

# GEO-KOMPSAT-2A Overview

## Introduction of the GEO-KOMPSAT-2A (GK2A)

The GEO-KOMPSAT-2A (GK2A) is the new generation geostationary meteorological satellite (located in 128.2°E) of the Korea Meteorological Administration (KMA). The main mission of the GK2A is to observe the atmospheric phenomena over the Asia-Pacific region. The Advanced Meteorological Imager (AMI) on GK2A scan the Earth full disk every 10 minutes and the Korean Peninsula area every 2 minutes with a high spatial resolution of 4 visible channels and 12 infrared channels. In addition, the AMI has an ability of flexible target area scanning useful for monitoring severe weather events such as typhoon and volcanic eruption and so on. And for space weather mission, the Korea Space wEather Monitor (KSEM) on the GK2A observes the space environment with the particle detector, magnetometer and charging monitor.

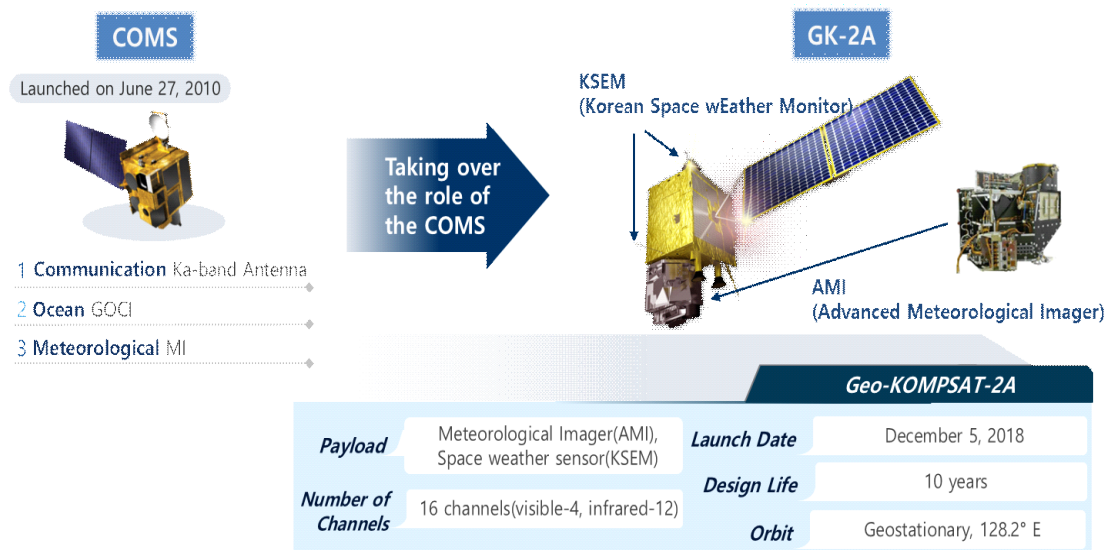


Figure 1-1 Characteristics of GK2A

The GK2A was launched on December 5, 2018 in the Guiana Space Center in South America. The design life of the GK2A is 10 years. During the 8 months in-orbit test period, the capability with multi-band and high temporal and spatial resolution was verified. After the successful IOT, KMA started GK2A's official data service on July 25, 2019. The near real-time and full resolution GK2A AMI data are now available via broadcast by the GK2A as well as on landline Real-time FTP Service (RFS).

