

Introduction of GK-2A LRIT Shipboard Reception System

- What is it and what are its expected benefits?

WOOSUNG PARK



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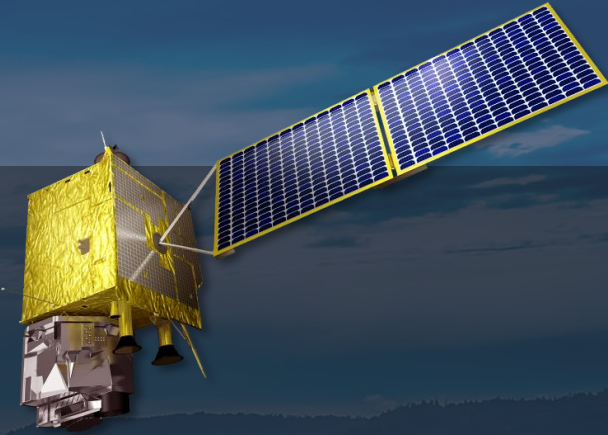
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About SOLETOP



CEO Youngbo Sakong

Year of Founding 1995

Business Areas **Satellite Business Filed**
– Satellite control / Ground test / Ground Station
– Satellite data reception, processing and utilization
– Nano / micro satellite

Aviation Business Field
– Ground control/mission plan·analyze
– Virtual training system

number of employees 131 (doctor 5, master 23)

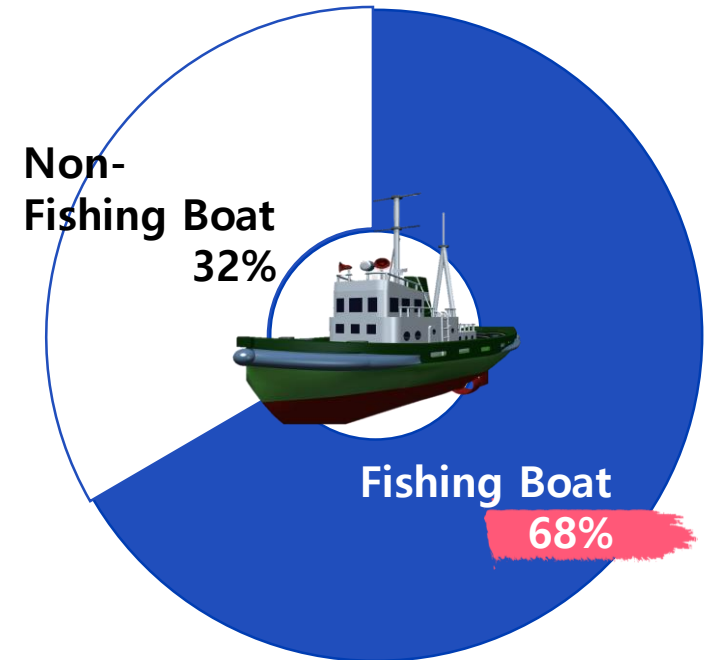
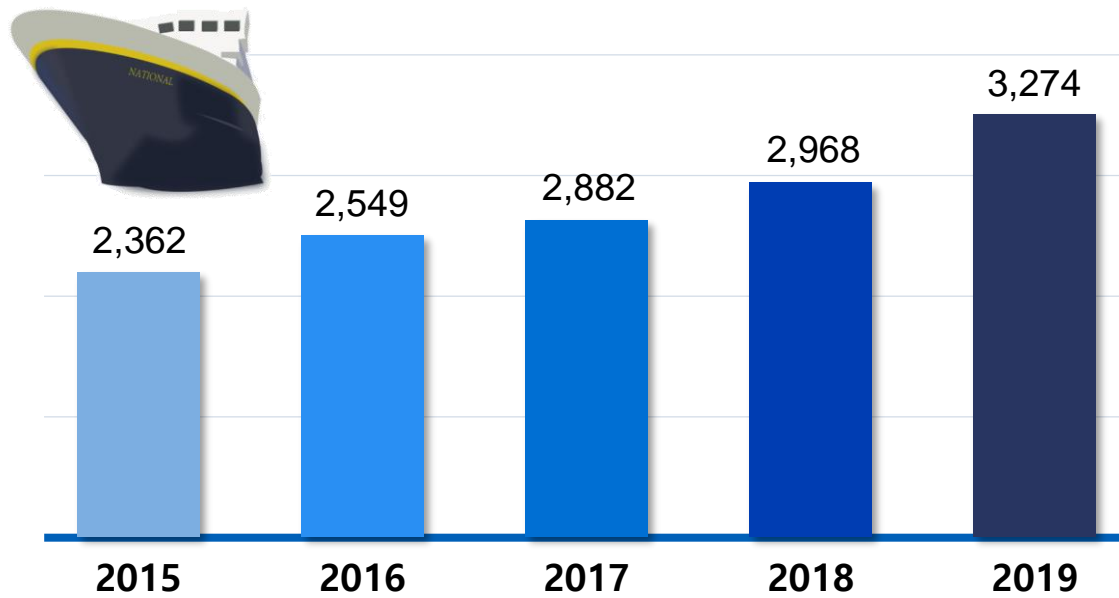
location HQ : Daedeok Research Complex, Daejeon, Korea
US office : United States of America, California

