



TRUE INNOVATION
MAKES A DIFFERENCE

SEA DARQ

OIL SPILL DETECTION SYSTEM



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WHAT IS SEADARQ?

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- Radar processing technology which extracts information from radar waves to detect and monitor sea surface features
- The system can be both installed on a ship or on land (stationary or mobile)
- Used for:
 - Oil Spill Detection
 - Extraction of Hydrographic Parameters
 - Detection of Small Objects

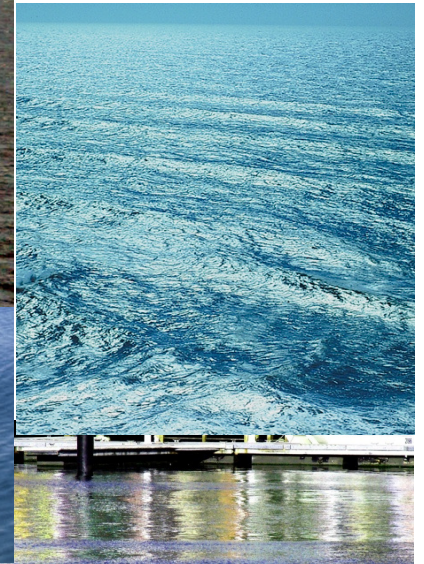


WHAT DOES SEADARQ DO?

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- Oil spill detection
- Surface currents
- Wave frequency/length
- Wave speed
- Wave direction
- Bottom topography
- Salt/Fresh water boundary
- Land/Water borders
- Depth
- Detection of stationary or slow-moving objects

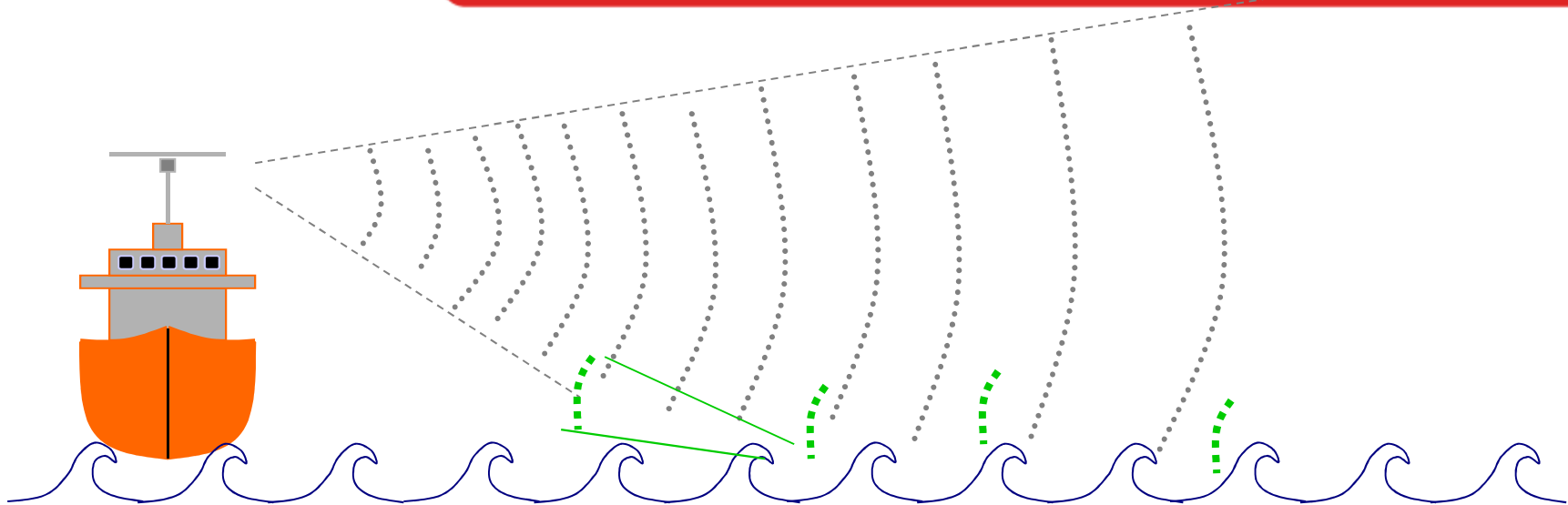




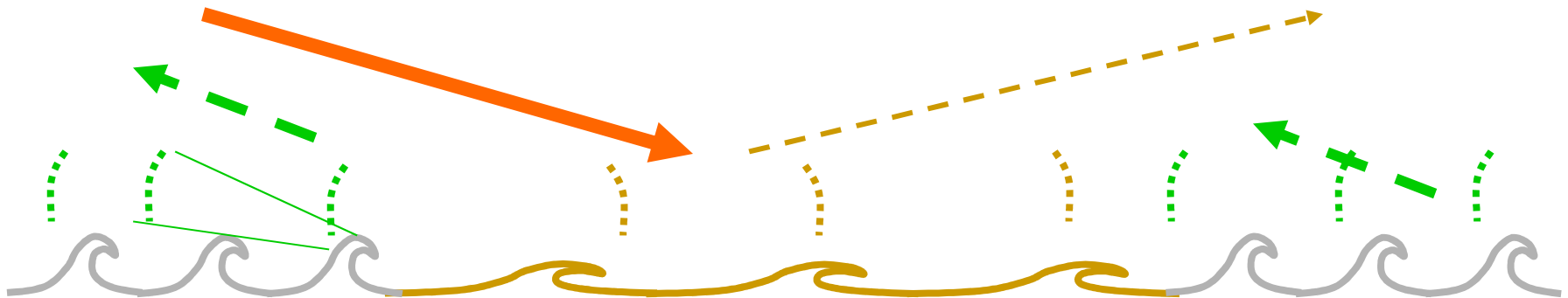
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HOW DOES SEADARQ WORK?

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Clutter disturbances





SEADARQ SYSTEM COMPONENTS

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- Hardware: standard server computer and interface (the interface provides connection to the radar)
- Software: different packages operating on the same hardware to maintain functionality





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OIL SPILL DETECTION

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VALIDATION TEST - MOERDIJK

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- 2 * 10 Litres Radiagreen
- Mobile land system

