

# Products and Services

## Marine Operations and Coastal Hazards

# Maritime Operations - Vessels

USER NEED	PRODUCTS / SERVICES	A O O S	C A R A	C e N	G C	G L O S	M A R A	N A N	N E R A	P A C	S C C	S E C	
<p><b>Safe and efficient coast and ocean transit--shipping, fishing, recreation, ferries--scheduling, routes, etc.</b></p>	<p><b>Wind, wave, current conditions, nowcasts and forecasts for coast and open ocean, Great Lakes</b></p>												
	<p><b>Visualization tools combining obs and forecasts with bathymetry, nav charts, AIS tracking of vessels</b></p>												
	<p><b>Data/model output delivery via key existing systems (PORTS, E-NAV, AIS, portable units, etc )</b></p>												
<p><b>Safe passage into and inside ports, harbors, passages—scheduling, routes, keel clearance, loads, pilot boarding decisions, port status designations, etc.</b></p>	<p><b>Real-time high resolution obs/models of waves, surface and subsurface currents, winds, water level, density near and in major ports, harbors, passages</b></p>												

## Maritime Operations – Search and Rescue

USER NEED	PRODUCTS / SERVICES	A O S	C A R A	Ce N	G C	G L O S	M A R A	N A N	N E R A	P A C	S C C	S E C
<p><b>Where to focus search efforts, and optimize safety and efficiency of ops</b></p>	<p><b>Wind, wave, current conditions, nowcasts and forecasts, formatted for input into tactical SAR decision tools</b></p>											
	<p><b>Surface currents-- visualizations, assimilation into models, incorporation into interactive particle trajectory tools and TDAs</b></p>											

## Maritime Operations – Spill Response

USER NEED	PRODUCTS / SERVICES	A O O S	C A R A	Ce N	G C	G L O S	M A R A	NA N	N E R A	P A C	S C C	S E C
<b>Rapid effective response to spills, including decisions re type and location of containment, clean up and wildlife rescue</b>	<b>Winds, waves, currents, obs and forecasts formatted and delivered to responders and NOAA spill modelers</b>											
	<b>Spill trajectory tools</b>											
	<b>Satellite imagery to further define event</b>											
	<b>Subsurface oil distributions, water quality</b>											
<b>Determine where oil, tar balls, etc originated</b>	<b>Hindcast trajectories</b>											

# Maritime Operations – Offshore Energy

USER NEED	PRODUCTS / SERVICES	A O S	C A R A	Ce N	G C	G L O S	M A R A	N A N	N E R A	P A C	S C C	S E C
<b>Assess conditions for feasibility and cost-effectiveness of energy generation; compare alternative locations</b>	<b>Wind, wave, and/or current climatologies</b>											
<b>Maximize efficiency and safety of energy ops</b>	<b>Real-time and forecast winds, waves, currents</b>											

# Coastal Hazards

USER NEED	PRODUCTS / SERVICES	A O S	C A R A	Ce N	G C	G L O S	M A R A	N A N	N E R A	P A C	S C C	S E C	
<b>Emergency response--timely hazard and disaster information to coastal communities to protect public and infrastructure</b>	<b>Improved forecasts of extreme weather events, storm surges and erosion events; includes water level and wave observations and inundation and wave forecasts</b>												
	<b>Rip current forecasts</b>												
<b>Planning and permitting for development, protection of shoreline and natural resources</b>	<b>Maps showing shoreline migration rates, LIDAR products, long-term sea level measurements</b>												

## Linking User Needs to Assets

User need/goal	Products & services	Variables	Platforms & models
<b>Marine Ops-Vessels</b>			
<b>Safe and efficient coast and ocean transit--shipping, fishing, recreation, ferries, etc. – scheduling, routes, etc.</b>	<b>Wind, wave, current conditions, nowcasts and forecasts for coast and open ocean, Great Lakes</b>	<ul style="list-style-type: none"> <li>• wind</li> <li>• waves</li> <li>• currents</li> </ul>	<ul style="list-style-type: none"> <li>• shore stns, moorings, satellites, models</li> <li>• moorings, bottom mnts, satellites, models</li> <li>• moorings, HF radar, bottom mnts, models</li> </ul>
<b>Safe passage into and inside ports, harbors, passages— scheduling, routes, keel clearance, loads, pilot boarding decisions, port status designations</b>	<b>High resolution observations and models of waves, currents, winds, water level, density near and in major ports, harbors, passages</b>	<b>Row 1 at high res, spatially discrete areas, plus</b> <ul style="list-style-type: none"> <li>• water level</li> <li>• density (from T/S)</li> <li>• bathymetry</li> <li>• vessel path/speed</li> </ul>	<b>Row 1 minus satellites</b> <ul style="list-style-type: none"> <li>• shore stations, bottom mnts</li> <li>• shore station, moorings</li> <li>• LiDAR (various), vessels, PWCs</li> <li>• AIS, HF radar?</li> </ul>

# Beyond the Common Elements

Other  
regional  
products



AOOS—ice forecasts



PacIOOS--  
optimal ship  
routing tool



MARACOOS/NERACOOS  
Detect whale locations

New/innovative  
products

# Discussion Questions

- Identify commonalities across regions--are there other common products that should be added to national synthesis list?
- What other key regional differences and new/innovative products should be considered in synthesis?
- Describe end-to-end system requirements to deliver products
- What are the next steps needed to move the synthesis forward?

