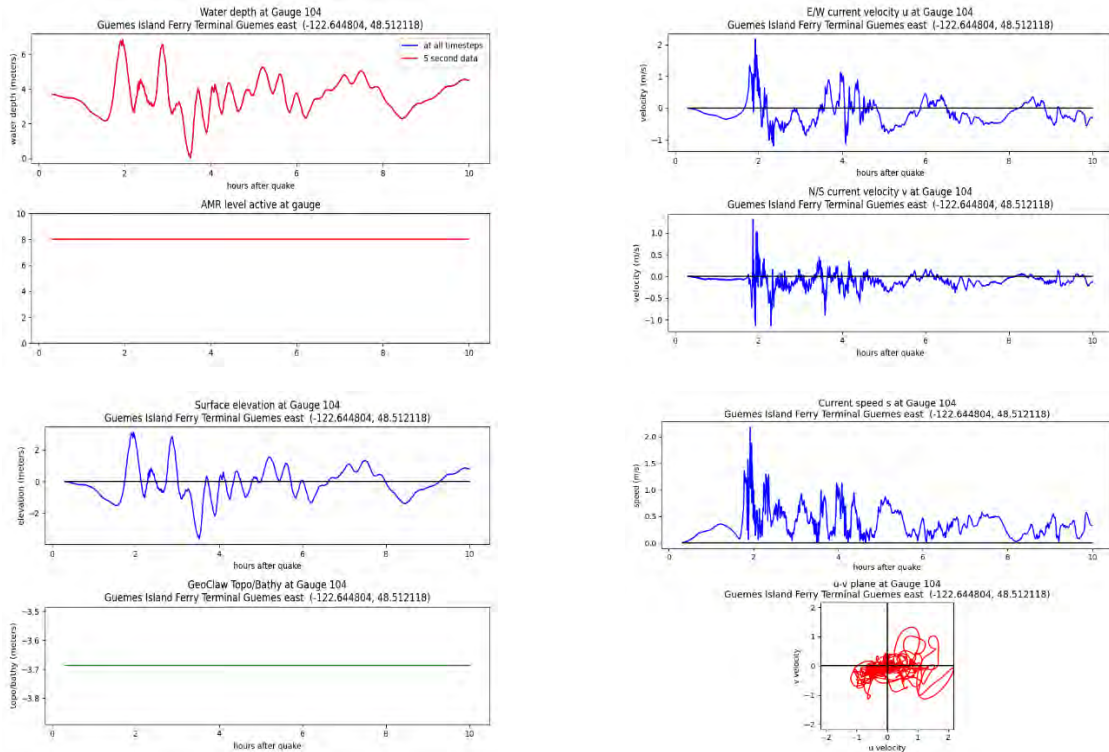


Alaska-Aleutian subduction zone scenario, MLW:

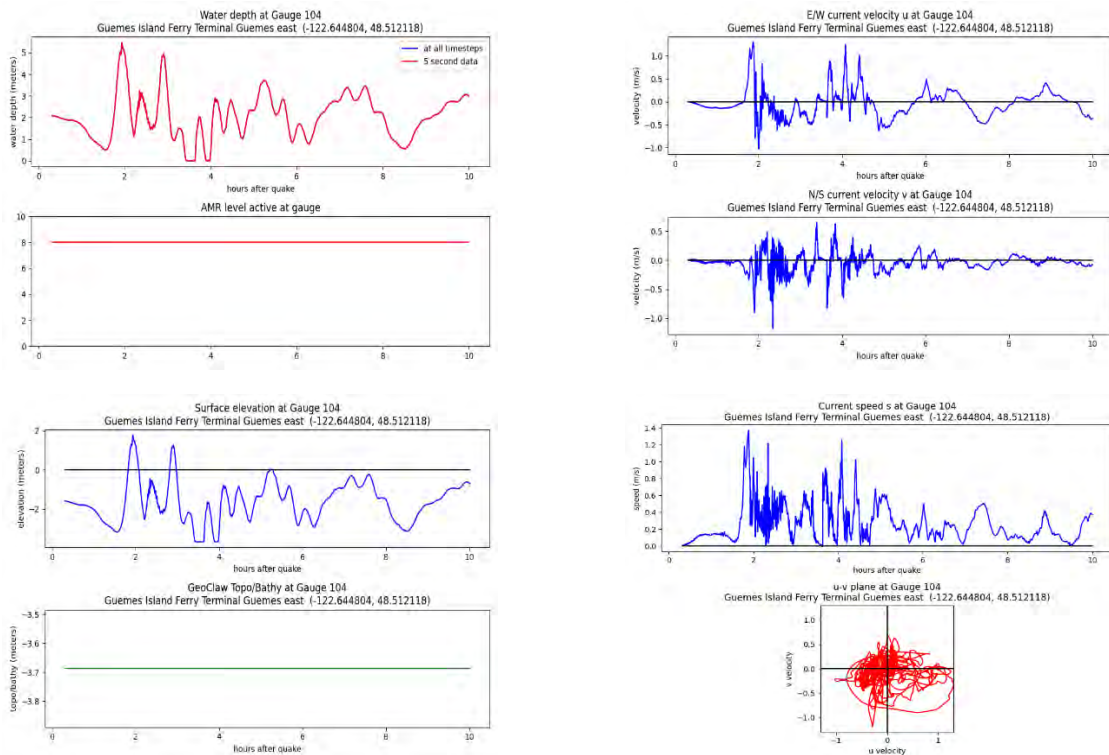


Gauge 104: Lovric's marina center

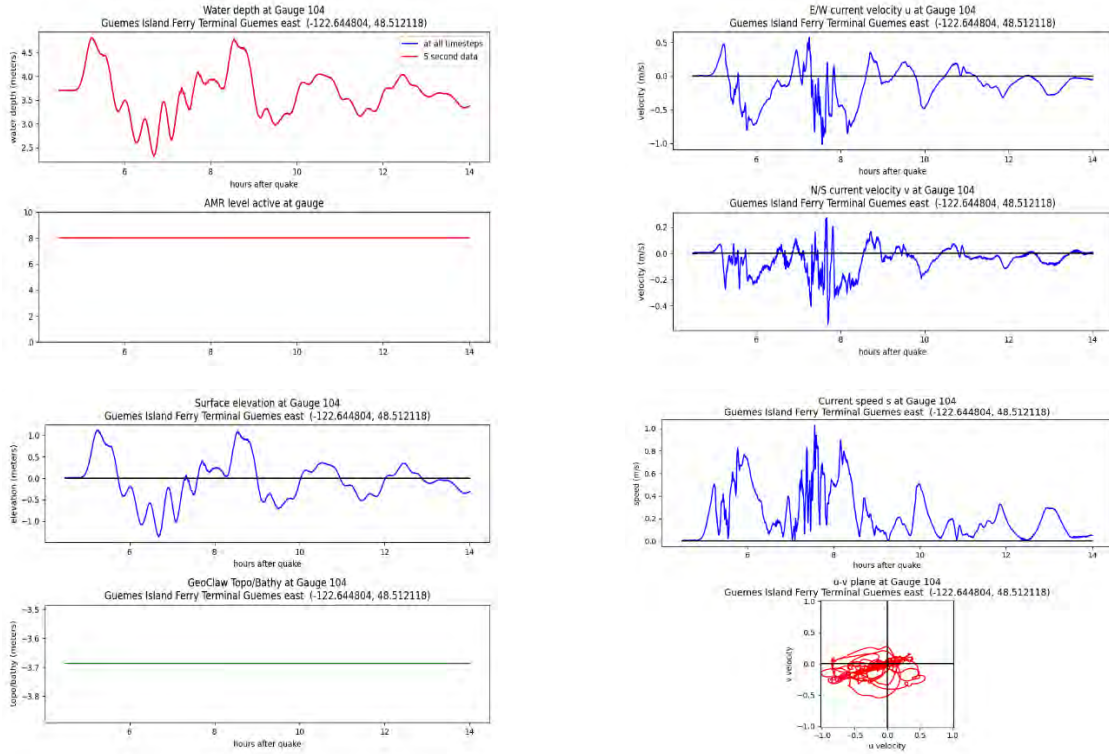
Cascadia subduction zone scenario, MHW:



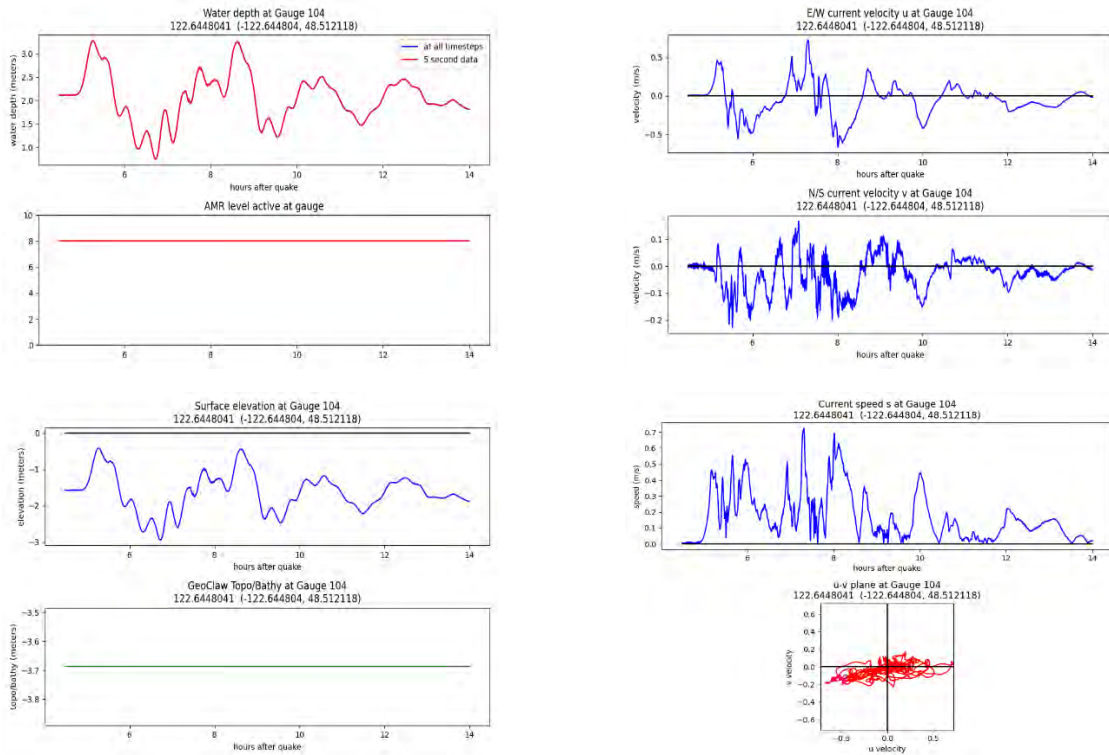
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

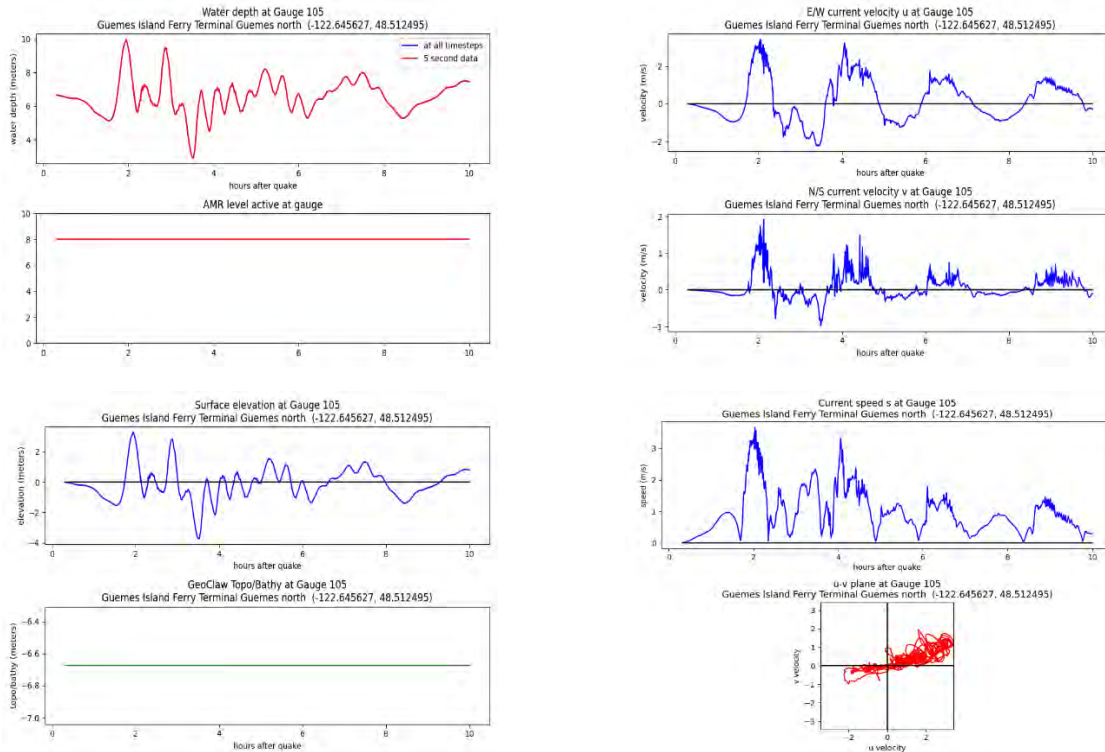


Alaska-Aleutian subduction zone scenario, MLW:

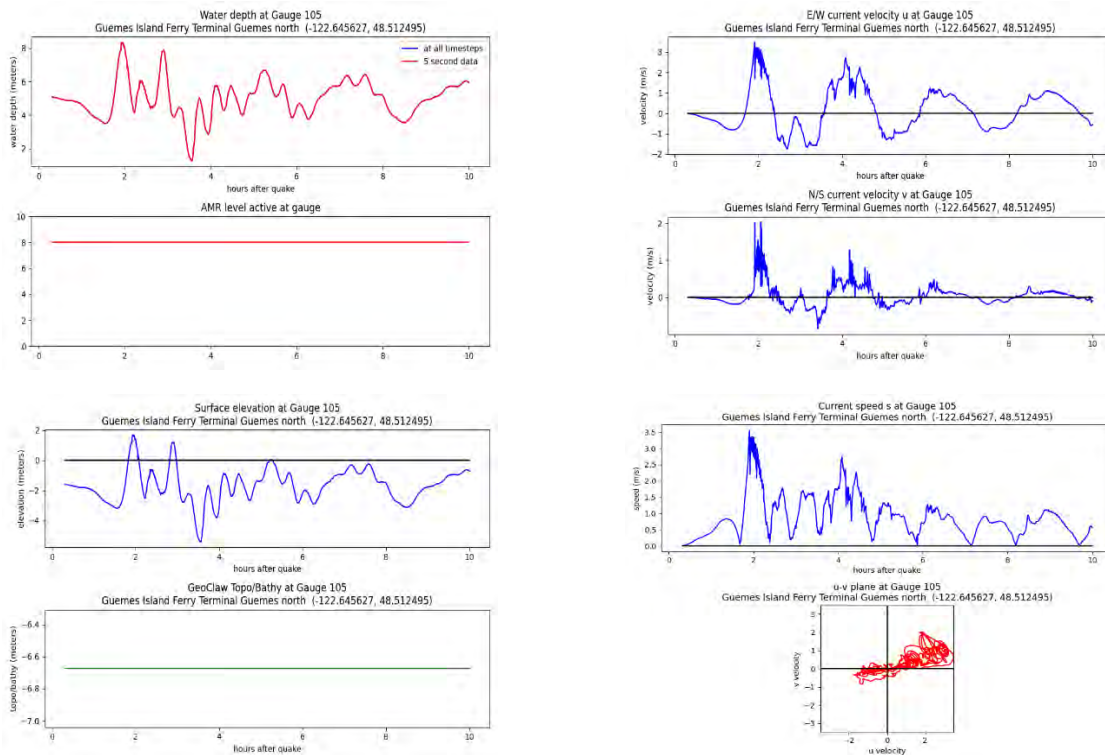


Gauge 105: Lovric's marina north

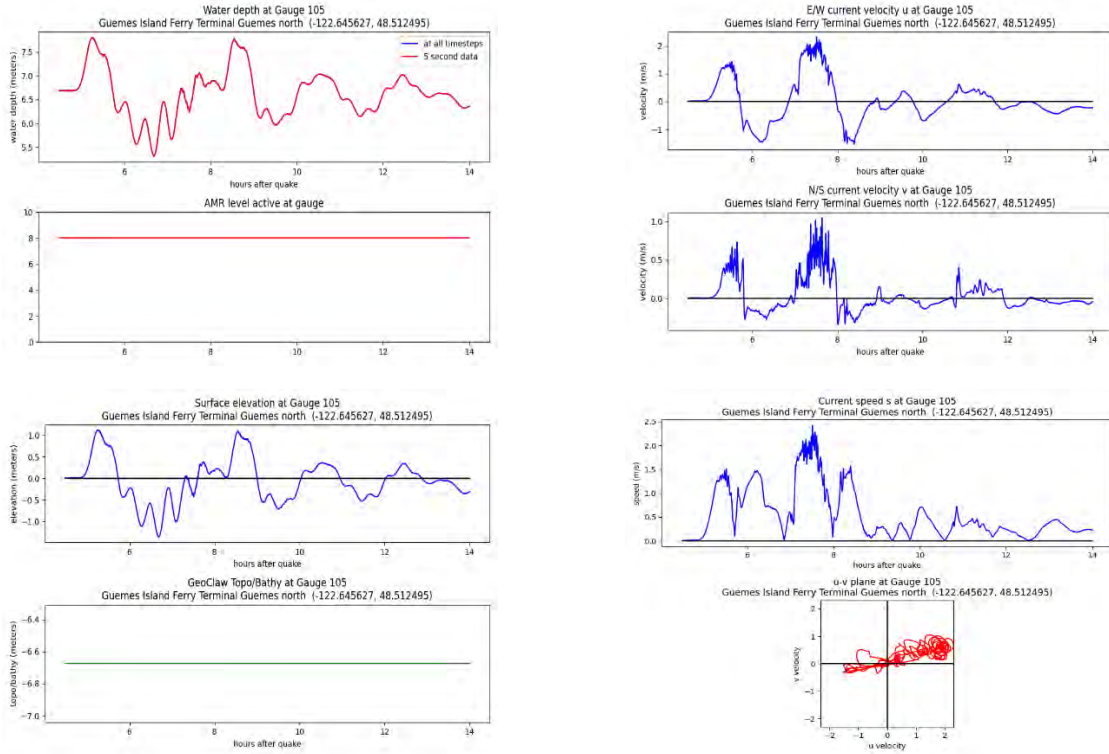
Cascadia subduction zone scenario, MHW:



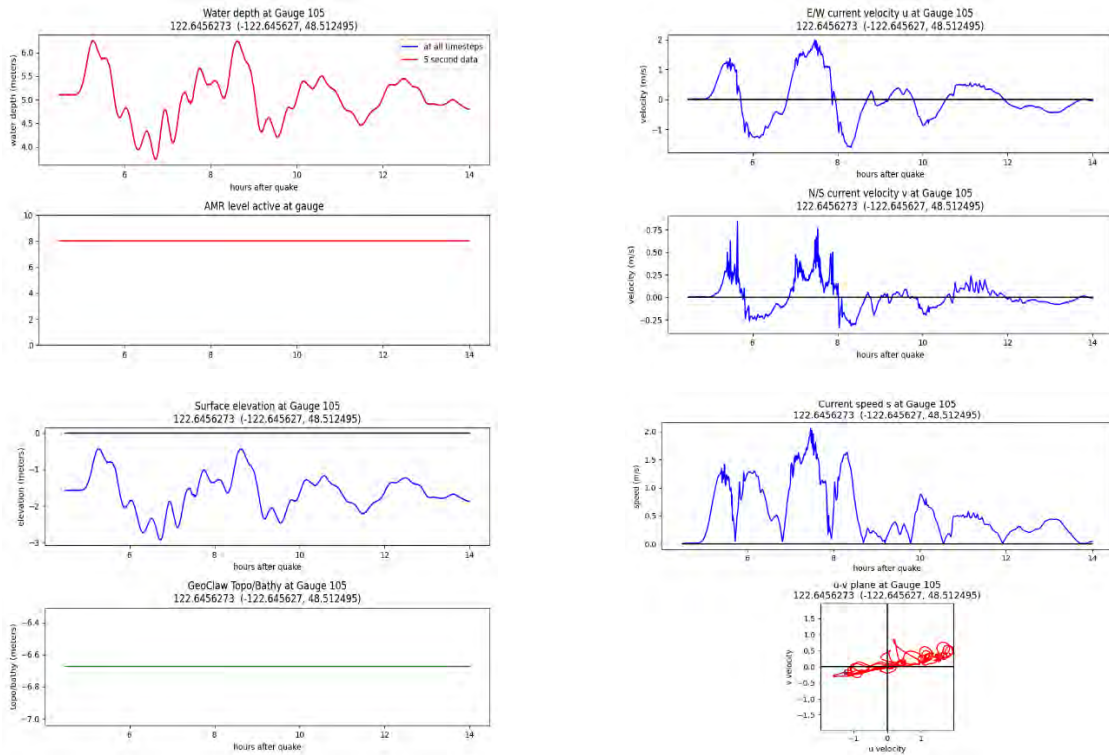
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

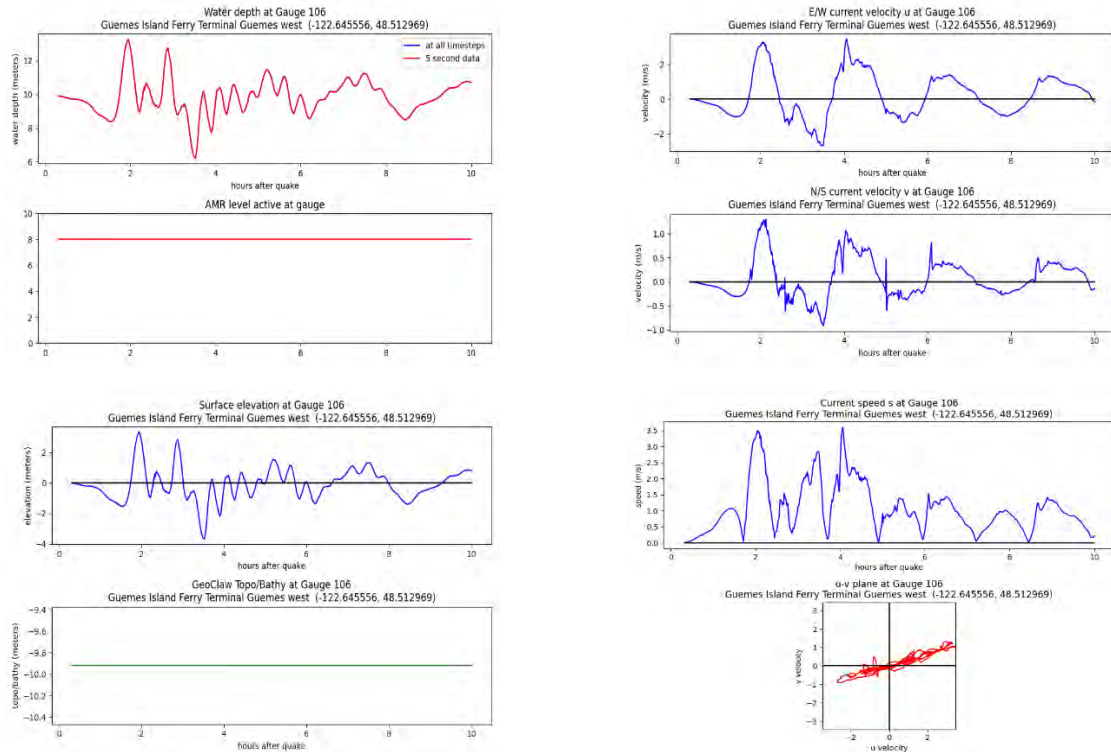


Alaska-Aleutian subduction zone scenario, MLW:

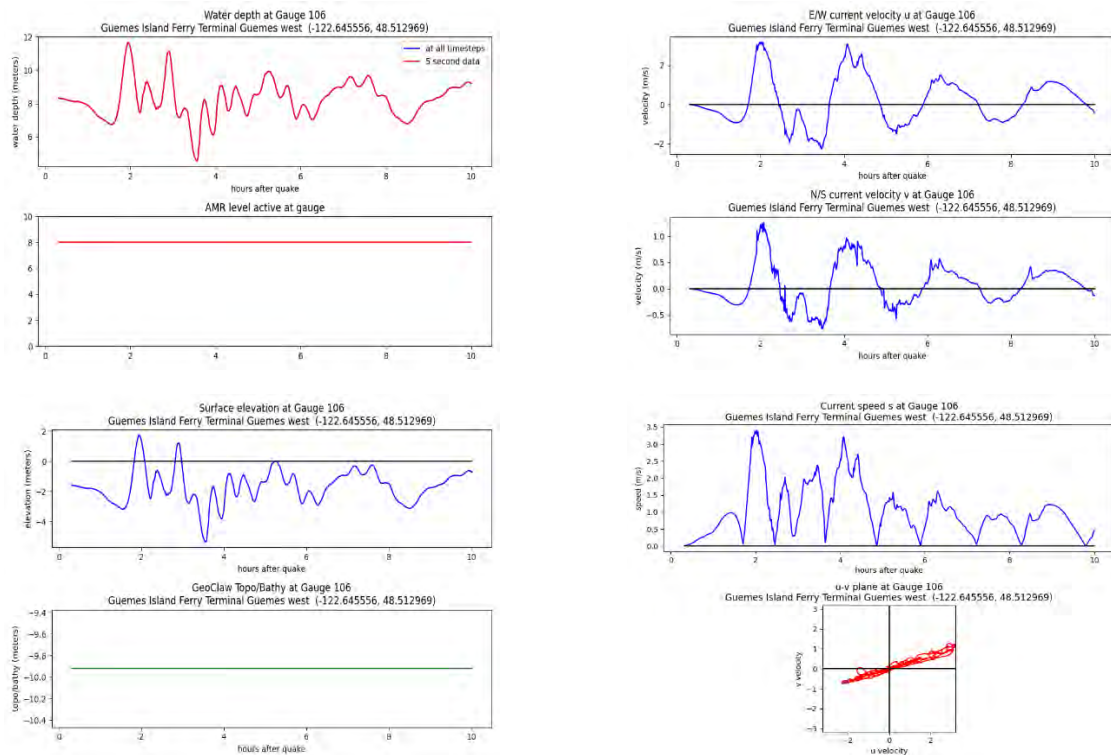


Gauge 106: Lovric's marina north outside

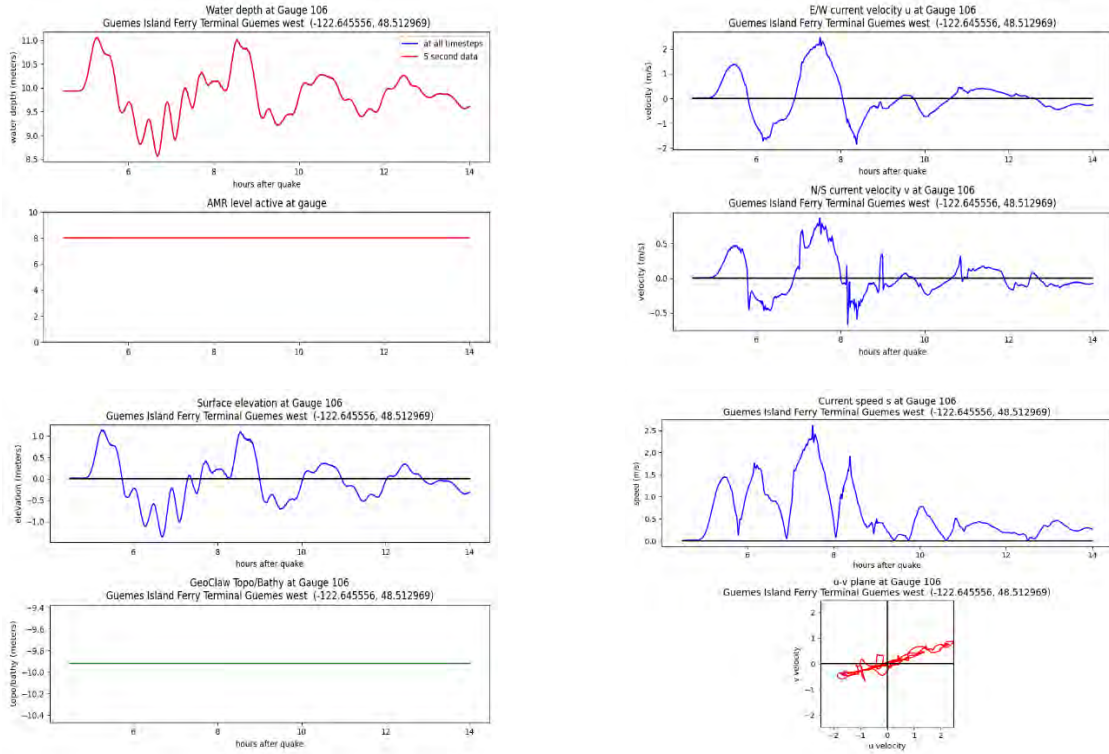
Cascadia subduction zone scenario, MHW:



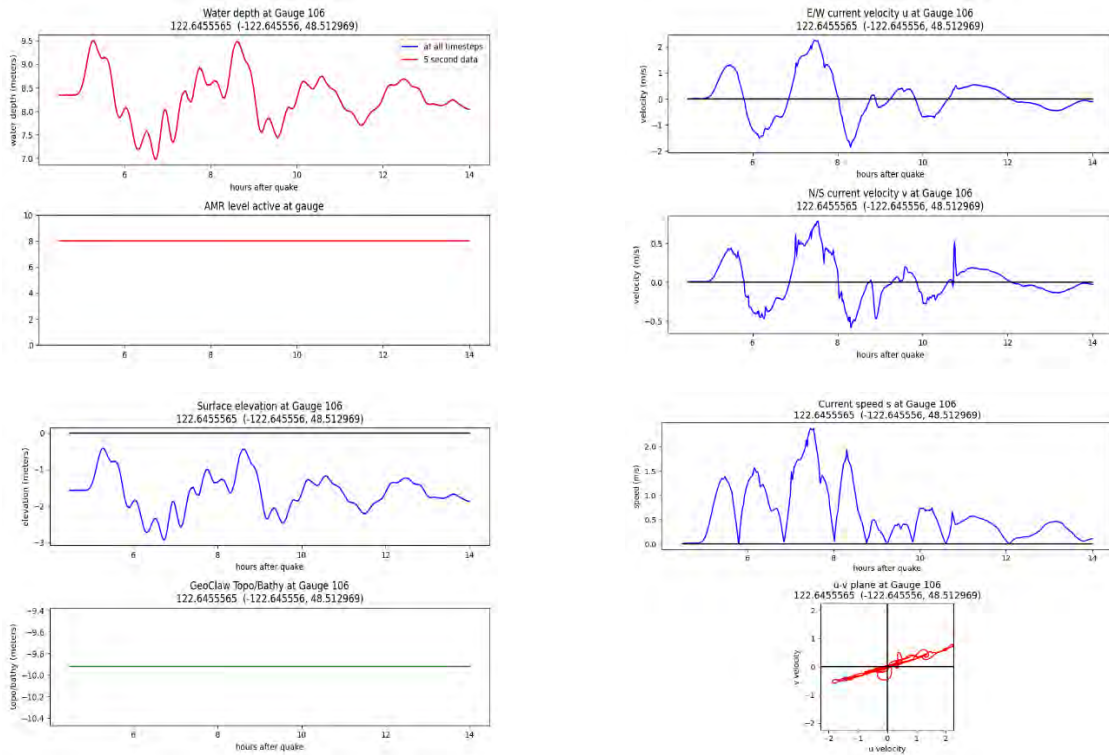
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

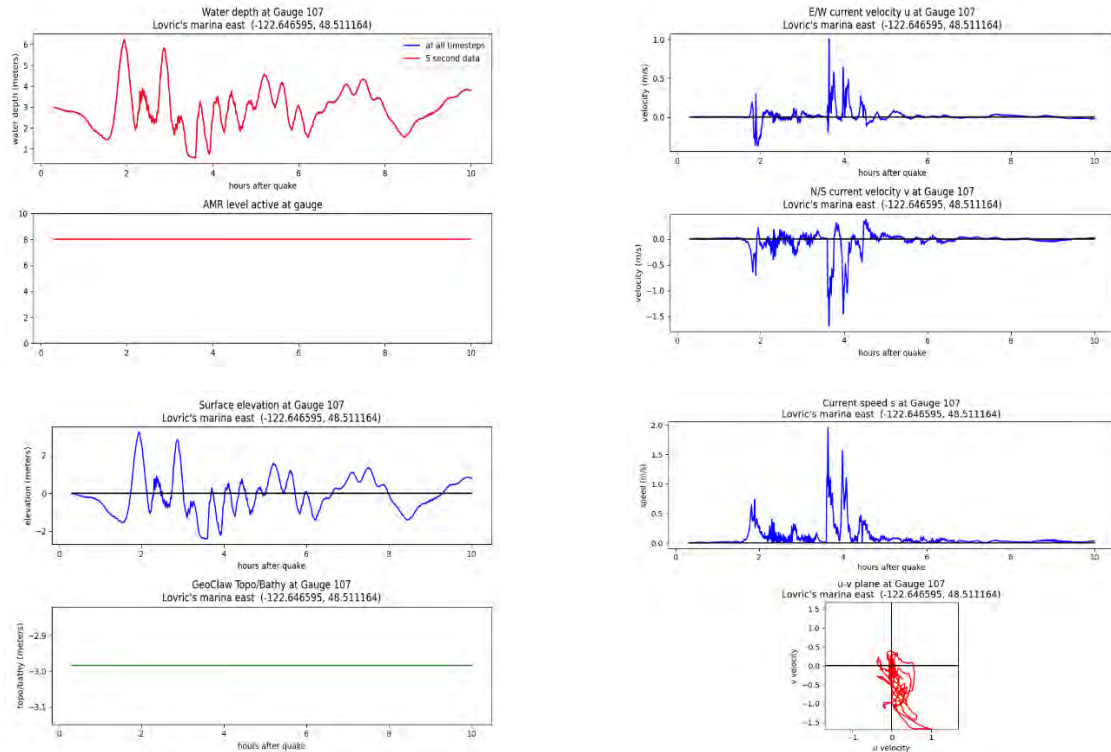


Alaska-Aleutian subduction zone scenario, MLW:

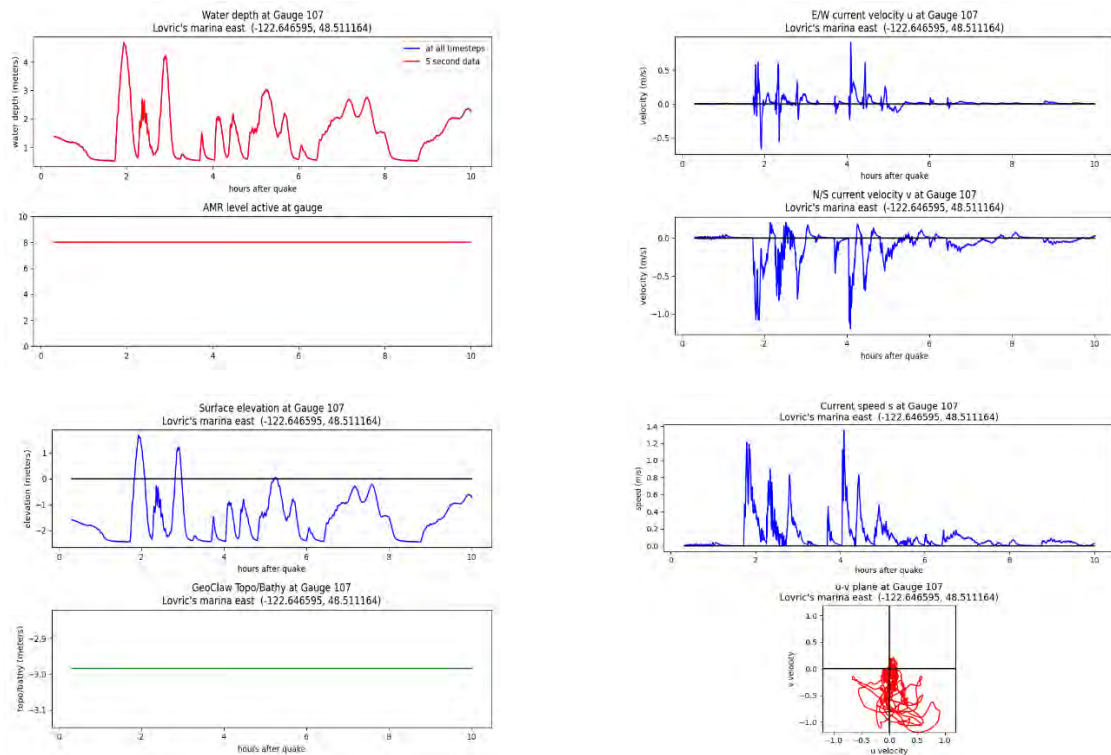


Gauge 107: Lovric's marina west

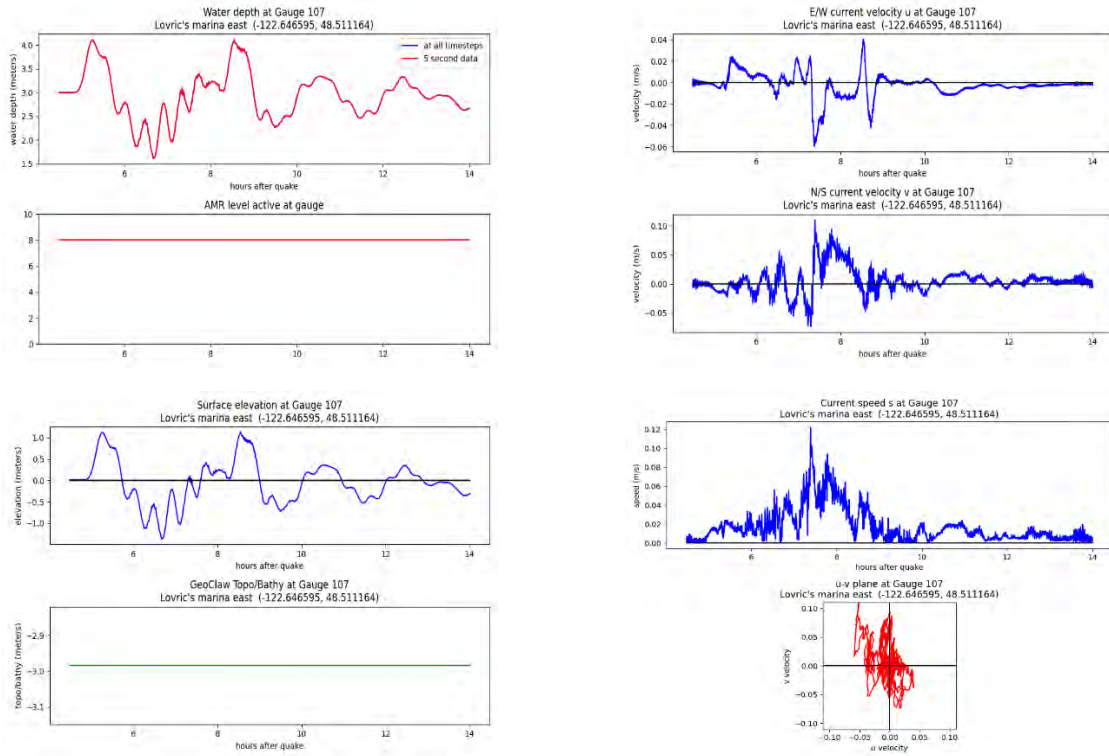
Cascadia subduction zone scenario, MHW:



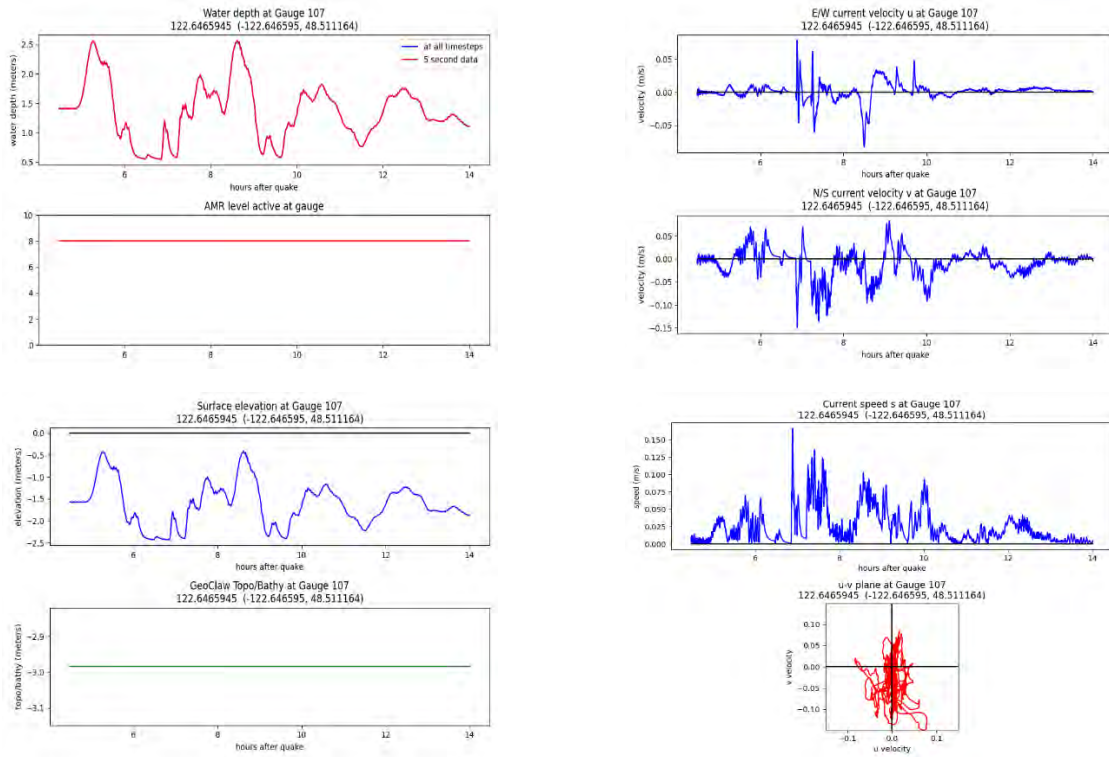
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

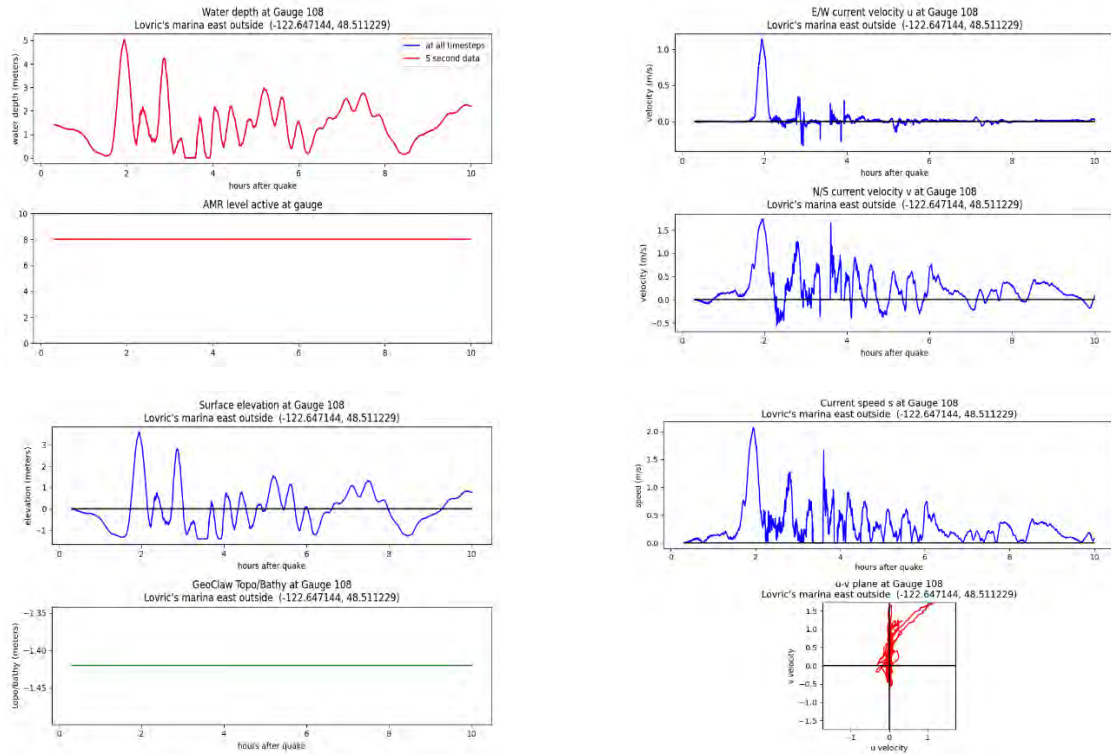


Alaska-Aleutian subduction zone scenario, MLW:

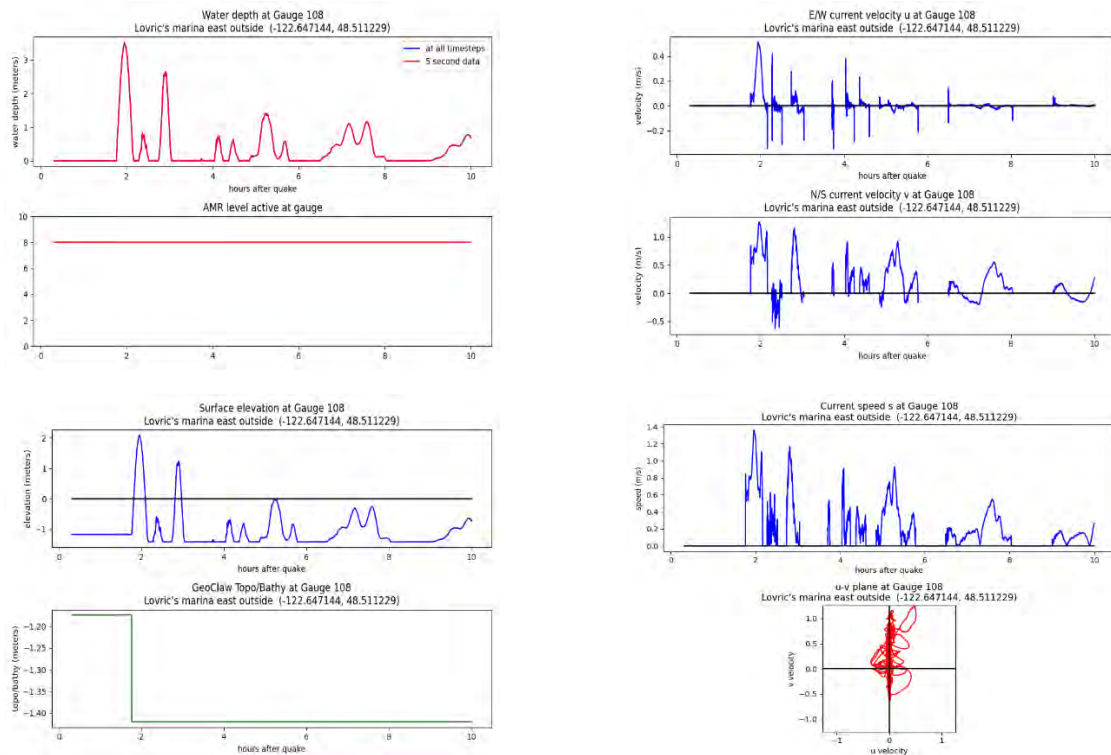


Gauge 108: Lovric's marina west outside

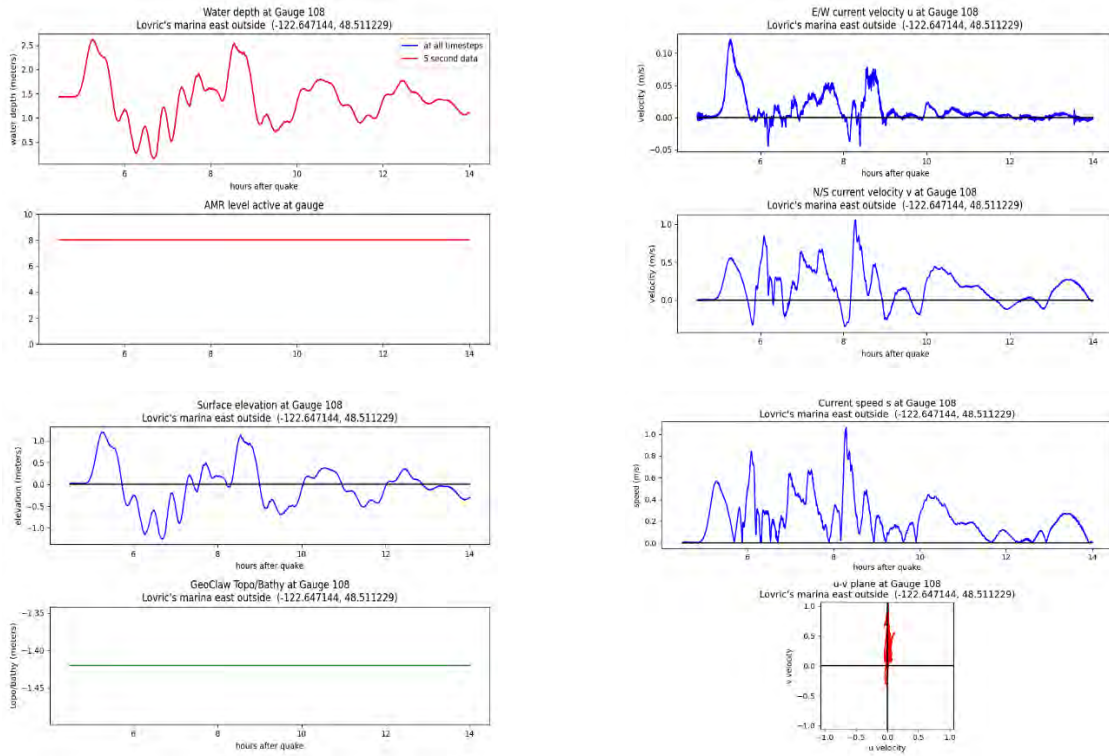
Cascadia subduction zone scenario, MHW:



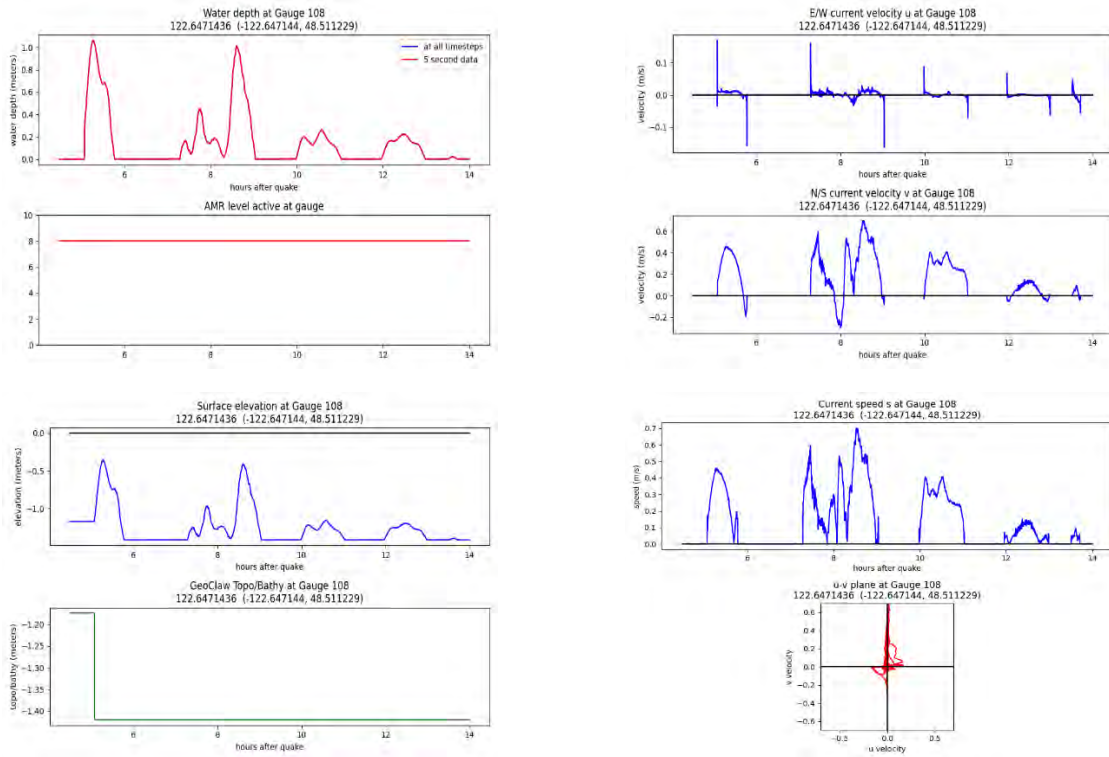
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

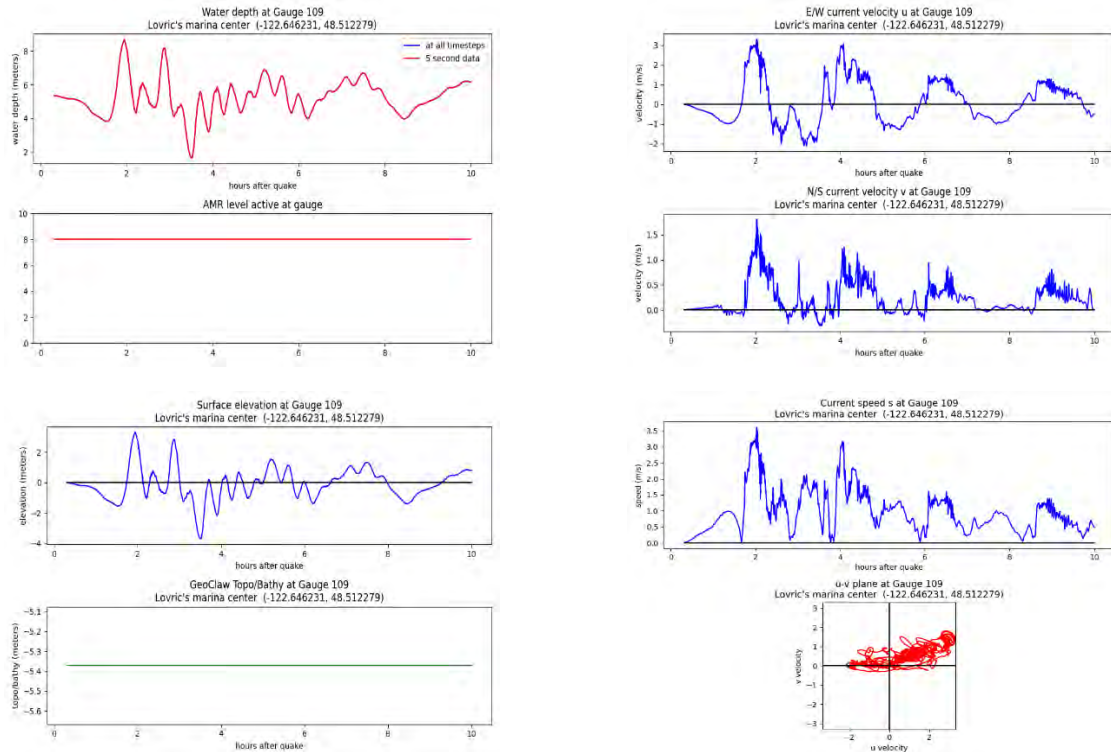


Alaska-Aleutian subduction zone scenario, MLW:

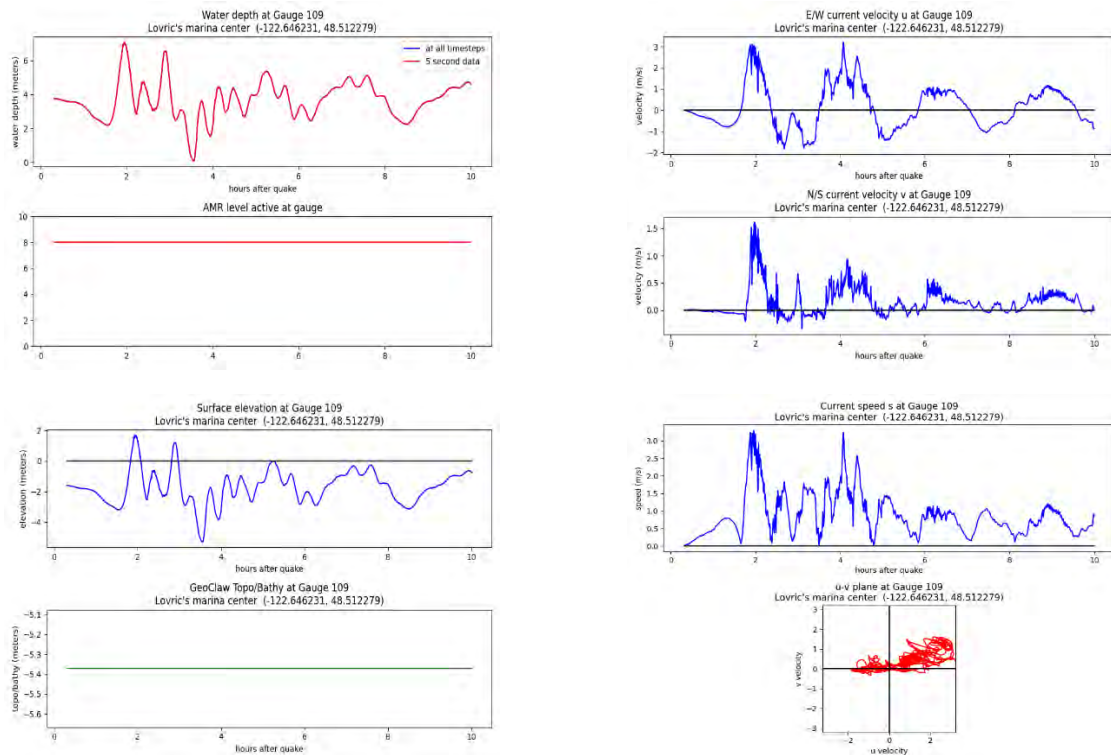


Gauge 109: Lovric's marina entrance

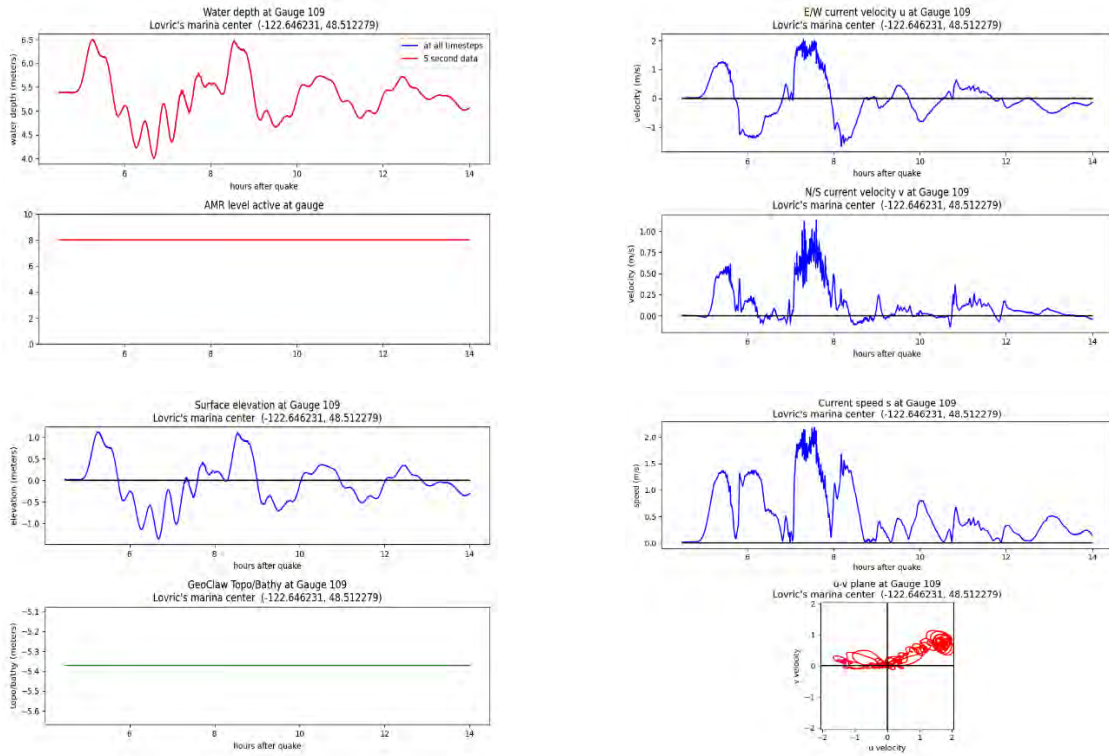
Cascadia subduction zone scenario, MHW:



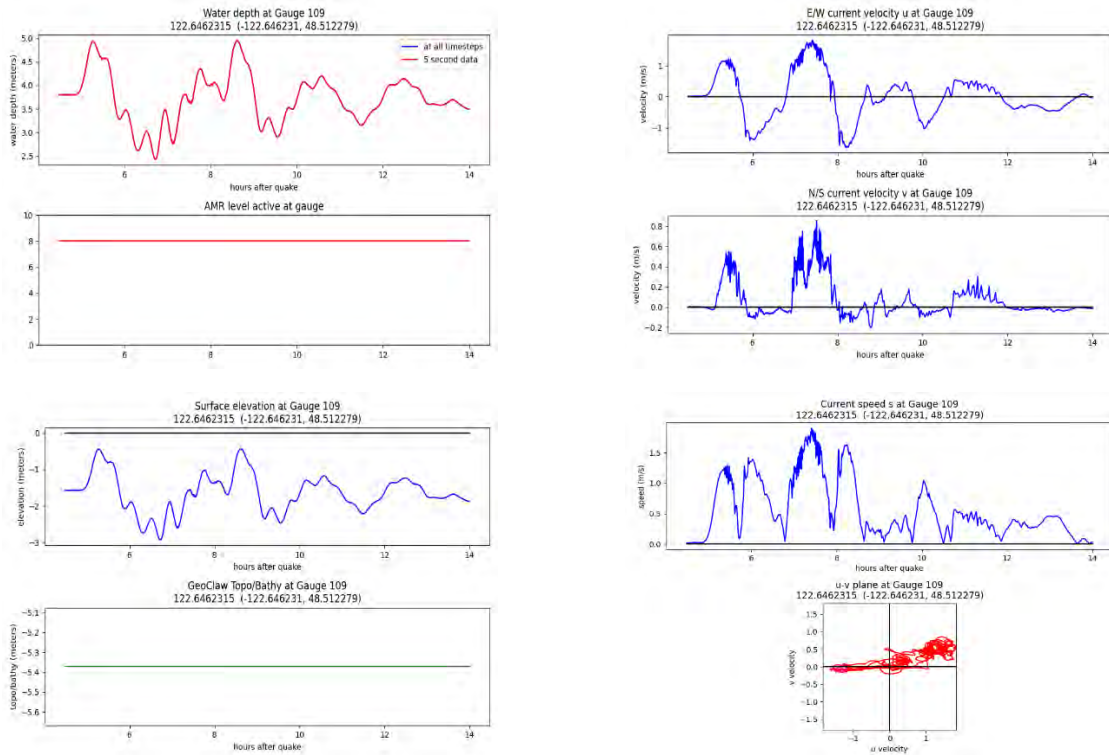
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

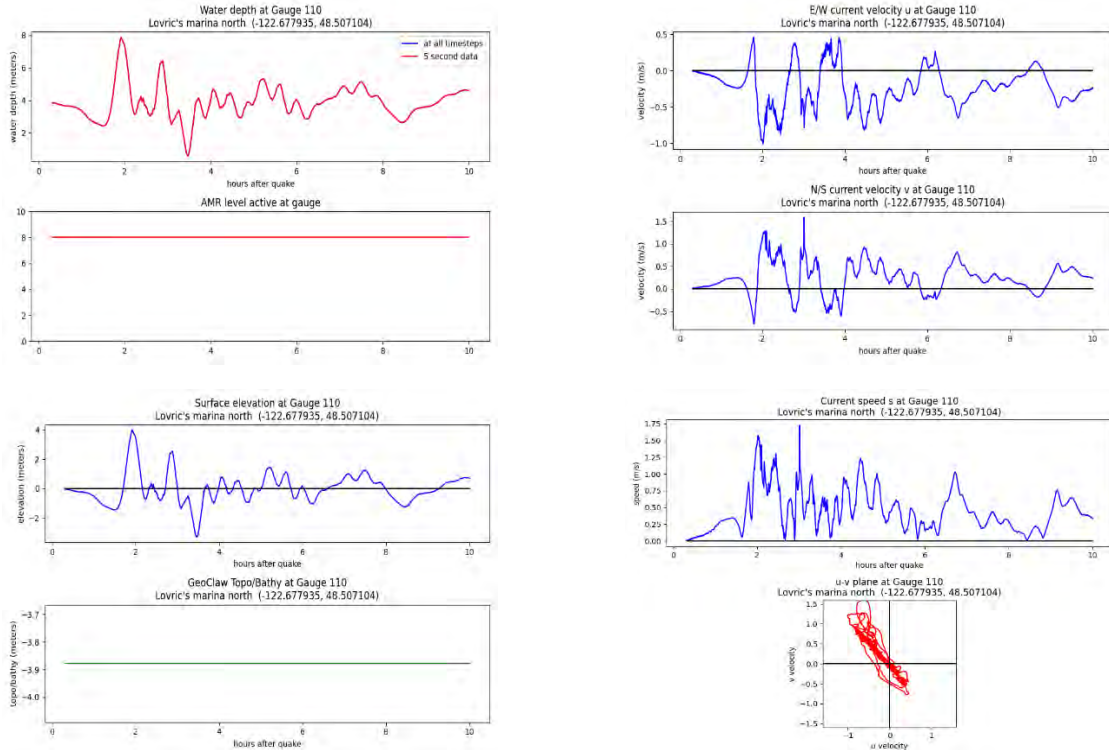


Alaska-Aleutian subduction zone scenario, MLW:

