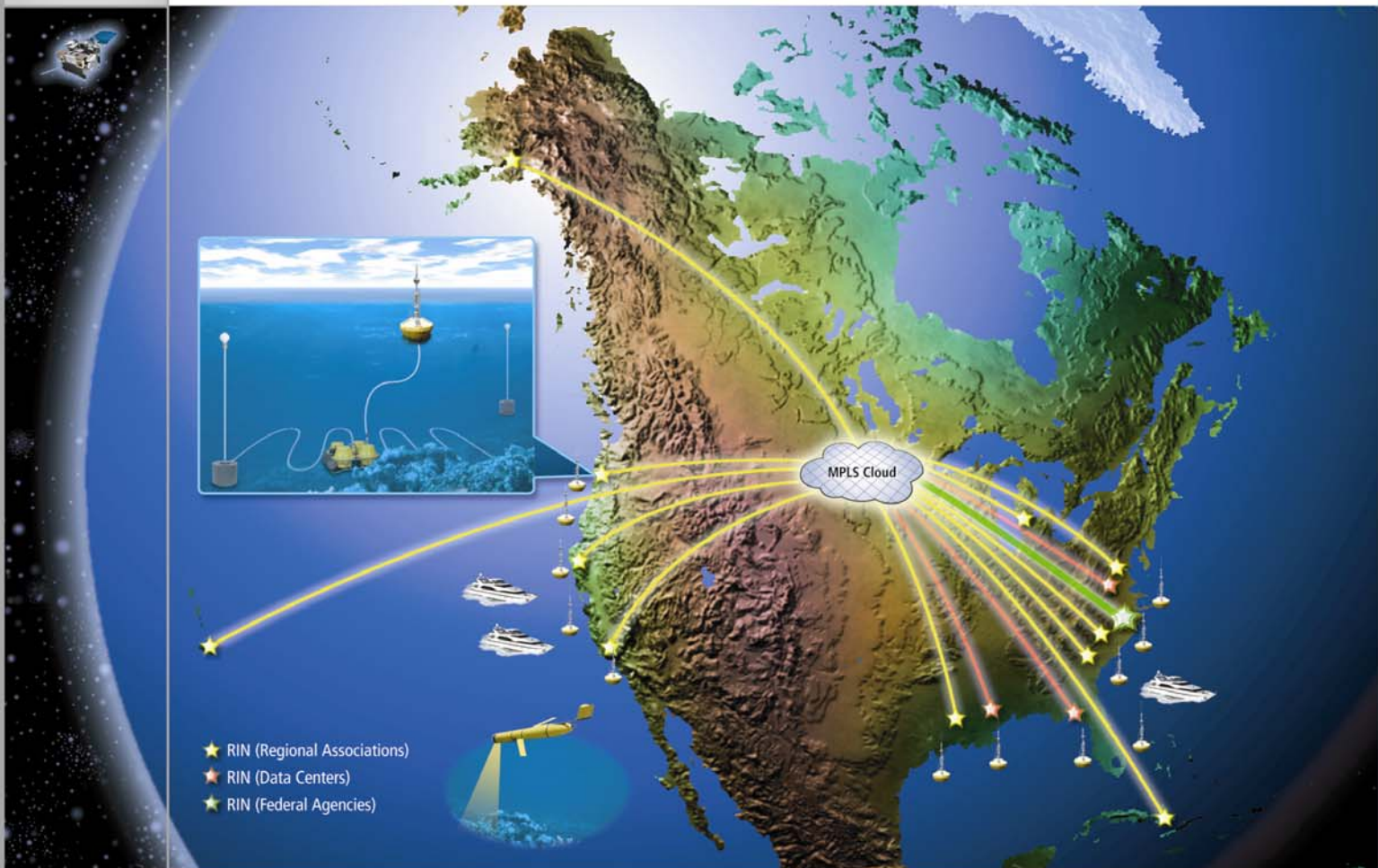




IOOS

U.S. Integrated Ocean Observing System

Naval Sea Basing



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1 Naval Sea Basing Use Case

From contract #: N00039-04-C-0016 Final Report For IOOS Demonstration Project NORTHROP GRUMMAN MISSION SYSTEMS, Defense Mission Systems and APPLIED SCIENCE ASSOCIATES, INC. (NG/ASA) this Naval Sea Basing Use Case has been derived to allow incorporation of an important example as directed by NOAA/NESDIS of an IOOS activity. We summarize and quote the relevant information for the use case as developed by Northrop-Grumman.

“In October 2002, Admiral Vern Clark (Chief of Naval Operations) outlined the three fundamental concepts that lie at the heart of the Navy's continued operational effectiveness into the 21st century: Sea Strike, Sea Shield, and Sea Basing. The combination of which is known as Sea Power 21 as described in the Proceedings of the US Naval Institute.