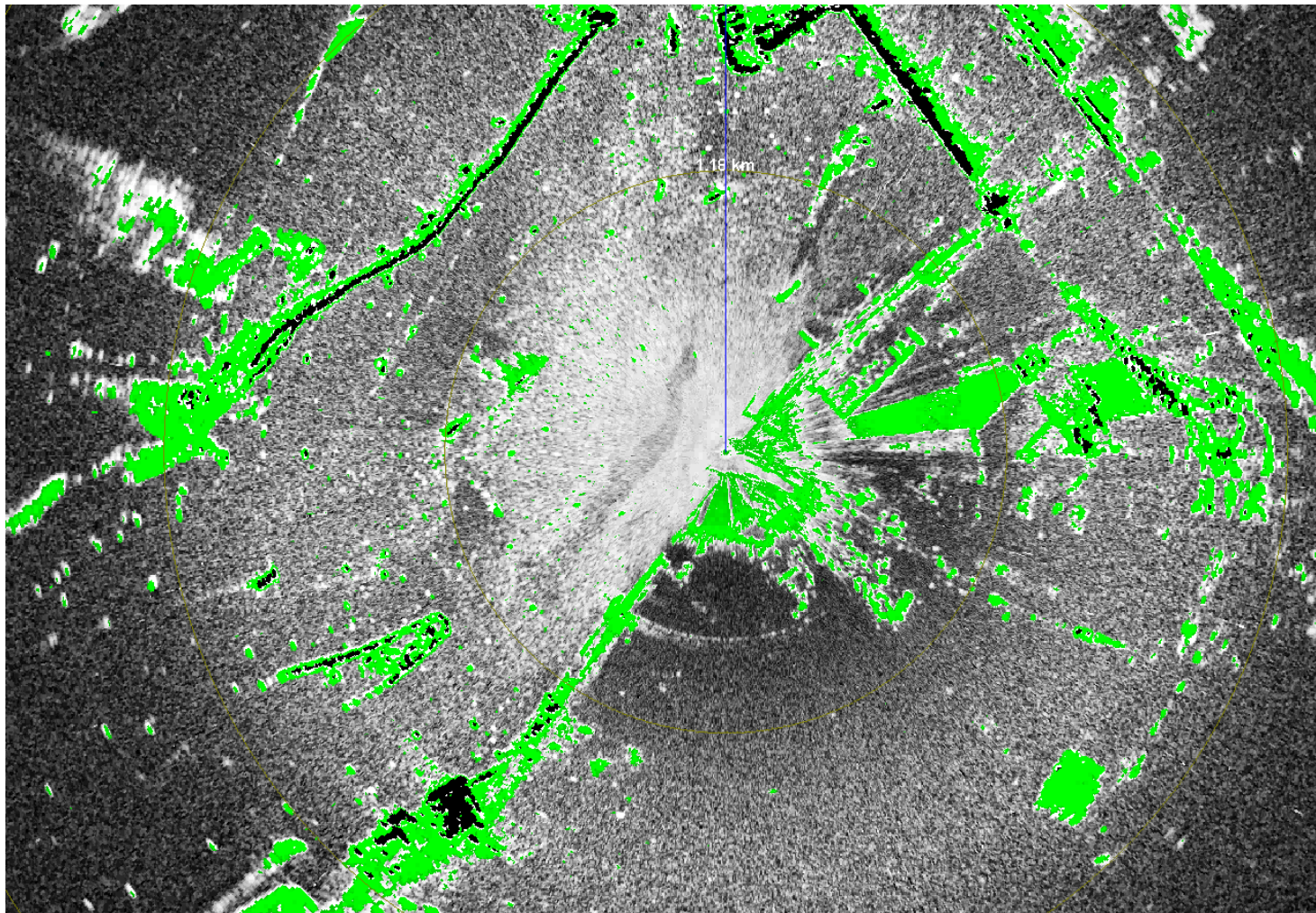




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MOERDIJK

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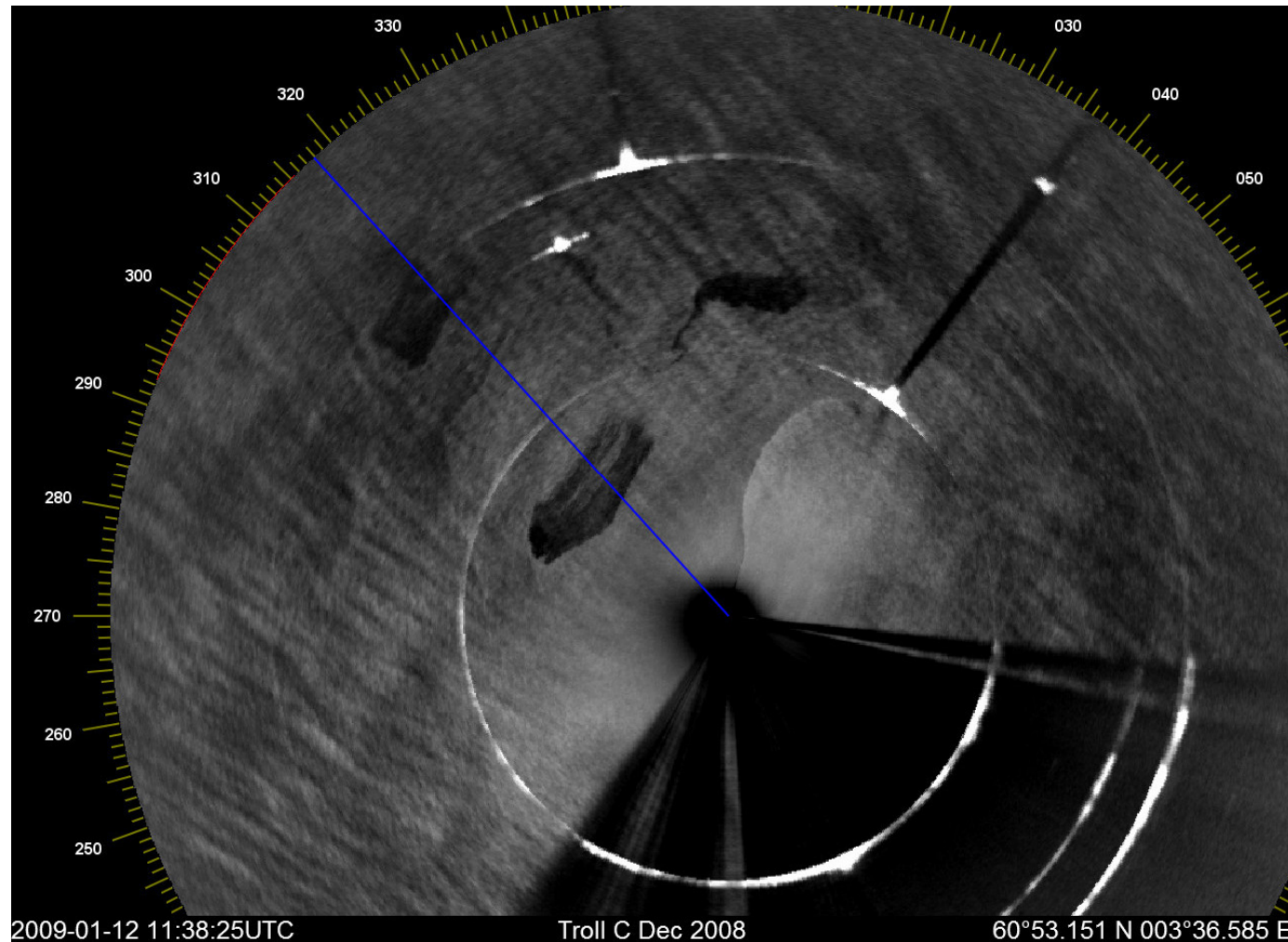
OIL SPILL TEST - TROLL C

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SEADARQ OIL SPILL TROLL C



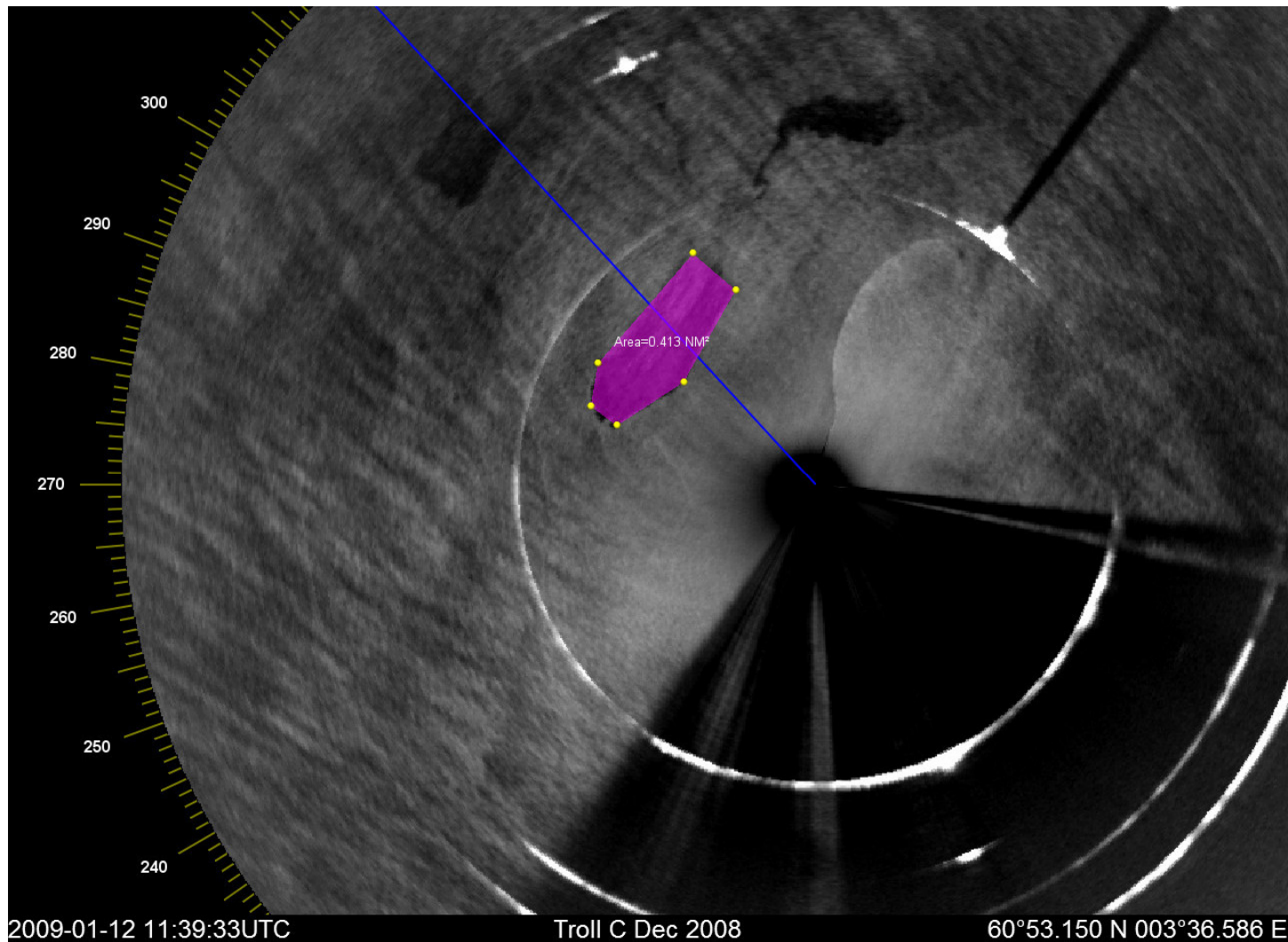
- Test conducted in 2008
- Released three times 250 l of oil/water mixture at:
 - 1.1 – 1.6 Nm,
 - 2 – 2.25 Nm
 - 2.5 – 3.5 Nm



