

## case study - Global Seeps

Nalcor Energy Oil & Gas uses Global Seeps to analyse the prospectivity of the Newfoundland and Labrador offshore areas and help focus future exploration efforts in the region.



“We are focused on facilitating the oil and gas exploration in Newfoundland and Labrador and the results of the Global Seeps study are valuable in detecting natural seepage and discovering potential new exploration areas.

The data collected will aid in the enhanced targeting of seismic acquisitions improving chances of finding hydrocarbons and evidence of active petroleum systems.”

Jim Keating, Vice President Nalcor Energy Oil and Gas

All the space you need



## The Challenge

Nalcor's Oil and Gas division holds and manages oil and gas interests in Newfoundland and Labrador onshore and offshore. The company has a long-term vision to maximise the benefits of the oil and gas opportunities and resources in these areas. They are currently a partner in three offshore developments - the Hebron oil field, the White Rose Growth Project and the Hibernia Southern Extension and are also the operator of an onshore drilling exploration program in Parsons Pond in Western Newfoundland.

In 2010, a project, funded through the Department of Natural Resources' Offshore Geoscience Data Program (OGDP), was launched in order to better understand the potential of the resources in Newfoundland and Labrador and support future exploration efforts in the region.

## The Solution

Astrium GEO-Information Services was contracted by Nalcor to undertake an oil seep mapping and interpretation study covering all offshore areas of Newfoundland and Labrador, linking into southwest Greenland.

A wide range of satellite data was weather-screened to ensure its suitability for oil slick mapping. Suitable satellite scenes were purchased from our data suppliers and analysed by our technical image analysts for the presence of oil slicks. Each slick was characterised and ranked according to the probability of it being sourced from natural seepage or man-made pollution.

After three months, we were able to deliver a plug & go GIS database containing the following:

- Scene interpretation results including scene outlines, metocean interpretation details, ship traffic and rig/platform information
- Slick interpretation results including slick source points, slick vectors, probable slick type and confidence levels
- Digital geo-coded calibrated data for the full scene at 100-m resolution
- Slick subset images at 25 metre resolution

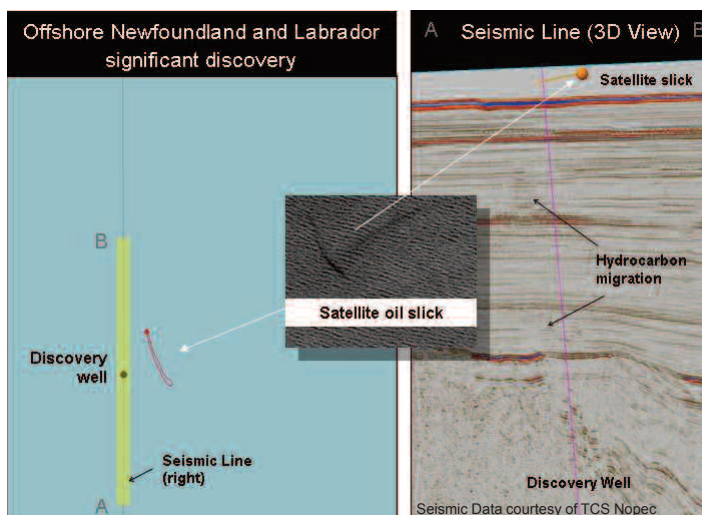


The study covers over 1.5 million sq km. It is the largest and most up-to-date oil slick mapping over this area and we are continuing to add in additional scenes over the region and integrate results into the study.

## The Benefits

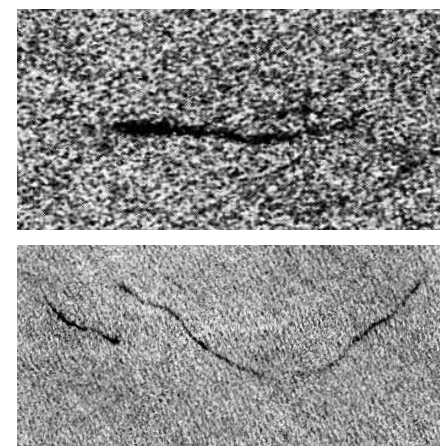
The results of the study provide further insight and assessment of the geology and thus of the petroleum potential of the area. **With direct access to the slick locations and their characteristics, exploration companies can analyse and plan more efficiently additional exploration activity in the region.**

Nalcor have also integrated the slick locations with seismic data from TGS Nopec, and demonstrated that there is a positive correlation between some slick locations and subsurface hydrocarbon migration. **The data collected will then also aid in the enhanced targeting of seismic acquisitions, increasing the odds of exploration success and minimising environmental impact.** This type of result would significantly advance exploration in any new frontier area. Following the initial results of the study TGS Nopec and Astrium have signed an agreement to use the Astrium slick locations to plan and position TGS's future seismic surveys in the region.



Surface slick likely related to subsurface hydrocarbon migration.

It demonstrates that satellite slicks can be a useful frontier exploration tool to optimally position new seismic lines to improve chances of finding hydrocarbons and evidence of active petroleum systems.



Examples of a potential seepage slicks offshore Labrador

**Global Seeps** is a database of offshore oil slicks, constructed by systematically screening the world's offshore basins. Available on a local, regional, or global licence; it covers approximately 60 million km<sup>2</sup> and is continuously updated with new studies.