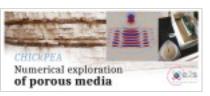# CHICkPEA, to Improve Seismic Imaging

CHaracterIzation of Conducting Poro-elastic media using Experimental and advanced numerical methods

A scientific challenge invites teams of 3 to 4 scientists to propose innovative research, new or disruptive topics, to reduce identified barriers, but also to promote interdisciplinarity and dissemination of information.

Seismic imaging, used to explore the subsurface, is based on the analysis of wave fields measured on the surface. This analysis uses complex algorithms running on high-performance computers. Applications such as geothermal energy or CO_2 storage require a very precise knowledge of the subsurface. The objective of the CHICkPEA* project is to develop an experimental and numerical environment on the use of seismo-electric effects to **improve seismic imaging**.

Experimental protocol supported by advanced computing

The project brings together **mathematicians** and **geophysicists** around the same question: **Can we improve the characterization of conductive porous media by taking into account seismo-electric effects?** To answer this question, we have developed an experimental protocol in the laboratory assisted by an advanced computational software developed in a HPC (High Performance Computing) environment.

A new research group at the interface of **applied mathematics** and **laboratory geophysics** has been created, around an original approach where experimental measurements are assisted by numerical measurements, in order to validate an experiment or a simulation.

The CHICkPEA project also participates in a European project selected by the GEOTHERMICA program and launched in January 2021.

CHICkPEA project leader

Hélène Barucq, Research Director, Inria, MAKUTU project team