

“Palaeo Fluids in the Petroliferous Basins of Western Offshore, India”

The Oil and Natural Gas Commission (ONGC) has joined hands with the Centre for Earth Science Studies (CESS), Thiruvananthapuram for developing the Fluid Inclusion Techniques (FITs) that would eventually help to locate and tap the hydrocarbon reserves in the petroliferous basins of India. The collaborative effort for three years initially, in the project mode is funded by the Ministry of Earth Sciences (MoES), Government of India with a total outlay of Rs. 265.80 lakhs. India is largely dependent on fossil fuel imports to meet its energy demands. By 2030, India's dependence on energy imports is expected to exceed 53% of the country's total energy consumption. Statistics points to the urgent need for technology addition and intensification in our national oil exploration and production scenario to bridge the gap between imports and domestic demand. The project would be a right step at a national level to harness and upgrade hither- to applied fluid inclusion technique in the Indian petroleum exploration technology field. Studies that have been carried out so far in the Geo Fluids Research laboratory (GFRL) in CESS have yielded encouraging results. CESS was able to practically put to test the sophisticated equipments procured for the purpose, set protocols for analysing the core samples, locate fluid inclusions in the sandstone reservoirs including Hydrocarbon Fluid Inclusions (HCFIs). The fluid inclusions observed in a sample from *Panna Formation* off shore to Ratnagiri were primary as well as secondary inclusions (*Figs. 1*). Hydrocarbon inclusions showing good fluorescence were observed. Microthermometric studies were performed on both the non- HCFIs as well as HCFIs. Studies confirmed the presence of the carbonic inclusions, aqueous inclusions as well as hydrocarbon inclusions.

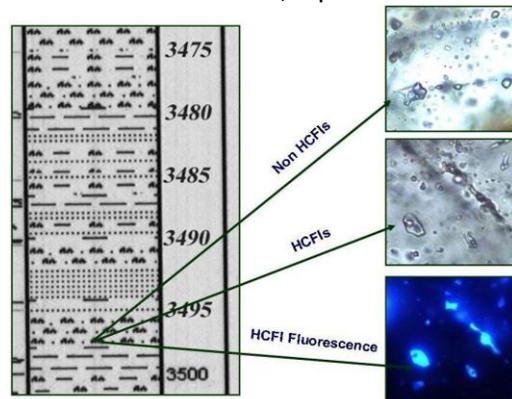


Fig.1: The litho log showing the composition of the horizon (sand stone - silt stone rocks) and the nature of observed fluid inclusions

National Facility for Fluid Inclusion Research (NFFIR) attached to the Geo Fluids Research Laboratory (GFRL) in CESS is equipped with an advanced digital Laser Raman Microspectrometer with three lasers suitable for Raman spectral analysis (785nm) and Photo Luminescence (PL) studies (325nm & 405nm). The state of the art Micro Raman system installed as part of the project is fully sponsored by the Ministry of Earth Sciences (MoES), Govt. of India. The equipment is a high-sensitivity system with integrated research grade microscope, enabling high resolution confocal measurements. With a comprehensive range of Rayleigh filter options, and motorized switching, it's easy to configure the system to suit various analytical needs.