Implementation of Integrated Typhoon Monitoring and Forecasting Platform

Project Description

Project overview: Implementation of the Typhoon Operation System (TOS) and the receiving/monitoring system of the GEO-KOMPSAT-2A with the aim of enhancing forecast and monitoring of typhoons, which cause the largest meteorological disasters

Project features: Support of capacity building of the recipient country in responding to meteorological disasters by supplying the typhoon monitoring and forecasting system developed by the Korea Meteorological Administration and the system capable of receiving and analyzing satellite image data of the No.2 weather satellite (GEO-KOMPSAT-2A), which was successfully launched with Korea's own technology in December 2018 and is currently in operation

Project plan

1st year

- Preliminary investigation, project design, education/training, etc

2nd year

- Implementation of the Typhoon Operation System (TOS), education/ training, etc.

3rd year

- Implementation of the GEO-KOMPSAT-2A's receiving/analysis system, education/ training, etc

4th year

- Dispatch of experts, education/training, project evaluation, etc

Purpose

Supporting weather infrastructure and transferring technologies necessary for reducing damages incurred by major meteorological disasters—such as typhoon and heavy rainfall—that are caused by climate change

Estimated Project Duration

4 years

Estimated Budget (Total Operating Expenses)

Approximately USD 3.0 million (grants)

Recipient Country Contribution

Cooperating with project implementation (exemption from customs duties on equipment, customs clearance of equipment, support for administrative procedures, etc.)

Providing office space as well as land for the installation of system and equipment, and securing communications facilities

Assuming operational responsibilities such as securing the personnel as well as budget for maintenance and repair after the establishment of the system

Project Manager

Korea Meteorological Administration: International Cooperation Division,
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Support for the Implementation of the GEO-KOMPSAT-2A's Reception/Analysis System

Project Description

Project overview: Establishment of the receiving and analysis system of GEO-KOMPSAT-2A for monitoring of large-scale meteorological disasters

Project features: Support the recipient country's capabilities in responding to meteorological disasters by supplying the system capable of receiving and analyzing satellite image data of the No.2 weather satellite (GEO-KOMPSAT-2A), which was successfully launched with Korea's own technology in December 2018 and is currently in operation

Project plan

1st year
- Preliminary investigation, project design, education and training, etc.

2nd year
- Implementation (H/W) of the GEO-KOMPSAT-2A's receiving/analysis system, education and training, etc.

3rd year
- Implementation (S/W) of the GEO-KOMPSAT-2A's receiving/analysis system, education and training, etc.

4th year
- Dispatch of experts, education/training, project evaluation, etc.

Purpose

Supporting weather infrastructure and transferring technologies necessary for reducing damages incurred by major meteorological disasters—such as typhoon and heavy rainfall—that are caused by climate change

Estimated Project Duration

4 years

Estimated Budget (Total Operating Expenses)

Approximately 2.5 million (grants)

Existing Project Performance Data

This is a new project.

Note

N/A

Recipient Country Contribution

Cooperating with project implementation (exemption from customs duties on equipment, customs clearance of equipment, support for administrative procedures, etc.)

Providing office space as well as land for the installation of system and equipment, and securing communications facilities

Assuming operational responsibilities such as securing the personnel as well as budget for maintenance and repair after the establishment of the system

