



Newberry Deep Drilling Project (NDDP), 10-14 September 2017, Bend, Oregon, USA

We propose to drill a deep well to the ductile/brittle transition zone ($T > 400^{\circ}\text{C}$) at Newberry Volcano, central Oregon state, U.S.A. The main research goals are related to heat and mass transfer in the crust from the point of view of natural hazards and geothermal energy: enhanced geothermal system (EGS supercritical and beyond-brittle), volcanic hazards, mechanisms of magmatic intrusions, geomechanics close to a magmatic system, calibration of geophysical imaging techniques and drilling in a high temperature environment.

Drilling at Newberry will bring additional information to a very promising field of research initiated by ICDP in the Deep Drilling project in Iceland with IDDP-1 on Krafla in 2009, followed by IDDP-2 on the Reykjanes ridge in 2016, and the future Japan Beyond-Brittle project and Krafla Magma Testbed.

Newberry Volcano contains one of the largest geothermal heat reservoirs in the western United States, extensively studied for the last 40 years. All the knowledge and experience collected make this an excellent choice for drilling a well that will reach high temperatures at relatively shallow depths (< 5000 m). The large conductive thermal anomaly (320°C at 3000 m depth), has already been well-characterized by extensive drilling and geophysical surveys. This will extend current knowledge from the existing ~ 3000 m boreholes at the sites, into and through the brittle-ductile transition, and potentially approaching regions of partial melt.

The important scientific questions that would form the basis of a full drilling proposal will be addressed during the ICDP sponsored workshop in Bend, Oregon, from September 10 to 14th, 2017 including a field trip to the geothermal test facility. Most of the areas of investigation will be refined during the workshop, and additional goals are likely to be defined.

We invite interested individuals from academia and industry to attend the workshop. Please submit a brief application with 1-page resume and a summary of relevant expertise to Alain Bonneville (alain.bonneville@pnnl.gov). The deadline of application is August 10, 2017. A scientific committee will decide on invitations and travel support (fully or partially) taking into account the relevance of the applicants' research relevant to the goals of the workshop and the need for balanced representation of countries and disciplines. Preference will be given to scientists from ICDP member countries (or countries with an interest in joining ICDP) and to scientists whose expertise complements that of existing project participants. Early career scientists are encouraged to apply.

Further information about the workshop is available at

<http://www.icdp-online.org/projects/world/north-and-central-america/newberry-usa/>