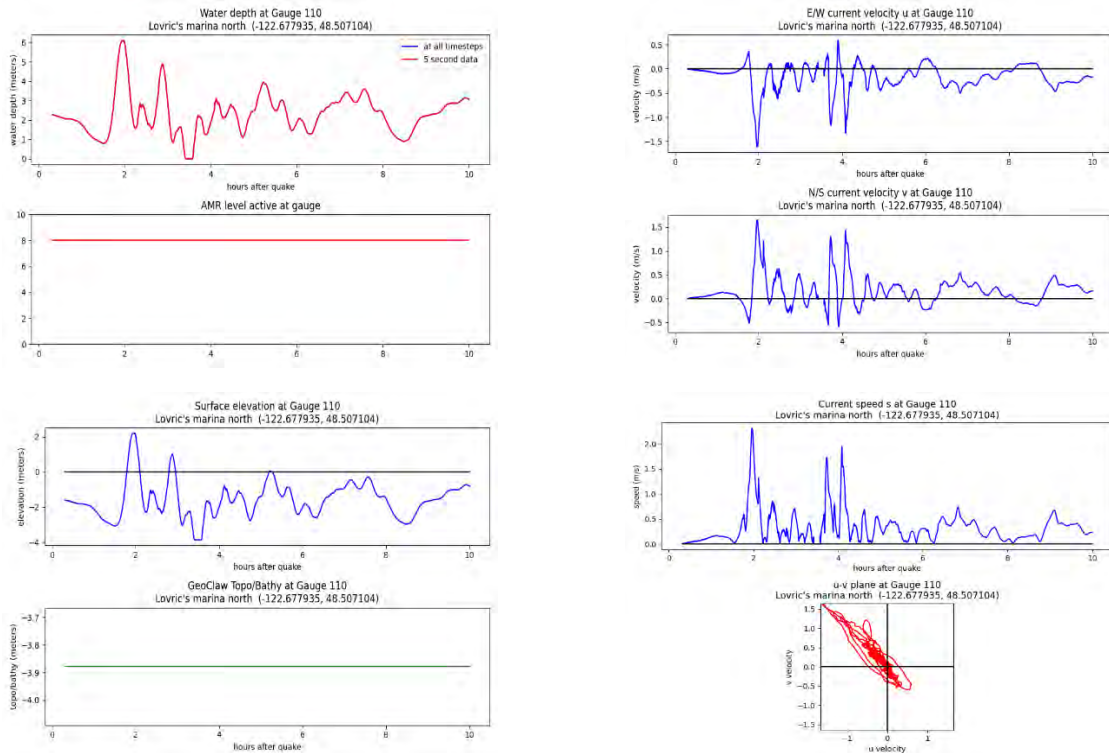


Gauge 110: Anacortes Ferry Terminal west

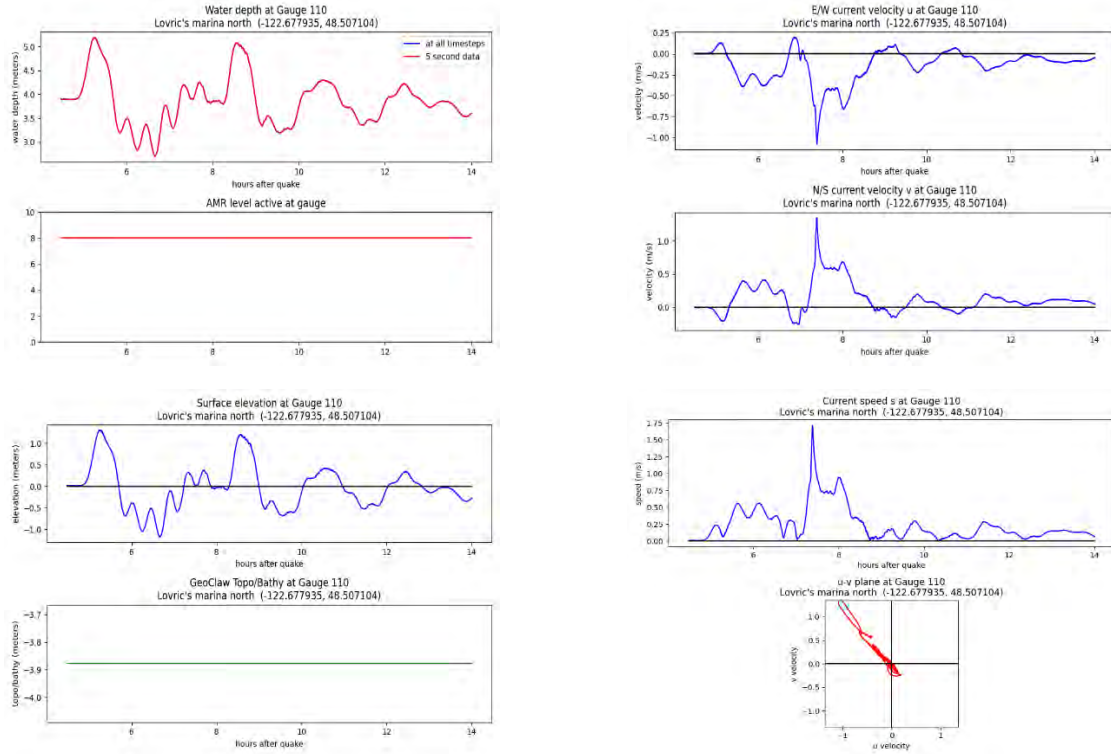
Cascadia subduction zone scenario, MHW:



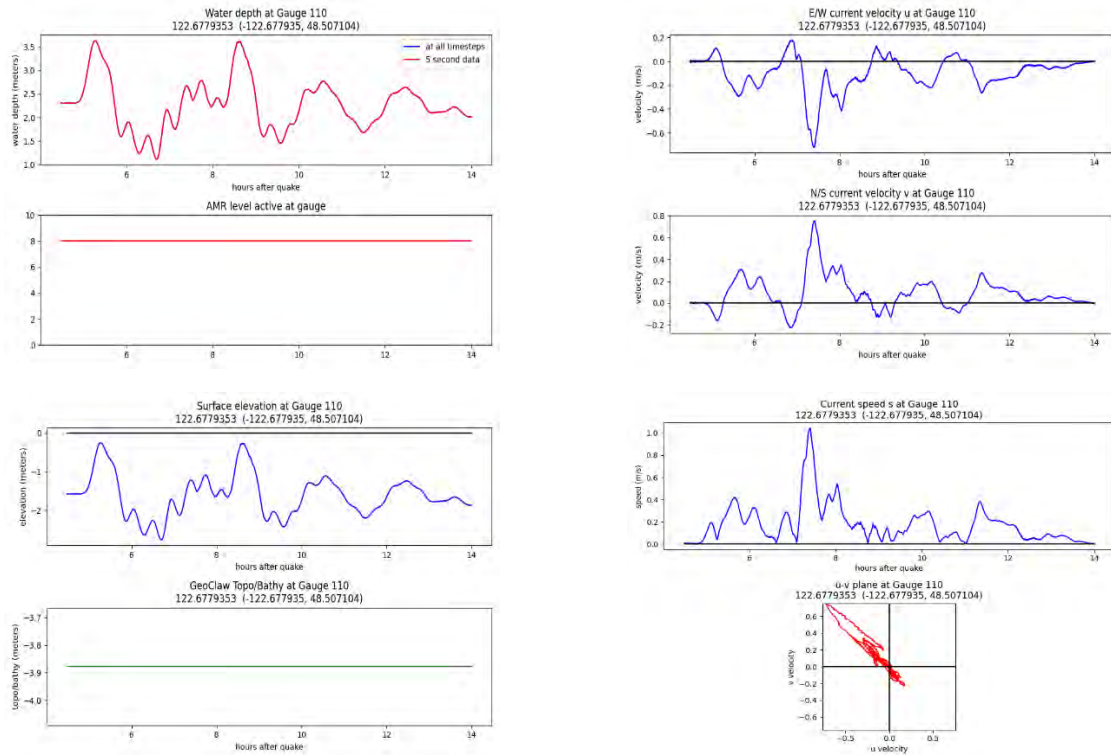
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

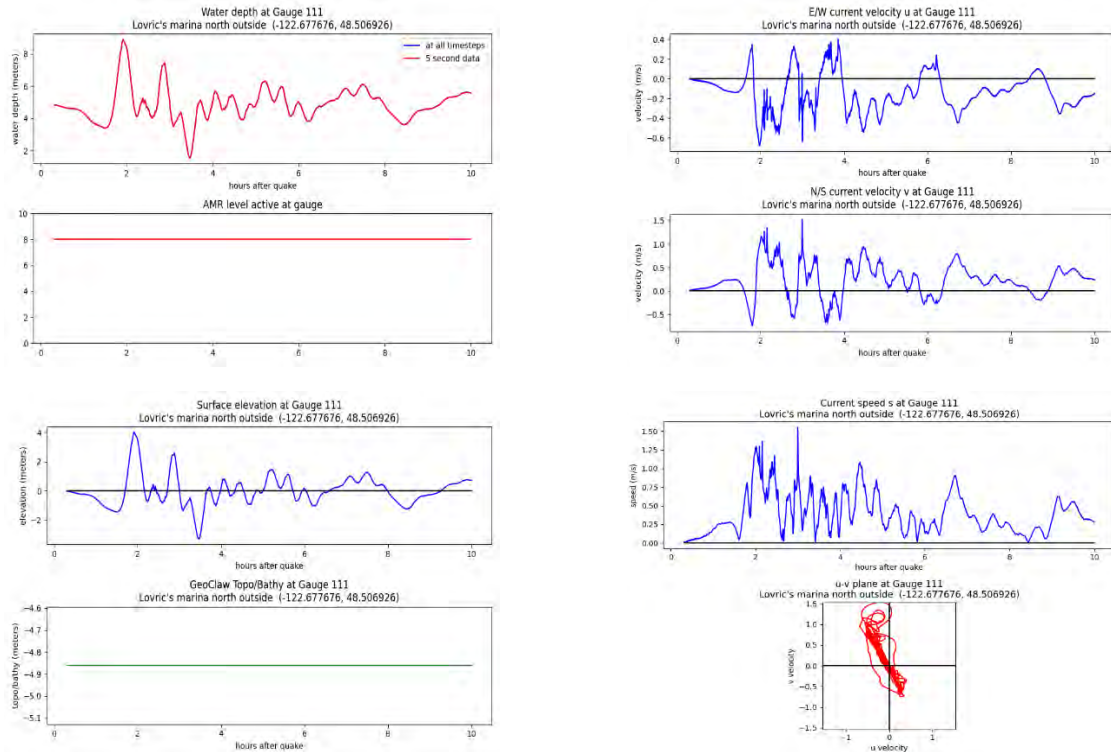


Alaska-Aleutian subduction zone scenario, MLW:

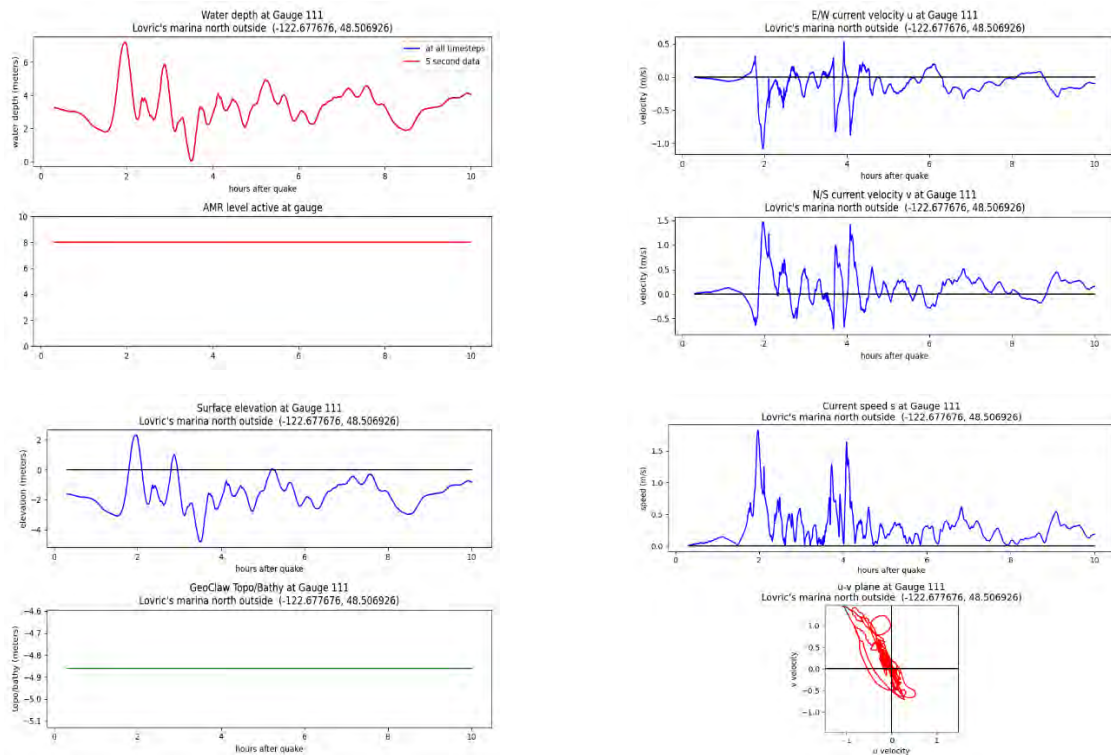


Gauge 111: Anacortes Ferry Terminal east

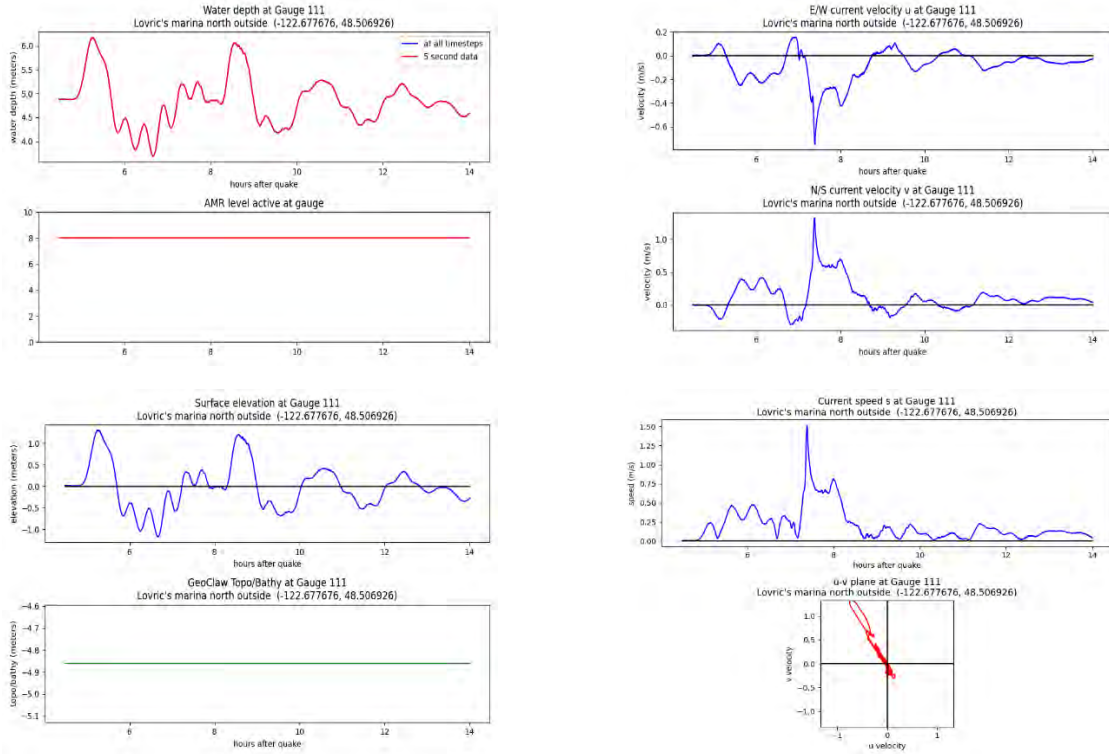
Cascadia subduction zone scenario, MHW:



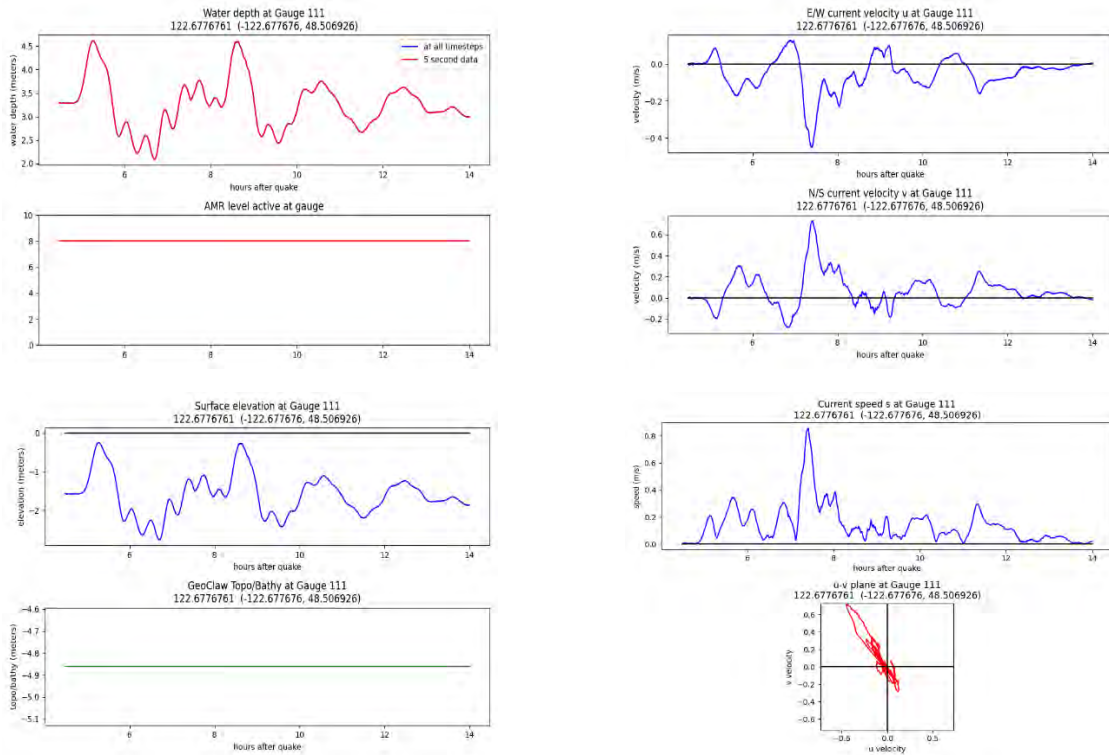
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

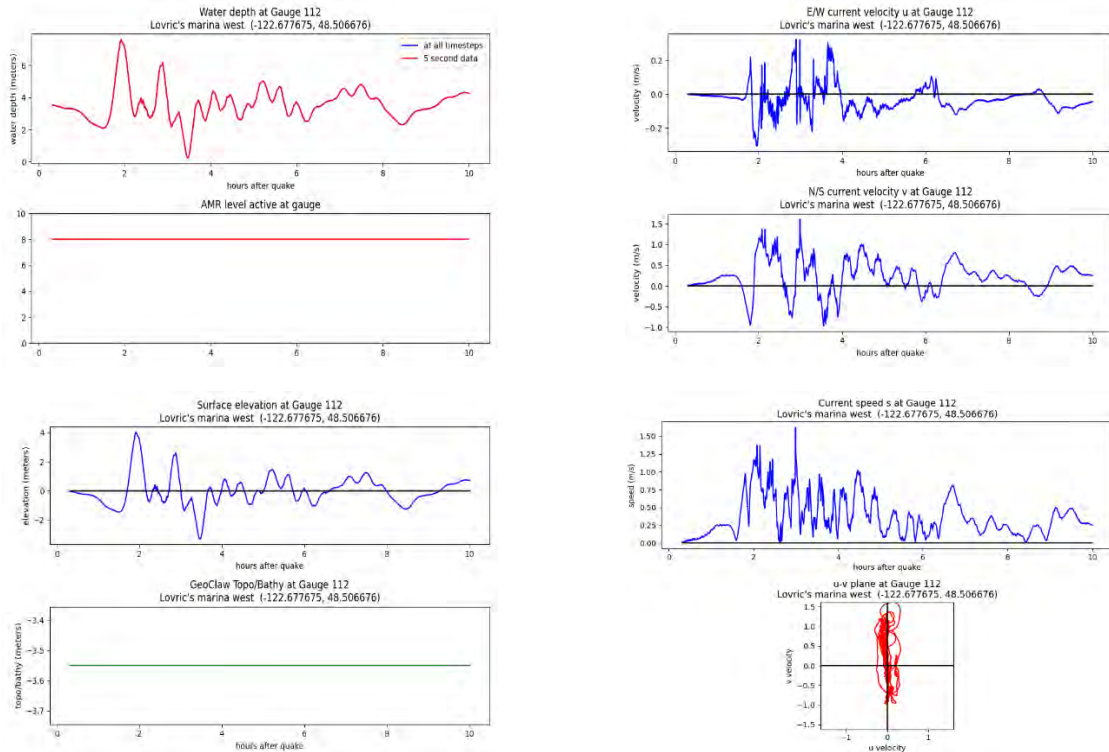


Alaska-Aleutian subduction zone scenario, MLW:

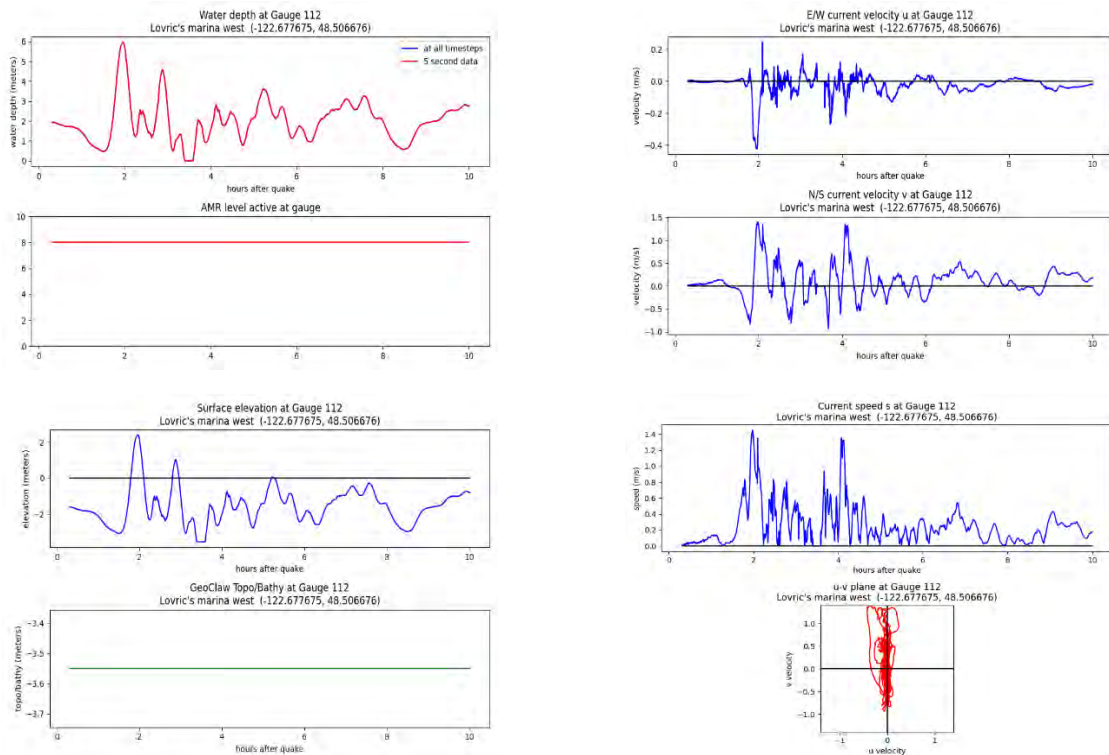


Gauge 112: Anacortes Ferry Terminal east 2

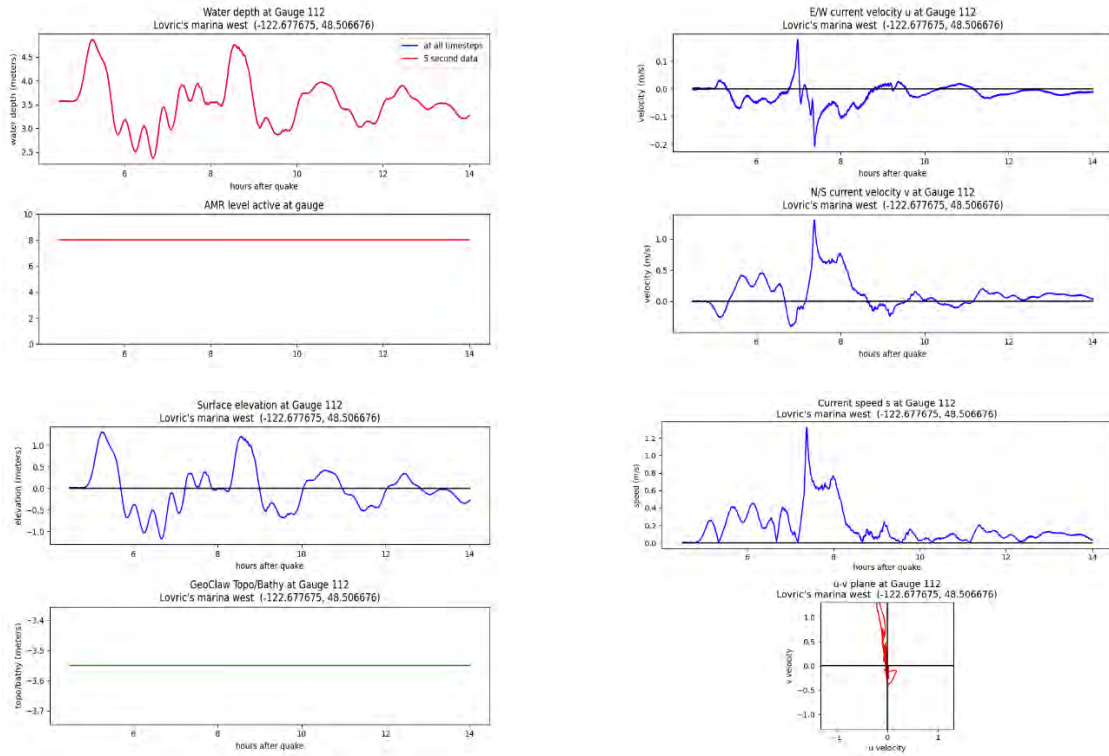
Cascadia subduction zone scenario, MHW:



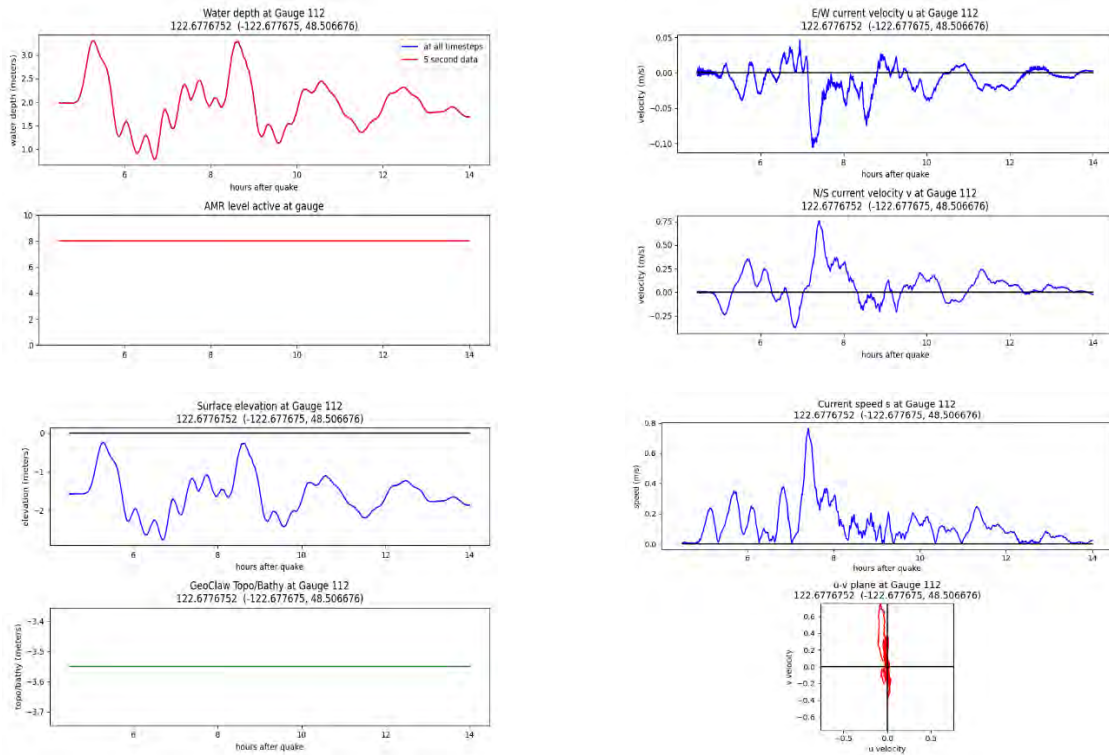
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

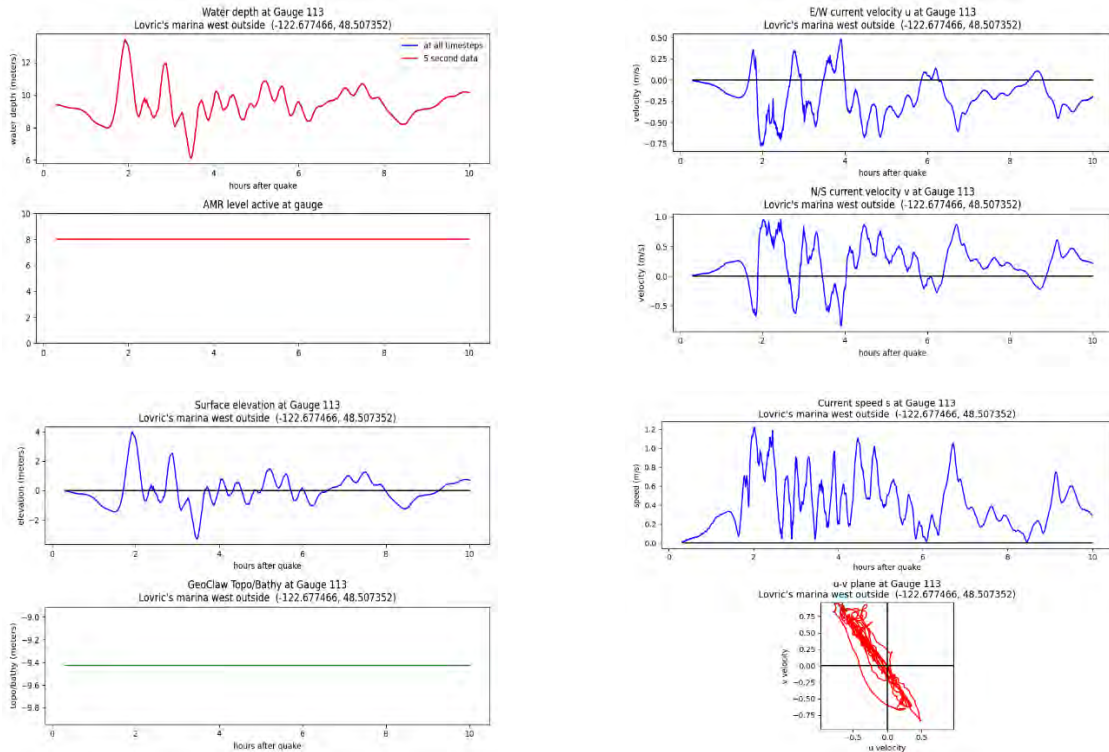


Alaska-Aleutian subduction zone scenario, MLW:

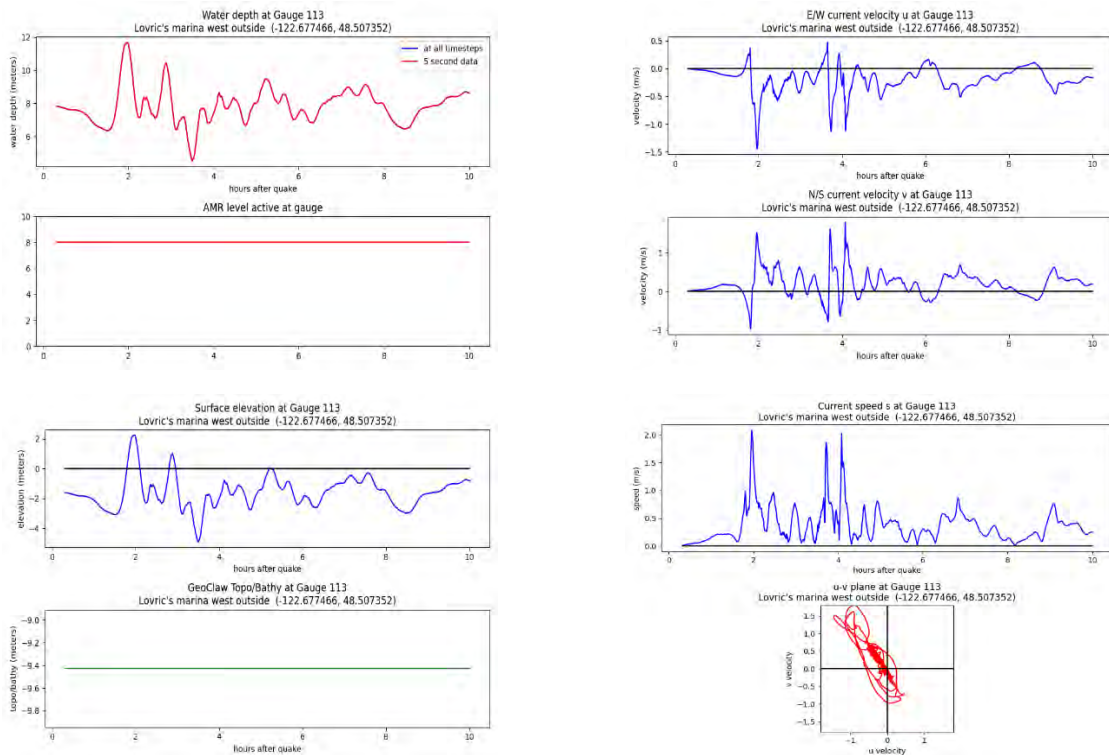


Gauge 113: Anacortes Ferry Terminal north

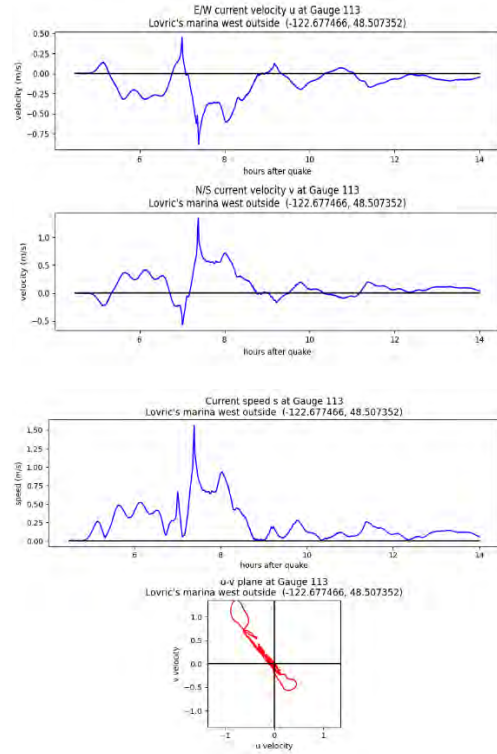
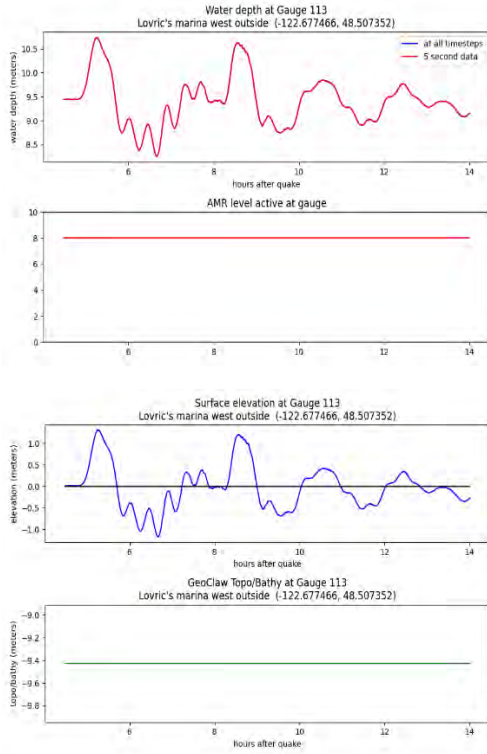
Cascadia subduction zone scenario, MHW:



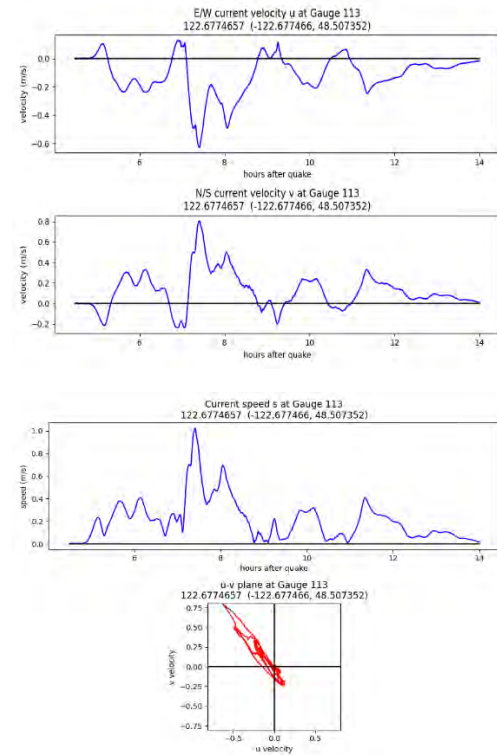
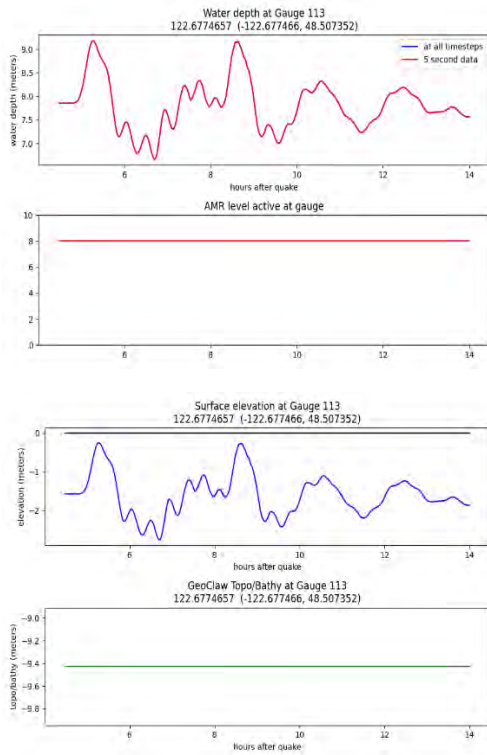
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

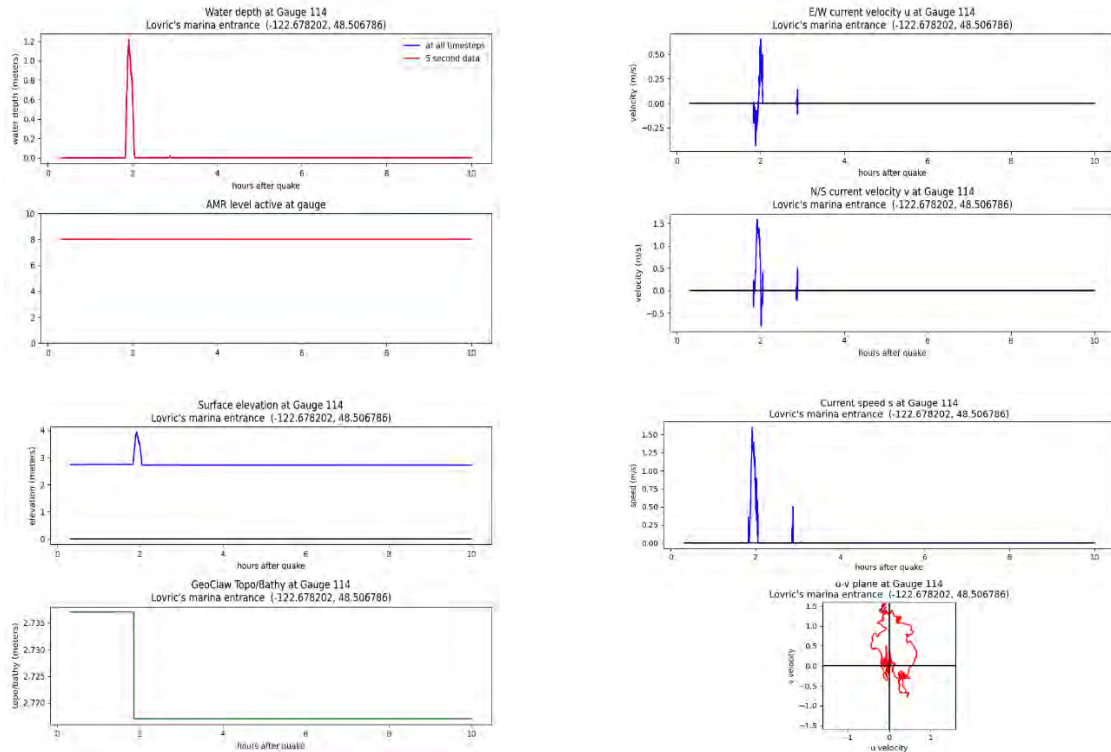


Alaska-Aleutian subduction zone scenario, MLW:

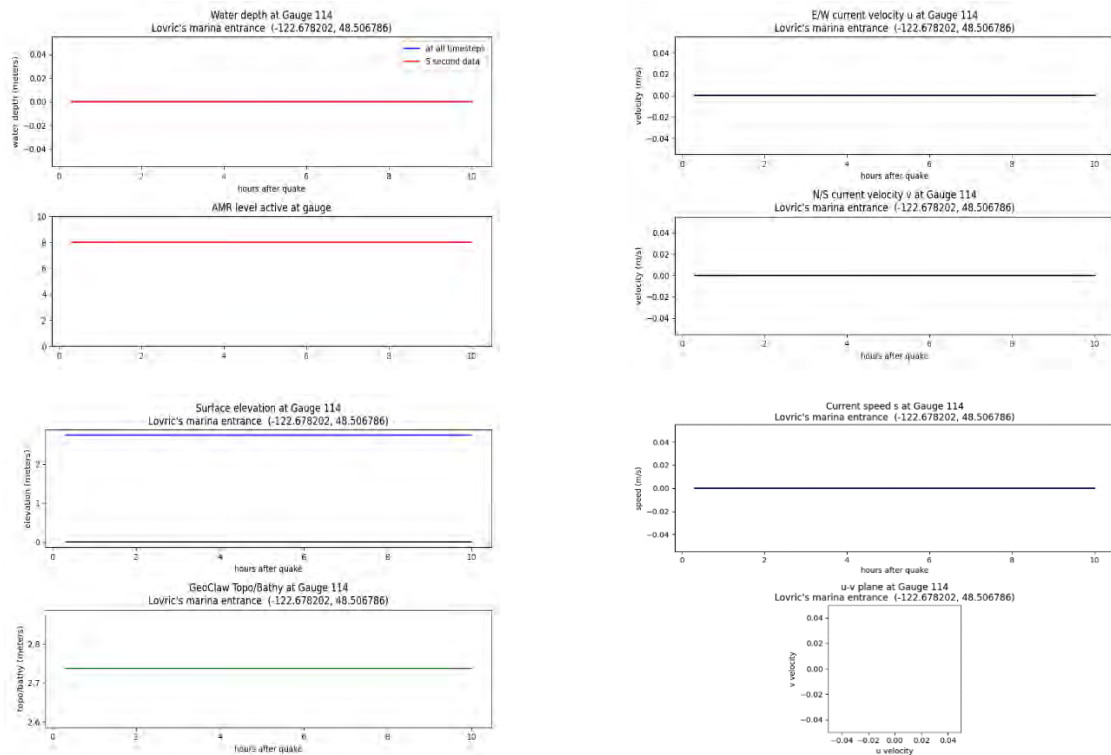


Gauge 114: Anacortes Ferry Terminal (onshore)

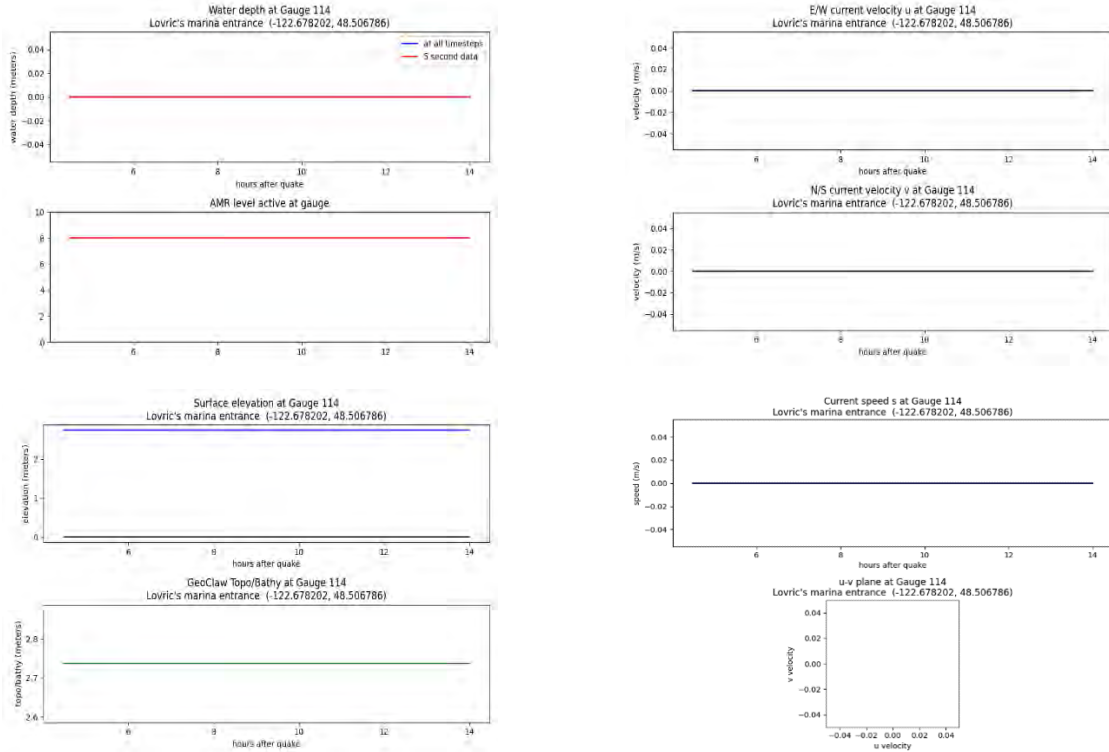
Cascadia subduction zone scenario, MHW:



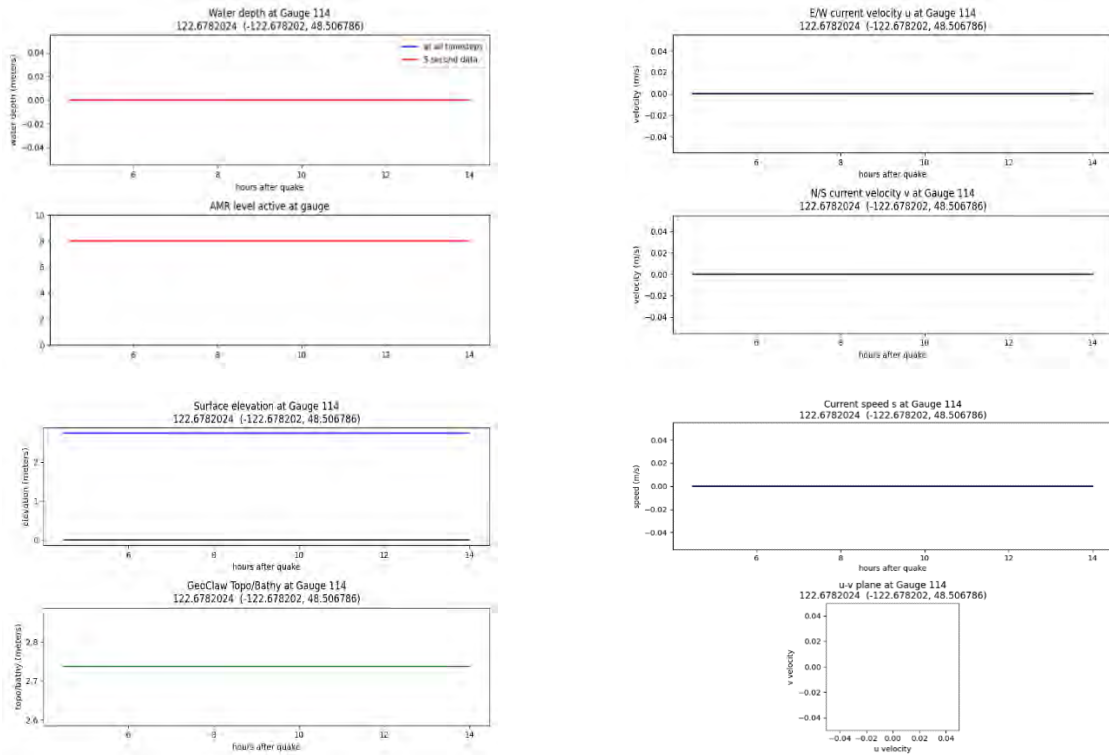
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

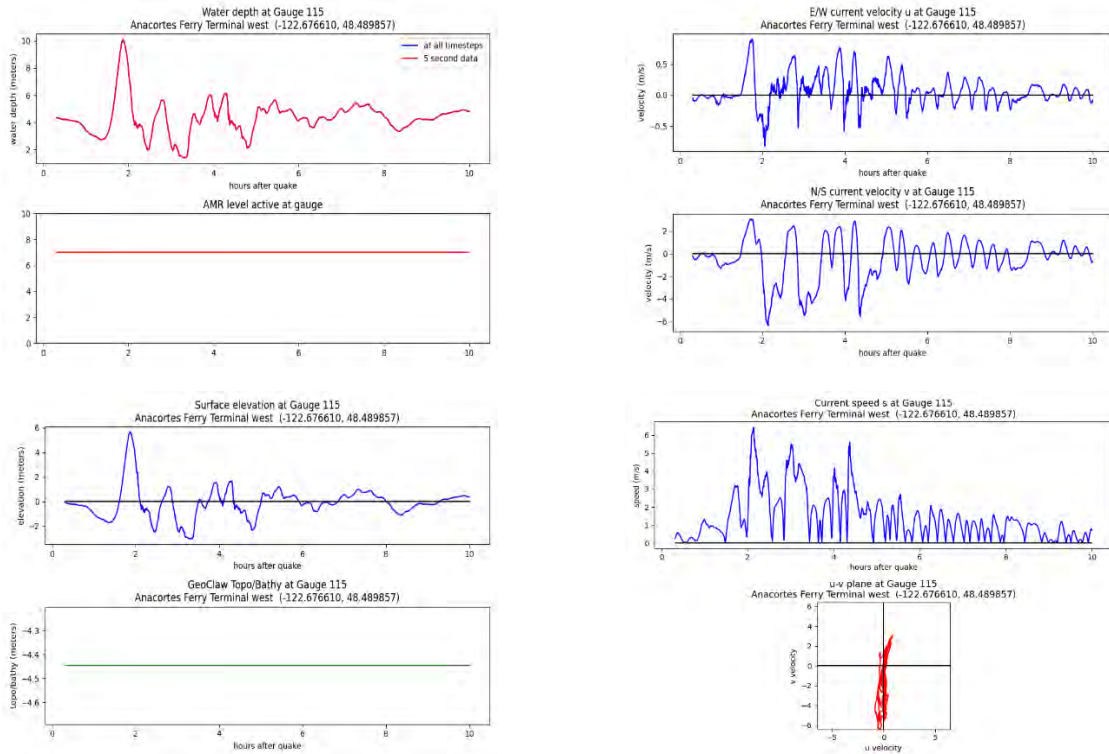


Alaska-Aleutian subduction zone scenario, MLW:

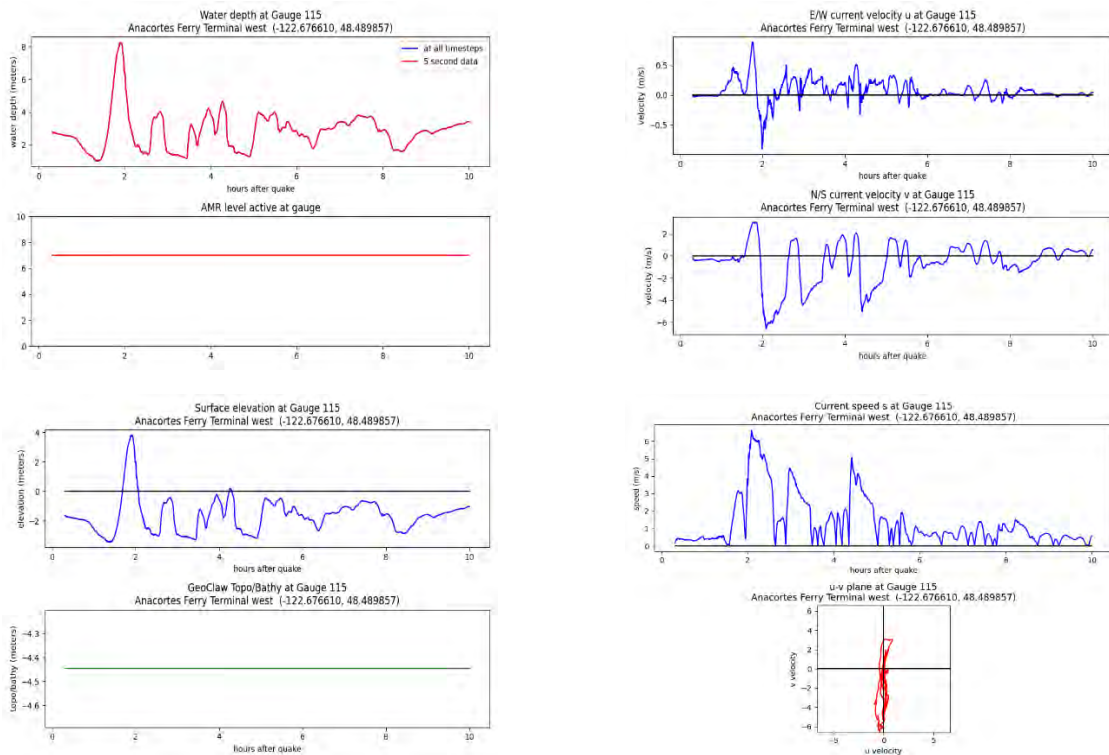


Gauge 115: Skyline Marina entrance

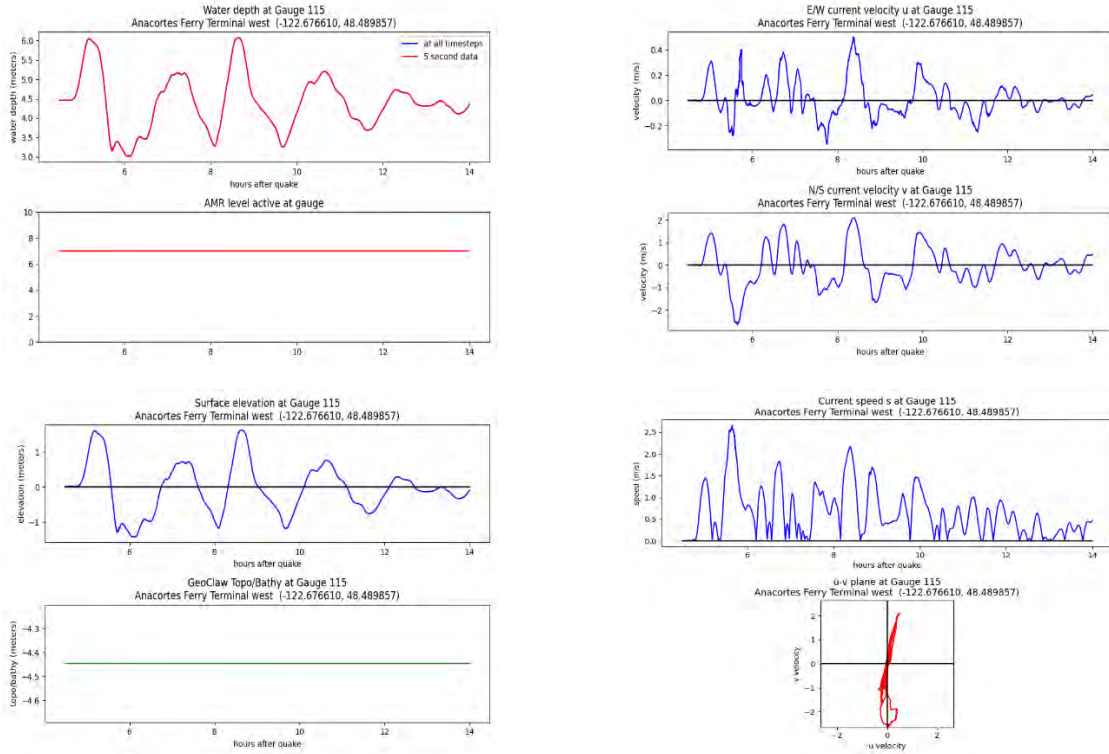
Cascadia subduction zone scenario, MHW:



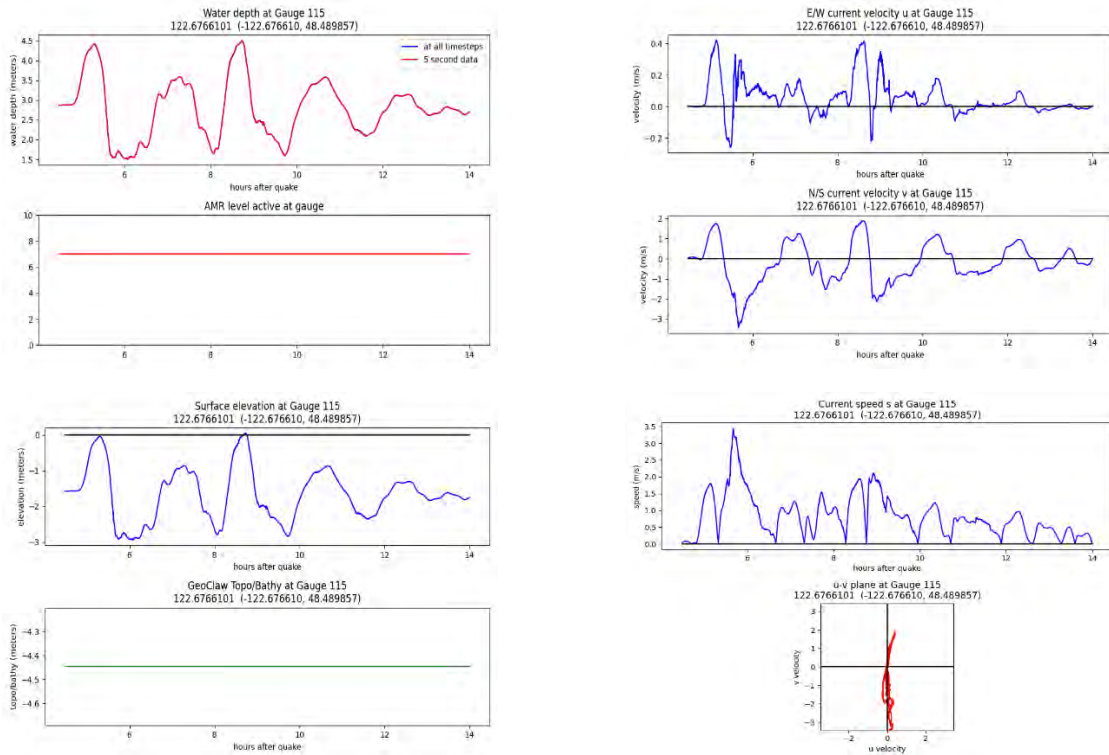
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

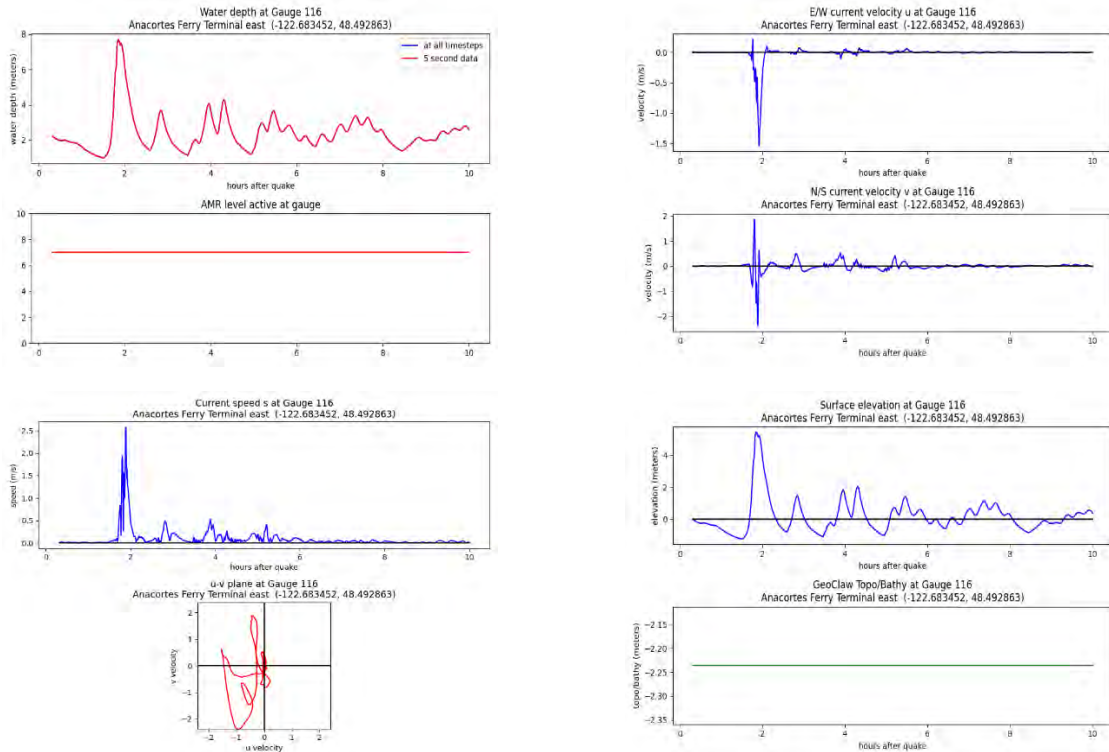


Alaska-Aleutian subduction zone scenario, MLW:

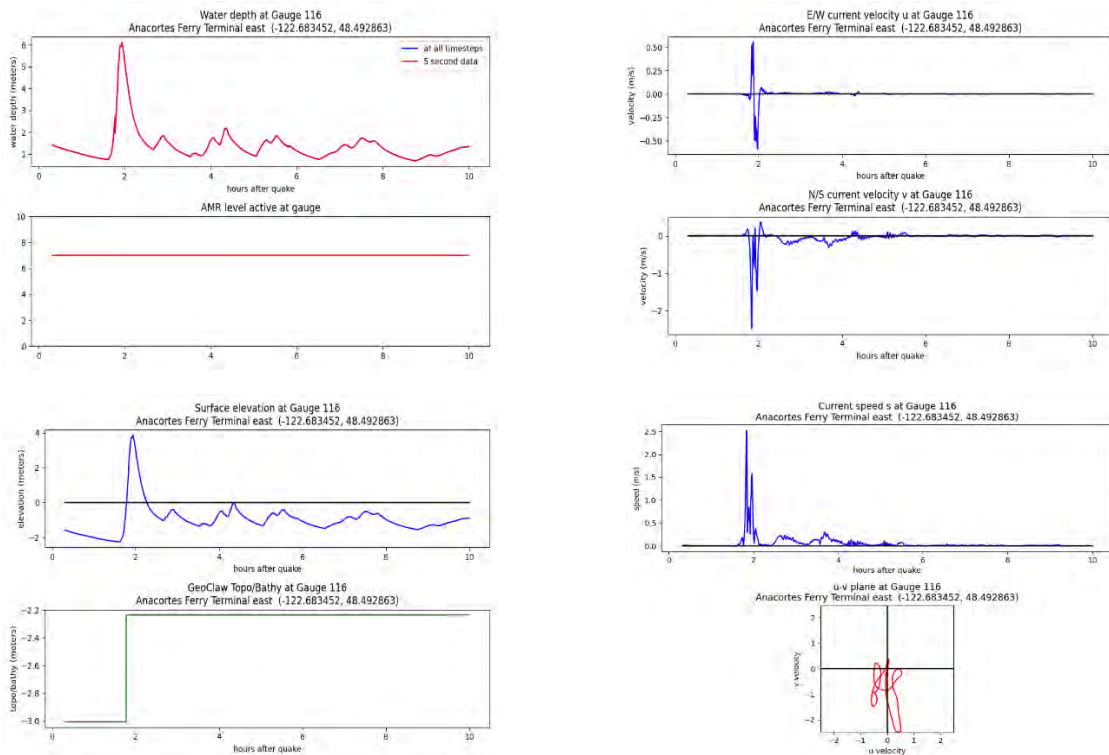


Gauge 116: Skyline Marina Center

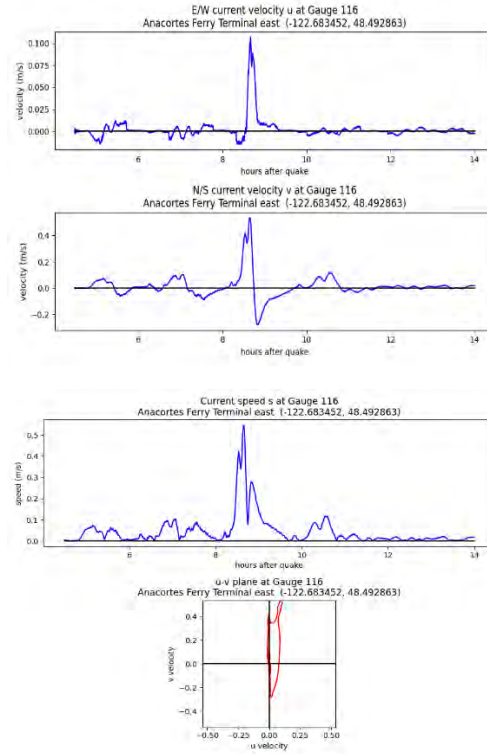
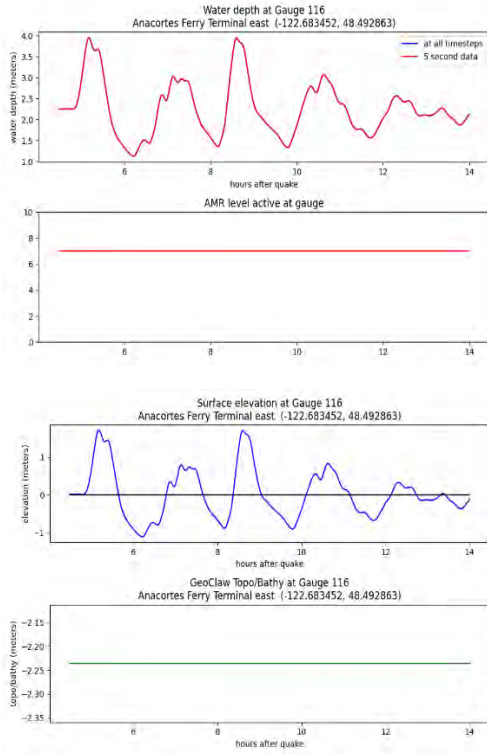
Cascadia subduction zone scenario, MHW:



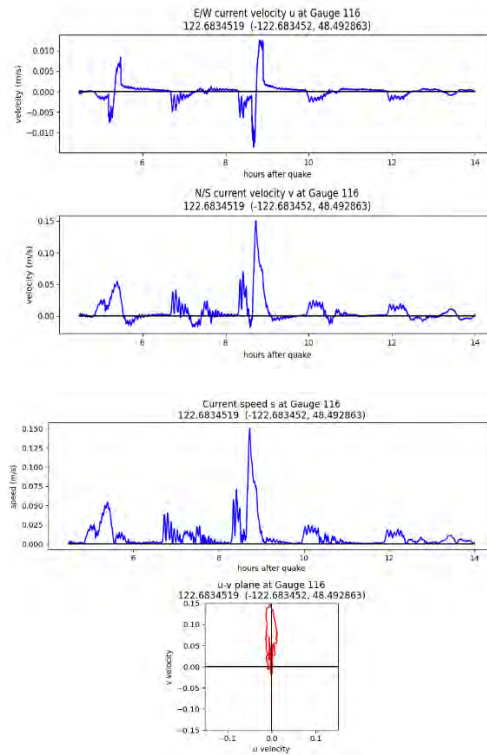
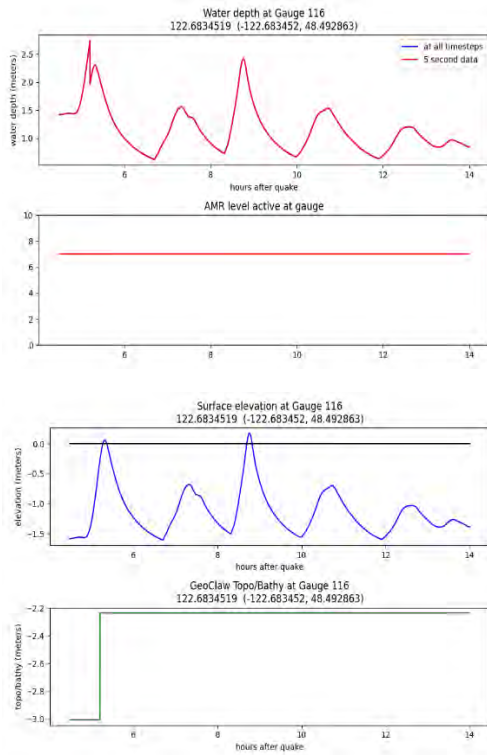
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

