



The PLURIEL cruise: insights on temporal evolution of a ridge-hotspot interaction

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The PLURIEL cruise (Marion Dufresne II, 19 September - 31 October 2006) aimed the study of the temporal evolution of the interaction between the St Paul-Amsterdam hotspot (SPA) and the Southeast Indian Ridge (SEIR) over the last 15 m.y.. The SPA-SEIR system is an ideal target to study the transition from the intraplate to the axial activity of a hotspot. North-east of the SPA plateau, which corresponds to the axial activity of the hotspot, a chain of volcanoes possibly marks its intraplate activity. The most recent volcanic activity is located east of the Amsterdam island, west, but very close to the ridge axis. The first results of the cruise show that the time evolution of the ridge-hotspot interaction is very complex.

Here we present some of the new data acquired during this cruise. Multibeam bathymetry, gravity and magnetics were acquired over a broad zone, covering the entire ridge-hotspot interaction, from the intraplate phase of activity (the volcanic chain) to the axial phase (the construction of the plateau). The data were integrated with the Boomerang cruise datasets, that covered the ridge axis and part of the SPA plateau. This poster presents in detail maps with these new integrated datasets, showing the full complexity of the early phases of ridge-hotspot interactions.

Three ridge jumps were identified and the preliminary analysis of the bathymetry and the gravity reveal that the crustal thickness varied in time due to the increased magma production at the ridge axis related to the influence of the hotspot.