MEETING

Site Selected for Colorado Plateau Coring

Colorado Plateau Coring Project Workshop, Phase 2: 100 Million Years of Climatic, Tectonic, and Biotic Evolution From Continental Coring; Albuquerque, New Mexico, 8–11 May 2009

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A workshop was convened in New Mexico to plan for the Colorado Plateau Coring Project (CPCP) and identify the target site for initial coring. The giant continental and nearshore to shallow marine epicontinental basins of the American Southwest are particularly well exposed on the Colorado Plateau and its environs and contain a rich record of early Mesozoic (~251–145 million years ago) strata. This time period was punctuated by two major mass extinctions and is notable for the evolutionary appearance of the modern biota and its apparent dramatic climate changes.

Classic studies of these basins, their strata, and their fossils have made this sequence instrumental in framing the context for the early Mesozoic world. Ambiguities in temporal resolution, uncertainties in global correlations with other early Mesozoic strata, and major doubts about latitudinal position still hamper testing of competing climatic, biotic, and tectonic models for the evolution of western Pangea.

A scientific drilling experiment is essential because the most continuous sections in outcrop are either inaccessible in vertical cliffs or are weathered and geochemically altered, making observations and sampling at the appropriate level of detail impossible. Characteristic shallow bedding attitudes and facies changes also compromise scientists' ability to determine superposition in sections compiled over long distances.

Thirty-seven researchers from nine countries participated in the CPCP workshop and focused discussion on the initial phase of a coring plan for the American Southwest. In a 2007 workshop, participants identified five major stratigraphic packages on and near the Colorado Plateau as key coring targets (see Figure S1 in the electronic supplement to this *Eos* issue (http://www.agu.org/eos_elec/)): Early to Middle Triassic (~251–230 million years ago) Moenkopi Formation; Late Triassic (~230–201 million years ago) Chinle Group; latest Triassic to approximately Middle Jurassic (~203–160 million years ago) Glen Canyon Group; Middle to approximately Late Jurassic (~160–155 million years ago) San Rafael Group; and the Late Jurassic (~155–145 million years ago) Morrison Formation. These targets involve three long (~1-kilometer) cores and two shorter cores designed to recover the critical early Mesozoic transitions.

The Triassic section (Moenkopi Formation and Chinle Group) at Petrified Forest National Park, northern Arizona, was identified in the workshop as the initial target for coring. The Petrified Forest core, about 460 meters in length and HQ gauge (~6.4 centimeters in diameter), will provide a robust reference section where geochronologic, magnetostratigraphic, environmental, and paleontologic information can be registered to a common thickness and unambiguous superposition of observations. Several levels in this section of Triassic strata have recently yielded high-precision uranium-lead (U-Pb) zircon dates; these and further age dates will provide an age-calibrated chronostratigraphic framework to link data from numerous outcrop studies and address questions concerning early Mesozoic biotic and environmental change. It is anticipated that drilling could commence as early as fall 2010. The core will be logged on site and then

shipped to a core slabbing service facility, with ultimate storage at the Rutgers University Core Repository.

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