Development and Evaluation of Remote Sensing and Portable GIS Technologies in a Real-time Oil Spill Detection and Response System

This work aims to make the detection of oil on the water faster and more accurate and to aid effective response strategy implementation by improving graphical image collection, processing, and transmission to the command center and oil-recovery resources.

Development and Evaluation of Remote Sensing and Portable GIS Technologies in a Real-time Oil Spill Detection and Response System

Jan Svejkovsky, Ocean Imaging Corp.
Judd Muskat, OSPR

Objectives

- Develop system for rapid access to various digital data types
- System should be accessible in real time from office or field
- Use of system should require minimal or no special GIS expertise
- System will allow simultaneous multi-agency use

System Software Foundation

ArcIMS Server:

Allows easy web-based access to image, map, vector data

Intuitive interface, no special training needed

Provides access control (password protection)

Can be hosted by OSPR/CDFG

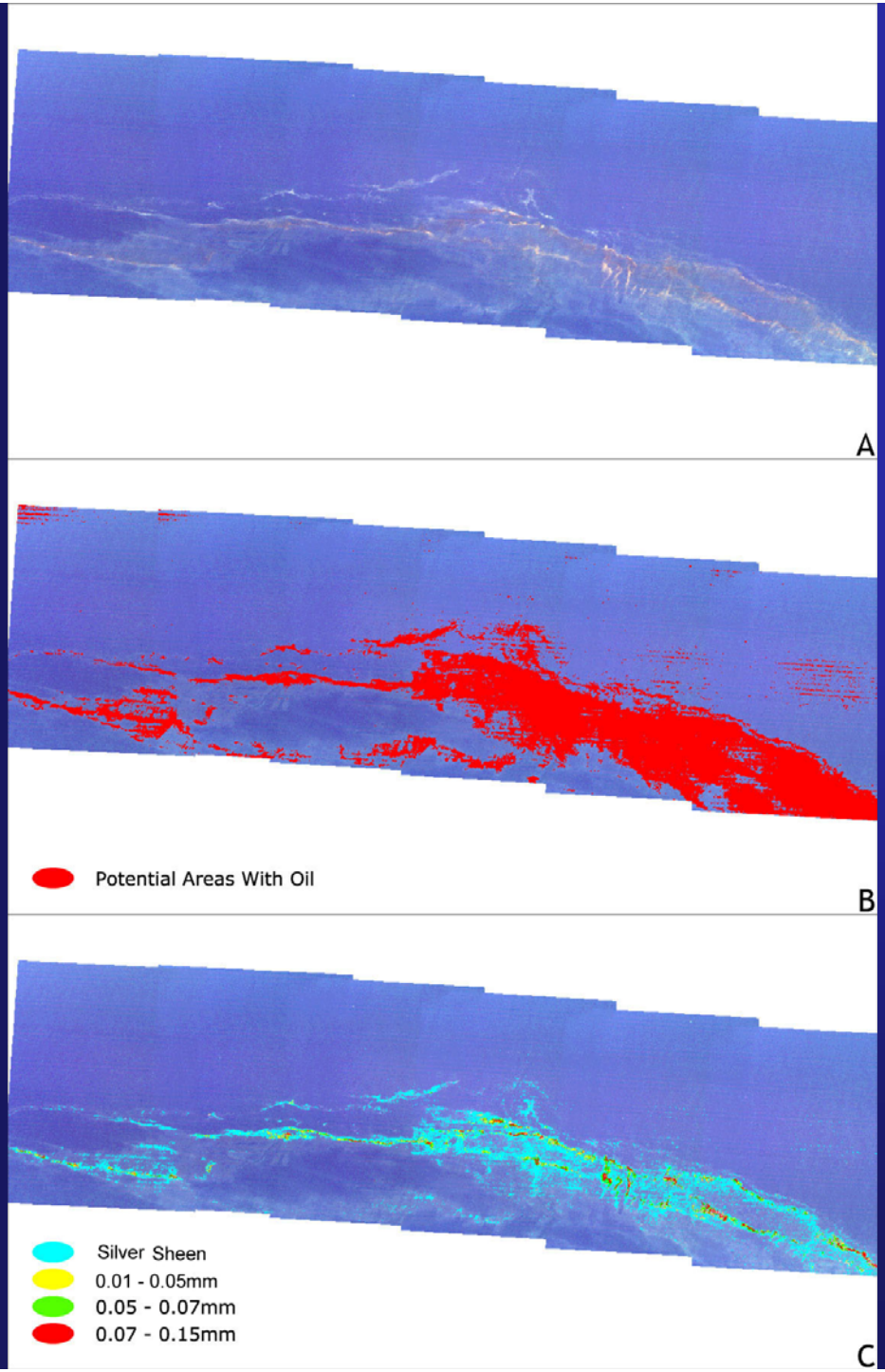
Accessibility from the field, boat, aircraft

