DEEP CARBON OBSERVATORY

BUILDING PARTNERSHIPS WITH THE ENERGY EXPLORATION AND PRODUCTION INDUSTRY

Oil and gas industries rely critically on the distribution of carbon/hydrocarbon in Earth's near-surface reservoirs. Energy industry exploration and production (E&P) interests intersect with those of many members of the international Deep Carbon Observatory (DCO) scientific community; therefore fostering long-term partnerships will bring mutual benefits.

Geoscientists from the E&P industry will benefit from research findings and new instrumentation and technologies related to DCO's characterization, detection, and monitoring of carbon resources. Likewise, DCO scientists will benefit from extensive deep Earth sampling and access to multiple E&P field sites worldwide. Future collaborative research may include defining avenues for sharing well bore samples (fluids, gases, cores) and new instruments and technologies among energy companies and scientists in academic institutions and government laboratories.

DCO SCIENTISTS ARE ENGAGED IN RESEARCH ACTIVITIES AND INSTRUMENT DEVELOPMENT IN THE FOLLOWING AREAS:

ENHANCED OIL RECOVERY

Novel methods for using natural microbial assemblages for enhancing oil and gas recovery from reservoirs and in-situ upgrading of heavy oil.

CHARACTERIZATION OF HYDROCARBONS

Development of advanced analytical instruments, such as new mass spectrometry and laser-based methods for measuring rare isotopologues, may provide new insight into geochemical characterization of hydrocarbons, including those present in unconventional oil and gas reservoirs.

NATURAL GAS MONITORING

New development of instrumentation for volcanic gas monitoring that may facilitate continuous monitoring of natural gas from conventional and unconventional wells.

HYDROCARBON STABILITY AND CHEMISTRY

Novel modeling and experimentation that are providing new insights into hydrocarbon properties and processes at HP/HT conditions.

CARBON SOURCE ROCK

Development of high-pressure, moderate-temperature bioreactors that may shed new light on subsurface microbial life and its role in the evolution of unconventional resources.

CARBON CAPTURE AND STORAGE

New approaches and methodologies for geologic sequestration of CO_2.

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