

Séminaire EOOST, jeudi 19 avril à 11h en salle du conseil:

The September 2005 mega-dike emplacement in the Manda-Harraro nascent oceanic rift (Afar depression, Ethiopia)

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Résumé:

Local and regional seismic data constrain the spacetime history of deformation and likely magma sources for the September 2005 diking episode in the Manda-Harraro rift zone of the Afar depression. The results distinguish three centers from which subhorizontal dike propagation progressed: two distinct sources around the Dabbahu-Gab'ho Volcanic Complex (DVC) and the third at the Ado'Ale Volcanic Complex (AVC). The temporal development of seismicity shows that the majority of the dike volume is fed from beneath AVC and migrated laterally with an average rate of 15–30 cm/sec. This dike emplacement at a divergent plate boundary is unusual due to the rapid intrusion of a large volume of magma and the large amount of seismic moment release. We interpret this volcano-tectonic crisis as a complex interaction of multiple magma plumbing sources and lithosphere at a plate boundary under extension. Such repeated episodes will eventually shape the incipient oceanic rift morphology.