

Conducting applied Geomatics research under the NSERC College Community Innovation Pilot program

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Abstract

In 2004, the Natural Sciences and Engineering Research Council (NSERC) announced a new pilot program designed specifically for community colleges. The focus was on applied research and collaboration between colleges and the private sector, leading to community economic development. The Applied Geomatics Research Group (AGRG) at the Nova Scotia Community College (NSCC) submitted a proposal on the integration of geomatics and environmental technologies for landscape assessment, monitoring and restoration. A key criterion was the matching by NSERC of the private sector funding. To meet this objective, AGRG developed an internship program for Centre of Geographic Sciences (COGS) graduates to work at the AGRG for six months on an applied research problem defined by industry.

To illustrate the type of applied research that is being conducted, this presentation will highlight our work on satellite-based solar energy mapping. In collaboration with Green Power Labs Inc. the AGRG has developed a GIS-based solution for calculating solar irradiation by processing 1 km visible spectrum imagery obtained by NASA GOES satellites. Using these software tools we conducted a regional level (Maritime Canada) assessment and mapping of solar energy based on the analysis of satellite data. Solar irradiation was calculated from pixel values adjusted by a dynamic pixel range obtained from the long-term climatology. This methodology results in a spatially explicit map of solar energy resources for a time span from hours to decades. The modeling results have been compared to existing ground-based pyranometer data. The satellite-based approach to solar energy resource mapping used here allows us to predict solar radiation at any geographical location in the region to a spatial resolution of 1 km.

The NSERC internship program at the NSCC has had an impact on our applied research agenda. There was a significant drop in the enrollment for the Advanced Diploma in Applied Geomatics Research; market demand for project experience appears to outweigh the value of a second advanced diploma. More recently, the NSCC has partnered with Acadia University on a joint M.Sc in Applied Geomatics. Changes in the rules from the Canada Revenue Agency (CRA) will move us towards a fellowship model in 2008, where the student must be enrolled in a program at NSCC. With the completion of the NSERC pilot, AGRG has met the challenge of different time lines for fiscal management and the

project deadlines set by the industry client. Despite the complexity of the relationships, NSERC (based on the results of the six pilot projects across Canada) has made the commitment to a permanent College Community Innovation (CCI) program. Another outcome of the NSERC program at NSCC is the development of a successful proposal for the creation of a Business Incubation Centre at our campus in Middleton, funded by the Atlantic Canada Opportunities Agency.