TROLL C - SPILL AREA DETERMINATION

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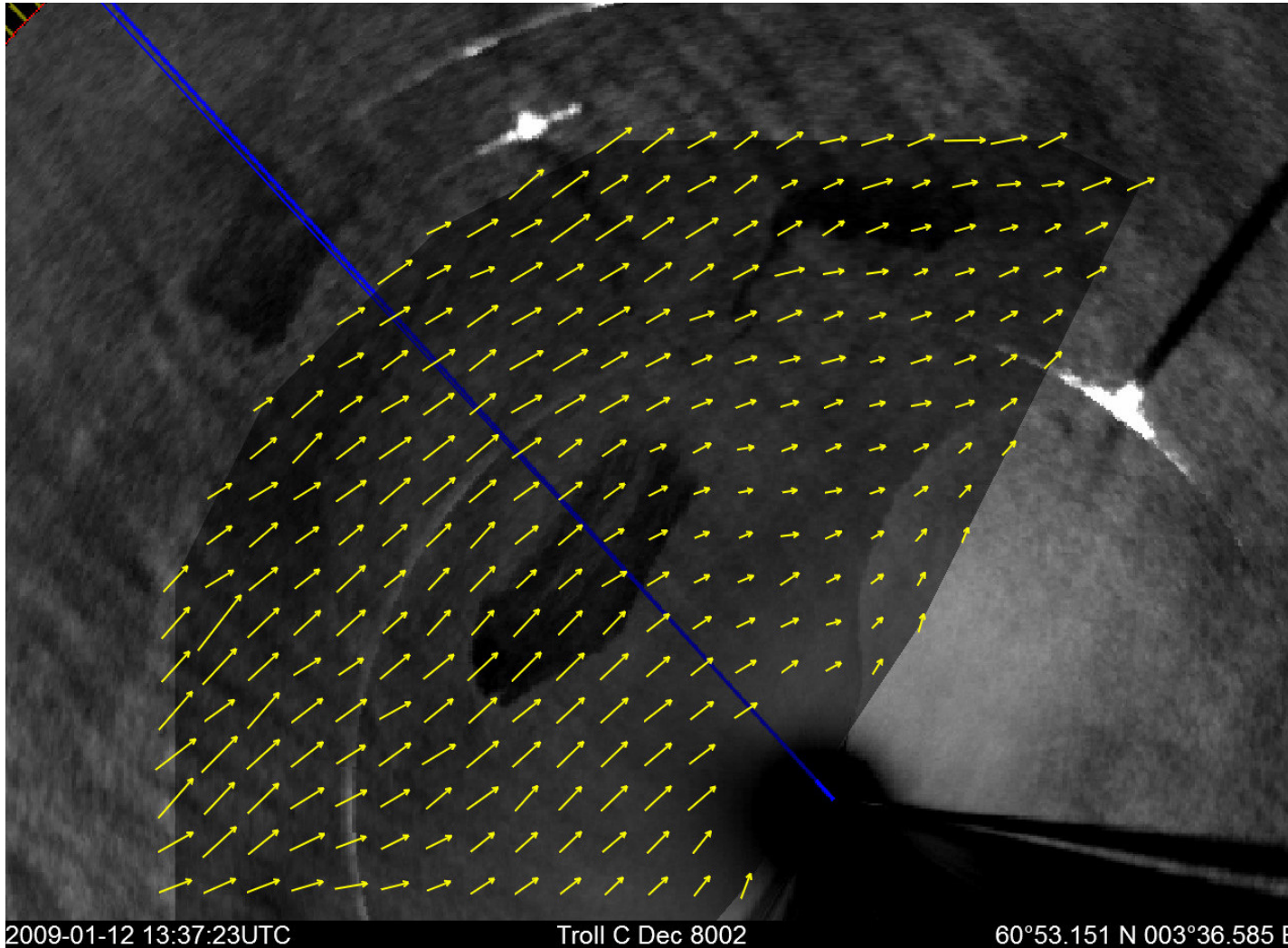




TROLL C – CURRENT INDICATION

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2009-01-12 13:37:23UTC

Troll C Dec 8002

60°53.151 N 003°36.585 E

- Test conducted in 2007
- Released 1 m³ of four different types of oil:

Radiagreen

Intermediate fuel oil

Sunflower oil

Kerdane

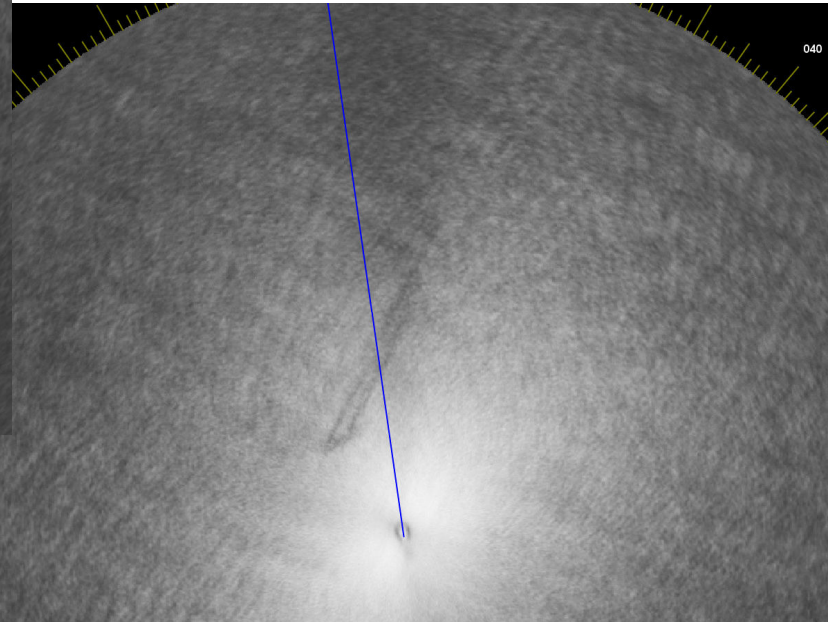
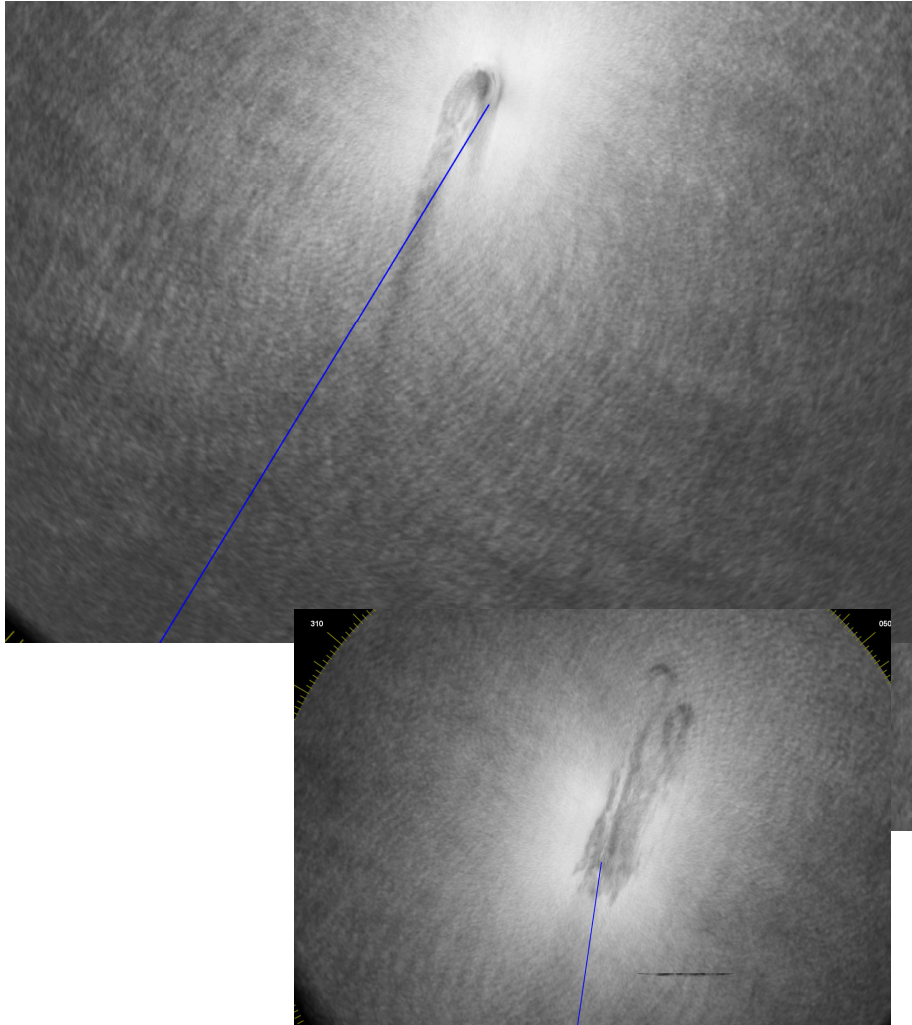




