



University of Genova

Department of Earth, Environmental  
and Life Sciences

Doctorate Course in Earth and  
Environmental Science and  
Technology

Università degli Studi di Genova



Dottorato in Scienze e Tecnologie  
per l'Ambiente e il Territorio

### Earth Science Curriculum

Research Theme n.

<p><b>Titolo:</b> Flusso di calore terrestre: uno strumento per la comprensione geodinamica e la valutazione del potenziale geotermico</p>
<p><b>Title:</b> Terrestrial heat flow: a tool for geodynamic understanding and geothermal potential assesment.</p>
<p>Tutor (name and email) and eventual co-tutor: Massimo Verdoya (massimo.verdoya@unige.it)</p>
<p><b>Program description including the formation program abroad</b></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 form 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 database with special reference to marginal basins and surrounding continental regions to produce a comprehensive database including detailed metadata descriptions of each heat-flow datum's type that can be a fundamental tool for geodynamic and/or geothermal energy potential studies. The research activities will be carried out in the frame of the tutor's cooperation with the International Heat Flow Commission (<a href="http://www.ihfc-iugg.org">www.ihfc-iugg.org</a>) and the Task Force of the International Lithosphere Program (ILP) (<a href="http://ihfc-iugg.org/products/global-heat-flow-database/assessment-project">http://ihfc-iugg.org/products/global-heat-flow-database/assessment-project</a>).</p>
<p>Financial support</p>
<p>Tutor's publications</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</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, <a href="https://doi.org/10.1016/j.geothermics.2020.101993">https://doi.org/10.1016/j.geothermics.2020.101993</a></p> <p>PAUSELLI C., GOLA G., RANALLI G., MANCINELLI P., TRIPPETTA F., BALLIRANO B., VERDOYA M., 2021. Thermal conductivity of Triassic evaporites. <i>Geophysical Journal International</i>, 227, 1715–1729, <a href="https://doi.org/10.1093/gji/ggab293">https://doi.org/10.1093/gji/ggab293</a></p>

