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## **ASTRONOMICALLY CALIBRATED GPTS FOR THE LATE TRIASSIC AND EARLY JURASSIC BASED ON THE NEWARK HARTFORD AND TAYLORSVILLE BASINS OF EASTERN NORTH AMERICA.**

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We have extended and slightly amended our published astronomically calibrated Geomagnetic Polarity Timescale (GPTS) for the Triassic and Early Jurassic based on scientific coring of the Newark basin (NY, NJ, PA) by incorporation of new data from the Hartford (CT, MA) and Taylorsville (VA) basins.

The Hartford basin data is based on Army Corps of Engineers cores, new industry coring, and extensive outcrop studies. The new data extend the Newark basin time scale several million years into the Jurassic and include the first few reversed intervals of the Jurassic. Based on correlation with the Paris basin paleomagnetic polarity sequence, the Hartford basin section extends upward into the Sinemurian, and the duration of the Hettangian (based on Milankovitch lake-level cycles) is about 2.2 million years. In addition one additional 20 ky cycles has been identified in the syn-basalt sequence, extending the duration of the CAMP extrusive interval to 600 ky.

The Taylorsville basin data is based almost entirely on industry coring. The paleomagnetic reversal stratigraphy of the oldest parts of the sequence (Carnian) shows that there is a minor unconformity in the older fluvial part of the Newark basin section. This is the tectonstratigraphic sequence boundary between TS II and TS III. Cyclostratigraphic calibration of this interval based on the Taylorsville lake-level cycles shows that the fluvial portions of the Newark basin record spans about 7 million years.

Taken together the extended time scale spans 35 million years, including probably all of the Late Triassic, all of the Hettangian Age, and at least Part of the Sinemurian Age. Preliminary data from Morocco, suggests we will be able to extend this timescale down into the Middle Triassic.