**Iridium in sediments containing large abundances of Australasian microtektites from DSDP hole 758B in the Eastern Indian Ocean and from DSDP hole 769A in the Sulu Sea.** Gerhard Schmidt, Lei Zhou and John T. Wasson, Institute of Geophysics and Planetary Physics, University of California, Los Angeles, CA 90024, USA.

Excess Ir found in sediments at the Cretaceous/Tertiary (K/T) boundary and in other (e. g., Pliocene) sediments from deep sea drilling cores is widely interpreted as evidence of major impact events [1,2]. The Australasian tektites originated in an impact event ~0.77 Ma ago; microtektites have been found in deep-sea sediment cores from throughout the Indian Ocean, the Philippine Sea, and western Pacific Ocean, but Ir has not been previously reported in these horizons. The deep-sea record of tektites is of particular interest, because in contrast to most continental occurrences, the stratigraphy preserves the original depositional position. Recently several cores having exceptionally high contents of Australasian microtektites have been investigated, Glass and Wu [3] found shocked quartz associated with the microtektites. We used neutron activation to determine concentrations of Ir and other elements in two cores bearing microtektites [4,5], one from Deep Sea Drilling Project (DSDP) hole 758B in the Eastern Indian Ocean and one from DSDP hole 769A in the Sulu Sea (near Mindanao, Philippines). The sedimentation age for the microtektite layers in core 758B lies between 0.73-0.78 Ma [6] and agrees well with the mean laser-fusion $^{40}Ar/^{39}Ar$ age of Australasian tektites of 0.77±0.02 Ma by Izett et al. [7]. We are able to resolve a small positive Ir enhancement in 758B. Core 769A shows too much scatter to allow resolution of an Ir peak.

The dominant lithology of core 758B consists of alternating layers of light nannofossil ooze with clay and foraminifers and layers of dark clayey nannofossil ooze with foraminifers; three discrete ash layers with volcanic glass, record explosive volcanism in the northeastern Indian Ocean [8]. The dominant lithology of Site 769A consists of thin- to thick-bedded nannofossil marl with foraminifers and foraminiferal nannofossil marl. Minor thin beds of volcanic ash and turbidites of foraminiferal ooze are also present within the unit. The marl contains clay, abundant nannofossils and planktonic foraminifers, scattered benthic foraminifers, volcanic glass, and varying amounts of siliceous biogenic material [9]. These cores have high sedimentation rates, as required to reduce the background level of Ir due to cosmic dust. The linear sedimentation rate for the investigated interval in core 758B is 1.1 cm $ka^{-1}$ [10] and in core 769A 11 cm $ka^{-1}$ [3], much higher than a typical sedimentation rate of 0.03 cm $ka^{-1}$ in central North Pacific cores [11].

Our standard sample size was 1 $cm^3$ of wet sediment. We analyzed 27 samples from depths of 9.6-12.4 meters below the sea floor (mbsf) from 758B and 23 samples at 60.6-65.4 mbsf from 769A . In the Eastern Indian Ocean core 758B our chemical analyses show small (factor of 3) enrichments in the Ir-content of the pelagic clay layer containing the microtektites. On the basis of a dry sediment bulk density of 0.77 g $cm^{-3}$ [10], we calculate a net Ir fluence of 1.9 ng $cm^{-2}$ over the interval from 10.4 to 11.4 m depth based on an estimated background level of 0.100 ng/g Ir. For comparison, the Ir fluence in the K/T boundary is ~70 ng $cm^{-2}$, 37 times higher. In the Sulu Sea core a small Ir peak was associated with the microtektites but other Ir enhancements were also present, seemingly associated with layers of volcanic ash.

Acknowledgements. This work was partially supported by NSF grant EAR 91-19065. Additional fellowship support for Gerhard Schmidt was provided from NATO.

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