

Using GNSS to Evaluate Threats to Mobility of Resources and People on Coastal Roads in USDOT Region 10 Dataset

Dataset available at: <https://doi.org/10.7910/DVN/JBWC0U>

(This dataset supports report **Using GNSS to Evaluate Threats to Mobility of Resources and People on Coastal Roads in USDOT Region 10**)

This U.S. Department of Transportation-funded dataset is preserved by the Pacific Northwest Transportation Consortium (PacTrans) is the Regional University Transportation Center (UTC) for Federal Region 10 in the digital repository Harvard Dataverse (<https://dataverse.harvard.edu>), and is available at <https://doi.org/10.7910/DVN/JBWC0U>

The related final report **Using GNSS to Evaluate Threats to Mobility of Resources and People on Coastal Roads in USDOT Region 10**, is available from the National Transportation Library's Digital Repository at <https://rosap.ntl.bts.gov/view/dot/61183>.

Metadata from the Harvard Dataverse Repository record:

Dataset Persistent ID: doi:10.7910/DVN/JBWC0U

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Title: Using GNSS to Evaluate Threats to Mobility of Resources and People on Coastal Roads in USDOT Region 10

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Description: 1) rawGNSSdata a) The raw GNSS data observed in Duck, North Carolina during 4-31 December 2020 b) Intended use: Extraction of wave heights and water levels by analyzing the reflected GNSS signals included in the raw GNSS data c) Data collection information (a) Observation interval: 1 sec (b) Constellation: GPS, GLONASS, Galileo, and BeiDou (c) Receiver type: Septentrio PolaRx5S (d) Antenna type: Septentrio VersaPhase 6000 (e) Approximate coordinates: □ Latitude: 36.18° □ Longitude: -75.75° □ Height: 46.15m 2) FRF-ocean_waves_awac-11m_202012.nc a) Significant Wave Height (SWH) data observed by FRF 11m AWAC wave buoy in December 2020. b) Intended use: Comparison and verification with the wave heights extracted from GNSS-R based tide gauge c) Data source: <https://frfdataportal.erd.c.dren.mil/> 3) TideGaugeData a) The water levels observed by a tide gauge station (Station ID: 8651370) during 4-31 December 2020 b) Intended use: Comparison and verification with the water levels extracted from GNSS-R based tide gauge c) Data source: <https://tidesandcurrents.noaa.gov/waterlevels.html?id=8651370> 4) WaterLevelfromGNSS.xlsx a) The water levels estimated by the GNSS-R based tide gauge during 4-31 December 2020 5) CLRfromGNSS.xlsx a) The CLRs (Confidence Level of Retrievals) estimated by the GNSS-R based tide gauge during 4-31 December 2020

Subject: Earth and Environmental Sciences; Engineering

Keyword: SWH, wave height, GNSS-IR, remote sensing, CLR, Sea measurements, Ocean waves, Reflectometry

Related Publication: S. K. Kim, J. Park, M. E. Wengrove and J. E. Dickey, "Feasibility Study of GNSS Interferometric Reflectometry (GNSS-IR) For Retrieving Significant Wave Height," 2021

IEEE Specialist Meeting on Reflectometry using GNSS and other Signals of Opportunity (GNSS+R), 2021, pp. 69-72, doi: 10.1109/GNSSR53802.2021.9617691.

Notes: The NOAA tidegage data and USACE wave buoy data is produced by NOAA and the USACE and can be found at:

<https://tidesandcurrents.noaa.gov/map/index.html?region=North%20Carolina>

<http://www.frf.usace.army.mil/dksrv/dk94dir.html> <http://hdl.handle.net/1773/48139>

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<https://doi.org/10.7910/DVN/JBWC0U>, Harvard Dataverse, V2

Dataset description:

This dataset contains 54 files with an overall size of 23.7 GB. To access this dataset and see the file list please visit <https://doi.org/10.7910/DVN/JBWC0U>.

The breakdown of the files that is show in the repository is shown below.

- Data (29 files)
- Unknown (23 files)
- Tabular Data (2 files)

National Transportation Library (NTL) Curation Note:

As this dataset is preserved in a repository outside U.S. DOT control, as allowed by the U.S. DOT's Public Access Plan (<https://doi.org/10.21949/1503647>) Section 7.4.2 Data, the NTL staff has performed *NO* additional curation actions on this dataset. NTL staff last accessed this dataset at <https://doi.org/10.7910/DVN/JBWC0U> on 20252-04-14 If, in the future, you have trouble accessing this dataset at the host repository, please email NTLDataCurator@dot.gov describing your problem. NTL staff will do its best to assist you at that time.