



Cold vents and gas hydrates - first results from the cruise SO 191-1 to the Hikurangi Plateau offshore New Zealand

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The role of methane in the global bio-geo-system is one of the most important issues of present-day research. Phenomena like gas hydrates and associated fluid vents provide valuable evidence of subsurface methane paths. The cruise SO 191-1 (Jan. 2007) on RV Sonne was dedicated to the investigation of local and regional transport processes of methane and facies characterisation of cold vents and gas hydrate deposits east of New Zealand. The eastern coast of New Zealand is shaped by intensive compressional tectonics, which is related to the subduction of the Pacific plate under the Australian Plate. Active volcanism, hydrothermalism and seismic activity accompany the subduction. Several cold vent locations as well as an extensive BSR indicating the presence of gas hydrates have been found at the Hikurangi Plateau, an accretionary complex offshore eastern North Island. The close proximity to hydrothermalism is likely to have an influence on the fluid genesis and composition and an interrelation of hot and cold venting is expected. This makes the Hikurangi Plateau a unique study area for coupled gas hydrate and fluid vent methane cycles. We present data collected during the cruise SO 191-1, including bathymetric data of the study area, high resolution seismics and side scan sonar (deep towed), which image in great detail the various fluid escape structures, the bottom simulating reflector (BSR) extent and its properties. High frequency ocean bottom seismometer recordings and marine controlled-source electromagnetic measurements complete the data set.