

## Frontier Drilling in the Kermadec Volcanic Arc, New Zealand

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In December 2005 the Commonwealth Scientific and Industrial Research Organisation (CSIRO) was contracted by Neptune Resources (Kermadec) Limited to manage the scientific aspects of the first ever commercial drilling of seafloor massive sulfides. Located in Neptune's granted prospecting license (PL 39-195) within New Zealand's 200 nautical mile Exclusive Economic Zone in the Kermadec volcanic arc, 23 core holes up to 14 metres below the seabed were drilled from the 8, 900 t vessel DP Hunter in water depths of between 1210 and 1680 m. A drill derrick above a central moon pool enabled the tripping of wireline coring tools through a 5.5-inch API drill string. The drilling campaign was complemented by 130 hours of high resolution seafloor video footage using a tethered remotely operated vehicle (ROV); and 60 line kilometres of high resolution multi-beam depth sounding imagery (swath mapping) covering 25 km2. The ROV aided greatly in the identification of hole locations, biological and geological mapping of the seafloor and recovery of surface samples of massive sulfide deposits. Although widespread sulfide chimneys exist, there is no accumulation at or near the seabed of commercial quantities of sulfide mineralisation in the areas drilled.