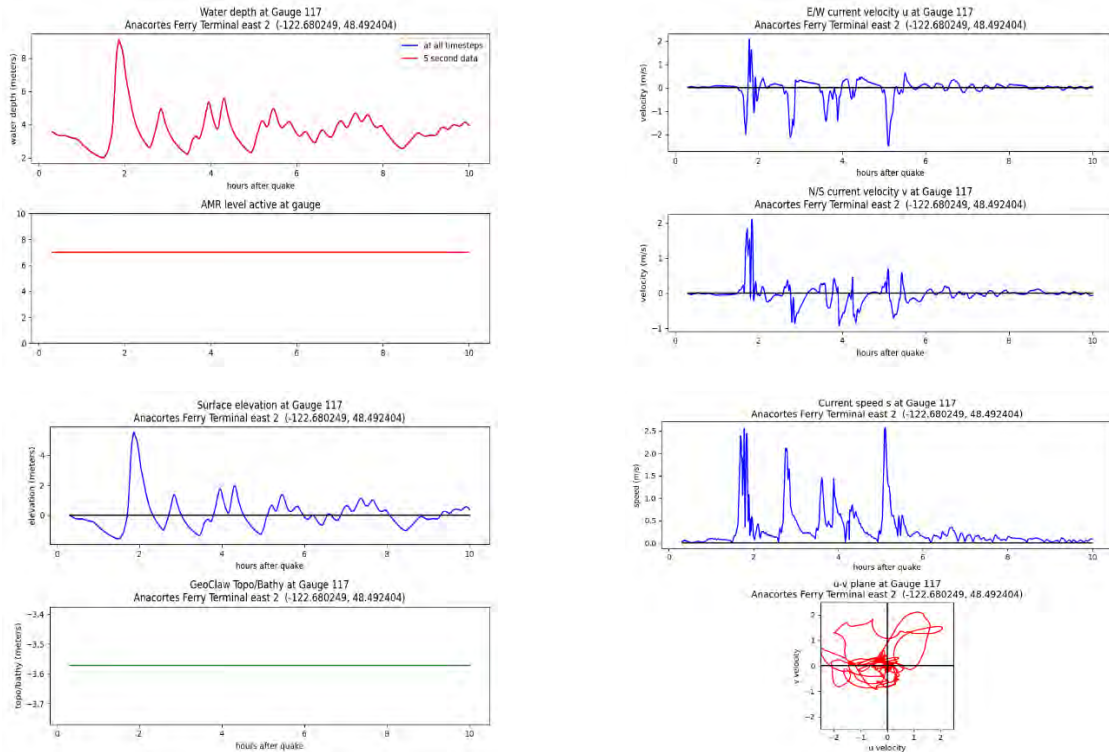


Alaska-Aleutian subduction zone scenario, MLW:

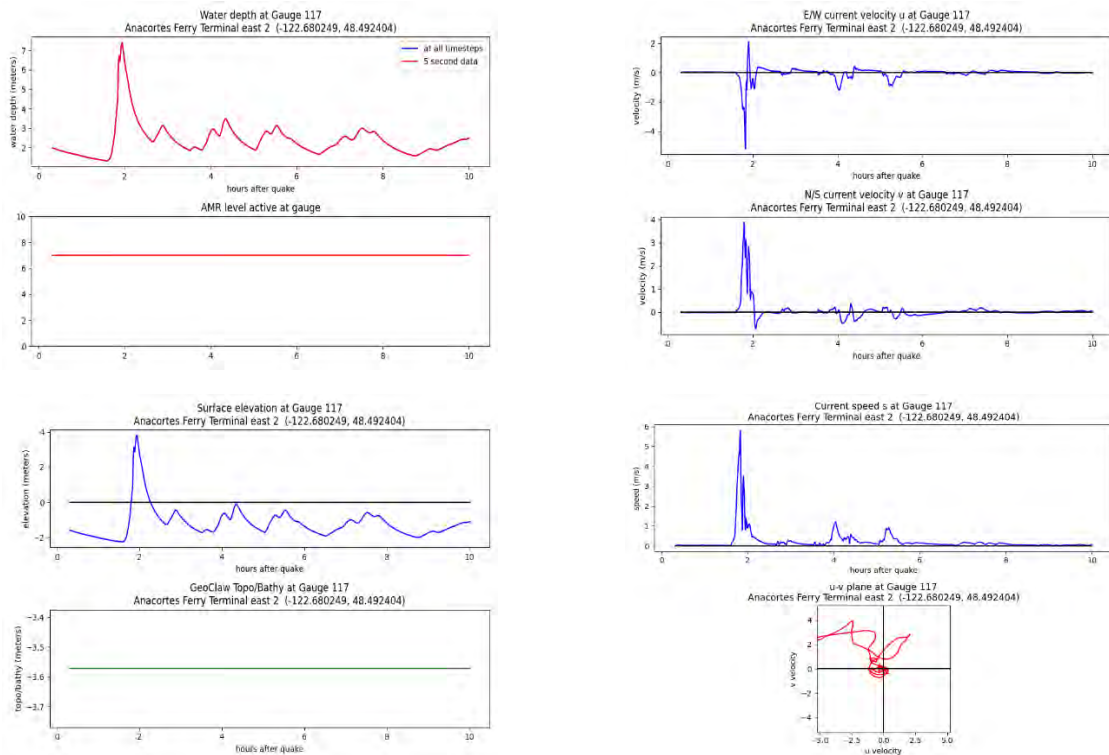


Gauge 117: Skyline Marina central

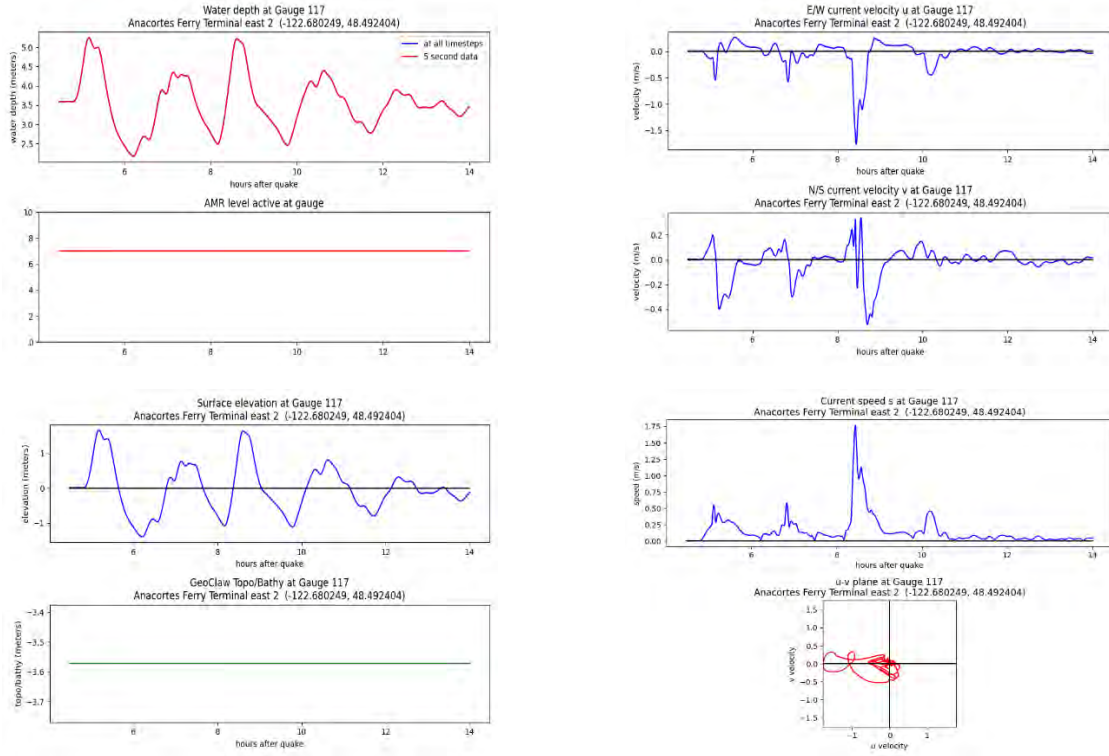
Cascadia subduction zone scenario, MHW:



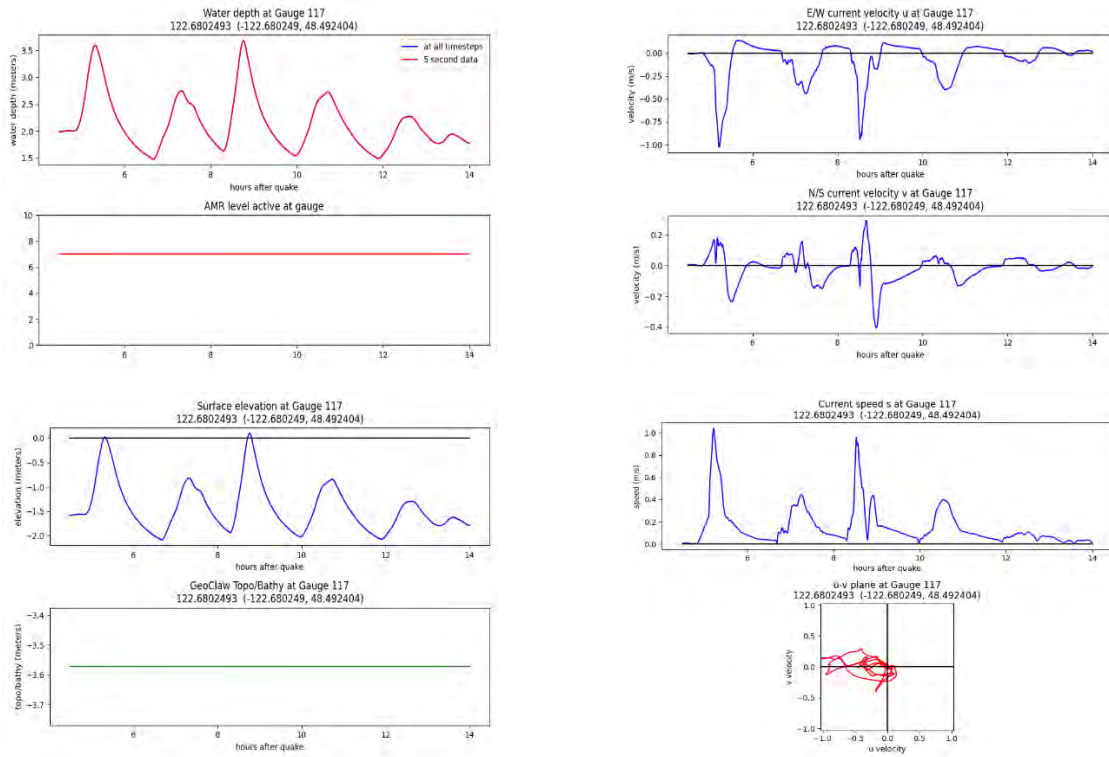
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

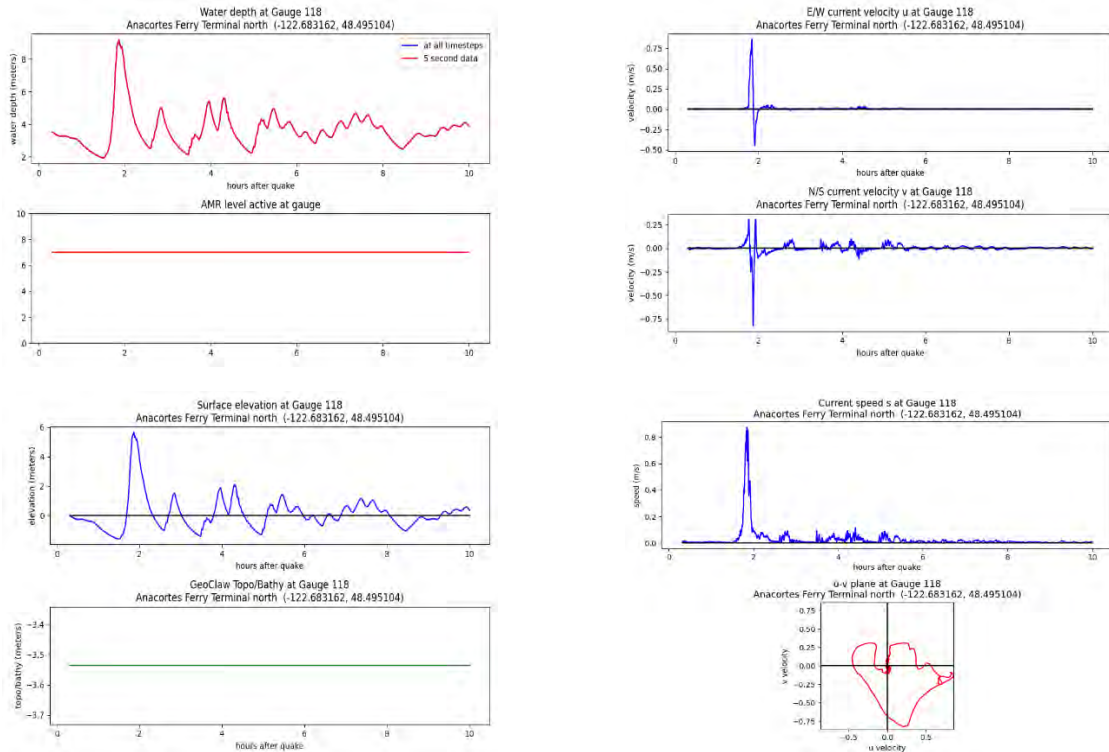


Alaska-Aleutian subduction zone scenario, MLW:

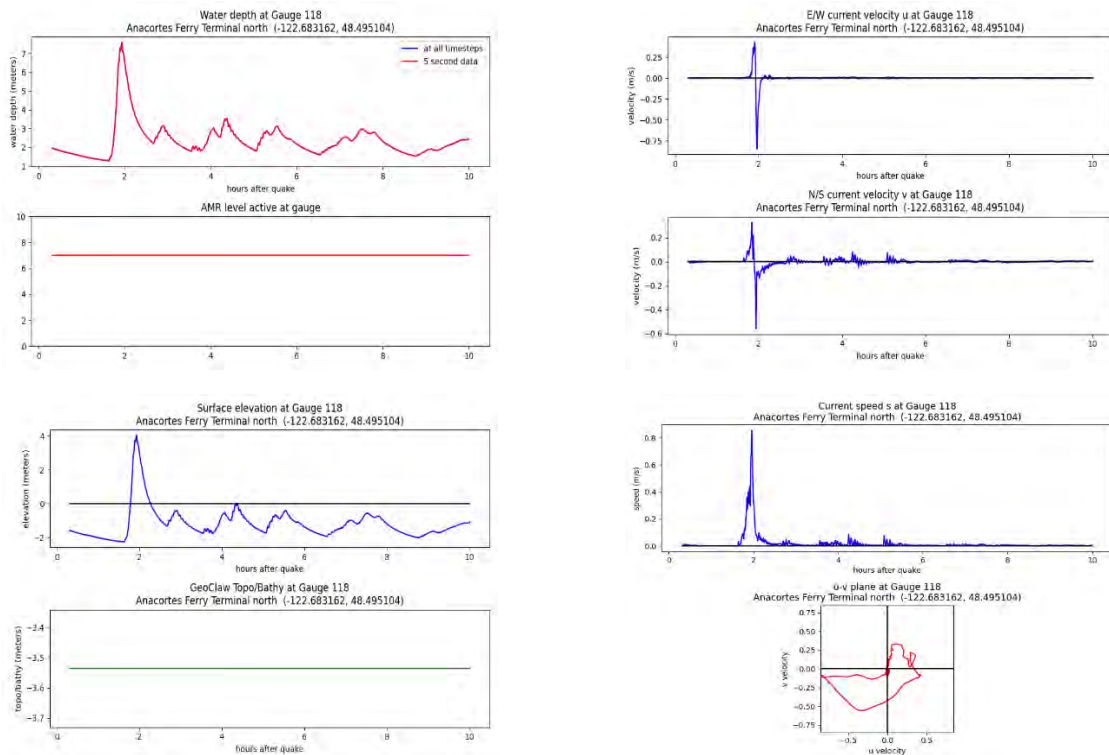


Gauge 118: Skyline Marina north

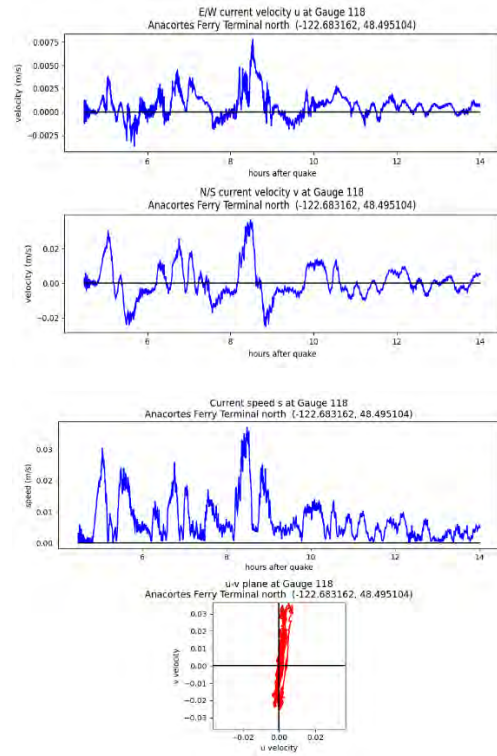
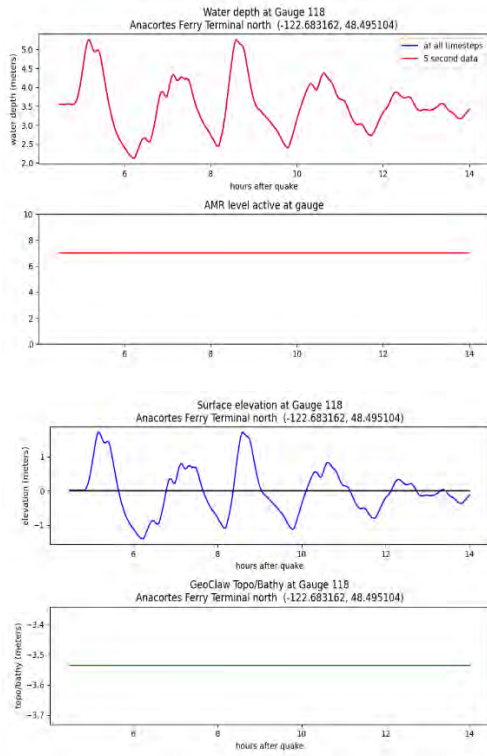
Cascadia subduction zone scenario, MHW:



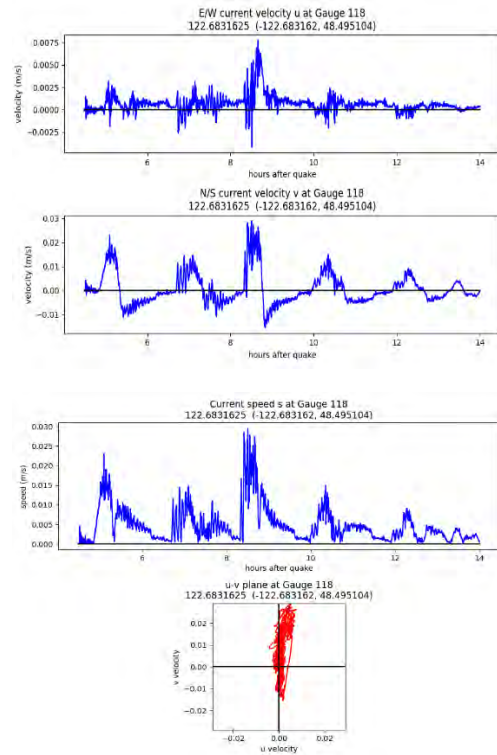
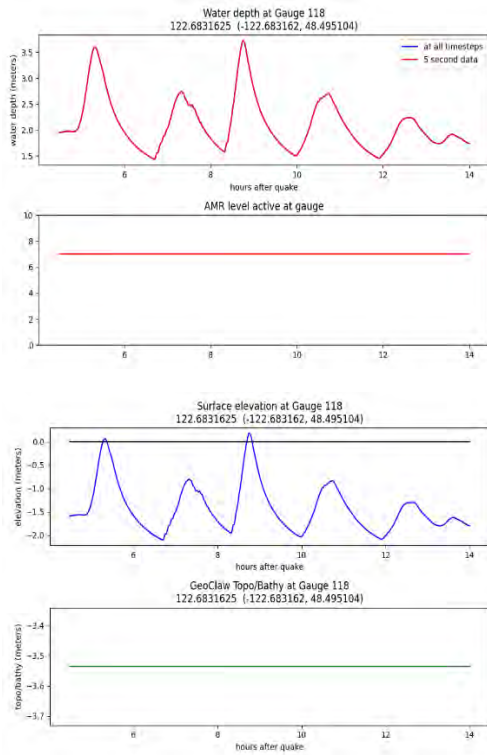
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

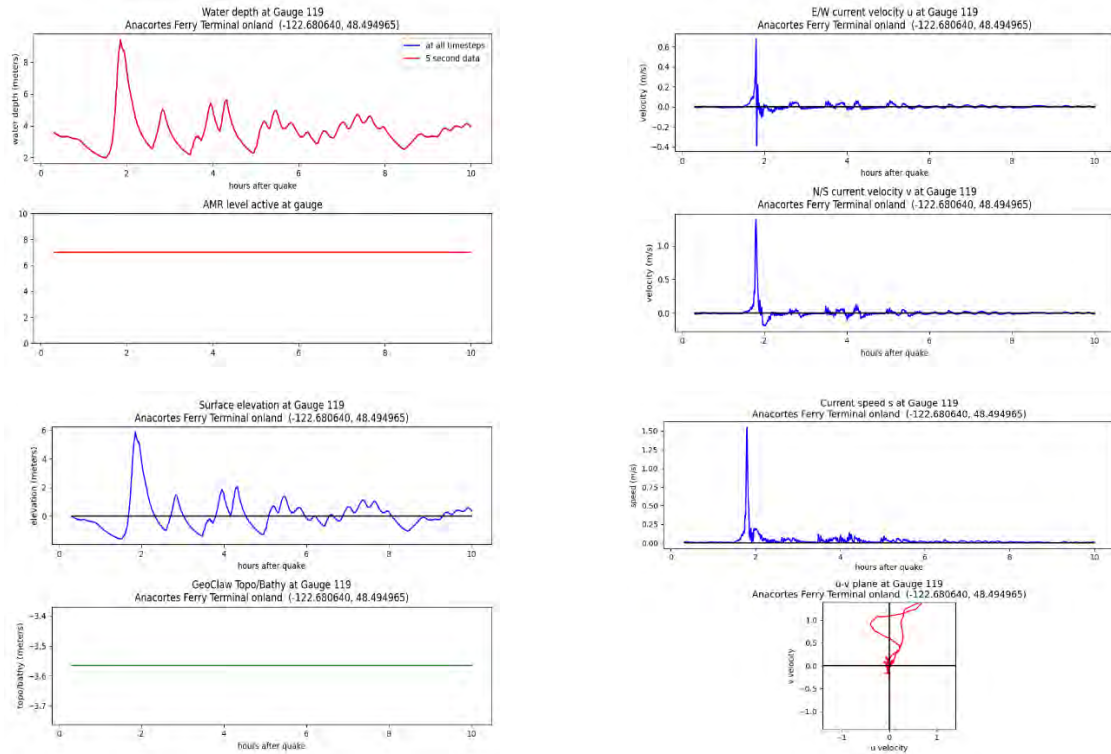


Alaska-Aleutian subduction zone scenario, MLW:

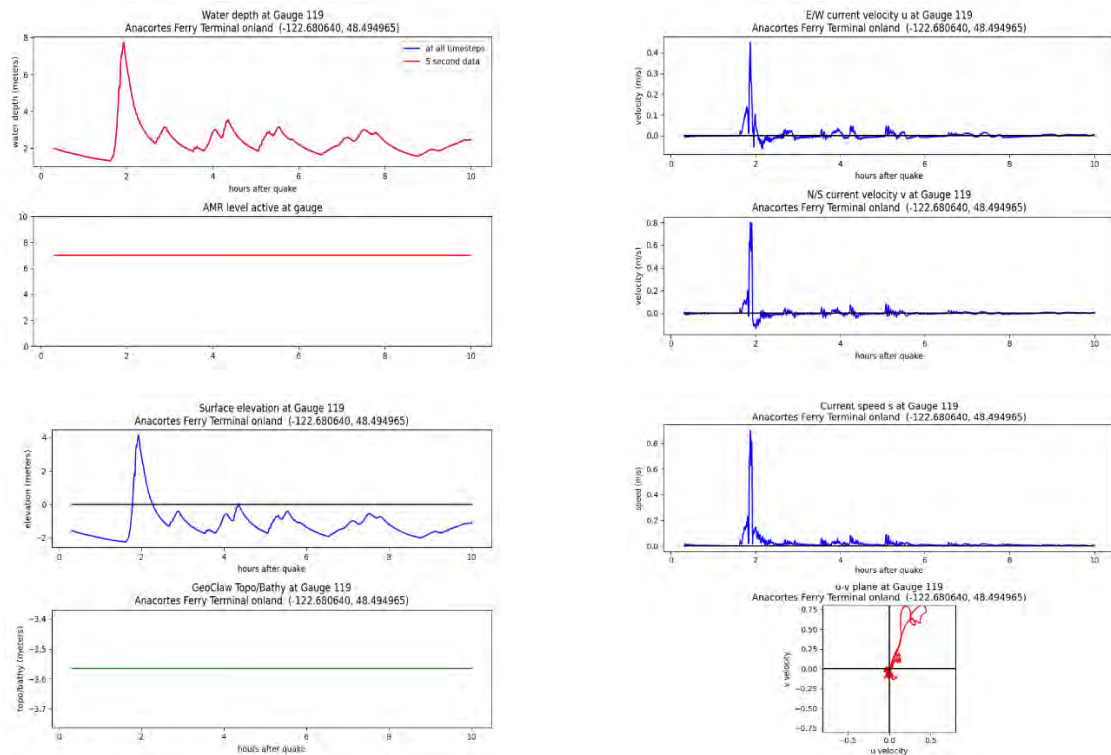


Gauge 119: Skyline Marina north 2

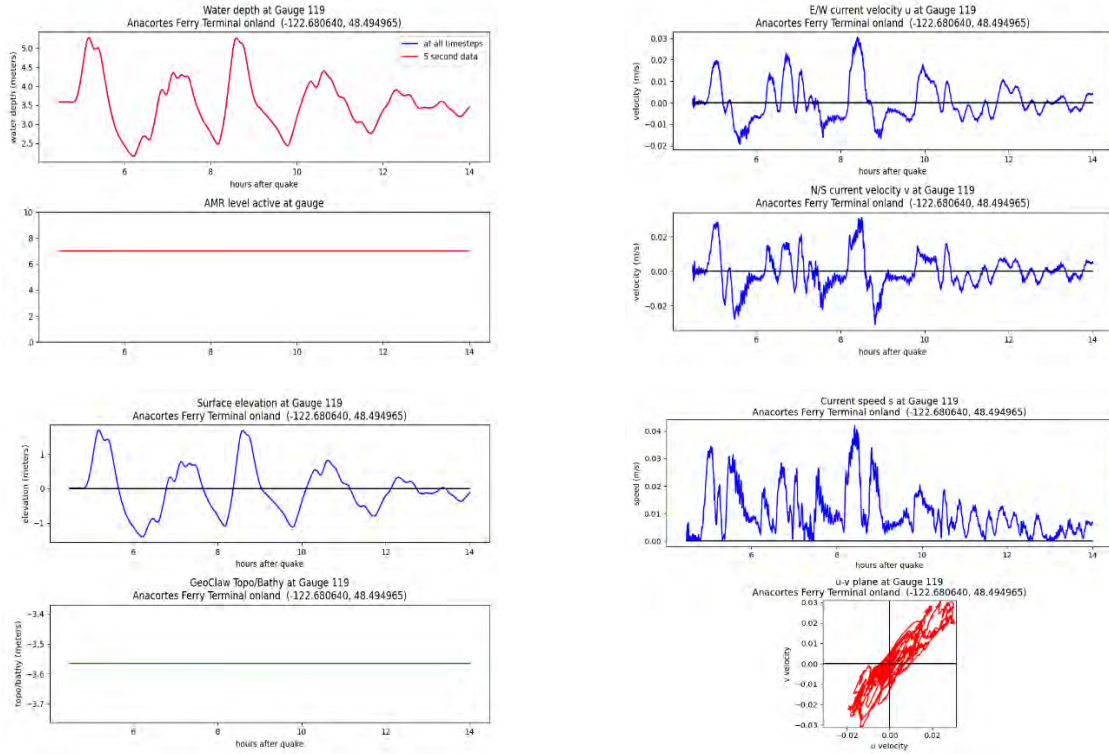
Cascadia subduction zone scenario, MHW:



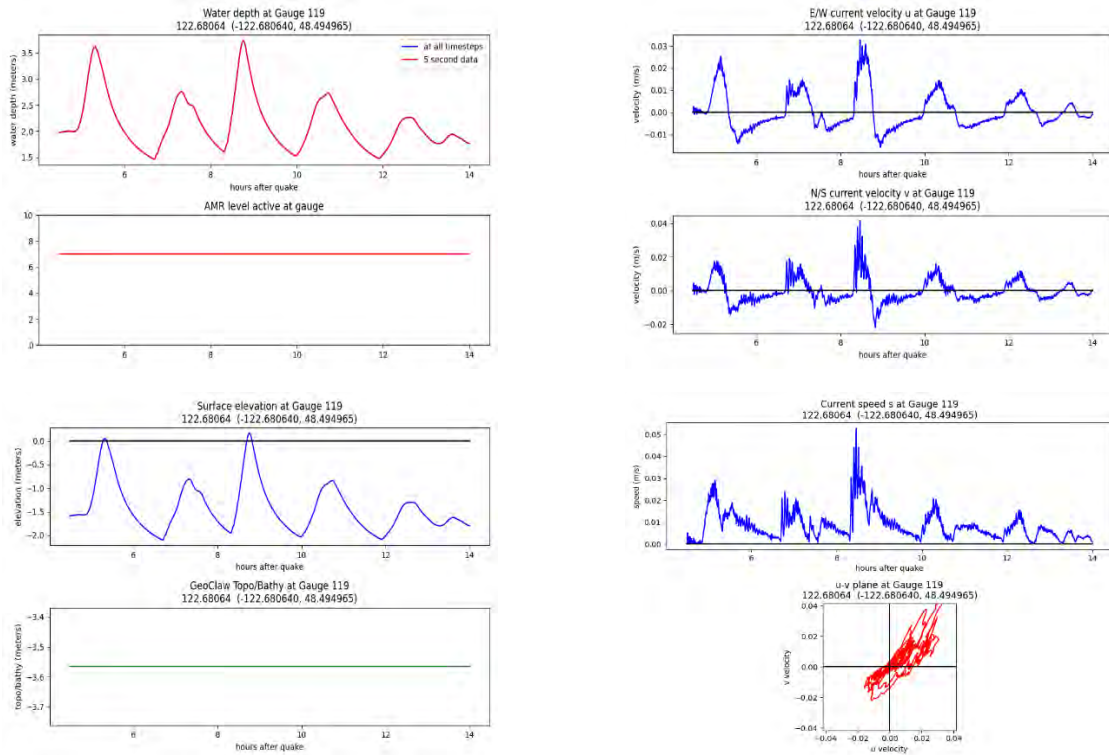
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

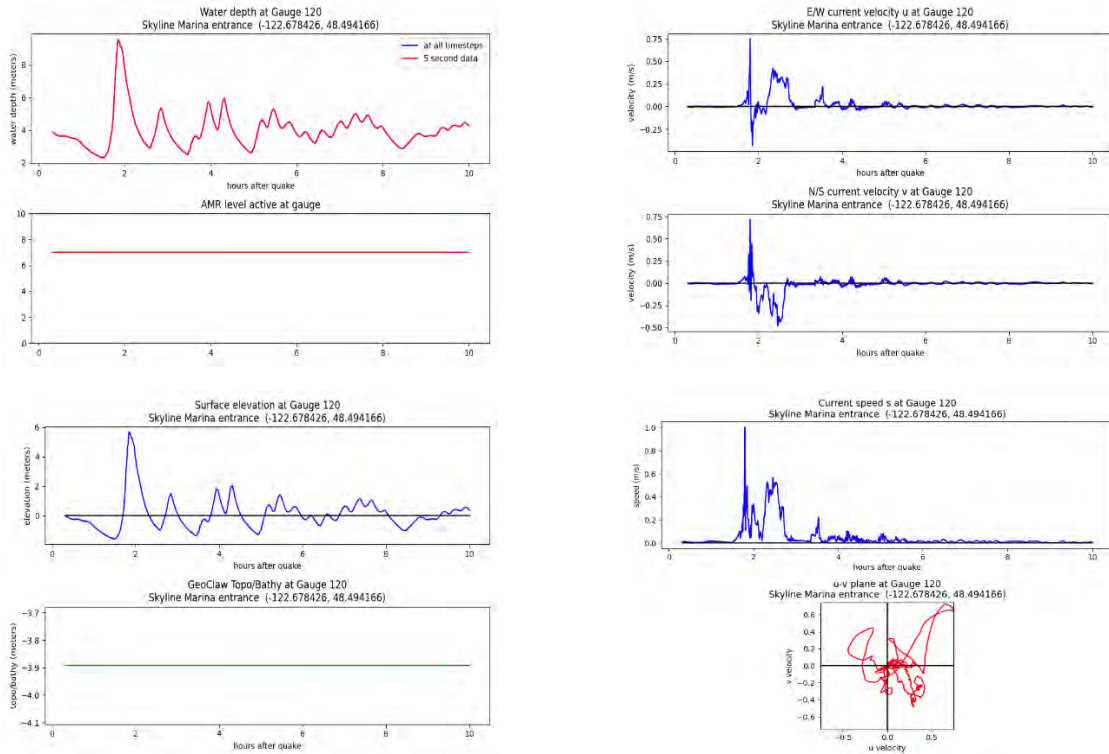


Alaska-Aleutian subduction zone scenario, MLW:

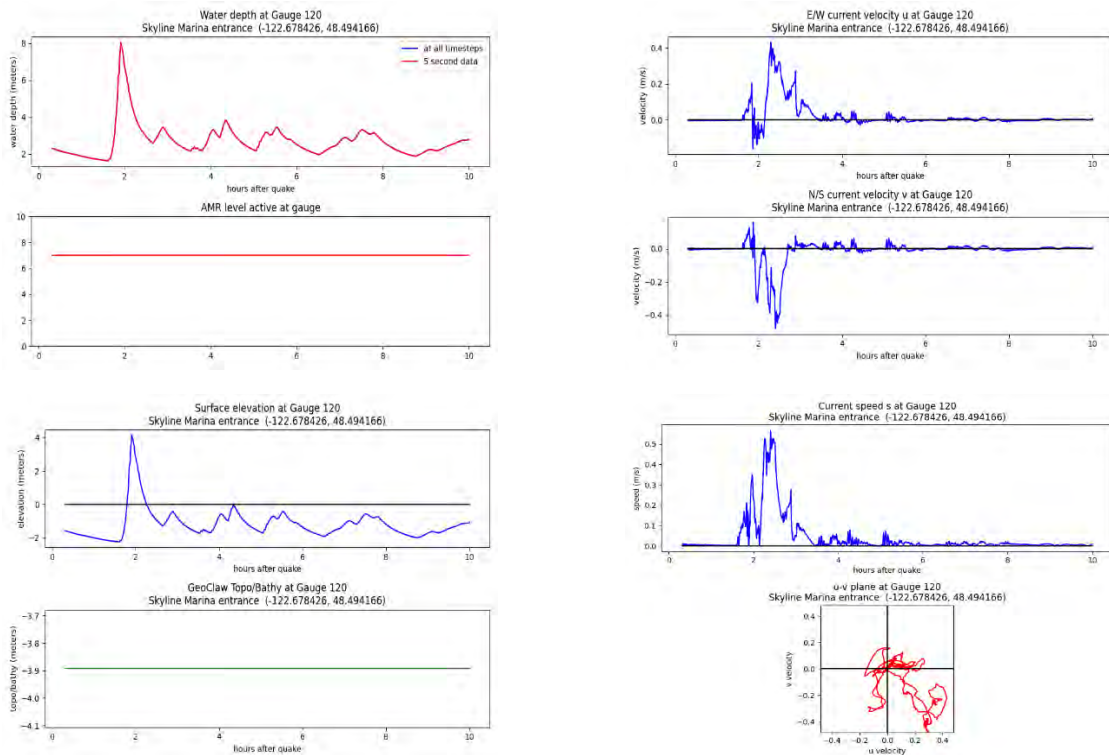


Gauge 120: Skyline Marina north 3

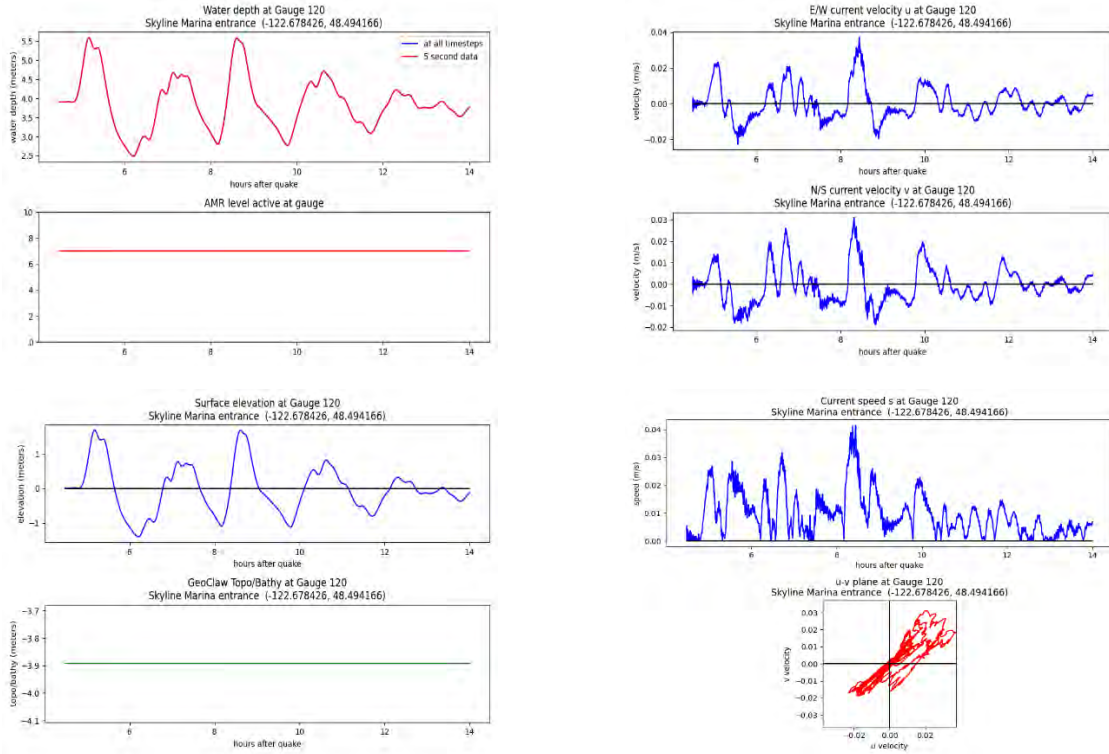
Cascadia subduction zone scenario, MHW:



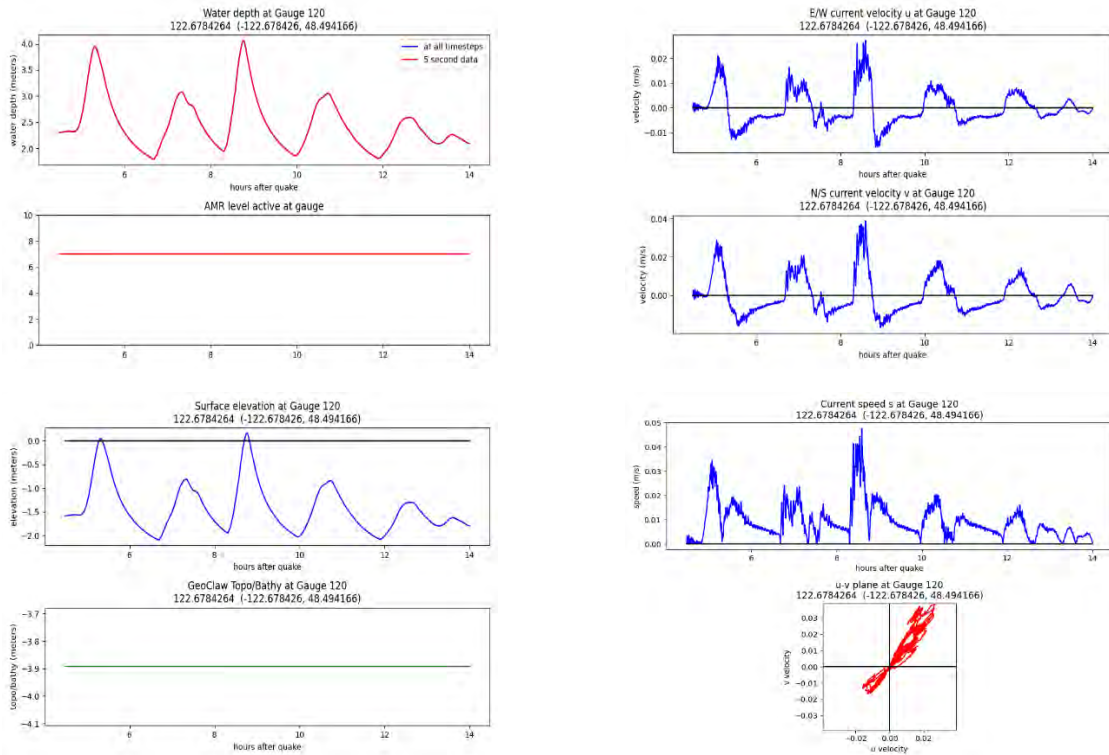
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

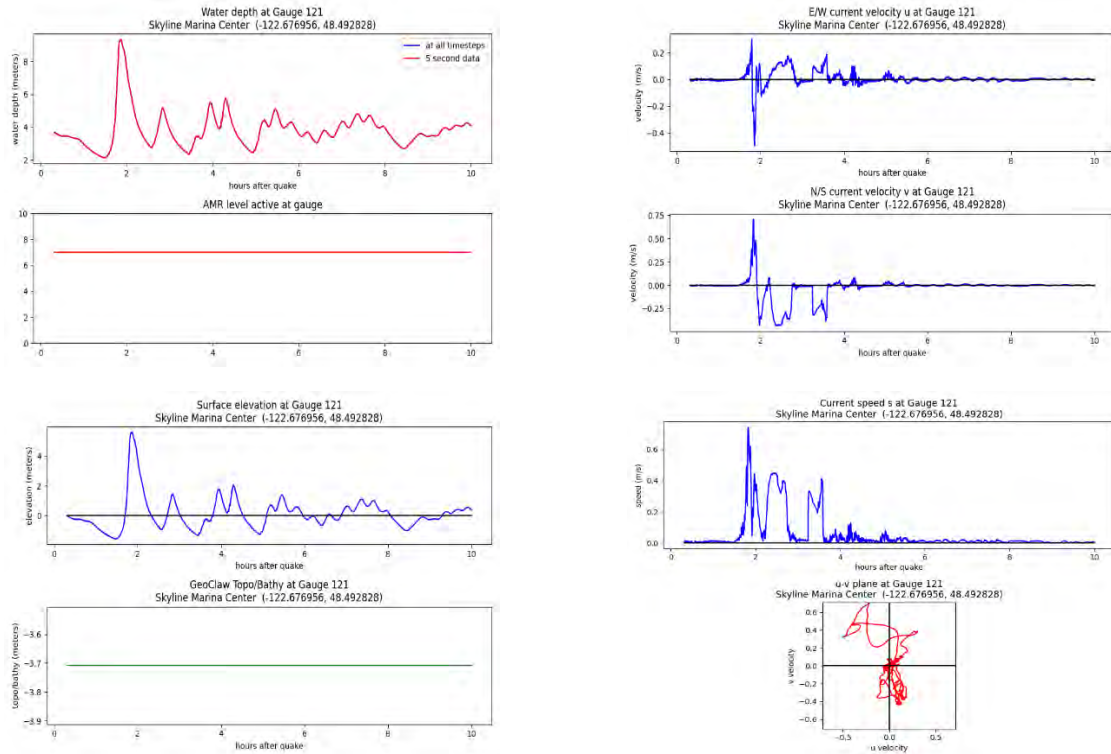


Alaska-Aleutian subduction zone scenario, MLW:

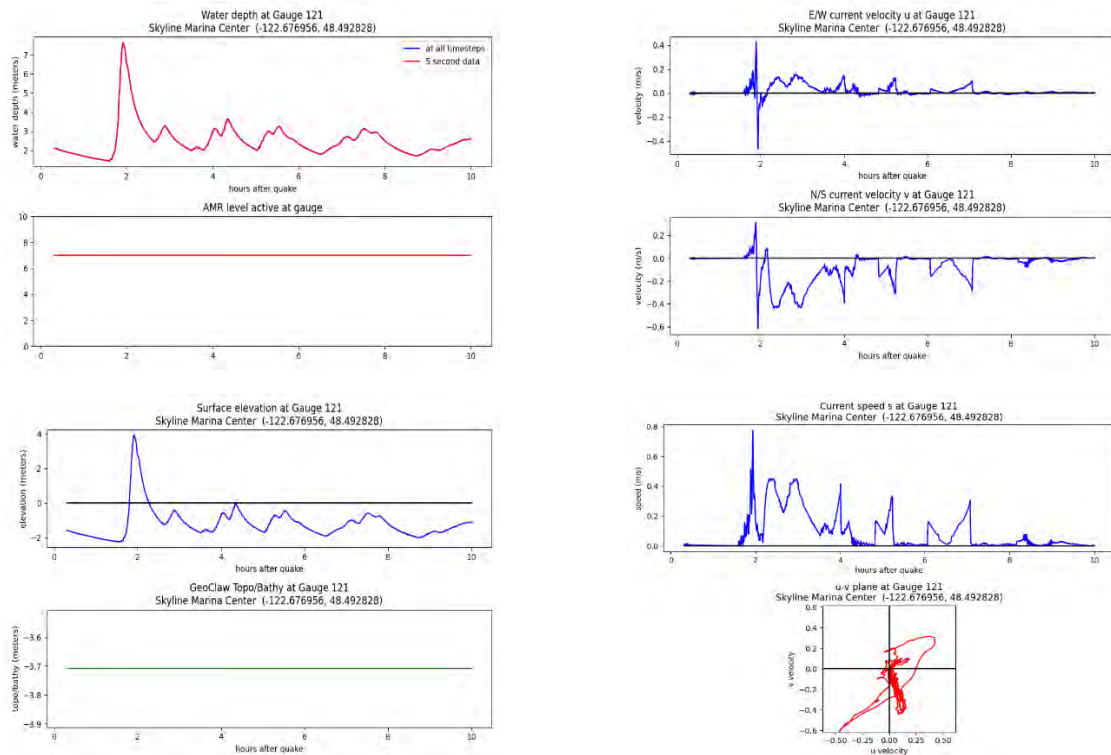


Gauge 121: Skyline Marina north 4

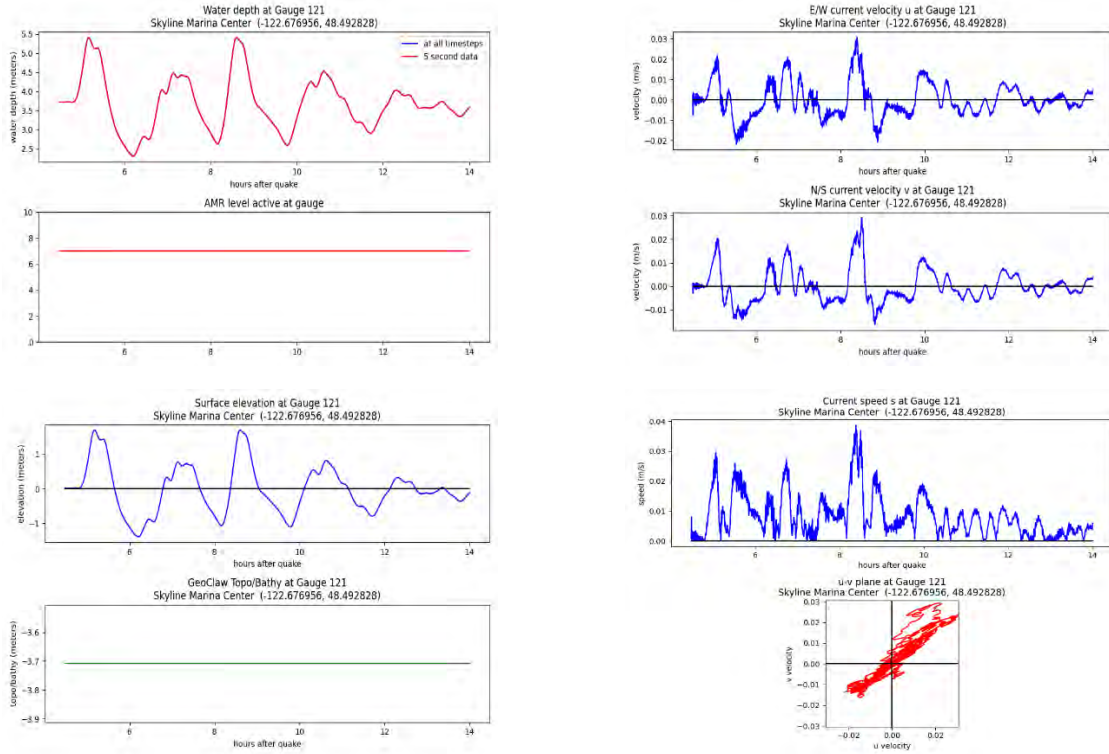
Cascadia subduction zone scenario, MHW:



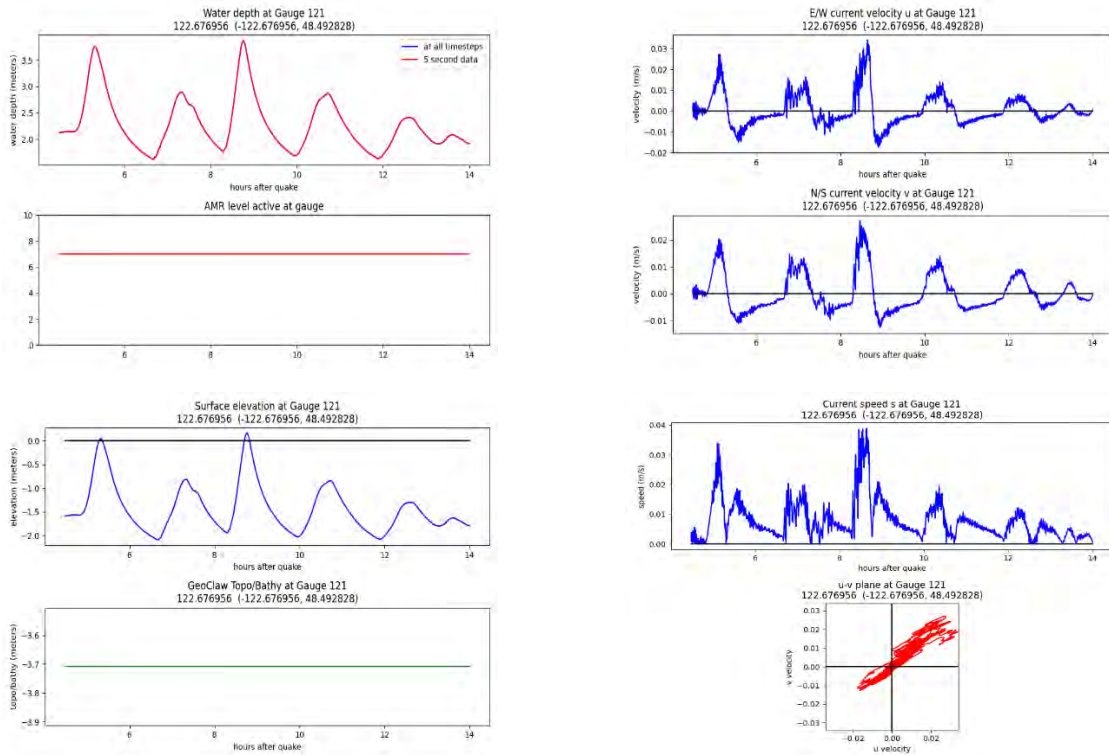
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

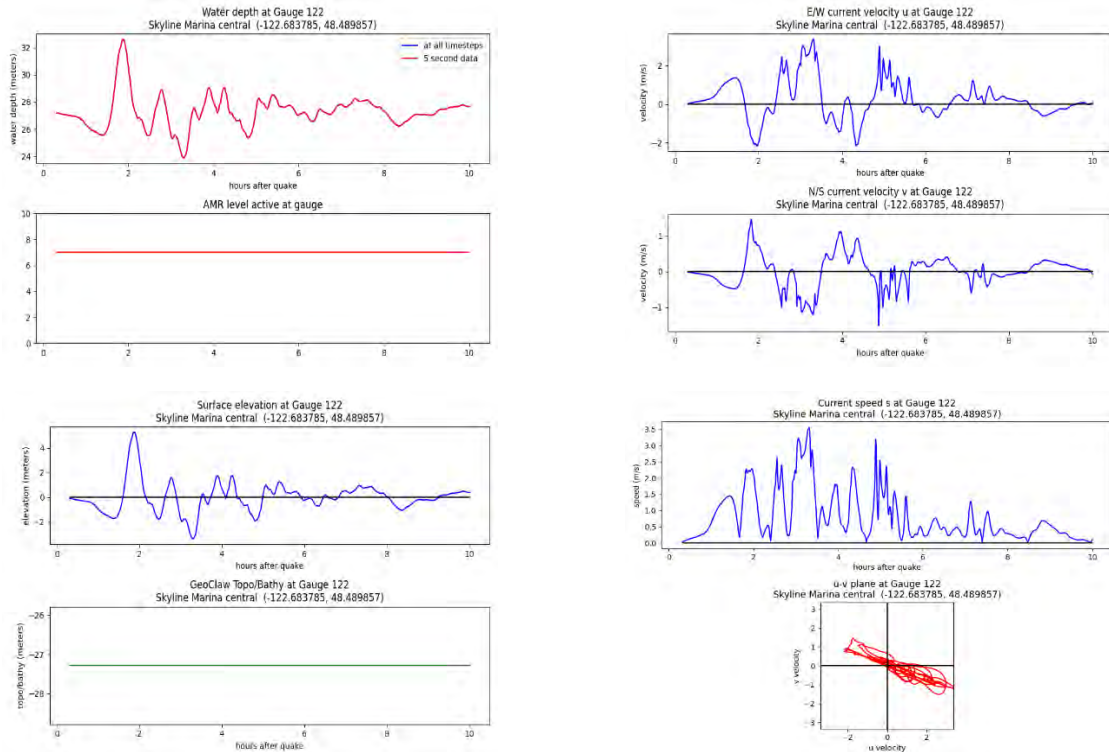


Alaska-Aleutian subduction zone scenario, MLW:

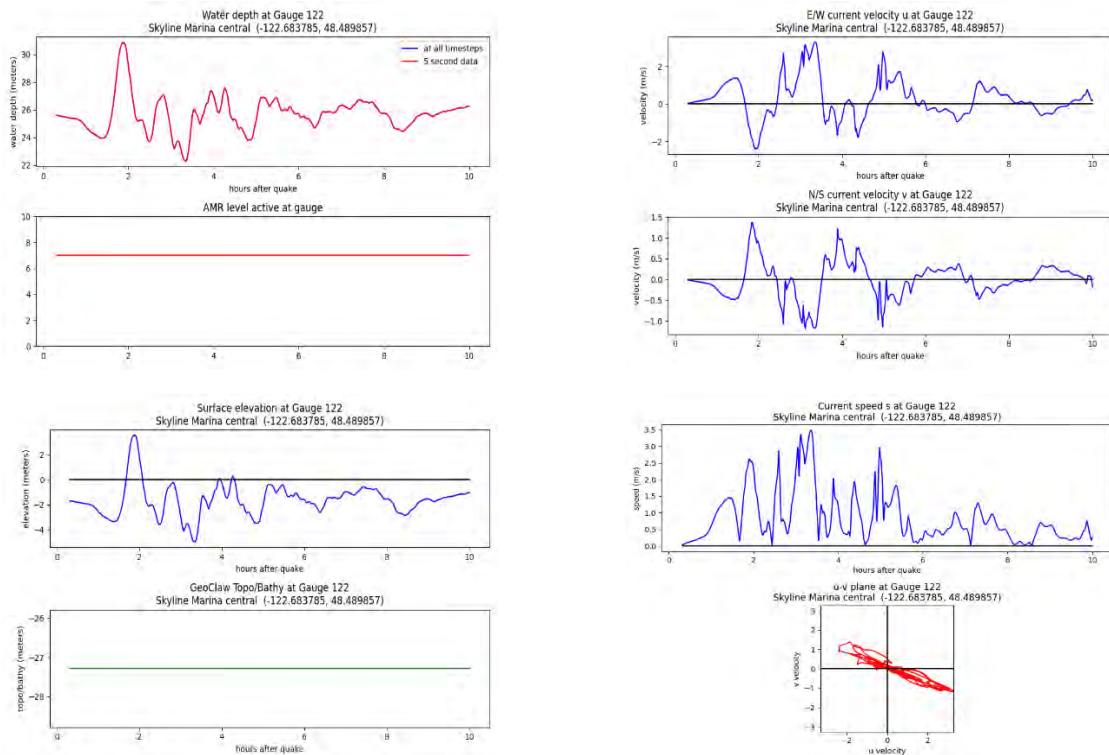


Gauge 122: Burrows Pass

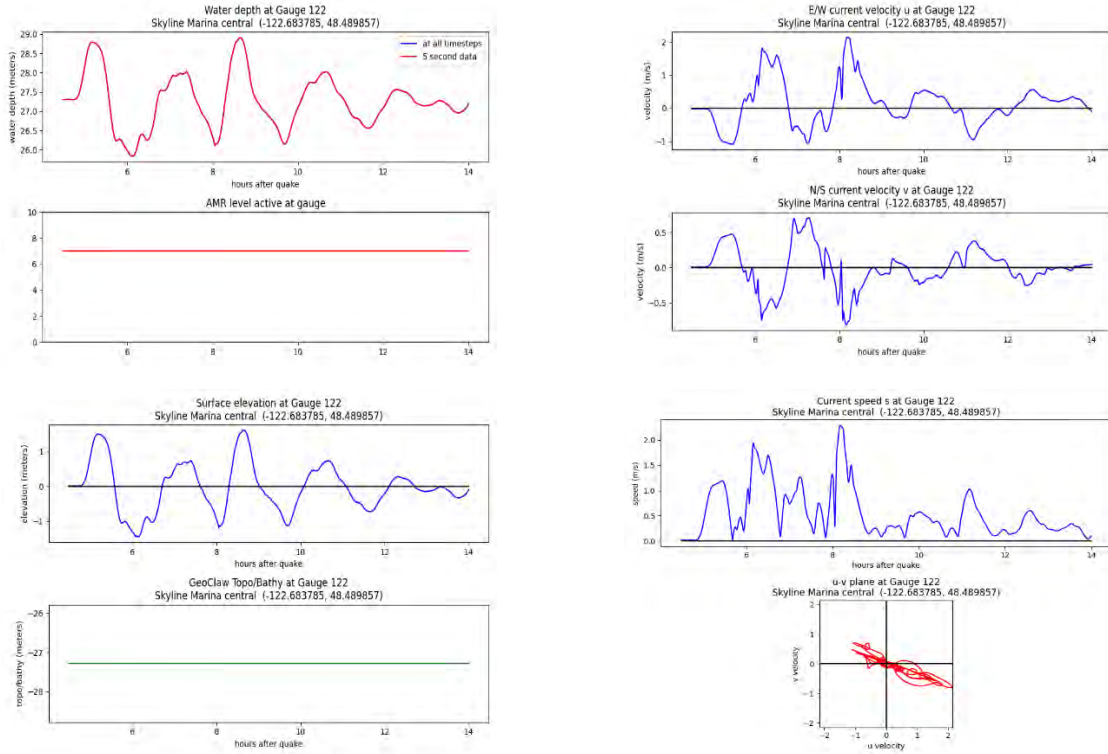
Cascadia subduction zone scenario, MHW:



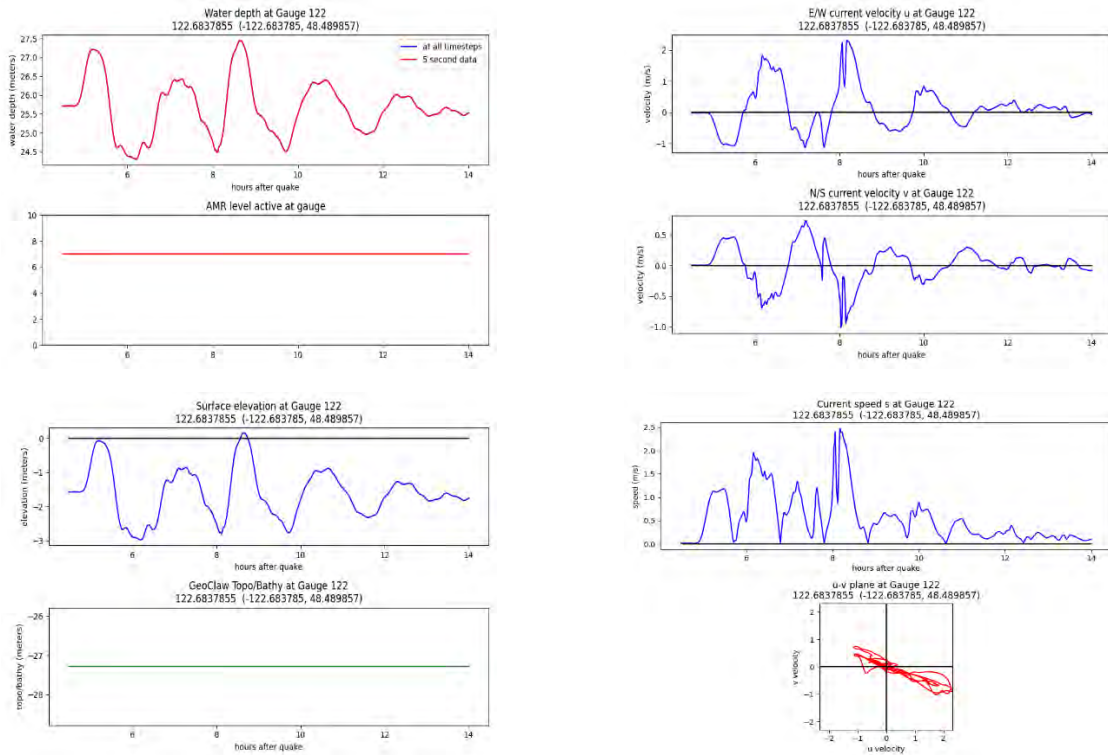
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

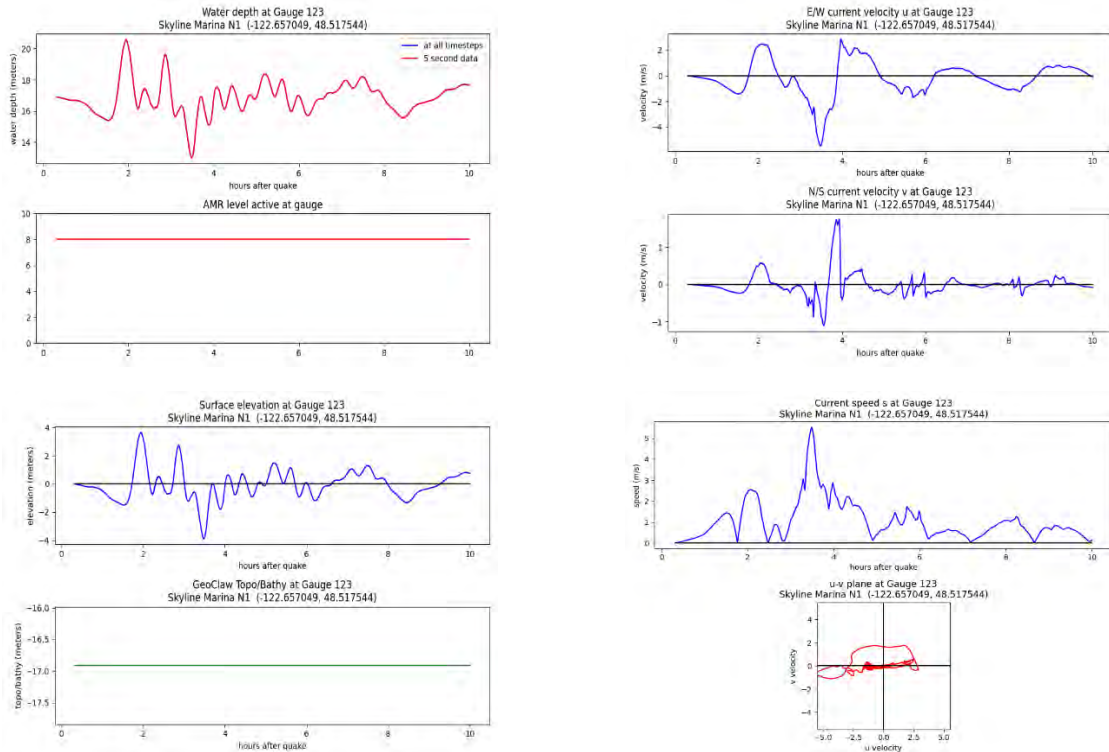


Alaska-Aleutian subduction zone scenario, MLW:

