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INTEGRATION OF MAGNETIC POLARITY STRATIGRAPHY AND ORBITAL CYCLOSTRATIGRAPHY TOWARDS A LATE TRIASSIC CHRONOLOGY

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Thousands of meters of Newark Basin Coring Project (NBCP) continuous core and partially overlapping outcrop section in the nearby Hartford Basin, where all but the lowermost part of the Newark basin sequence has cycle stratigraphic control, provide an astronomically-calibrated geomagnetic polarity time scale (APTS) for virtually the entire Late Triassic (Carnian, Norian, and Rhaetian) and the Hettangian of the Early Jurassic (235-200 Ma), with designation of standard stages according to magnetostratigraphic correlation to marine sections in the Tethyan realm. The relative chronology, mainly delineated using the 405 ky eccentricity climate modulation expressed as lake level facies variations, is tied to dating of volcanics and closely associated intrusions of the Central Atlantic Magmatic Province (CAMP) that started at 201.6 Ma, indistinguishable from the end-Triassic extinction level according to recently reported high-precision U-Pb zircon dating, which also confirms the relative astrochronology. Stochastically-distributed polarity reversals have a mean interval length of around 0.5 My. One of the shortest polarity intervals in the Newark-Hartford APTS - E23r with a duration of ~10 ky - occurs within an orbital precession cycle (~20 ky) prior to the ETE and CAMP, providing a useful marker horizon that has now been found just below CAMP lavas in the Fundy and Argana basins. The Newark-Hartford APTS provides a chronostratigraphic template for continuing efforts at correlation of Late Triassic and Early Jurassic continental (and marine) sections throughout the world, for example, the Los Colorados Formation of Argentina and the Chinle Formation of the western United States.