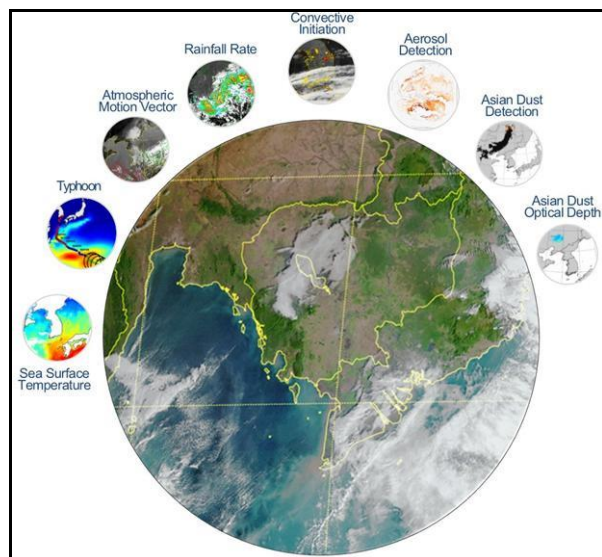


## Support of the GEO-KOMPSAT-2A Receiving and Analysis System in Cambodia



### Project Background

Cambodian has southwest monsoon which causes heavy rainfall during the rainy season from May to November. As a consequence, periodic flood and draught are frequently occurred in the country. Between 1990 and 2016, nine major flood and four major droughts affected the lives of more than 20 million people in Cambodia. It is expected to intensify due to climate change.

As a national meteorological service provider and water resource management authority, Ministry of Water Resources and Meteorology (hereafter MOWRAM) is observing, analyzing and providing weather information to public as well as relevant authorities for disaster risk management and climate-sensitive sectors such as agriculture, water, and energy.

Given that Cambodia has strong climatological needs to adequately respond to natural disasters such as flood and draught and has limit capacity in its meteorological infrastructure as well as human resources, it is clear that technical assistance and capacity building for strengthening meteorological capacity are required.

### Project objectives

The Objective of the Project is to improve responses to natural disasters and reduce damage to residents by building a meteorological satellite, GEO-KOMPSAT-2A (hereafter "GK2A") receiving and analysis system in Cambodia.

#### Project Summary

**Duration:** 2020-2023 (4 years)

**Management Agency**

Korea Meteorological Administration (KMA)

**Implementing Agency**

Korea Meteorological Institute (KMI)

**Beneficiary Agency**

Department of Meteorology (DOM), Ministry of Water Resources and Meteorology (MOWRAM)

**Funding Source:** KMA

**Target Location:** Cambodia (Phnom Penh)

**Project Budget:** 3M USD (estimated)

**Contact**

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## Key activities

- ✓ Investigate the meteorological status and relevant infrastructure on meteorological satellite utilization in Cambodia.
- ✓ Selection of service provider for installation of GK2A receiving and analysis system
- ✓ Installation of GK2A receiving and analysis system
- ✓ Support operation of the system and data analysis through capacity building such as training programs, experts secondment etc.

and warning of natural disaster and to develop the capacity of weather observation instruments in Cambodia. Furthermore, the project will support to deal with natural disaster as well as climate change issues in Cambodia especially in rural areas.”

-H.E. Pohn Sachak, Secretary of State, MOWRAM –

## Implementation status

MoU signing ceremony with KMA, KMI and MOWRAM was conducted through video conference on September 23, 2020. Online training to 13 high level officials of MOWRAM was successfully conducted. Since the preliminary technical investigation was delayed due to COVID-19, KMI conducted site investigation through the written checklist in help with DOM.

## Expected results



GK2A will provide nationwide meteorological information with satellite image in high resolution in high speed of data transfer. It produces 52 types of primary and secondary products such as cloud detection and sea surface temperature, which would be critically used in disaster risk management as well as decision making in many sectors.

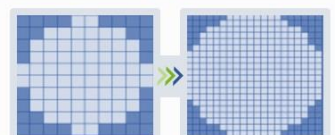
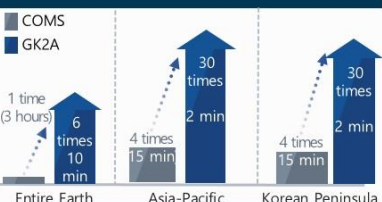
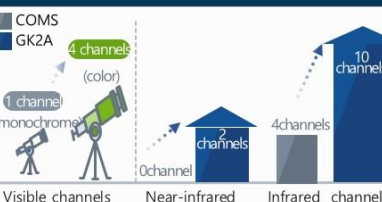
- ✓ Installation of system for GK2A receiving and analysis in real time
- ✓ Improved expertise in satellite observation data utilization and system operation of MOWRAM staffs
- ✓ Pilot system for GK2A data utilization support in climate related sectors

“This project will improve the knowledge, skills and experience of technicians and forecasters to utilizing the Satellite imageries for forecasting