- **Sea Strike** is the ability to project precise and persistent offensive power from the sea
- **Sea Shield** extends defensive assurance throughout the world
- **Sea Basing** enhances operational independence and support for the joint force

Sea Basing being a core component of Sea Power 21 involves placing capabilities critical to joint and coalition success at sea in a forward deployed configuration. These capabilities include offensive and defensive firepower, maneuver forces, command and control, and logistics. The deployment of these capabilities at sea minimizes the need to build up forces and supplies ashore, reduces their vulnerability, and enhances operational mobility.

Sea Basing will thus provide the joint force commander with dispersed, netted, and sovereign platforms ready to respond. A sea base comprised of distributed forces of many types will accomplish this. These forces include carrier strike groups, expeditionary strike groups, combat logistics force ships, and maritime pre-positioning force platforms. Such a combination of assets will allow for increased sensor coverage and force protection while focusing offensive and defensive firepower throughout the battle space.

At the heart of effective sea basing is seamless communications leveraging the capabilities of joint, theater, national systems, as well as those of allies and coalition partners. This communications network must extend beyond that of the military to include other agencies such as the Department of Homeland Security and intelligence organizations. In addition, sea basing requires an increased capability for environmental awareness and intelligence integrated into the communications network. Environmental awareness, for example, will allow optimum routing of ships and aircraft and the effective delivery of personnel and equipment permitting the optimum projection of force ashore. While the concept of sea basing is well defined, actual implementation plans and technological requirements are still under development. Given this situation, NG/ASA elected to apply the system to pre-positioning of assets and continuous environmental assessment of the deployment location for a maritime force platform. This platform is envisioned to be a floating base from which aircraft and expeditionary forces can be deployed.

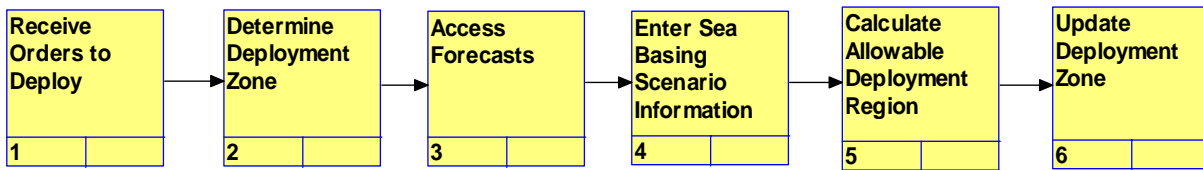


Figure 1, Naval Sea Basing – OV-6a Use Case

Figure 1 has been extracted from Popkin’s System Architect where it resides as an OV-6a diagram. The readable version is available in System Architect and has been provided under separate cover in . . .

2 External Actors

The external actors in this case are a Regional Operational Commander and his staff oceanographer and the maritime forces under the command of the Regional Commander.

3 Interfaces

The interfaces are both real-time and historical data access amongst and between naval forces and environmental sensing systems.

4 Functional Flows

4.1 Primary Flow – Determination of Naval force deployment

4.1.1 Pre-Condition

The pre-condition is that operational forecasting and communications from sensor exploiters to forward deployed naval forces is in a nominal operational state.

4.1.2 Trigger

The trigger is receipt of orders to the Regional Operational.Commander to deploy forces to a forward basing location..

4.1.3 Process Description

Use Case Steps	Architecture Viability Assessment
<p>Step 10: Receipt of Orders to Pre-Deploy A Regional Operational Commander would be tasked to pre-deploy a maritime force platform to a region of interest and be given a potential target area.</p>	<p>Not Applicable: Naval Orders don’t go through IOOS.</p>

<p>Step 20: Determine Deployment Zone The staff oceanographer would, based upon the maximum range of assets to be deployed with the maritime force platform, determine the maximum extent of the deployment zone.</p>	<p>Not Applicable: maximum extent of deployment is proprietary.</p>
<p>Step 30: Access Forecasts Forecasts for the region (currents, waves, wind, and static bathymetry) were accessed to assist in identifying specific coordinates for the pre-deployment of the platform.</p>	<p>IOOS provides data discovery and visualization tools. IOOS provides forecast data.</p>
<p>Step 40 Enter Sea Basing Scenario Information The Sea Basing Deployment tool is initiated and not to exceed values are entered for current speed, wave height, and wind speed. Minimum operational depth is also entered.</p>	<p>Possible interaction of IOOS with Sea Basing Deployment tool. IOOS provides the capability to provide the Sea Basing Deployment Tool as a registered service.</p>
<p>Step 50: Calculate allowable deployment region The results from the Sea Basing Deployment Tool are used to plot force deployment areas.</p>	<p>Not Applicable: Internal Navy data use.</p>
<p>Step 60: Update deployment zone after deployment Upon deployment of the maritime force platform the staff oceanographer accesses ocean and atmospheric forecasts of the region to update the Regional Operational Commander on the potential need to reposition the platform due to environmental conditions.</p>	<p>IOOS provides data discovery and visualization tools. IOOS provides forecast data. IOOS provides the capability to set up communities of interest to focus resources in a specified area.</p>

4.1.4 Post Condition:

The post condition is the same as the pre-condition.