For those of you who’ve ever been tempted to say to one another “Look, this isn’t rocket science,” here’s a different EAS perspective. Professor David Hysell’s research activities operate at the outer extreme of EAS’s disciplines, the ionosphere, and it IS rocket science. Studies of the ionosphere are extremely challenging, requiring a combination of satellite and rocket sounding approaches to learn about the chemistry and electromagnetic activities in this protective layer of the atmosphere. The research by Hysell, his students, and their colleagues of the properties of thin ionosphere layers leads to increased understanding needed to cope with or avoid interruptions of communications and navigation systems that happen from time to time because of disruptions of the ionosphere.

Hysell’s Research at the Outer Extreme

In August 2004, Hysell’s team carried out an experiment from Kwajalein Atoll in the Marshall Islands using a combination of sounding rockets and radar support. Two sets of launches took place on separate nights from the Roi Namur range at the north of Kwajalein Atoll. Each set consisted of an instrumented payload, to measure plasma density, temperature, collision frequency, and electric field profiles, and two chemical release payloads, which permitted the measurement of neutral wind profiles. The launches and payload releases were successful, and Hysell and his group are now extracting from the data new information about the physics of plasma irregularities as well as about the composition, energetics and dynamics of the ionosphere.

INSTOC News

Rainer Kind Receives First Oliver Visiting Professorship at INSTOC

Professor Rainer Kind of the GeoForschungsZentrum Potsdam has received the first Jack E. Oliver Honorary Visiting Professorship with INSTOC. Kind is a world leader in the use of earthquake waves to image the lithosphere and upper mantle using a technique known as receiver function analysis. Kind has been a major participant in Project INDEPTH, the international effort lead by Cornell University to probe the deep structure of the Himalayas and the Tibetan Plateau, as well as a leader of German efforts to image the deep structure of the Andes Mountain belt of South America. Together with Suzanne Kay of Cornell and Eric Sandvol of the University of Missouri, Kind is Co-Principal Investigator on a new deep seismic study being proposed to investigate the process of continental delamination in the central Andes.

The Jack E. Oliver Visiting Professorship was established by INSTOC to honor those who have made major contributions to our understanding of the continental lithosphere. Jack Oliver, Professor Emeritus at Cornell, is well known for his pioneering seismic contributions to the development of the theory of plate tectonics and in the application of oil industry seismic techniques to the exploration of the deep structure beneath the continents. Oliver, together with Professor Sidney Kaufman, established the COCORP program at Cornell as the model for deep seismic profiling programs around the world. Oliver was the founder and first director of INSTOC, and continues to stimulate researchers at Cornell into innovative new directions.

Kind is expected to visit Cornell up to twice per year over the next two years to work with INSTOC scientists to develop new projects focused on mapping the deep structure of continents and developing fresh insight in their geodynamic evolution. According to INSTOC Director Larry Brown, “Rainer not only brings extensive global experience in state-of-the-art seismic techniques to Cornell, he is a true gentleman with whom it is a distinct pleasure to work. Rainer has already given generously of himself in directing research by current Cornell graduate students. His affiliation with INSTOC should significantly enhance our competitiveness in funding new seismic projects around the world.”

INSTOC will host a reception to reunite all those who were involved in the COCORP project on Tuesday, November 8, 2005, in Houston, TX, as part of the 75th Anniversary Meeting of the Society of Exploration Geophysicists. A dinner for Cornell alumni will follow, featuring a special guest appearance by Sidney Kaufman. Details to be announced soon. For more information, contact Larry Brown at: brown@geology.cornell.edu