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THE LIVE CYCLE OF HOTSPOTS: FROM FLOOD BASALTS TO OCEANIC VOLCANOES

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Drawing from his experiences on ODP Leg 115 to the Mascarene Plateau in the western Indian Ocean, Dr. Duncan will focus on the life cycle of hot spots, and the contribution that ocean drilling has made to their study. Plate motions over hot spots have produced linear, age-progressive volcanic trails, such as most island and seamount chains in the ocean basins. Ocean drilling along several major hot spot trails has documented a direct and simple frame of reference for plate reconstructions. Many of the longer-lived hotspot tracks began with rapid eruption of flood basalts, both on continents and in oceans. Several of these catastrophic volcanic events have been linked with major mass extinctions observed in the fossil record. The long-term, fixed nature of hotspots and the initial large-volume flood basalt events reflect two modes of whole-mantle convection.