Writer: Aliya Mughal aliya@strongwordsmatter.com

Pioneers and public data

Deep sea science proves invaluable in the search for new hydrocarbon resources

As oil and gas companies respond to ever-increasing demand to identify hydrocarbon resources around the world, the role of geoscience consultancies is key. And it's thanks to global geoscience research programmes like the **International Ocean Discovery Program (IODP)** that they are able to make headway.

Landmark Exploration Insights is one of the world's leading consultancies, working with clients such as Shell, ENI, Chevron and ConocoPhillips. The company's team of industrial geoscientists specialise in synthesising all published geological information relevant to the subsurface of the Earth.

This information has been used to develop a **Global Earth Model**, an informative and predictive integrated database that draws on data from historic investigations conducted by the **IODP** and its forerunners.

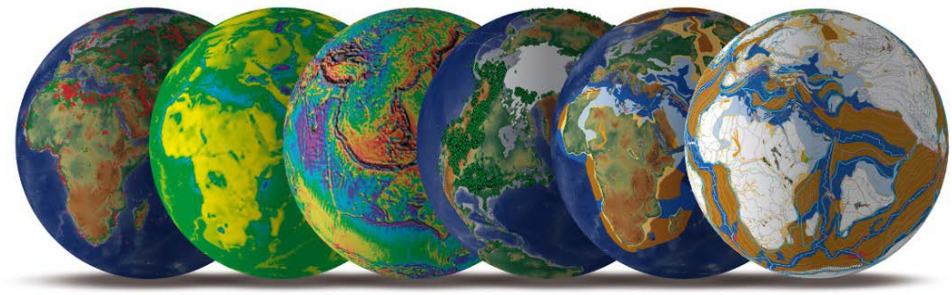
IODP and its forerunners for over 50 years has undertaken **more than 200 drilling expeditions** from the Atlantic to the Pacific, from the Arctic to the Southern Ocean, and beyond.

Global Earth Model

The Global Earth Model is a prime example of how **IODP data** has been used to facilitate the hydrocarbon sector's efforts to extract and analyse geological information so as to determine which areas of the world's oceans are ripe for exploration.

Exploration Insights' database provides an invaluable resource for analysing geological risks. Vast tracts of the hydrocarbon industry therefore benefit from being able to access a vast bank of IODP-related datasets and geological interpretations, including sequence stratigraphy, biostratigraphy and organic geochemistry.

The IODP has been at the forefront of sub-seafloor exploration for more than 50 years, first as the Deep Sea Drilling Project (DSDP 1966-1985), then the Ocean Drilling Program (ODP 1985-2003), then the Integrated Ocean Drilling Program (IODP1 2003-2013) and finally in its current guise as the IODP. An international team of scientists, researchers, engineers and technicians have amassed vast tracts of information about Earth's dynamic nature including tectonic processes, ocean circulation, climate change, continental rifting and ocean basin formation. Uniquely, IODP is a legacy scientific programme with data and samples routinely made publicly available one year after the each expedition has concluded.



HALLIBURTON
Landmark

Image: Neftex Earth Model (Source: Halliburton Landmark)

Thanks to the data and samples extracted by the IODP over the course of more than 200 expeditions involving extensive drilling, sampling, logging and monitoring boreholes across the oceans, researchers and industry now have a detailed understanding of Earth beneath the sea.

Exploration Insights has relied on the knowledge shared by the likes of the IODP since 2003. There are instances where IODP data has helped play a major role in enabling companies to understand the geological history of areas such as the offshore North-West Africa, the Caribbean and the Arctic.

"In global geology we're trying to piece together a picture of how the Earth has evolved through geological time. Every little piece of information that contributes to our attempts to piece that puzzle together is invaluable – not only to our geological understanding but also to the global search for hydrocarbon resources."

"Geoscience research, of the kind carried out by the IODP, is essential for the development of fundamental scientific knowledge. But more than that, it has huge applied benefits. IODP data provides a valuable constraint on subsurface geological risk for exploration, especially in frontier regions."

Professor Mike Simmons
Halliburton Technology Fellow for Geoscience
Former director of Neftex