Sprint wireless data network:

- Extensive inland and shoreline coverage
- Tested offshore boat and aircraft use to 20+ miles

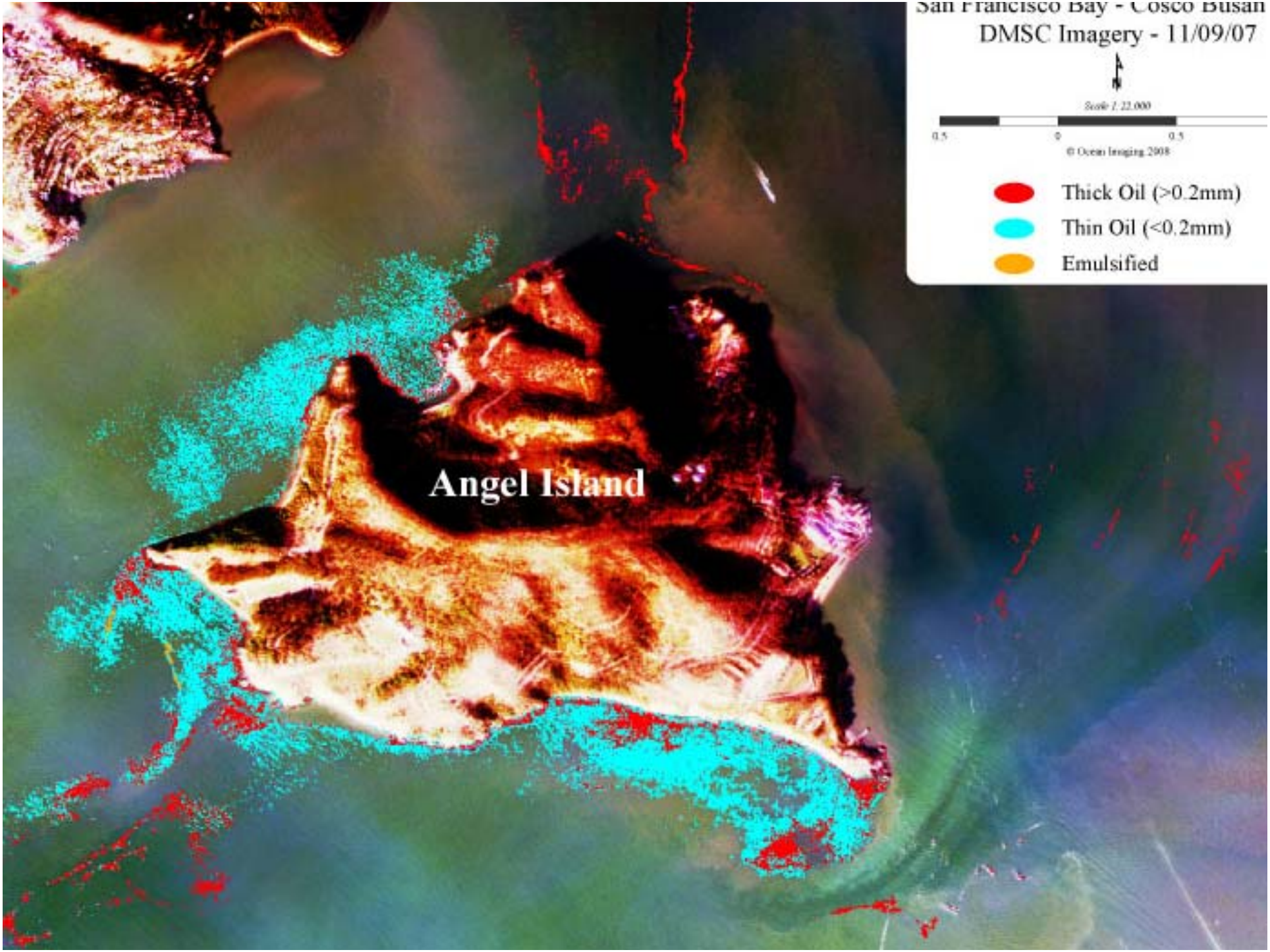
Future Iridium satellite data network:

"Anywhere" coverage at DSL speeds



Real-time oil spill mapping input

Digital image-based oil identification capabilities were developed in previous SSEP project


San Francisco Bay - Cosco Busan
DMSC Imagery - 11/09/07
Scale 1:22,000
0.5
0
0.5
© Ocean Imaging 2008
Thick Oil (>0.2mm)
Thin Oil (<0.2mm)
Emulsified
Angel Island

On-going and future work

Continue work on maximizing aerial image processing speed

Validate developed system technologies during multi-agency test drill off San Diego in June, 2008

Work with OSPR to customize ArcIMS interface and data content

Introduce system to other agencies (e.g Coast Guard) and conduct multi-agency validation/demonstration test.