Reilly also elaborated on the need for more science. "Science has been shut out, I think, because it gets in the way of efficacious decision making, and the Interior Department did not have a legal requirement to incorporate the views of NOAA, and didn't," Reilly told *Eos*. "We know that neither the NOAA director nor the chairman of the Council on Environmental Quality was consulted about the proposed expansion of offshore oil and gas when the administration made that decision. And under our recommendations, that would not happen again."

Graham added that he wants the American public to know "that this was an avoidable accident, that it was a result of a long history of complacency to safety and the increased risk as we move further and further into deep waters, and that this is the time, this is the moment, as Three Mile Island was for the nuclear industry, to say 'enough is enough, we are going to set a new era of greater safety.'"

Industry response to the commission's report has been mixed. A written statement from BP noted, "Given the emerging consensus that the Deepwater Horizon accident was the result of multiple causes involving multiple parties, we support the Commission's efforts to strengthen industry-wide safety practices." The statement continued that BP is "committed to working with government officials and other operators and contractors to identify and implement operational and regulatory changes that will enhance safety practices throughout the oil and gas industry."

Thomas Pyle, president of the American Energy Alliance, defended the oil industry. "All the evidence in the report points to a complete and total failure by the legally responsible leaseholder, BP, to operate within industry best practices. Attempts to paint this as an industry problem reflect the biases of the activist-filled commission, and not the reality of drilling operations in the Gulf," he stated. "The broad and unsubstantiated accusation on the entire oil and gas industry is irresponsible when one considers that literally thousands of jobs are on the line in the Gulf, should the bureaucratic hold on offshore drilling continue."

For more information, see http://www.oilspillcommission.gov/.

—Randy Showstack, Staff Writer

MEETINGS

Detachments in Oceanic Lithosphere: Deformation, Magmatism, Fluid Flow, and Ecosystems

AGU Chapman Conference on Oceanic Detachments; Agros, Cyprus, 8–15 May 2010

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Oceanic detachments are large-offset normal faults along the flanks of mid-ocean ridges. They represent a mode of accretion of the oceanic lithosphere that is fundamentally different from classical "magmatic" models, resulting in lithospheric composition and structure that are strikingly different from the Penrose model established 40 years ago of a layered magmatic crust.

Oceanic detachments, which exhume deep lithosphere, forming oceanic core complexes (OCCs), are scientifically interesting because they represent tectonic windows to deep-seated rocks and processes (mantle flow, melt generation and migration, strain localization, and crustal accretion) at mid-ocean ridges; a fundamental process in the generation of oceanic lithosphere along sizeable sections of slow and ultraslow spreading centers; a system sustaining both long-lived, high-temperature hydrothermal circulation and low-temperature, hydrogen-rich, serpentinite-related systems with their associated mineral deposits and ecosystems; a fault zone, containing weak hydrous alteration phases, that efficiently localizes strain, and that has associated footwall flexure and rotation; and a key to understanding continental core complexes as well as detachments at extensional, magma-poor continental margins.

AGU hosted a Chapman Conference in Cyprus to advance understanding of the processes that control oceanic detachment faulting and associated geological, chemical, and biological phenomena (http://www.ipgp.fr/rech/lgm/je/Chapman2010). Eighty-six scientists, including 18 students and 8 postdocs, attended and participated in talks, poster sessions, and discussions organized around six topics (the fault zone and the complex beneath it, geophysical framework, fluid flow, ecology of hydrothermal systems, implications for continental core complexes and continental breakup, and new research frontiers). Two days were dedicated to 12 overview talks summarizing the current state of knowledge of each topic and future research directions (for a summary of the overview talks, see the online supplement to this *Eos* issue (http://www.agu.org/eos_elec/)). Research results were presented in 78 posters.

One and a half days of discussions on conference topics were organized around breakout groups separated according to career stage: students and postdocs, early- and mid-career scientists, and senior scientists. This promoted the participation of students in the discussions, allowing their opinions and points of view to be heard and incorporated into the panel summaries.

The conference location offered the opportunity to visit the Troodos ophiolite complex. Field trips led by J. Cann, C. MacLeod, and A. McCaig, with assistance from Cyprus Geological Survey experts, promoted discussions and interactions among the participants. Field trip 1 visited classic sections of the Troodos ophiolite. Field trips 2 and 3 visited the Limassol Forest, where the lithological units are juxtaposed in a complex way through extensional faults operating in the oceanic environment.

The conference delivered a community statement on oceanic detachments and a consensus on the definition of oceanic detachment fault and oceanic core complex:

The scientific community present at the 2010 Chapman Conference on Detachments in Oceanic Lithosphere affirmed that extension accommodated by oceanic detachment faults should be recognized as a fundamentally distinct mode of seafloor spreading that does not result in a classical Penrose model of oceanic crustal structure. This type of spreading is characterized by: formation of oceanic core complexes; tectonized and heterogeneous lithosphere; extensive exposure of gabbro and serpentinized mantle at the seafloor; some of the largest hydrogen-rich, deep-sea hydrothermal systems and mineral deposits; and large diversity in the deep-sea and subsurface biosphere. The recognition of this mode of spreading is one of the major advances in understanding plate tectonics in the last three decades.

