THE EARLIEST JURASSIC CONTINENTAL TO MARINE SYN-CAMP CARBONATE-RICH SEQUENCES OF MOROCCO AND THEIR RELATIONSHIP TO COEVAL STRATA IN NORTH AMERICA.

Mohammed Et-Touhami¹, Paul E. Olsen² and Jessica H. Whiteside³

1. Département de Géologie, Faculté des Sciences, Université Mohamed Ier, BP 717, Oujda, 60000, Morocco. mohammed_et_touhami@yahoo.com

 Department of Earth and Environmental Sciences, Lamont-Doherty Earth Observatory of Columbia University, 61 Route 9W, Palisades, NY 10964-1000, USA.

3. Ocean and Earth Science, National Oceanography Centre, University of Southampton, Southampton, SO17 1BJ, UK.

Moroccan continental rift basins preceding the Jurassic opening of the central Atlantic were initiated within the Late Permian and finished in the Early Jurassic. All of these basins exhibit clastic to evaporitic red bed-dominated sequences and up to four basaltic intrusion and extrusion units of the Central Atlantic Magmatic Province (CAMP). The terrestrial end-Triassic extinction (ETE) marked by the turnover in sporomorph taxa is placed in Morocco at the base of, or within, the oldest CAMP unit above which sedimentary strata contain several limestone-rich intervals. These syn-CAMP limestones stand out as extremely unusual in an otherwise siliclastic-dominated system. They are probably the result of a super-greenhouse effect caused by the massive basaltic eruptions and/or simply the weathering products of vast drainage areas newly floored by relatively Ca-rich basalt. Preliminary macrofossil collections of vertebrates, plants, and mollusks in western Morocco demonstrate lacustrine conditions, while the collection of new mollusks and echinoderms from the easternmost basin has resulted in the ecologically significant determination that euhaline and polyhaline conditions existed, thereby documenting a marine connection from western-most Tethyan basins during at least part of the rift sequence in Morocco. In eastern North America, lacustrine limestone sequences are found in the same stratigraphic position above the initial basalts, offering the possibility to examine directly the link between the classic basalt-bearing continental rift sequences in North America and the marine strata of the classic Tethyan realm.

