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FORMOSAT-7 – USING A SMALL SATELLITE CONSTELLATION AND GROUND NETWORK FOR
WEATHER MONITORING

Abstract

The role of small satellites in operational meteorology is becoming increasingly important, and can provide important additional information addressing specific geographic regions or specific applications. This has become possible due to innovative payload and measurement techniques, and the availability of reliable small satellite technology used in constellations.

Although FORMOSAT-3/COSMIC-1 was not expected to be an operational mission, its data has been well received and injected into various numerical weather prediction models by several major weather forecasting centres. The follow-on, FORMOSAT-7/COSMIC-2, is now planned as fully operational satellite constellation to continue the provision of Global Navigation Satellite System (GNSS) Radio Occultation (RO) data to the global users. The mission aims to collect atmospheric and ionospheric soundings globally through a constellation system of 12 satellites, providing high temporal resolution and high data quality. This paper provides an overview of the spacecraft design, and the trades which were carried out to achieve the necessary system design and performance.