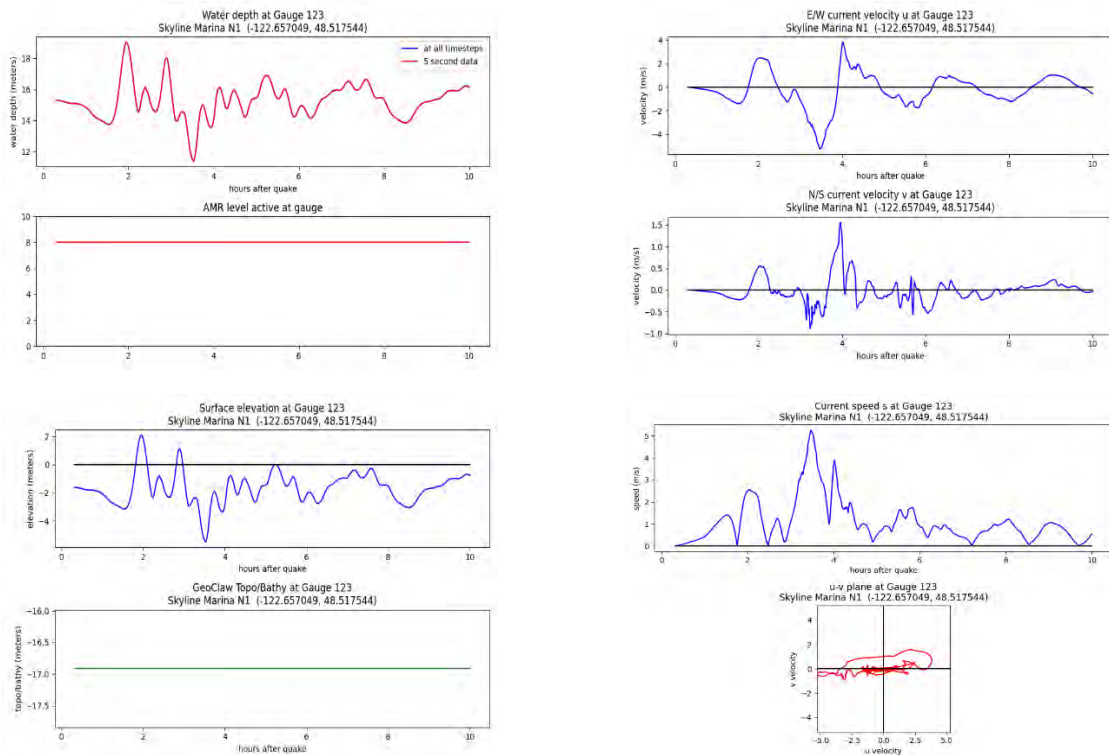


Gauge 123: Guemes Channel 1

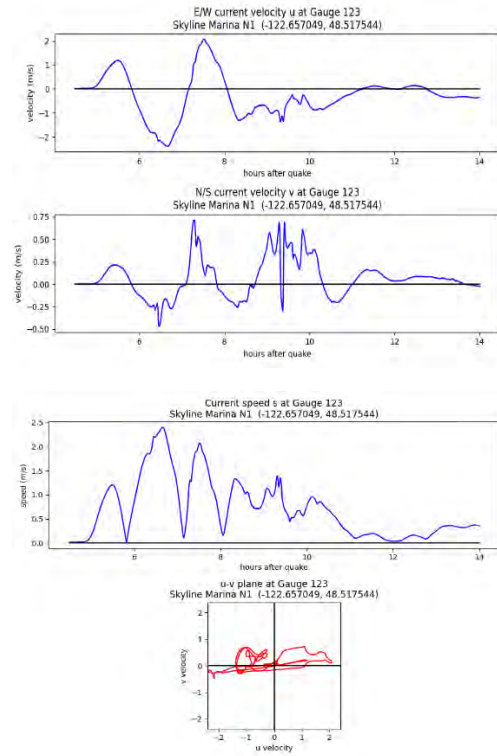
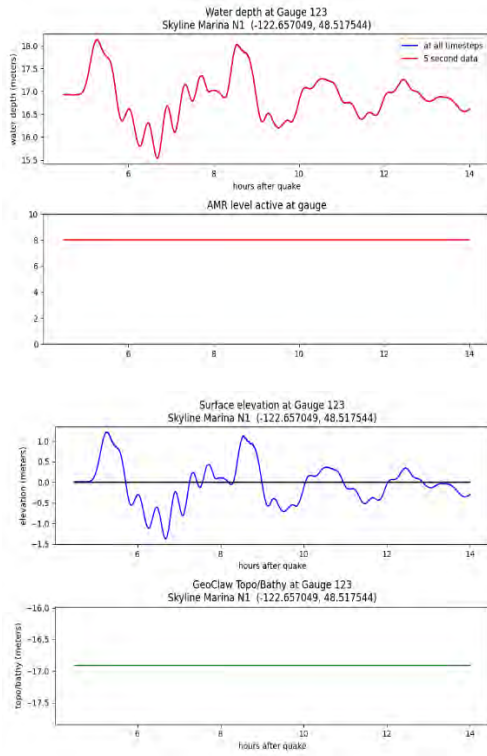
Cascadia subduction zone scenario, MHW:



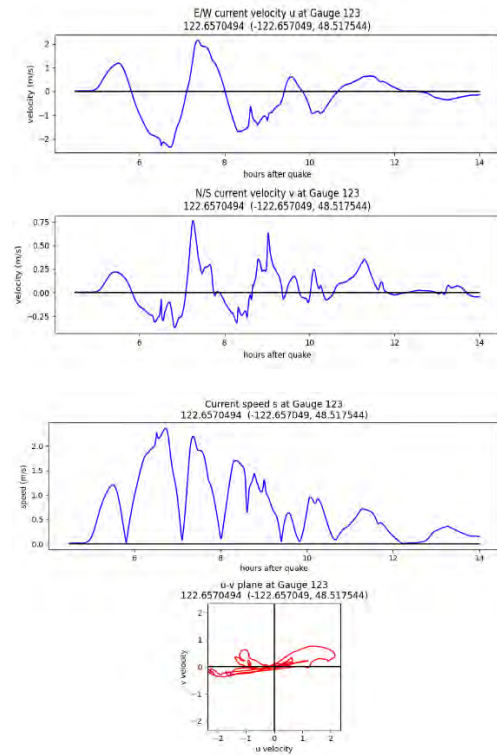
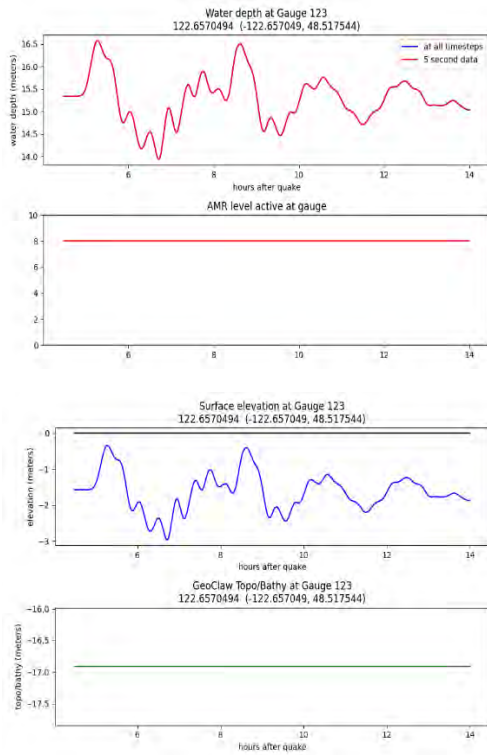
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

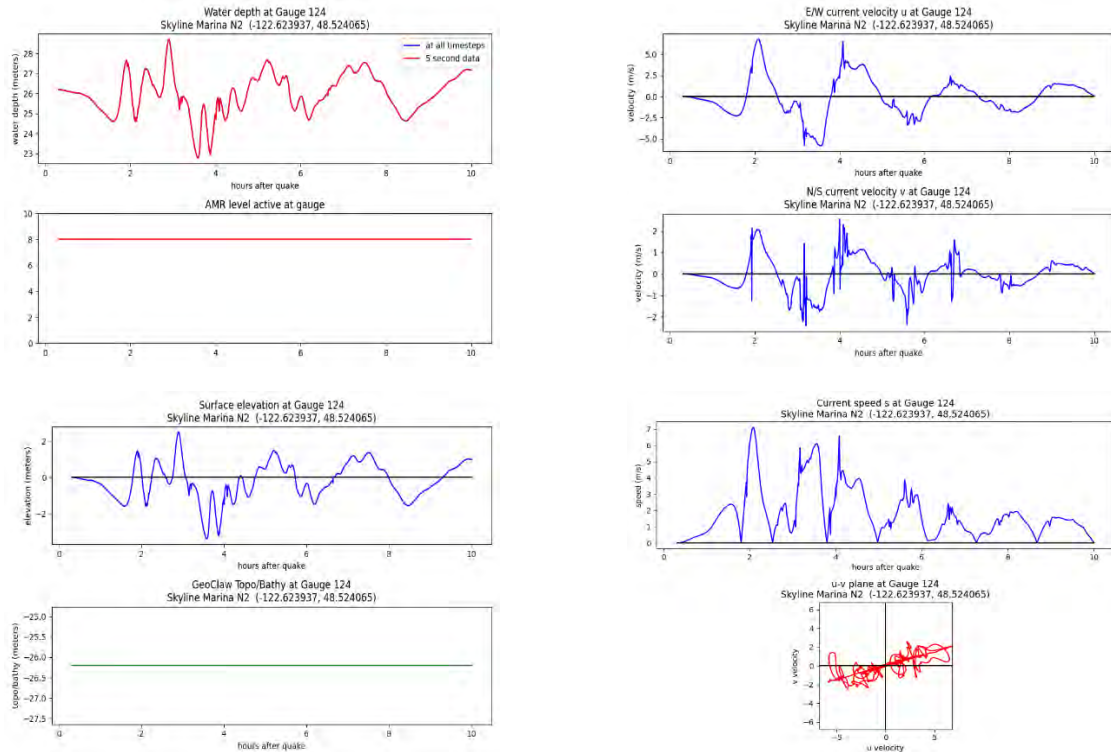


Alaska-Aleutian subduction zone scenario, MLW:

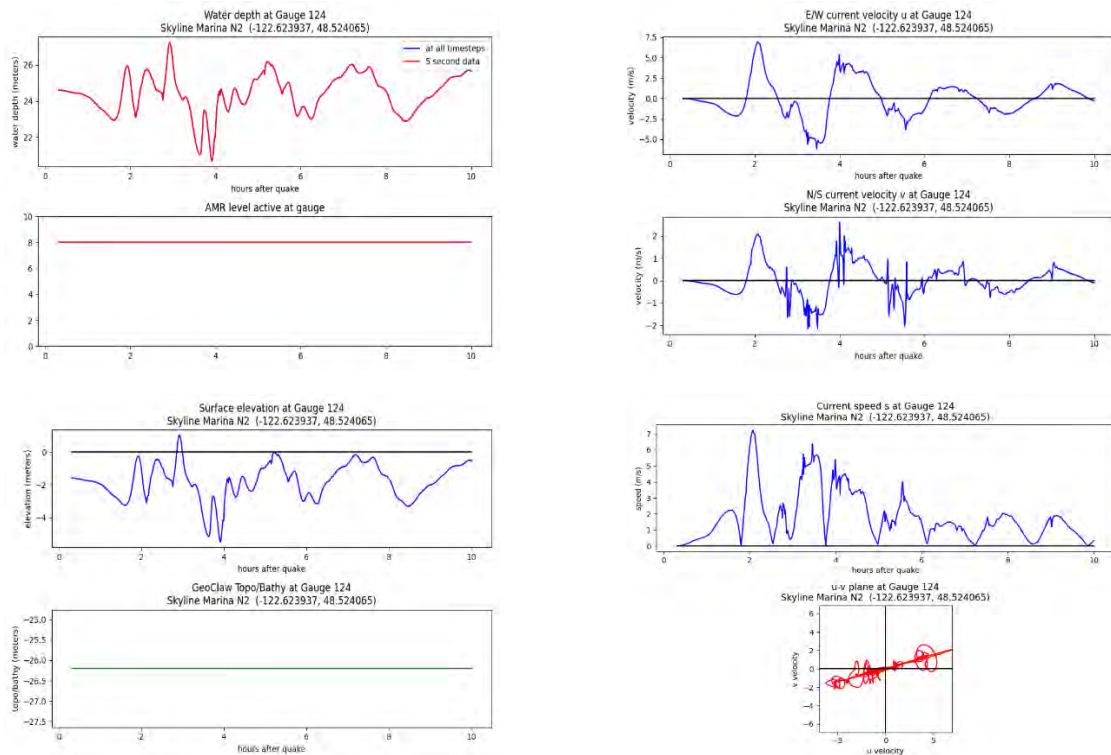


Gauge 124: Guemes Channel 2

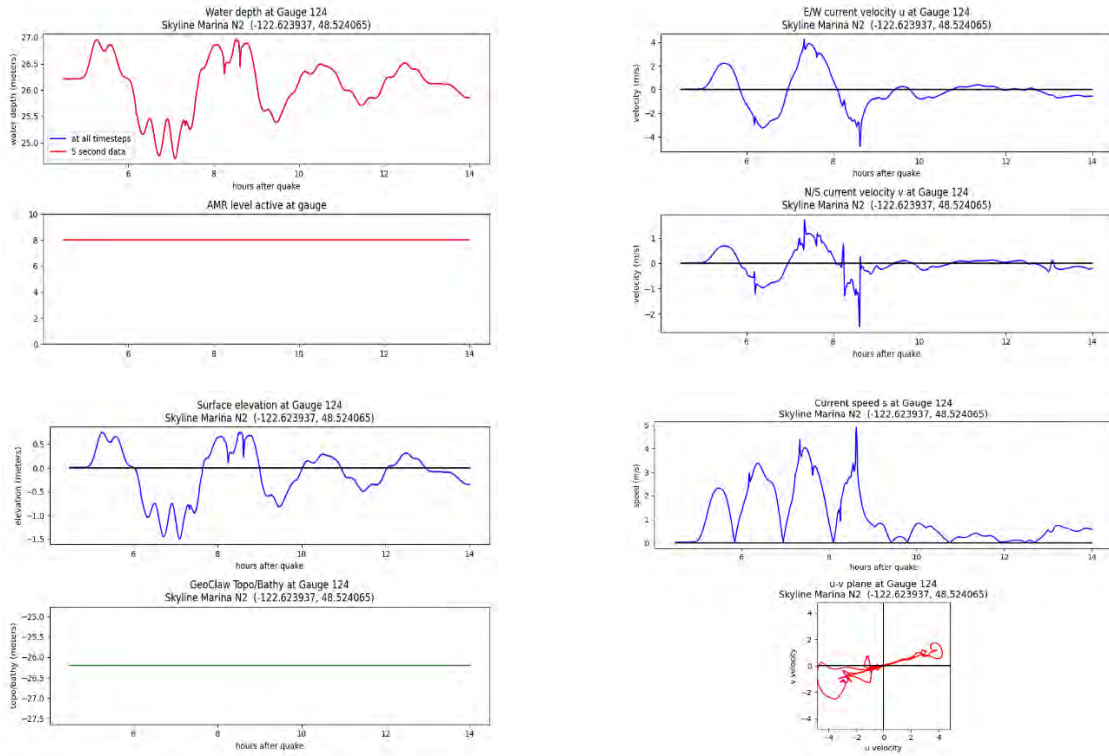
Cascadia subduction zone scenario, MHW:



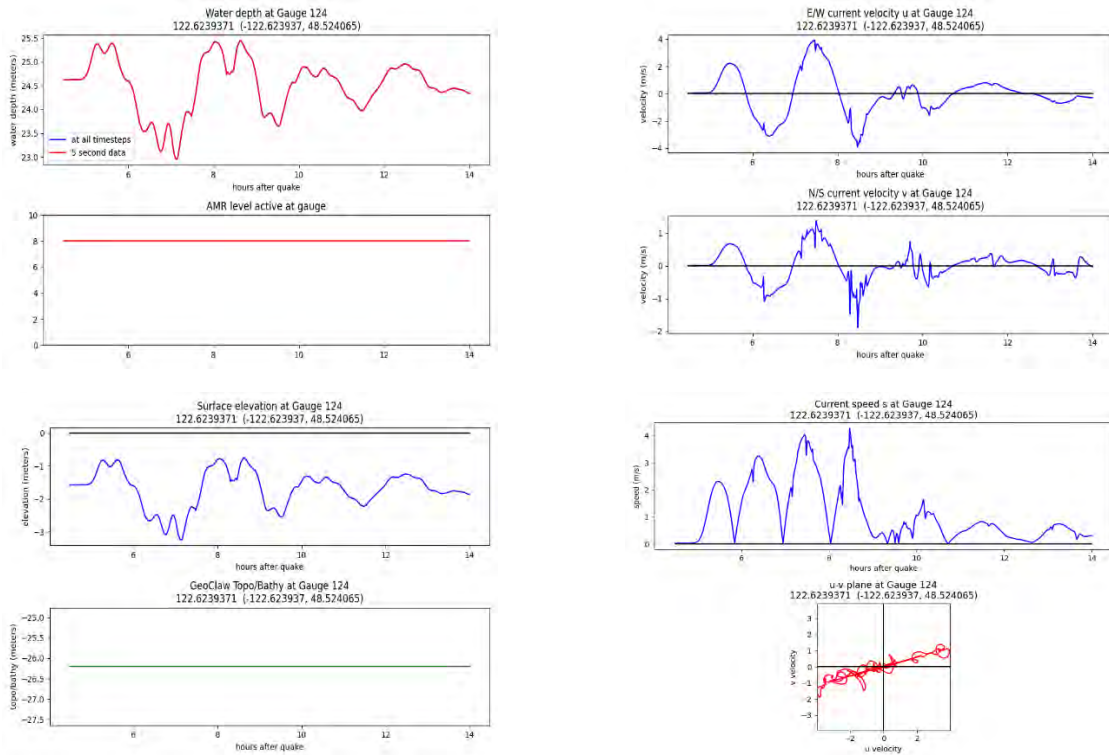
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

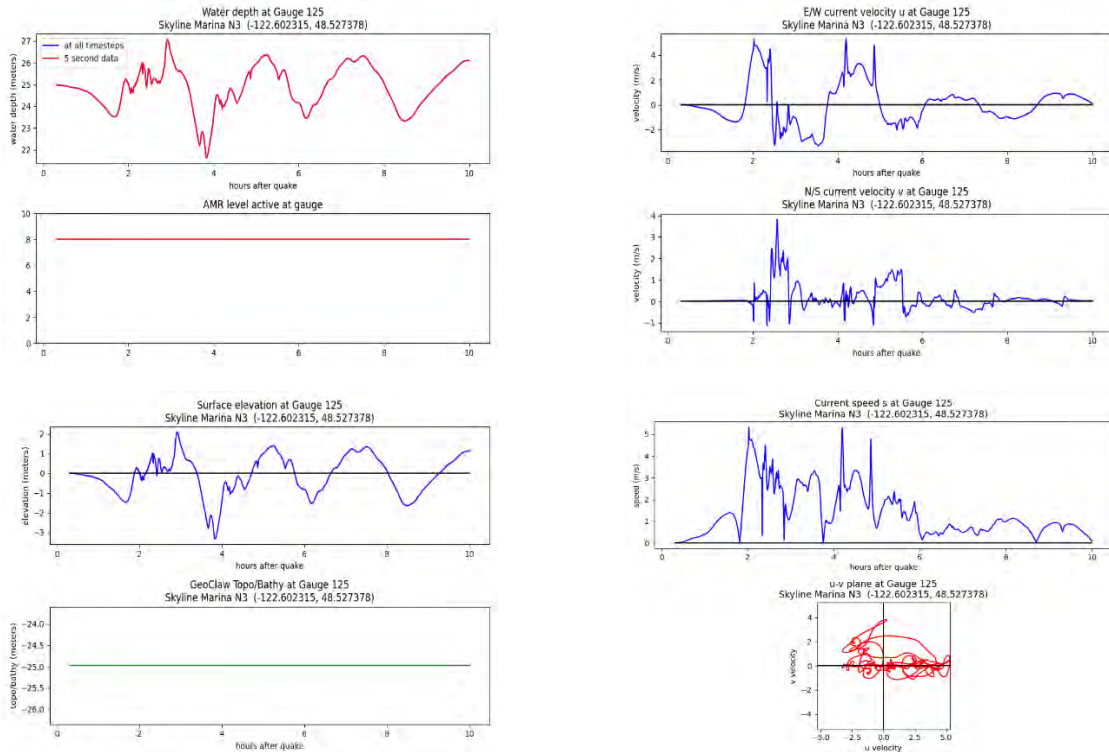


Alaska-Aleutian subduction zone scenario, MLW:

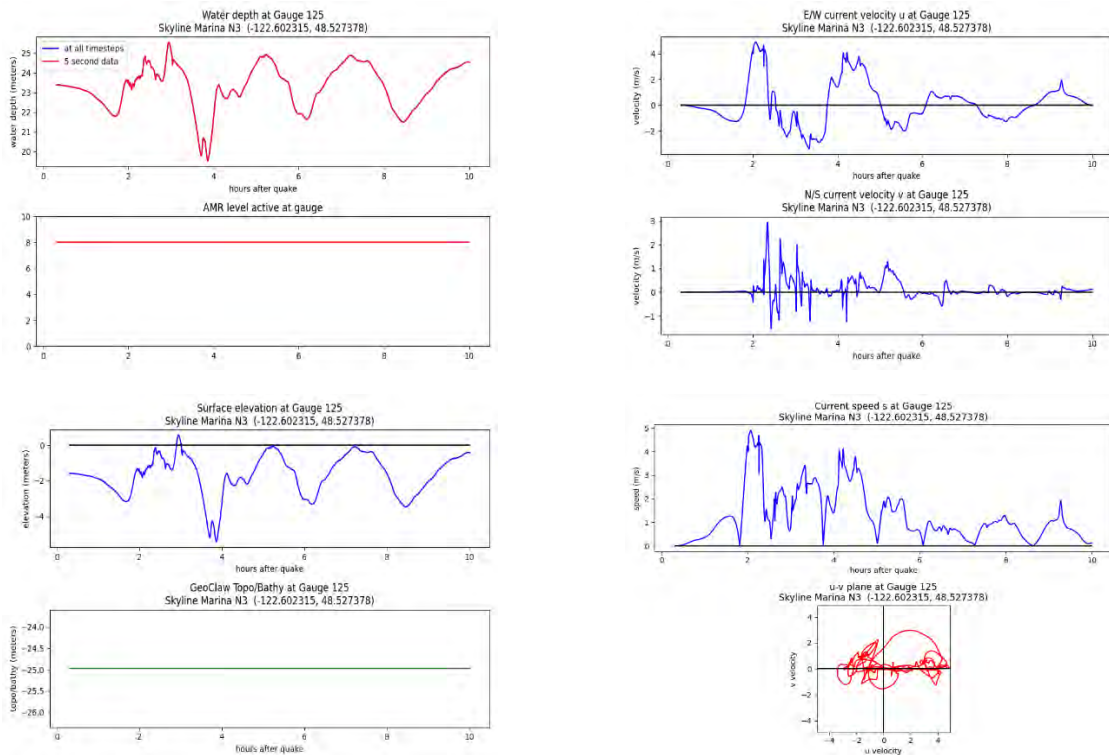


Gauge 125: Guemes Channel 3

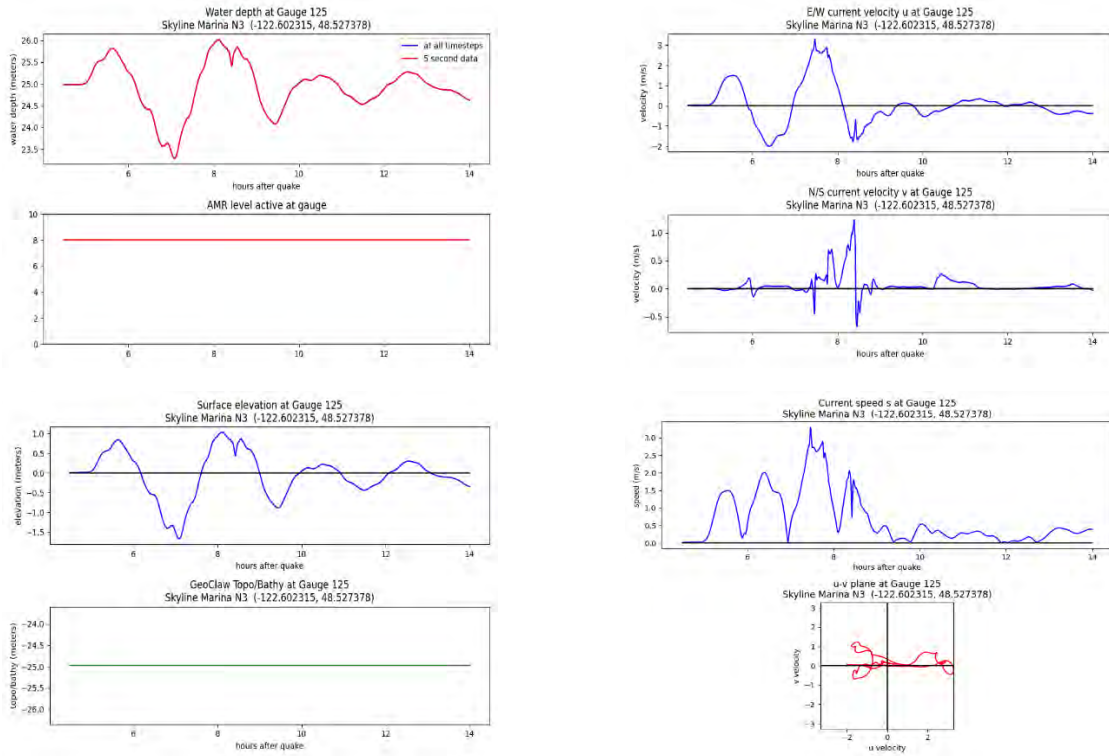
Cascadia subduction zone scenario, MHW:



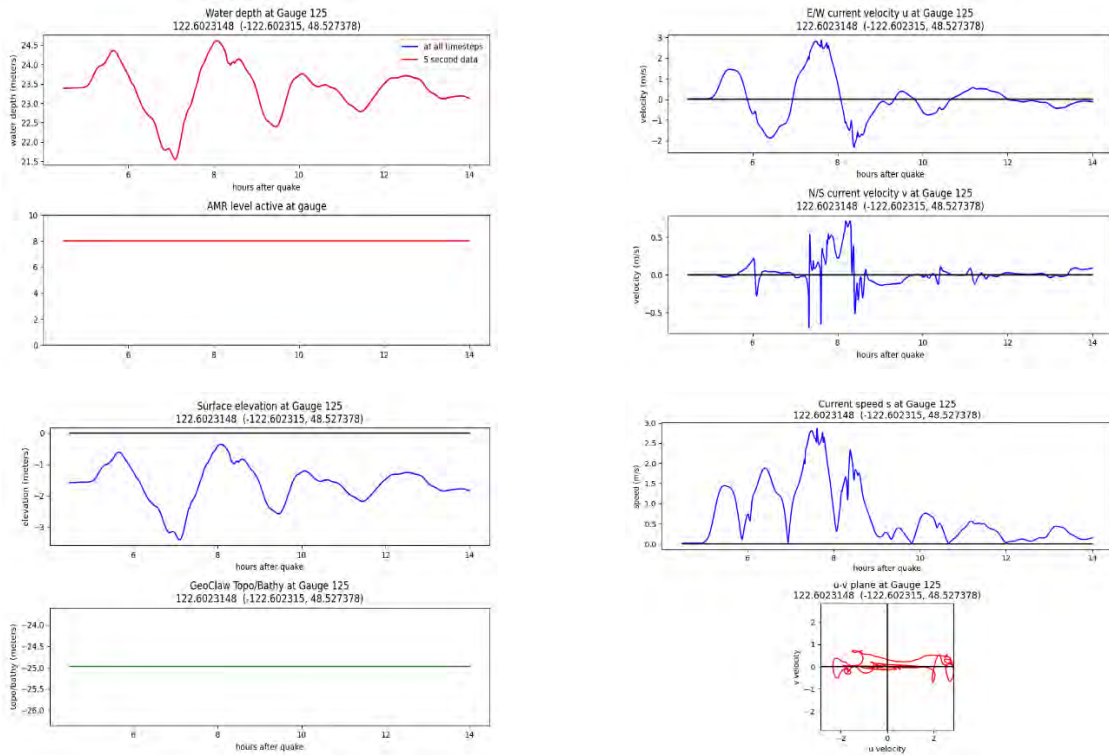
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

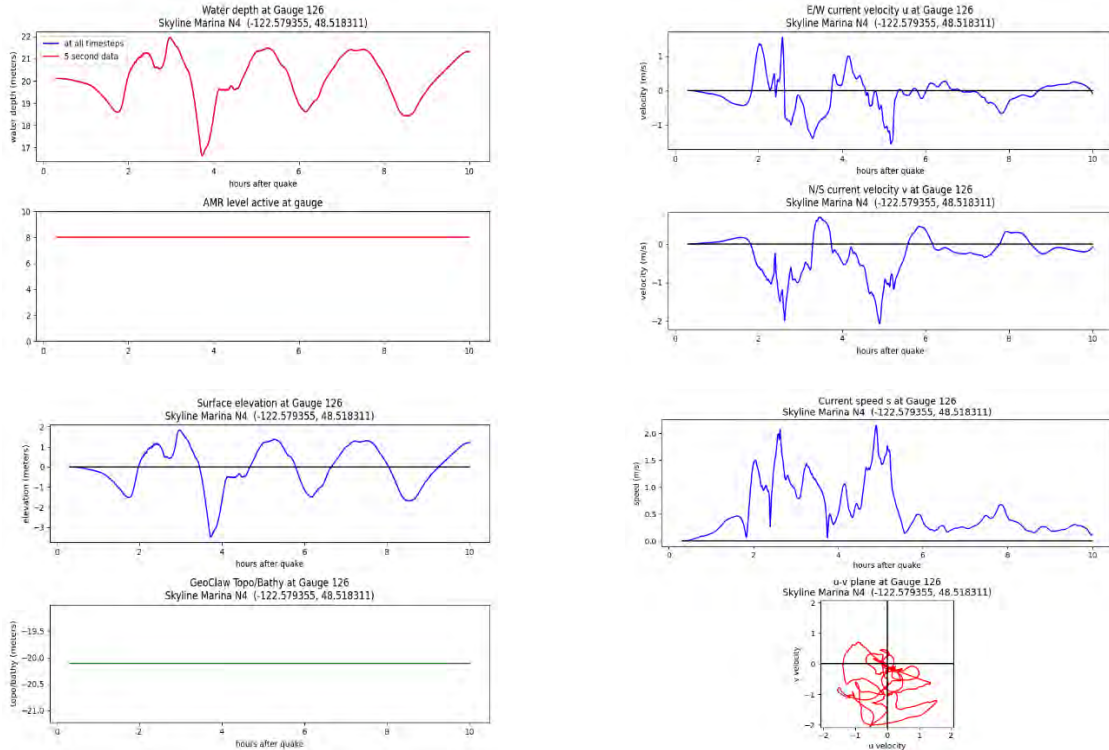


Alaska-Aleutian subduction zone scenario, MLW:

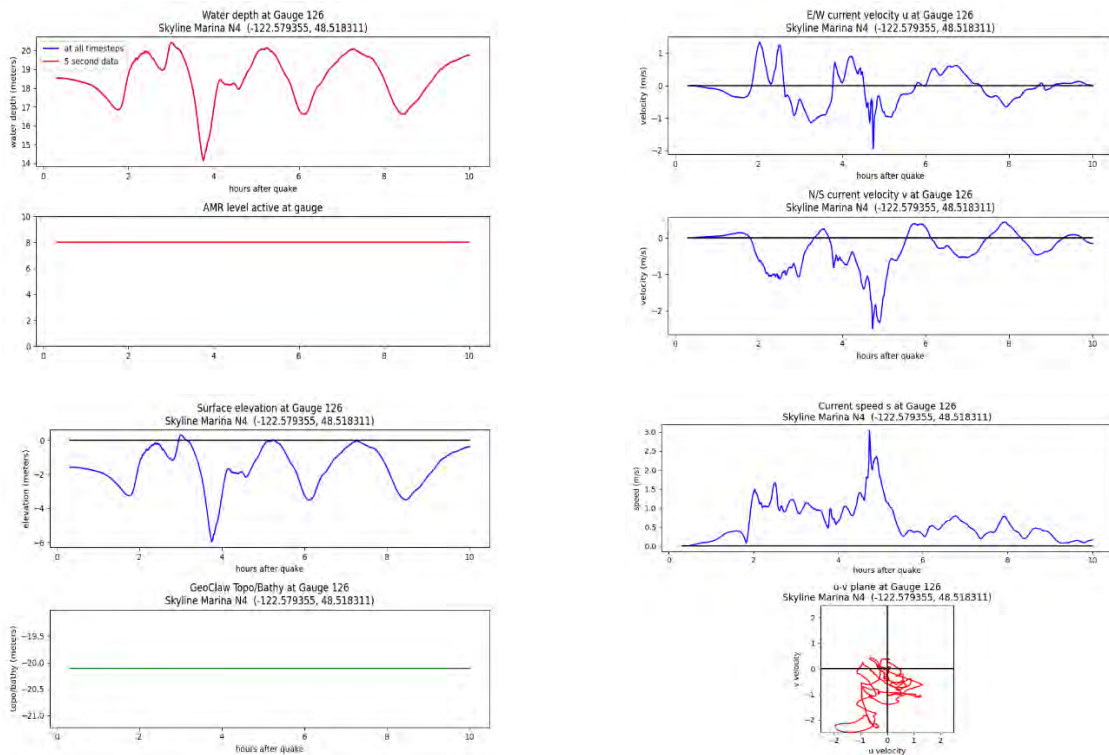


Gauge 126: Guemes Channel 4

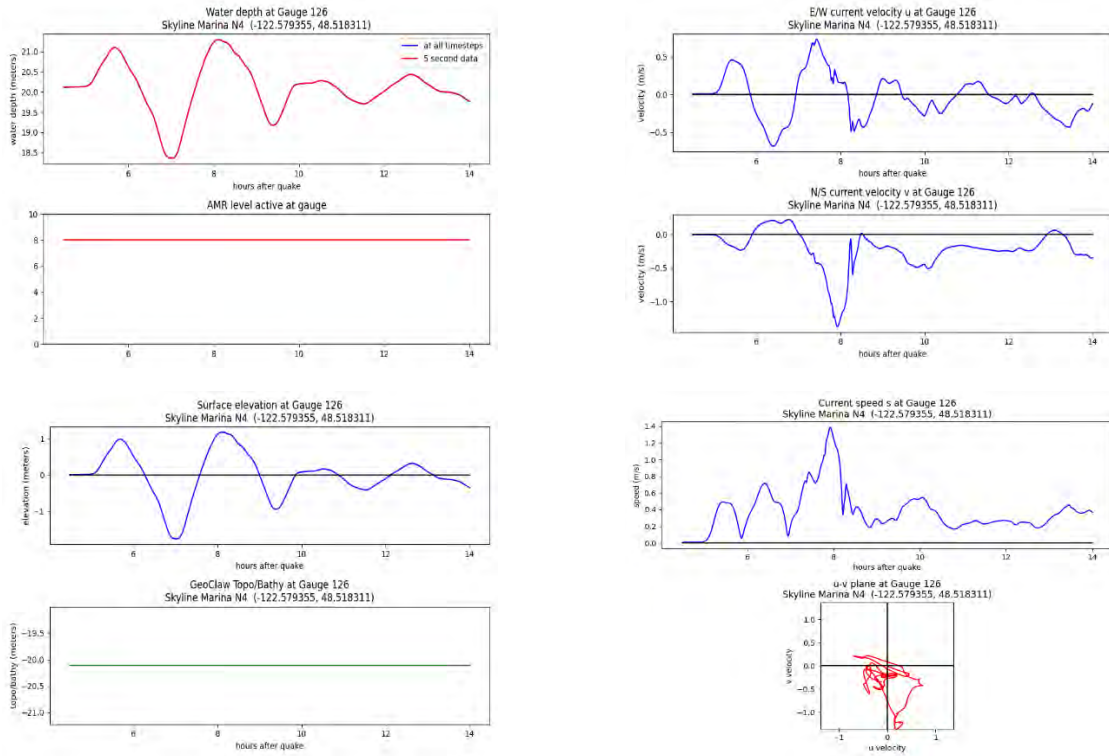
Cascadia subduction zone scenario, MHW:



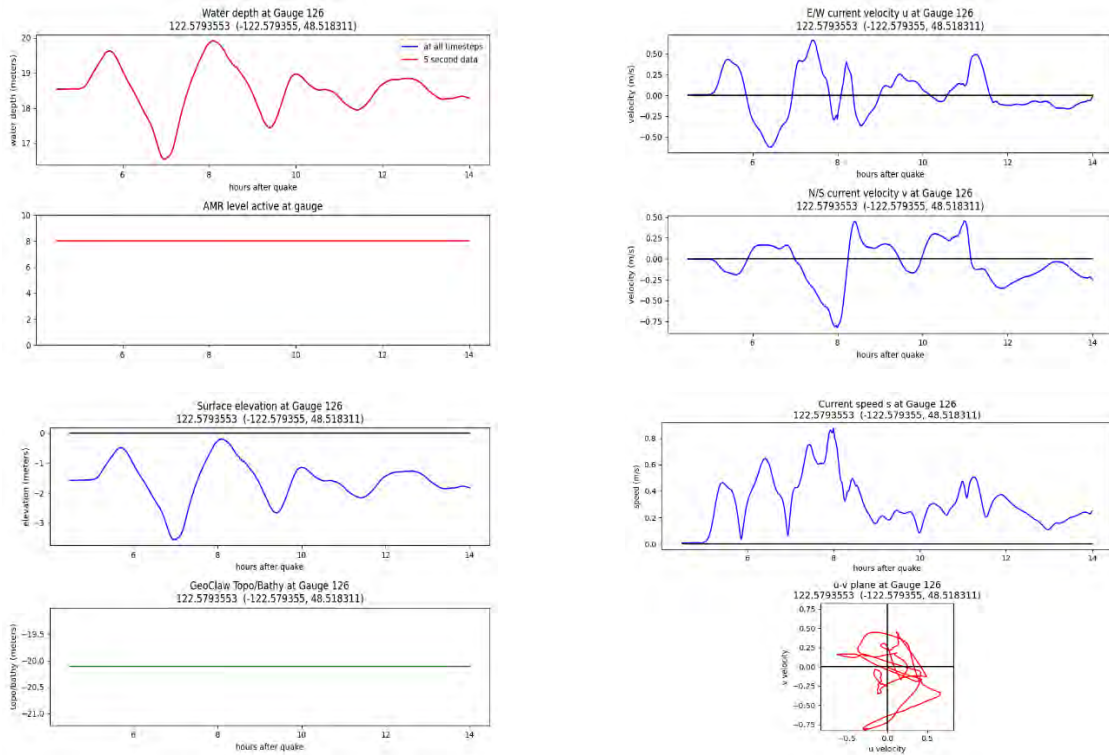
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

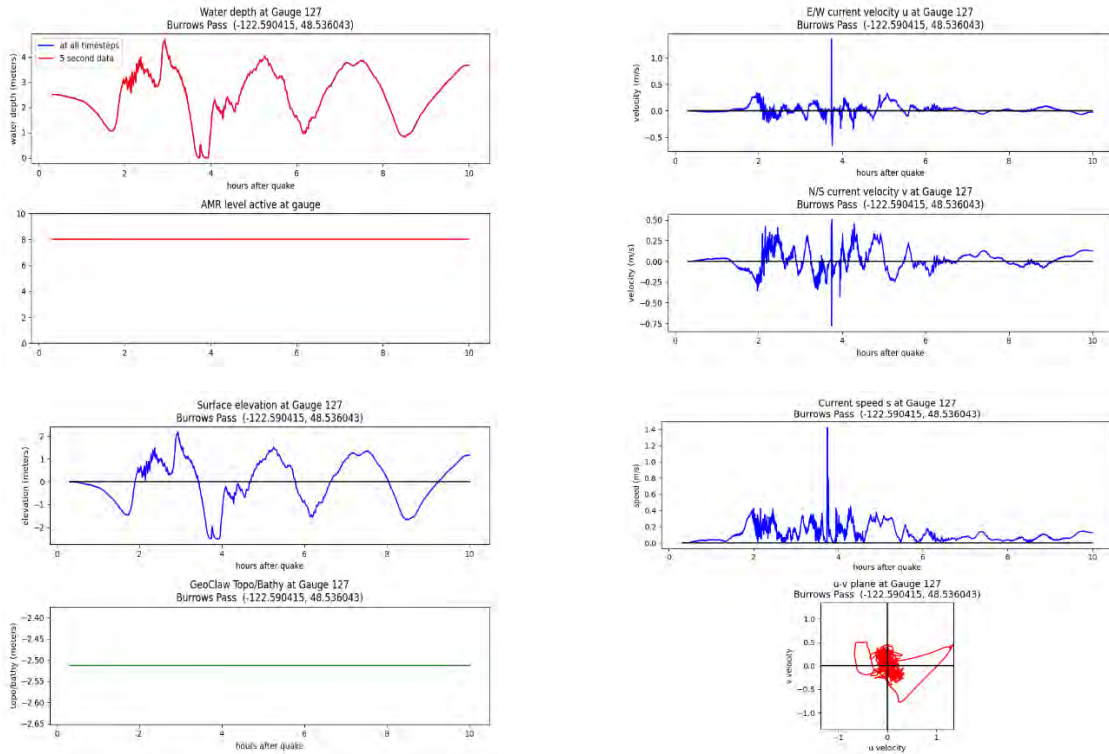


Alaska-Aleutian subduction zone scenario, MLW:

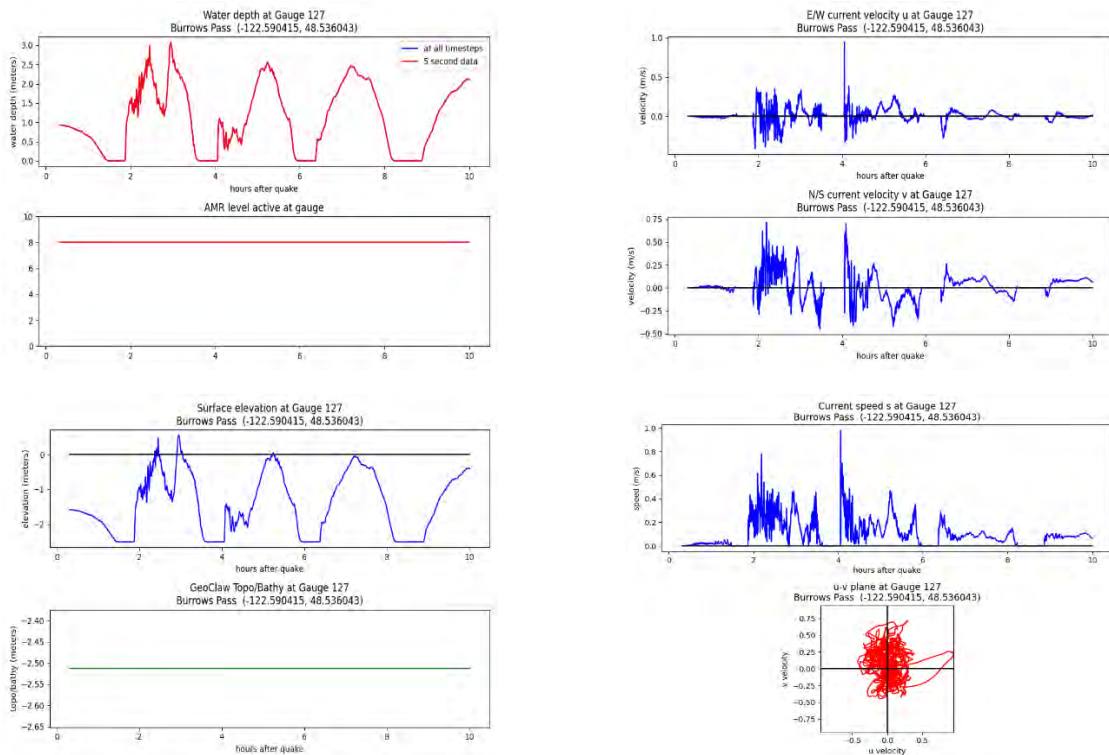


Gauge 127: Deadman Bay

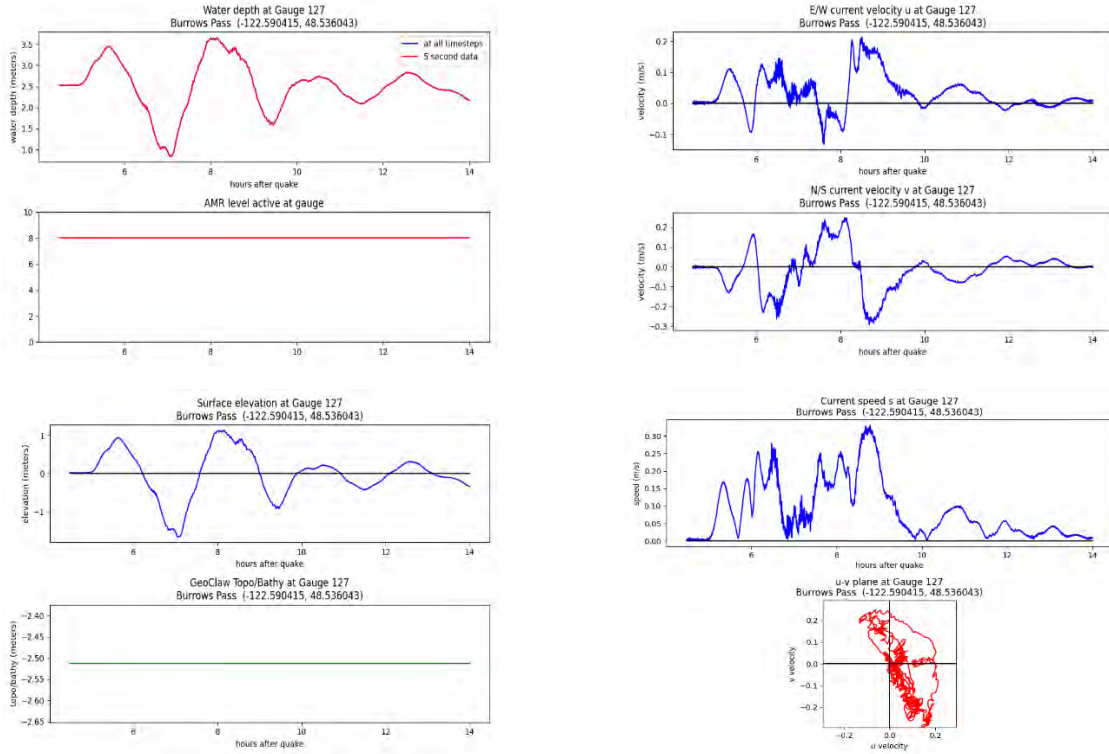
Cascadia subduction zone scenario, MHW:



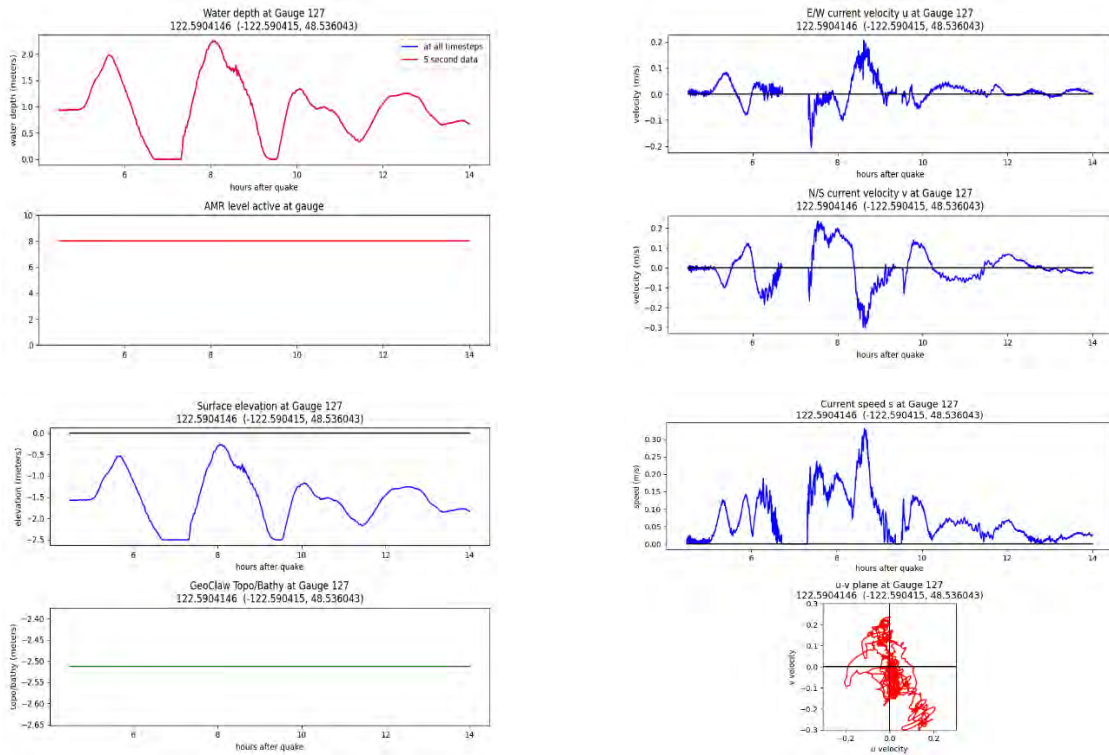
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

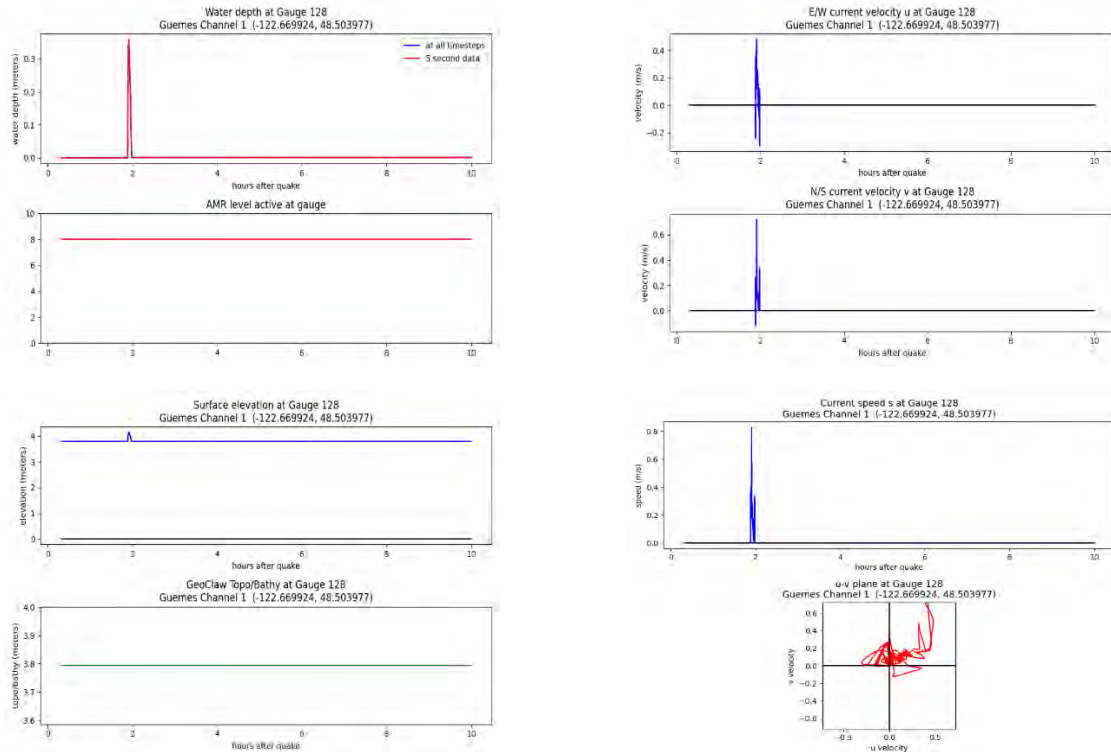


Alaska-Aleutian subduction zone scenario, MLW:

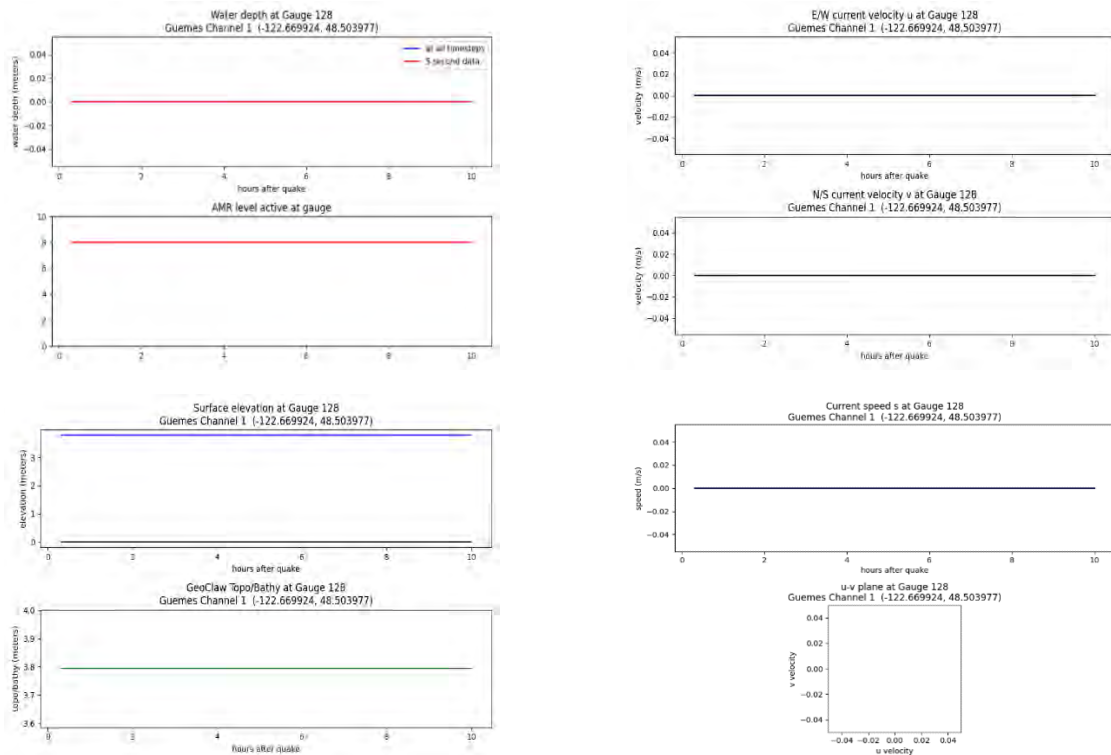


Gauge 128: Guemes Channel Trail 1 (onshore)

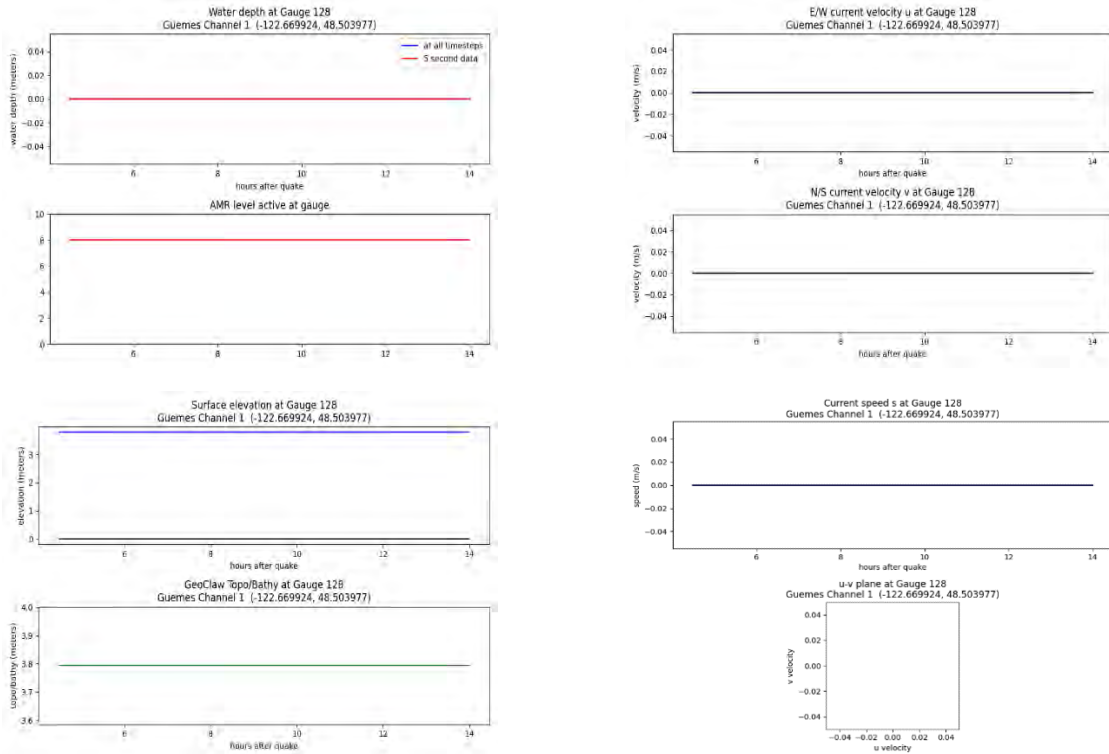
Cascadia subduction zone scenario, MHW:



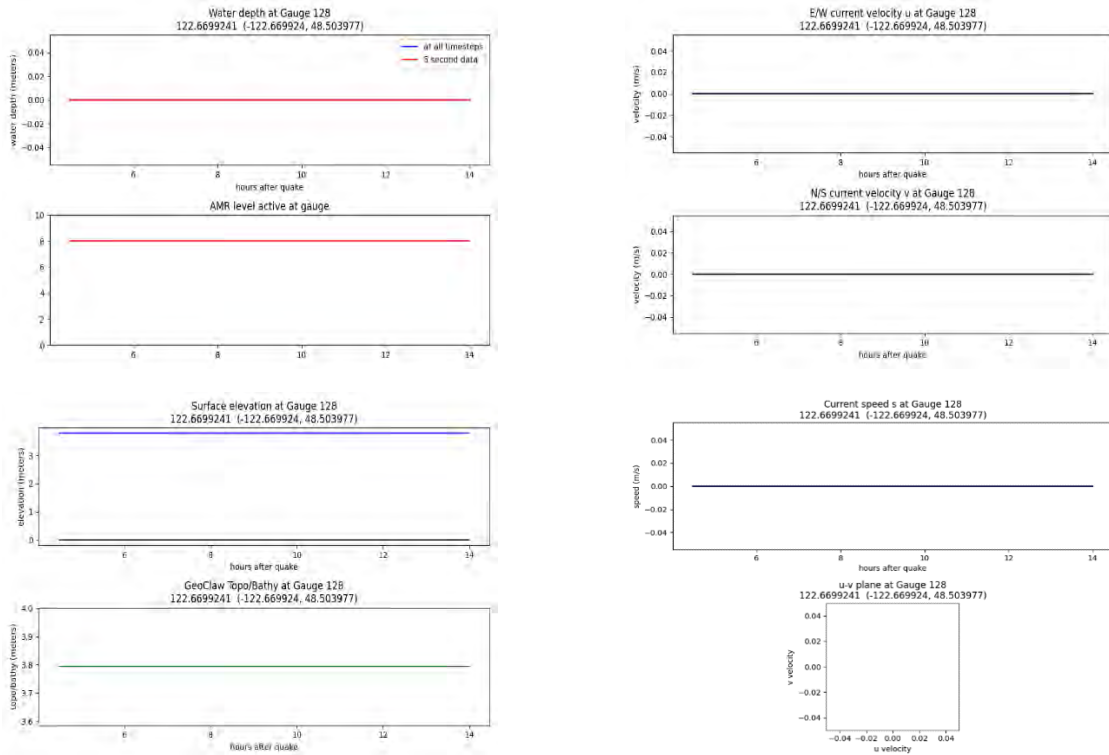
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

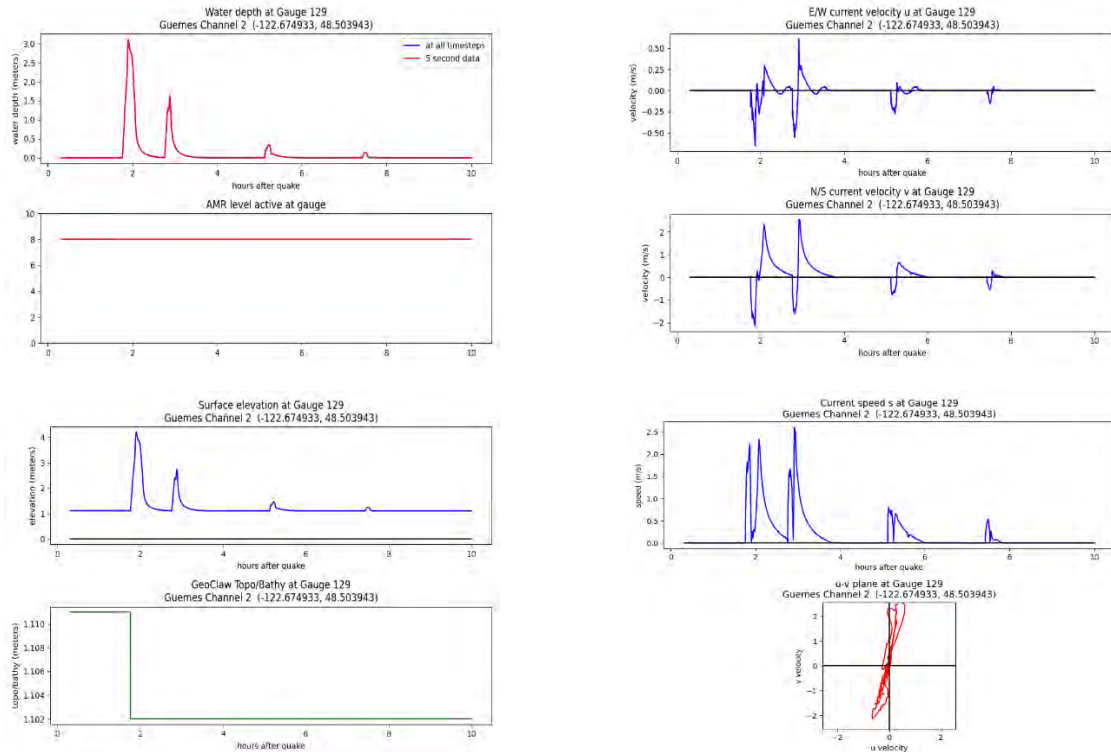


Alaska-Aleutian subduction zone scenario, MLW:

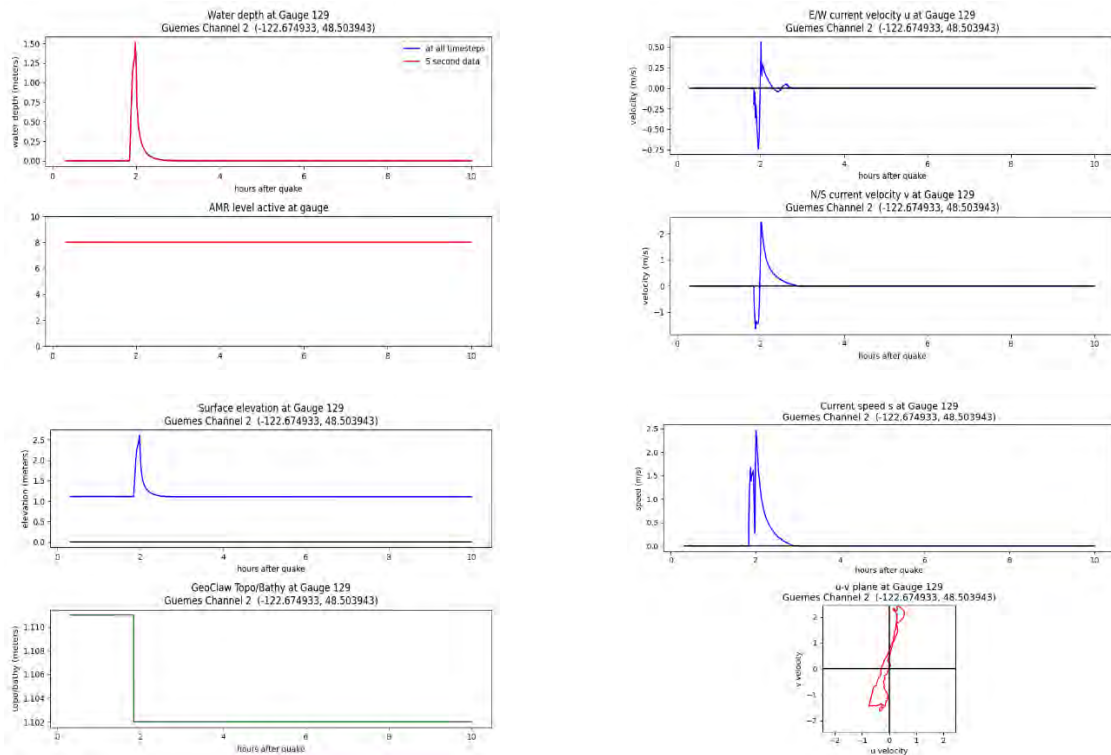


Gauge 129: Guemes Channel Trail 2 (onshore)

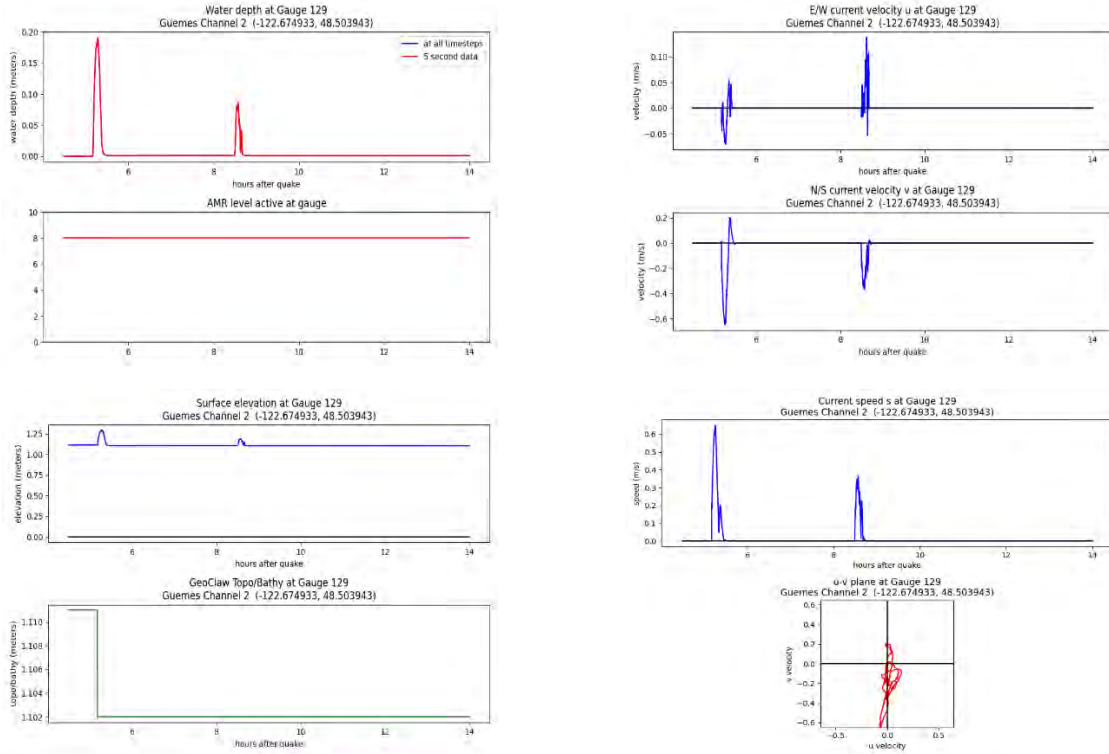
Cascadia subduction zone scenario, MHW:



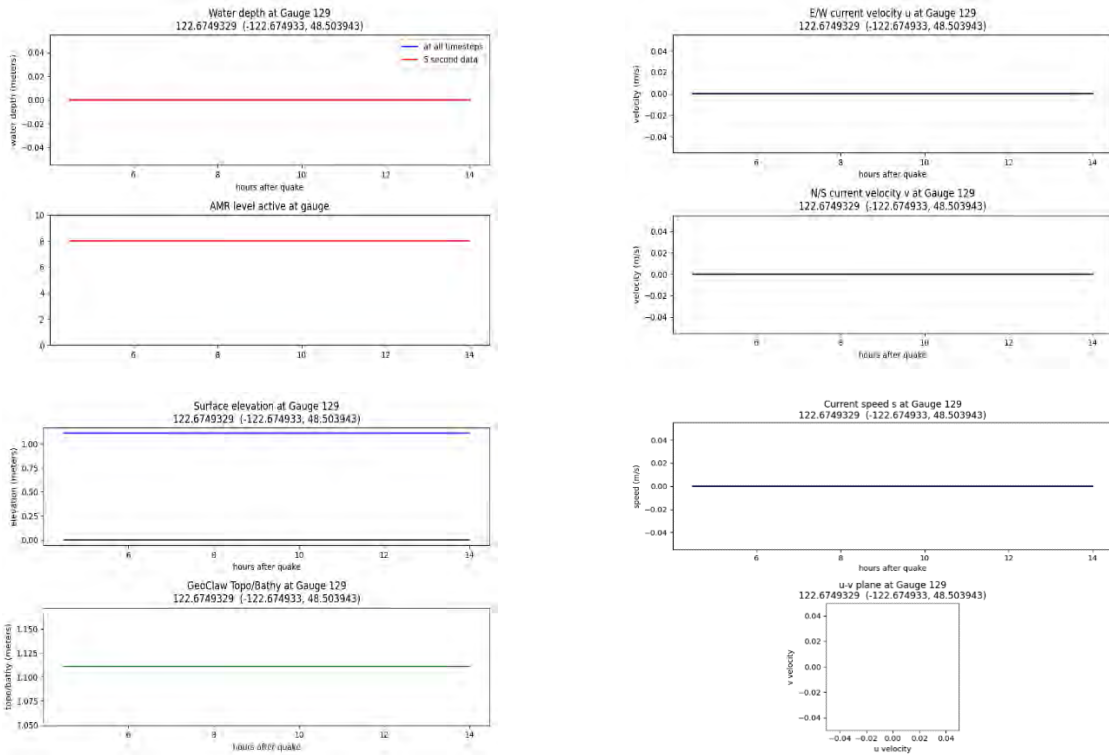
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