main biography

- Specialized in development and establishment of satellite system (213 cases within the last 15 years)
- Various domestic organization or agencies
 - KMA
 - Minister of National Defenses
- Participated in a number of satellite System Project

1. Background

Marine Accident Statics in Korea

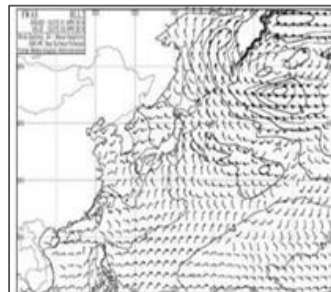


* KOMSA (Korea Maritime Transportation Safety Authority)

2. Advantages

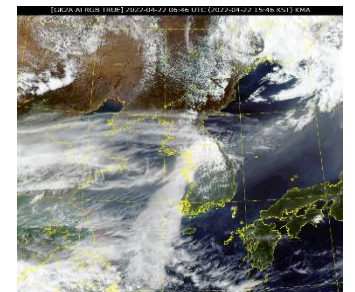
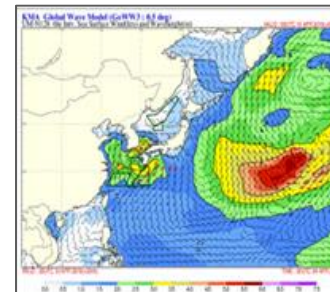
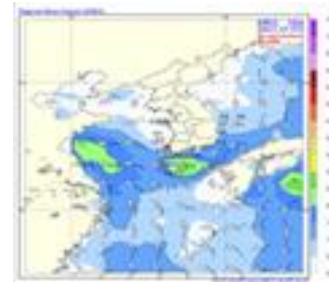
Weather FAX

- 1 Short Wave Communication Transmission Method
 - 3~13MHz band
- 2 Service area up to 740 km offshore
- 3 limited service (image) data
 - with analog type (black-and-white image)
 - 1 image per 10 min