DEPOL07 OIL SPILL

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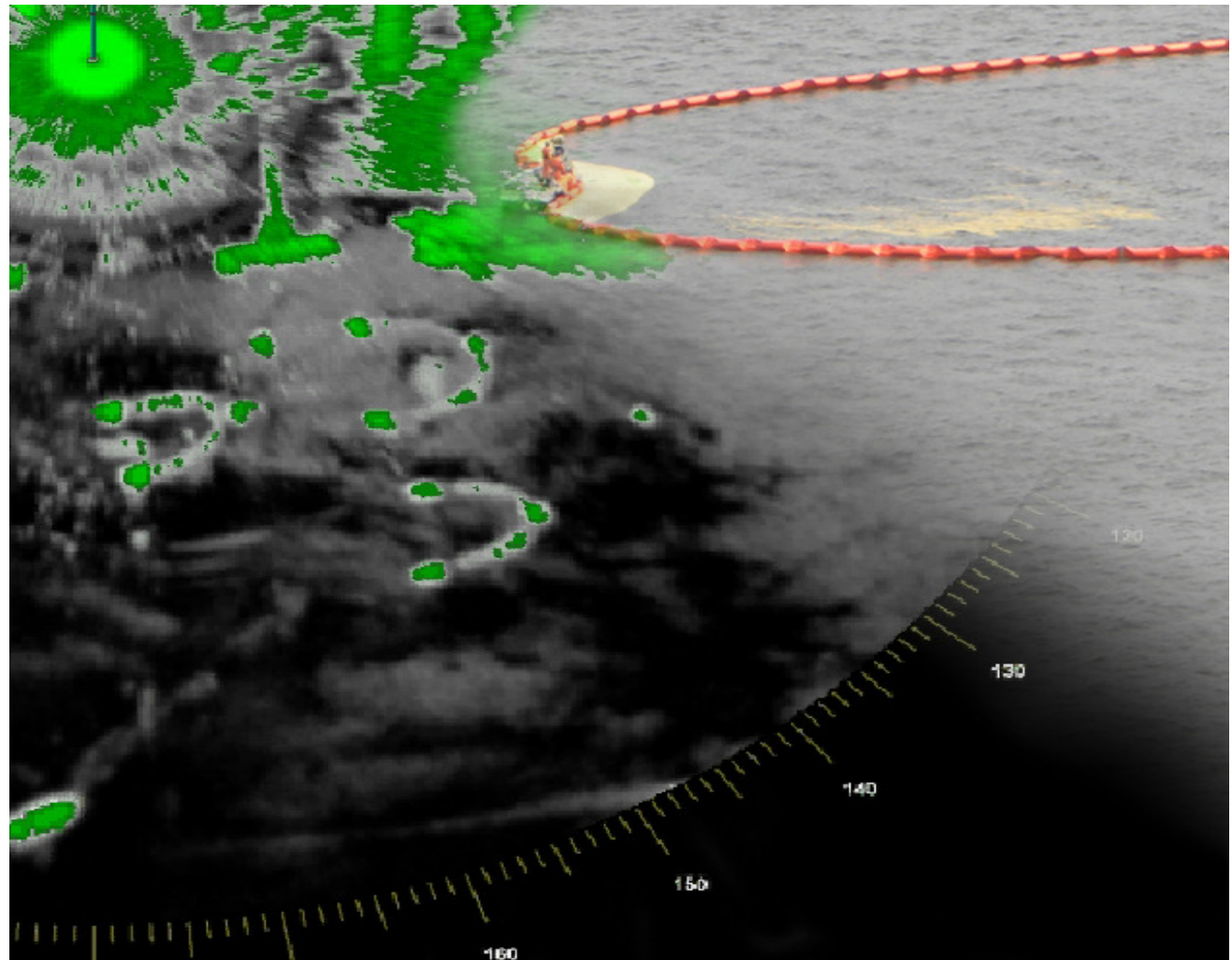
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MOBEX EXERCISE BRAZIL 2010

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- Seadarq detected popcorn simulating oil spill
- Booms are clearly visible
- Onshore structures highlighted