Project Manager

Korea Meteorological Administration: International Cooperation Division,
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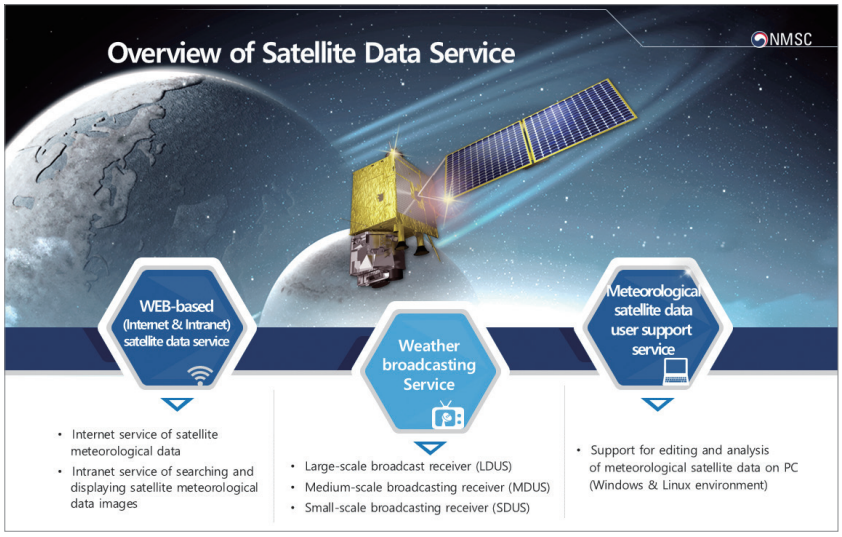
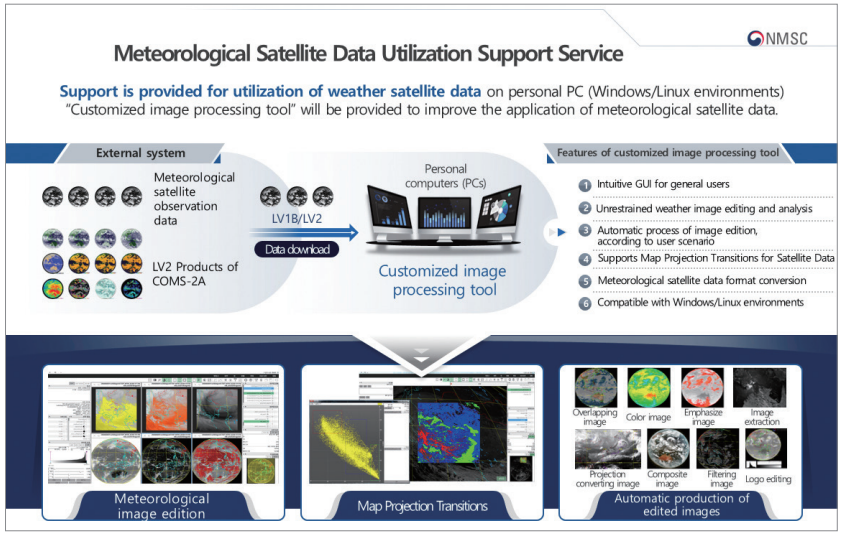
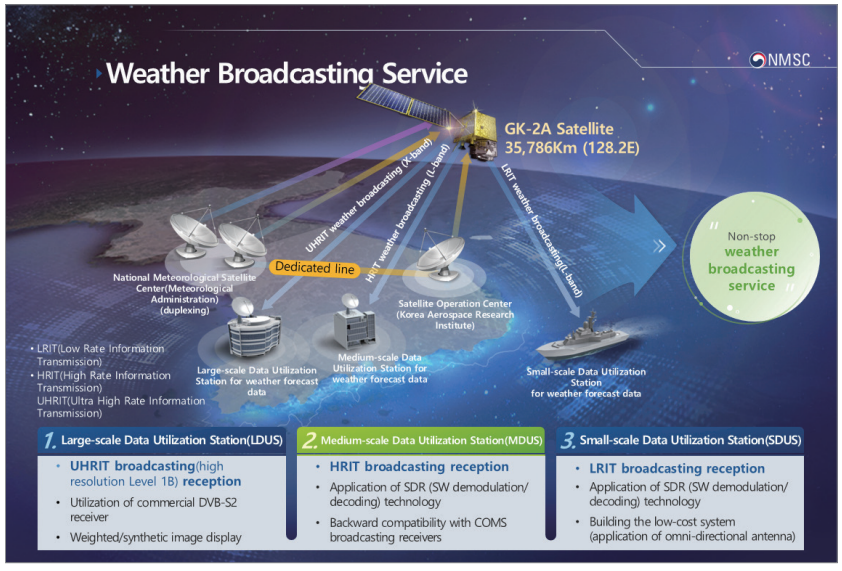

Overview of Satellite Data Service
NMSC
WEB-based (Internet & Intranet) satellite data service
Weather broadcasting Service
Meteorological satellite data user support service
• Internet service of satellite meteorological data
• Intranet service of searching and displaying satellite meteorological data images
• Large-scale broadcast receiver (LDUS)
• Medium-scale broadcasting receiver (MDUS)
• Small-scale broadcasting receiver (SDUS)
• Support for editing and analysis of meteorological satellite data on PC (Windows & Linux environment)


Meteorological Satellite Data Utilization Support Service
NMSC
Support is provided for utilization of weather satellite data on personal PC (Windows/Linux environments)
"Customized image processing tool" will be provided to improve the application of meteorological satellite data.
External system
Meteorological satellite observation data
LV2 Products of COMS-2A
LV1B/LV2
Data download
Personal computers (PCs)
Customized image processing tool
Features of customized image processing tool
1 Intuitive GUI for general users
2 Unrestrained weather image editing and analysis
3 Automatic process of image edition, according to user scenario
4 Supports Map Projection Transitions for Satellite Data
5 Meteorological satellite data format conversion
6 Compatible with Windows/Linux environments
Meteorological image edition
Map Projection Transitions
Overlapping image
Color image
Emphasize image
Image extraction
Projection converting image
Composite image
Filtering image
Logo editing
Automatic production of edited images


