Physical Oceanographic Model Products Metadata: Bed-Stresses and Currents

METADATA

Dataset Originator: Grant McCardell, James O'Donnell, *University of Connecticut*

Publication Date: *October, 2021*

Dataset Title: *Mean and Maximum Near-bottom Bed-Stresses and Currents*

Online Linkage: *http://www.marine-geo.org/portals/lis/*

Abstract: The *FVCOM computer model was initialized and run using conditions for 2017. The model was used to produce maps of:*
1. The spatial structure of the maximum bottom stress magnitude due to (mainly) tidal currents
2. The spatial structure of the mean bottom stress magnitude due to (mainly) tidal currents
3. The spatial structure of the tidal amplitudes at the M_2 frequency of the east-west (u) and north-south (v) components of the near-bottom currents
4. The spatial structure of the east-west (u) and north-south components of the subtidal residual (long term mean) of the near-bottom currents.

Dataset purpose: *We report the results of a numerical model to estimate the distributions of ecologically relevant characteristics of the near bottom environment. We present this information as GIS-format map products with information that spans the study-area domain.*

Time period of content: *Jan 2017-Dec 2017*

Dataset Status: *complete*

Update Frequency: *none planned*

Theme Keywords: *Ecologically relevant physical characteristics of the near-bottom environment*

Access Constraints: *none*

Use Constraints: *Data and metadata are licensed under a [Creative Commons Attribution-Noncommercial-Share Alike 3.0 United States License](). Appropriate acknowledgment with a byline/credit/link **must** be given to both the original scientists/data contributors by reference to their relevant publications and to the Marine Geoscience Data System (www.marine-geo.org). Where citation information has been provided to us by scientists it is included with the relevant database entries, and should be acknowledged when data are used. You may browse freely, but*

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Users are strongly encouraged to contact the original investigators responsible for data made available on this site. Where appropriate, researchers are also encouraged to consider collaboration and/or co-authorship with original investigators.

Data should not be used for navigation purposes.

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Dataset Credit: *Grant McCardell, James O'Donnell, University of Connecticut*

Data Quality Considerations: *A limited measurement program was executed to acquire current distributions so that the performance of the model could be critically assessed. In the study region, model currents were generally well within 5 cm s^{-1} of measured values. Bed stresses estimated from the model were generally within 0.1 Pa of bed stresses estimated from the measurement program.*

Attribute accuracy: *In the study region, model currents were generally well within ±5 cm s^{-1} [±.05 m s^{-1}] of measured values. Stresses are generally within ±0.1 Pa.*

Completeness: *100%*

Positional accuracy: 56 m

Process Steps: *FVCOM model output for the near-bottom layer was averaged over monthly periods for 2017. These results were then interpolated onto a 989 x 410 rectangular grid using Matlab with a nearest-neighbor methodology. The gridded data was input into ArcGIS and used to create both geo-referenced GEOTIFF raster files and geo-referenced ESRI SHAPE files with contour information. For information on the model initialization and forcing, see Section 6.2 in the LISMaRC Phase II Final Report: https://lismap.uconn.edu/wp-content/uploads/sites/2333/2022/04/LISMaRC-Phase-II-Final-Report.pdf*

 Attributes:
     Near-bottom currents: m s^{-1}
     Bed Stress: Pascals [Pa]
     Spatial_Reference: NAD_1983_UTM_Zone_18N
     Linear_Unit: Meter (1.000000)
     Angular_Unit: Degree (0.017453292519943295)
     False_Easting: 500000
     False_Northing: 0

Central_Meridian: 75
Scale_Factor: 0.9996
Latitude_Of_Origin: 0
Datum: D_North_American_1983

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