

Coastal Zone Monitoring

The objective of this trial would be to demonstrate as many applications as feasible in a coastal area of Vietnam. The types of applications envisioned are oil spill and slick monitoring, fishing vessel detection, ship detection and tracking, island mapping, ocean winds, and coastal applications such as mapping aquaculture sites. Ancillary information such as vessel reporting or tagging data is also useful.

There are initiatives underway to develop a data base for storing various information sources and the development of a maritime monitoring capability. These service trial applications could support the development of that capability by highlighting the useful data that can be extracted from EO.

Table 1. Coastal Zone Monitoring

Sector/Thematic Area	Environmental Protection And Pollution Fisheries Management
Key Players/Organizations of Interest	<ul style="list-style-type: none"> • Coastal zone monitoring organizations • Defence • Remote sensing organizations
Region of Interest	Northern coastline of Vietnam that borders the China Sea
Issue/Required Information	<p>There is a gap in the awareness of the various types of maritime EO applications and their strengths and limitations. This is a far reaching application area for demonstrations. The types of questions are raised include:</p> <ul style="list-style-type: none"> • What is the vessel traffic and activity? • What is the level of oil pollution and its impact? • Can a map of the islands be generated and some information on the topography and land cover provided? • What is the activity along the coastline?
Information Specifications	<ul style="list-style-type: none"> • Daily oil spill/slick maps with a resolution that is greater than 50m. • Daily vessel detections – resolutions not specified. • Island maps with land cover use – forest, water, agriculture, urban, etc.
Current Technologies in Use to Address Issue	There is a coastal radar system being installed in Vietnam that presently provides some information for this application. The outputs from this system are not publicly available. Regardless, there is no systemic information delivery and integration system today. Other information being used includes Vessel reports.
Potential EO Solutions	<p>There are several data elements to the solution that could be addressed by EO:</p> <ul style="list-style-type: none"> • Oil spill identification • Oil slick identification • Vessel detection and classification • Coastal activity (aquaculture, tourism, etc) <p>An integrated system is needed that provides the ability to display and update the coastal and island land use. A maritime picture system is required for vessel activity and spill/slick monitoring.</p>

Service Trial Description	<p>This service trial should demonstrate the ability of EO data to provide the inputs needed for an integrated decision support system.</p> <ul style="list-style-type: none"> • Demonstrate vessel detection application • Demonstrate oil slick detection versus seep/spill detection • Demonstrate ability to classify coastal and island land use.
Data Sources	<ul style="list-style-type: none"> • Use of SAR is encouraged due to the cloud cover associated with the region. • Use of the Remote Sensing Ground Station data sources are encouraged (ENVISAT and SPOT)
Validation Protocol	None needed at present
Performance Metrics	Performance metrics are not critical to the success of this trial. A first level of success would be simply the availability of these data to stakeholders.
Impact	Government organizations will likely build on the use of EO applications and integrate the data stream from the Coastal Radar system.