# What is GEO-KOMPSAT-2A Receiving and Analysis System?

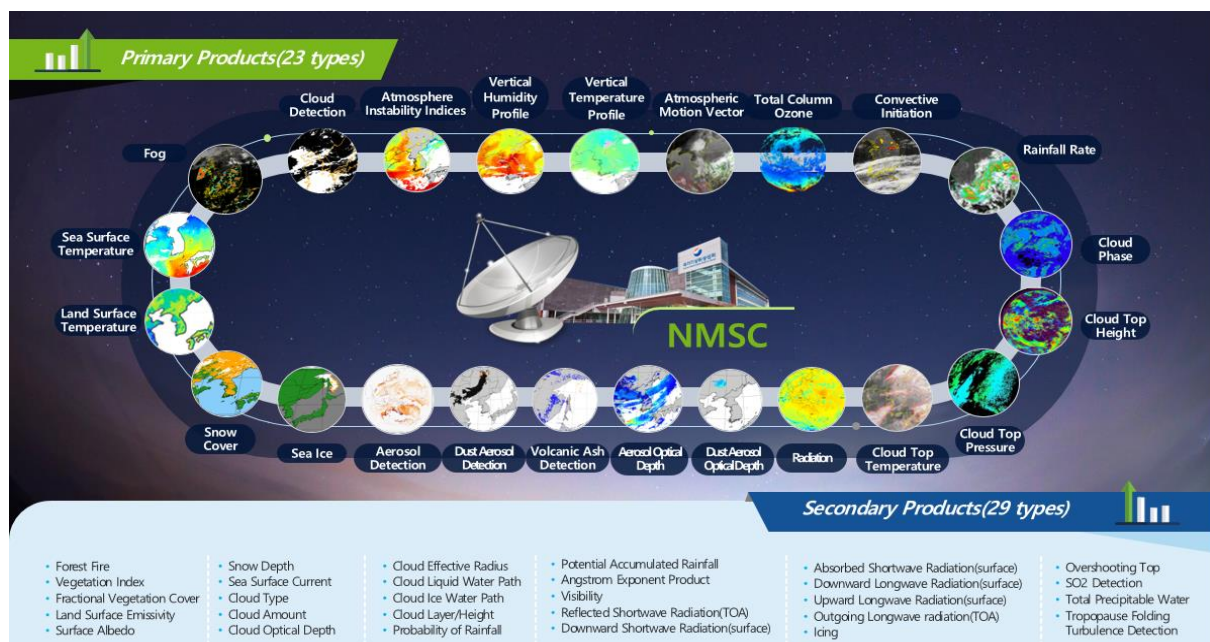
The GK2A Satellite is the next generation geostationary meteorological satellite that takes over the meteorological role of COMS (Communication, Ocean and Meteorological Satellite) and performs meteorological and space weather observation task.

COMS	GK2A Satellite	
Launched in June, 2010  1 Communication Payload 2 Ocean Payload 3 Meteorological Payload	Taking over the role of the COMS  <b>Basic Specification</b>	
	<b>Payload</b> Meteorological payload, space weather payload <b>Weight</b> 2,849kg	<b>No. of Channels</b> 16 channels, 3 types of space weather channels <b>Lifespan</b> 10 years

Improvement of spatial resolution	Increase of observation frequency	Increase of the number of channels
Visible 1km $\gg$ 0.5km    Infrared 4km $\gg$ 2km 		

The GK2A launched on December 5, 2018 is available for diverse observations owing to its 16 channels from previous 5 channel from the first satellite meteorological observation system, COMS.

GK2A is available for observing the entire sectors in 10-minute interval and this makes speedier monitoring of severe weather phenomena for reducing meteorological disaster. In addition, high performance meteorological sensor (AMI) provides more precise observation. In total, 52 types of meteorological products will be made based on this.



**Primary Products (23 types)**

- Fog
- Cloud Detection
- Atmosphere Instability Indices
- Vertical Humidity Profile
- Vertical Temperature Profile
- Atmospheric Motion Vector
- Total Column Ozone
- Convective Initiation
- Rainfall Rate
- Cloud Phase
- Cloud Top Height
- Cloud Top Pressure
- Cloud Top Temperature
- Radiation
- Dust/Aerosol Optical Depth
- Aerosol Optical Depth
- Volcanic Ash Detection
- Dust Aerosol Detection
- Aerosol Detection
- Sea Ice
- Snow Cover
- Land Surface Temperature
- Sea Surface Temperature

**Secondary Products (29 types)**

- Forest Fire
- Vegetation Index
- Fractional Vegetation Cover
- Land Surface Emissivity
- Surface Albedo
- Snow Depth
- Sea Surface Current
- Cloud Type
- Cloud Amount
- Cloud Optical Depth
- Cloud Effective Radius
- Cloud Liquid Water Path
- Cloud Ice Water Path
- Cloud Layer/Height
- Probability of Rainfall
- Potential Accumulated Rainfall
- Angstrom Exponent Product
- Visibility
- Reflected Shortwave Radiation(TOA)
- Downward Shortwave Radiation(surface)
- Absorbed Shortwave Radiation(surface)
- Downward Longwave Radiation(surface)
- Upward Longwave Radiation(surface)
- Outgoing Longwave radiation(TOA)
- Icing
- Overshooting Top
- SO<sub>2</sub> Detection
- Total Precipitable Water
- Tropopause Folding
- Turbulence Detection

<52 types of meteorological products>