

An immodest proposal—taking the pulse of the Earth

May 1 2017, by Andrea Kingwell

Not interested in small-scale goals, the NEST-funded project led by geomatics engineer Michael Sideris aims to create and then link an enormous network of sensors with a goal of characterizing Earth systems from the core to the magnetosphere.

That's right: the team of geoscientists, engineers, geographers, physicists, astronomers and social scientists just wants to monitor the whole geospatial continuum, using a combination of satellite and airborne remote sensing systems, as well as Earth-bound measurements.

Why? Because with a better understanding of the complex processes governing changes in everything from space weather to water resources to natural and induced seismicity, scientists and engineers will be better able to develop products and tools for monitoring and rapidly responding to the often-hazardous effects of these processes, including early warning systems, hazard assessment and mitigation strategies, and relevant regulatory and policy frameworks.

"We have in this university a lot of strengths in seismology, glaciology, atmospheric physics, [space weather](#), geodesy, satellite Earth observation and geomatics engineering," says Sideris, principal investigator on the Integrated Canadian Observing Network for Earth and Space Research (ICON-ESR) project and professor in the Department of Geomatics Engineering. "These are small groups of people very well known internationally who have never come together before."

Sideris outlines that they are not only building a network of sensors and of people, but also of sciences. As the research proposal outlines, this project incorporates sciences of the geo-, hydro-, cryo-, atmo-, iono-, magneto-, and bio-spheres.

The researchers in the ICON-ESR are already connected to national and international [space](#) agencies, and environmental, geophysical and natural resources organizations, as well as major global Earth Observation initiatives.

"This NEST funding really gives us the opportunity to bring our teams together, to attract major external grants that will enable cutting-edge research and development, and to become a major centre of excellence that will combine all those areas of expertise," Sideris says. "It's a very exciting time indeed for Earth and Space research at the University of Calgary."

Provided by University of Calgary

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