



Media Release

Tuesday, 24 August 2021

New satellite system would enhance water quality management in Australia

Analysis conducted at UNSW Canberra has demonstrated that a new space-based Earth observation system would be a valuable piece of infrastructure for monitoring and managing Australia's inland and coastal waterbodies.

The scoping study was one of the first steps in the AquaWatch Australia water quality management mission being developed as a joint initiative between CSIRO, Australia's national science agency and the SmartSat Cooperative Research Centre (CRC). It was conducted at Australia's premier space mission development centre, the Australian National Concurrent Design Facility (ANCDF) at UNSW Canberra.

ANCDF Manager and Space Systems Engineer Denis Naughton said the infrastructure could include a constellation of satellites and a network of ground-based sensors and that the study provided an understanding of the project's challenges and potential solutions.

"We were able to identify a system design that addresses those requirements and is feasible to construct, commission and operate," Mr Naughton said.

"The consolidated technical solution for the operational AquaWatch satellites would require further detailed engineering analyses of the mission."

CSIRO's AquaWatch Australia mission leader Dr Alex Held commented: "This preliminary system design report will underpin our approach to establishing the integrated space and ground infrastructure, and inform our analysis of domestic technical capability to build such purpose-designed Earth observation satellites. This will help drive the development of local advanced manufacturing, support the growth in Earth observation data analysis, modelling and applications."

Data gathered from space provides critical insights about water quality and natural events including toxic algal blooms, the contamination of drinking water and excess runoff from irrigation.

Earth observation satellites currently only provide 60-70 per cent coverage for major Australian water bodies, and while the quality of some inland waterways is monitored directly by testing, this data is not routinely combined with satellite data.

AquaWatch aims to complement existing systems and build a comprehensive national monitoring system to deliver real-time updates, predictive analytics and forecast warnings to water managers.

SmartSat CRC's Chief Executive Officer, Prof Andy Koronios said: "The Concurrent Design Facility is an extremely important space infrastructure for the whole nation. Our partner, UNSW Canberra should be congratulated for establishing such an important facility and for completing this study on behalf of SmartSat and CSIRO.

"AquaWatch is a partnership between CSIRO and SmartSat which aims to use space technologies to provide continuous monitoring of the quality of Australia's fresh and coastal water bodies; a critical national resource.

“The outcomes could lead to a step-change in Australia’s national water quality information delivery, supporting decision makers in water agencies, local communities, water utilities and commercial water users to provide safe drinking water, regulate contamination events, and monitor water quality across primary industry and assist with management of aquaculture farms, reef structures and our coastal environs.”

The study brought together experts from a range of institutions, with the ANCDF enabling each member of the group to contribute their part to the project simultaneously, significantly speeding up the design process.

The *Preliminary Concept Study for the Satellite Segment of AquaWatch Australia* report was published today by UNSW Canberra and will inform the upcoming Australian Space Agency’s Earth Observations from Space Technology Roadmap.

Experts from the University of Queensland, Curtin University, Australian National University, Geoscience Australia, Defence Science and Technology Group and the Australian Space Agency also participated in the study.

Media contact: Rachel Packham, UNSW Canberra, 0423 800 109, r.packham@adfa.edu.au

ABOUT THE SMARTSAT CRC

The SmartSat Cooperative Research Centre brings together over 100 national and international partners who have invested over \$190 million, along with \$55 million in Federal Government funding under its Cooperative Research Centres Program, in a \$245 million research effort over seven years. Working closely with the Australian Space Agency, SmartSat will make a strong contribution to the Australian Government’s goal of tripling the size of the space sector to \$12 billion and creating up to 20,000 jobs by 2030. Priority industry sectors for SmartSat include telecommunications, agriculture and natural resources, transport and logistics, mining, and defence and national security.

SmartSat Contact: Alison Bowman, 0481 273 462, alison.bowman@smartsatcrc.com

