

## ABSTRACT

**THESIS PROJECT:** Foraminiferal Biostratigraphy of Site #998 on the Cayman Rise, Caribbean Sea

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The GSSP (Global Stratotype and Section Point) for the Lutetian is located at Gorrondaxte Beach, northern Spain. Ocean Drilling Program (ODP) Leg 165 Site #998, located on the Cayman Rise, consists of pelagic limestones mixed with volcanoclastic sedimentary rocks and turbidity flows of volcanic ash that were deposited during the early to middle Eocene transition (EMET) based on previously published magnetostratigraphy and calcareous nanofossils as well as preliminary work done on planktonic foraminifera. The focus of the study was to use ODP Site 998's early to middle Eocene planktonic foraminifera to obtain a more precise correlation with the Lutetian GSSP. Cores 28R through 37R (798.9-904.8 mbsf) were classified as Unit IV of four units. They were sampled at ~ 30 cm and then made into thin sections.

*Morozovella aragonensis*, *Morozovella subbotinae*, *Acarinina cuneicamerata*, *Turborotalia frontosa*, *Guembeltrioides nuttalli*, and *Globigerinatheka kugleri* are all important bioevent marks and were identified in Site 998. We extended the range of *Astrorotalia palmerae* from its known biozone range, E7, into the lower portion of E9, which can be correlated with magnetostratigraphic Chron C20r/C21n. Magnetostratigraphy from previously published data has been recorrelated to the updated magnetostratigraphy from the data collected in this study. A

tentative boundary, based on the last occurrence (LO) of *Turborotalia frontosa*, was placed between E7a and E7b and is noted by a red dashed line.

The magnetostratigraphy from the lowest most portion of the cores from this study interval has been confirmed with the data collected. From C22n, the chron correlation has changed to better represent the planktonic foraminifera biostratigraphy. Lutetian GSSP can be compared to Site 998 using Chron C21r. The data collected is consistent with other previous microfossil data from Site 998. The El Cobre Group, Sierra Maestra, Cuba does appear to correlate to ODP Site 998. Although much more work needs to be done in this area.

By correlating the lower sections of the ODP site 998 with the Lutetian GSSP we have a better understanding of where the early to middle Eocene transition took place in the Caribbean. A more detailed planktonic foraminiferal biostratigraphy will facilitate correlation studies with other early to middle Eocene age sections in the Caribbean such as the Calle G section in Cuba and the Rio Sambre section in Jamaica as well as the potential to work more on Site 998.