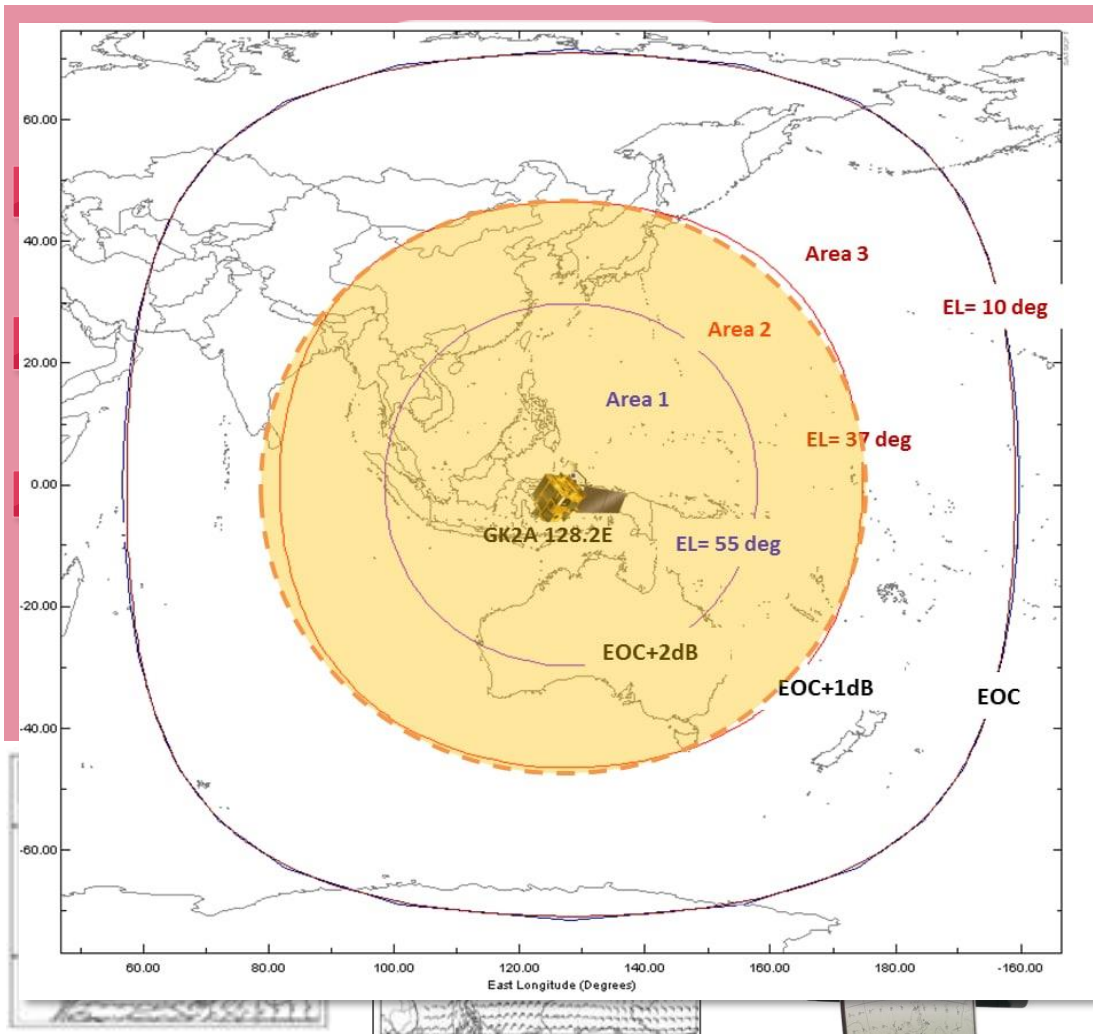


WeatherSAT

- 1 Satellite Communication Transmission Method
 - 1692.14MHz band
 - 2 Service area up to 3,700 km offshore
 - Asia, Oceania and Western Pacific included
 - 3 Various service (audio, text, etc.) data
 - with digital type (color imagery)
 - 10 imagery per every 10 min
- * contents can be expanded in the future

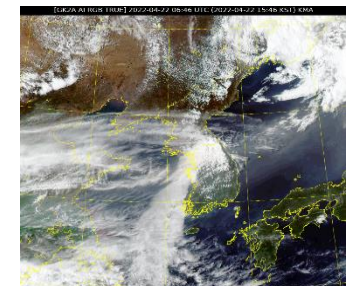
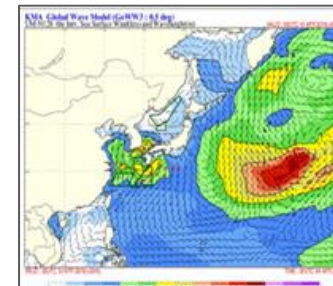
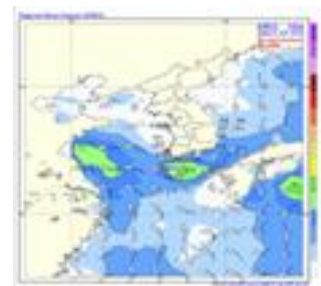


2. Advantages



WeatherSAT

- 1 Satellite Communication Transmission Method**
 - 69GHz band
- 2 Service area up to 3,700 km offshore**
 - Asia, Oceania and Western Pacific included
- 3 Various service (audio, text, etc.) data**
 - with digital type (color imagery)
 - 10 imagery per every 10 min
 - * contents can be expanded in the future



1. GEO-KOMPSAT-2A Overview



* NMSC(National Meteorological Satellite Center)

1. GEO-KOMPSAT-2A Overview

UHRIT

Ultra High-Rate Information Transmission

- Band width : X-band width
- Main Purpose :
Weather forecast and prediction through high resolution/large capacity meteorological data reception such as KMA*

*Korea Meteorological Administration

HRIT

High-Rate Information Transmission

- Band width : L-band width
- Main Purpose :
Weather forecast and prediction by receiving medium resolution meteorological data

LRIT

Low-Rate Information Transmission

- Band width : L-band width
- Main Purpose :
Receive and utilize low resolution /low-capacity weather forecast and disaster information

