

## **FOUNDATION HOTSPOT-PACIFIC-ANTARCTIC RIDGE INTERACTION: THE CASE OF A RIDGE APPROACHING A HOTSPOT**

MAIA,M.,GENTE,P. and HEMOND,C. CNRS UMR 6538 Domaines Oceaniques, Plouzane, France

The Foundation Hotspot-Pacific-Antarctic ridge (PAR) system is the best known case of an accretion centre that is currently approaching a hotspot. Analysis of the medium wavelength geoid as well as cinematic reconstructions strongly suggest that the Foundation hotspot is presently located 35 km west of the PAR axis, beneath the Pacific plate. The gravity inferred crustal structure, morphology and chemical signature of the basalts at the PAR axis show that the influence of the neighbouring hotspot at the ridge is not as strong as might be expected from the MRS-MPS model (channelling model) derived by Schilling and co-authors for systems of on-ridge hotspots and ridges moving away from hotspots. Our data set strongly suggests that the processes involved in the interaction between a moving ridge and a hotspot when the ridge is approaching the plume is different from the sub-lithospheric channel inferred for the other cases. The chemical (trace elements and isotopic) composition of the off-axis volcanoes show that the mixing between the ridge and the plume sources started about 4 M.y ago and did not follow a linear trend. Instead, a somehow chaotic mixing must have happened over a wide (~200km) area, resulting in very depleted volcanoes close to moderately or strongly enriched ones. The surface distribution of the volcanoes show that the mechanical strength of the lithosphere controls both the emplacement and the morphology of the edifices.