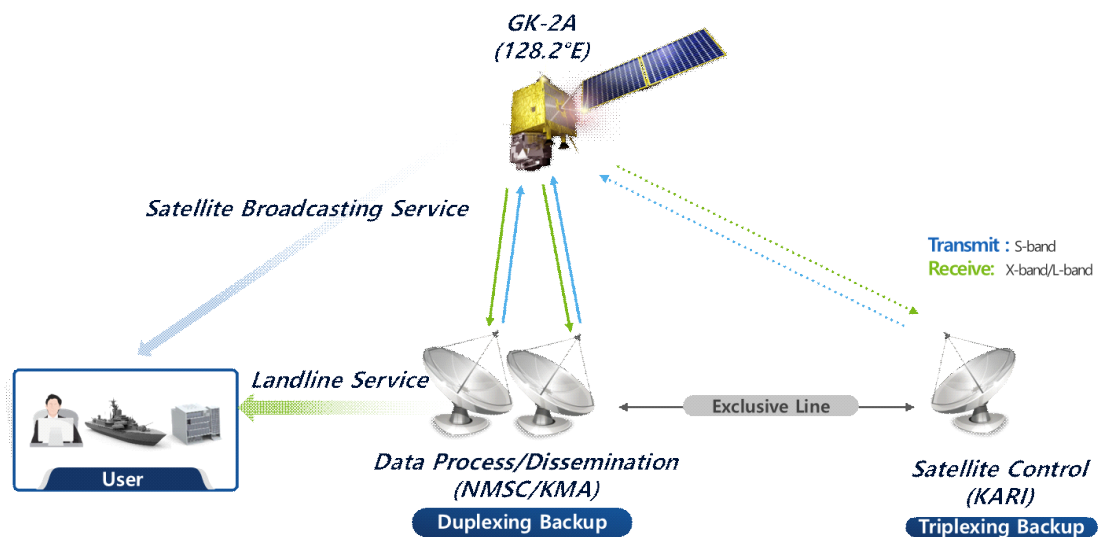


Figure 1-2 GK2A Concepts of Operation

The weather monitoring capability of GK2A is more than four times greater than that of COMS, while the observation interval and number of channels are improved by more than threefold. The satellite is expected to greatly improve the accuracy of precision weather monitoring and weather forecasting, as well as the capability of monitoring and forecasting extreme weather over the Korean Peninsula and the Asia-Pacific region.

The biggest change is that AMI provides RGB color images through channel synthesis, such as true color RGB, air mass RGB, dust RGB, water vapor RGB, and so on. This has strengthened the real-time monitoring function through satellite imagery in the mesoscale meteorological phenomena.

Furthermore, the AMI observations make the 52 derived products generation possible for the monitoring of severe weather phenomena such as typhoon, heavy rain, fog, and Asian dust. The KSEM observes high energy particle flux, magnetic field along three axis, and charge inside the satellite and it also provides 5 types of space weather prediction index, such as the magnetospheric particle flux (MPF), geostationary electron flux prediction (GEP), satellite charging (SC) index, Kp index prediction (KIP), and Dst index prediction (DIP). The GK2A products have been expected to bring effects in various fields, such as improving weather forecast accuracy, safety management, and climate change response systems.

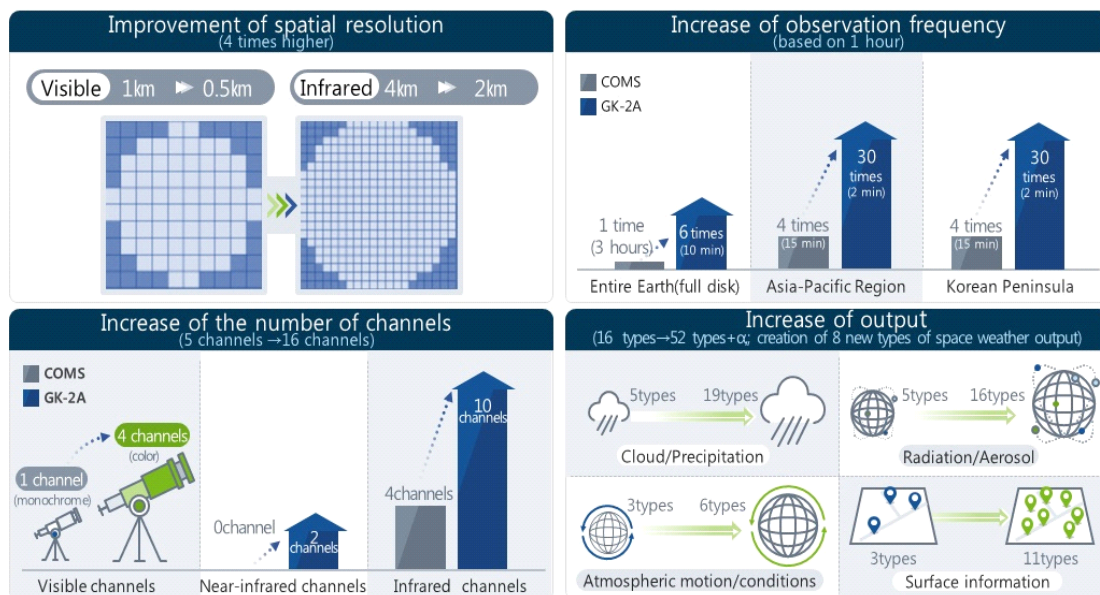


Figure 1-3 Enhancement of the observation function of GK2A compared to COMS