

<b>Products</b>	<b>Length/time scales</b>	<b>Key Components/Measurements</b>	<b>Priority</b>
<b>Hurricane severity forecasts</b>	<b>Accuracy of 20% CPI at 5 days</b>	<b>Models, Upper-level circulation, BL, ocean mixed-layer temp., offshore Doppler radar</b>	<b>H</b>
<b>Surface current forecast maps</b>	<b>0-15 days, 10 km horiz. D/W, 1 km shelf</b>	<b>Models, wind, HF radar, density profiles, SST, river inflow, air-sea flux, bathymetry, front locations, tomography</b>	<b>H</b>
<b>Measurement &amp; product archive</b>	<b>N. A.</b>	<b>List of all ongoing measurements, periodically updated. Archive of data collected after initiation of GCOOS</b>	<b>H</b>
<b>Operational maps of SST</b>	<b>Existing. Higher resolution TRMM</b>	<b>AVHRR, GOES, TRMM</b>	<b>H</b>
<b>Forecast maps of 3-D deepwater currents</b>	<b>0-30 days 10 km horiz, 50 m vert.</b>	<b>Models, density profiles, SSH, SST, winds, air-sea flux, ADCP, Caribbean current inflow</b>	<b>H</b>
<b>Forecast maps of winds and waves (&amp; crests)</b>	<b>0-15 days, 10 km horiz. D/W, 2 km shelf</b>	<b>BL, offshore surface met. (V, T, P, H) sensors, atmospheric profiles, QuikSat, TRMM, Doppler Radar, currents (for waves). Store waves at 2Hz</b>	<b>H</b>
<b>3-D current forecasts on shelf</b>	<b>0-10 days, 1 km horiz, 2 m vert.</b>	<b>Modeling, density profiles, SST, Winds, river inflow, air-sea flux, bathymetry (in some small areas), ADCP</b>	<b>H-</b>
<b>Probability maps of bottom hazards</b>		<b>Turbidity current measurements &amp; modeling, hydrate locations, soil type, bottom currents, high-resolution bathymetry, waves</b>	<b>H-</b>

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<b>Marine mammal &amp; turtle maps</b>	<b>Monthly</b>	<b>Physical sightings, tagging, currents (as a proxy)</b>	<b>M</b>
<b>Legacy measurement &amp; product archive</b>	<b>N. A.</b>	<b>Inventory and archive of QA/QC'd data</b>	<b>M</b>
<b>Improved storm surge probability maps (not real-time)</b>	<b>0.5 km horiz.</b>	<b>High resolution model, hi resolution bathymetry &amp; ref. water level, wind stress, bottom roughness, atm. pressure</b>	<b>M</b>
<b>Severe weather monitoring</b>		<b>Offshore Doppler radar, lightening strikes</b>	<b>M</b>
<b>Maps of water quality (DO, PH, etc.)</b>		<b>DO, PH, Nutrients, Hydrocarbons, salinity, temperature, river inputs, models, currents, winds, hyperspectral (satellite)</b>	<b>M</b>
<b>Maps of hydrocarbon seeps</b>			<b>L</b>
<b>Maps of chemosynthetics &amp; arch. sites</b>			<b>L</b>
<b>Maps of SSH, Color Imagery</b>			<b>L</b>
<b>Bathymetry, topography, soil maps</b>			<b>L</b>
<b>Temperature/Salinity profiles</b>			<b>L</b>

Measurement	Rationale/Comments	Responsible Party	Priority
Hurricane severity model improvement	Two factors control damage: severity and proximity. The latter have improved substantially but the former has not.	National Hurricane Center (NHC)	H
Operational satellite altimeters, near real-time	An essential input into most deepwater current models. Several altimeters must be kept operational indefinitely .	NOAA	H
Operational satellite radiometers, near real-time	An essential input into current models and other analysis tools. Would like to see resolution of TRMM improved.	NOAA	H
Operational satellite wind (QuikSat), near real-time	An essential input into current, wind, and wave models and other valuable analyzed products.	NOAA	H
2 Hz wave data, not real-time	Measure for possible rogue waves during storm events	NDBC	H
Measurements to improve hurricane severity forecasting, real-time	GCOOS needs to dialogue with NHC to determine best ways to contribute, e.g. humidity sensors and/or Doppler radars installed on offshore platforms?	NHC GCOOS	H
Offshore meteorology measurements (V, P, T, H), real-time	Needed for current model, improvement in wind forecasts, etc.	GCOOS	H

Measurement	Rationale/Comments	Responsible Party	Priority
Upper-column current & temperature/salinity profiles, real-time	Needed for current model assimilation and validation, and to provide direct measurements. Present network is sparse in the west and east.	GCOOS	H
3-D Ocean current model forecasts, real-time	Needed for offshore operations & environmental issues (hypoxia, oil spills, etc.)	GCOOS	H
Marine mammals and sea turtle sightings, not real-time	To avoid environmental damage due to necessary oil-related activity, i.e. seismic surveys	GCOOS, MMS, NMFS, Industry	H
High resolution coastal bathymetry, topography, & subsidence rates	Input for current and wave models and for subsidence, mud slides. Should include long term sea level measurements	NOS, USGS, GCOOS	H
Turbidity current, not real-time	Unclear how you would measure. Pilot project?	MMS, GCOOS	H-
Water quality parameters (DO, PH, nutrients, COD, etc.)	High priority in specific coastal regions & for riverine inflow.	EPA, USGS, MMS, NOAA, DOA, DOE, Industry, GCOOS	M-H
Offshore HF radar, real-time	Provide real-time surface current maps for model assimilation, Loop current tracking, oil spill tracking, etc.	GCOOS	M+

Measurement	Rationale/Comments	Responsible Party	Priority
Caribbean inflow (Yucatán or Florida Straits), real-time	Key input into current model. Also provides long-term record of interest to climatologist. Pilot project for tomography??	GCOOS	M
Identification of hydrocarbon seeps	Could be derived from several different methods including targeted AUV surveys, SAR, etc?	MMS, GCOOS	M
Identification of chemosynthetics & arch. sites		MMS, GCOOS	L