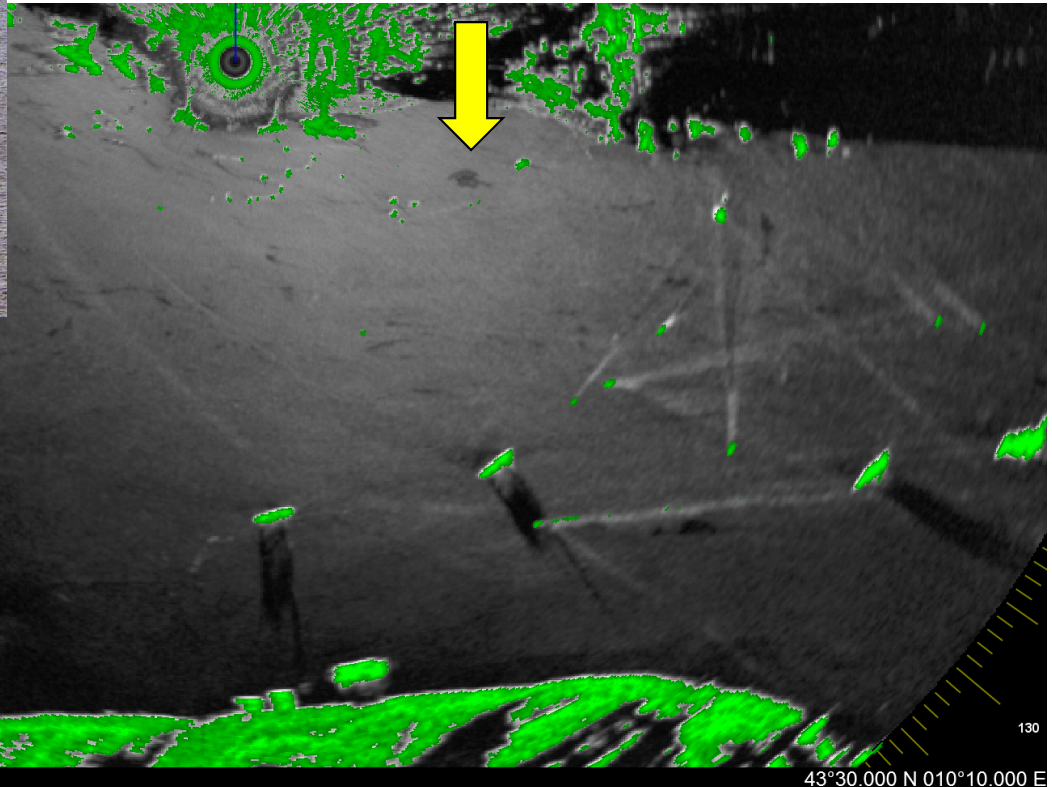




ACCIDENTAL SPILL RECORDED DURING MOBEX EXERCISE

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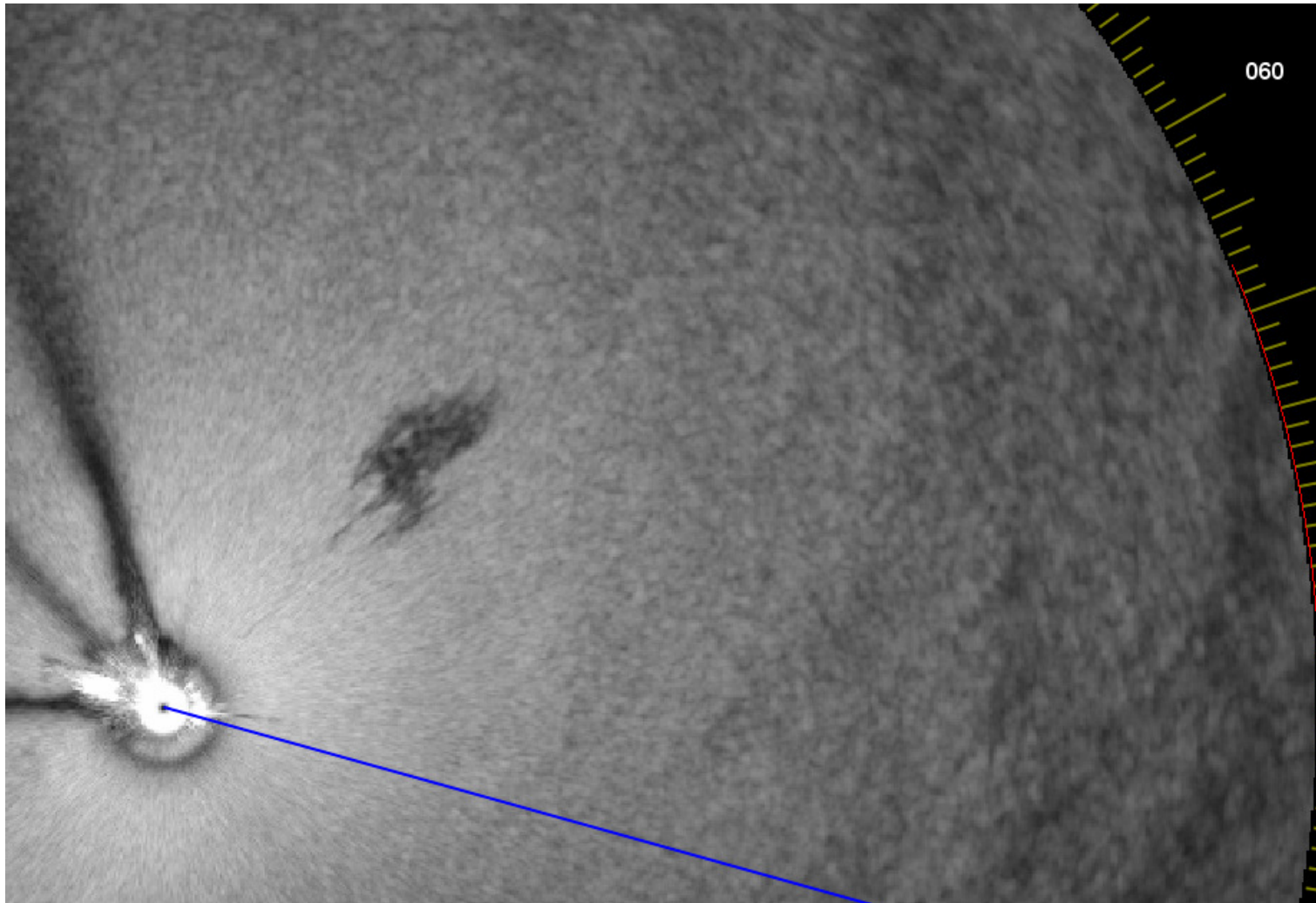




OIL SPILL DETECTED BY ONE OF EMSA RESPONSE VESSEL

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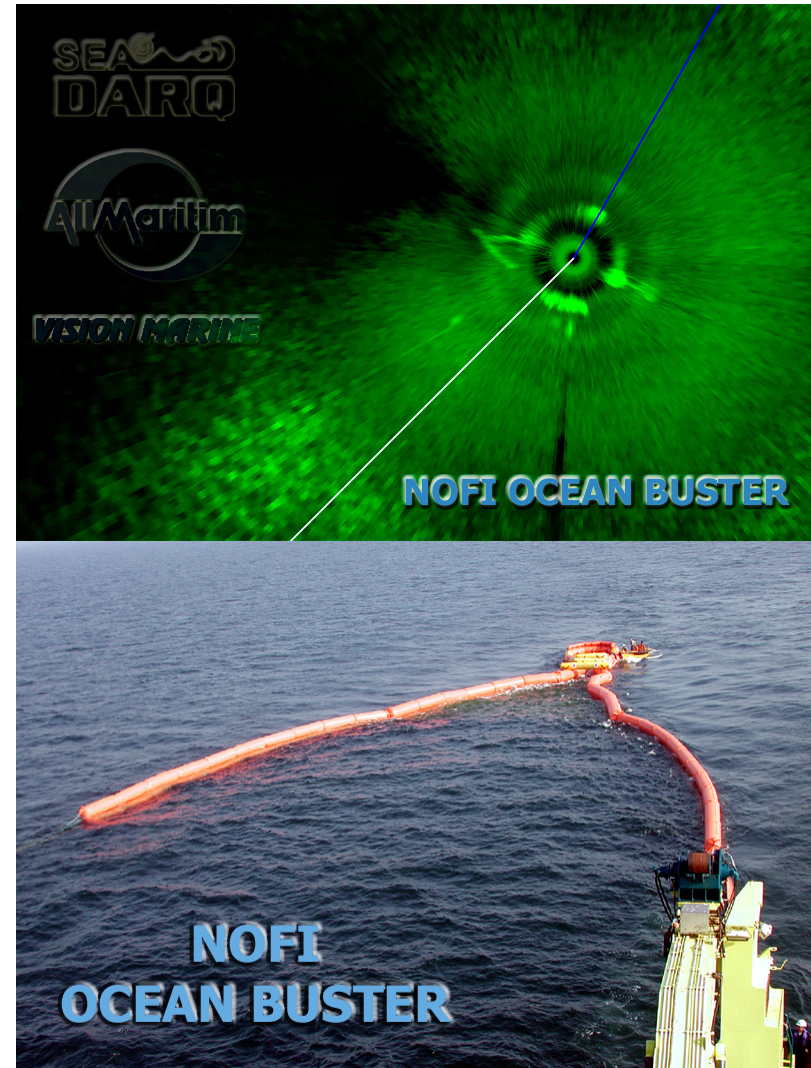
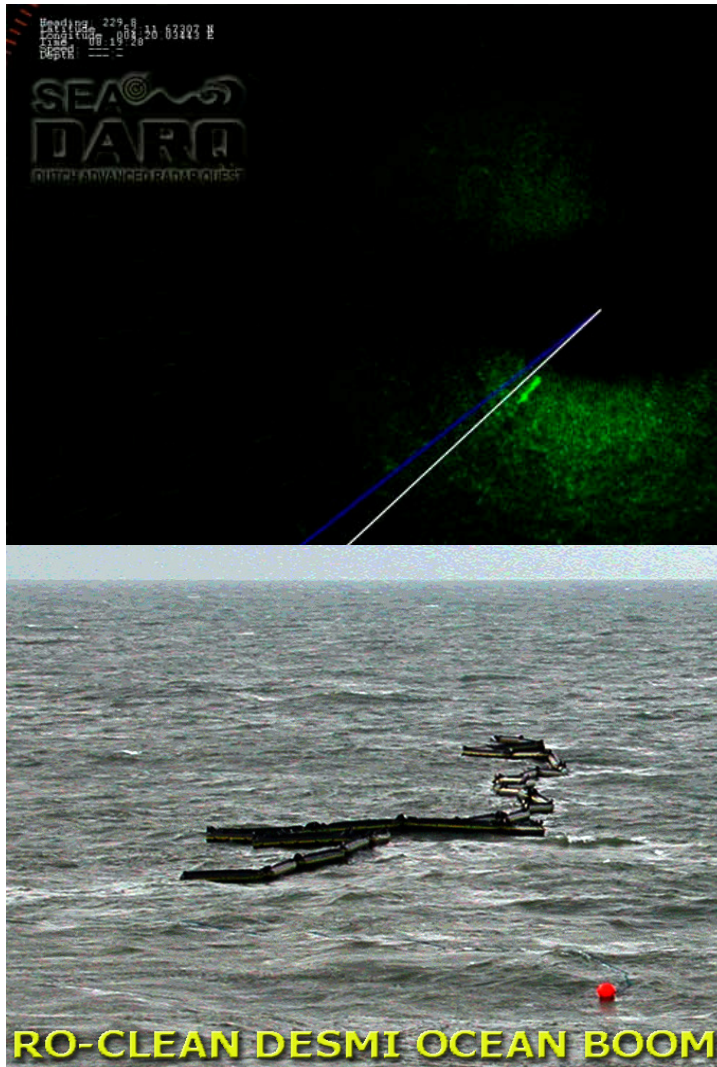




