NOTICE OF UNIVERSITY ORAL

GEODESY AND GEOMATICS ENGINEERING

Master of Science in Engineering

Travis Wert

September 17, 2004
@ 11:00 am
ADI Room - Head Hall

Board of Examiners:	**Supervisor:**	**Dr. Peter Dare, GGE**
	Examining Board:	**Dr. John Hughes-Clarke, GGE**
		Dr. Richard Langley, GGE
		Dr. Karl Butler, Dept. of Geology
	Chair:	**Dr. Sue Nichols, GGE**

TIDAL HEIGHT RETRIEVAL USING GLOBALLY CORRECTED GPS IN THE AMUNDSEN GULF REGION OF THE CANADIAN ARCTIC

ABSTRACT

The recent evolution of global Wide Area Differential GPS (WADGPS) networks has greatly increased the already high level of interest in GPS technologies by the hydrographic community. This thesis evaluates one of these WADGPS receivers, the C&C Technologies Globally Corrected GPS (GcGPS) C-Nav receiver, as an instrument for tidal height retrieval in the Canadian Arctic. The C-Nav was mounted aboard the Canadian Coast Guard Ship (CCGS) Amundsen for her 14 month over-wintering expedition in the Northwest Passage. C-Nav height data were collected in Franklin Bay, NWT, over February to April, 2004. Knudsen K320 sub-bottom profiling sonar depth data was collected as a true vertical reference. The 1 Hz C-Nav data were processed and decimated down to 6 minute epochs, thus speeding the filter processing to obtain real-time data latency. The standard deviation of the residuals between the C-Nav and K320 tidal signals was 4.3 cm. This level of positioning is commensurate with International Hydrographic Organization (IHO) Special Order surveys.

In addition, the filtered C-Nav height signal was processed using Least Squares Spectral Analysis (LSSA) to define the tidal constituents in terms of amplitude and phase. The C-Nav derived constituent amplitudes are within centimetres of the K320 determined values, and the historical constituent data for Franklin Bay.

Faculty Members and Graduate Students are invited to attend this presentation.