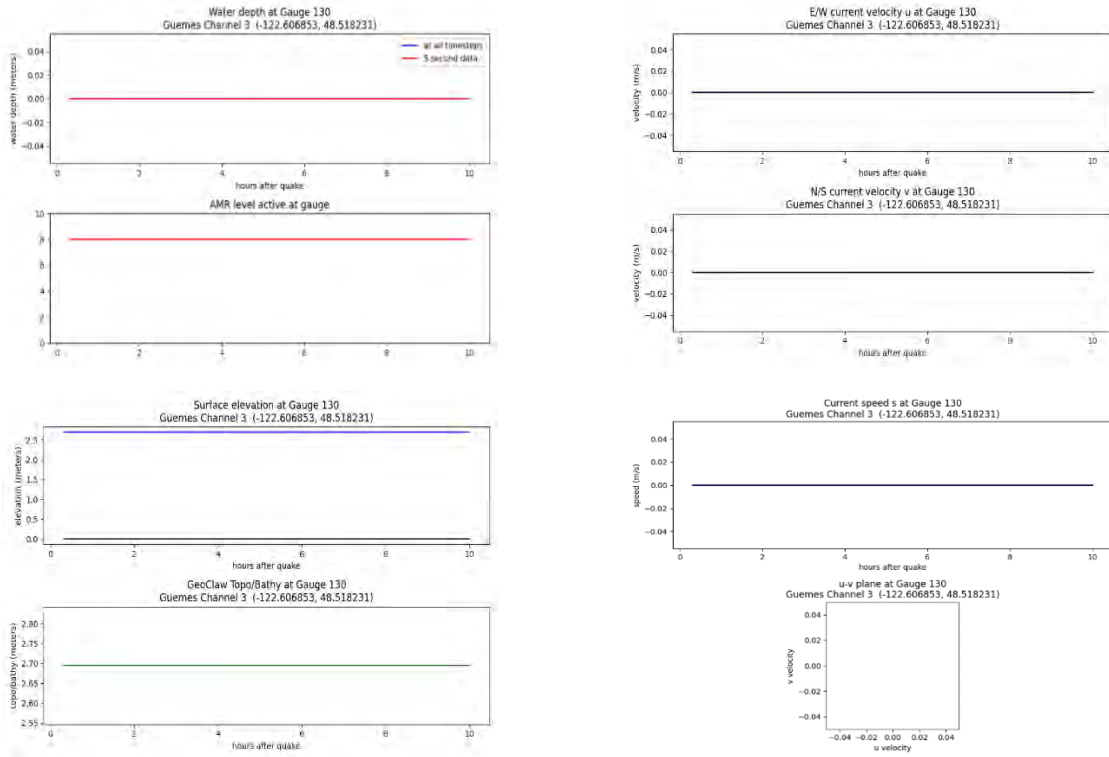


Alaska-Aleutian subduction zone scenario, MLW:

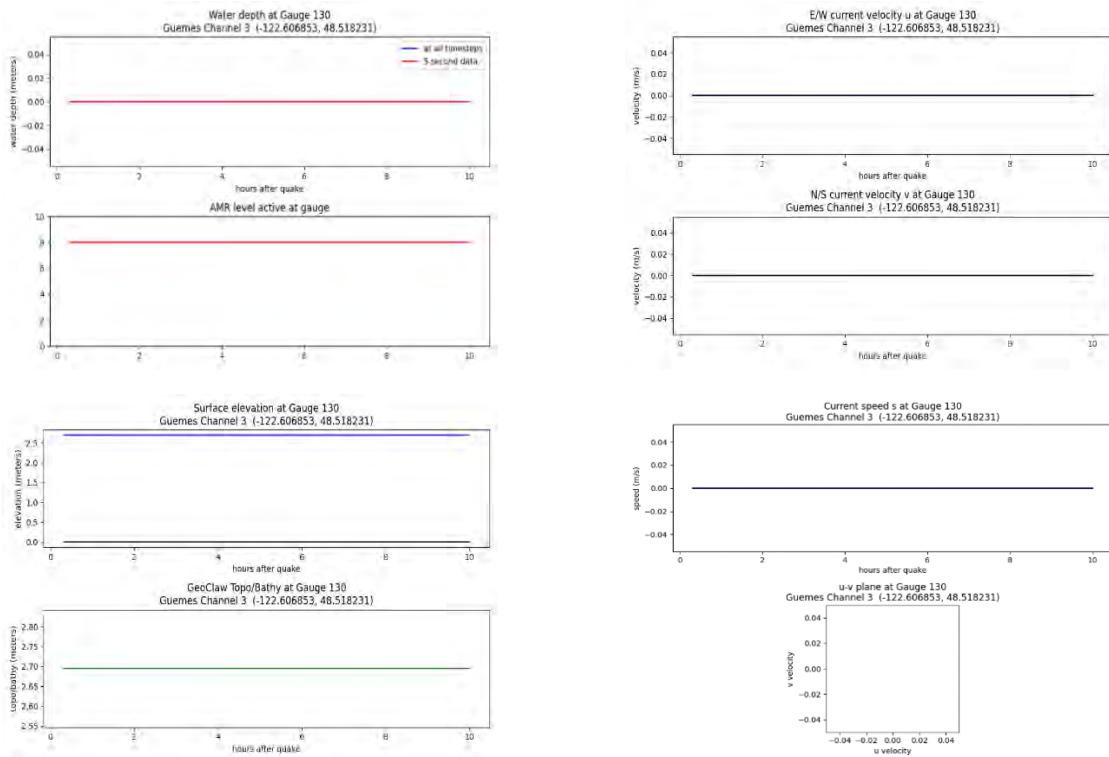


Gauge 130: Wastewater Treatment Plant (onshore)

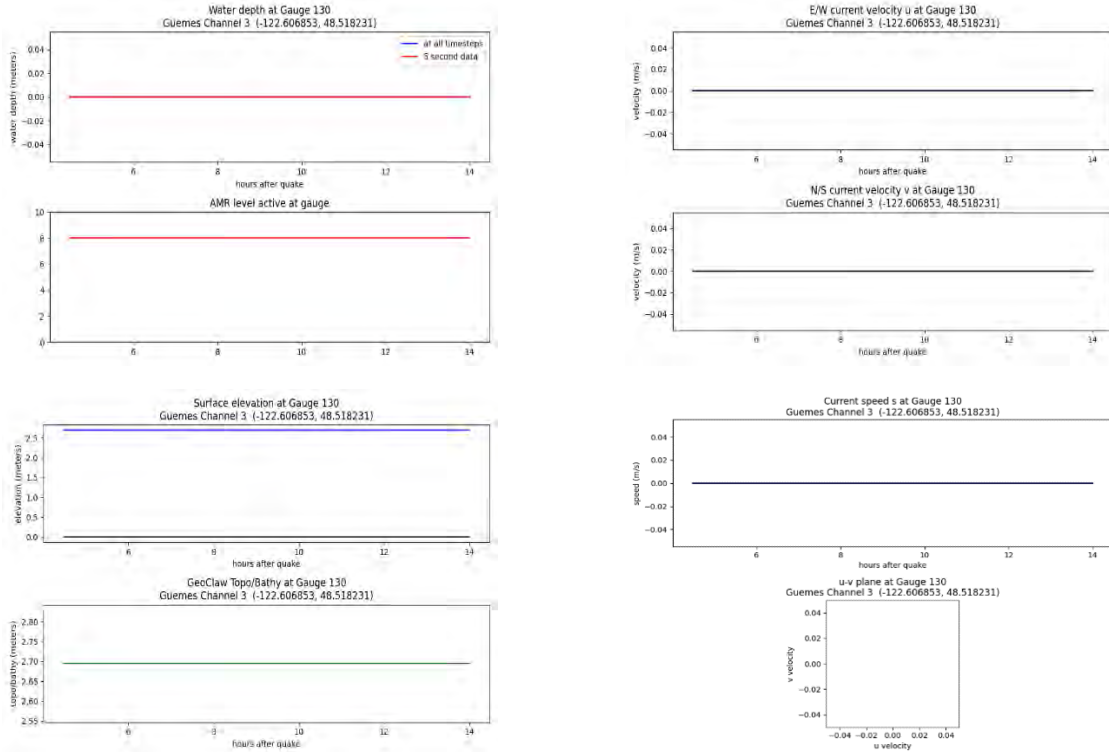
Cascadia subduction zone scenario, MHW:



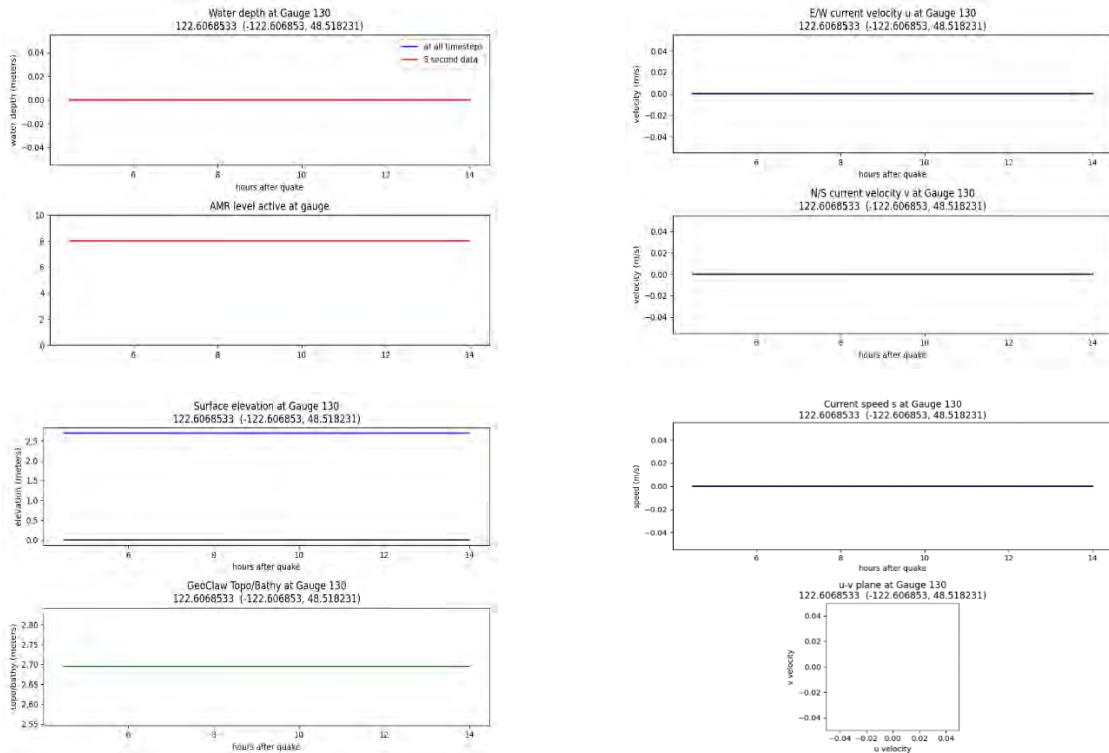
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

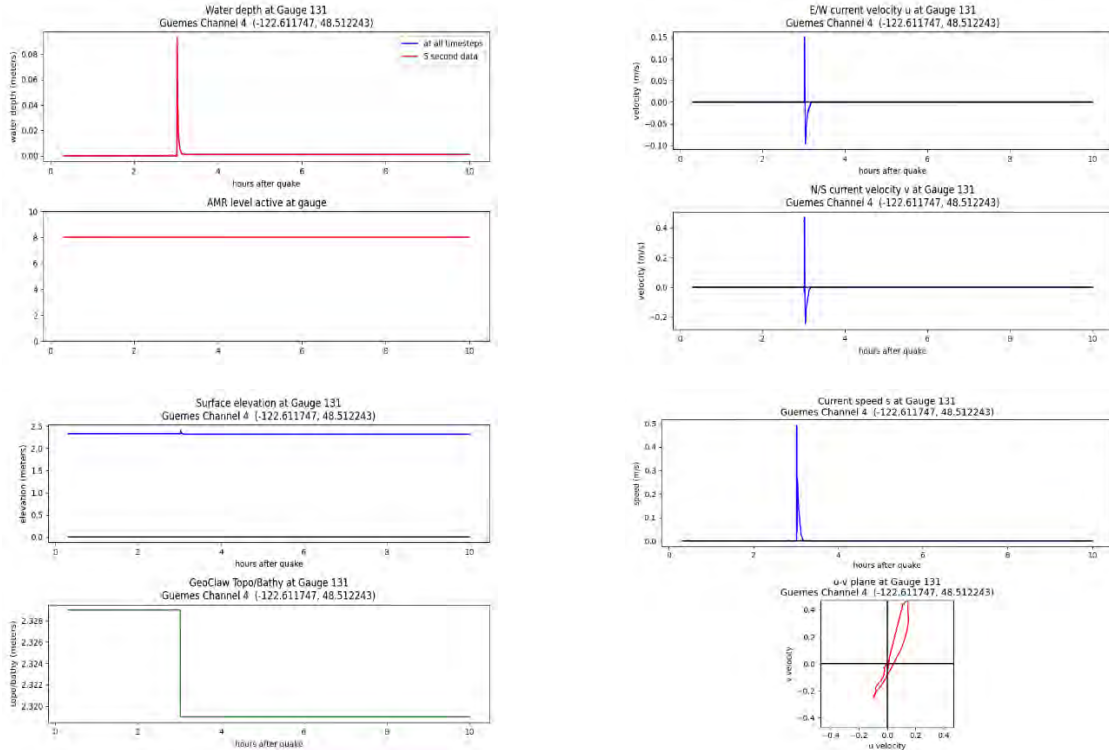


Alaska-Aleutian subduction zone scenario, MLW:

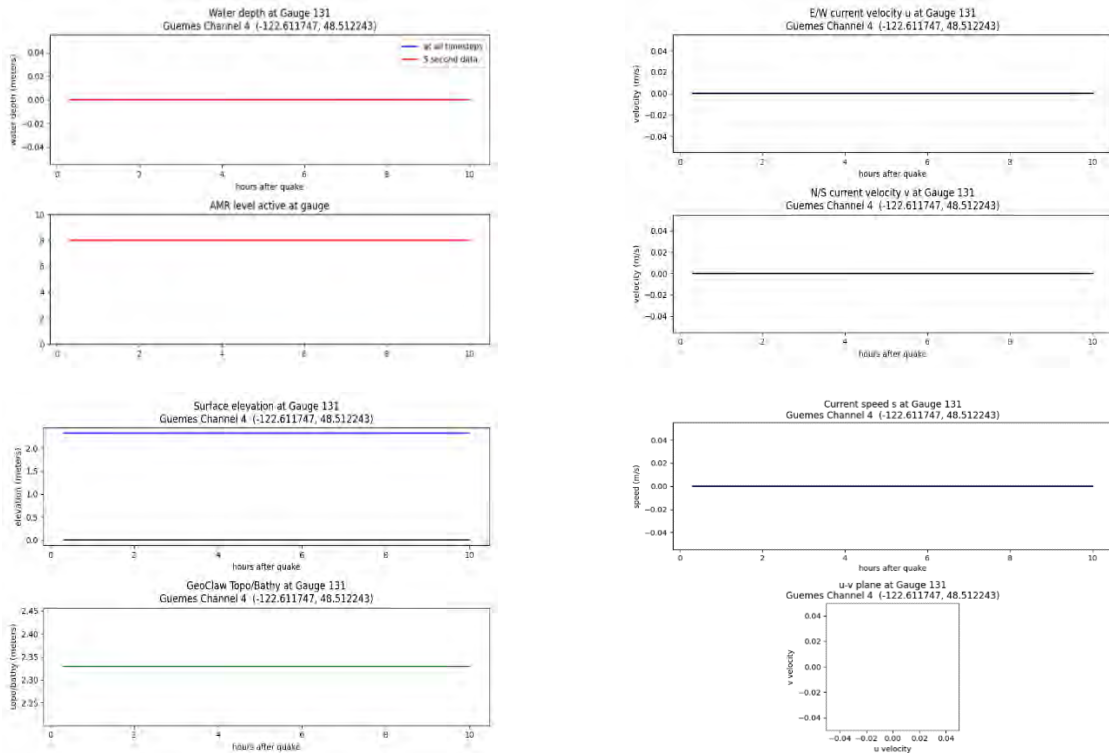


Gauge 131: Safeway (onshore)

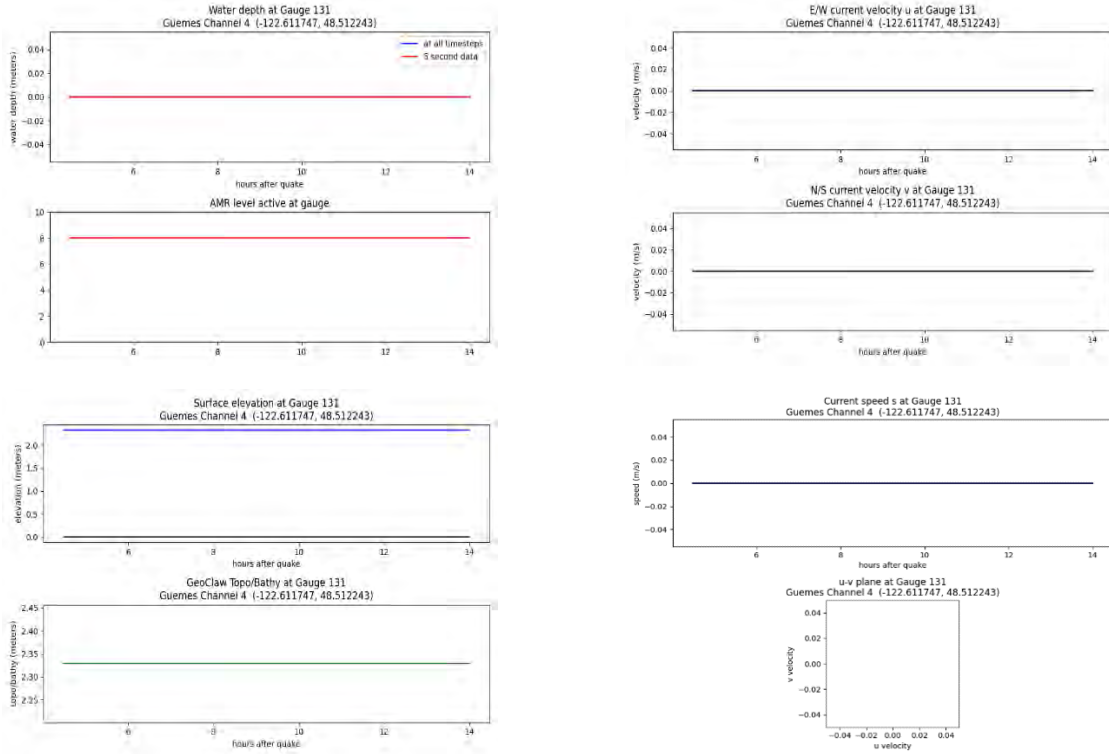
Cascadia subduction zone scenario, MHW:



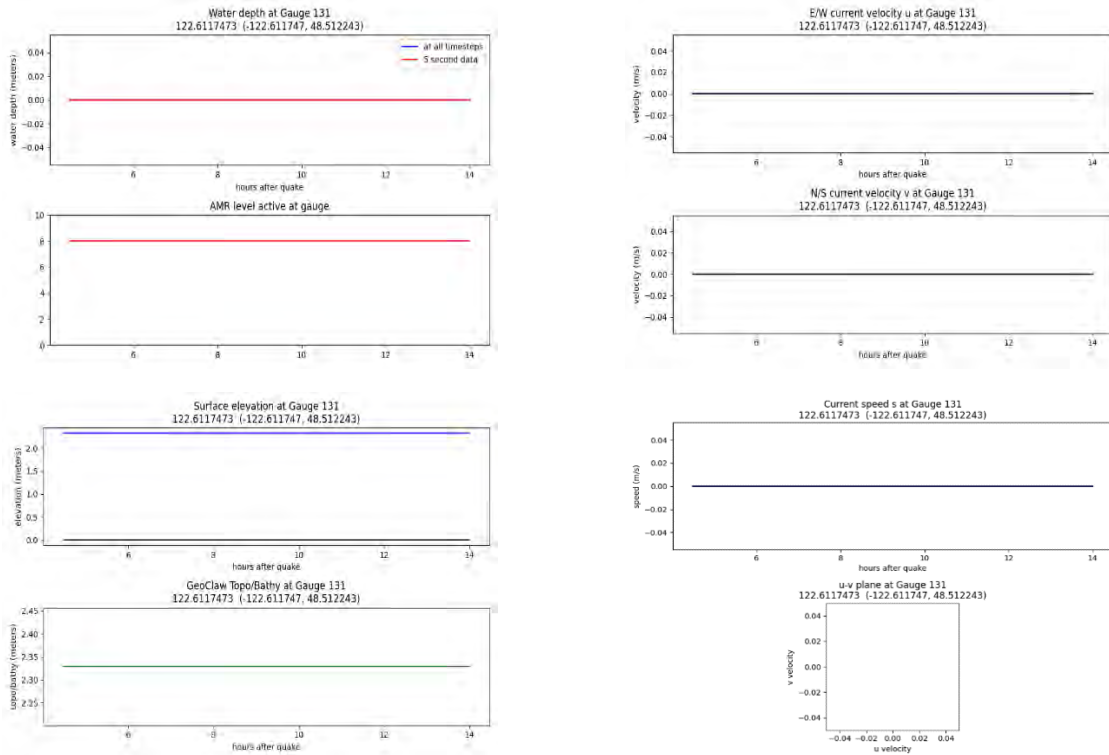
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

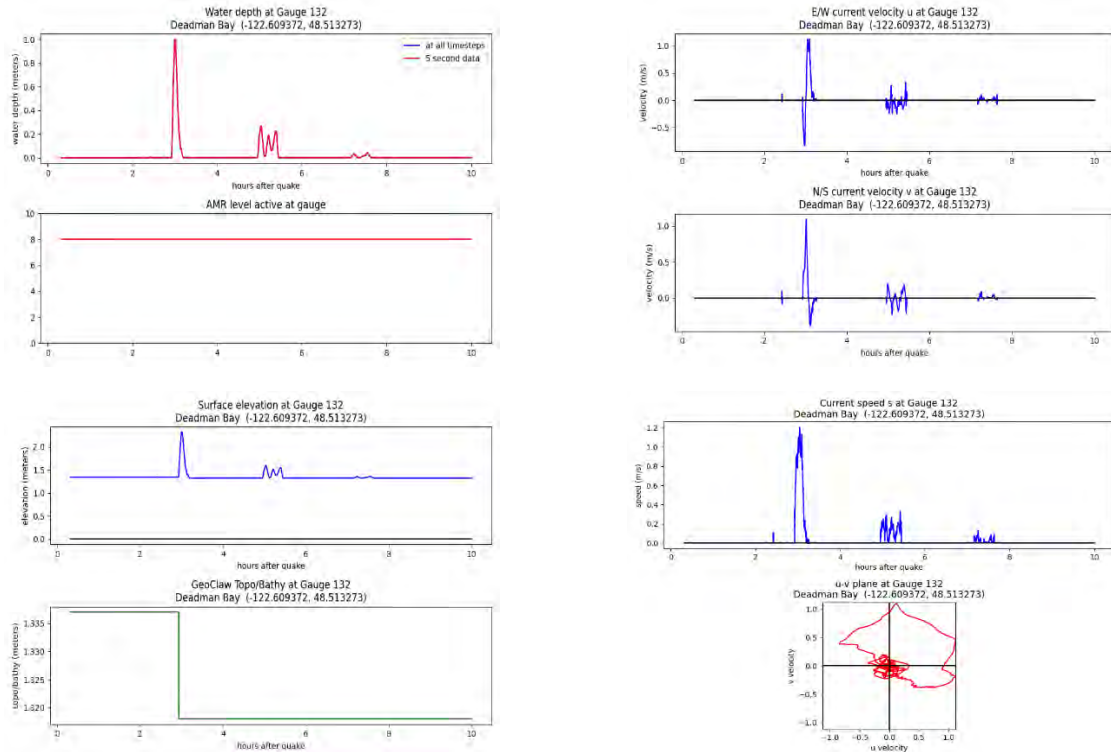


Alaska-Aleutian subduction zone scenario, MLW:

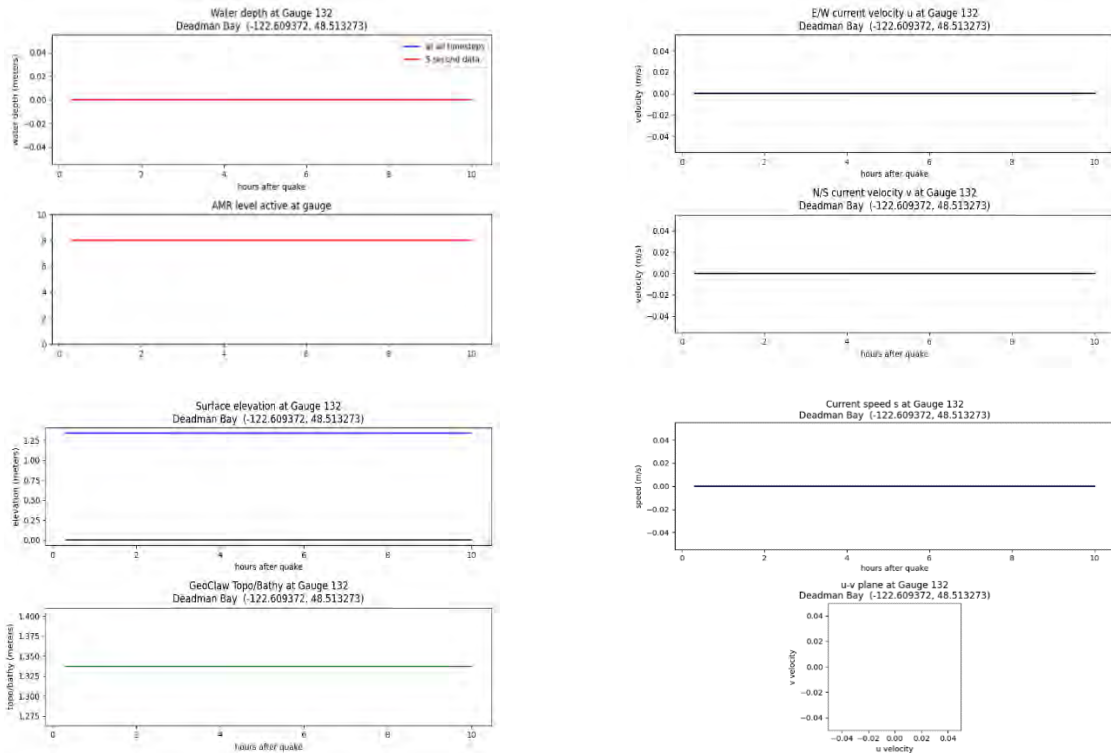


Gauge 132: Main Cap Sante dock (onshore)

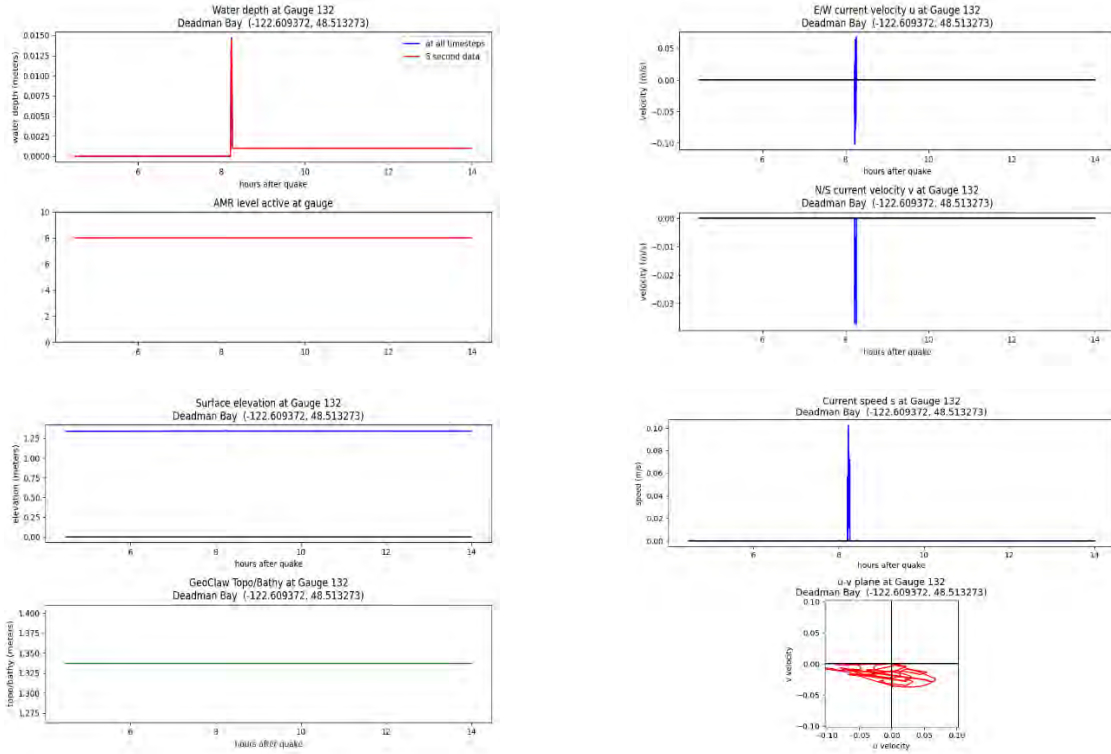
Cascadia subduction zone scenario, MHW:



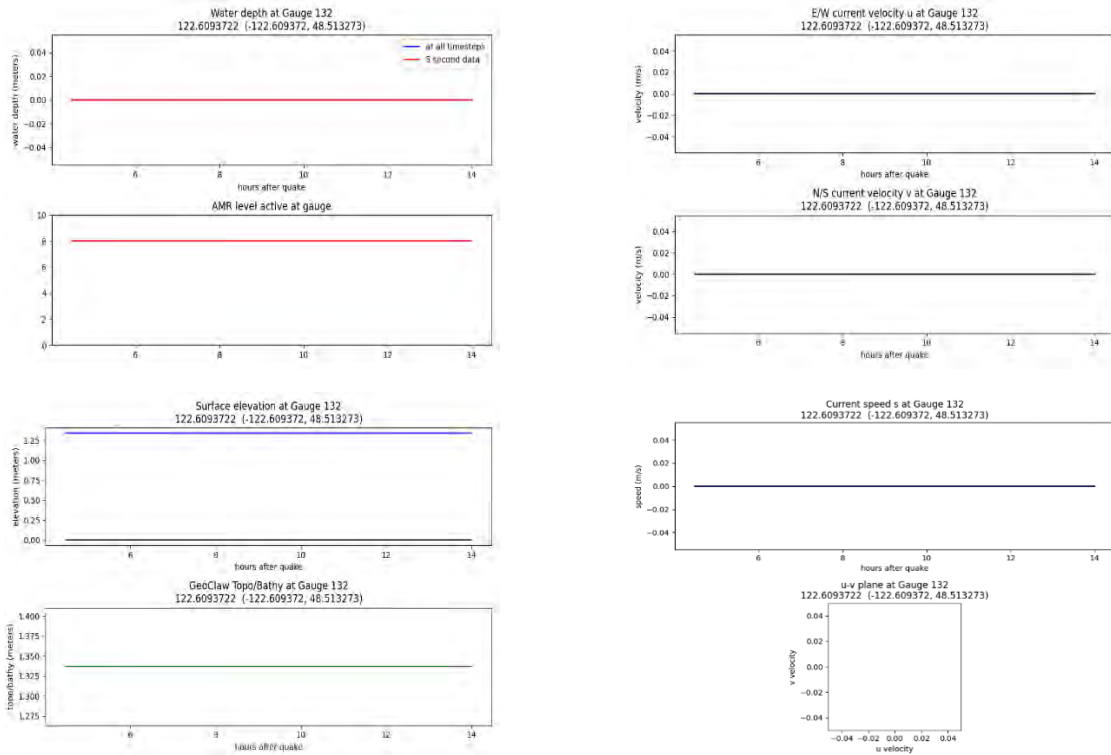
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

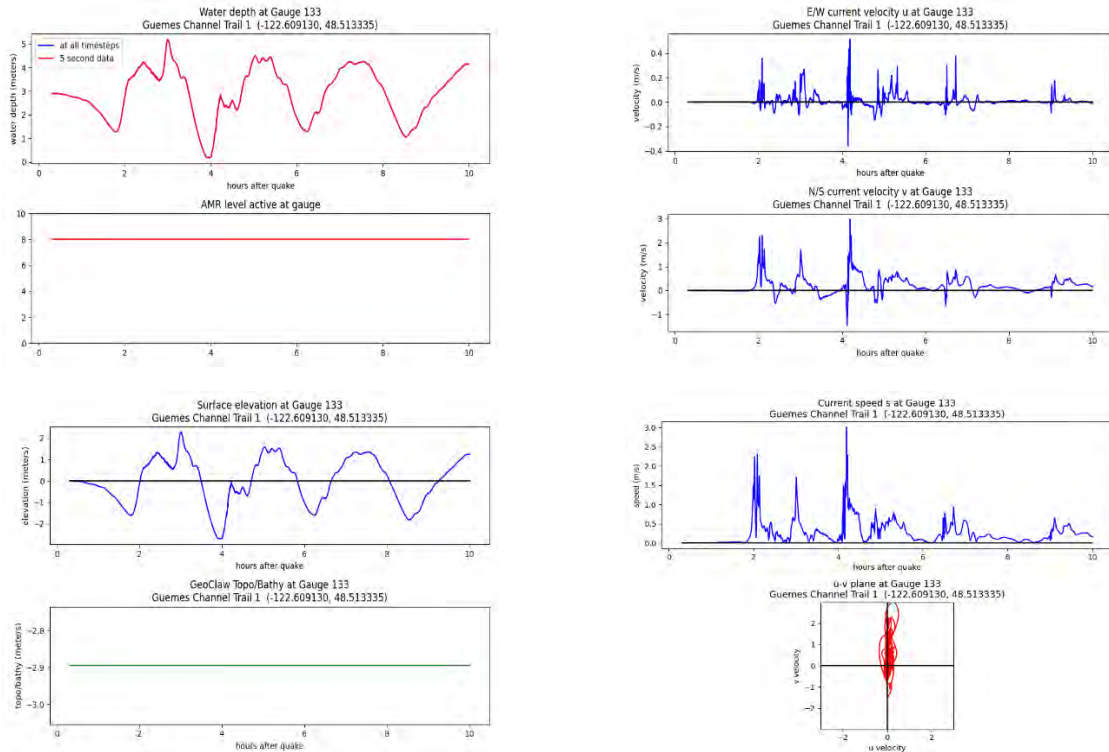


Alaska-Aleutian subduction zone scenario, MLW:

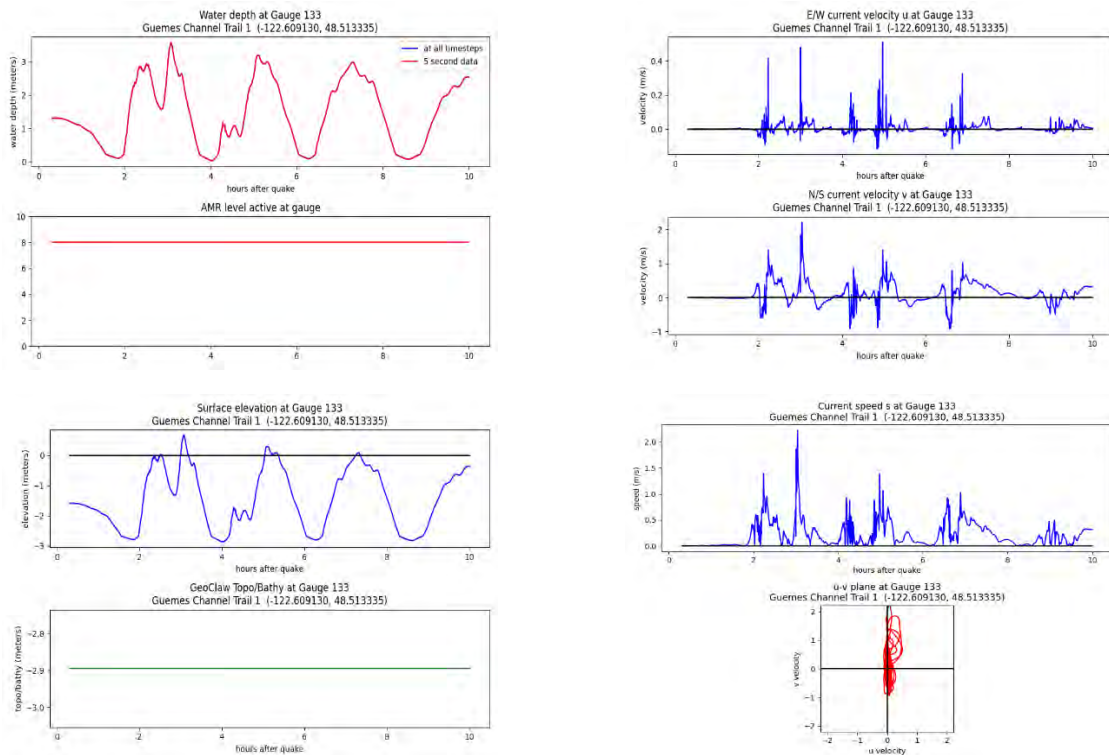


Gauge 133: Main Cap Sante dock

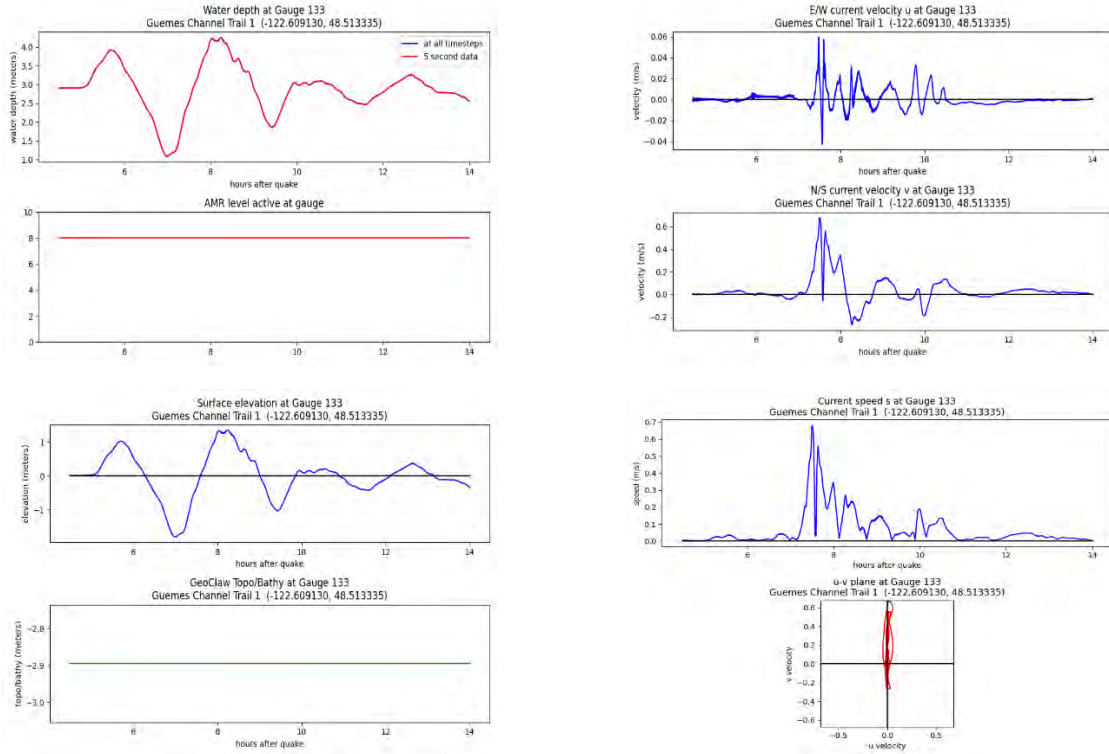
Cascadia subduction zone scenario, MHW:



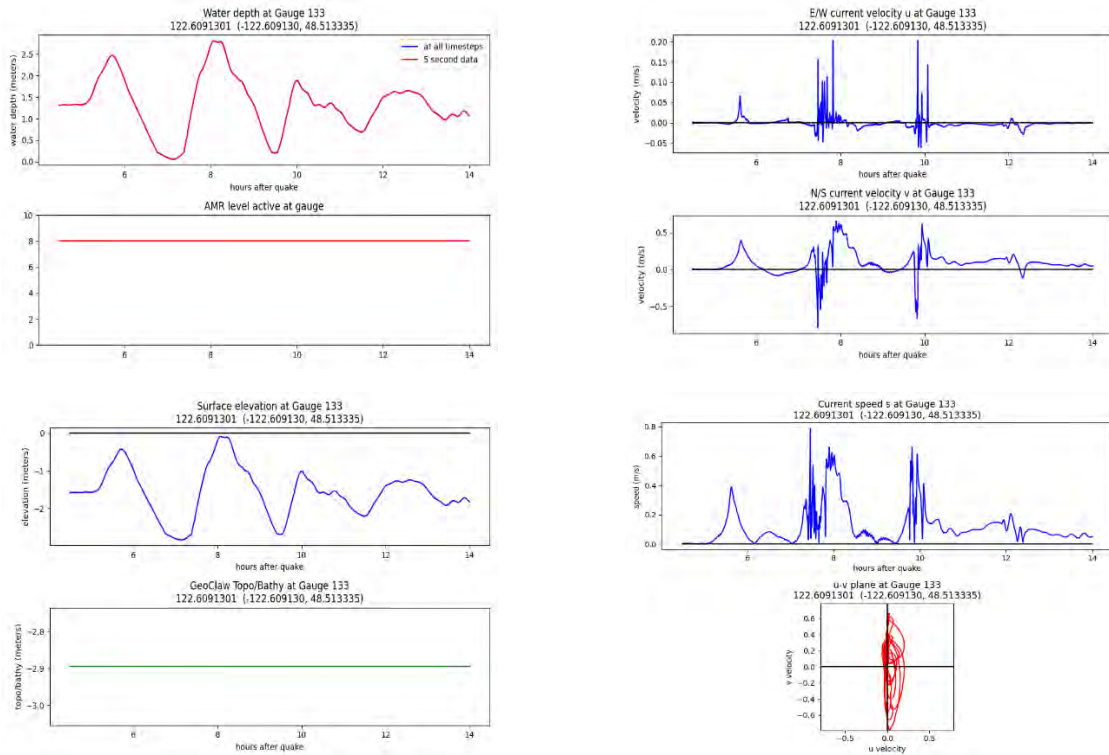
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

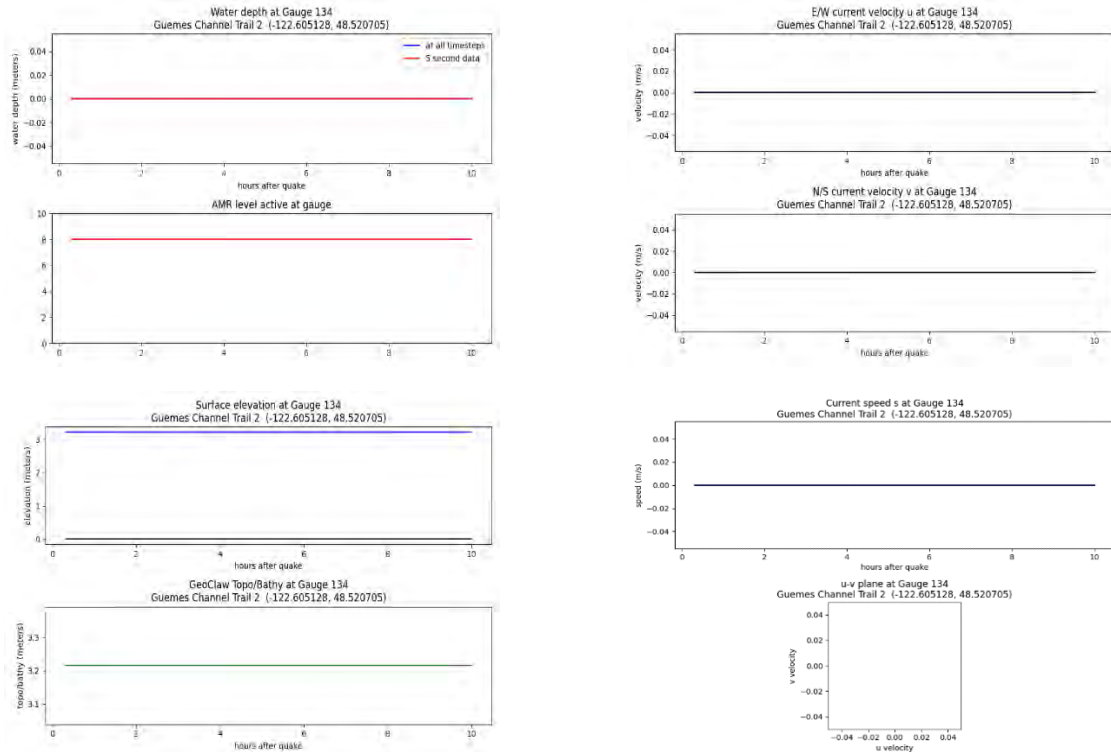


Alaska-Aleutian subduction zone scenario, MLW:

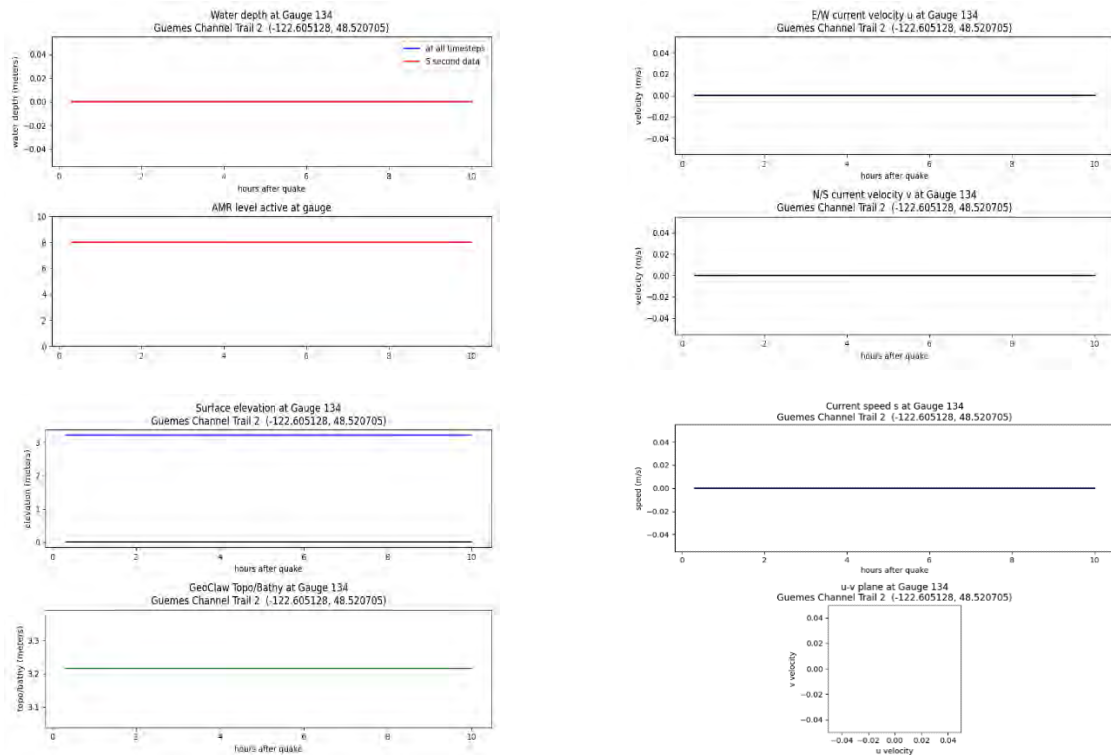


Gauge 134: Environmental cleaup area (onshore)

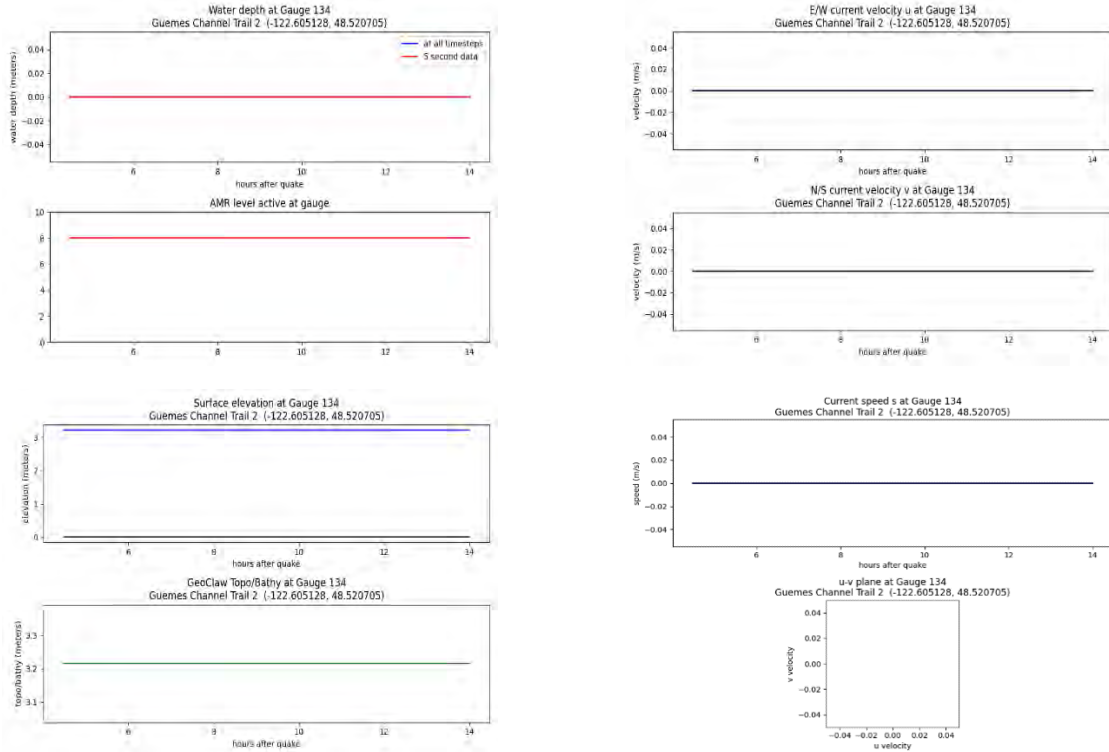
Cascadia subduction zone scenario, MHW:



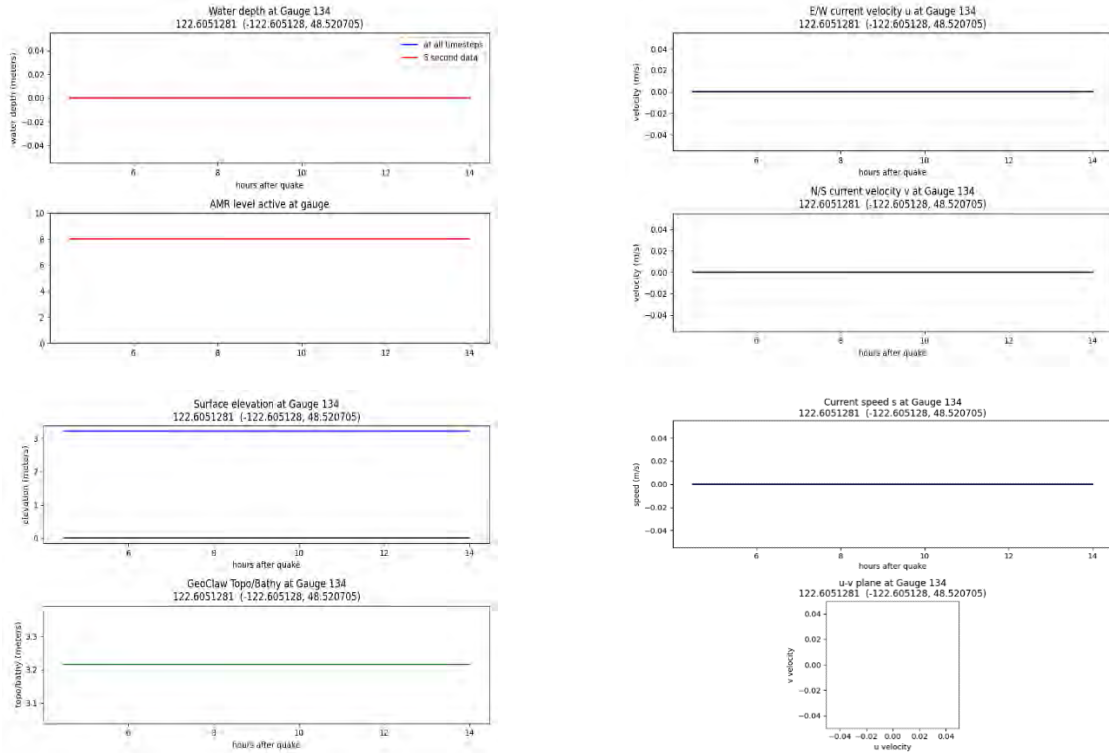
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

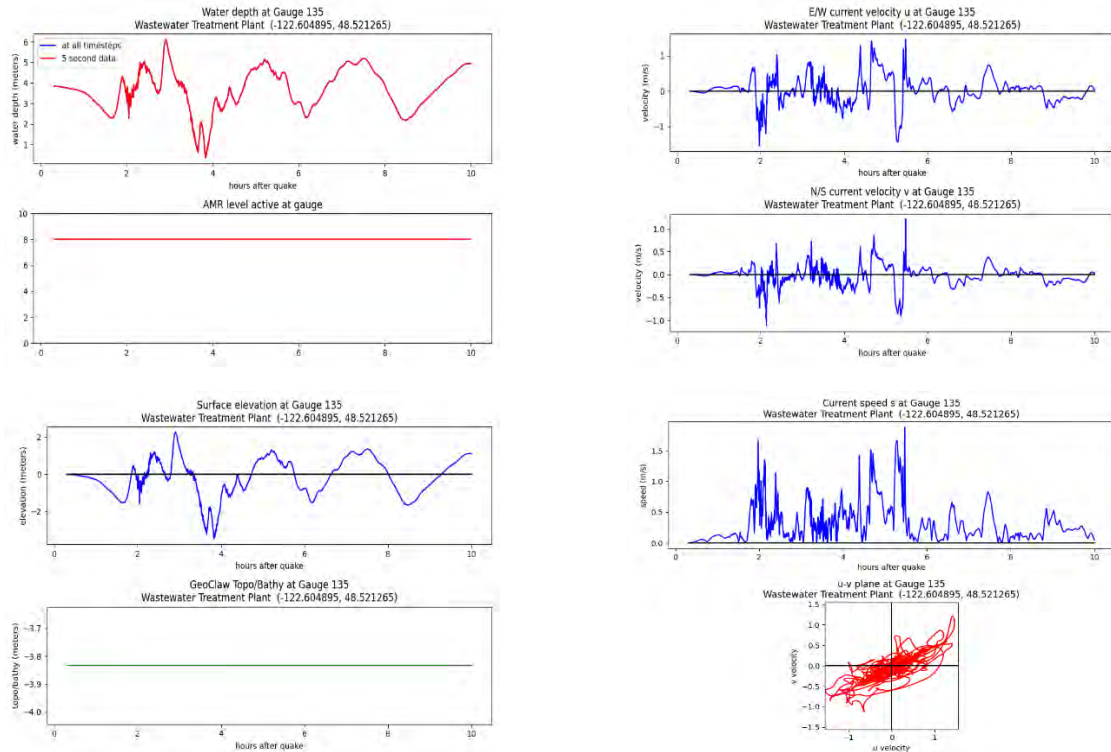


Alaska-Aleutian subduction zone scenario, MLW:

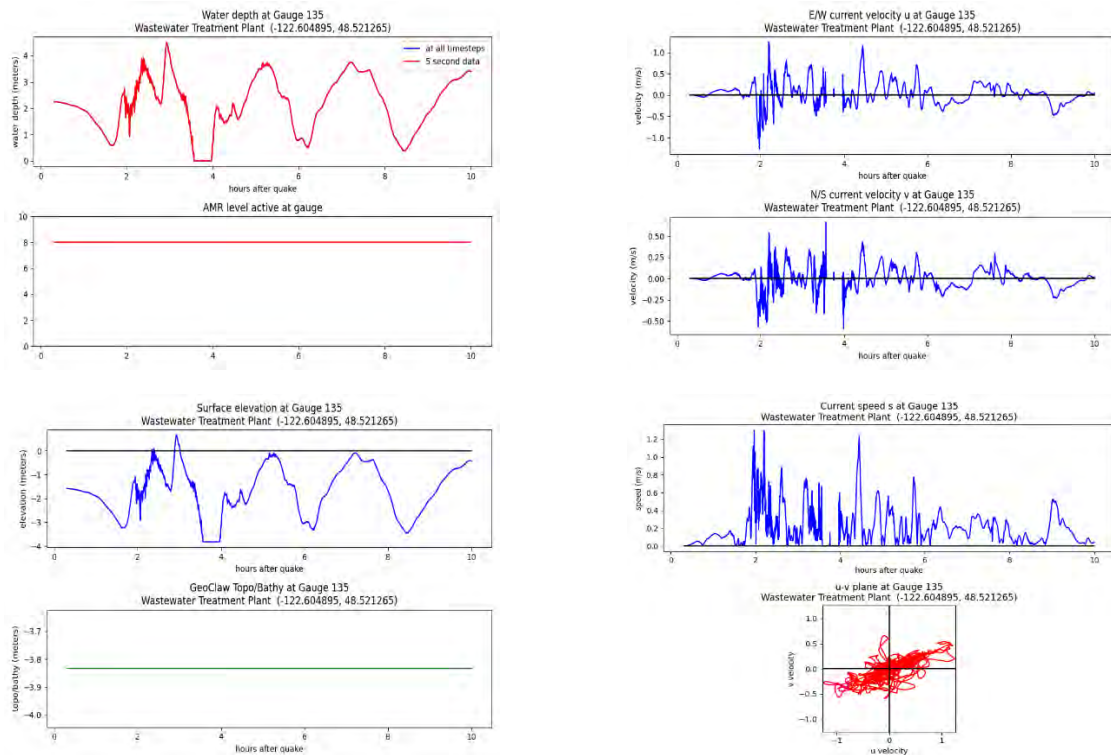


Gauge 135: Environmental cleaup area (offshore)

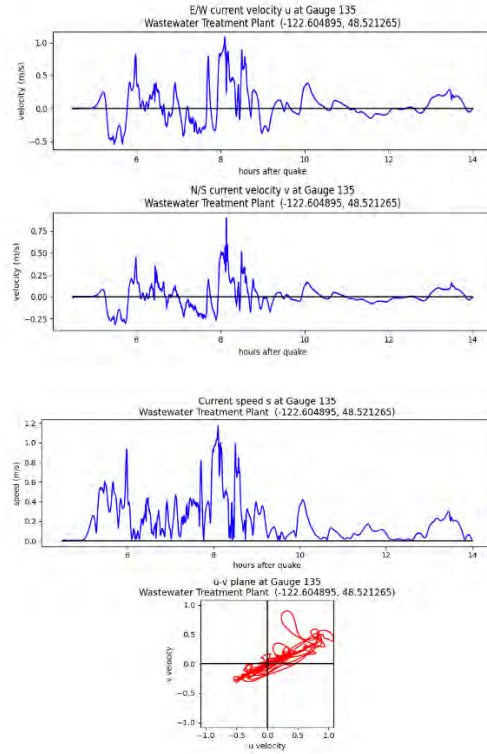
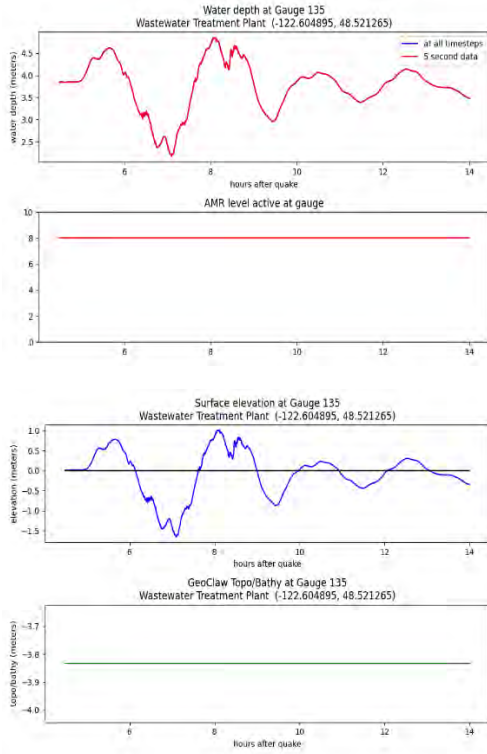
Cascadia subduction zone scenario, MHW:



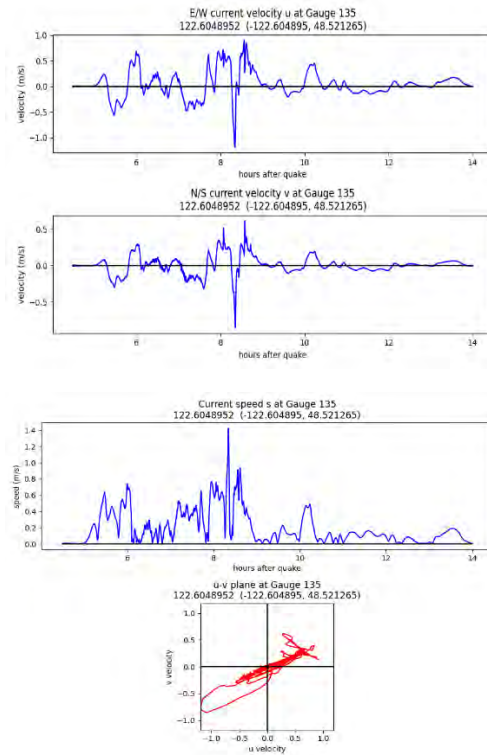
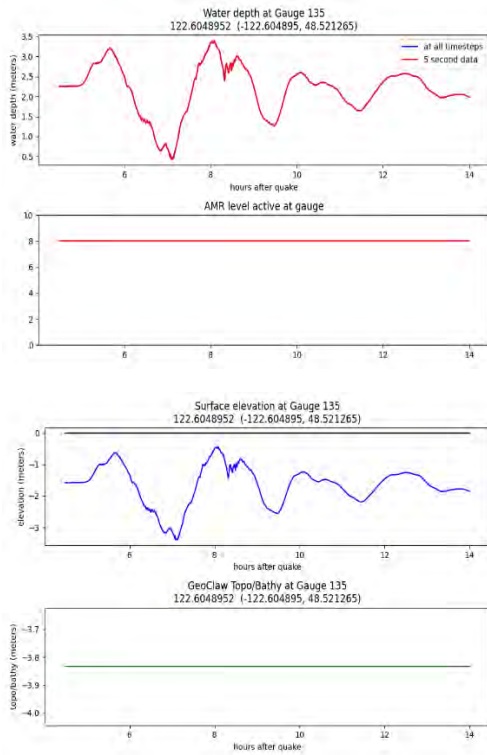
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

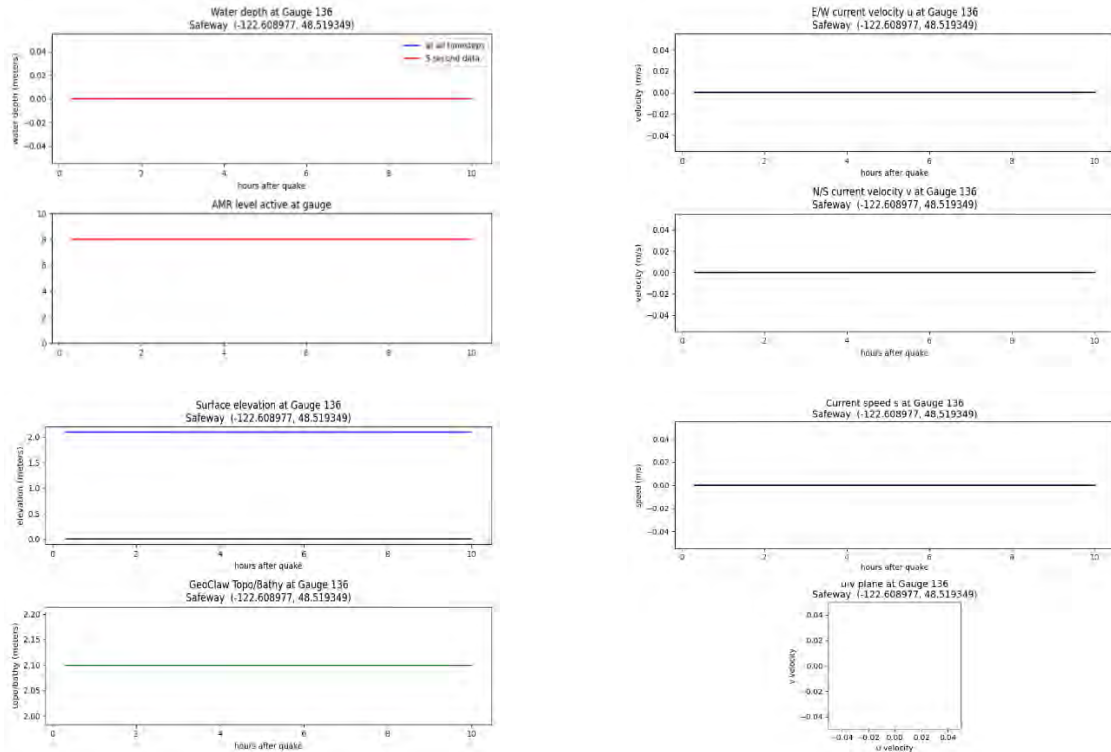


Alaska-Aleutian subduction zone scenario, MLW:

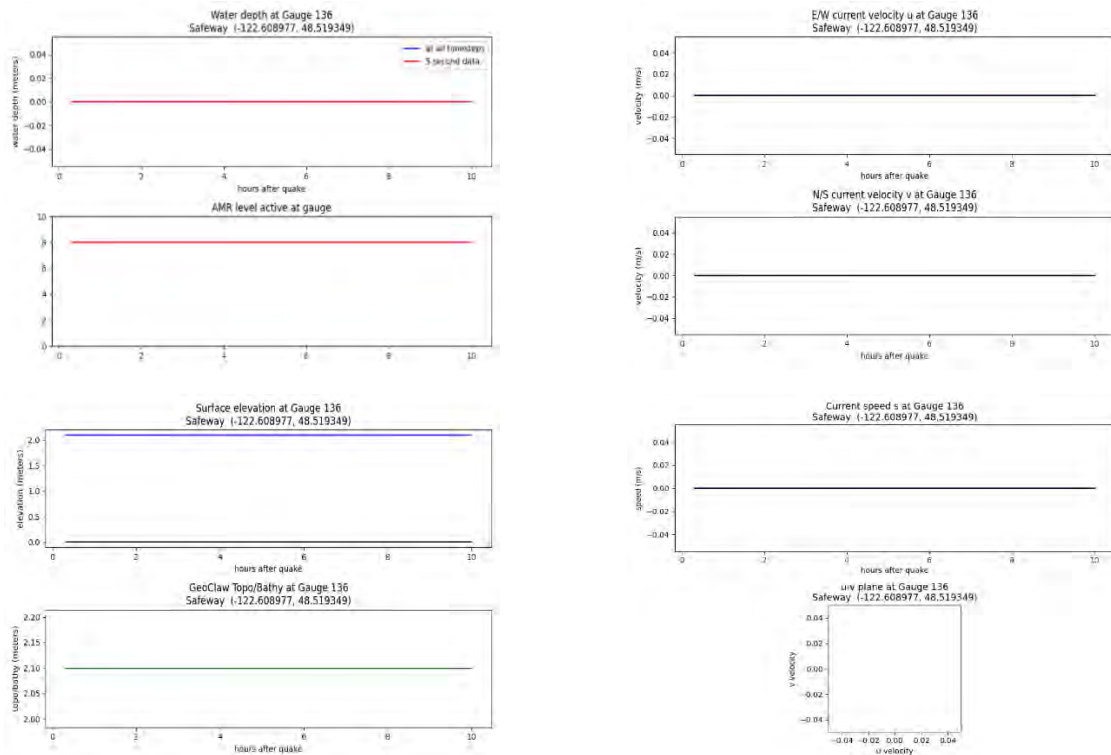


Gauge 136: Storage facility (onshore)

