



GulfHub

Gulf of Mexico Loop Current Data Hub

Making Gulf Data
Accessible to All

GulfHub.GCOOS.org

The dominant ocean circulation feature in the Gulf of Mexico, the Loop Current (LC), affects everything from animal migrations and the paths and strengths of hurricanes, to shipping and oil and gas operations. Yet the dynamics of the LC and the eddies (LCE) it sheds are not well understood, and gaps remain in oceanographic observations necessary to further understanding and prediction of the LC and LCEs.

For decades, the offshore energy industry has collected an immense amount of physical oceanographic data in the Gulf of Mexico, but this data has historically been considered proprietary and not made publicly accessible.

Now, through a project funded by the National Academies of Sciences, Engineering, and Medicine's

Gulf Research Program, this historical industry data — along with Gulf data from governmental, nongovernmental and academic sources — is being made accessible through the new Gulf of Mexico Loop Current Data Hub, GulfHub.

This data resource hosts more than 5,300 unique physical oceanographic datasets on an ERDDAP server, including more than 3,500 from deepwater moorings, offshore oil rigs and platforms, and vessels that were previously considered proprietary. These newly accessible data can be used to better predict changes to the LC and its subsequent impacts on human and animal communities in the Gulf of Mexico.

GulfHub was created by the Gulf of Mexico Coastal Ocean Observing System (GCOOS), the Harte Research Institute for Gulf of Mexico Studies, Woods Hole Group, Inc., Ocean Sierra LLC, Texas A&M University's Geochemical and Environmental Research Group, RPS North America and Fugro. GulfHub data has been fully quality controlled to U.S. Integrated Ocean Observing System Standards.

- To explore the available data, visit GulfHub.GCOOS.org.

Key Data Resources in GulfHub

>>Notice to Lessees and Operators (NTL) Data: ADCP data collected between 2005 and 2018 on rigs and platforms. 1,316 discrete datasets representing more than 300 instrument years of 75kHz and 38kHz ADCP data have been fully AQ/QC'd and ingested. Data from 2019-2020 is currently undergoing QA/QC.

>>GULL and Gumbo Data: These proprietary datasets from Fugro have been released to GulfHub. **GULL** provided measurements along the Sigsbee escarpment to aid in the scientific understanding of Topographic Rossby Waves and included 19 moorings over approximately 300km of seabed from Atwater Valley southwest across Walker Ridge as far as Keathley Canyon. **Gumbo** was a 16-month program in Green Canyon, Mississippi Canyon and Viosca Knoll to characterize currents in deepwater to allow improved estimation of near-bed extreme conditions.

>>Research Partnership to Secure Energy for America (RPSEA) Project: This measurement program was designed to identify and quantify near-bed currents amplified by reflections of inertial energy from energetic surface forcing. Three near-bed

moorings were deployed in 1100m to 1400m water for one year in the complex bathymetry area of the northern Gulf of Mexico.

>>Vessel Mounted ADCP Transects: During offshore drilling and construction in deepwater, there is a high potential for disruption of operations by the LC and LCEs, and the exact location of the sharp northern edge of LCs and LCEs can be critically important information to support operational decision making. For this reason, offshore energy companies conduct vessel-mounted ADCP surveys to chart these features. More than 2,292 individual ADCP transects have been released to GulfHub.

>> CICESE Florida Straits Data: Previously unpublished full water column current datasets collected across the Florida Straits at depths of 180m, 580m and 1030m between 2012 and 2016 are now contained in GulfHub.

GCOOS would like to acknowledge and thank DeepStar, Fugro and the many other oil and gas companies that have contributed their valuable data to GulfHub.