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# 217-7: SEDIMENTARY HG IN LATEST TRIASSIC RIFT BASIN STRATA OF EASTERN NORTH AMERICA: CAMP VOLCANISM, $CO_2$, AND END-TRIASSIC EXTINCTION

**Tuesday, 24 October 2017**
**09:50 AM - 10:05 AM**
*Washington State Convention Center - Room 307/308*

The end-Triassic extinction (ETE) has been linked temporally and mechanistically to the emplacement of the Central Atlantic Magmatic Province (CAMP). High-precision U/Pb geochronology establishes the coincidence of the extinction with significant CAMP activity. However, the relationship between large igneous province (LIP) emplacement and the environmental and biological factors that led to extinction are not resolved. In order to refine linked records of volcanism and environmental change, here we report sedimentary Hg concentrations and Hg/TOC ratios from Upper Triassic fluvial and lacustrine strata of the Newark Basin in eastern North America and couple them to $pCO_2$ records. Hg in sedimentary successions is a useful proxy for LIP emplacement due to its magmatic source, volatilization in high temperature settings, and demonstrated potential for global dispersal. We document Hg and Hg/TOC values up to 15x above background level in the upper Passaic Formation just above Chron E23r and immediately below the Orange Mountain Basalt, the oldest CAMP unit in the Newark Basin. Estimates of $pCO_2$ based on pedogenic carbonates in the same samples indicate a sharp rise from 3000 to 4000 ppm $CO_2$. These paired measurements provide evidence for CAMP-related $CO_2$ changes associated with the ETE. An older Hg enrichment occurs lower in the Passaic Formation; based on published astrochronology and U/Pb geochronology, it is likely correlative with older CAMP intrusives in Guinea. Although $pCO_2$ data are sparse through this interval, this Hg enrichment does not appear to coincide with a dramatic $CO_2$ increase. The differential response of $CO_2$ to CAMP activity may be due to differences in country rock lithology for each emplacement phase, with greater $CO_2$ release associated with intrusion of organic rich sediments of the Amazon basins of Brazil at the ETE.

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