

Production of CEOS Analysis Ready Data for Land (CARD4L): Geoscience Australia's Experience with Optical Data from Landsat and Sentinel-2

Medhavy Thankappan¹, Joshua Sixsmith, Guy Byrne, Fuqin Li, Lan-Wei Wang, Andrew Walsh, Mark Broomhall, Jeremy Hooke, Passang Dorji, Simon Oliver, Andreia Siqueira, Adam Lewis

1) medhavy.thankappan@ga.gov.au, Geoscience Australia

Abstract

In an Earth observation (EO) context, Analysis Ready Data (ARD) are satellite data that have been processed to a set of requirements that enable immediate analyses with minimum user effort. The need for Analysis Ready Data within the EO community is being driven by user requirements. This will reduce the burden on resources and expertise to effectively use the huge volumes of data being generated continually by multiple satellite missions, and allows data producers to increase the access and uptake of data.

The Committee on Earth Observation Satellites Land Surface Imaging Virtual Constellation (CEOS LSI-VC) has been leading the development of a definition and framework for ARD. The CARD4L Framework provides the specifications for EO data to be analysis ready. Specifications for products across the optical, thermal, and radar domains and a process for product assessment against the specifications have been developed to help data producers to generate CARD4L compliant products and for users to adopt these products for a range of applications. CEOS LSI-VC is working with the CEOS Working Group for Calibration and Validation (WGCV), domain experts, EO data users and providers to implement the CEOS Analysis Ready Data for Land (CARD4L) Framework.

Effective utilisation of the petabyte scale collection of data, primarily from the Landsat and Sentinel series of satellites at Geoscience Australia, has been a major driver for the effort on ARD production. This presentation will outline Geoscience Australia's experience in generating optical products under the CARD4L framework, with special reference to the Landsat and Sentinel-2 series of satellites. The self-assessment of these products for CARD4L compliance is comprehensive and ongoing. This includes strategies for continually managing the collection, a continental wide program of ongoing validation based on field measurements using surface and UAV derived spectral data. Finally, examples of effective utilisation of these products through the Digital Earth Australia (DEA) initiative, and its global impact will also be covered.

Keywords - Analysis Ready Data (ARD)