An oceanic detachment fault is a large-offset normal fault formed at or in the vicinity of a mid-ocean ridge that accommodates a significant fraction of the plate separation. Offsets range from kilometers to tens of kilometers or more. Oceanic detachment faults may initiate as steep normal faults at depth, and shallow into low angle extensional faults through rotation of the footwall.

An oceanic core complex results from the activity of an oceanic detachment fault. The oceanic core complex may expose the footwall of the oceanic detachment fault, exhuming lower crustal and mantle rocks, and be capped by a detachment fault surface that is often marked

by corrugations and striations parallel to the extension direction. Alternatively, the detachment fault plane may be buried below the seafloor by rotated blocks of the hanging wall.

The online supplement to this *Eos* issue includes a diagram displaying the main features and processes associated with detachment-related oceanic accretion.

Support for the conference was provided by the U.S. National Science Foundation, Consortium for Ocean Leadership, European Science Foundation, Cyprus Geological Survey, Woods Hole Oceanographic Institution, InterRidge, Institut de Physique du Globe de Paris, and Centre National de la Recherche Scientifique (CNRS).

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Spin, Wobble, and Nutation

Observing and Understanding Earth Rotation: A Joint GGOS/IAU Science Workshop; Shanghai, China, 25–28 October 2010

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The Earth rotates about its axis once a day, but it does not do so uniformly. Instead, the rate of rotation fluctuates by as much as a millisecond a day, the Earth wobbles as it rotates because the Earth's mass is not balanced about its rotation axis, and the Earth's rotation axis precesses and nutates in space. These variations in the Earth's rotation are caused by processes acting within the interior of the Earth such as glacial isostatic adjustment and core-mantle interaction torques, by processes acting at the surface of the Earth such as fluctuations in the transport of mass within the atmosphere and oceans, and by processes acting external to the Earth such as torques due to the gravitational attraction of the Sun, the Moon, and the planets.

These and other aspects of the Earth's rotation were discussed at a recent workshop in China that attracted 90 participants from 12 countries. The workshop was jointly organized by the Global Geodetic Observing System (GGOS) of the International Association of Geodesy and Commission 19 (Rotation of the Earth) of the International Astronomical Union (IAU). The objectives of the workshop were to (1) assess our ability to observe the Earth's time-varying rotation, (2) assess our understanding of the causes of the observed variations, (3) assess the consistency of Earth rotation observations with global gravity and shape observations, and (4) explore methods of combining rotation, gravity, and shape observations to gain greater understanding of the processes causing them to change on both the Earth and other planets, like Mars.

The accuracy of Earth rotation observations has increased dramatically during the past few decades. The orientation of the Earth in space can now be determined to within a tenth of a milli–arc second, equivalent to a change in the position of a site on the equator of a few millimeters. Such highly accurate observations can be used to assess models of the different processes causing the Earth's rotation to change. Workshop participants noted, in particular, that models of the effects of tides and of changes in continental water storage need improving.

An emerging trend in geodesy is to integrate Earth rotation observations with those of the Earth's gravity and shape. Since changes in these geodetic parameters (rotation, gravity, and shape) are often caused by the same process, greater understanding of that process can be obtained by analyzing observations of all three geodetic parameters. Integrating Earth rotation, gravity, and shape observations into a global geodetic observing system is one of the essential goals of GGOS, and this workshop was another step toward reaching that goal.

More information about the workshop is available at http://202.127.24.12/dct/.

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ABOUT AGU

W. R. Peltier Receives 2010 Charles A. Whitten Medal

W. Richard Peltier was awarded the 2010 Charles A. Whitten Medal at the AGU Fall Meeting Honors Ceremony, held on 15 December 2010 in San Francisco, Calif. The medal is for "outstanding achievement in research on the form and dynamics of the Earth and planets."

W. Richard Peltier

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Citation

It is a pleasure and an honor to nominate W. Richard (Dick) Peltier for the AGU Charles A. Whitten Medal, which is awarded for outstanding achievement in research on the form and dynamics of the Earth. Dick is an eminent research scholar who has had, and continues to have, a very active, prolific, and creative career, with over 280 refereed publications. He is recognized as one of the most highly cited Earth scientists in the world. His interests are very broad; what is so impressive is that he is so excellent in all of them.

Dick has pioneered work on glacial isostatic adjustments, the associated Maxwell viscoelastic Earth theory, and postglacial relative sea level change. He has made major contributions both to the development of models of Ice Age ice sheet thickness distribution and of corresponding planetary paleotopographies, and to the dynamic mantle response to loading and unloading from the ice sheets. Dick's work is clearly at the forefront of all these areas; his contributions have been enormous. His models are used widely and are considered by many to be the standard. His current model ICE 5G (VM2) has been independently verified by the Gravity Recovery and Climate Experiment (GRACE). This problem has high societal relevance currently because of the rebound and subsistence that affect the interpretation of sea level observations.

Dick started his career as an atmospheric scientist and has done extensive work in geophysical fluid dynamics. One of his