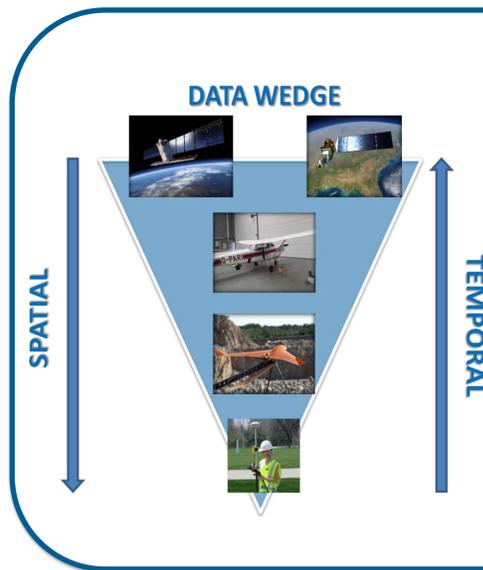


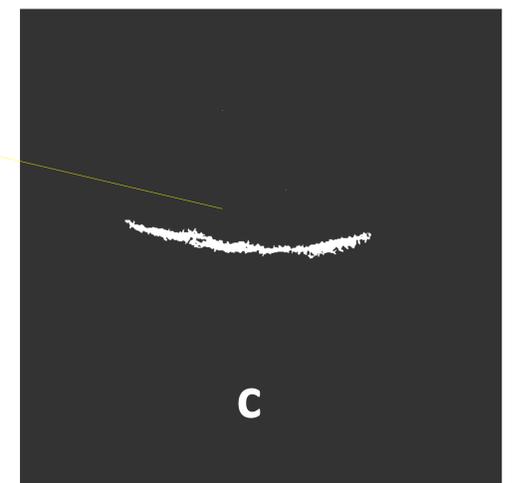
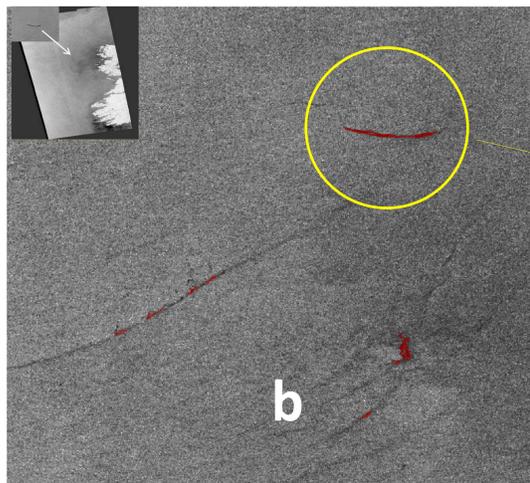
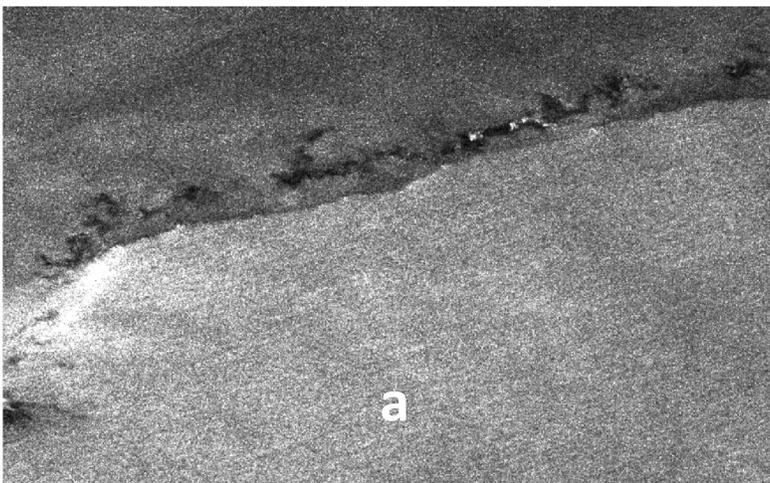
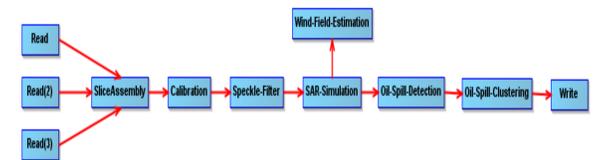
Work is underway to develop a methodology for **mapping natural and anthropogenic slicks over Ireland's offshore exploration area**. The goal of this research is to de-risk oil and gas exploration. This cloud-based platform (*MAROBs*) will be accessible to both the oil/gas industry and researcher alike.



Remote Sensing imagery from satellite (SAR, multispectral, hyperspectral), light-aircraft and low flying drones is incorporated in this processing chain to **locate, classify and quantify marine slicks** through their surface-roughness and spectral/thermal signatures.

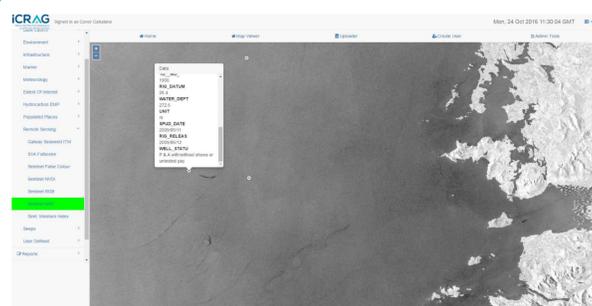
A single satellite overpass surveys the entire West coast. In our workflow, this imagery is assessed for wind conditions and an **adaptive oil detection threshold** is then applied along with automatic radiometric and geometric image corrections.

Wind (m/s)	Scenario	Threshold (dB)
0-3	False slicks common	decrease
3-7	Optimal	Approx 8dB
7-10	Thick slicks only	Increase
10+	Too rough for SAR	N/a

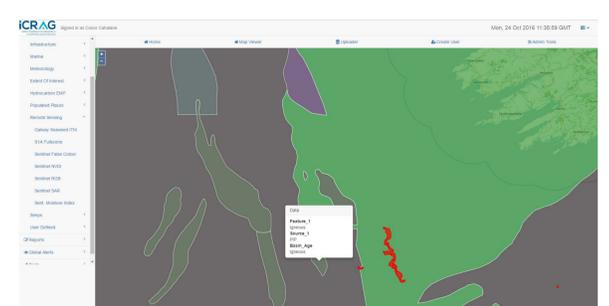


Sentinel 1 SAR satellite identifies potential slicks off the west coast (a) meteorological and contextual information eliminate false slicks such as rain front and ocean currents (b) an adaptive algorithm accounts for varying wind speed (c) extracted slick polygon

MAROBs leverages satellite and airborne multispectral imagery along with ancillary datasets to help **inform classification** of the slicks. Initial design incorporates historic EMSA slick data to calibrate and test the methodology in Irish waters.



Sentinel 1 product for Atlantic Coast with slick identified – location of existing wells also overlaid in cloud based platform for comparison and contextual information.



Historic seep data overlaid in *MAROBs* on marine geology layer. The seep dataset (provided by EMSA) includes validation using aerial platforms.