

Global Seeps

Near-real-time slick mapping & analysis

The use of spaceborne SAR systems for mapping seepage slicks is well established technology.

Over the past two decades, Infoterra Ltd has interpreted over 11,000 satellite scenes over the majority of the World's offshore basins.

Such information is used widely in the hydrocarbon industry to identify new fields and risk manage exploration activities.

Geochemical sampling of seepage slicks can add another level of information to this data, helping to add confidence & allowing a greater understanding of the nature of the seep.

Faster data processing and delivery of data & slick interpretation, allows information fed directly to survey teams to guide them to current slick locations, increasing the chances of a successful slick survey whilst decreasing the high cost of keeping vessels at sea. This technique is of particular benefit in frontier exploration areas where the presence of a mature oil source rock is a risk.

Infoterra have been able to provide repeat observations of target areas for a number of such surveys, supplying updates of seepage slick locations within 24 hours of image acquisition.

One such project was completed on behalf of an Encana led consortium of clients across West Greenland in 2008, with sampling work undertaken by GORE™.

- Tasked image collections covering the entire survey area of approx. 20,000km² every 3 days. Slick locations fed directly to the survey vessel.
- Detailed mapsheets, vectors & imagery in a GIS environment were available to the onshore

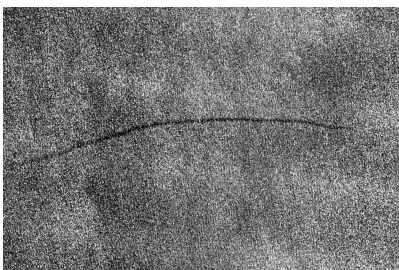
team between 12 & 36 hours of image acquisition.

- Combined with historical archive dataset of likely seepage locations and feeds of weather information, the chances of successful slick sampling were maximised and decisions regarding the survey vessels locations & movements could be made with up-to-date information.

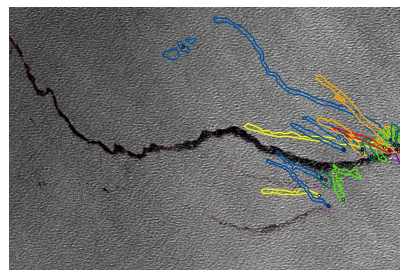
Data Specification

Global Seeps data comprises a series of deliverables in GIS digital format for every study area.

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



Seepage slick detected on SAR scene & sampled within hours of image collection



Multi-temporal interpretation from SAR imagery showing repeat seepage



Slick located during rapid SAR survey, Offshore West Greenland 2008



GORE™ Surveys Offshore Slick Sampling & Analysis Service

Validate & characterise your offshore petroleum system.

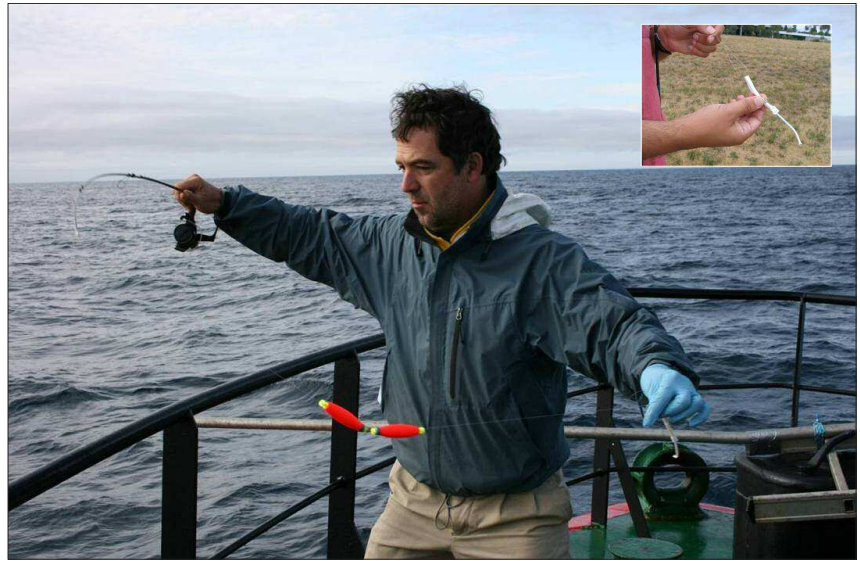
GORE™ Slick Sampler has been validated by industry consortiums as the:

- easiest to use: cast a 'slick lure' onto your slick & reel for 2 minutes
- most sensitive for very thin slicks
- widest compound range from C₅ to C₃₅

GORE™ Slick Sampling Kit

Rugged hard case includes everything you need:

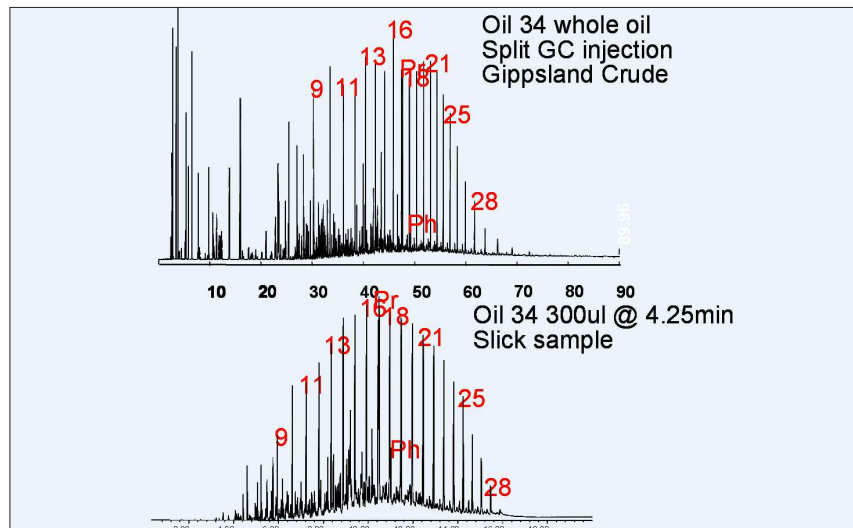
- 20 ready samplers
- folding casting rod
- weighted bobbers
- fishing line & hardware
- gloves
- instructions, video
- sample documentation



Analysis by TD-GC-MS for over 100 compounds from C₅ to C₃₅ including key biomarkers.

Slick analysis deliverables

- report
- data tables in Excel



Light compounds	C ₅ -C ₁₀
Diamondoids	C ₁₀ -C ₁₇
Pristane/Phytante	C ₁₇ -C ₂₀
Terpanes m/z 191	C ₂₁ -C ₂₉
Steranes m/z 217,218	
Triaromatic steranes, m/z 231	
Monoaromatic steranes, m/z 253	

GORE is the only provider of amplified geochemical imaging of petroleum reservoirs - onshore & offshore.

www.gore.com/surveys

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