LOCATION OF BOOMS

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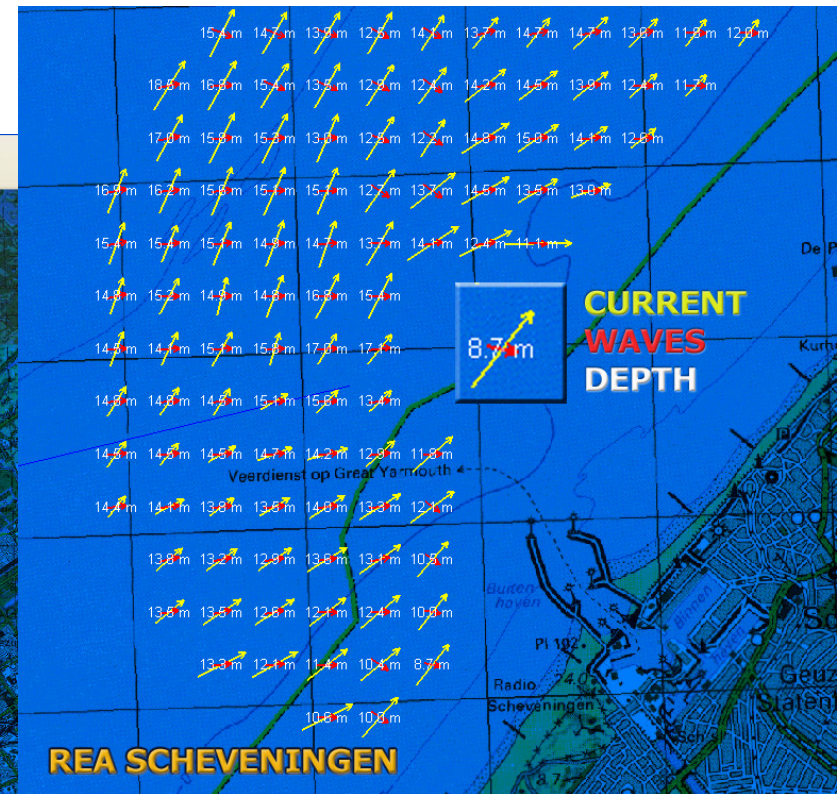
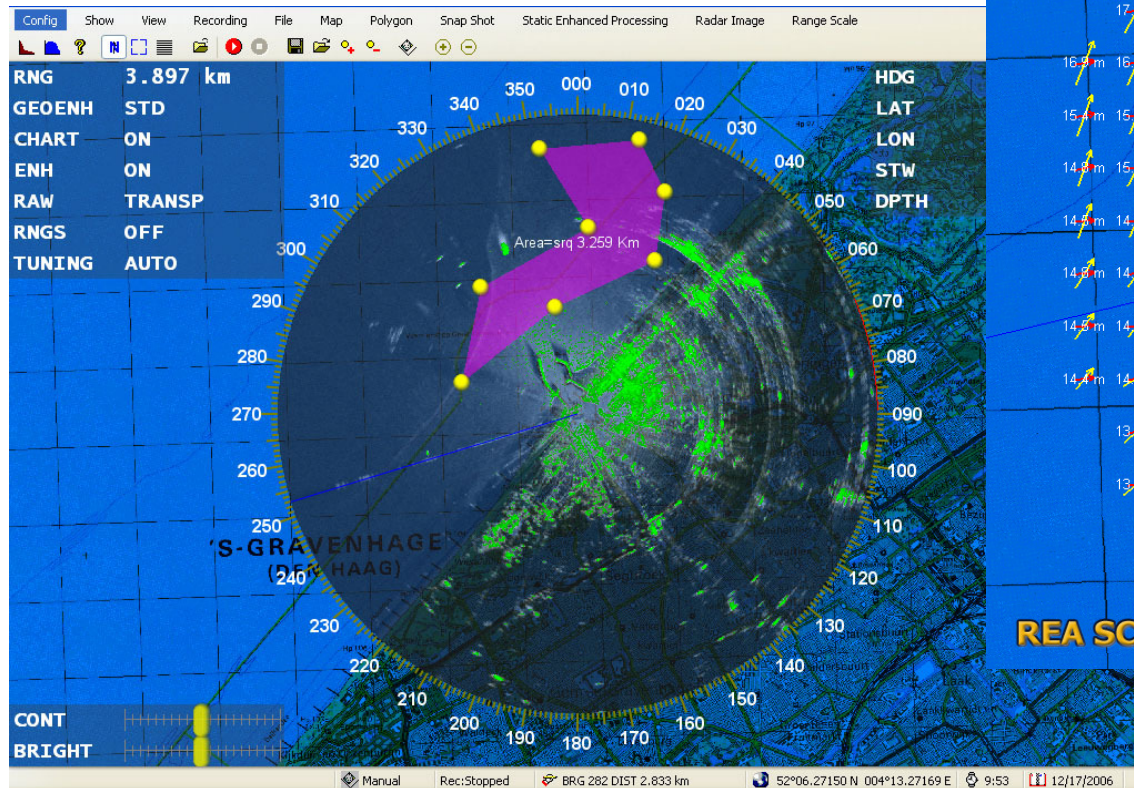




SPILL AREA DETERMINATION

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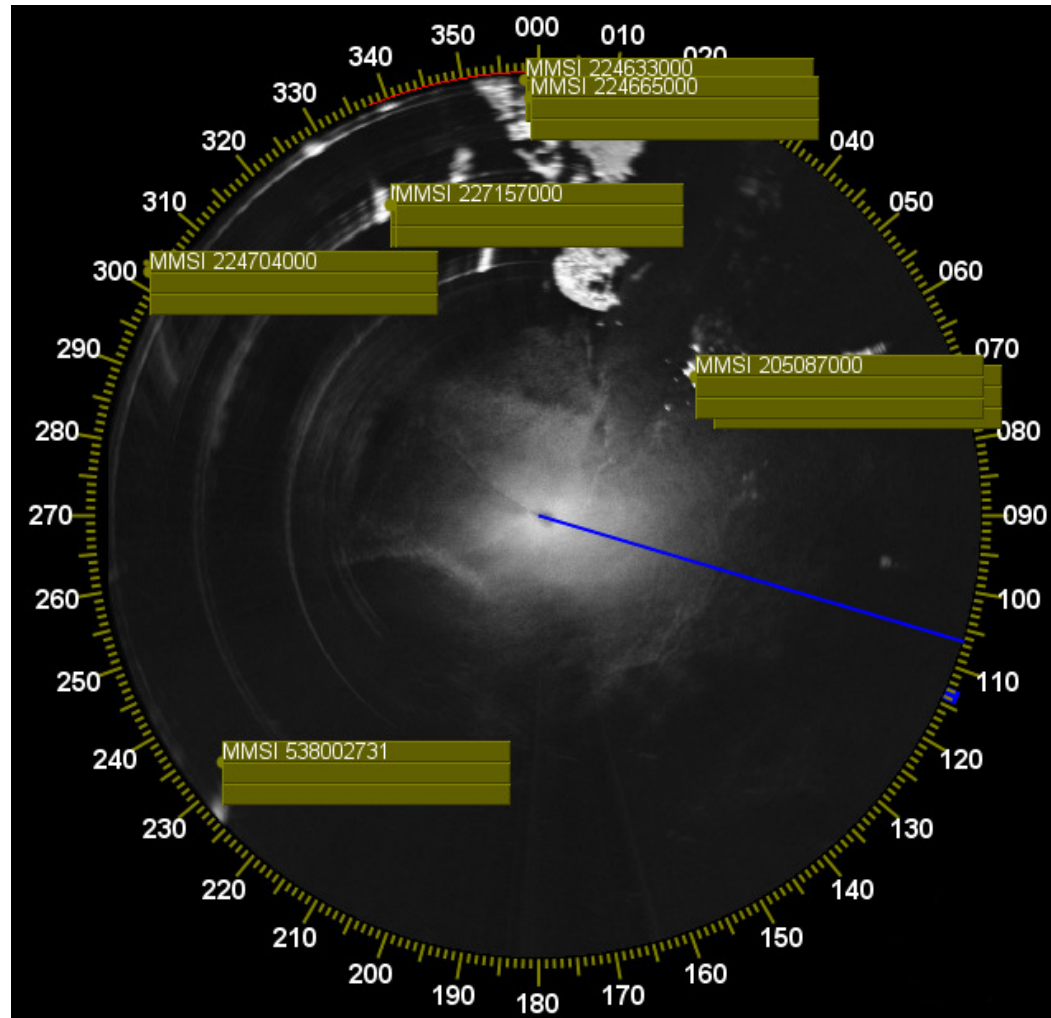
PREDICTION OF DRIFT



