



Doctorate Course in Earth and Environmental Science and Technology

Earth Science Curriculum

Research Theme n.7

<p>Titolo (Italiano) Flusso di calore terrestre della regione mediterranea Title (inglese) Terrestrial Heat Flow of the Mediterranean Region</p>
<p>Tutor (name and email) and eventual co-tutor: Massimo Verdoya Program description including the formation program abroad (Inglese)</p> <p>The terrestrial heat flow and its distribution across oceanic and continental domains provides a unique piece of physical information for understanding the planetary energy balance, the driving mechanisms of tectonic and geodynamic processes, and the thermodynamic conditions within the Earth's interior, but also forms the basis for several applications involving both renewable (geothermal potential) and fossils energy sources (hydrocarbons, gas hydrates) as well as the retrofitting of oil wells for geothermal energy use. The PhD project aims to re-assess, revise, and update the existing heat flow data for the Italian peninsula and the Mediterranean region to produce a comprehensive and authenticated database, by including detailed metadata descriptions of each heat-flow datum's type and quality and by enabling interoperability with other data systems. The research activities will be carried out in cooperation with the International Heat Flow Commission (www.ihfc-iugg.org) which has been fostering the compilation of the Global Heat Flow Database since 1963, and will be also in synergy with the International Lithosphere Program (ILP), sponsored by the International Union of Geodesy and Geophysics (IUGG) jointly with the International Union of Geological Sciences (IUGS).</p>
<p>Financial support: departmental funds available</p>
<p>Tutor's publications (max 3)</p> <p>CHIOZZI P., BARKAOU A.E., RIMI A., VERDOYA M., ZARHLOULE Y., 2017. A review of surface heat-flow data of the northern Middle Atlas (Morocco). <i>Journal of Geodynamics</i> 112, 58–71</p> <p>CHIOZZI P., VERDOYA M., 2018. Heat-flow anomaly and residual topography in the Mascarene hotspot swell (Indian Ocean) <i>Int J Earth Sci (Geol Rundsch)</i>, 107:35-51 IF 2.283</p> <p>VERDOYA M., CHIOZZI P., GOLA G., 2021. Unravelling the terrestrial heat flow of a young orogen: The example of the northern Apennines. <i>Geothermics</i>, 90, https://doi.org/10.1016/j.geothermics.2020.101993</p>