



## ICDP Workshop CALDERA:

### Connections Among Life, geo-Dynamics and Eruptions in a Rifting Arc caldera

January 24-27, 2023, Tauranga, New Zealand

Caldera volcanoes produce Earth's largest explosive eruptions, generate seismicity both independent and associated with unrest and eruptive periods, host mineral and geothermal resources that interact with groundwater, and support a largely unexplored biosphere. Many silicic calderas are hosted in an active rift. Volcanic, tectonic, hydrologic and biologic processes in calderas are intimately connected, yet poorly understood, and require subsurface observations.

The project "Connections Among Life, geo-Dynamics and Eruptions in a Rifting Arc caldera (CALDERA)" aims to obtain drill cores, downhole measurements and monitoring data from the Okataina Volcanic Centre (OVC), one of two giant active calderas in the Taupō Volcanic Zone, Aotearoa New Zealand. Members of the international scientific community are invited to attend a scientific drilling workshop in Tauranga, New Zealand, on January 24-27<sup>th</sup> 2023 in preparation for a future Full ICDP Drilling Proposal. The goals are to: 1) articulate the primary and auxiliary scientific objectives, 2) identify and prioritise potential drill targets, and plan any additional site surveys, 3) develop drilling, safety, sampling, monitoring and archiving plans, 4) discuss sharing of mātauranga Māori (indigenous knowledge), education and outreach, and 5) organise international discipline-based teams, clarify leaders' and members' responsibilities, and outline co-funding plans.

CALDERA is ideally suited to address fundamental questions on caldera processes that include:

- How do caldera magmatic plumbing systems and their eruptive behaviour mature and evolve?
- How do complex crustal stresses vary in caldera regions and affect geo-hydro-bio-processes?
- What controls fluid flow and chemistry in calderas?
- What are the physicochemical conditions that drive subsurface microbial community structure, function and activity?
- How to predict the onset and style of caldera unrest and eruptions?

Workshop participants will actively engage in breakout sessions on scientific, technical, and funding themes that report back to the main group. A field trip to the OVC will be a highlight. Before the Workshop, an online interactive discussion will present the science of CALDERA and existing data.

Scientists wishing to contribute to this Workshop and the planned drilling project are invited to apply with contact details, a 2-page CV and a 1-page description of your interests and intended contribution in a single PDF file. **All applications should be sent by 17<sup>th</sup> August to Cécile Massiot ([caldera.drill@gns.cri.nz](mailto:caldera.drill@gns.cri.nz)).** A scientific committee will decide on invitations considering the relevance of the applicants' expertise to the goals of the project and the need for balance among the discipline. Costs to attend the Workshop will be covered as much as possible with ICDP funds. Note that the Workshop will directly precede the IAVCEI Scientific Assembly at nearby Rotorua.

We seek a diverse group and broad international participation and welcome applicants from any field relevant to CALDERA. To complement existing expertise in the project, we particularly encourage applicants with interests in fields related to hydrology, fluid chemistry, seismology, tectonics and downhole monitoring including using optic fibres (DTS, DAS). Preference will be given to scientists from ICDP member countries and early career scientists.