

# C-CORE 1.16 Funnel Clouds and Waterspouts

## Funnel Clouds and Waterspouts

### Challenge

<b>Challenge ID</b>	C-CORE_OFF1.16
<b>Title</b>	<b>Funnel Clouds and Waterspouts</b>
<b>Challenge originator:</b>	
<b>General Description</b>	
<b>What data/products do you use?</b>	<p>Funnel clouds and waterspouts in the offshore environment are identified through a variety of surface-based observations.</p> <p>Historical funnel clouds and waterspouts, observed from ships, are available via ICOADS.</p> <p>Near real-time observations of funnel clouds and waterspouts are available from many sources including NOAA (NWSTG), NOAA (MADIS), NOAA (NDBC), UCAR, and numerous other data distribution centers.</p>
<b>When do you use this kind of dataset?</b>	<p>Observations of funnels/sprouts are mostly used by the O&amp;G industry in funnel/spout prone areas for all phases during operations. The onset of these events can be sudden and interrupt all kinds of operations on deck, helicopter activity etc as they pose a large threat to personnel onboard rigs and vessels.</p> <p>Historical data are important to assess risk of operations in these areas, frequency of occurrence, strength of gusts etc., but are mostly used as input to improve operational forecasting. Also, many other data sources do not catch the extremes in the area without these data added to the time series for the point of interest, since data often are averaged and conditions often are mostly benign.</p> <p>The data set is used to assist in (a) qualifying and quantifying the means and extremes of funnel clouds and waterspouts and (b) managing risks related to funnel clouds and waterspouts, safeguarding lives, protecting assets, and conducting operations. The data set is used to assess operability in the area, to reduce risk when designing structures and operations, to design strategies to avoid severe conditions.</p>
<b>What are your actual limitations and do you have a work around?</b>	<p>Convective cells can often be identified from satellite pictures. But it is difficult (impossible) to assess the likelihood of funnels/sprouts based on satellite alone. The temporal and spatial resolution of surface-based observations significantly limits the identification of funnel clouds and waterspouts in the offshore environment. Unless ships report funnel clouds and waterspouts, the events are not readily available for analysis over vast areas of the ocean.</p> <p>Hence warnings are based on modelled data, and spotting of convective cells in satellite pictures. Not too accurate and might lead to downtime when it is not needed.</p>
<b>Needs and expectations on EO data</b>	Specific need: More surface-based observations that verify the existence of funnel clouds and waterspouts in the offshore environment.
<b>Challenge classification</b>	
<b>Pre license</b>	1

<b>Exp.</b>	3
<b>Dev.</b>	1
<b>Prod.</b>	3
<b>Decom.</b>	2
<b>Geographic context/ restrictions</b>	Applies to all six Areas of interest. Seasonality: Applies to all seasons.
<b>Topographic classification / Offshore classification</b>	Ocean
<b>Activity impacted /concerned</b>	
<b>Technology Urgency</b>	Short term (2-5 years)
<b>Information requirements</b>	
<b>Update frequency</b>	Real-time or near real-time observations are available sub-hourly and less frequently. Historical observations are generally updated once per month, for the previous month.
<b>Temporal resolution</b>	At least hourly. Available: Sub-hourly and less frequently.
<b>Spatial resolution</b>	4-2 km Available: Observations are available based on the location of the ship observation, therefore the spatial resolution varies greatly.
<b>Data quality</b>	The selected sources in this document are selected because they are known to have sufficient quality (after some work arounds and adaptations). 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).
<b>Data Coverage and extent</b>	Regional.
<b>Example format</b>	Surface-bases observation: text, CSV and/or netCDF
<b>Timeliness</b>	Real- time or near-real time
<b>Existing standards</b>	NA

## Relevant products