AIS INFORMATION AVAILABLE THROUGHOUT WHOLE SPILL INCIDENT

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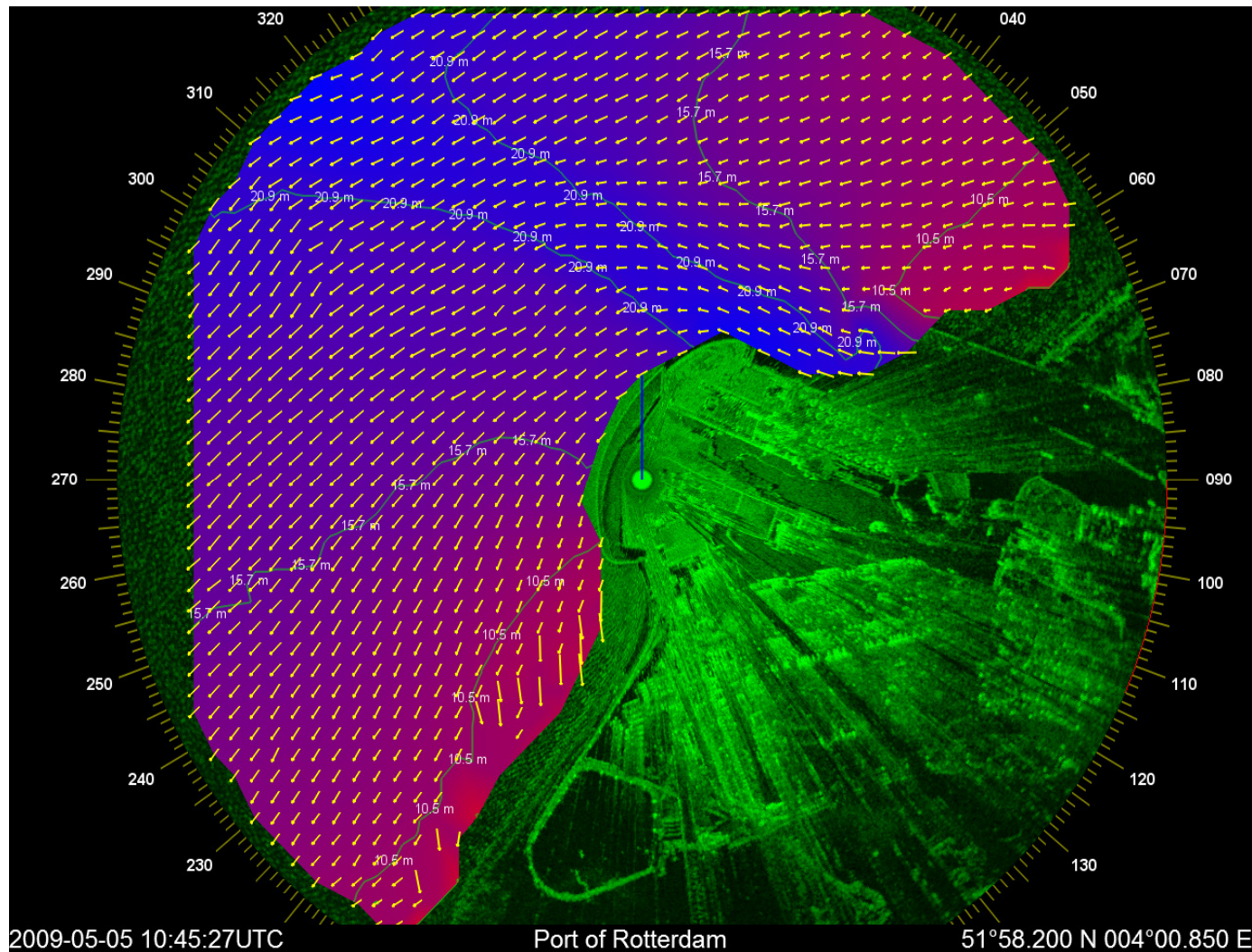