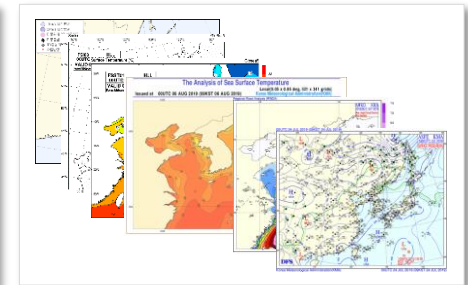
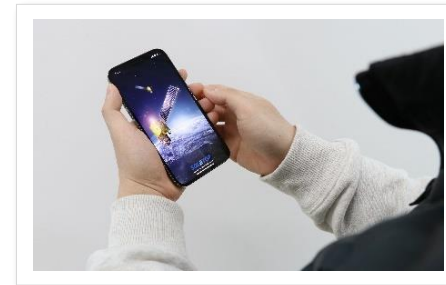


Provides **high-quality digital marine meteorological data** such as marine weather information, ground weather chart, real wave chart, sea wind, and so on.

2. WeatherSAT Overview

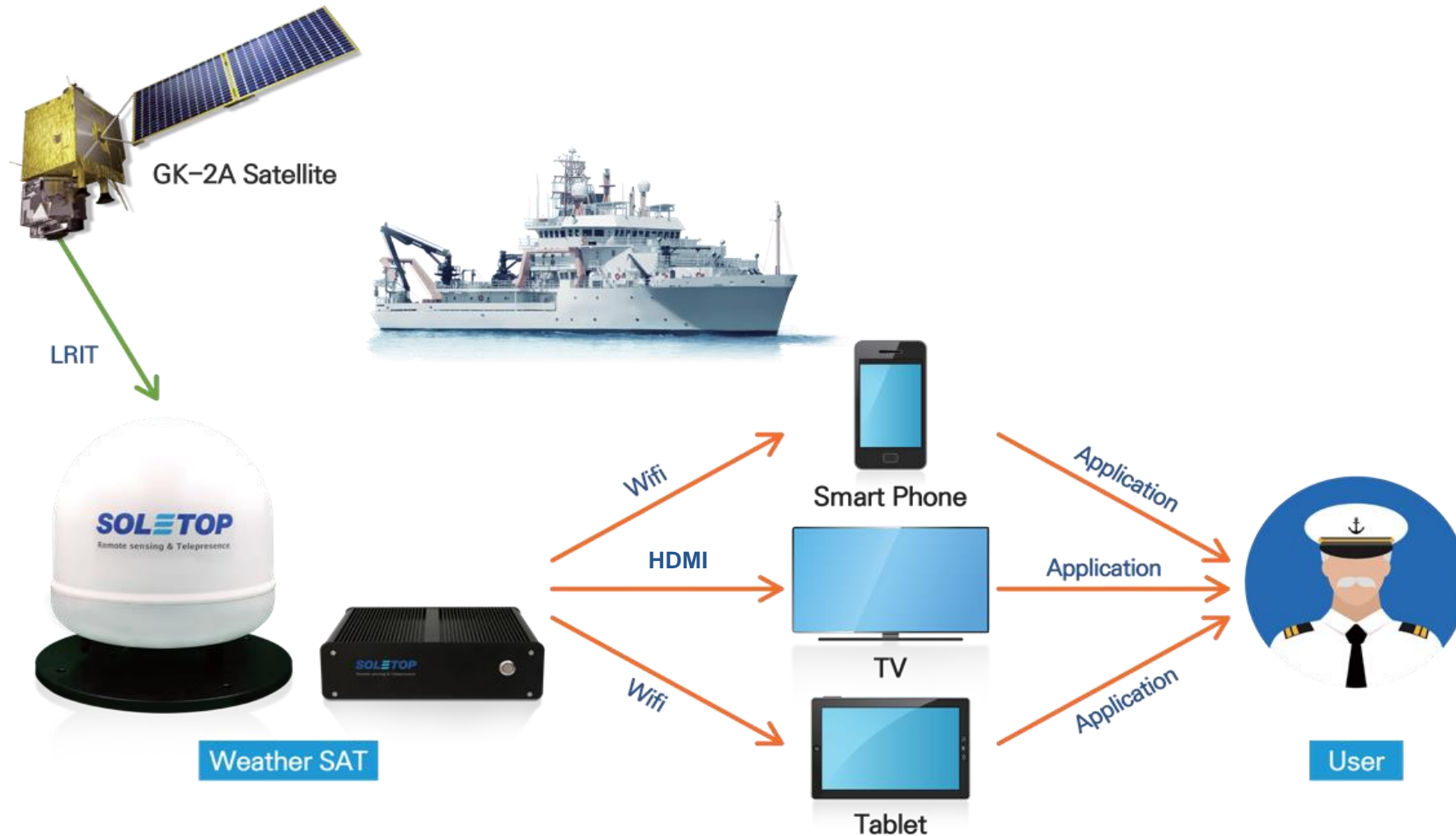
The device provides **marine meteorological and fishery information in real time** for ship or vessels from GK-2A LRIT Broadcasting service

