Ontong Java Plateau and OAE1: Is there really a link?

M.L.G. TEJADA[1,2], K. SUZUKI[1], T. SAKAMOTO[1], R. COCCIONI[3], J. KURODA[1], Y. TATSUMI[1], AND J. J. MAHONEY[4]

[1] IFREE, Japan Agency for Marine-Earth Science and Technology, Yokosuka, Japan; mtejada@jamstec.go.jp; katz@jamstec.go.jp; tats-ron@jamstec.go.jp; kurodaj@jamstec.go.jp; tatsumi@jamstec.go.jp
[2] NIGS, University of the Philippines, Quezon City, Phils.
[3] Instituto di Geologia e Centro di Geobiologia dell'Università di Urbino, Urbino, Italy; cron@info-net.it
[4] SOEST, University of Hawaii, Honolulu, HI, USA; jmahoney@hawaii.edu

Several workers studying oceanic anoxic events (OAE's) have linked them to the eruption of large igneous provinces [e.g., 1-3]. In particular, the late Aptian OAE1a, is proposed to be linked directly to the eruption of the Ontong Java Plateau (OJP) at 121-125 Ma [4,5]. This anoxic event is believed to have been global and its record is well-preserved in Italy, most notably at Cismon (APTICORE) and Gubbio (Gorgo a Cerbara). Selected sections from the Umbre-Marche Basin (central Italy) containing organic-rich sediments [3], including the ~2-m-thick Selli Level in the type locality in Gorgo a Cerbara, represent an almost complete sequence covering the period before, during, and after the main pulse of OJP volcanism. We recently sampled these sections and analyzed for Re and Os abundances and Os isotope composition to investigate possible connections between eruption of the OJP and Aptian oceanographic and ecological conditions.

Our initial results show a lowering of seawater Os isotope ratios from a "background value" of ~0.67 [6] around chron M0r (125-124.61 Ma), coinciding with the "nannoconid crisis" interval, estimated to have preceded the OAE1a event by 40-100 kyr [1]. Our data suggest a significant input of Os from a reservoir with low $^{187}Os/^{188}Os$, consistent with OJP volcanism. Interestingly, this result is also consistent with the trend to less radiogenic seawater Sr isotope ratios and a lowering of $\delta^{13}C$ values just before a rise to higher values corresponding to the deposition of the Selli Level sediments [2,3].

References

[1] Erba E. (2004) *Mar. Micropaleo* **52,** 85-106.
[2] Weissert H. and Erba E. (2004) *J. Geol. Soc. London* **161,** 1-8.
[3] Sprovieri M., Coccioni R., Lirer F., Pelosi, N., and Lozar, F. (2006) *Paleoceanography* **in press**.
[4] Erba E. (1994) *Paleoceanography* **9,** 483-501.
[5] Larson R.L. and Erba E. (1999) *Paleoceanography* **14,** 663-678.
[6] Fujinaga, K., Kato Y., and Suzuki, K. (2005) *JEPS Joint Meeting Abstracts,* c003-009_e.