Weather Broadcasting Service
NMSC
GK-2A Satellite
35,786Km (128.2E)
UHRIT weather broadcasting (X-band)
HRIT weather broadcasting (L-band)
LRIT weather broadcasting(L-band)
Dedicated line
National Meteorological Satellite Center(Meteorological Administration) (duplexing)
Satellite Operation Center (Korea Aerospace Research Institute)
Non-stop weather broadcasting service
• LRIT(Low Rate Information Transmission)
• HRIT(High Rate Information Transmission)
UHRIT(Ultra High Rate Information Transmission)
Large-scale Data Utilization Station for weather forecast data
Medium-scale Data Utilization Station for weather forecast data
Small-scale Data Utilization Station for weather forecast data
1. Large-scale Data Utilization Station(LDUS)
• UHRIT broadcasting(high resolution Level 1B) reception
• Utilization of commercial DVB-S2 receiver
• Weighted/synthetic image display
2. Medium-scale Data Utilization Station(MDUS)
• HRIT broadcasting reception
• Application of SDR (SW demodulation/decoding) technology
• Backward compatibility with COMS broadcasting receivers
3. Small-scale Data Utilization Station(SDUS)
• LRIT broadcasting reception
• Application of SDR (SW demodulation/decoding) technology
• Building the low-cost system (application of omni-directional antenna)

Implementation of Automatic Meteorological Observation System

Project Description

Project overview: Implementation of an automatic weather observation system in blind areas, collection of observation data, and implementation of a monitoring system

Project features: Support the modernization of weather observation services in the recipient country through the automatic weather observation equipment, which was developed by Korea's own technologies

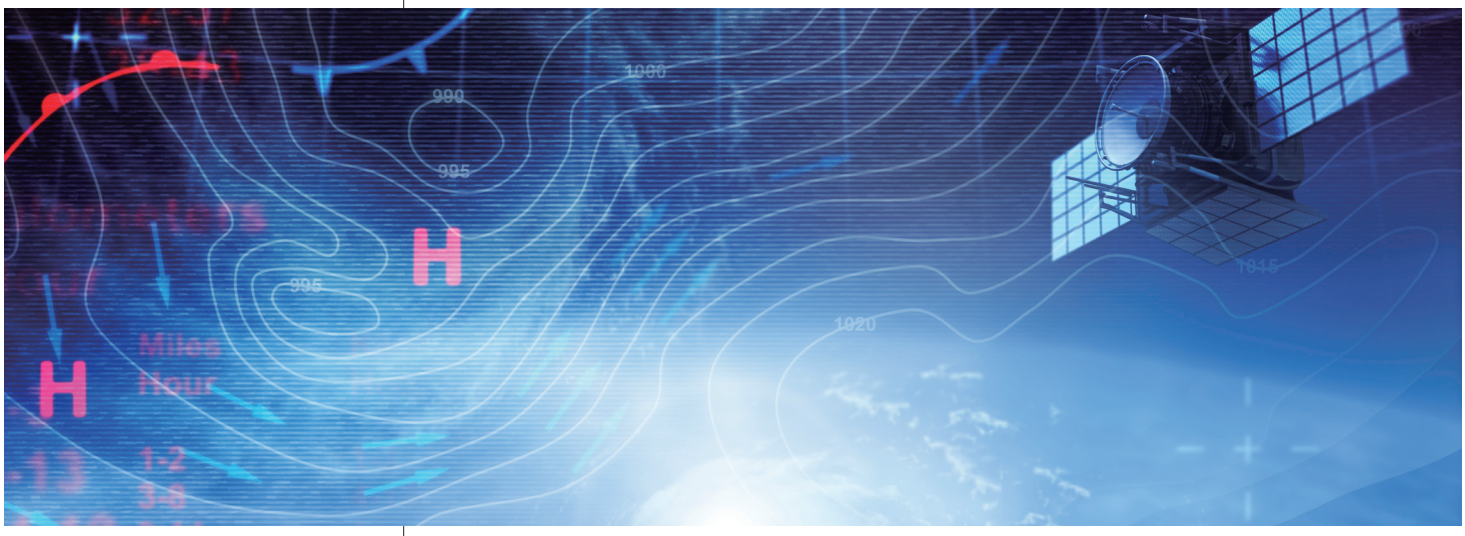
Project plan

1st year
- Preliminary investigation, project design, education and training, etc.

2nd year
- Implementation of the automatic weather observation system, education/training, etc.

3rd year
- Implementation of the system for gathering and analyzing weather observation data, education/training, etc.

4th year
- Dispatch of experts, education/training, project evaluation, etc.



Purpose

Supporting weather infrastructure and transferring technologies necessary for reducing damages incurred by major meteorological disasters—such as typhoon and heavy rainfall—that are caused by climate change

Estimated Project Duration

4 years

Estimated Budget (Total Operating Expenses)

Approximately 2.9 million (grants)

Existing Project Performance Data

We have successfully completed projects supporting weather observation modernization, and our systems are currently in use.

- Vietnam (2014-2016), Myanmar (2017-2019), and Mongolia (2017-2019)
- Installed automated weather systems, collected observation data, implemented monitoring systems, and engaged in capacity building (invitational training, local workshop, dispatch of experts, etc.)

Recipient Country Contribution

Cooperating with project implementation (exemption from customs duties on equipment, customs clearance of equipment, support for administrative procedures, etc.)

Providing office space as well as land for the installation of system and equipment, and securing communications facilities

Assuming operational responsibilities such as securing the personnel as well as budget for maintenance and repair after the establishment of the system

Project Manager

Korea Meteorological Administration: International Cooperation Division,
+82- 2-2181-0375, sungwha@korea.kr