- Receiving these information even in areas where there is no communication network
- Provide weather data image through the monitor or application
- Monitoring the status with latest information



Increase fishery safety by providing ocean and meteorological data to uninterrupted/wide areas

3. System Configuration



4. Product list & Display

Maritime imagery

Global Wave Height Forecast (Model)

Status chart of Real Wave

Status chart of Sea Ice

Forecast SST*(24H/48H/72H)

Forecast East Asia Wave

Forecast sea ice(24H/48H/72H)

Daily Average SST

Weather imagery

East Asia Surface Weather Chart

Upper Level Weather Chart

Surface Analysis Weather Chart

IR105

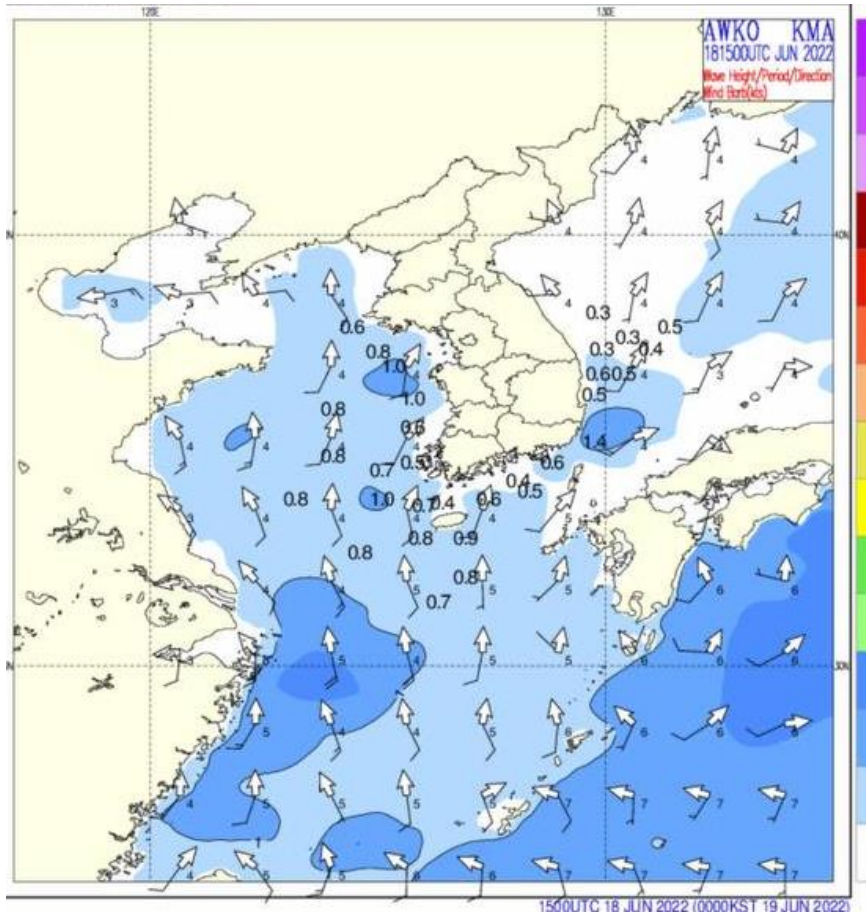
IR105[COMS]