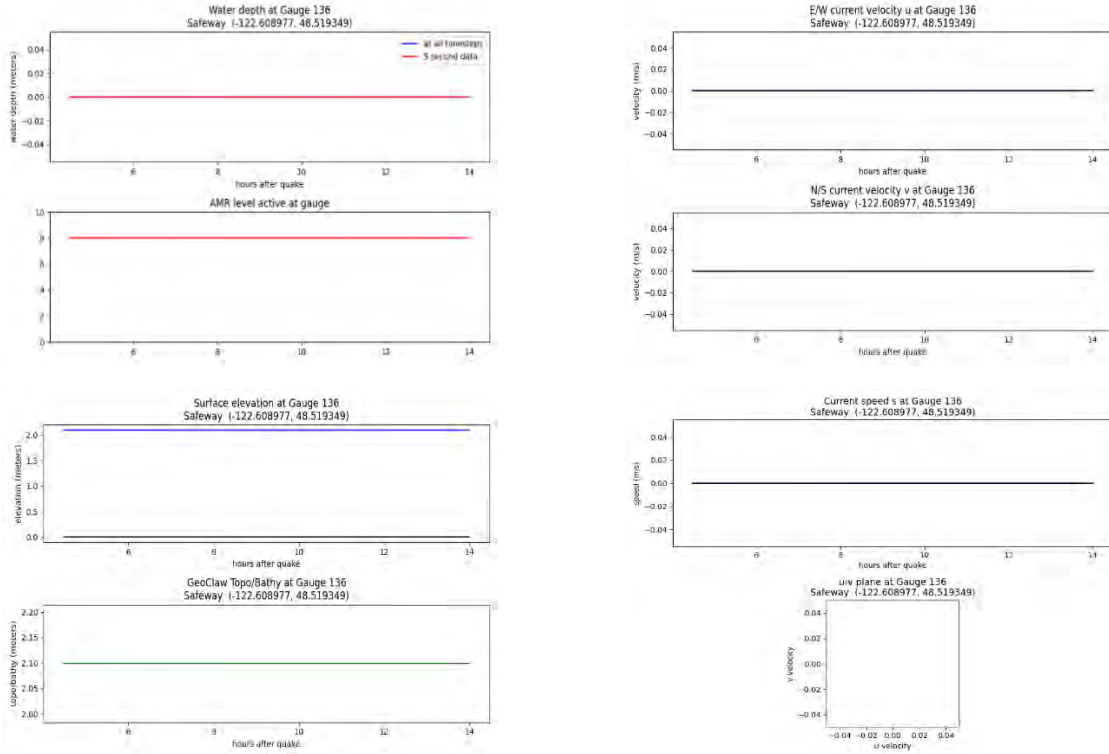
Cascadia subduction zone scenario, MHW:



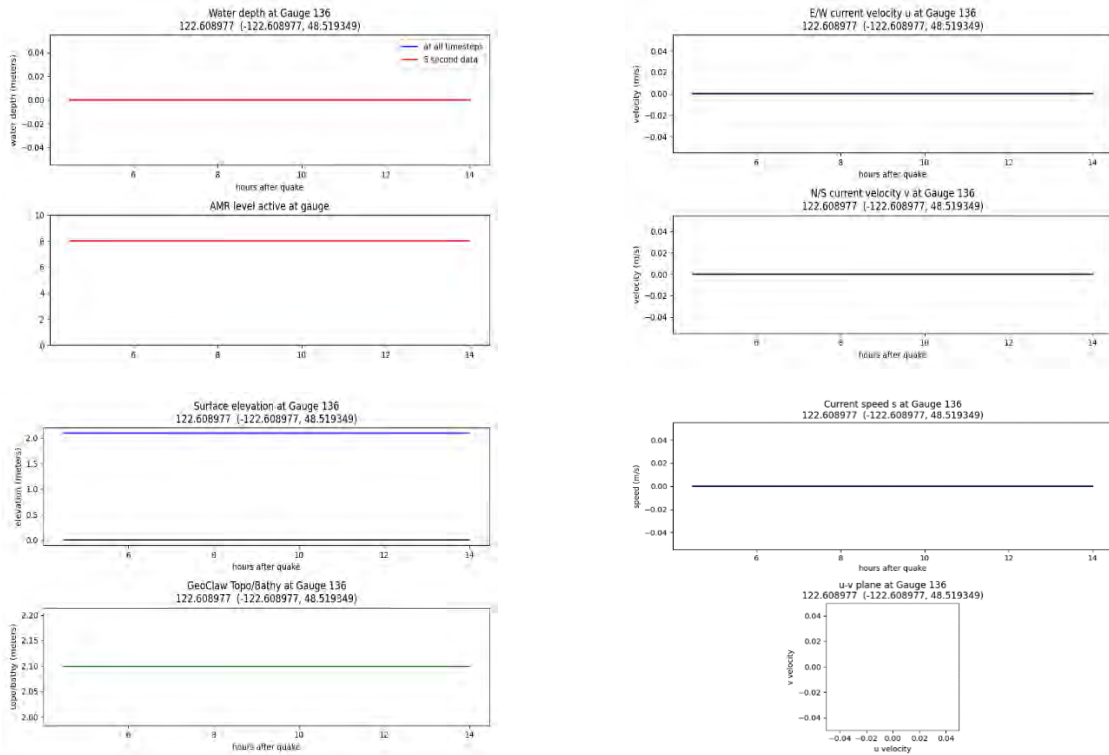
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

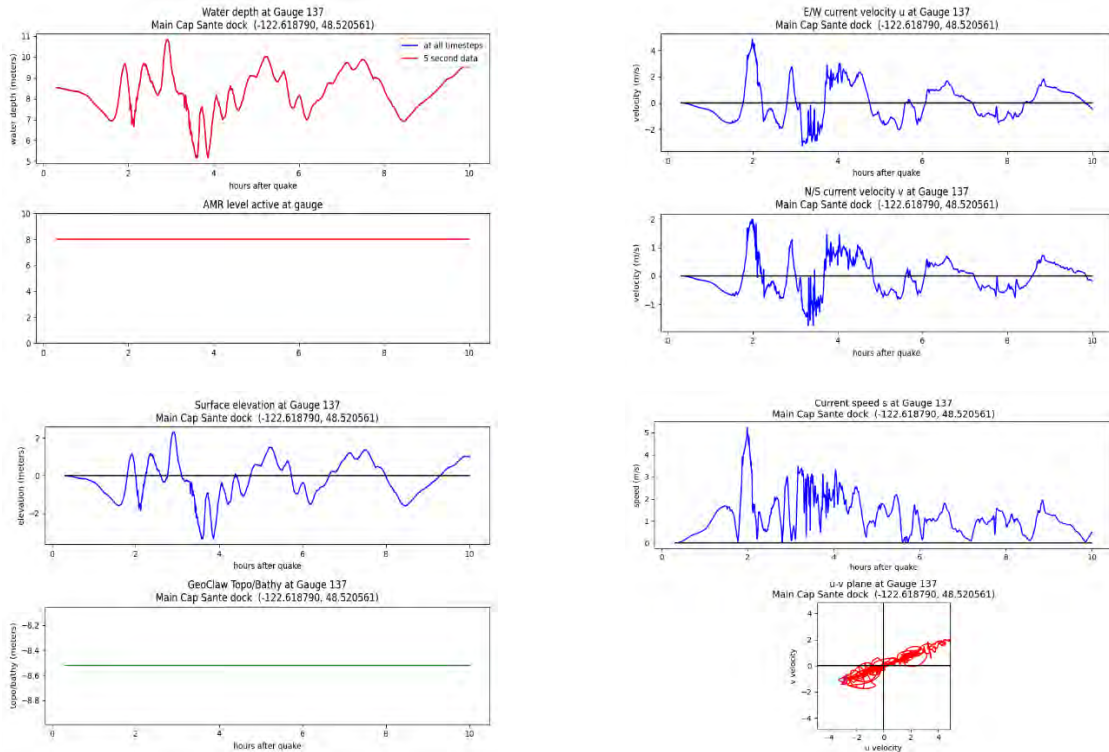


Alaska-Aleutian subduction zone scenario, MLW:

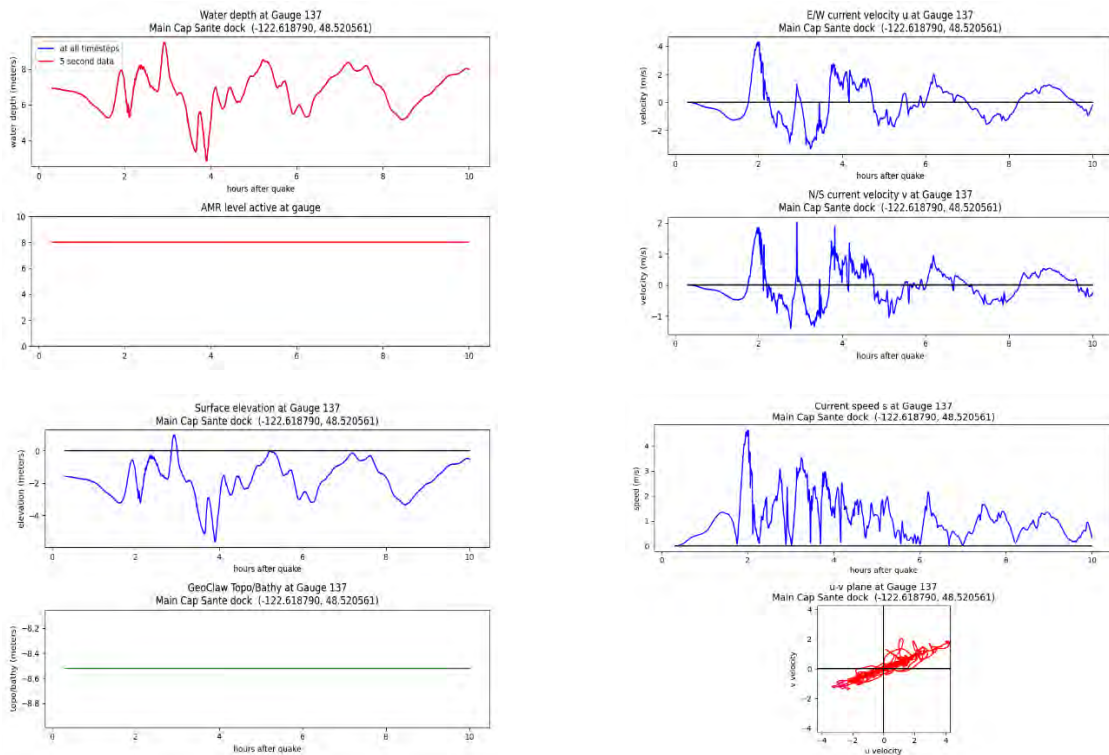


Gauge 137: Trident Seafoods west 1

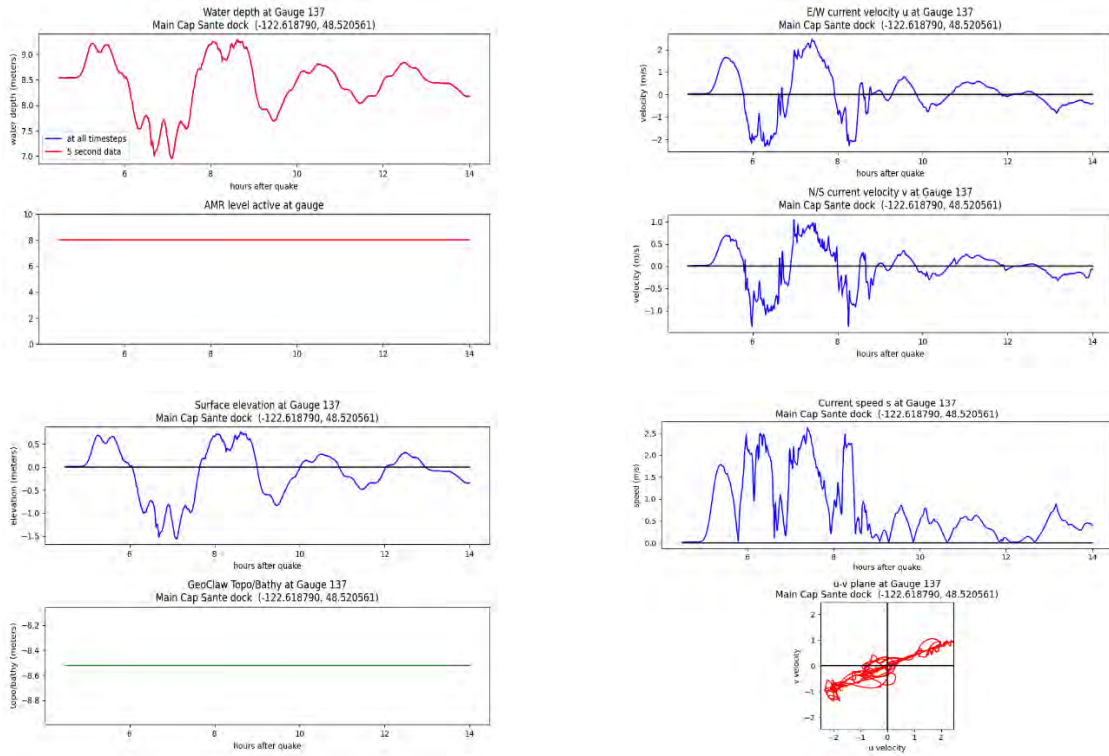
Cascadia subduction zone scenario, MHW:



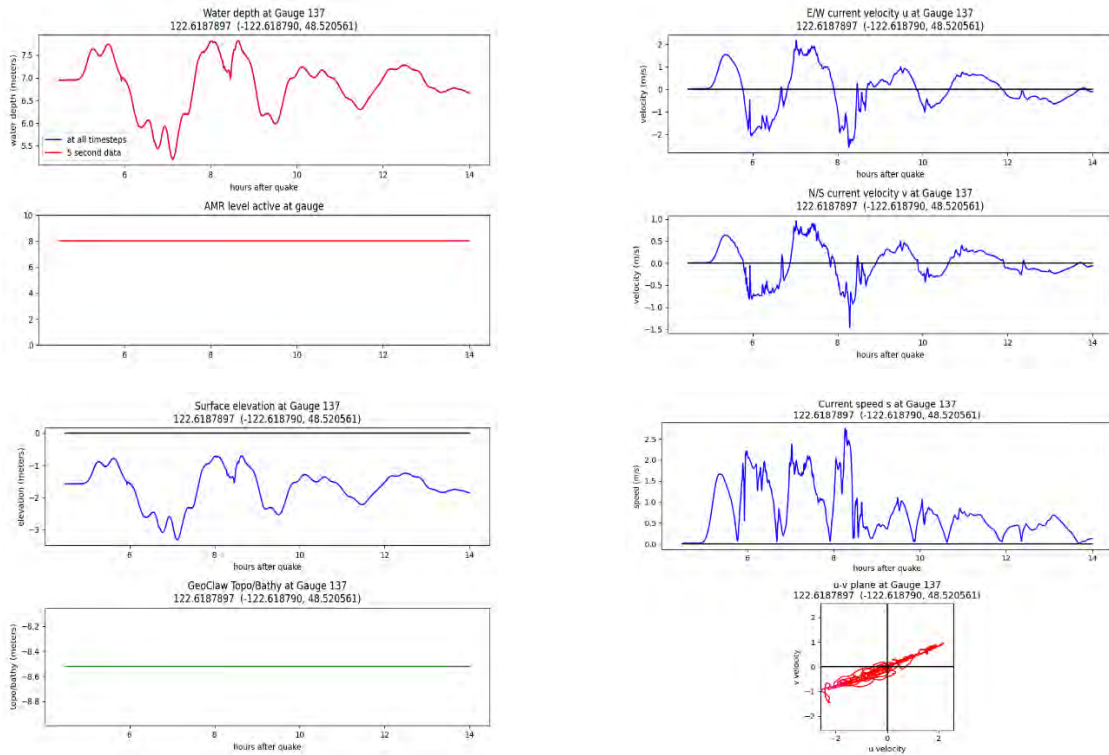
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

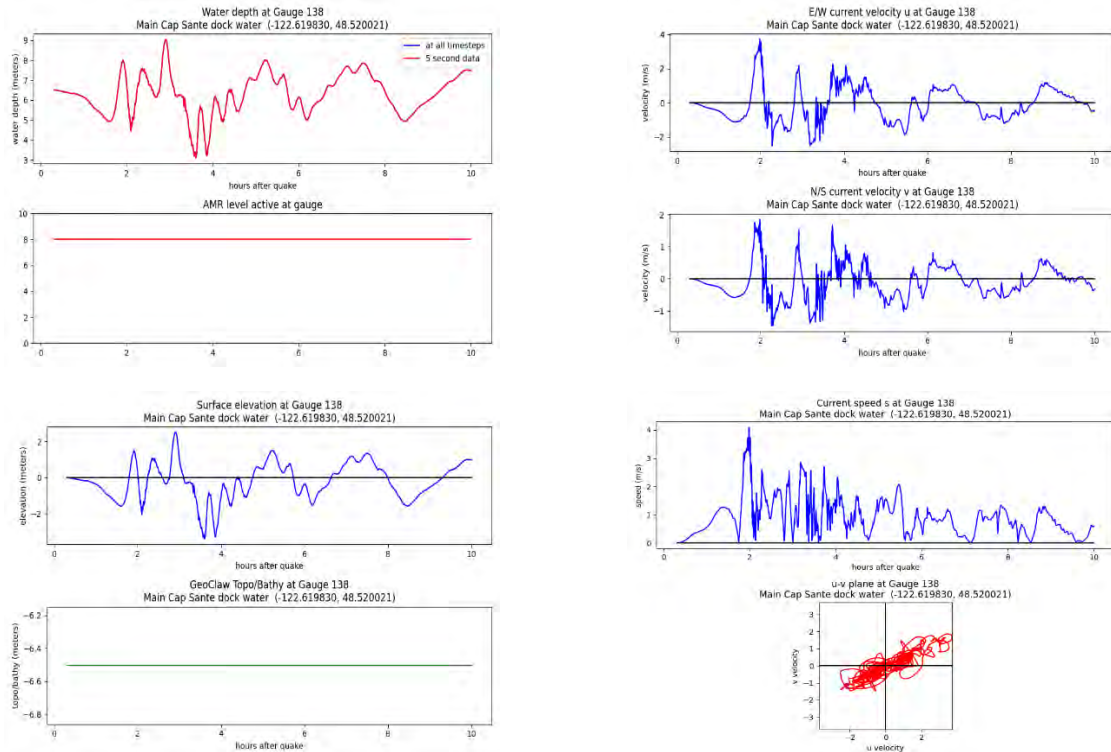


Alaska-Aleutian subduction zone scenario, MLW:

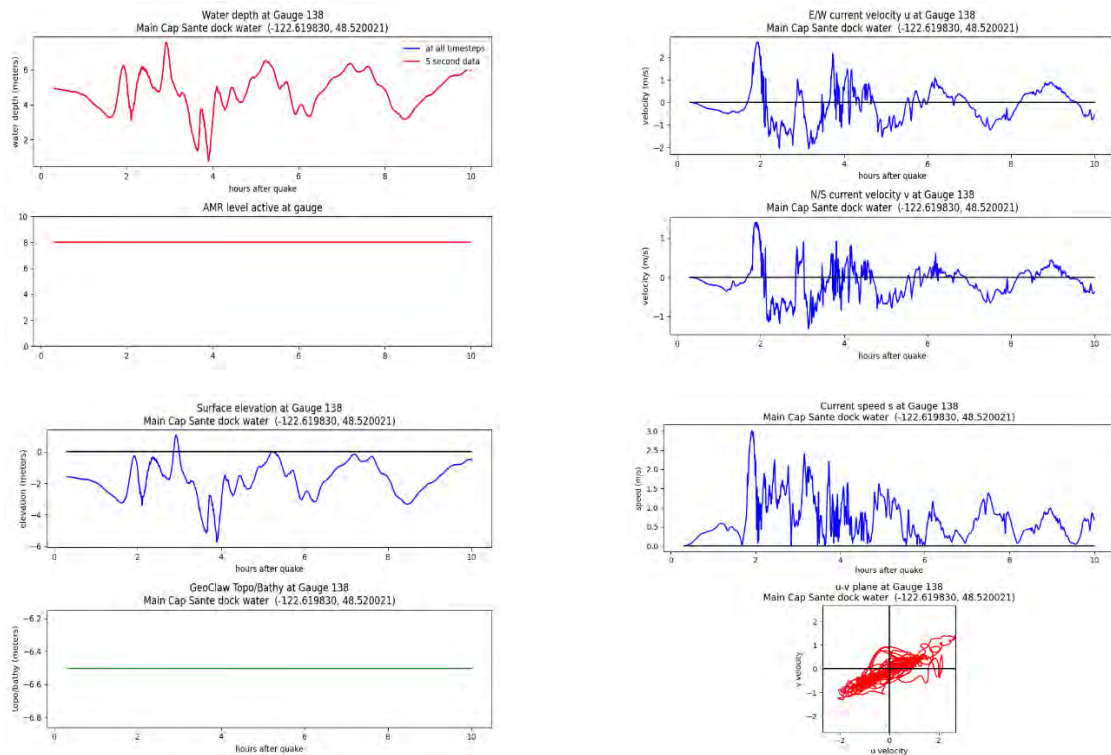


Gauge 138: Trident Seafoods west 2

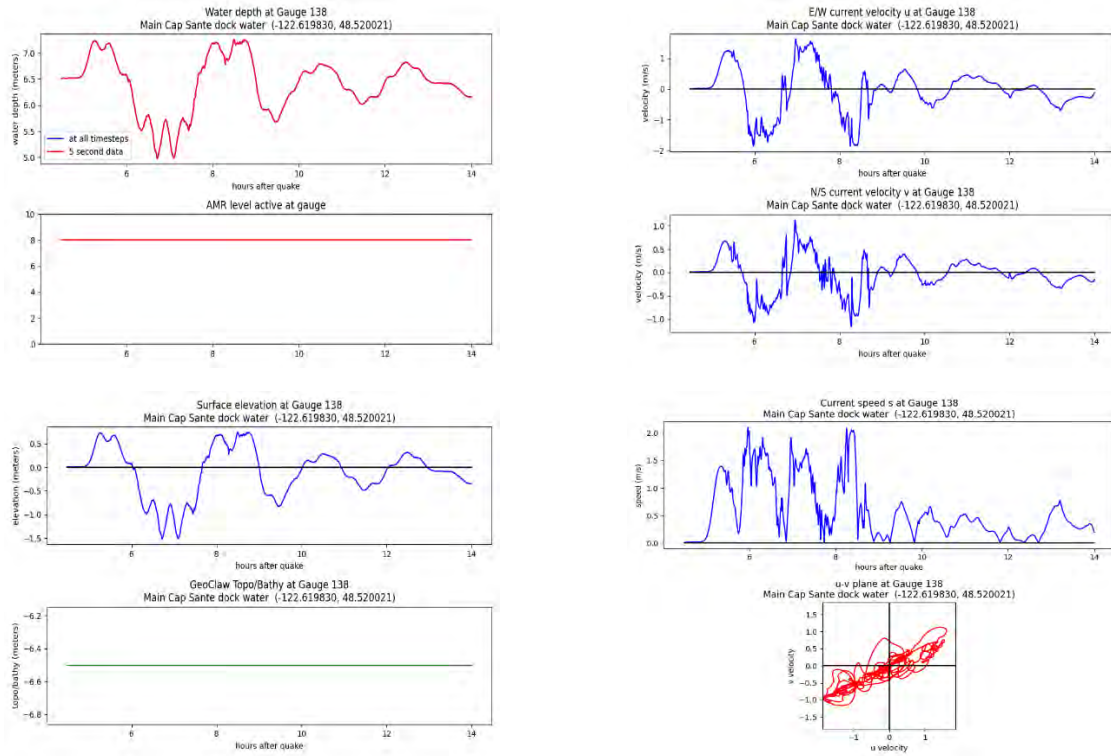
Cascadia subduction zone scenario, MHW:



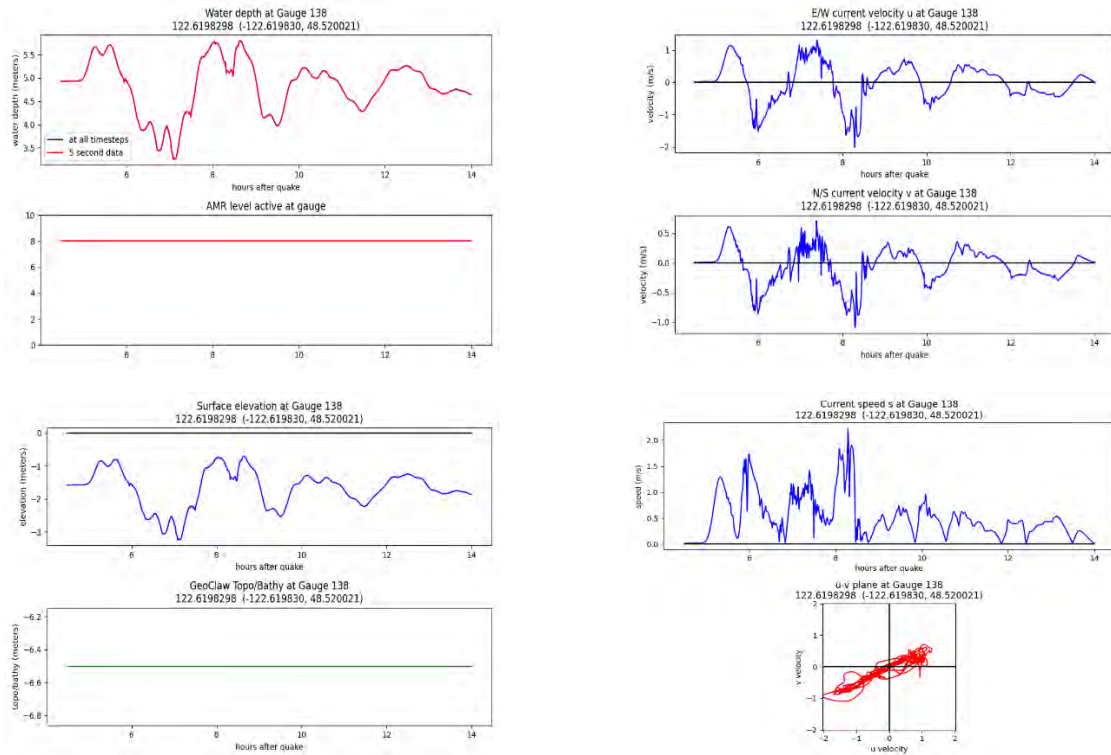
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

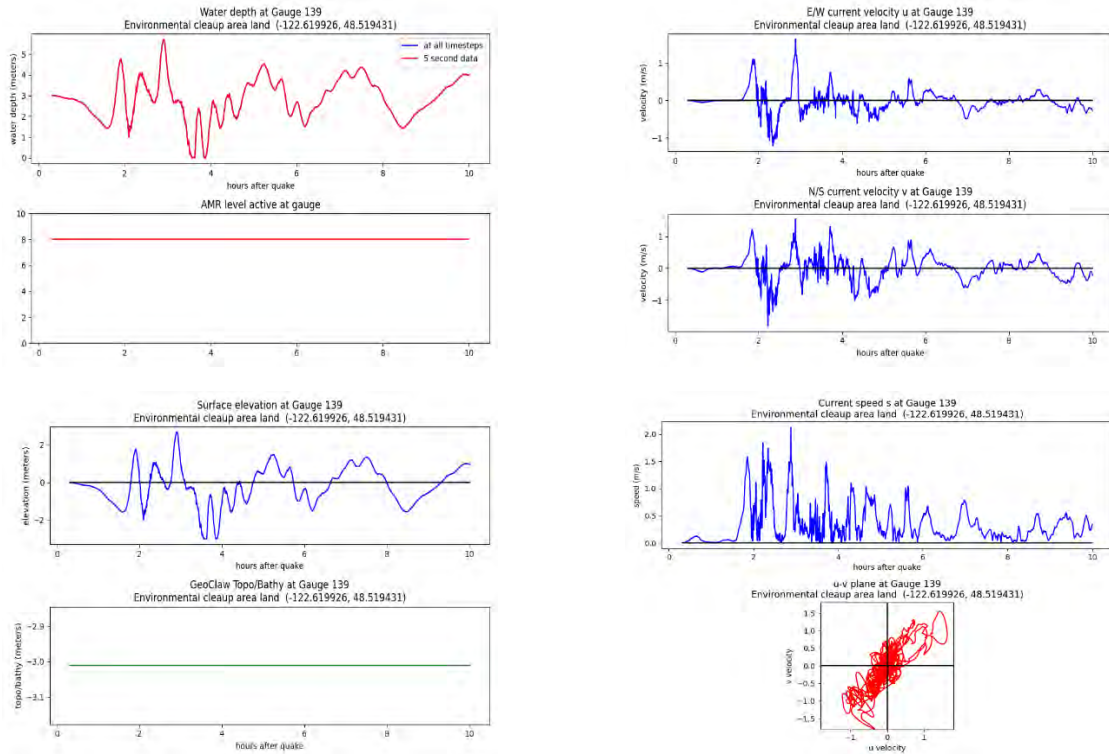


Alaska-Aleutian subduction zone scenario, MLW:

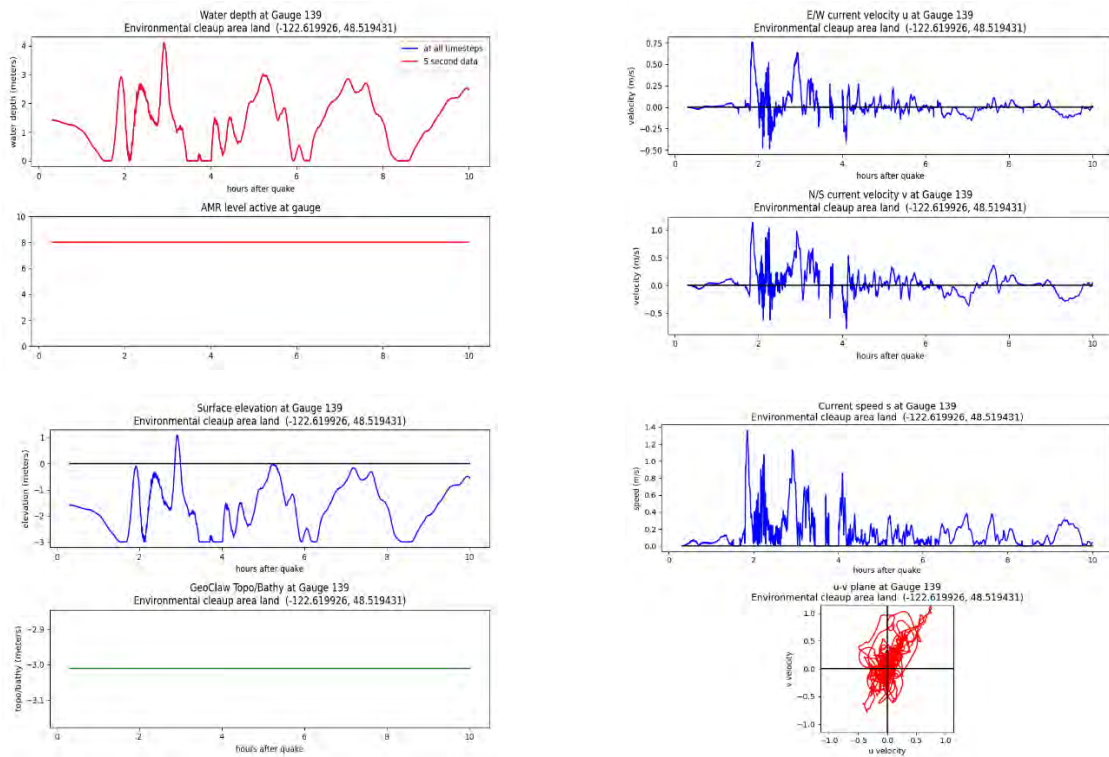


Gauge 139: Trident Seafoods west 3

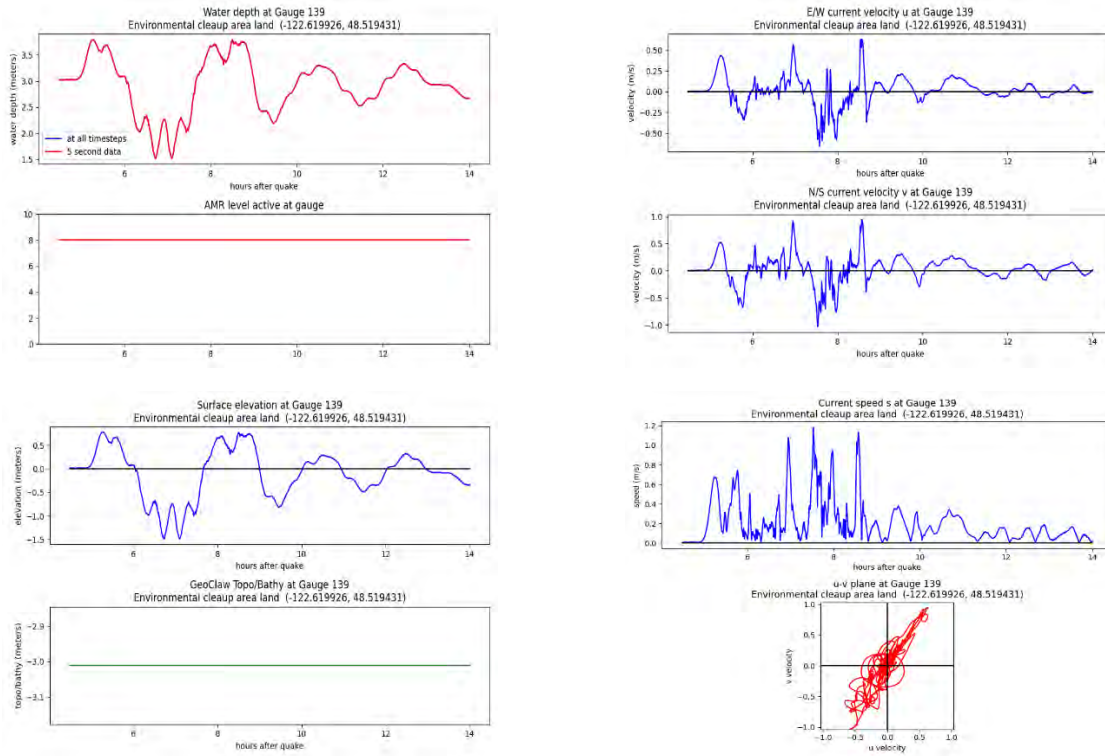
Cascadia subduction zone scenario, MHW:



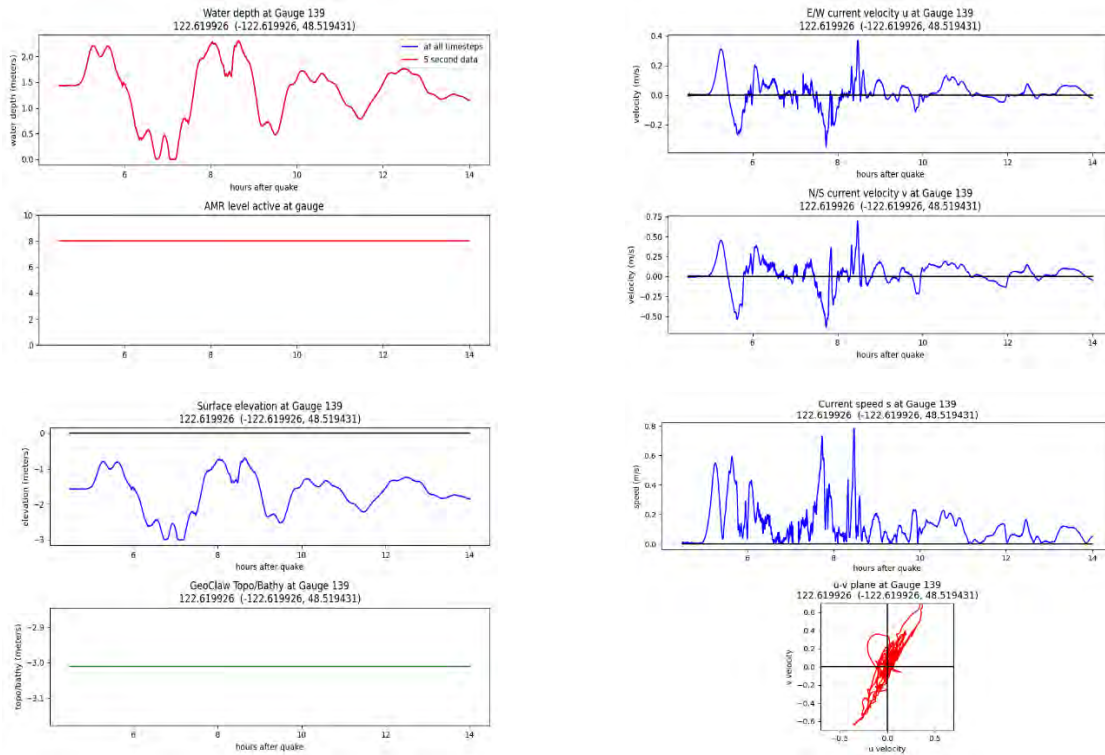
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

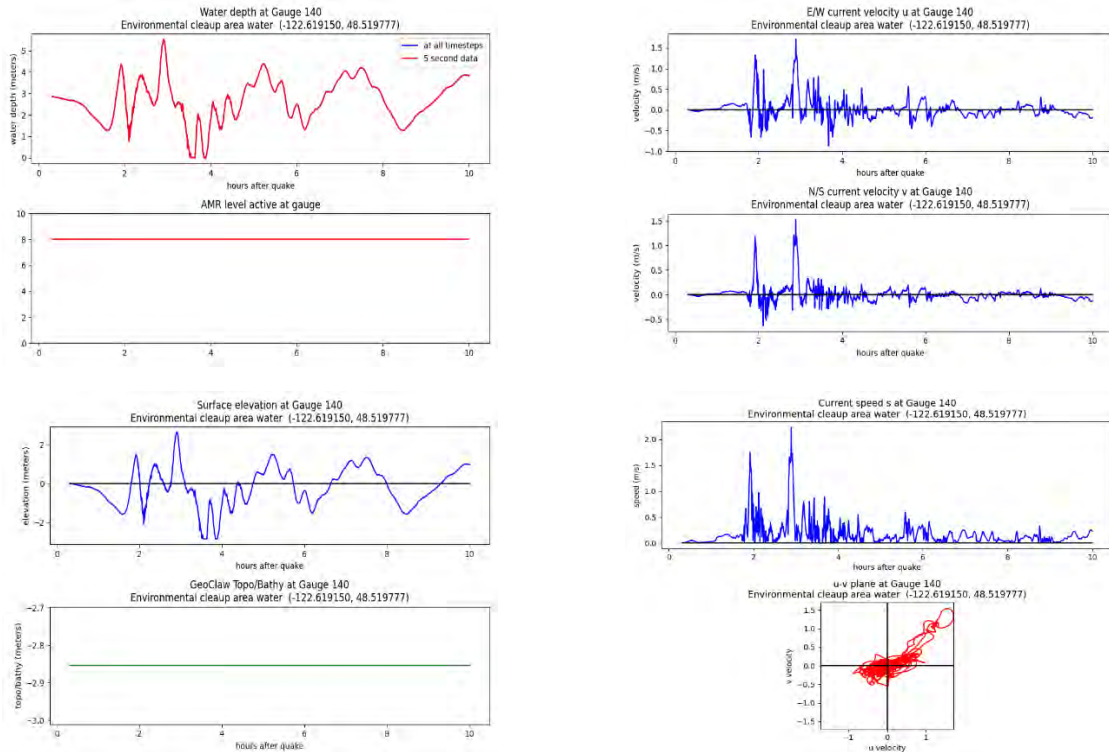


Alaska-Aleutian subduction zone scenario, MLW:

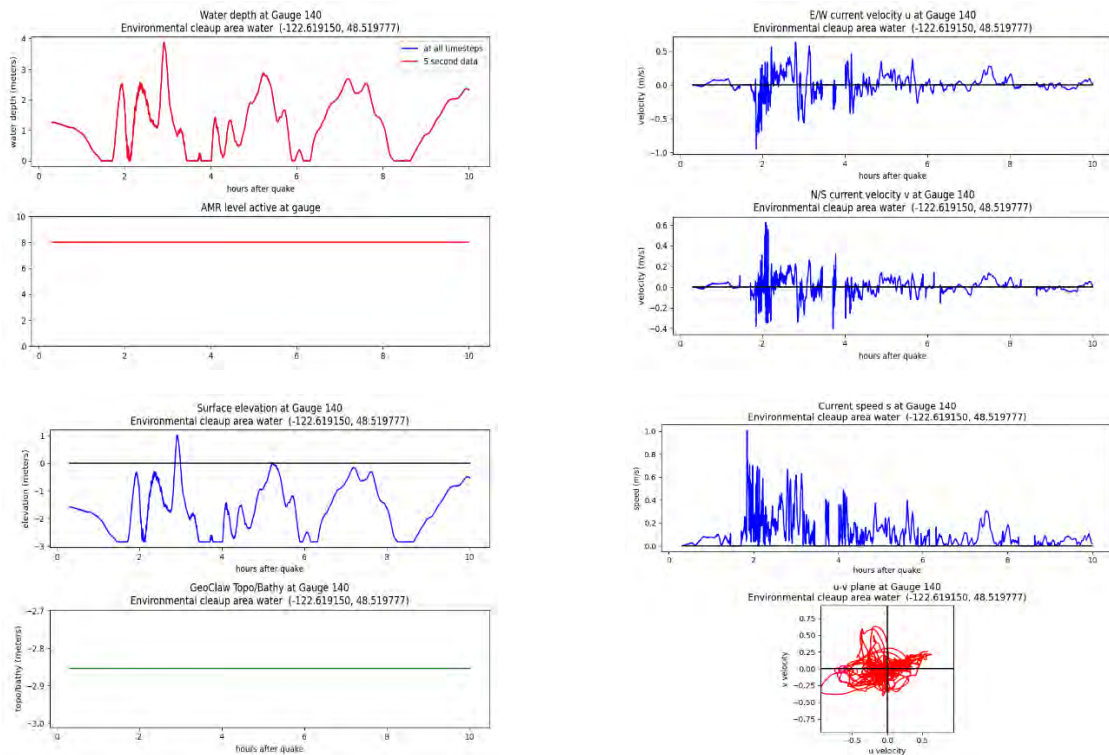


Gauge 140: Trident Seafoods west 4

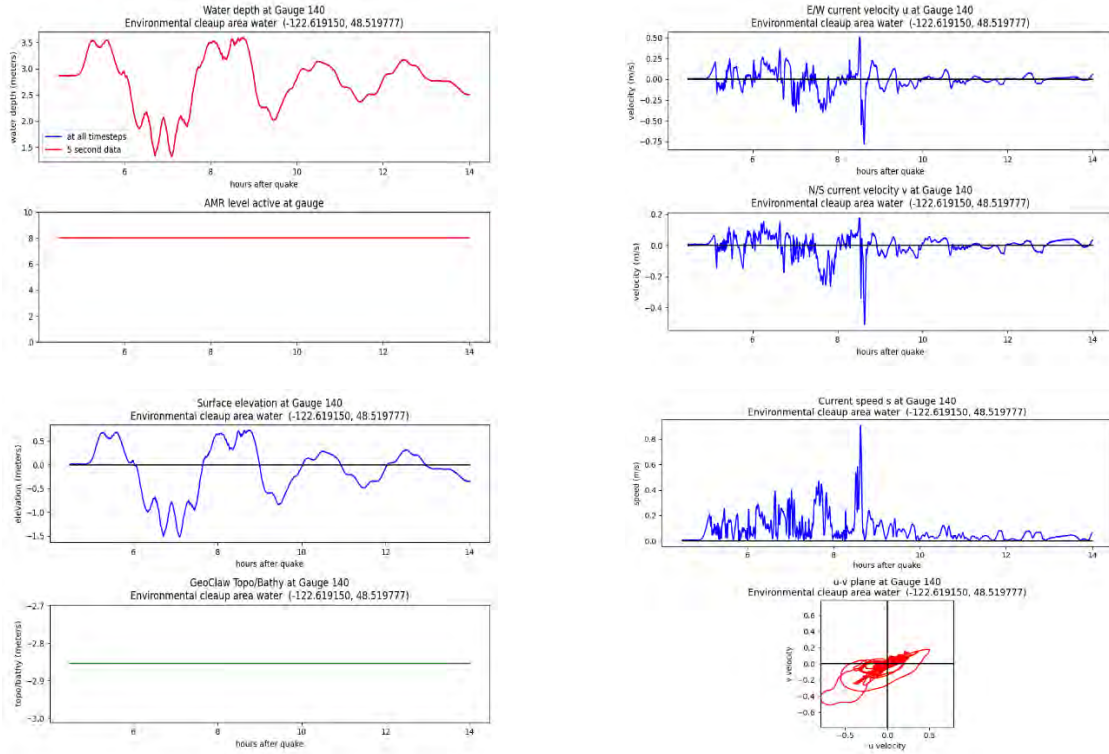
Cascadia subduction zone scenario, MHW:



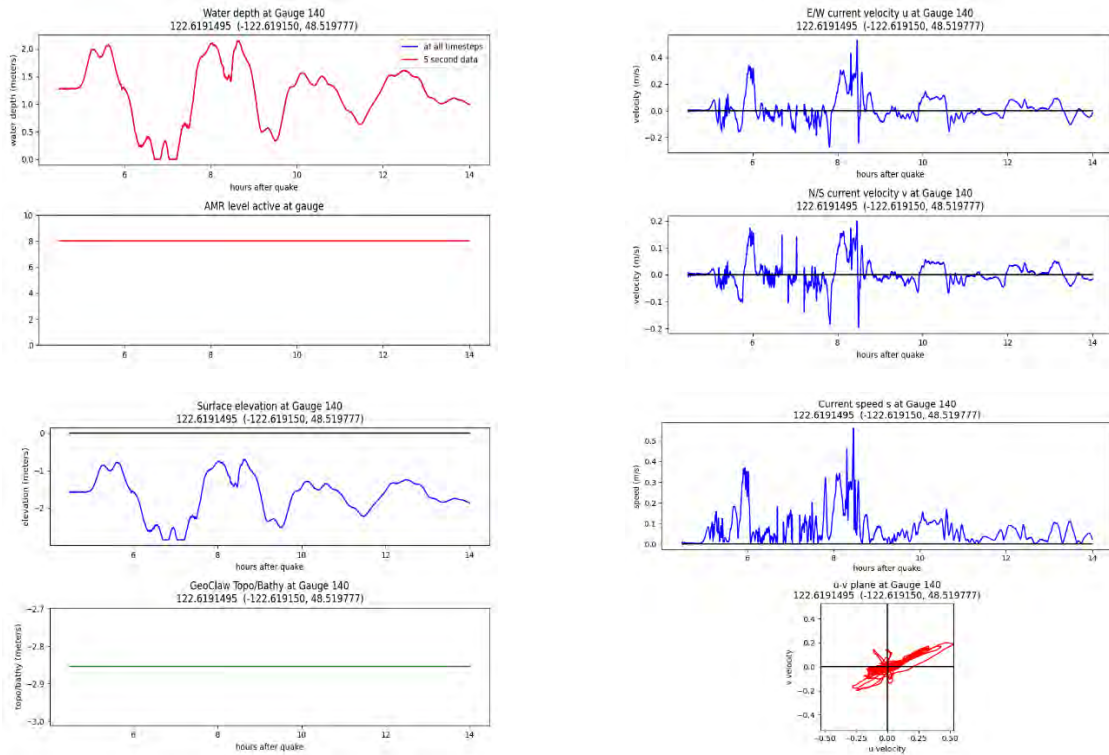
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

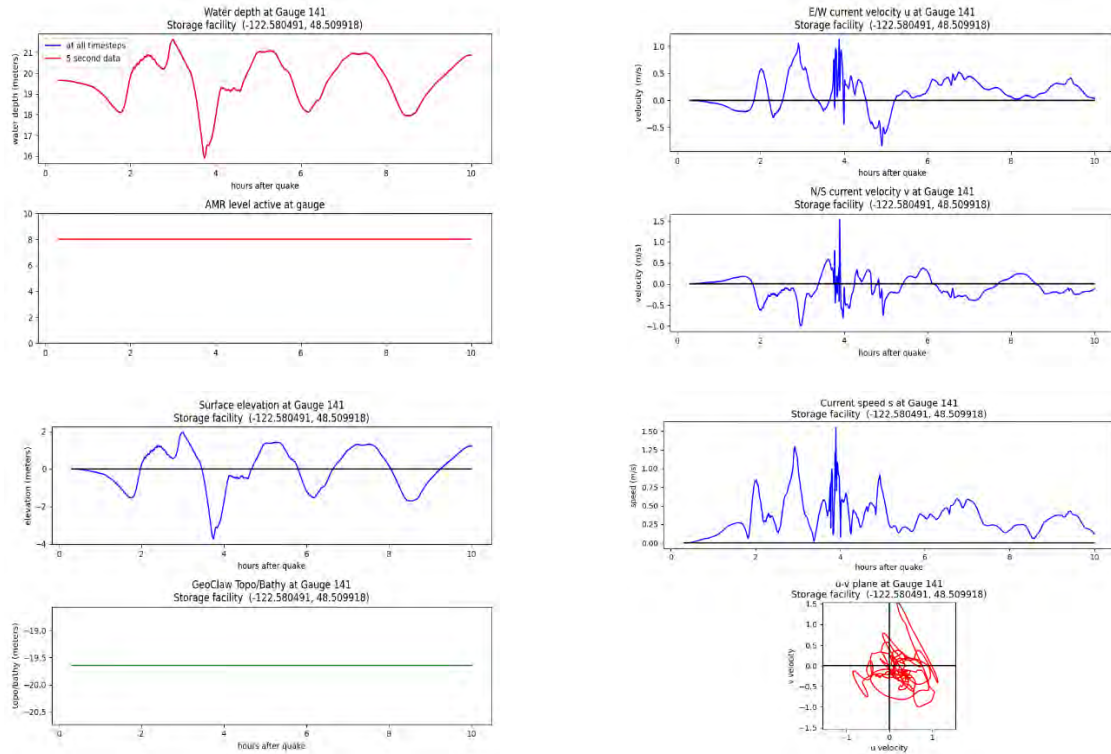


Alaska-Aleutian subduction zone scenario, MLW:

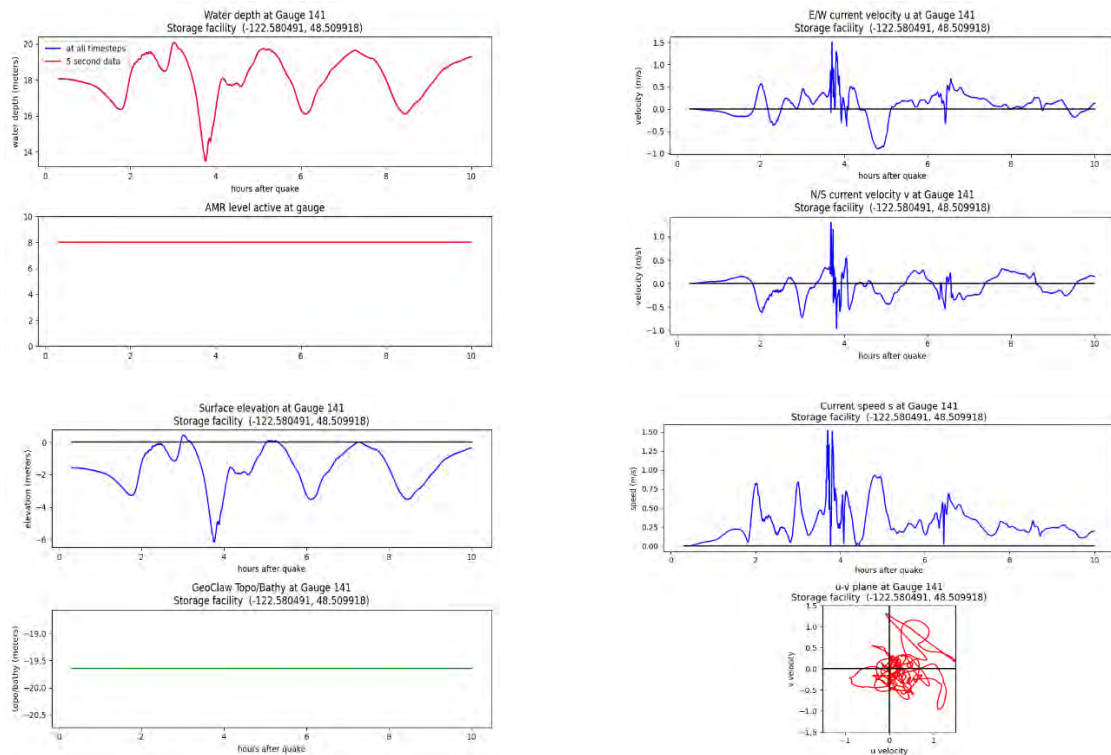


Gauge 141: March Point Shell Puget Sound Refinery dock 12

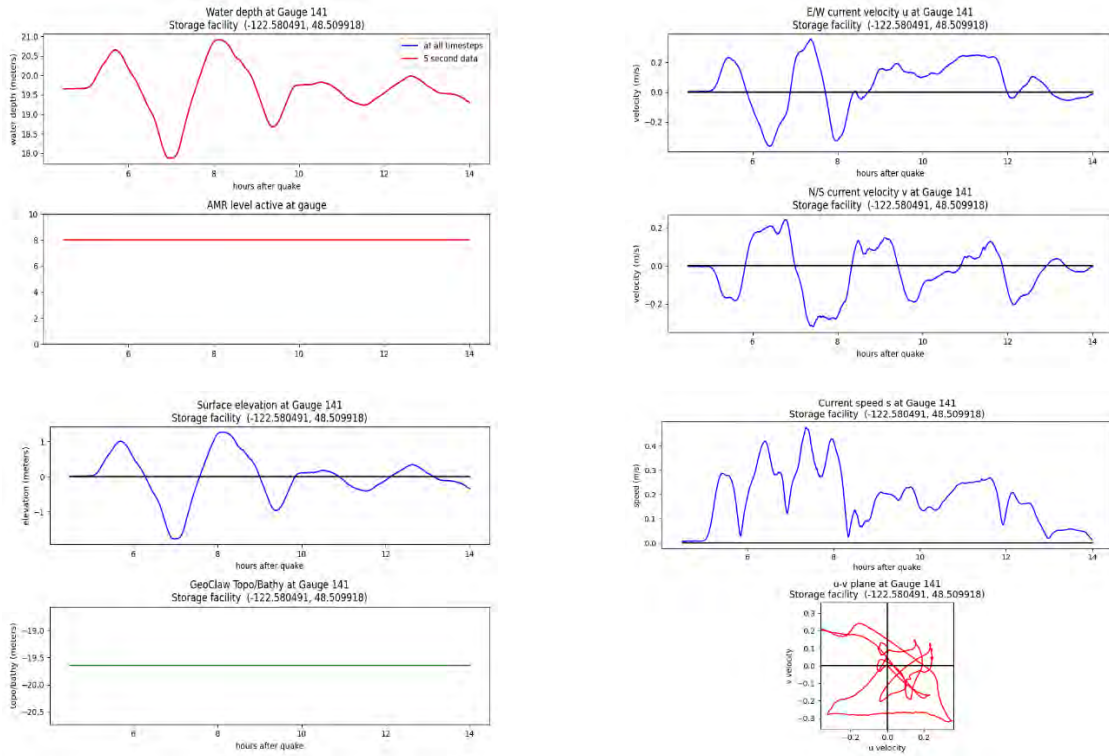
Cascadia subduction zone scenario, MHW:



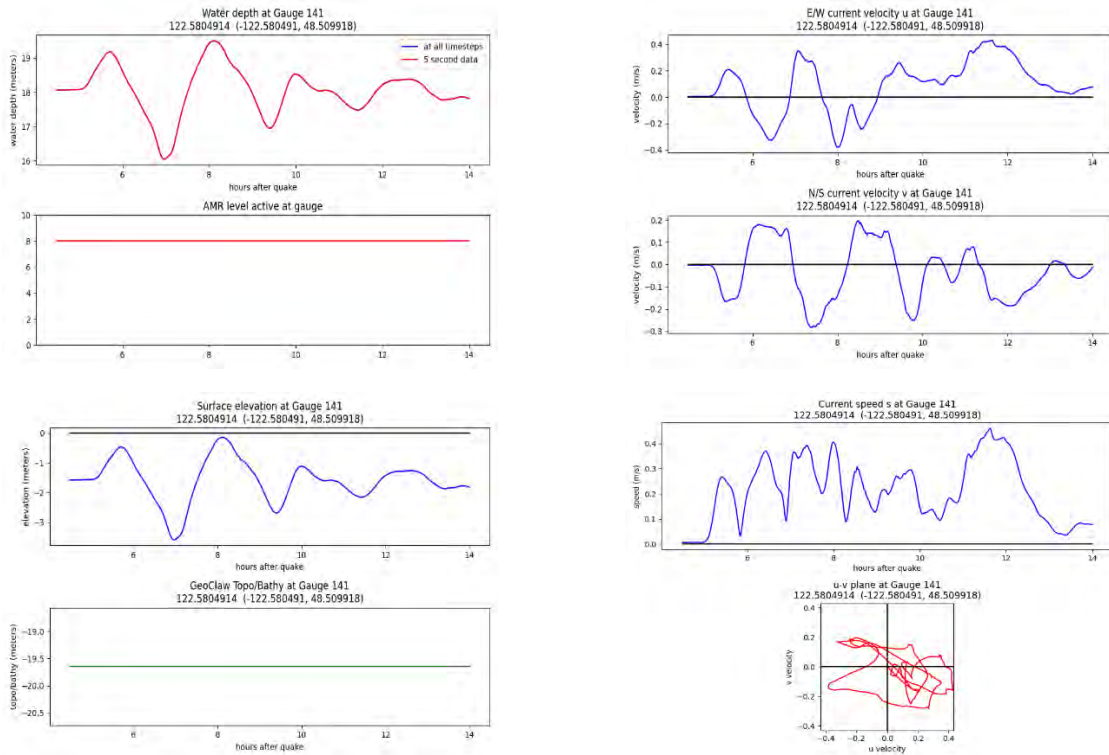
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

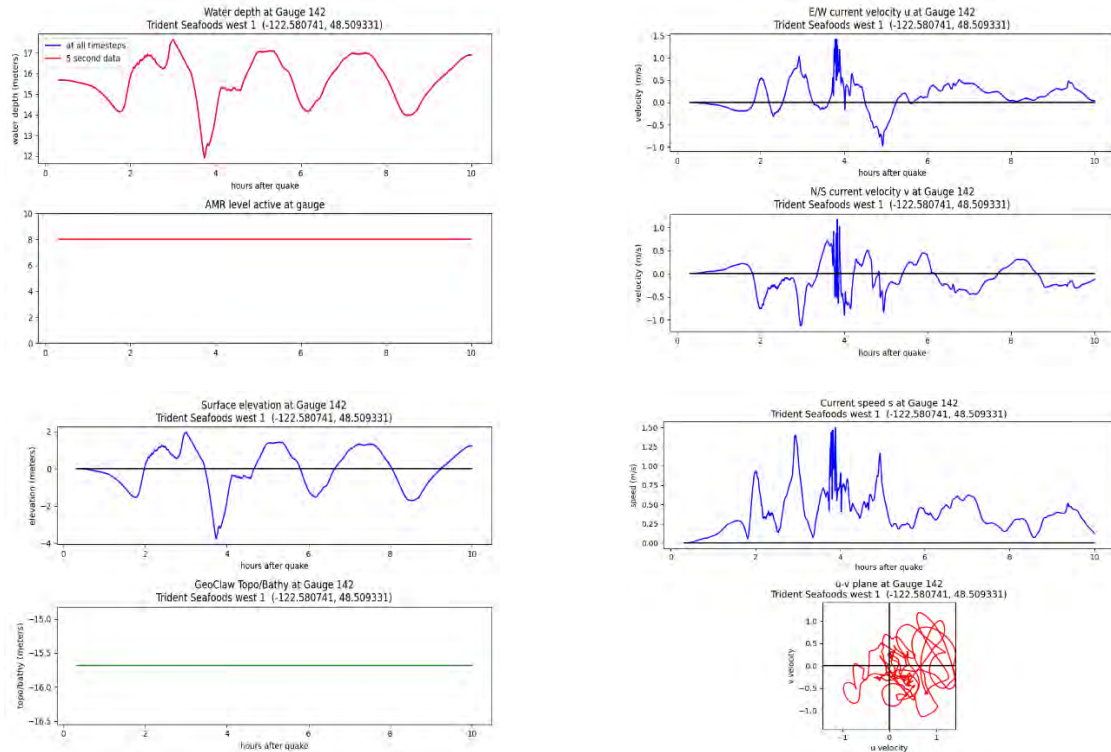


Alaska-Aleutian subduction zone scenario, MLW:

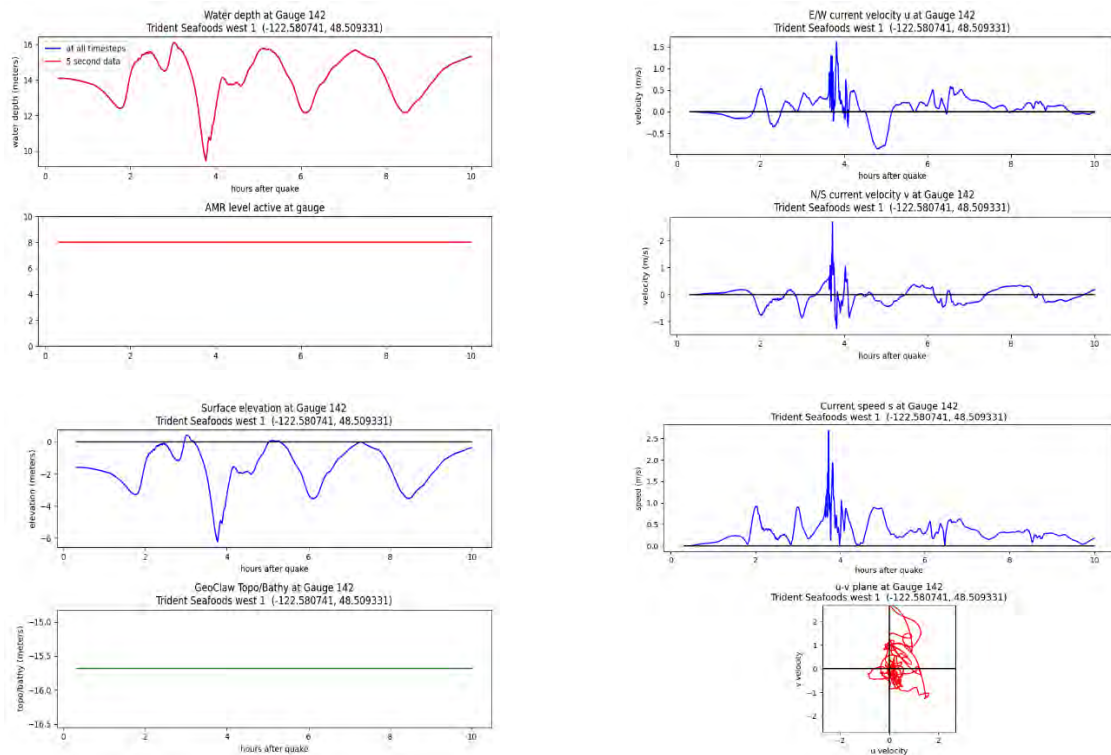


Gauge 142: March Point Shell Puget Sound Refinery dock 13

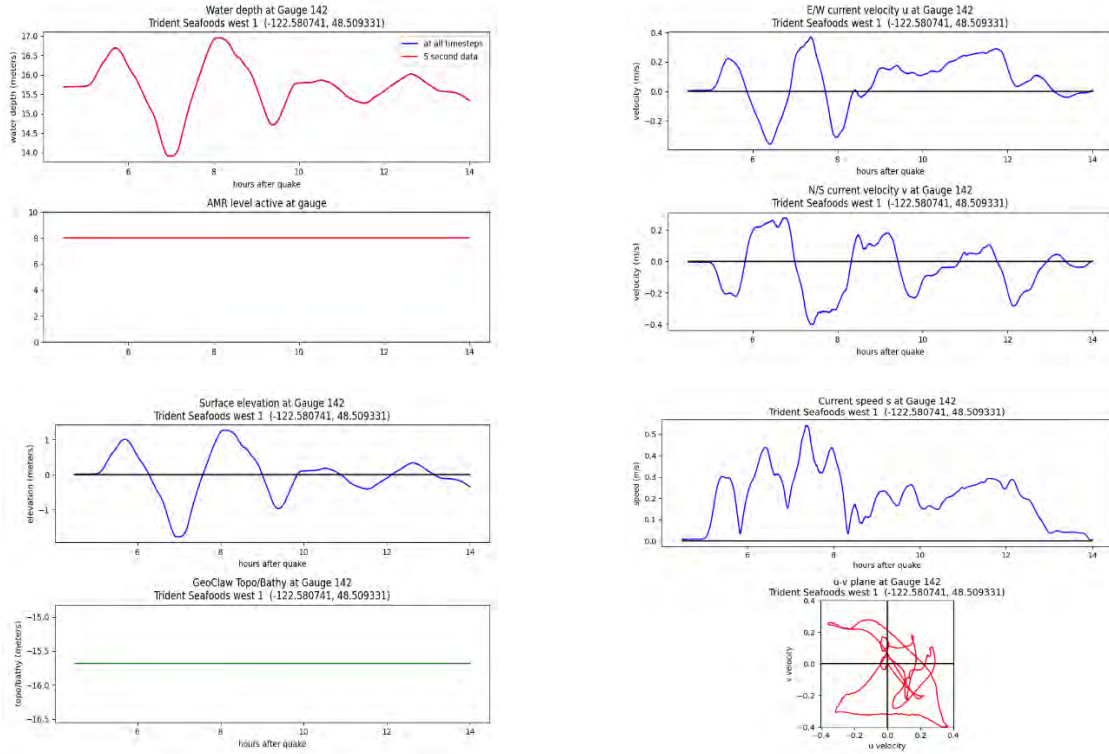
Cascadia subduction zone scenario, MHW:



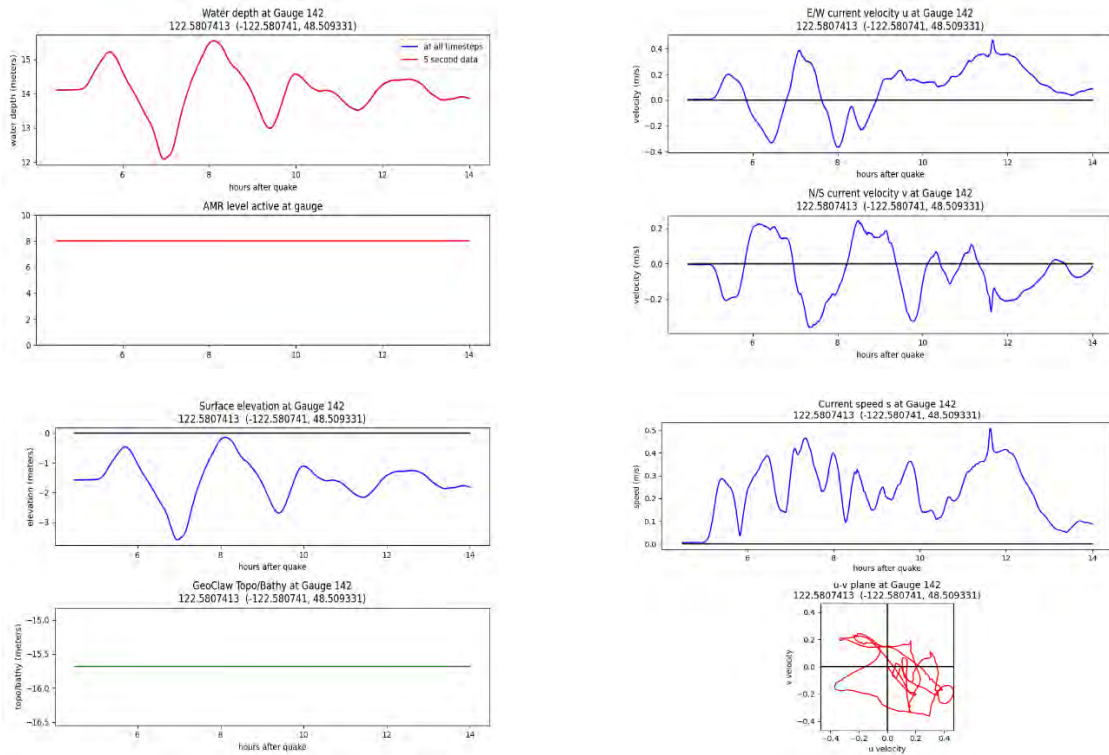
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

