

Tactical Airborne Oil Spill Remote Sensing - a New Operational Approach







February 5, 2018 Morial Convention Center, New Orleans, LA

The Needs

DWH Aftermath

Since Deepwater Horizon multiple studies by Industry and Government (*) have all led to the same conclusion: Improved use of remote sensing is critical to oil spill response. The conclusions suggested that for the oil responder community an effective airborne platform is a must.

Despite these studies, little has been done to provide the responder community with effective aerial surveillance technologies. Still the current approach to fighting oil spills in the U.S. is focused on the response at the expense of early detection, on reactive rather than proactive approach.

(*) Industry and Government Agencies include: API - American Petroleum Institute IGOP – International Association of Oil & Gas Producers USCG, NOAA, BSEE, etc.



The conclusions of several studies suggest that an effective remote sensing platform should feature:

- MULTIPLE SENSORS FOR COMPLEMENTARITY/REDUNDANCY;
- CLASSIFICATION OF POLLUTANTS, NO FALSE-POSITIVE;
- IDENTIFICATION OF OIL TARGETS AS RECOVERABLE OR NON RECOVERABLE;
- GEOREFERENCING THE TARGETS AND TRACKING MOVING OIL;
- EXPANSION OF THE OPERATING WINDOW TO LOW-LIGHT / BAD WEATHER CONDITIONS;
- REAL TIME INFORMATION FOR TACTICAL AND STRATEGIC USE;
- DATA SUITABLE FOR THE COMMON OPERATING PICTURE AND FOR DECISION MAKERS;

READINESS OF CREW AND PLATFORM.

 \checkmark



STEP 1 - Far Range Detection

Gs 162kn Alt 3063ft Hdg 105º W/V 0º/0kn



SLAR – SIDE LOOKING AIRBORNE RADAR

CLOUD PENETRATING X-BAND (~9.3GHZ) REAL APERTURE RADAR

PRIMARY TOOL FOR **SYNOPTIC, WIDE COVERAGE** OIL SPILL DETECTION. **50** NM SWATH – **7,500** Sq. NM / HOUR

> FUSION OF AIS DATA, SATELLITE IMAGERY, SLAR DATA IN GIS ENVIRONMENT





ACCURATE ANALYSIS OF THE OIL SPILL

- MULTIPLE SENSORS FOR COMPLEMENTARITY/REDUNDANCY
- EACH SENSOR DETECTS SPECIFIC FEATURES OF THE SPILL FOR A PRECISE TARGET DEFINITION
- NIGHT AND DAY SPILL DETECTION



STEP 3 – Data Processing

DATA ANALYSIS, FUSION AND GEOREFERENCED INFORMATION



- ✓ Area (NM²)
- ✓ Position (Lat, Lon)
- ✓ Coverage (%)
- Thickness Distribution (μm)
- ✓ Volume (Gal)
- ✓ Hot Spots
- ✓ Drift, Spreading (NM/h, NM²/h)
- ✓ Oil Classification
- ✓ Georeferencing
- ✓ AIS data fusion







Current Projects

Harvey Damage Assessment





THANK YOU !

Guilherme Brechbuhler | *CEO* – *Fototerra Ltda* guilherme@fototerra-survey.com | +1 (713) 366-1851

Alessandro Vagata | Director of Operations – Fototerra Aerial Survey LLC alessandro@fototecta-survey.com | +1 (832) 318-3314

