Spatial Information Research — New Opportunites for Agriculture Communities

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Dr Philip Collier gained his PhD in 1988 in the field of integrated geodesy, developing techniques to account for the influence of the gravity field on precise engineering and structural deformation surveys. Subsequently, he joined the Melbourne Water Corporation undertaking geodetic, deformation and GPS surveys as well as being engaged in the re-adjustment of Melbourne's very large urban survey control network. Phil joined the Department of Geomatics at the University of Melbourne in 1992 where he has been involved in teaching, research and consulting projects over many years. From 2004 to 2007, Phil worked part-time (50%) as a Senior Lecturer at the University and part-time (50%) as a Senior Research Fellow in the Cooperative Research Centre for Spatial Information. In 2008, he began his current position as full-time Assistant Research Director with CRC for Spatial Information (CRCSI), where he has been both conducting and managing a range of research and consulting projects. In the past twelve months, Phil has played a key role in preparing the positioning component of the recently successful re-bid for CRCSI-2.

Spatial Information (SI) is information about location. It is a critical element in an increasing array of leading edge technologies and applications. Familiar examples include on-line mapping tools like Google Maps and Bing Maps, in-car navigation systems, GPS enabled mobile phones and high accuracy real-time positioning for precision agriculture. Access to reliable, timely and fit-for-purpose spatial information has lead to significant efficiencies, economies, procedural improvements and productivity gains across a wide range of industry sectors. But the potential impacts and benefits of existing and emerging technologies in the spatial information arena are set to deliver even more benefits across a broader range of applications as we step into the second decade of the 21st century.

It is in the light of the potential for spatial information to deliver significant benefits to the nation that Senator Kim Carr recently announced that the new Cooperative Research Centre for Spatial Information (CRCSI-2) would receive funding of $32.2 million under the Federal Government's CRC Program. With a total budget (cash and in-kind) of $180 million and an eight year research program, CRCSI-2 brings together over 100 partner organisations across all sectors to deliver a user-driven research program with the stated objective of 'spatially enabling Australia'. The spatial information industry currently contributes an estimated $12.6 billion to national GDP. Direct outcomes from CRCSI-2 are expected to deliver a further $305 million to the nation if emerging developments can be leveraged for Australian industry.

Beginning in January 2010, the CRCSI-2 research program will be built around three core science themes in positioning, automated spatial information generation and spatial infrastructures and supports applied research outcomes and utilisation benefits in five key industry sectors. These include;

- health
- energy and utilities
- sustainable urban development

- defence
- agriculture, natural resources and climate change

In the sphere of a*griculture, natural resources and climate change*, farmers will benefit from research in spatial information that promises to deliver:

- access to a pervasive, ubiquitous, reliable, high accuracy positioning capability based on GNSS technology and a national CORS network to support a diverse range of on-farm activities, including the widespread adoption of current and emerging CTF practices
- the capacity to remotely measure and monitor crop and pasture responses to various activities such as irrigation, fertilizer application, weed spraying, pest and disease infiltration and grazing
- ready access to the vast stores of government held spatial information to aid in planning, decision support, emergency response and coordination

This paper will outline some of the key elements of the research program planned for CRCSI-2 with a view to motivating and challenging the CTF community to identify new and innovative ways that spatial technologies can support and promote improved farming practices and yield benefits for farmers in particular and rural communities more generally.