C-CORE 1.7 Surface current observations

Surface current observations

Challenge

Challenge ID	C-CORE_OFF1.7
Title	**Surface current observations**
Challenge originator:	
General Description	
What data/products do you use?	Near real-time ocean surface current data are available via NOAA (NDBC) Surface currents derived from satellite Global geostrophic currents and SST analysis based on satellite observations Global forecast system available from RTOFS, HYCOM and NCODA Regional forecast models: Mediterranean Sea: MEDSEA Iberian, Biscay and Irish Seas: IBI MFC model European NW Shelf: FOAM
When do you use this kind of dataset?	These data are used to monitor all day-to-day operations when drilling, surveying etc. To assess the current conditions, nowcasting, assess the quality forecast models and plan ahead. Find windows of operability etc. The aim is to manage risks related to surface currents, safeguarding lives, protecting assets, and conducting operations. Knowledge of currents is especially important to access the risks during an oil spill.
What are your actual limitations and do you have a work around?	Data availability is the major issue. Few measurements of sufficient quality exist. Data quality is another issue. There are spatial and temporal limitations of real-time and near real-time surface-based and remotely-sensed ocean current observations. Also update frequency, quality and usability of EO data. EO observations are have low resolution in time and space, are difficult to access and read, in difficult formats. Quality is often an issue and data are mostly used to get an overview more than treated as an accurate source of observations. Updates at least hourly, spatial resolution min. 4 km, formats standardized, quality improved and documented. Ground observations are more trusted, but are few, and also have issues with quality.
Needs and expectations on EO data	EO is used for this today, but resolution, update frequency and quality is not sufficient. Increasingly used as assimilation into models. More severe situations (for instance eddies/loop current) can be detected using these data real time, however the use for point forecasting is limited. Specific need: Additional surface-based observations of ocean current profiles.
Challenge classification	
Pre license	2

Exp.	4
Dev.	3
Prod.	4
Decom.	3
Geographic context/ restrictions	Applies to all six Areas of interest, except for the cautionary notes about tropical cyclones, which only applies to South China Sea, West of Ireland, and Myanmar. Seasonality: Applies to all seasons.
Topographic classification / Offshore classification	Ocean
Activity impacted /concerned	
Technology Urgency	Short term (2-5 years)
Information requirements	
Update frequency	Real-time and near real-time. Hourly, or 10 minutes averaged over 1 hour (because of noise). Available today: Depends on source, some sources only daily, most 6-3 hrs, few real time
Temporal resolution	Surface-based observation: sub-hourly to less frequently RTOFS (HYCOM+NCODA): 3 hr HYCOM+NCODA system: Daily snapshot at 00Z Regional models: Mediterranean Sea: MEDSEA (MyOcean): Daily Iberian, Biscay and Irish Seas: IBI MFC model: Daily means or hourly means European NW Shelf: FOAM: Daily means or hourly means Currents, temperature and SST derived from satellite: Global geostrophic currents and SST analysis based on satellite observations: Weekly and monthly means
Spatial resolution	Observation on location or around 4 km (maybe less in coastal areas). Available: Surface-based observation: varies based on the locations of the ship/buoy observations Remotely-sensed satellite observation: varies based on platform scanning swath size and other parameters HYCOM+NCODA system: 1/12° Regional models: Mediterranean Sea: MEDSEA (MyOcean) :6-7 km Iberian, Biscay and Irish Seas: IBI MFC model: ~2km European NW Shelf: FOAM: 7 km Currents, temperature and SST derived from satellite: Global geostrophic currents analysis based on satellite observations: 1/4°

Data quality	The selected sources in this document are selected because they are known to have sufficient quality (after some work around/adaptation). In general separate indepth verification studies has to be made for each source planned to be used for analysis, and the analysis has to be repeated for each geographical area (since sources might be of sufficient quality in one area but not another).
Data Coverage and extent	Regional and as localized as possible.
Example format	netCDF and/or CSV
Timeliness	Real-time or near real-time. Forecasts are normally issued 2 to 4 times per day, but industry requires continuous monitoring of conditions.
Existing standards	

Relevant products

Content by label

There is no content with the specified labels