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Building Australia's Scalable Drone Cloud

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Remotely Piloted Aircraft (RPA), commonly known as drones, provide sensing capabilities that address the critical scale-gap between ground- and satellite-based observations. Their versatility allows researchers to deliver near-real-time information for society.

Key to delivering RPA information is the capacity to enable researchers to systematically collect, process, manage and share RPA-borne sensor data. Importantly, this should allow vertical integration across scales and horizontal integration across different RPA deployments. However, as an emerging technology, the best practice and standards are still developing and the large data volumes collected during RPA missions can be challenging.

Australia's Scalable Drone Cloud (ASDC) aims to coordinate and standardise how scientists from across earth, environmental and agricultural research manage, process and analyse data collected by RPA-borne sensors, by establishing best practices in managing 3D-geospatial data and aligned with the FAIR data principles.

The ASDC is building a cloud-native platform for research drone data management and analytics, driven by exemplar data management practices, data-processing pipelines, and search and discovery of drone data. The aim of the platform is to integrate sensing capabilities with easy-to-use storage, processing, visualisation and data analysis tools (including computer vision / deep learning techniques) to establish a national ecosystem for drone data management.

The ASDC is a partnership of the Monash Drone Discovery Platform, CSIRO and key National Collaborative Research Infrastructure (NCRIS) capabilities including the Australian Research Data Commons (ARDC), Australian Plant Phenomics Facility (APPF), Terrestrial Ecosystem Research Network (TERN), and AuScope.

This presentation outlines the roadmap and first proof-of-concept implementation of the ASDC.

ASDC Project Team: ASDC Project Team at Monash University, AuScope, Australian National University, CSIRO, TERN, University of Adelaide, and University of Queensland.