

WNISAT-1R

Sea Ice, Typhoons, Volcanos.
The Latest Data, Straight from Space.



WNISAT-1R (WNISAT-1 Revised) is a 43kg microsatellite mainly aiming at the observation of sea ice in the Arctic polar area. It is the successor and evolution of the WNISAT-1 spacecraft launched in 2013, and was jointly developed by Axelspace and Weathernews. WNISAT-1R will carry out the following three missions:

1. Optical observation of sea ice, typhoons and other environmental phenomena
2. Observation of the Earth's surface with GNSS-R (Global Navigation Satellite System - Reflectometry) technology, using signals of global positioning satellites reflected on the surface
3. Validation of laser communication technology to increase data throughput of future micro-satellite missions

We developed this spacecraft based on the bus technology of Hodoyoshi-1 micro-satellite (launched in 2014). This allows for great performance gains and new capabilities compared to WNISAT-1, while at the same time lowering costs and reducing development time.

The recent climate change has caused a gradual decrease in the amount of ice in the Arctic Sea. Until a few decades ago, navigating in the sea was difficult due to pack ice, but the summer temperatures are now high enough to temporarily allow for ships to transit. These new routes are called "Northern Sea Routes." When considering, for example, cargo shipment between Japan and Europe, these new pathways allow for voyages that are 30% shorter than the traditional ones through the Strait of Malacca and the Suez Canal, and only half as long as those around Cape Point. Using these northern routes means faster shipments, reduced fuel expenses and a smaller impact on the environment. This is why shipping companies are becoming more and more interested in this new option. However, vessels still need safety information to sail there, because infrequent observation makes it difficult to spot dangerous icebergs floating in the sea, even in midsummer. Responding to this situation, Weathernews decided to develop their own satellite together with Axelspace in order to monitor icebergs in the Arctic Sea and to make voyaging in the area safer.

Client	: Weathernews Inc.
Dimensions	: 524 × 524 × 507 mm (Excluding Protrusions)
Mass	: 43Kg
Generated Power	: 55-59 W (Averaged)
Launch Date	: July 14, 2017 3:36:49 PM (Japan Standard Time)
Launch Vehicle	: Soyuz
Orbit	: Sun-Synchronous 600Km Altitude
Current State	: Operational

Corporate Outline

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