

2009 Fall Meeting

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GP22A-07**Chron E23r, paleosecular variation, CAMP volcanism and the end-Triassic extinction event (*Invited*)****Kent, D V***dvk@ldeo.columbia.edu**Earth & Planetary Sciences, Rutgers University, Piscataway, NJ, United States***Wang, H***huapei@eden.rutgers.edu**Earth & Planetary Sciences, Rutgers University, Piscataway, NJ, United States***Olsen, P E***polsen@ldeo.columbia.edu**Lamont-Doherty Earth Observatory, Columbia University, Palisades, NY, United States*

In the early Mesozoic rift basins of eastern North America, CAMP lava flows occur within normal polarity Chron E24n, which according to cycle stratigraphy has a duration of nearly four McLaughlin (405 kyr) cycles, or ~1.6 Ma. In the Newark basin, the level marking the end-Triassic extinction event occurs one Van Houten cycle (20 kyr) before the first CAMP basalt and is preceded within another Van Houten cycle by reverse polarity Chron E23r, one of the shortest (~25 kyr) polarity intervals recognized in the Newark astronomically-tune polarity time scale. This tight chronostratigraphic sequence of events—E23r followed by end-Triassic event and then CAMP lavas within E24n—has been replicated in several sections [1] and a key element (end-Triassic palynofloral turnover preceding the first CAMP lava) is recorded in the Fundy basin of Nova Scotia, where the initial CAMP eruption (North Mountain Basalt) has a rather precise U–Pb (206Pb/238U) zircon date of 201.27 ± 0.03 Ma [2]. However, two magnetic excursions were found within the Intermediate Basalt ($^{39}\text{Ar}/^{40}\text{Ar}$ date of 199.9 ± 0.5 Ma) in the Central High Atlas Mountains of Morocco and correlated to E23r [3, 4], which would imply that the underlying (Lower) basalt unit occurred before and therefore in a possible causal relationship to the end-Triassic extinction event. Paleomagnetic study of the Moroccan basalts also revealed variations in magnetic directions, which were interpreted as a record of secular variation and thus might prove useful for identification of CAMP lavas [4]. We sampled most of the lava flows in the Fundy basin that comprise the ~300 m-thick North Mountain Basalt in outcrop (30 sites) as well as in several industry cores drilled near Margaretsville (GAV-77-3, AV-C-1-4), Freeport (AV-C-1-1), and Westport (AV-C-1-2) in Nova Scotia. We find only two directional groupings for the entire North Mountain Basalt, a finding that basically confirms the results of Carmichael and Palmer [5]. We have yet to find evidence in the Fundy basin for the two excursions that have been reported in the Intermediate basalt (and variously correlated to E23r. However, the progression of VGP clusters corresponding to the directional groups for the North Mountain Basalt resemble those reported by Knight et al. [4] for the Lower and Intermediate lavas from Morocco. We thus speculate that the episodic volcanicity associated with initial phases of CAMP can be correlated over (predrift) distances of ~1000 km on submillennial time-scales of paleosecular variation. 1, Olsen, P.E. et al. 2002, *Geol. Soc. Amer. Spec. Paper* 356:505–522; 2, Schoene, B. et al., 2006, *Geochim. Cosmochim. Acta* 70:426–445; 3, Marzoli, A. et al., 2004, *Geology* 32:973–976; 4, Knight, A.B. et al., 2004, *Earth Planet. Sci. Lett.* 228:143–160; 5, Carmichael, C.M., Palmer, H. C., 1968, *Jour. Geophys. Res.* 73:2811–2822.

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