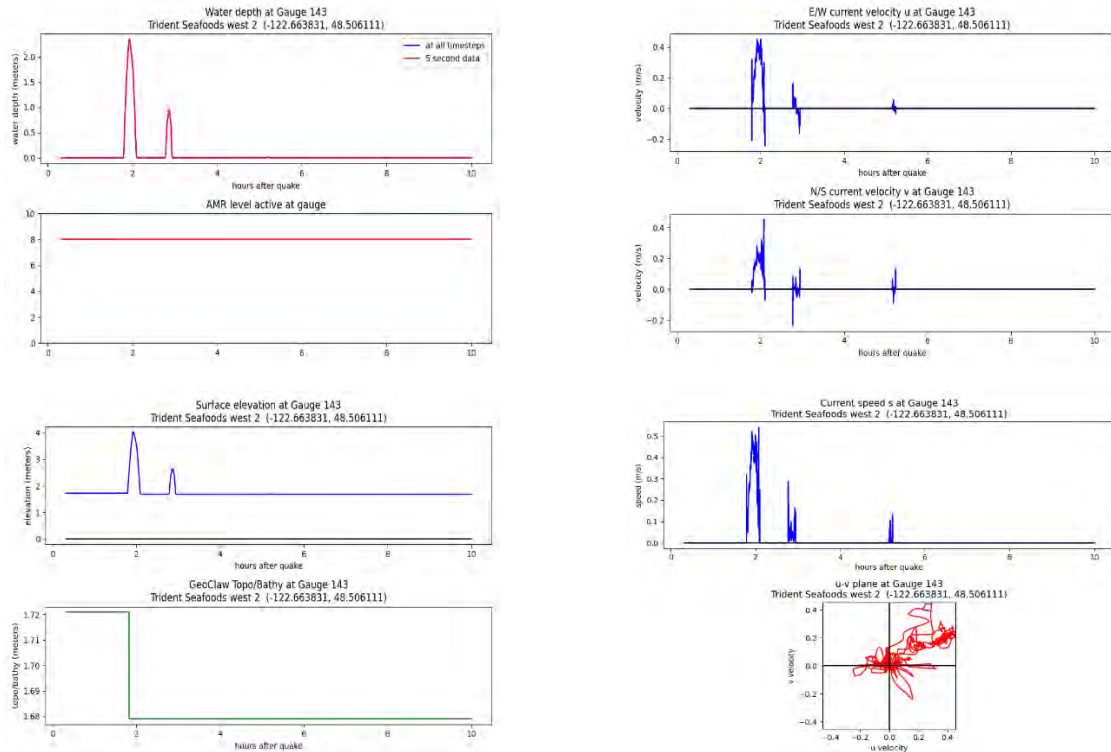


Alaska-Aleutian subduction zone scenario, MLW:

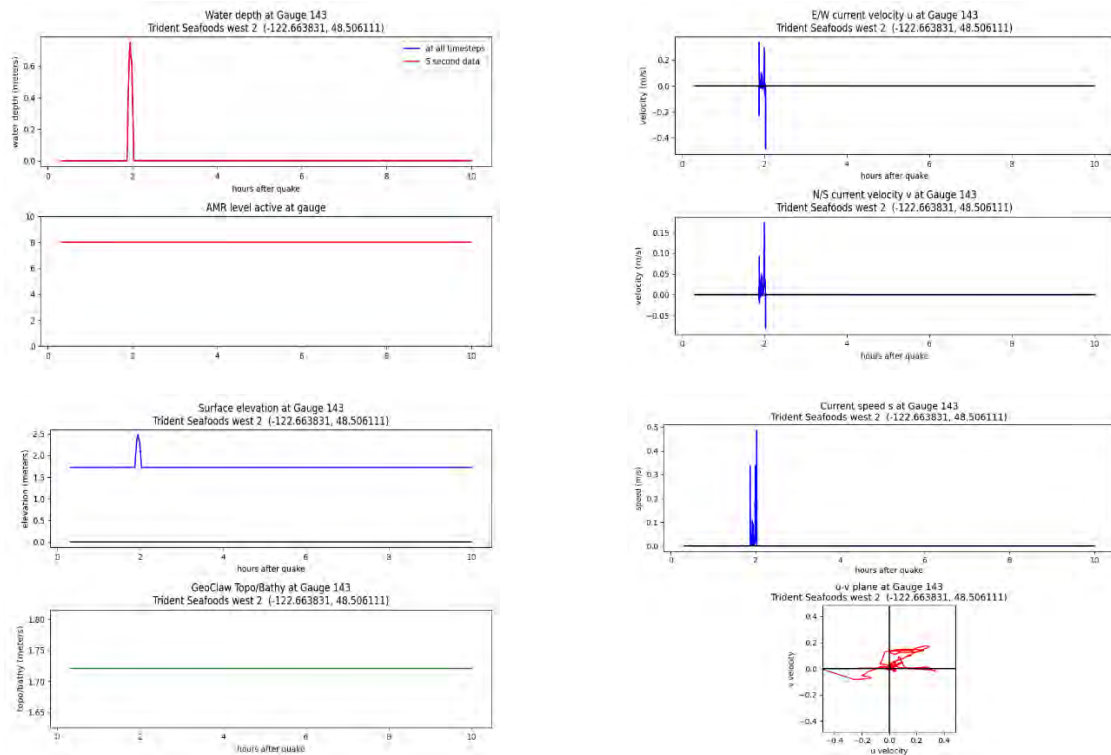


Gauge 143: Walking trail to Lovric's (onshore)

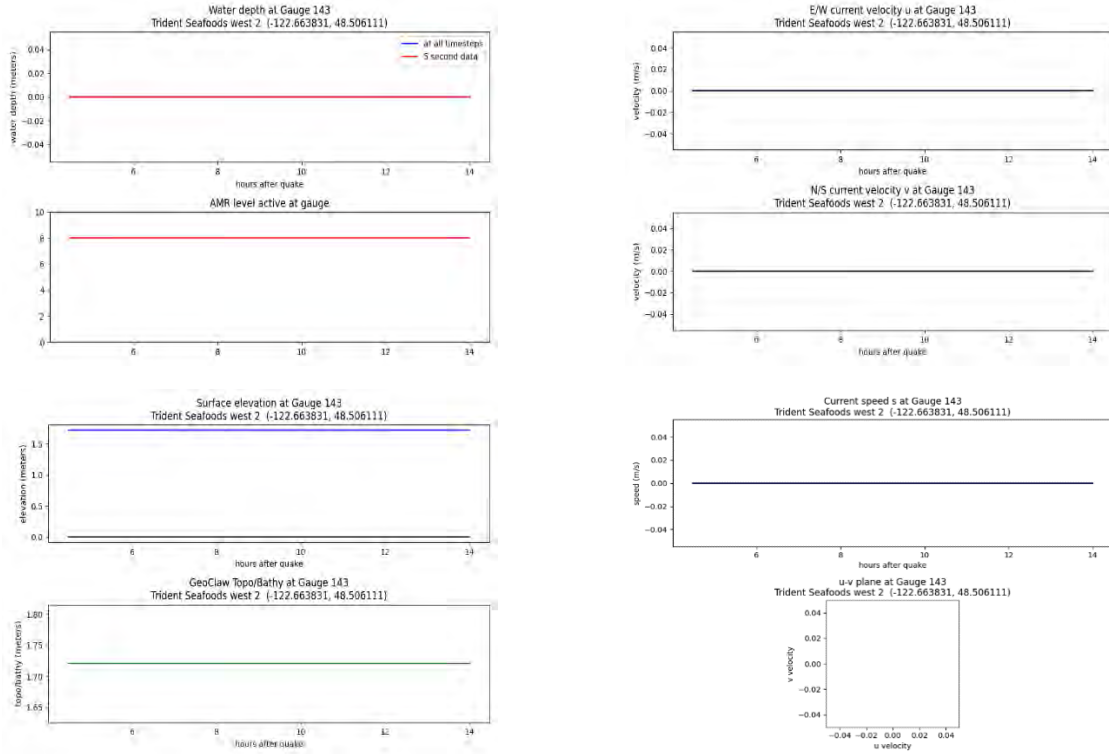
Cascadia subduction zone scenario, MHW:



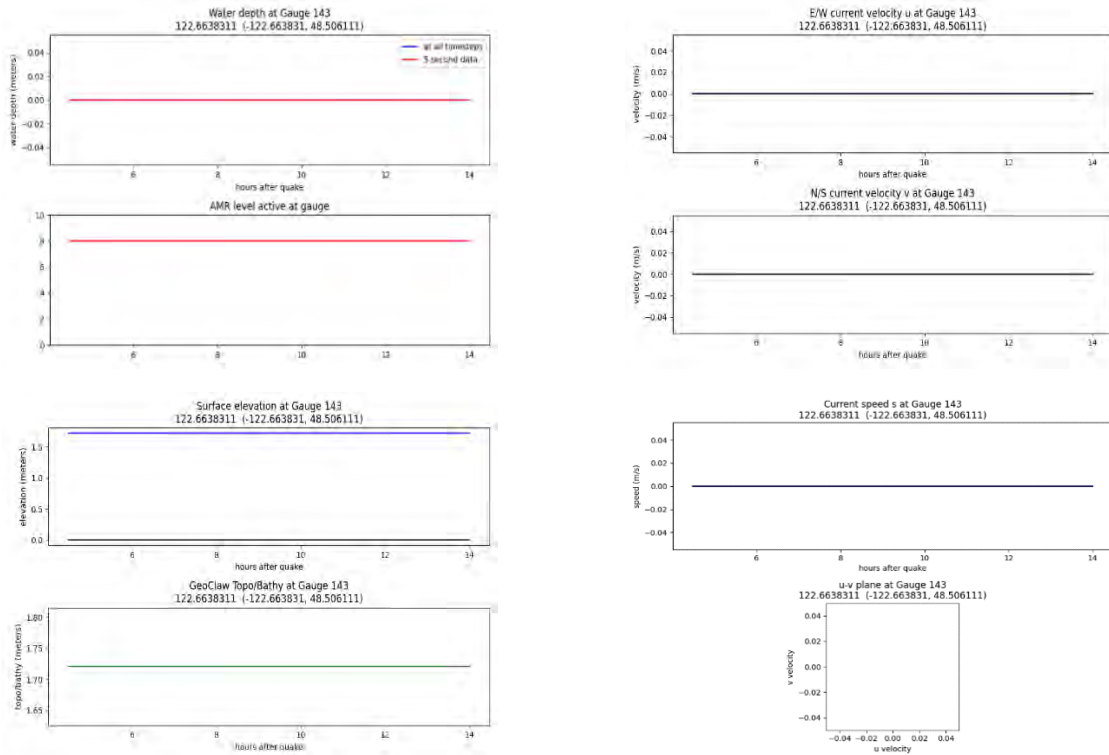
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

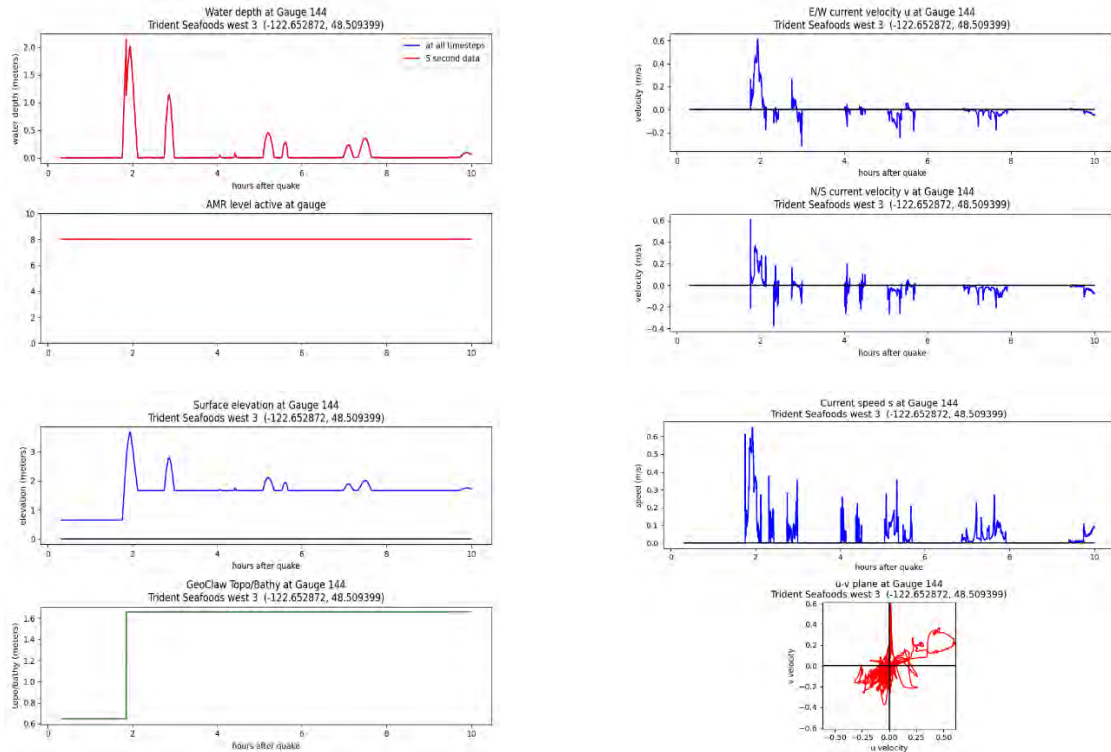


Alaska-Aleutian subduction zone scenario, MLW:

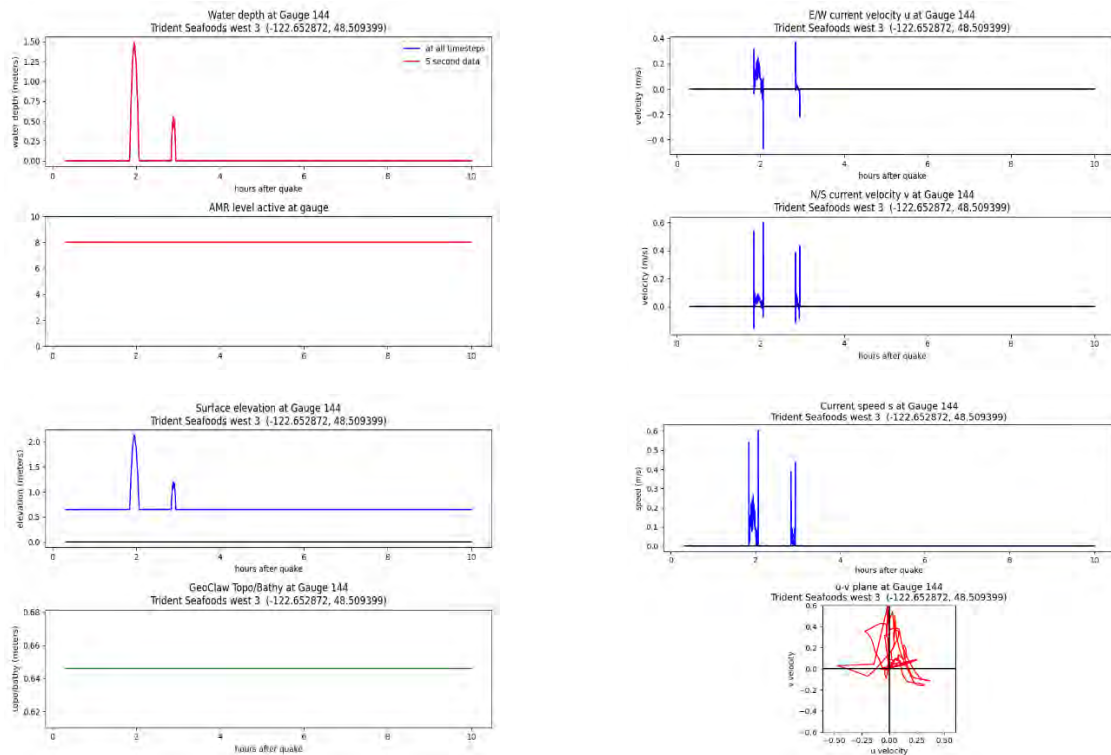


Gauge 144: Walking trail to Lovric's 2 (onshore)

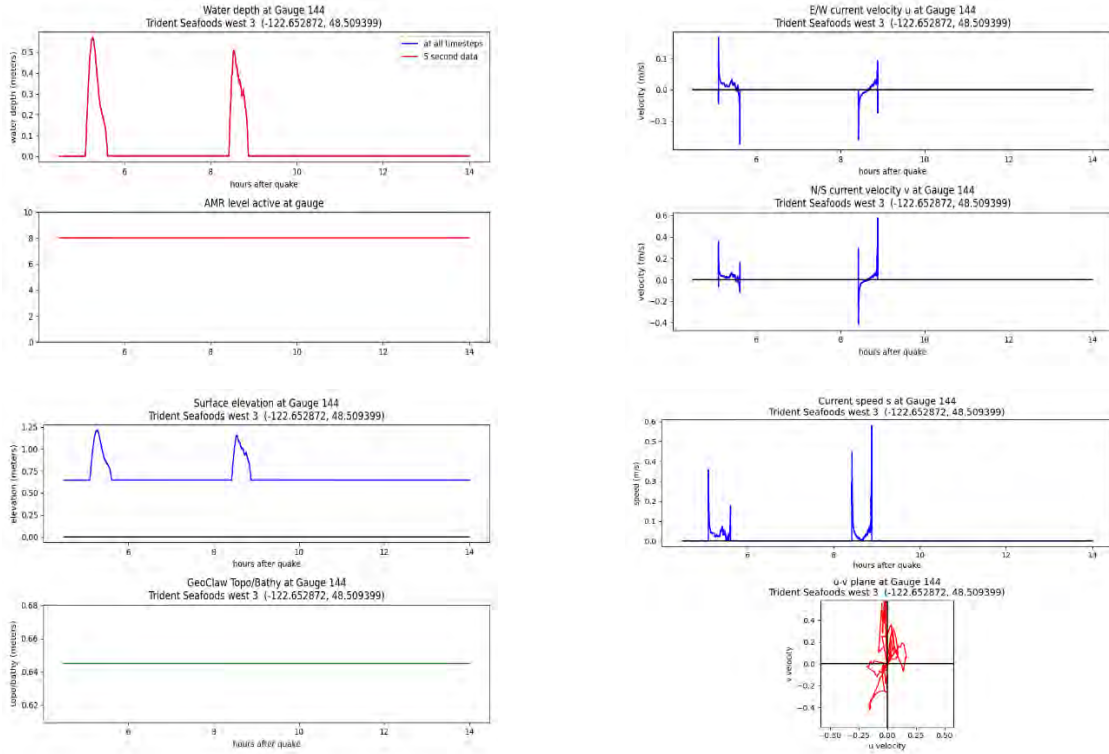
Cascadia subduction zone scenario, MHW:



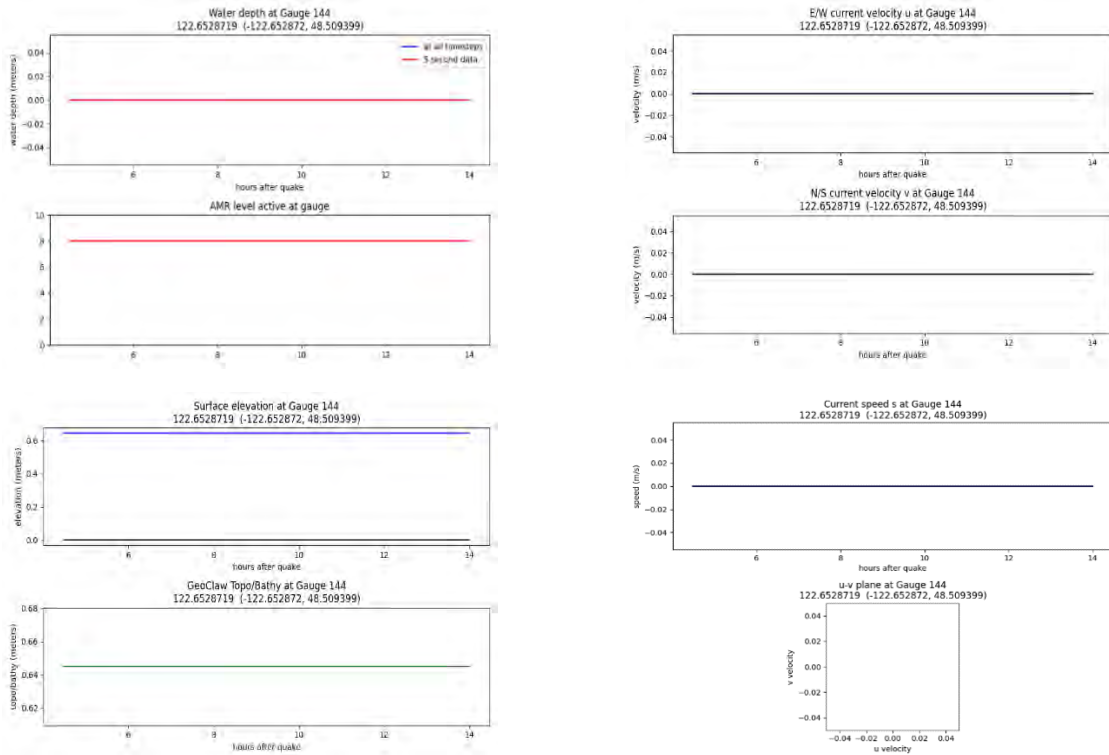
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

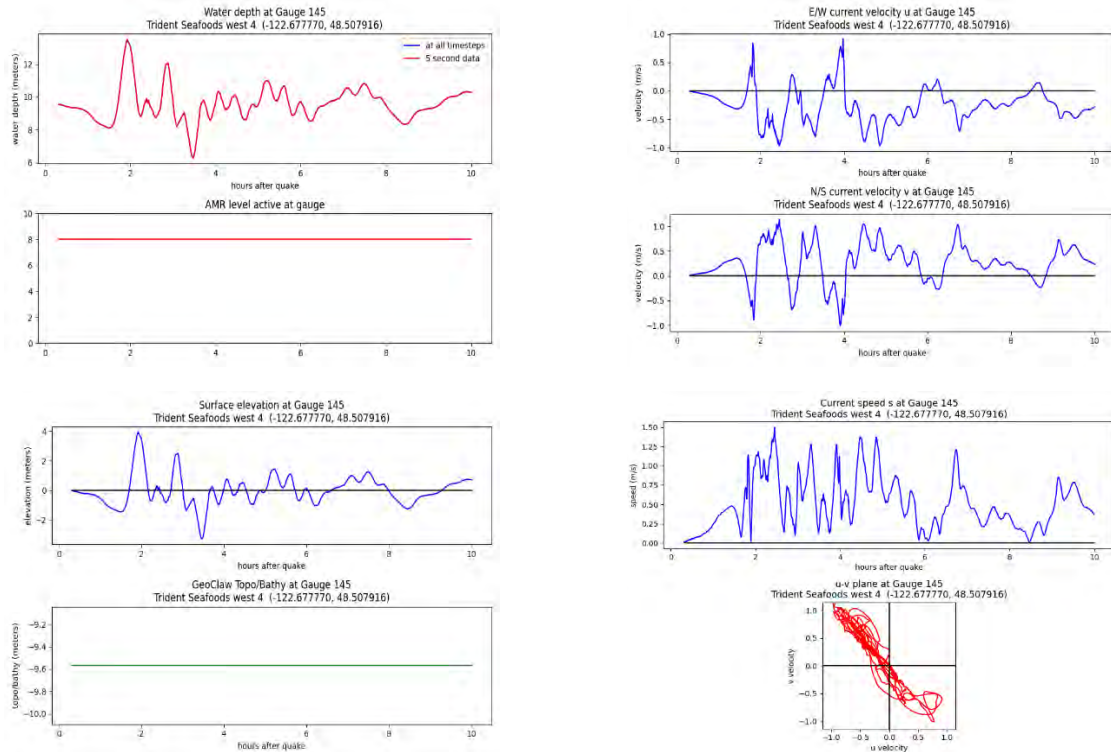


Alaska-Aleutian subduction zone scenario, MLW:

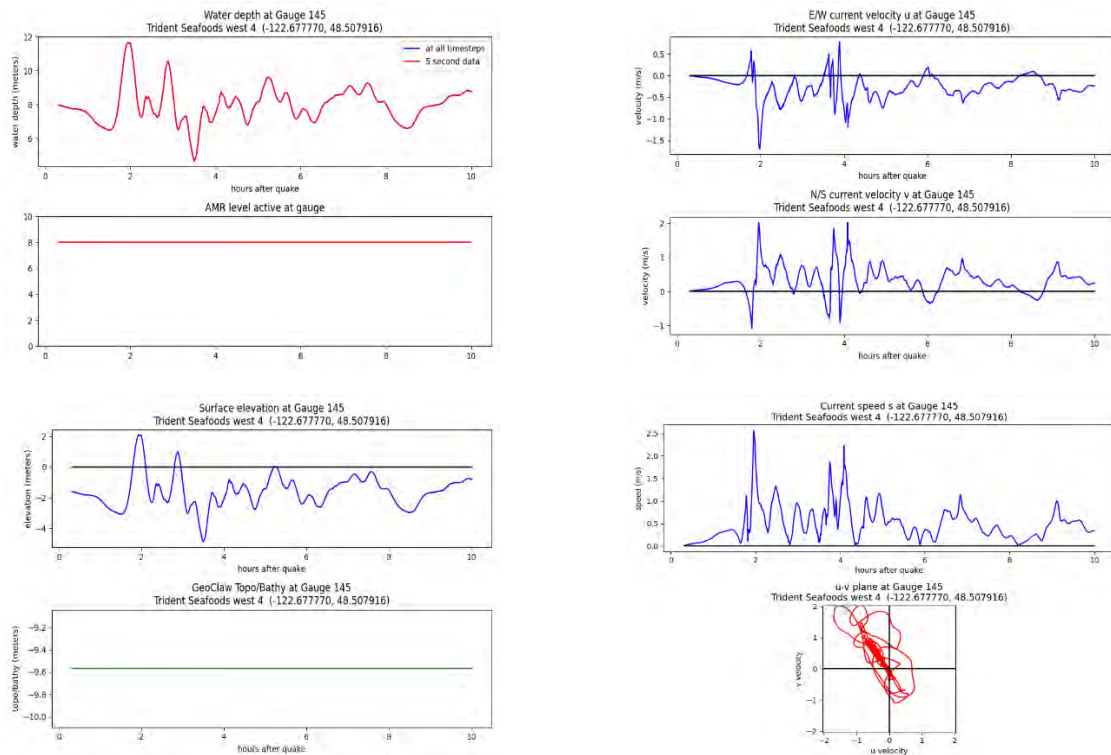


Gauge 145: Anacortes Ferry Terminal dolphins 1

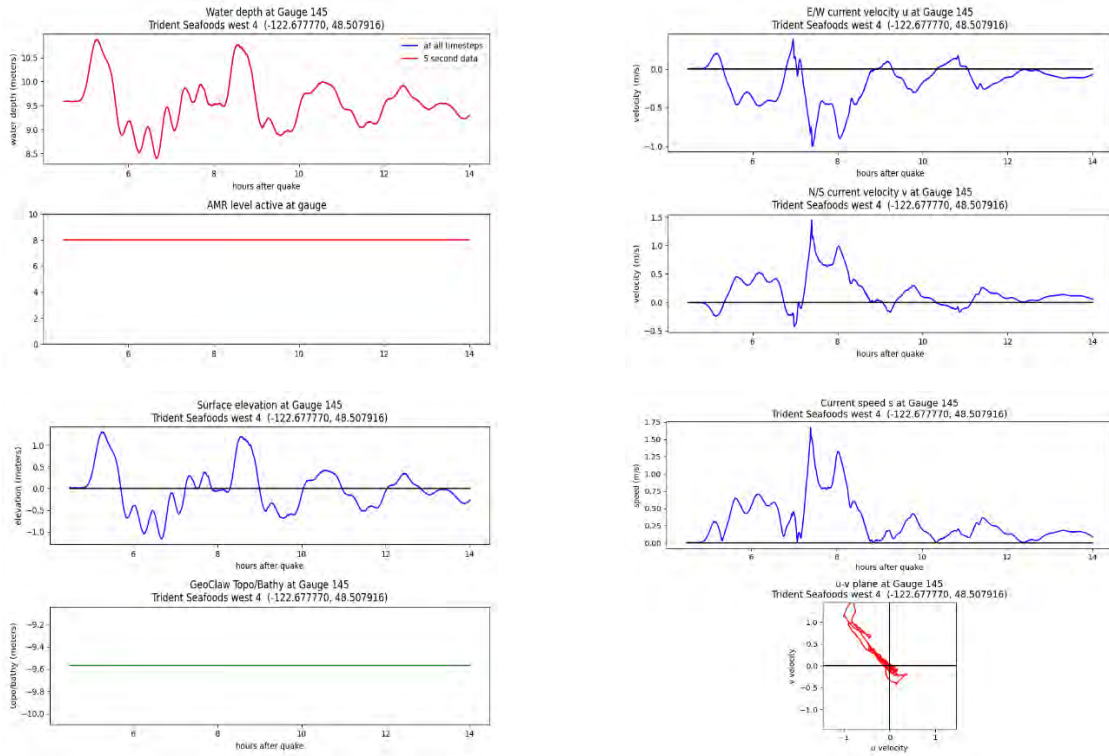
Cascadia subduction zone scenario, MHW:



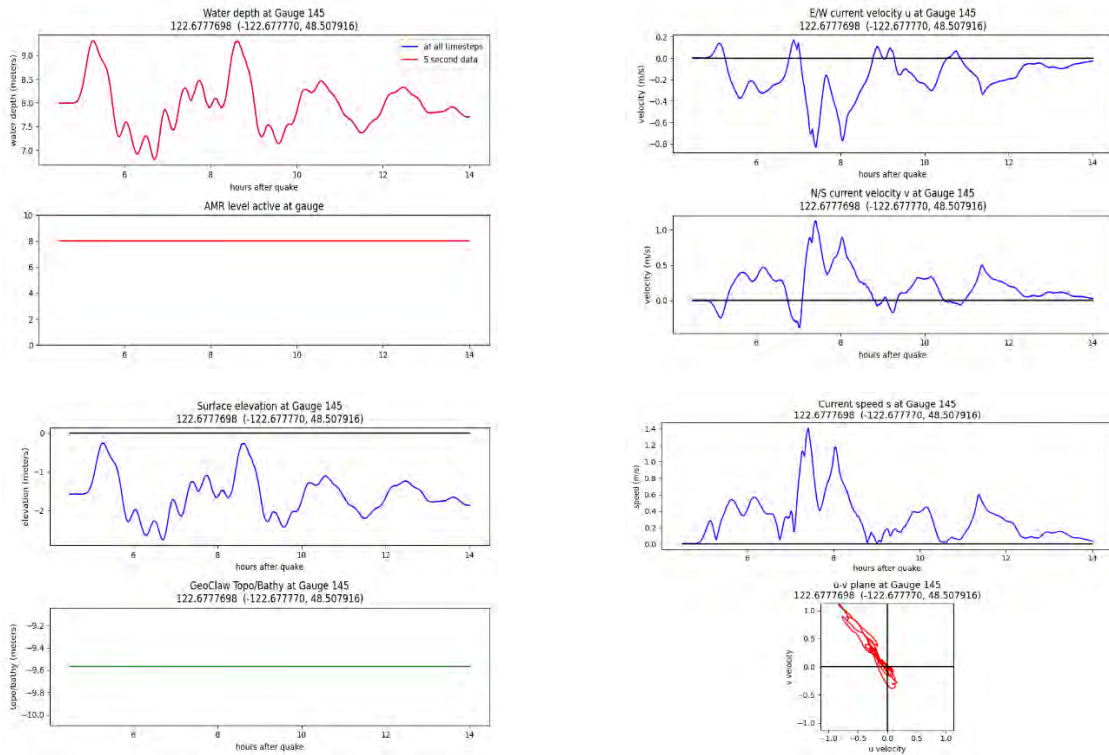
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

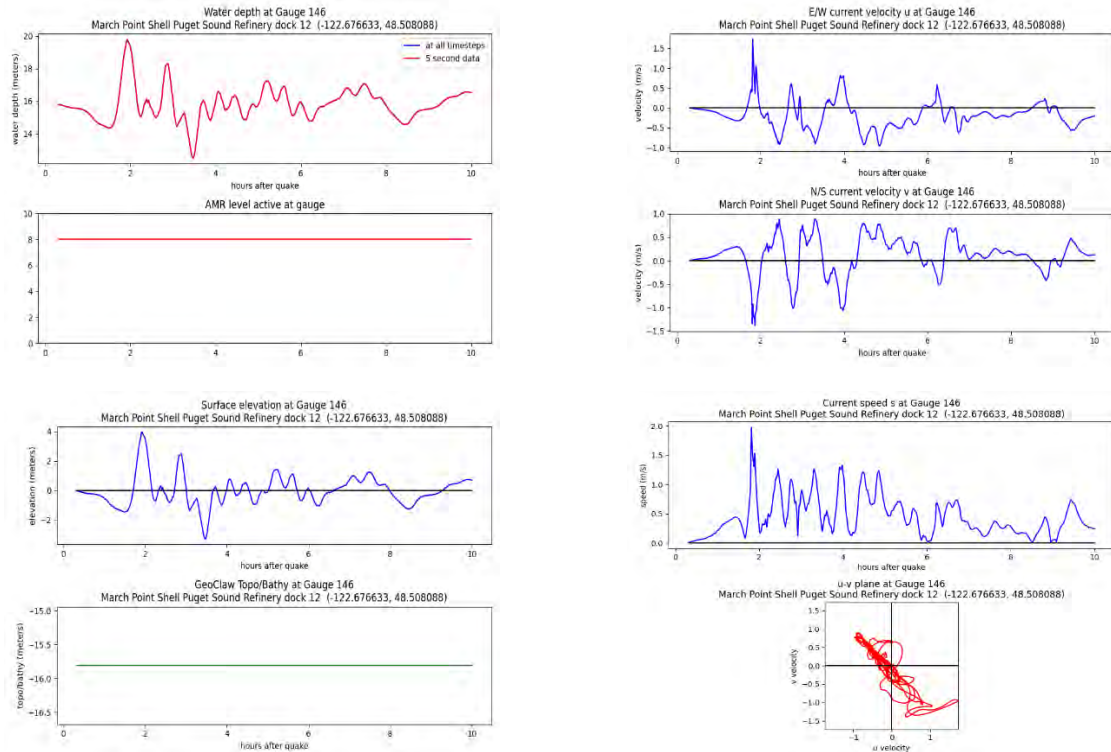


Alaska-Aleutian subduction zone scenario, MLW:

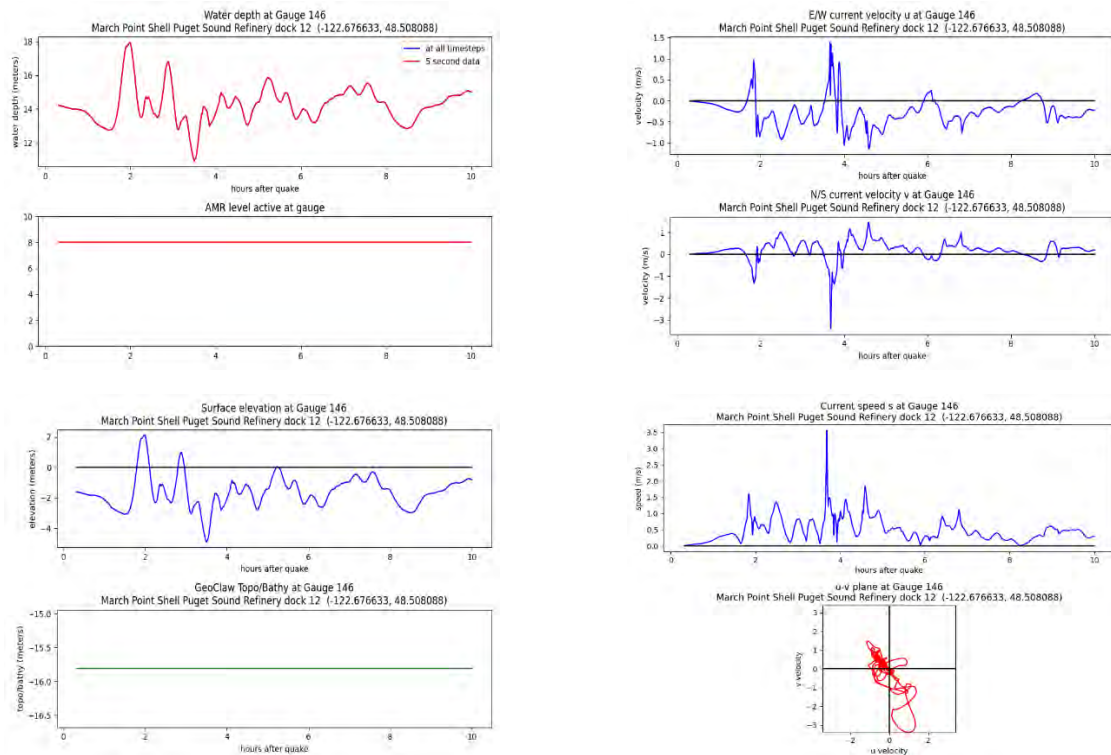


Gauge 146: Anacortes Ferry Terminal dolphins 2

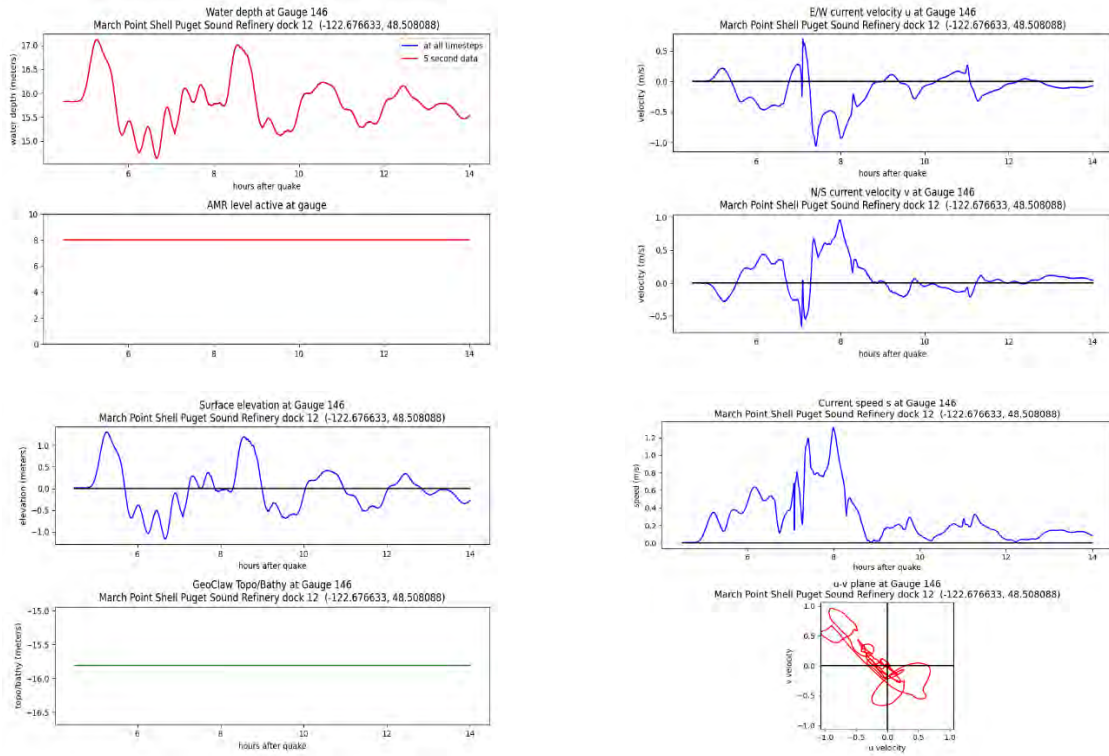
Cascadia subduction zone scenario, MHW:



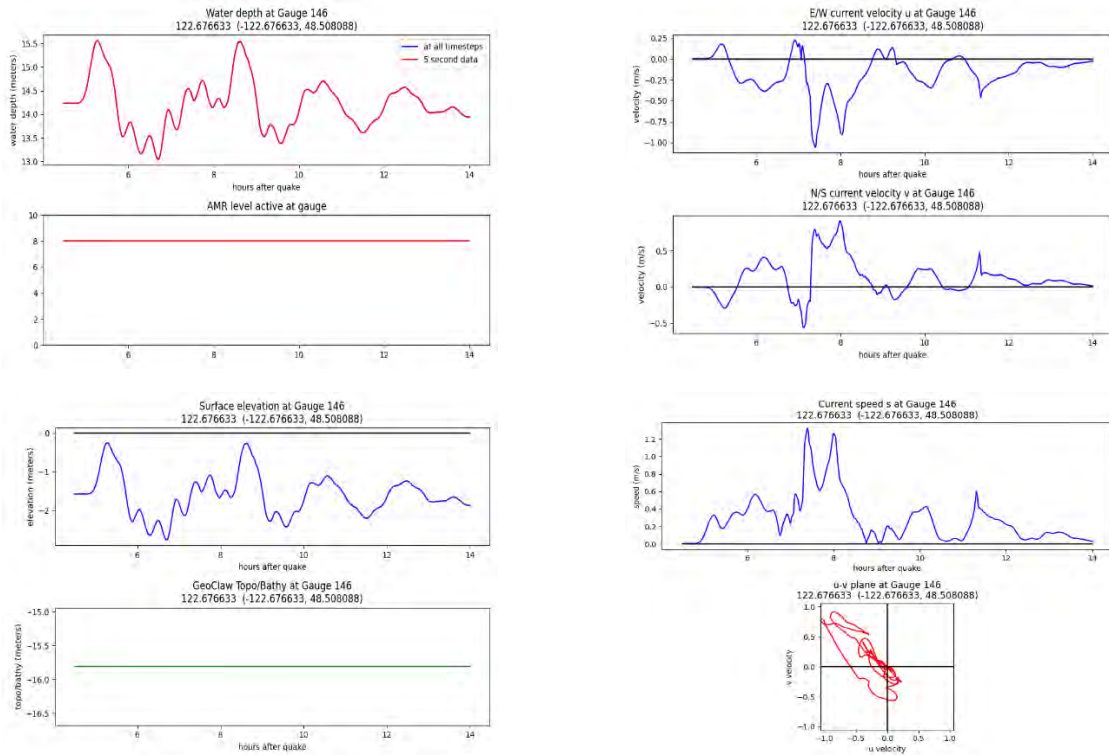
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

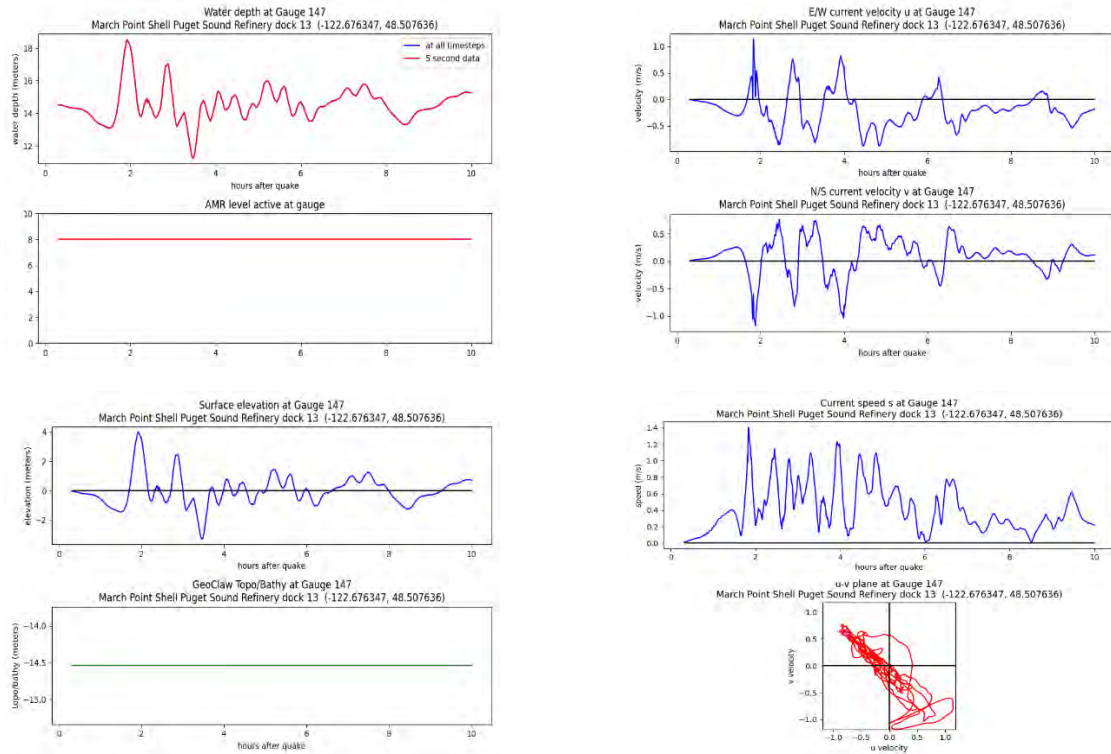


Alaska-Aleutian subduction zone scenario, MLW:

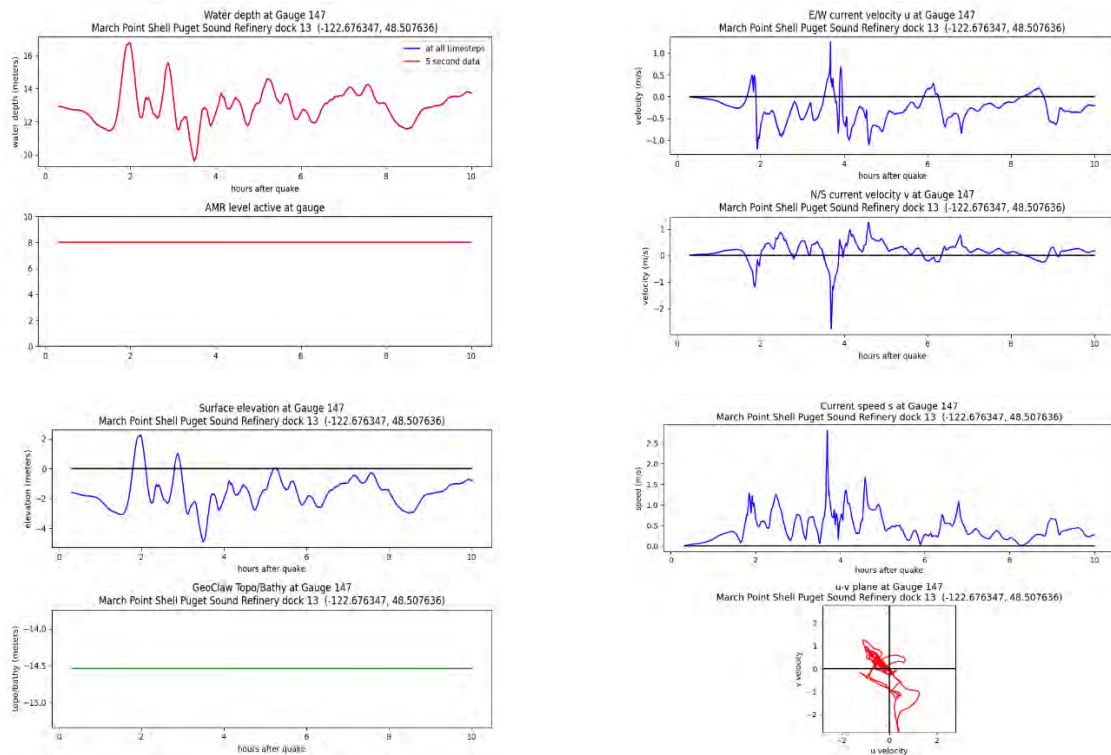


Gauge 147: Anacortes Ferry Terminal dolphins 3

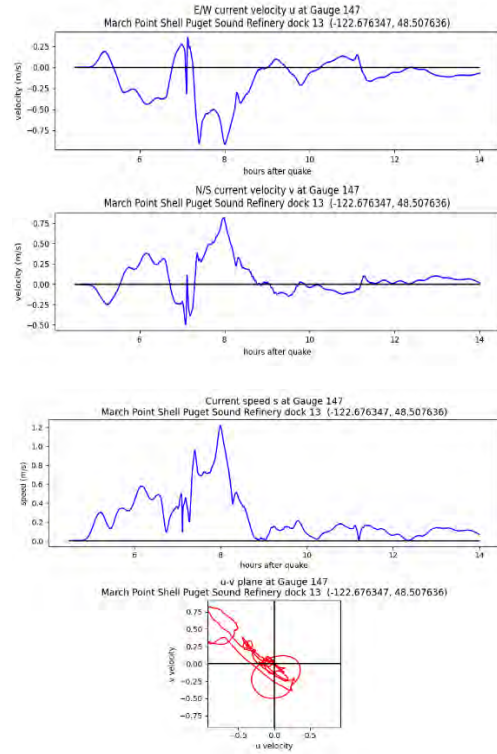
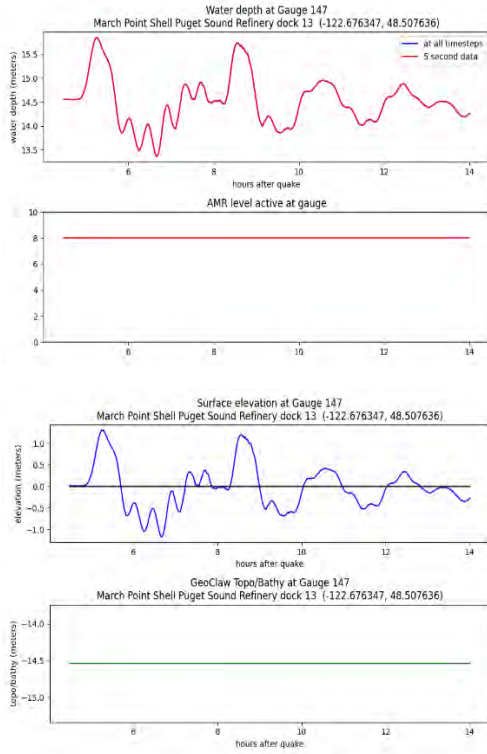
Cascadia subduction zone scenario, MHW:



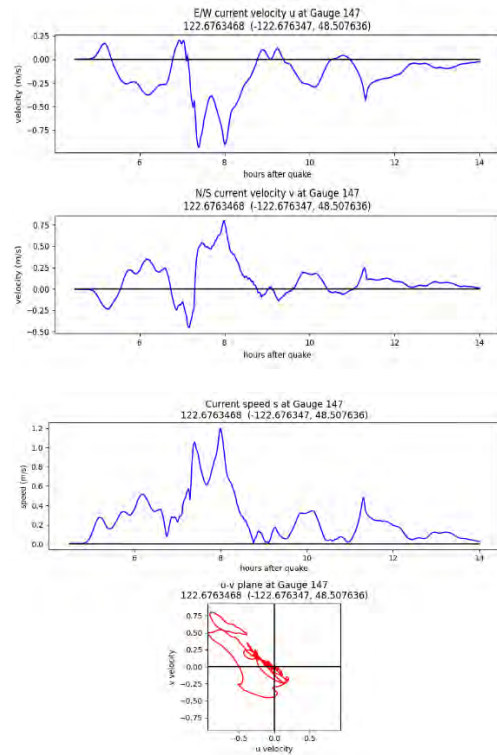
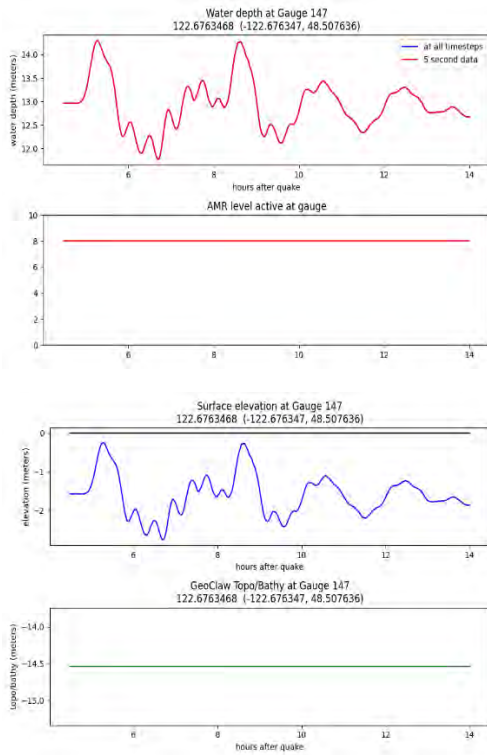
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

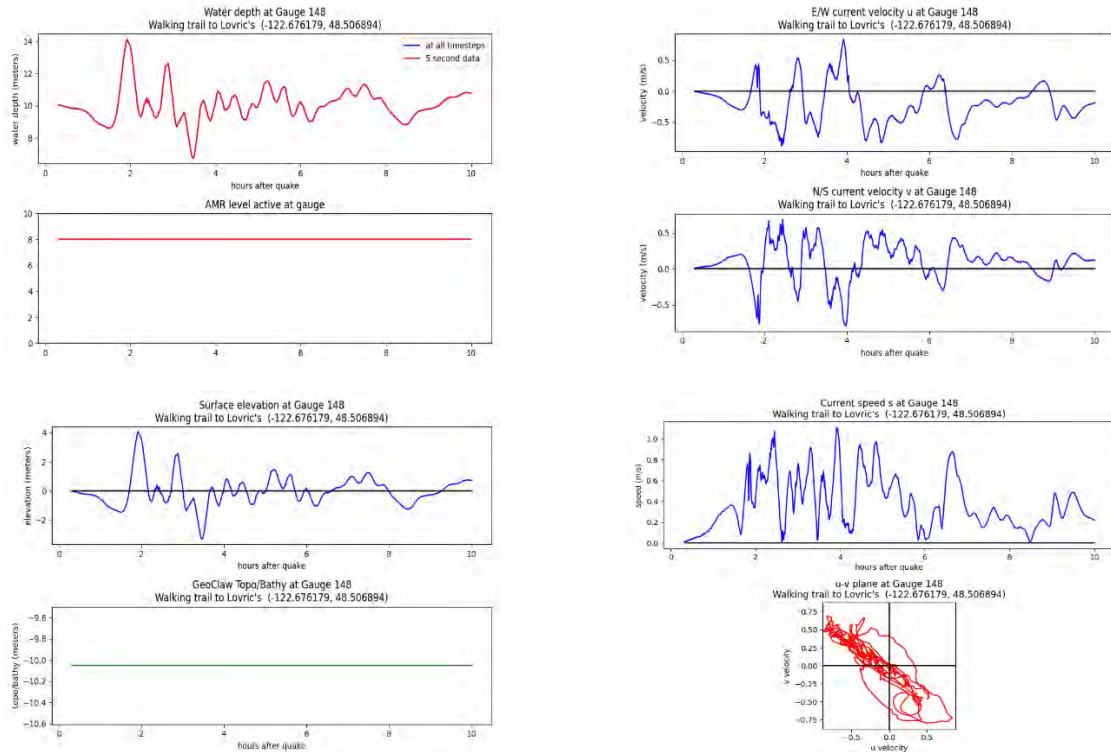


Alaska-Aleutian subduction zone scenario, MLW:

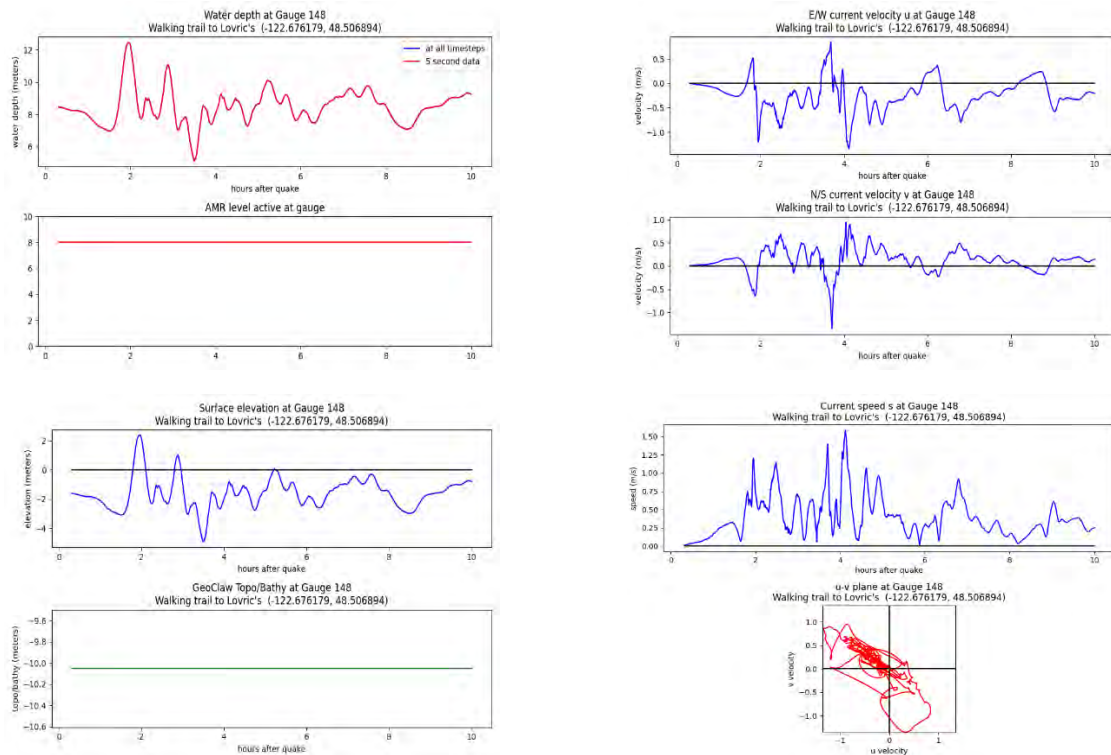


Gauge 148: Anacortes Ferry Terminal dolphins 4

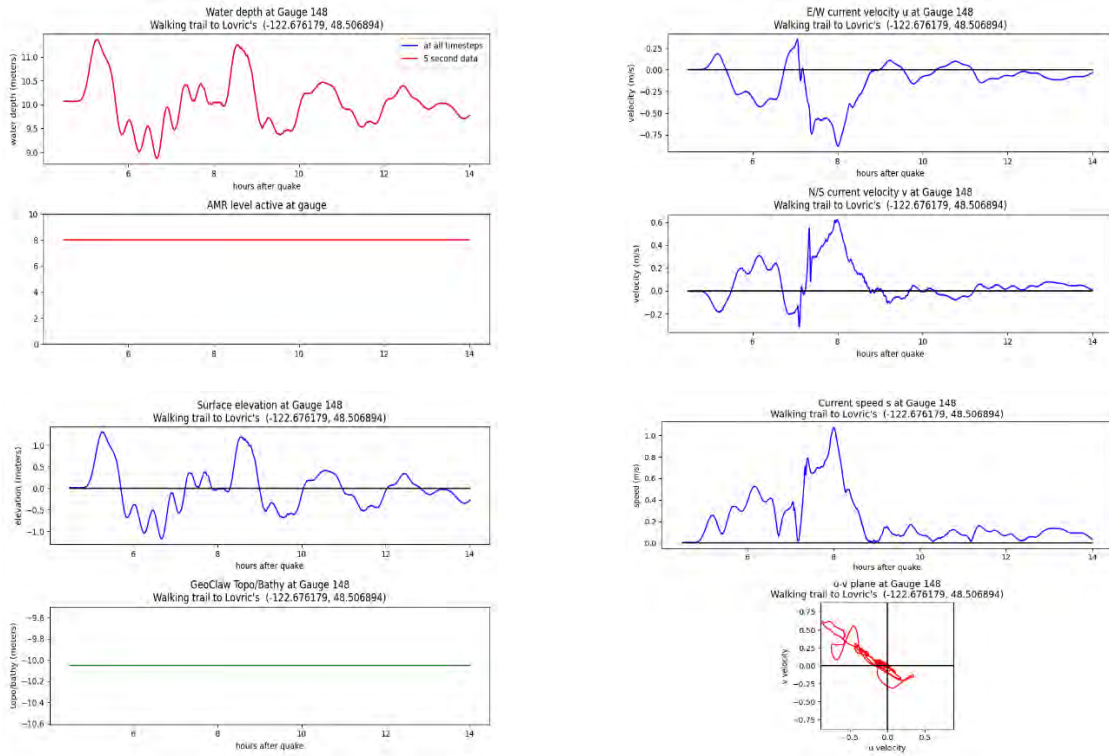
Cascadia subduction zone scenario, MHW:



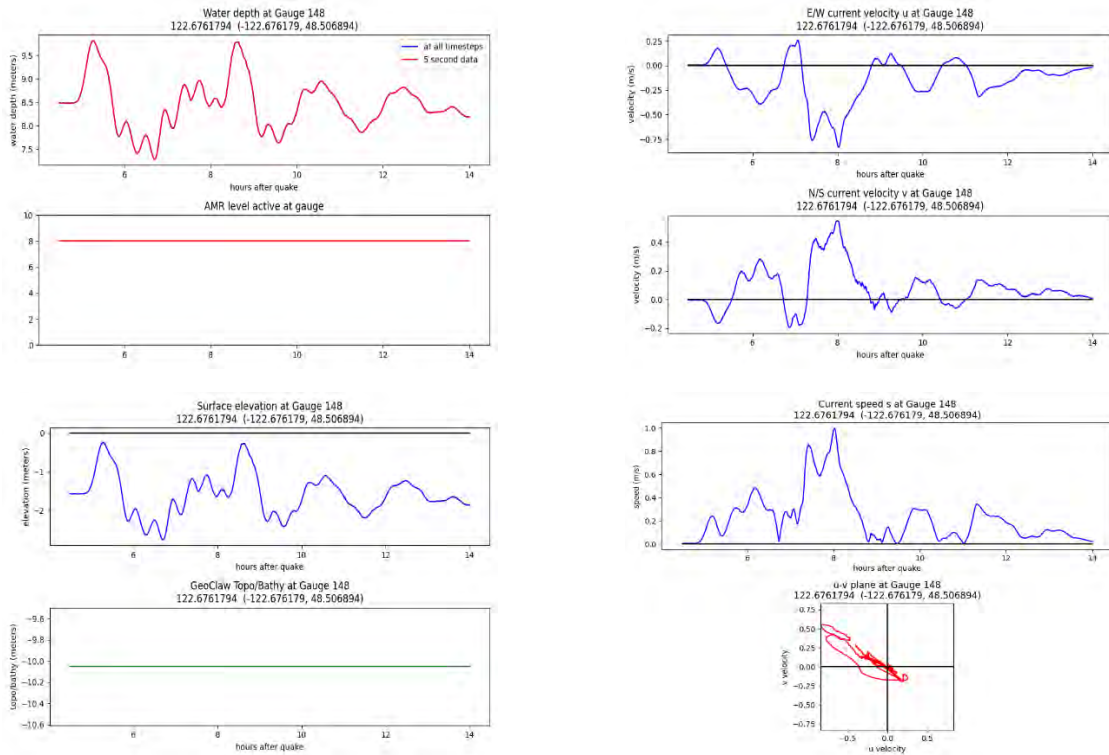
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

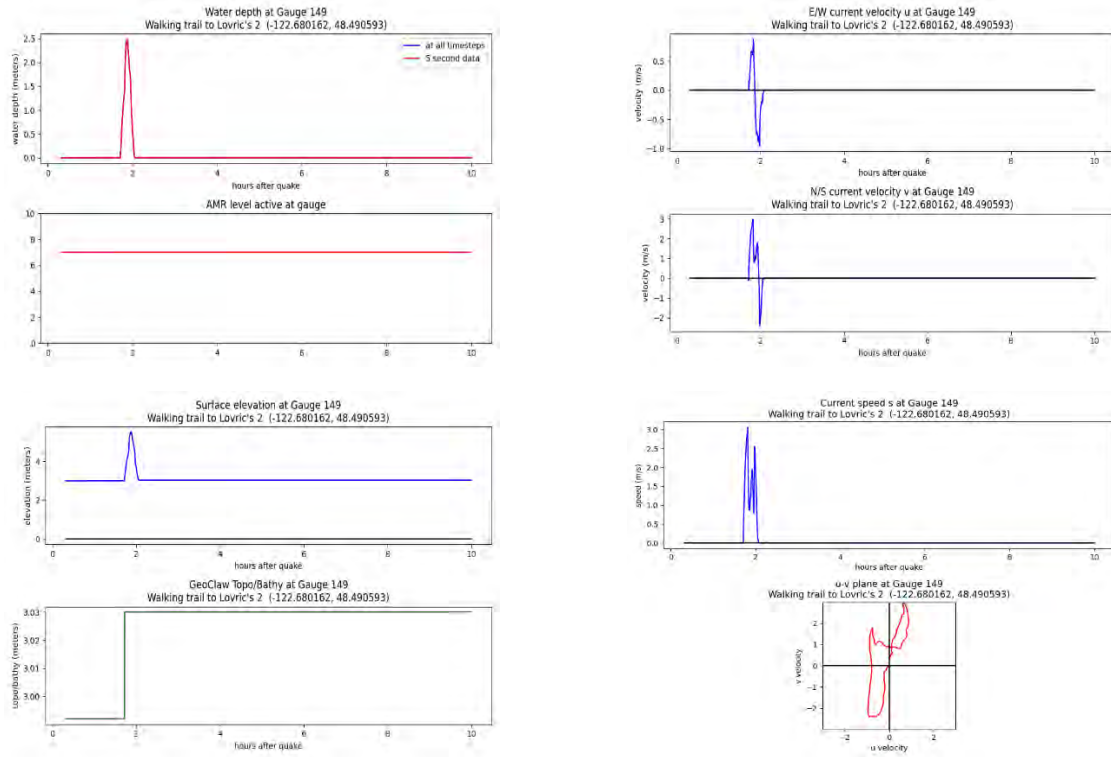


Alaska-Aleutian subduction zone scenario, MLW:

