



GEODYNAMICS AND PETROGENESIS OF PLATE MARGINS

The Earth Science Department developed an international reputation in the study of the evolution of plate margins, both in convergent and, more recently, divergent settings. Mass flux and global geochemical cycles are investigated with a variety of techniques, ranging from the Pressure-Temperature-deformation-time evolution of metamorphic rocks to the dynamics of chaotic deposits in accretionary prisms. Applicants will enjoy a multi-disciplinary environment as well as easy access to world-class outcrops in the Western Alps. Members of this Research Team are currently involved in projects spanning from the Alps to the Apennines, from Sardinia to Corsica, from the Himalayas to Antarctica, from Dabie-Shan to Greenland.

Research topics cover a wide range:

1. structural, tectono-thermal, metamorphic and stratigraphic evolution of subduction and collisional systems. This research topic is carried out along the Alpine-Himalayan orogen (Alps/Apennines system, Himalayas, Karakorum), and other orogenic systems (e.g. the Dabie Shan - Sulu belt in eastern China; the south-European Variscan chain in Sardinia and in the western Alps; the Caledonian chain of Greenland; Taiwan);
2. the effects of major orogenic events on atmospheric circulation and climate change at global scale (Himalayas; <http://rodolfocarosi.wix.com/prinproject2012>);
3. the recognition of the main factors controlling the formation and distribution of ore deposits along plate margins (Alps)
4. timing and mode of exhumation of the orogens with particular attention to mélange formation, active faulting and seismicity (Alps/Apennines system) (<http://andrea festa.magix.net/public/>)
5. the tectono-thermal evolution of rifted margins during hyper-extension. Study areas include 'fossil' margins, preserved in the Alps and Corsica, and present-day Atlantic-type systems (<http://marcobeltrando.com/>)
6. Strain localization in the continental lithosphere: structural, metamorphic evolution and geochronology of exhumed shear zones in collisional orogens (Alps, Himalays: link: <http://rodolfocarosi.wix.com/prinproject2012>)

Key-words: geodynamics, structural geology, metamorphic petrology, geochronology, divergent and convergent plate margins, metamorphic and metallogenic evolution, fluid-rock interaction