Consiglio Nazionale delle Ricerche

ISMAR

ISTITUTO DI SCIENZE MARINE
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Via Gobetti, 101
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CICLO DI SEMINARI

Venerdì 7 Settembre 2018

Sala riunioni terzo piano - ore 11:00
Via Gobetti 101, Bologna

Oceanic Megatransforms: a New Class of Plate Boundaries

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The introduction by Wilson, in 1965, of the concept of transform fault (TF), a fault that offsets the axis of mid ocean ridge, was a key step in the development of the theory of Plate Tectonics. Oceanic TFs generally appear as narrow (a few km) fault zones joining the two offset ridge segments, in contrast with continental TF systems that display broad (>100 km) and complex belts of deformation. However, few long-offset slow-slip TFs such as the Romanche, that offsets the equatorial Mid Atlantic Ridge by over 900 km, and the Andrew Bain, that offsets the South West Indian Ridge by about 750 km, display a lens-shaped, >120 km-wide zone of deformation between the two ridge axes, and basaltic crust is nearly absent at the ridge-transform intersections (RTIs).

We suggest that these oceanic megatransforms constitute a new type of plate boundary, and we investigate the mechanisms leading to their formation and evolution in space and time, and the magmatism generated at their RTIs.