

The FORMOSAT Data Used in Earth Observation

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FORMOSAT-2 and FORMOSAT-3 are satellite programs of National Space Organization, National Applied Research Laboratories of Taiwan. FORMOSAT-2 is a high-resolution remote sensing satellite. FORMOSAT-3 is a constellation of six micro-satellites. The data of two missions had been widely used in Earth Observing related applications.

FORMOSAT-2

Three major characteristics make FORMOSAT-2 distinct from others.

1. Daily revisit: Is very useful in surveillance related applications. FORMOSAT-2 can react and response to an event typically within 24 hours. The timely availability of data makes it especially useful in disaster recovery efforts.
2. High latitude imaging: The large viewing angle and relatively high altitude make FORMOSAT-2 able to take polar region image. To support the International Polar Year, FORMOSAT-2 established a polar archive consists of 4547 image segments. The data can be a very valuable resource for global warming study.
3. Wide area imaging: By fully utilizing its maneuver agility, FORMOSAT-2 can scan the ground multiple times to overcome the narrow swath disadvantage of a high-resolution satellite. In 2009 Morakot Typhoon, FORMOSAT-2 demonstrated covering whole Taiwan area in just one satellite pass by 5 imaging stripes.

FORMOSAT-3/COSMIC

The primary mission of FORMOSAT-3 satellite constellation is to collect global radio occultation data. The measurements can be further processed to atmospheric data and ionospheric data. The retrieved atmospheric parameters include temperature profiles and water vapor profiles and the data product from ionosphere contains total electron content, electron density profiles, and scintillation amplitude/phase index. The measurements have been demonstrated they are the valuable assets to the climate, meteorology, and space weather communities. Many weather prediction institutes, including CWB (Taiwan), NCEP (U.S.), ECMWF (Europe), UK Met Office (U.K), Meteo France (France), and Environmental Canada (Canada), have assimilated the data into their models to improve the weather analyses and forecasts.