



Tensor **GEO**

LOW FREQUENCY SEISMIC

MITIGATE RISKS. REMOVE UNCERTAINTY.
OPERATE SUSTAINABLY.

LOW FREQUENCY SEISMIC



Low-frequency seismic sounding (LFS) is a method for an effective onshore/offshore assessment of hydrocarbon presence or drilling hazard likelihood through the use of passive seismic. Especially effective when used alongside conventional reflection seismic, LFS shortens cycle times, reduces costs, increases safety margins, increases certainty and reduces environmental impact.

Why choose this service?

This service removes the most challenging barriers that keep operators from maximising economic recovery: high costs, low accuracy data and interference with operations. Identification of small pools and marginal fields can dramatically alter the ultimate recovery with a variance of 30% or higher. TensorGEO's LFS technology removes uncertainty and maximises return on investment by maximising the economic recovery of your field.

The enabling technology

LFS is a passive seismic technique based on analysing the spectral properties of low-frequency (0.5-10 Hz) naturally occurring seismic signals which are modified in the presence of oil and gas deposits. In a homogenous geological environment, the frequency spectrum of the signal is a constant. However, in the presence of hydrocarbon deposits, variations in the spectrum occur. These variations have distinguishing features due to the relative dispersion and attenuation of the signal. Thus, an oil-saturated reservoir generates a different anomaly to a water filled reservoir. As a result, the method enables us to locate hydrocarbon saturated reservoirs.

APPLICATIONS

- Determination of hydrocarbon presence in an area after reconnaissance seismic (2D or 3D)
- De-risking of hydrocarbon presence in structures identified by 2D/3D seismic
- Delineate sweets-spots in distributed (e.g. channelised) hydrocarbon accumulations
- Locating hydrocarbon accumulations in non-structural traps
- Assessment of hydrocarbons presence in sub-salt, sub-basalt or sub-coal deposits
- Safer drilling by delimiting zones with abnormal pressure
- Delineation of "satellite" hydrocarbon accumulations around existing fields
- Locating infill targets/bypassed pay within existing fields
- Identification of sweet spots for drilling
- Improved resource assessment and equity distribution by delimiting the boundaries of accumulations
- Delineation of CO₂ plume within CCS storage formations

ONSHORE & OFFSHORE

The LFS technology is a well established technology within the onshore domain with an 85% success rate in delineating hydrocarbons in both exploration and developed areas. Since TensorGEO's culmination, offshore LFS technology has developed rapidly over recent years and is at the stage where it can be efficiently and effectively used offshore to help operators achieve more predictable outcomes from their drilling campaigns. New noise filtering techniques have been established within the offshore domain and offshore sensor technology optimised for long and short term deployment respectively.

MARINE LOGISTICS

Operations in the UK and overseas are performed using non-specialist vessels which have crane and deck space. Equipment is loaded onto the vessel in sea baskets and deployed to the seafloor using the crane facilities. No specialist equipment is required, equipment is mobilised, deployed to the seafloor and observed using remotely operated vehicles (ROVs).

TensorGEO provide an end-to-end service; acquiring data, interpreting and reporting on survey results.



For more information about TensorGEO's
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