

Deep Fault Drilling Project (DFDP) — Alpine Fault, New Zealand



ICDP Workshop on Active Deformation Processes in the Seismogenic Zone of a Major Transpressional Plate Boundary Fault

Franz Josef Glacier, New Zealand, 22–28 March 2009

Enquiries and applications (single PDF file) to dfdp@gns.cri.nz by **14 November 2008**
See the DRILLNZ web site (drill.gns.cri.nz) for further details

The Alpine Fault, New Zealand, is a dextral-reverse fault that fails in large earthquakes (c. M_w 7.9) every 200–400 years and last ruptured in 1717 AD. Rock uplift has exhumed a young (<1 Ma) sample of the structures that are currently active in the middle and upper crust. In a proposal to the International Continental Scientific Drilling Programme (ICDP), a team of New Zealand and overseas researchers led by John Townend (Victoria University of Wellington) and Rupert Sutherland (GNS Science) outlined a novel experiment to drill into, sample, and monitor the Alpine fault to investigate fault zone evolution via brittle and ductile processes in the upper and mid-crust. Remarkable along-strike homogeneity of rock type, rapid rate of slip, and the fault's geometry and kinematics enable us to examine the progressive evolution of fault zone materials by targeting a single rock mass at two points on its exhumation trajectory: one at the surface, and one in a borehole several kilometres deep. The transition from brittle to ductile behaviour is inferred to be relatively shallow (4–10 km), giving us a unique opportunity to sample mid-crustal materials and study active processes.

An ICDP-funded workshop will be held at Franz Josef Glacier (West Coast, South Island) on 22–28 March 2009. Participants will discuss the scientific goals and the technical and logistical challenges of a multi-year deep-drilling experiment. The principal workshop outcome will be a draft science plan addressing further site characterisation, drilling, and monitoring. Fieldtrips to the Alpine Fault will be held during the workshop.

We invite applications from members of the international scientific and engineering communities to attend this workshop. Applications should include full contact details, a summary of your research interests and expertise, and a brief description of your intended contribution. We particularly seek expertise in pertinent fields of structural geology, tectonics, petrology, hydrological modelling, geochemistry and geochronology, geophysics, earthquake physics, and scientific drilling.

Participants will be selected by the workshop advisory committee and notified by 30 November 2008. Accommodation and registration costs will be met by ICDP and limited travel assistance for overseas participants may also be available. Preference will be given to members of ICDP member countries.