

**ABSTRACT FINAL ID:** V53G-04;

**TITLE:** Geodynamic Inferences from Integrated Ocean Drilling Program Expedition 330 to the Louisville Seamount Trail

**SESSION TYPE:** Oral

**SESSION TITLE:** V53G. Seamount Trails: Implications for Global Plate and Hotspot Motion, Mantle Flow, and the Geochemical Evolution of Mantle Plumes II

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**ABSTRACT BODY:** Integrated Ocean Drilling Program (IODP) Expedition 330 drilled five different guyots in the Louisville Seamount Trail ranging in age between 80 and 50 Ma. The primary goals of this expedition were to drill a sufficiently large number of in situ lava flows at each seamount for high-quality estimates of their paleolatitudes using paleomagnetic measurements, for improving the overall age progression using high-precision  $^{40}\text{Ar}/^{39}\text{Ar}$  geochronology, and for detailed geochemical studies of the volcanic evolution of these seamounts. With these data we can provide the unique record of the paleolatitude shift (or lack thereof) of the Louisville mantle plume and compare it with the  $\sim 15^\circ$  paleolatitude shift observed for seamounts in the Hawaiian-Emperor Seamount Trail over the same time period. These comparisons are of fundamental importance to determine whether these two primary hotspots have moved coherently or not, to understand the nature of hotspots and convection in the Earth's mantle, and to evaluate the possibility of true polar wander. We will present new  $^{40}\text{Ar}/^{39}\text{Ar}$  age data for Sites U1372, U1373, U1374 and U1376 in conjunction with Expedition 330 shipboard paleomagnetic inclination data to discuss the geodynamic inferences from the resulting paleolatitude history of the Louisville hotspot between 80 and 65 Ma.

**KEYWORDS:** [8137] TECTONOPHYSICS / Hotspots, large igneous provinces, and flood basalt volcanism, [1525] GEOMAGNETISM AND PALEOMAGNETISM / Paleomagnetism applied to tectonics: regional, global, [1033] GEOCHEMISTRY / Intra-plate processes, [1115] GEOCHRONOLOGY / Radioisotope geochronology.

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**Additional Details**

**Previously Presented Material: 0%**

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