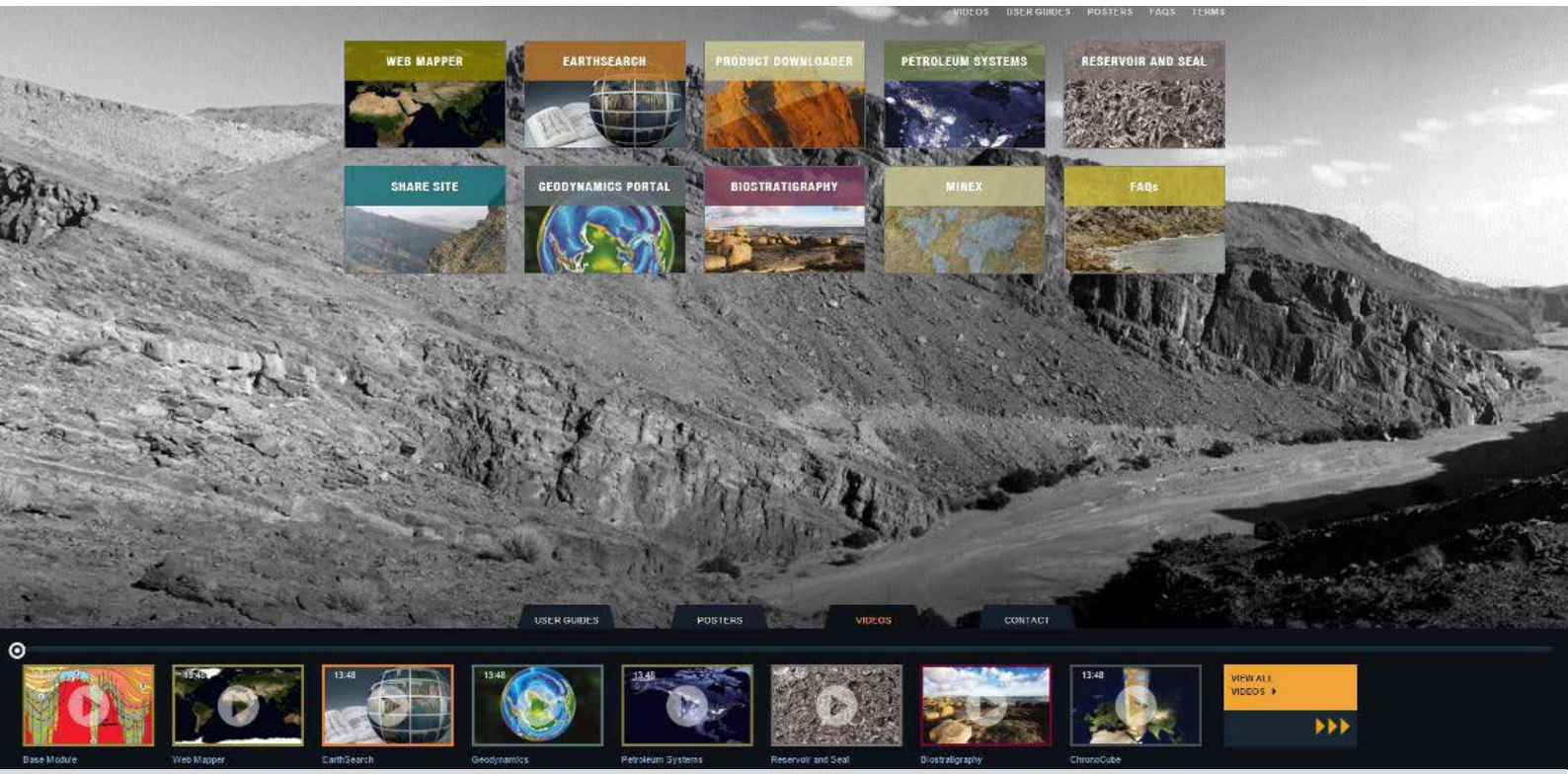


Image: Screenshot of the Neftex Earth Model interface (Source: Landmark)

The use of IODP data by Exploration Insights is testament to the symbiotic relationship between industry and exploratory academic study. As **Professor Simmons** said:

> **If you're a serious geologist, you know about the IODP.** It's a data source that all geologists out there know about, that's how significant the IODP's reputation is." ■

Professor Mike Simmons
Halliburton Technology Fellow for Geoscience,
Former director of Neftex

Additional information

■ The **Global Earth Model** was developed by Neftex Petroleum Consultants Ltd (now Landmark Exploration Insights), a business line of Halliburton known to be one of the world's leading providers of geoscientific insights. For more information about Landmark and the Global Earth Model visit www.landmark.solutions/NeftexInsights

■ Read more: Black & Blue. Using blue sky science data to aid in de-risking black gold exploration. GEO ExPro Vol. 12, No. 6 - 2015

■ **The International Ocean Discovery Program** has been at the forefront of sub-seafloor scientific exploration for more than 50 years, with an increasing emphasis on scientific outputs that are societally relevant through that time. Uniquely, IODP is a legacy scientific programme with data and samples routinely made publicly available one year after each expedition has concluded. UK is a member of IODP via the European Consortium for Ocean Research Drilling (ECORD), funded as a NERC directed research programme. www.iodp.rocks

Science writing: Aliya Mughal
www.aliyamughal.co.uk
aliya@strongwordsmatter.com
Composing in motion...

The Impact Story Portfolio was developed as part of the UK IODP Knowledge Exchange Fellowship, funded by NERC and hosted at the University of Leicester.
Award number: NE/M006980/1

Impact Story Portfolio

www.iodp.rocks

Dr Sally Morgan
Knowledge Exchange Fellow (2014-2018)

Graphic design: Dr Małgorzata Bednarz m.bednarz@mun.ca