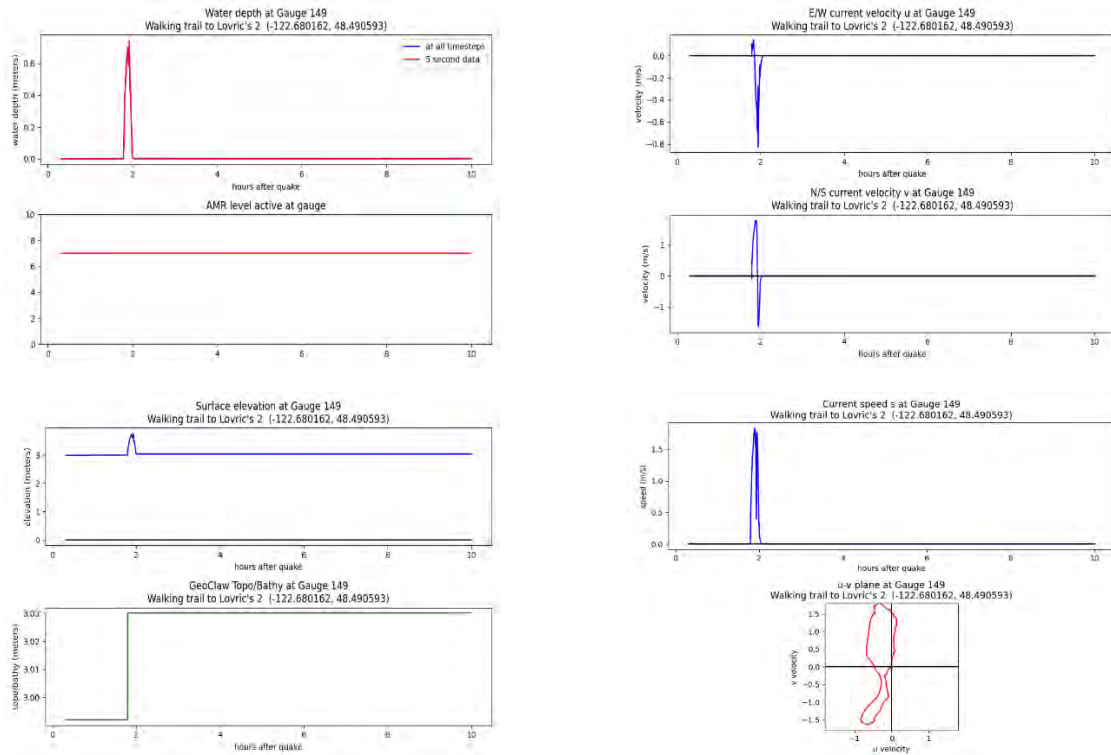


Gauge 149: Flouder Bay Condos (onshore)

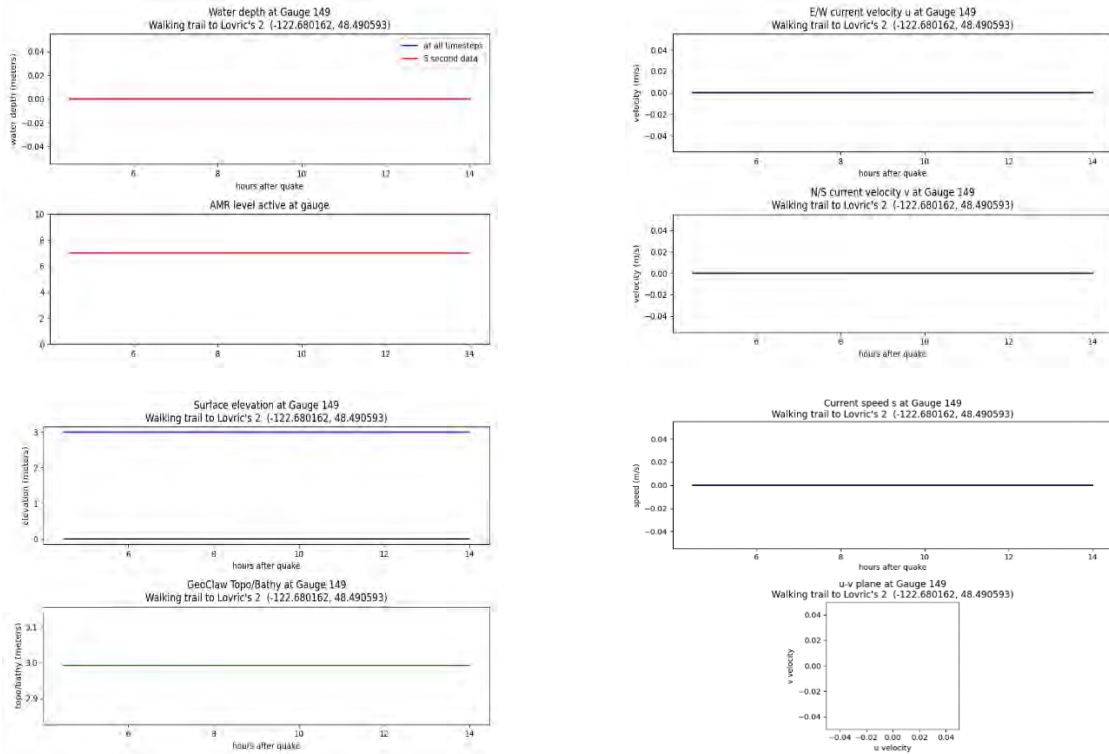
Cascadia subduction zone scenario, MHW:



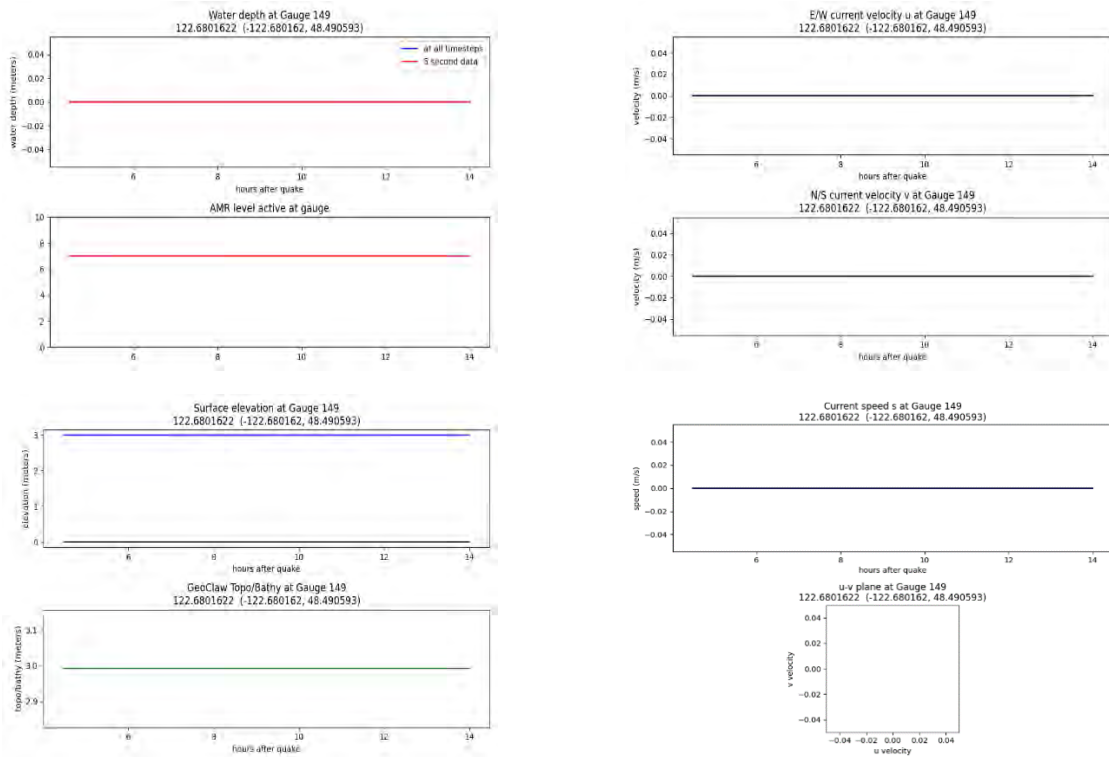
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

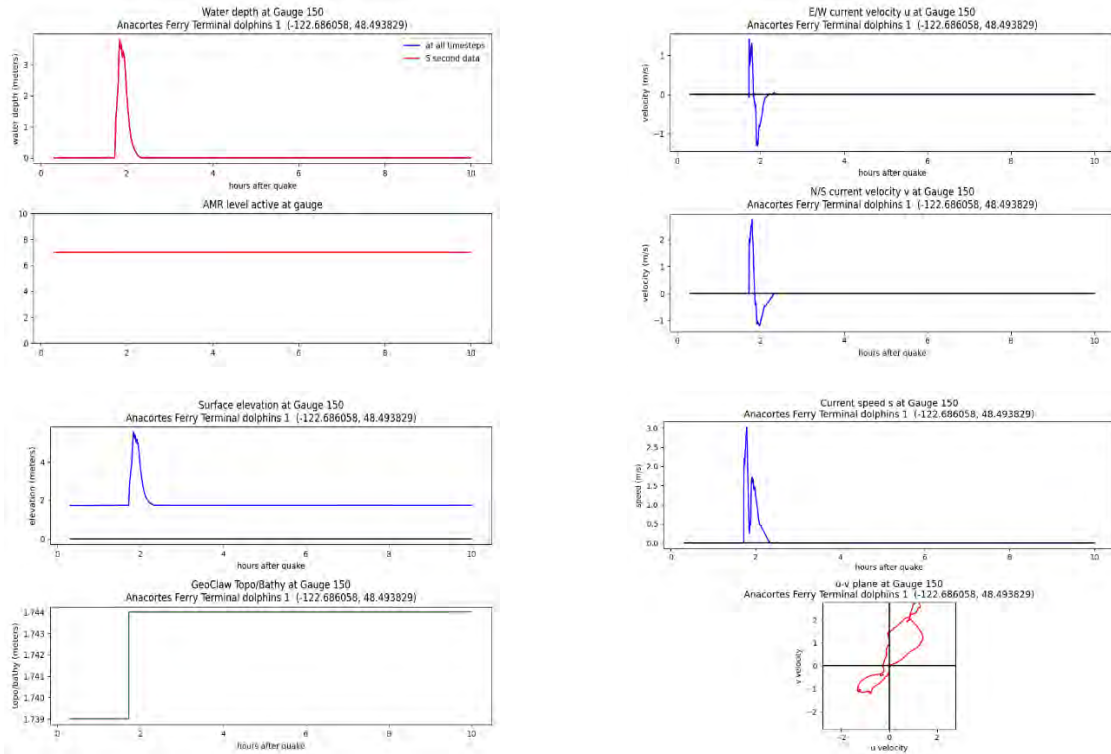


Alaska-Aleutian subduction zone scenario, MLW:

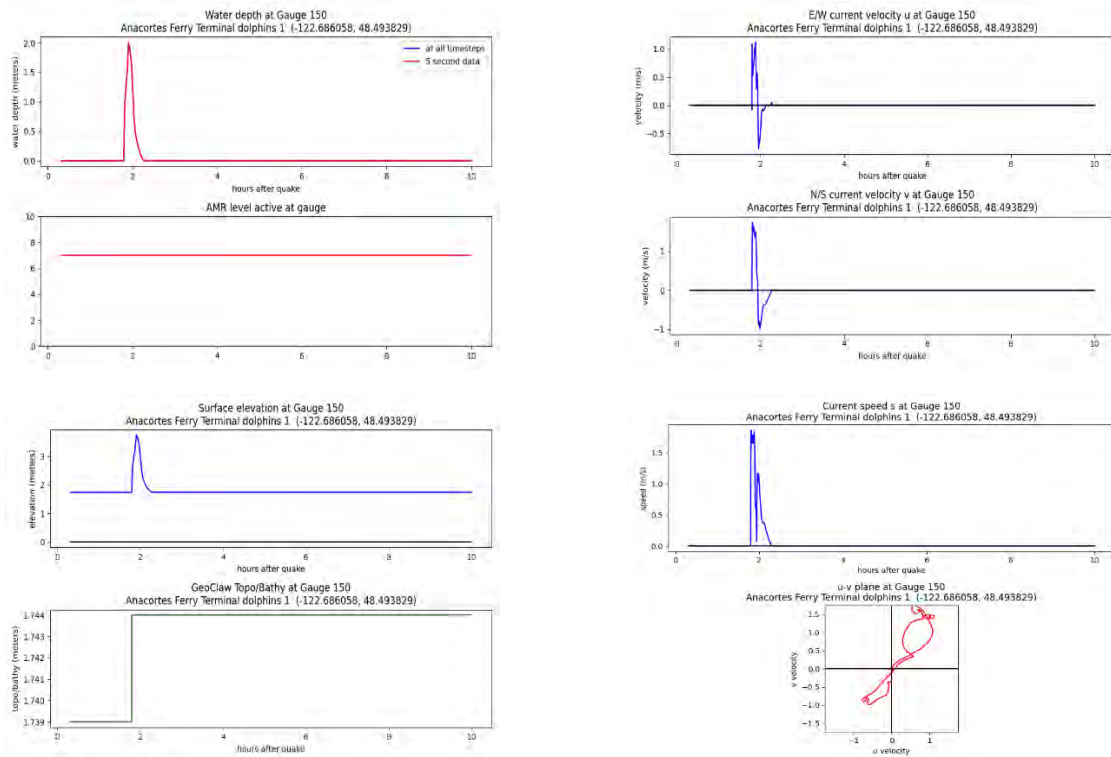


Gauge 150: Flounder Bay boat storage (onshore)

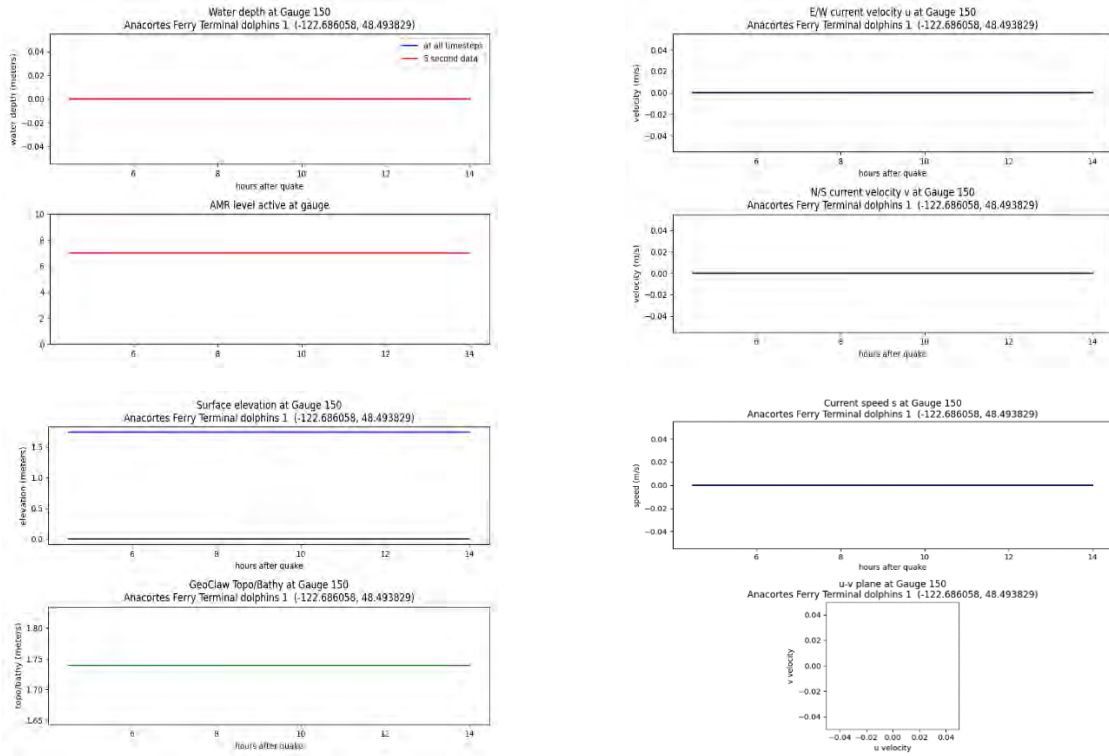
Cascadia subduction zone scenario, MHW:



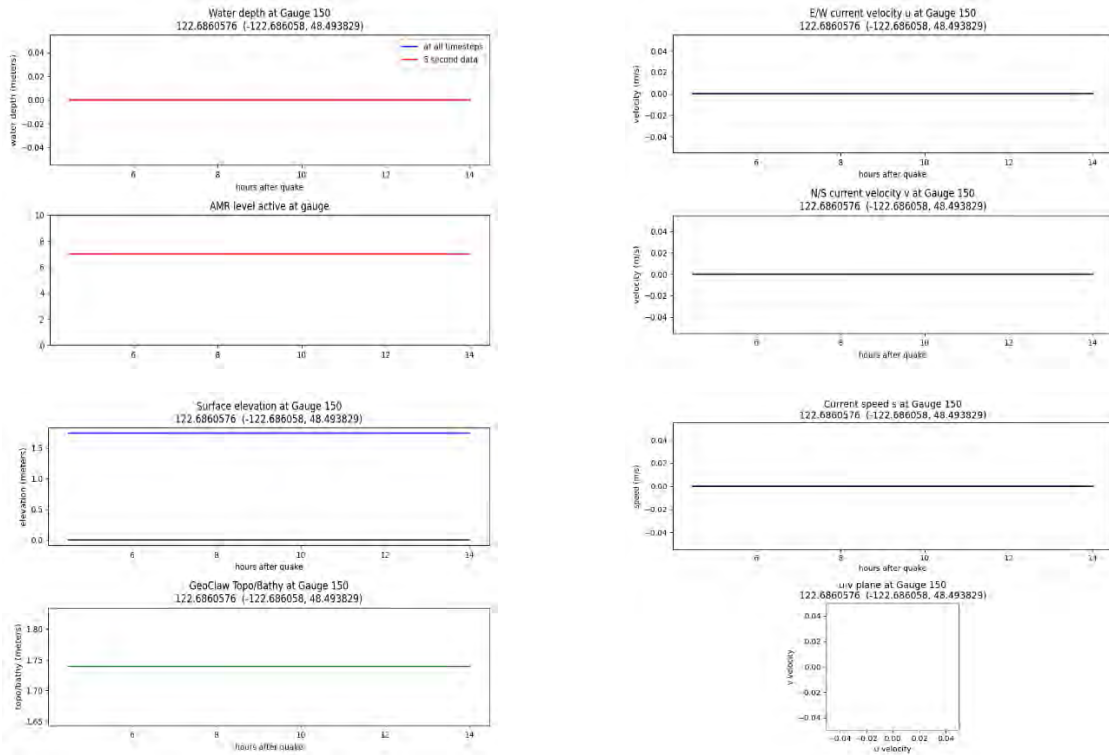
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

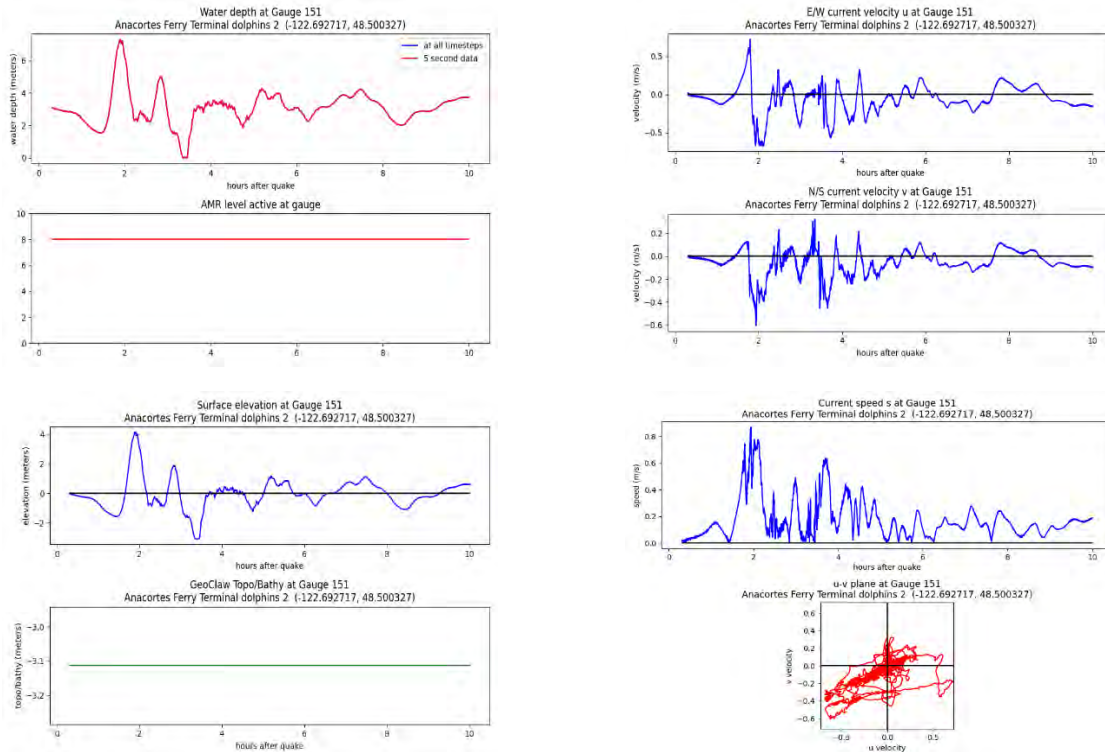


Alaska-Aleutian subduction zone scenario, MLW:

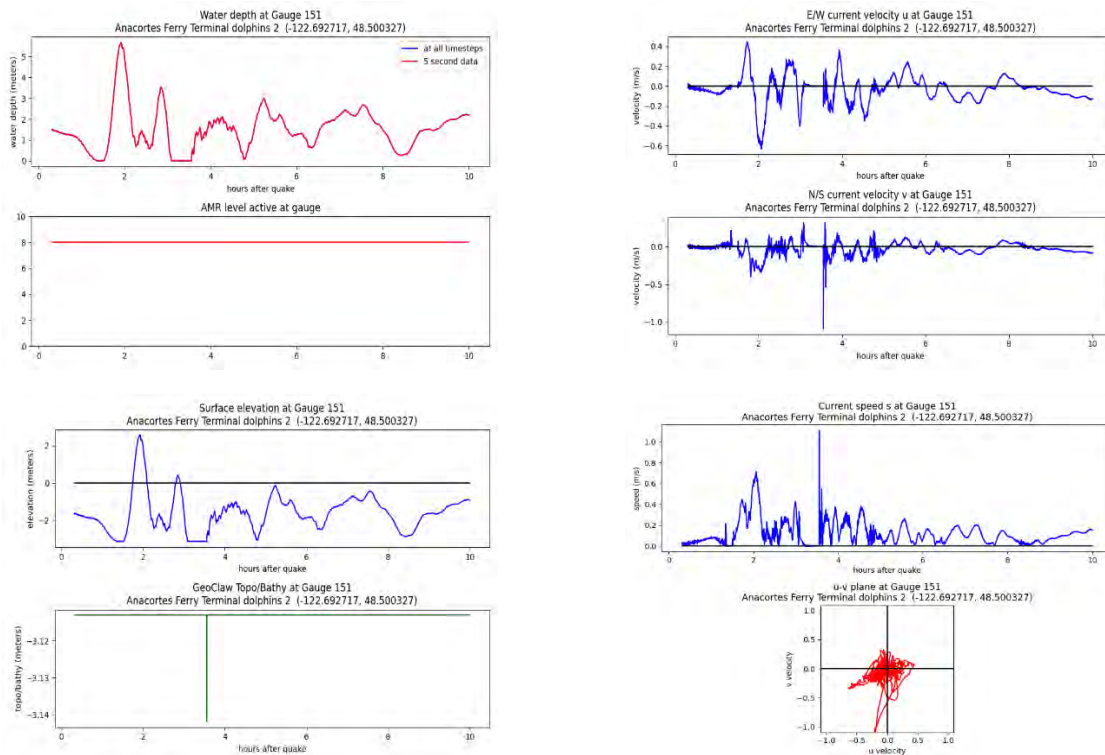


Gauge 151: Washington Park Boat Launch

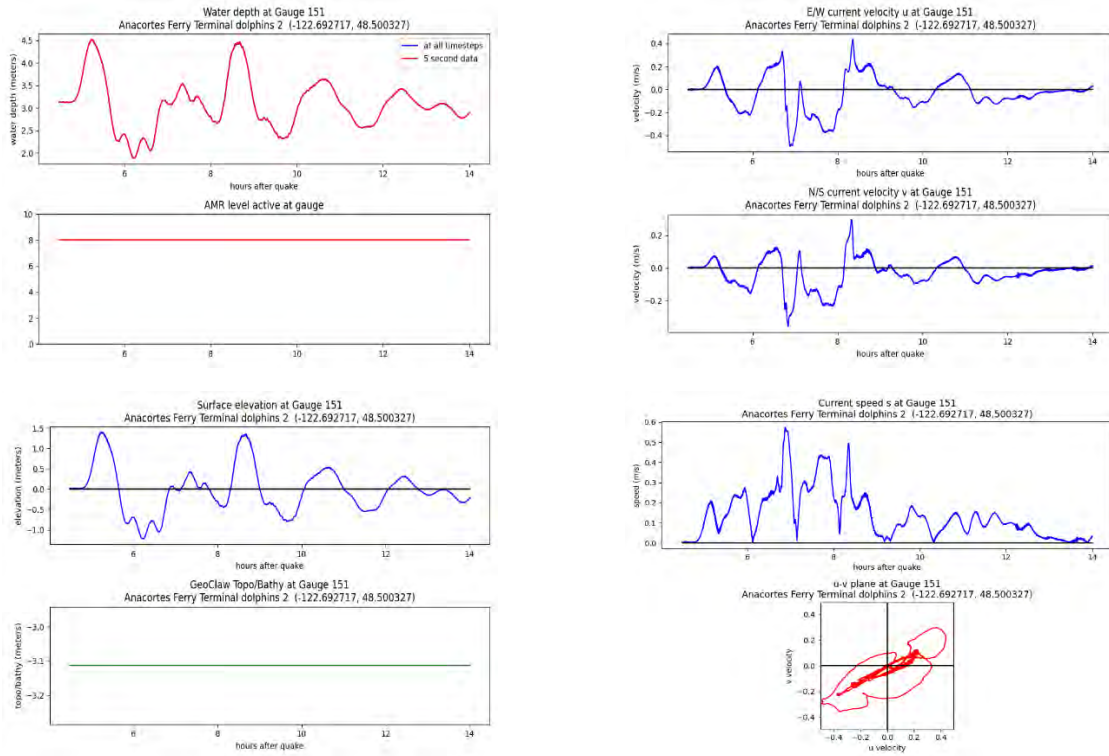
Cascadia subduction zone scenario, MHW:



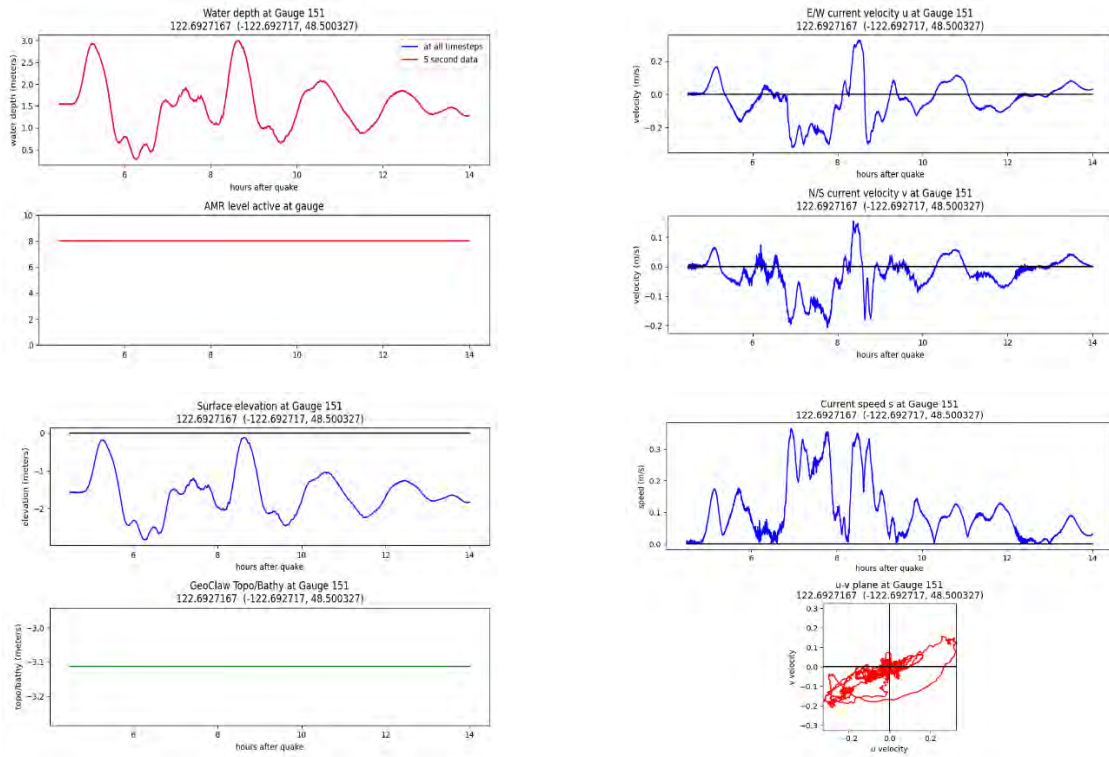
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

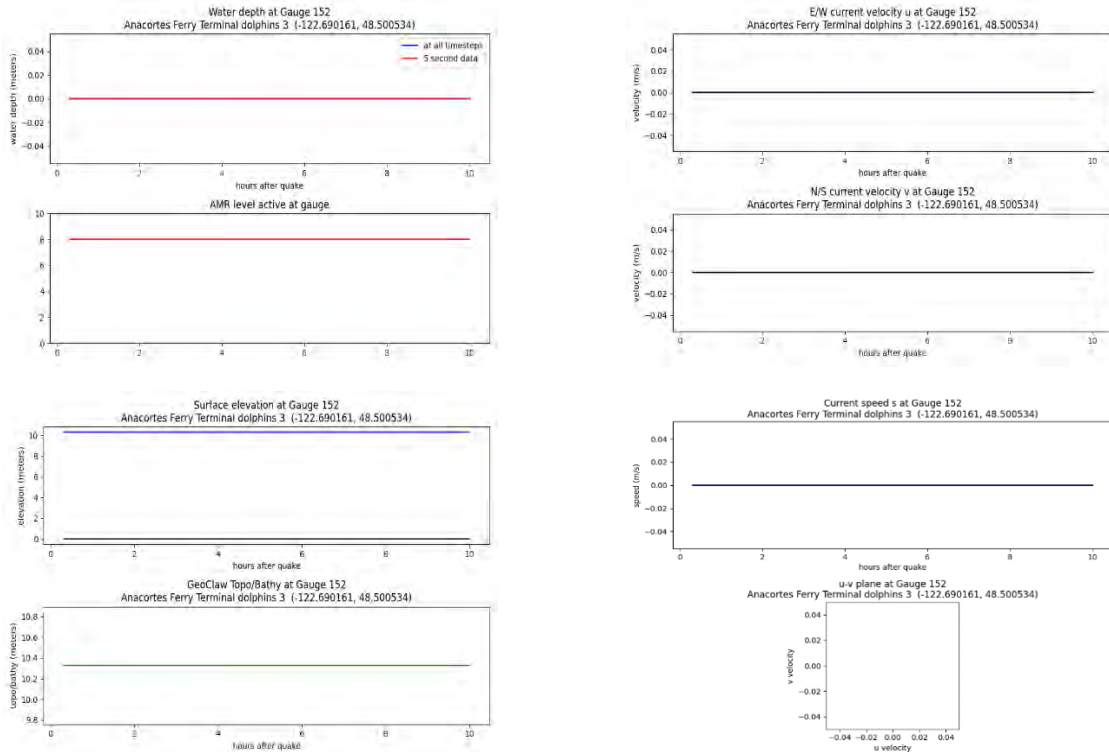


Alaska-Aleutian subduction zone scenario, MLW:

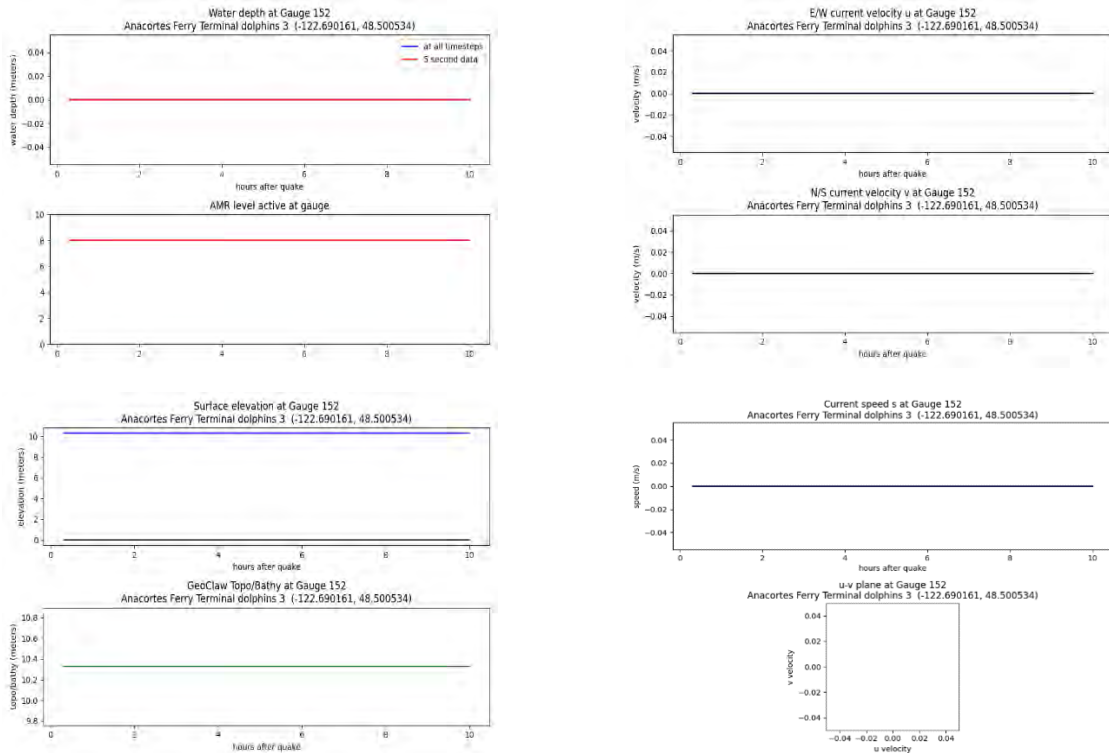


Gauge 152: PSE power station at Washington Park (onshore)

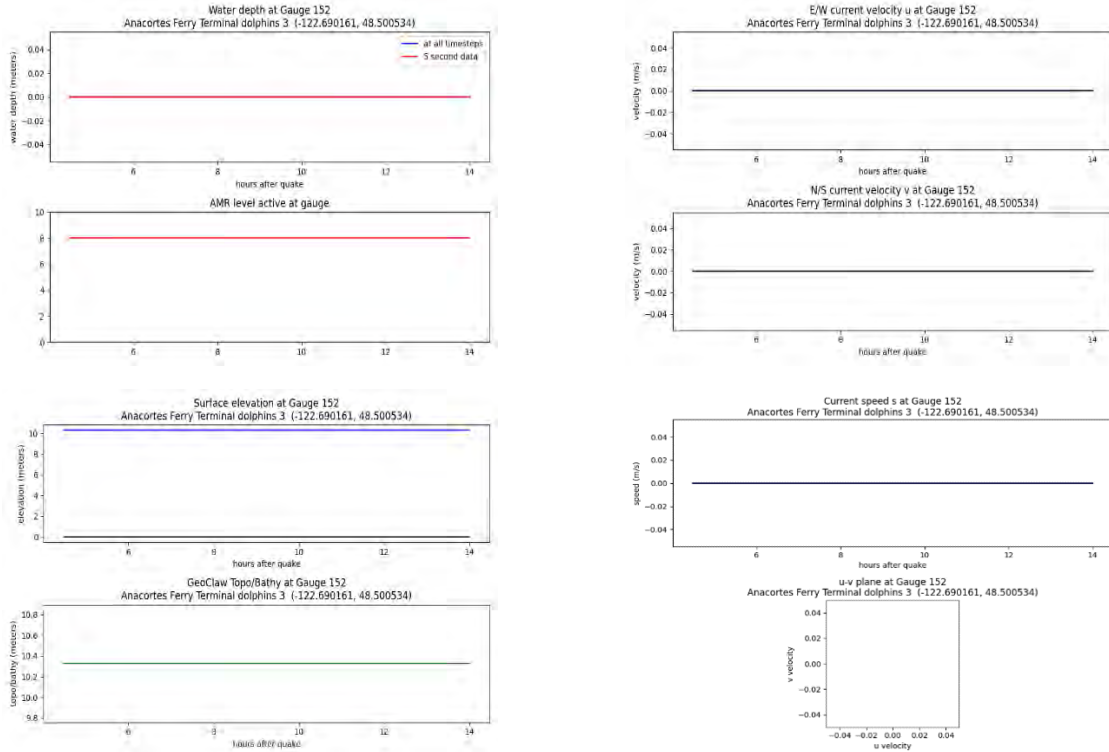
Cascadia subduction zone scenario, MHW:



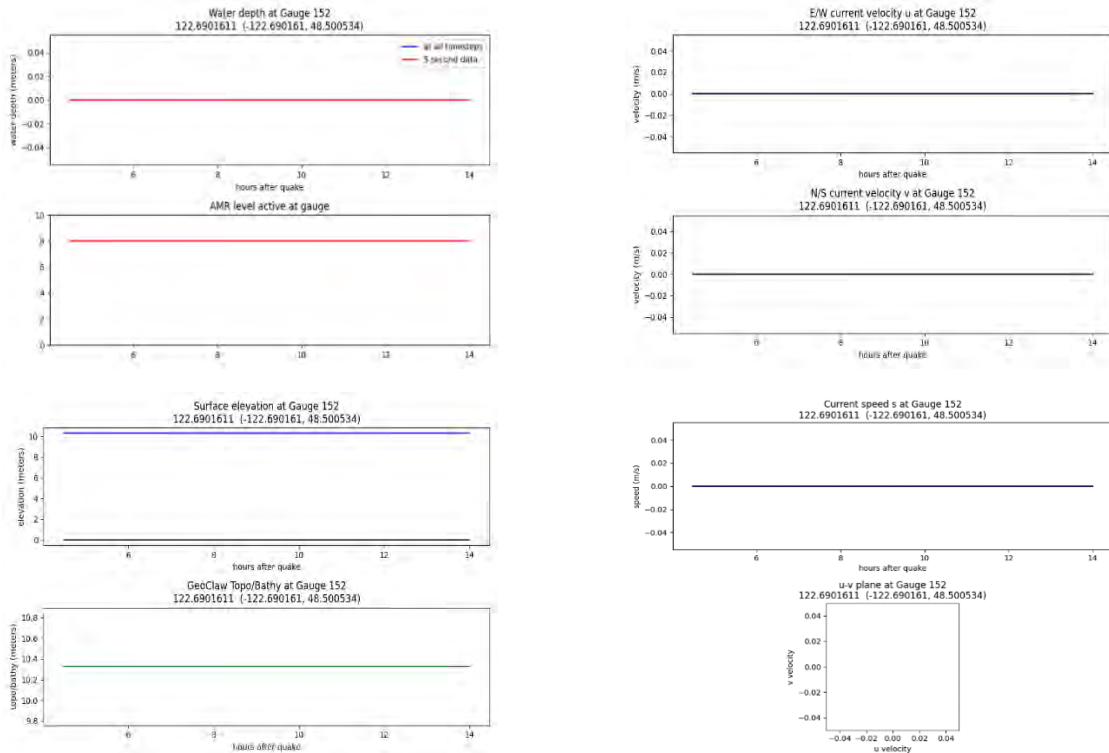
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

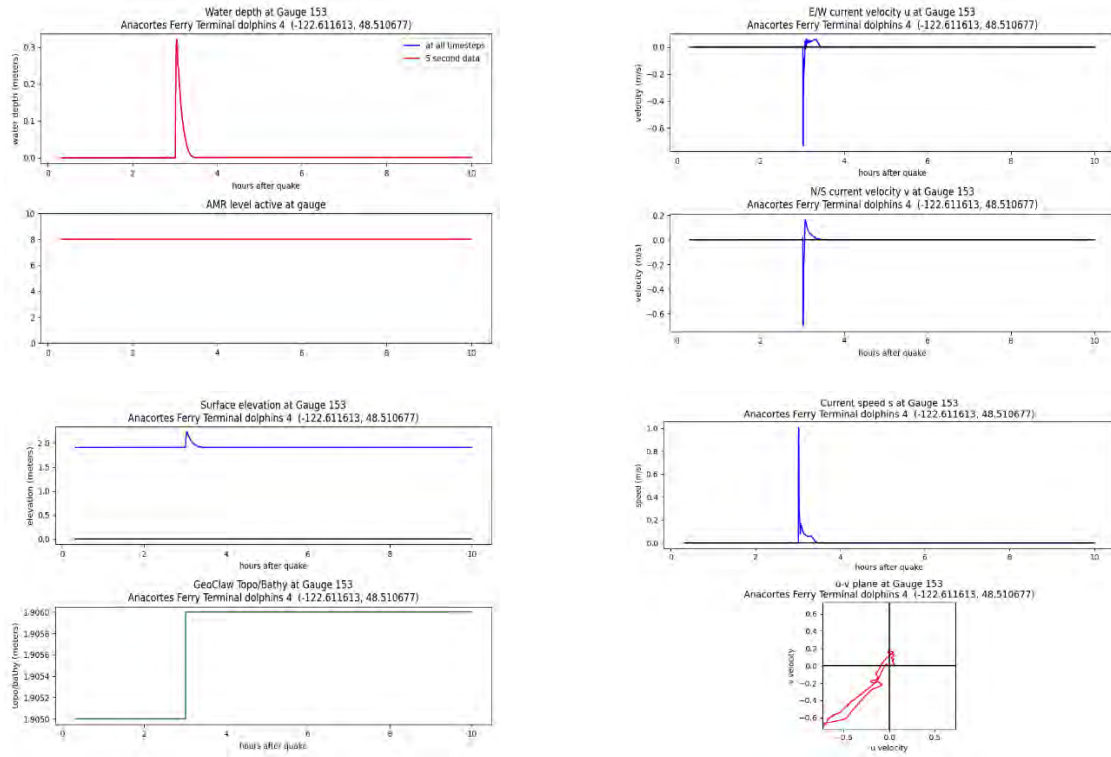


Alaska-Aleutian subduction zone scenario, MLW:

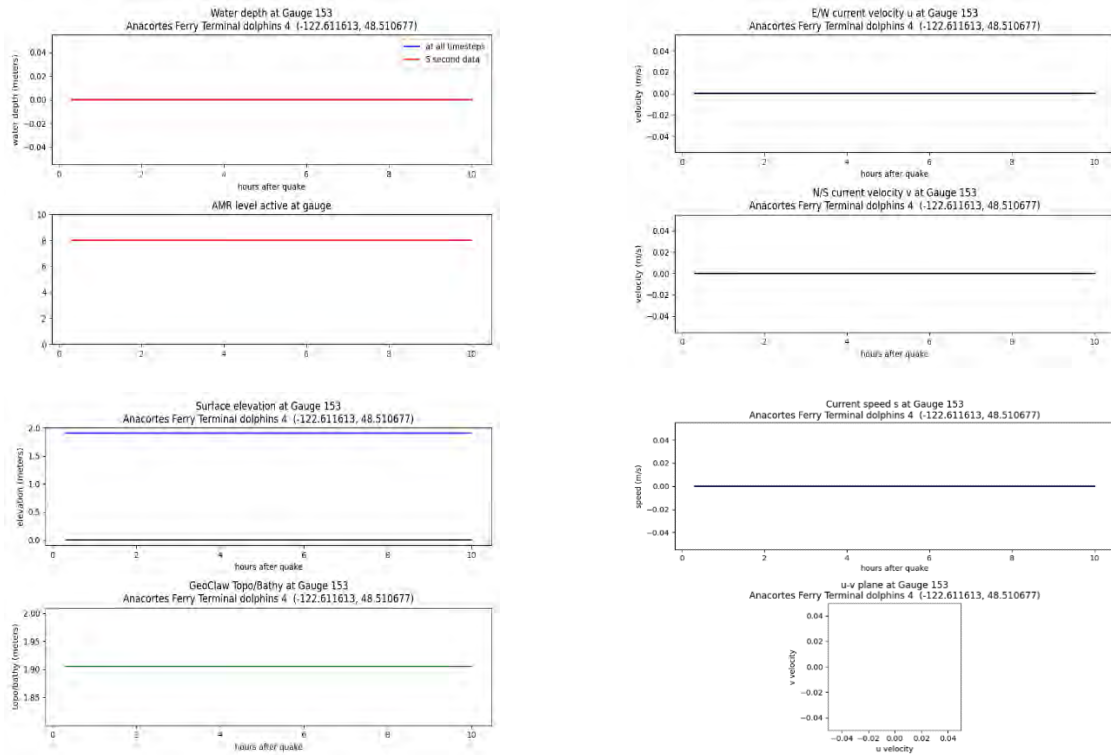


Gauge 153: PSE power station near Safeway (onshore)

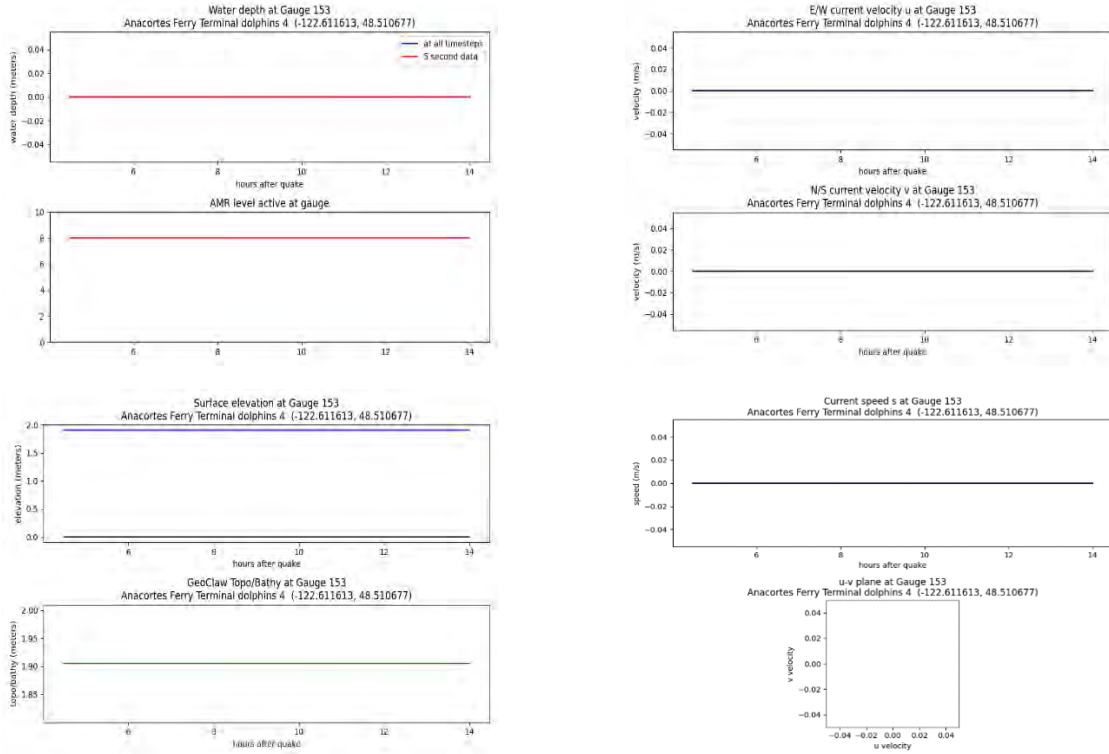
Cascadia subduction zone scenario, MHW:



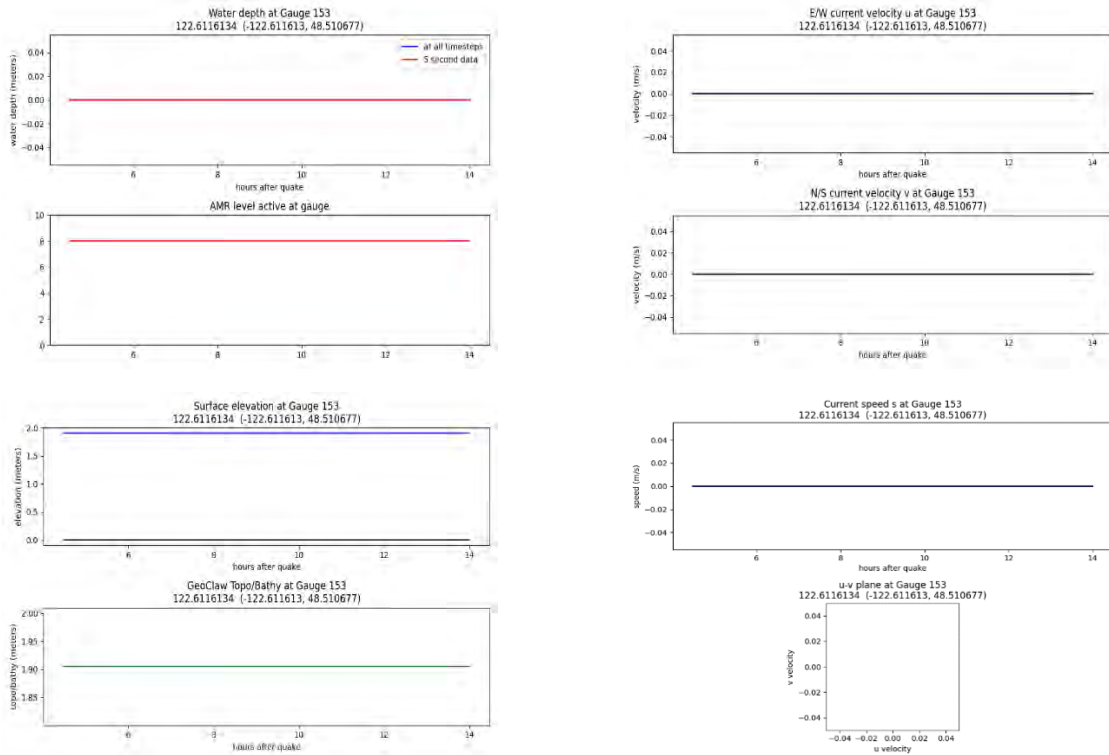
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

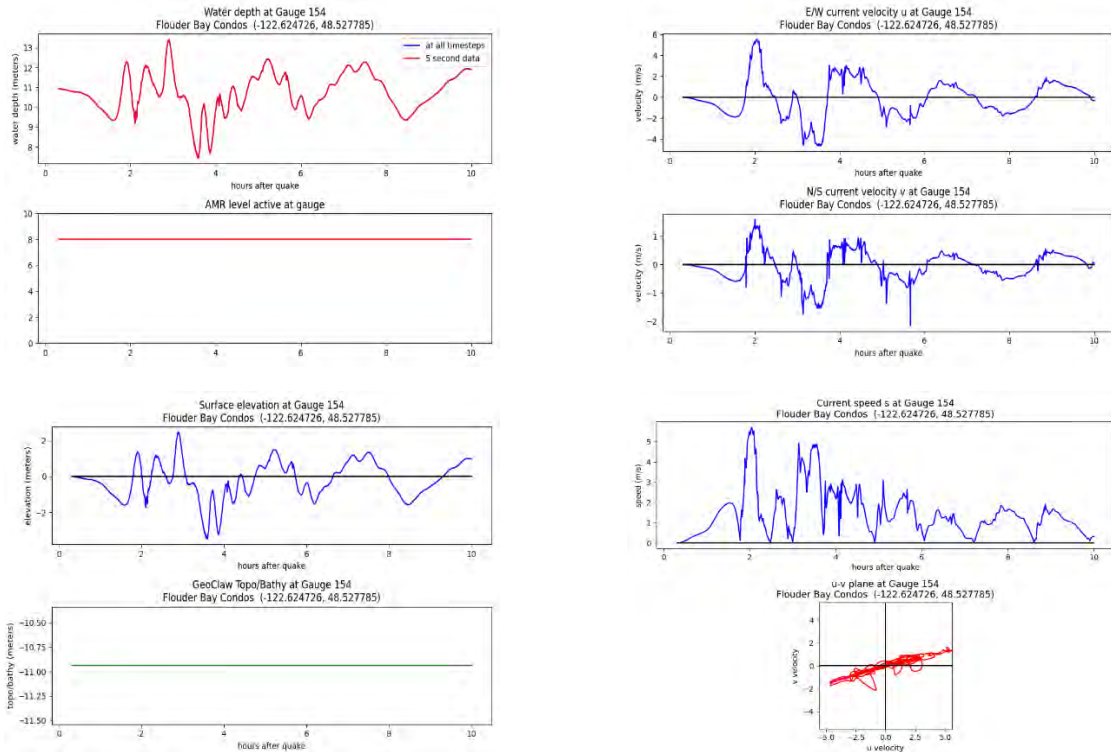


Alaska-Aleutian subduction zone scenario, MLW:

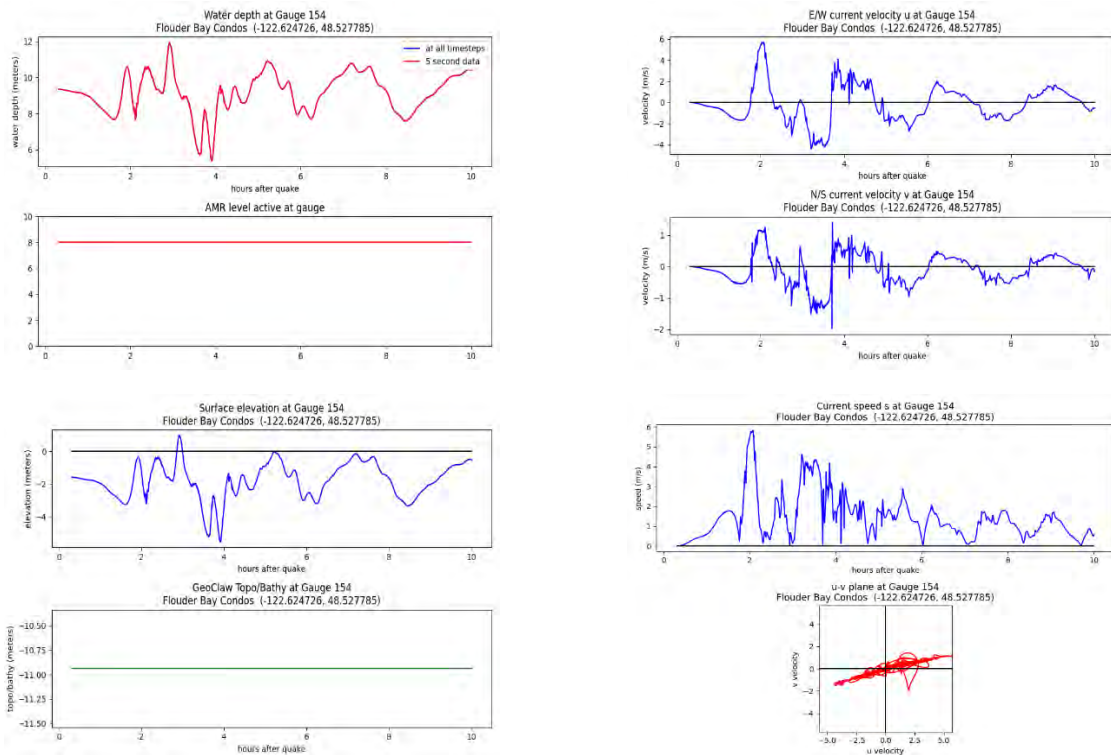


Gauge 154: Dolphin at Guemes Ferry

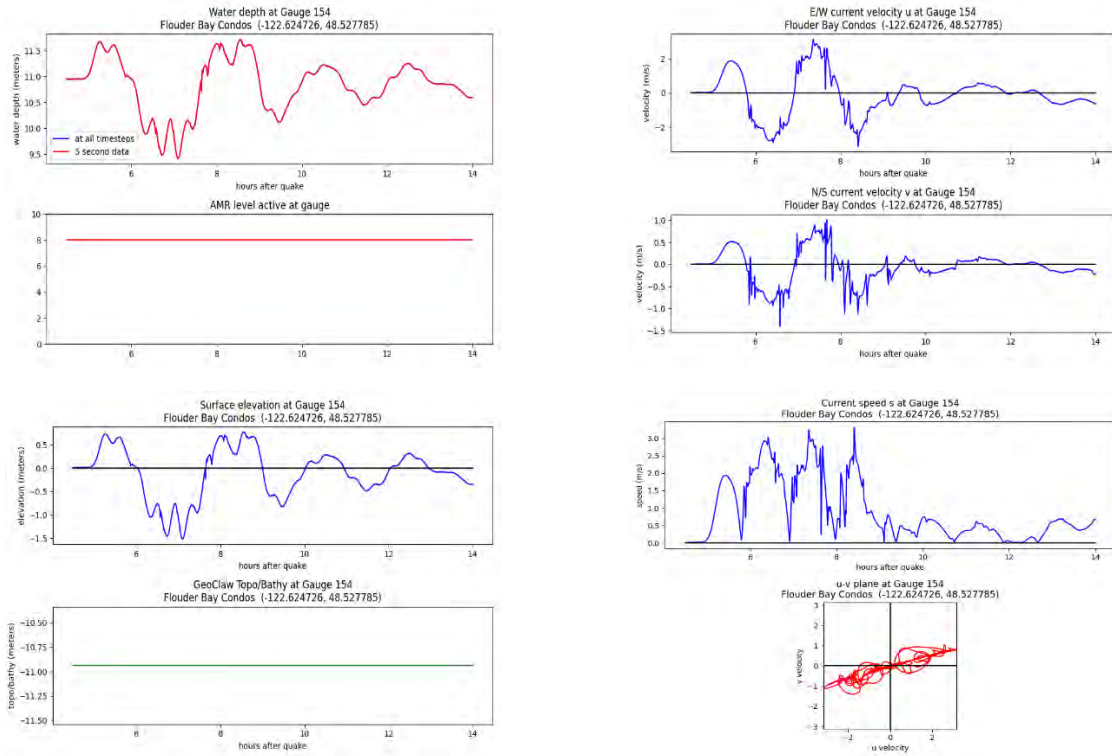
Cascadia subduction zone scenario, MHW:



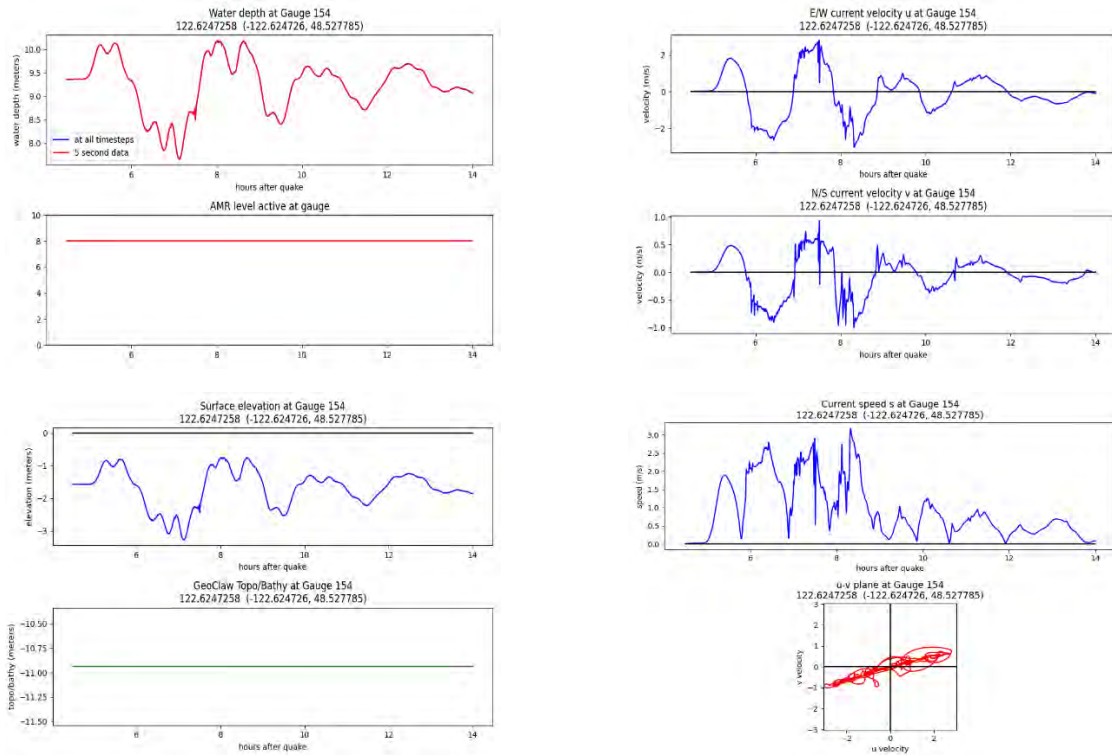
Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:

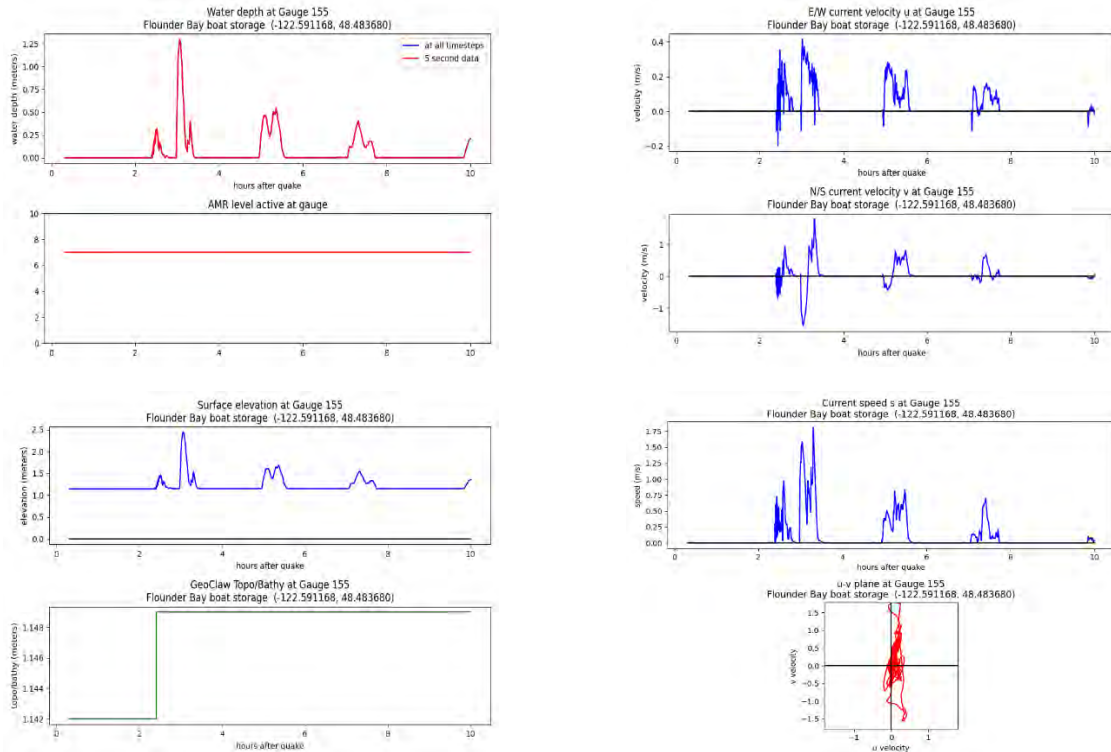


Alaska-Aleutian subduction zone scenario, MLW:

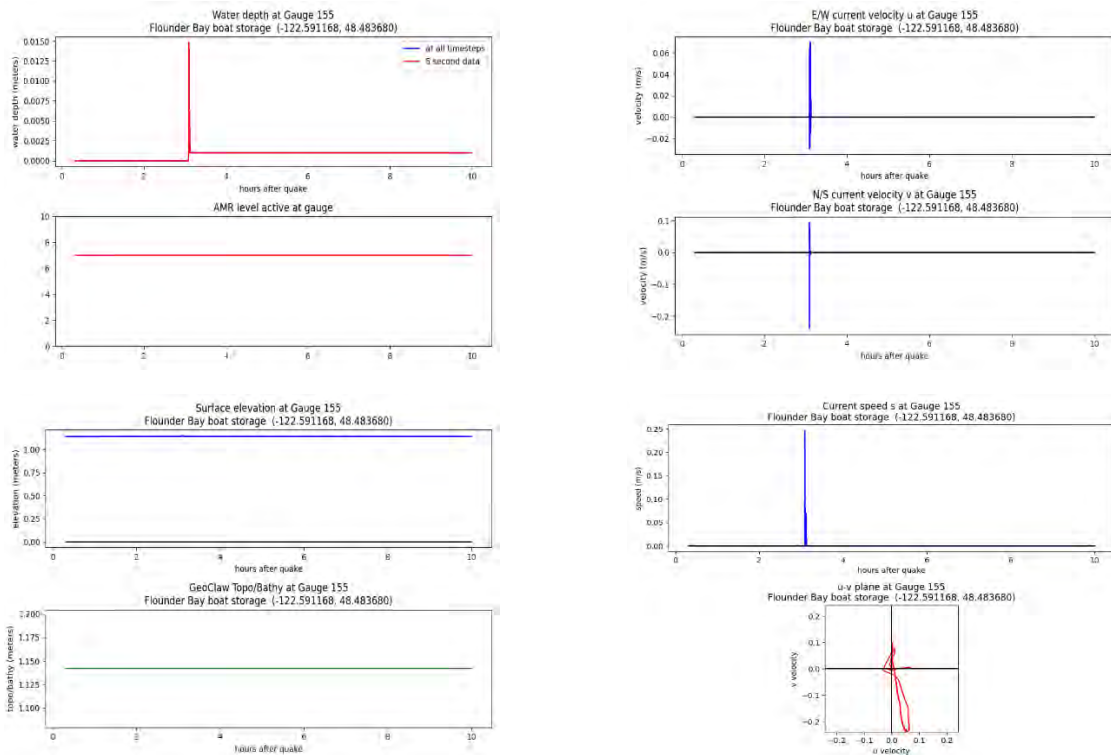


Gauge 155: Fidalgo Bay RV Park (onshore)

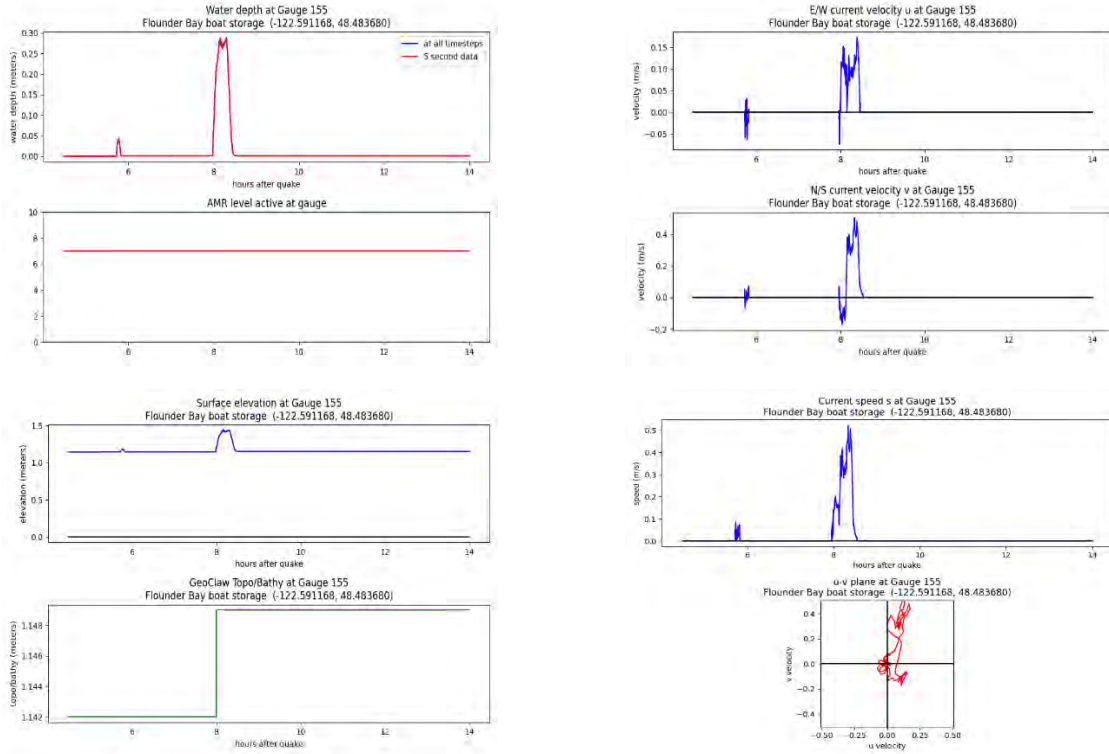
Cascadia subduction zone scenario, MHW:



Cascadia subduction zone scenario, MLW:



Alaska-Aleutian subduction zone scenario, MHW:



Alaska-Aleutian subduction zone scenario, MLW:

