Opportunities for geoscience students to apply geomatics techniques to mapping and exploration programs in northern Canada

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A new Geo-mapping for Energy and Minerals program (GEM) has been initiated by the Government of Canada to provide geoscience information necessary to guide investment decisions leading to the discovery and development of new energy and mineral resources of Canada's north. Part of this 5 year, $100 M program involves the harnessing of new technologies to help provide more timely geological information in the form of digital maps and mineral resources assessments. This involves the use of geomatics technologies, including GIS, remote sensing, and GPS to compliment traditional geological mapping techniques. This "Remote Predictive Mapping" utilizes various types of geoscience data and analysis procedures to provide geologists with predictive maps before they embark on field work. It also helps focus their activities on areas that have more complex signatures in the field.

For example, key outcrop locations can be determined from such mapping prior to field work. When combined other information, such as geophysics or remote sensed data, this can reduce the number of traverses required in order to define

Atlantic Geology, 2009, Volume 45, Number 1

the contact between two units. Additionally, remote predictive maps can be updated in the field and also offer first-order geologic information in areas that cannot be mapped in the field. The lack of vegetation cover and the generally good rock exposure in the north makes it an ideal location to utilize optical and radar satellite data and imagery to differentiate different rock units, based on topographic and colour variations resulting from different mineral groups and their associated weathering patterns.

Several funded opportunities exist for geoscience graduates wishing to continue their studies at the Centre of Geographic Sciences (COGS) in Nova Scotia, where these geomatics tools can be applied to traditional fields of science. Natural Resources Canada, through the Research Affiliation Program (RAP), is seeking students with geomatics skills to participate as information officers in the summer field camps, as well as to work on geomatics research projects at COGS or joint geoscience MSc (Geomatics Research or Earth Sciences) research projects between COGS and local university earth science departments. The application of geomatics techniques to aid traditional geological mapping reflects the new methods of compilation and preparation prior to and during fieldwork. People with these combined skills (geology & geomatics) are in high demand.