Geophysical Research Abstracts, Vol. 9, 11216, 2007
SRef-ID: 1607-7962/gra/EGU2007-A-11216

Monitoring dredge disposal and slope stability using the VENUS underwater network

G. Lintern (1), K. Conway (1), and P. Hill (1)

(1) Natural Resources Canada, PO Box 6000, 9860 West Saanich Road, Sidney, B.C., Canada,V8L4B2 (glintern@nrcan.gc.ca)

Concerns by scientists, engineers and authorities for the stability of the Fraser Delta slope have resulted in a design for an array of instruments to monitor liquefaction and failure events. Deployment and networking of the instruments will be facilitated by the Victoria Experimental Network Under the Sea (VENUS) Project.

Repeat multibeam bathymetric surveys indicated that failures occur regularly at the top of the slope and along the steep- walled delta canyons. These failures are thought to be a result of rapid deposition and oversteepening as well as other forcing mechanisms. It has been suggested that the deposition of dredge material at the top of the slope may be enhancing the instability of the slope, by leading to a loosely consolidated condition, and/or by contributing to density currents down the canyon.

Instruments will measure pore pressures, and failures triggered by various forcing mechanisms such as earthquakes, storms, tides, groundwater flow, and gas. Experiments are planned to include the monitoring of sediment as it is released from a hopper dredge, settles through the water column and consolidates at the bed. The combination of long term measurements and short term experiments will help elucidate the causes of various types of deltafront failures.