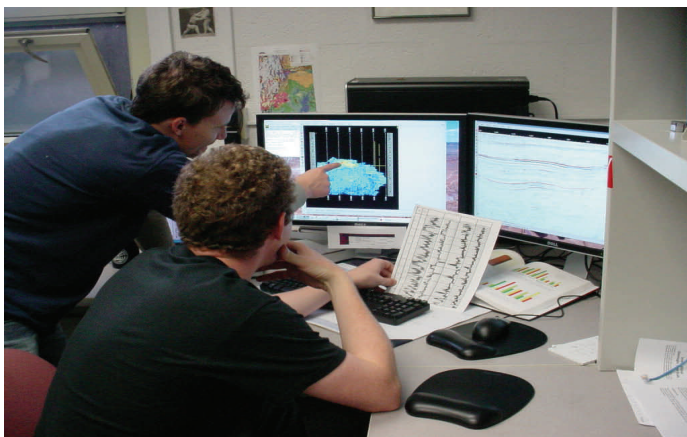


Petroleum Geosystems Initiative and Allied Research in Geofluids

Contributed by Peter Flemings and Christine Rosenhoover

The 4th Penn State Petroleum GeoSystems Team joined Penn State this fall. “Spike” Bohn (Colorado State) and Matt Reilly (Durham University, U.K.) are the team’s geologists. Joe Valenti (Univ. of Toronto) is



Geosystems students work on Auger Field

our geophysicist and Doruk Seren (Penn State) and Lucas Luginbuhl (Marietta College) are the team’s petroleum engineers. Team members are pursuing both a team-based study and individual research projects based on Shell’s Auger Field in the deepwater Gulf of Mexico. They have spent the fall examining production and log data and are now mapping across the Auger mini-basin using seismic and log data. The complicated turbidite reservoirs, the remarkable production history, and the extraordinary salt tectonics at Auger promise an exciting project. To support the Initiative, Shell and Chevron each provide two generous fellowships and Shell provides an extraordinary data set. Penn State alumni play a critical role in the Initiative by donating their time and through the Heller Petroleum GeoSystems Endowment Fund, the Kent and Helen Newsham Petroleum GeoSystems Endowment Fund, and the Petroleum GeoSystems Enrichment Fund. This generous effort has supported ten students to the completion of their Masters Degrees in the GeoSystems Initiative.

Peter Flemings (Geosciences) and Turgay Ertekin (Petroleum Engineering) co-direct the Initiative, which links the Department of Energy and GeoEnvironmental Engineering (EGEE), the Department of Geosciences, and corporate partners. Students are sponsored by industry and formed into research teams focused on applied industry problems. The Initiative recognizes that fundamental research problems lie at the interface of

Geosciences and Petroleum Engineering and that interdisciplinary scientists trained in problem-based collaborative research will be tomorrow's industry leaders.

The G3 Center: Geomechanics, Geofluids, and Geohazards

In collaboration with EGEE, the department has recognized a growing collaborative and multidisciplinary effort in rock and fluid physics through the creation of the Center for Geomechanics, Geofluids, and Geohazards (G3). Research areas include earthquake nucleation and recurrence, the triggering and timing of volcanic eruptions, the dynamics of ice sheets, the fate and transport of contaminants in groundwater, and the generation of submarine landslides. All of these processes are influenced by the interaction of rocks and fluids. Understanding these relationships is a key component of our ability to predict natural disasters, protect and recover potable water, and to provide safe storage and long-term stewardship of related industrial products and wastes. G3 integrates activities in rock and fluid physics through laboratory experimentation, field observation, and theoretical analysis. Faculty members involved are Peter Flemings, Chris Marone, Demian Saffer, Kamini Singha, and Derek Ellsworth (EGEE).



L-R: Bob Jefferis (Venture Manager EPAmericas for Shell and 1980 Penn State MS Geology) Sue Waters (Manager of Drilling Operations and Sub-surface support for Shell, and 1981 Penn State MS Geology graduate), Petroleum Geosystems team and Professor Peter Flemings (at right).