SEADARQ – HYDROGRAPHY

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CURRENTS



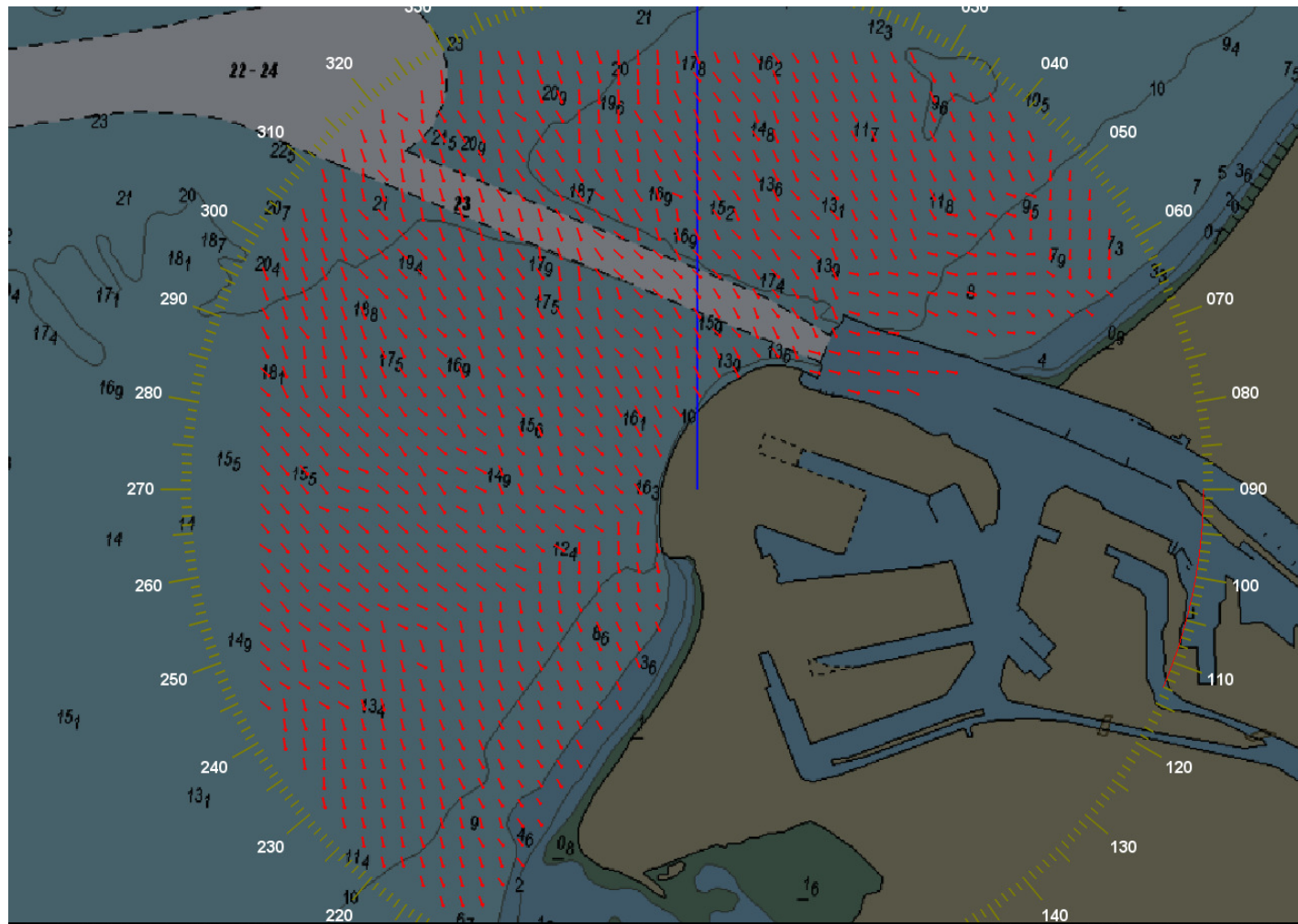


SEADARQ – HYDROGRAPHY

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WAVES



2009-05-05 10:49:27UTC

Port of Rotterdam

51°58.200 N 004°00.850 E

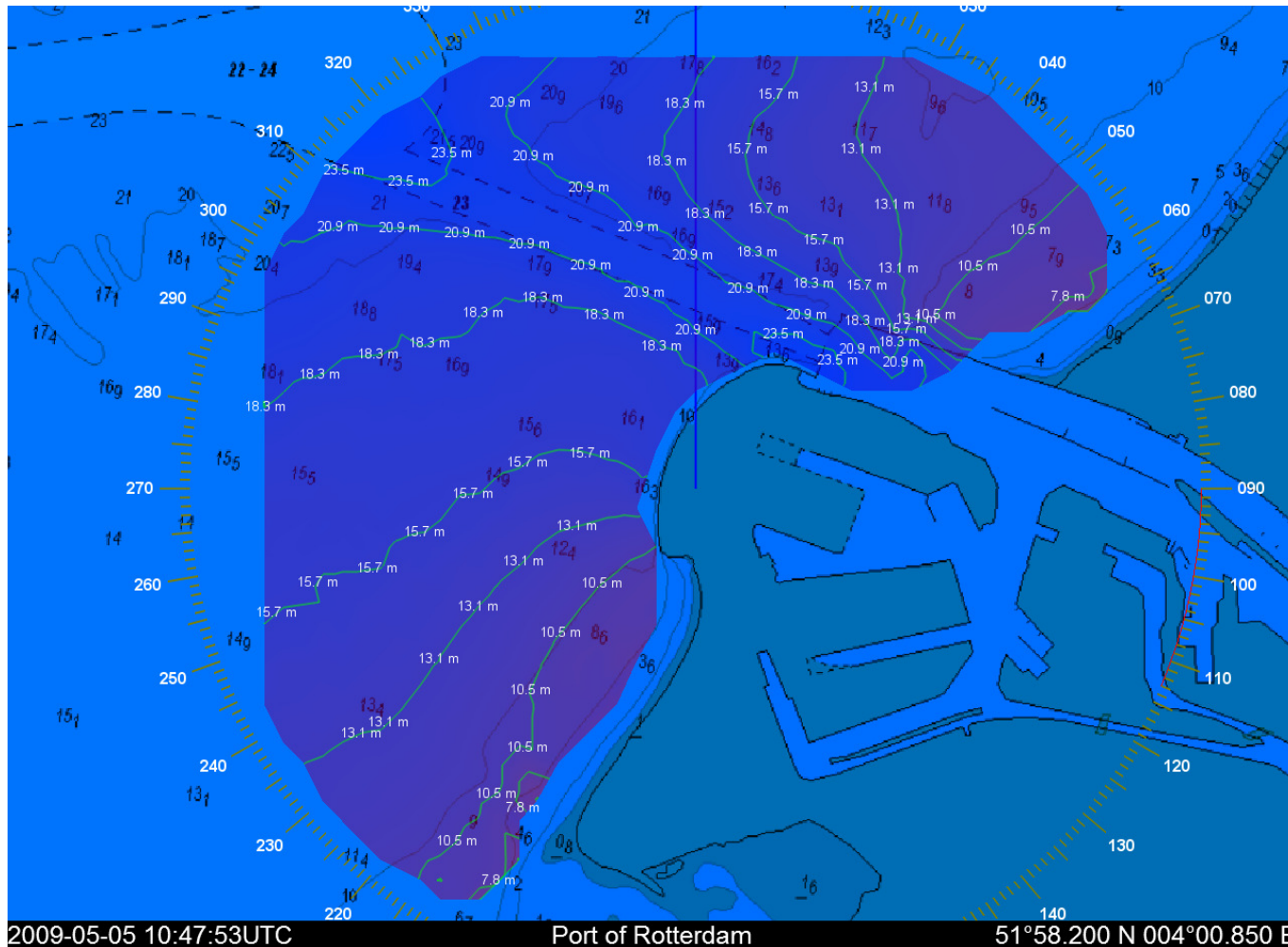


SEADARQ – HYDROGRAPHY

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DEPTH

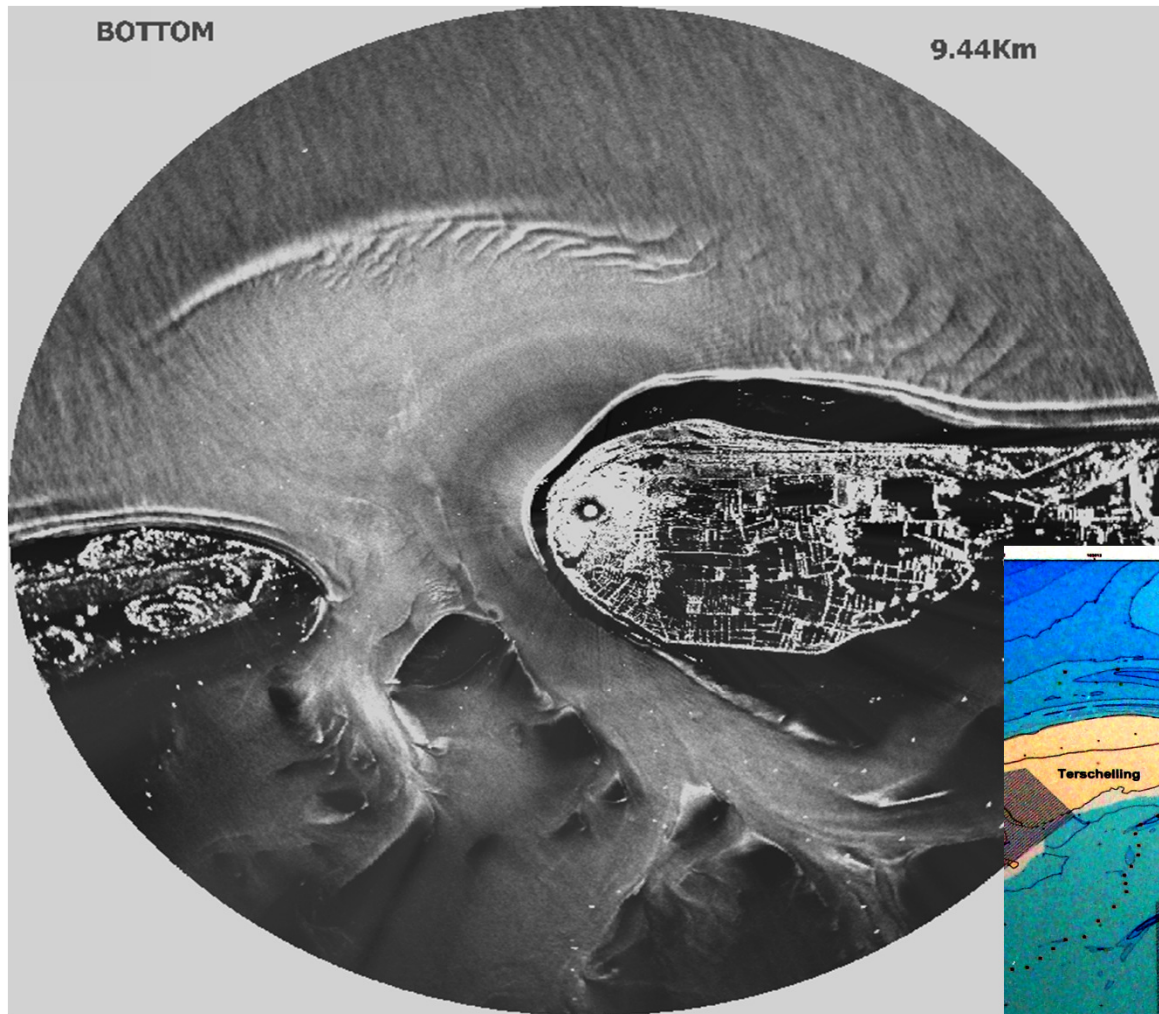




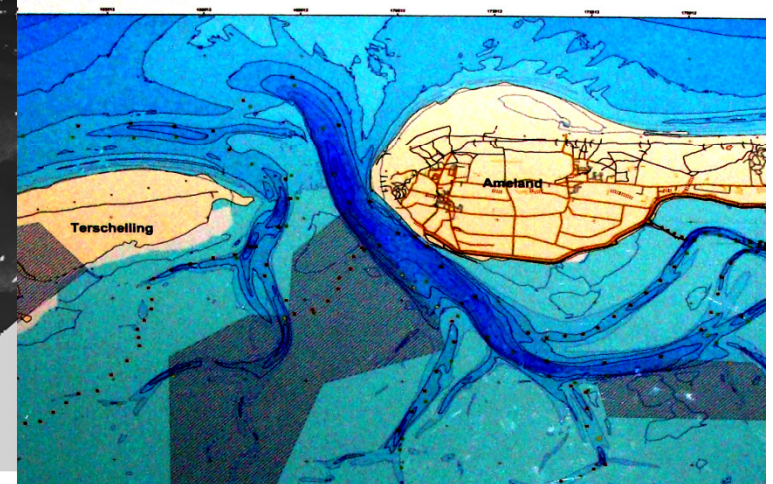
SEADARQ – HYDROGRAPHY

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BOTTOM TOPOGRAPHY

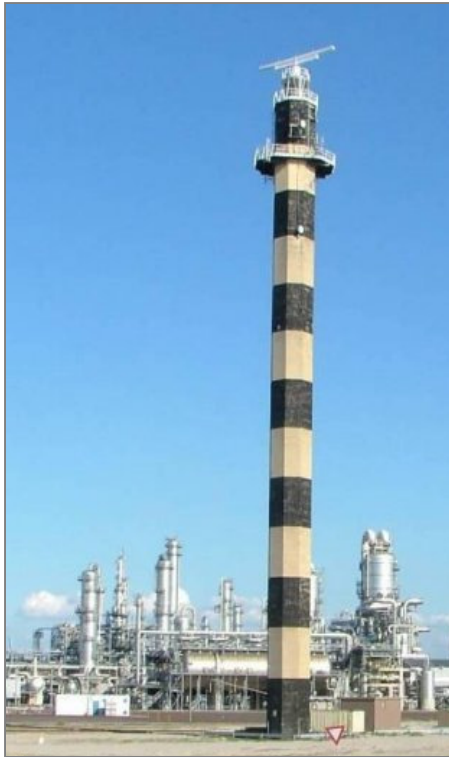




RADAR INTEGRATION

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DATA STORAGE AND MONITORING

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- Real time monitoring of environmental conditions
- Real time storage of raw radar lines
- Automatic reports in txt file after each measuring cycle
- Snapshots and recordings of the data
- Replaying the conditions from certain time frame
- Web Server



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WHY YOU SHOULD CHOOSE SEADARQ?

True innovation makes a difference

- Unique product combining hydrography with oil detection
- Real time data over the wide area
- Safety, security and environmental protection in one system
- Day and night monitoring
- Outstanding accuracy
- Range proven in tests
- Solution approved by coastguards, port authorities and Oil Spill Response groups