

## Applied geomatics research at the Centre of Geographic Sciences (COGS)

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COGS on behalf of the Nova Scotia Community College was awarded a research infrastructure grant from the Canadian Foundation for Innovation and the Canada-Nova Scotia agreement on Economic Development. The grant was on the order of \$1.3M in order to conduct geomatics research along the coastal zone. The centre has been carrying out applied research for many years including the construction of a provincial Radarsat mosaic which has been merged with other geoscience data including: elevation, magnetic field and Bouguer gravity. The Radar/Elevation product when viewed with Chromadepth™ glasses appears in 3-D adding to the interpretive value of the product for geoscientists. As part of the new research initiatives under way at COGS a simulation of Radarsat 2 was undertaken in November 1999. This involved the Convair 580 aircraft utilizing a C-band polarimetric synthetic aperture radar, similar to what is planned for Radarsat 2 scheduled for launch in 2002. Three flight lines were acquired parallel to the Annapolis Valley with the intended applications including: geoscience, landcover mapping, and coastal mapping. An additional set of lines were flown in the Minas Basin at low tide for similar

applications. The system is equipped with two radar antennas to allow across-track interferometry. Data from this system can be used to construct very high resolution Digital Elevation Models (DEM). This mode was flown for one line along the Bay of Fundy coast. The high resolution of this sensor and the multipolarimetric signatures will allow more detailed mapping and feature extract from the imagery. Several topographic features have been identified along the North Mountain and along the Meguma Group rocks of the South Mountain. The folds within the Carboniferous rocks along the Walton shore are also evident in the imagery that was acquired during low tide. Additional data is planned for this test site (Annapolis and Minas Basins) in the spring/summer period including: laser altimetry data, CASI hyperspectral data as well as a full suit of available high-resolution satellite data. The application areas include the construction and validation of DEMs, detailed landcover and coastal mapping. The applications of such a dataset include: geoscience mapping, disaster management (flood risk maps, sea level rise risk maps), soil erosion mapping etc.