FOG

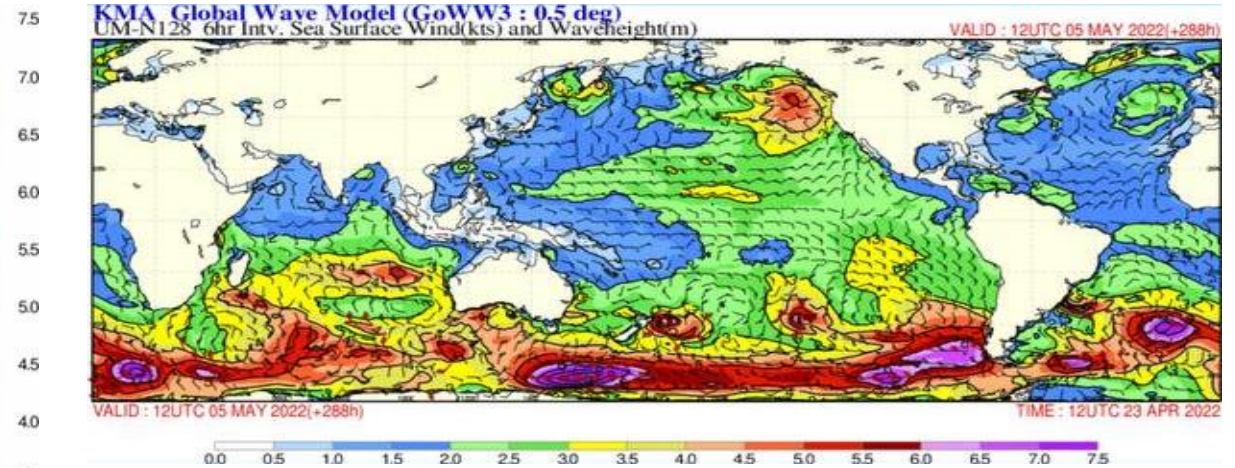
Typhoon Information A / B

* SST : Sea Surface Temperature

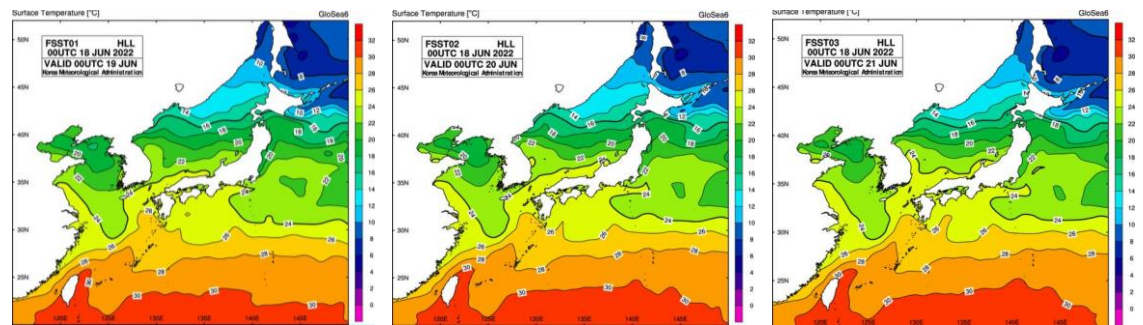
4. Examples of Maritime Imagery Product



〈Regional Wave Analysis〉

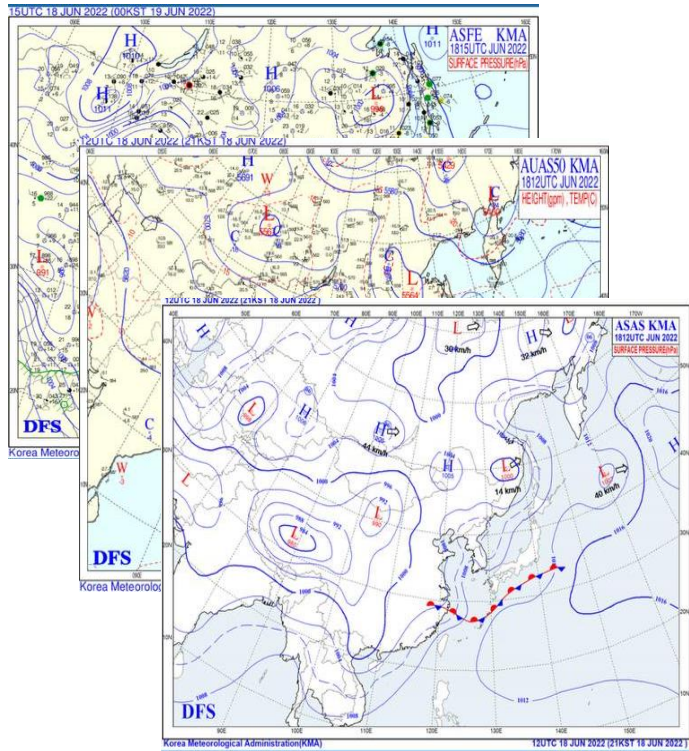


〈Global Wave Model〉

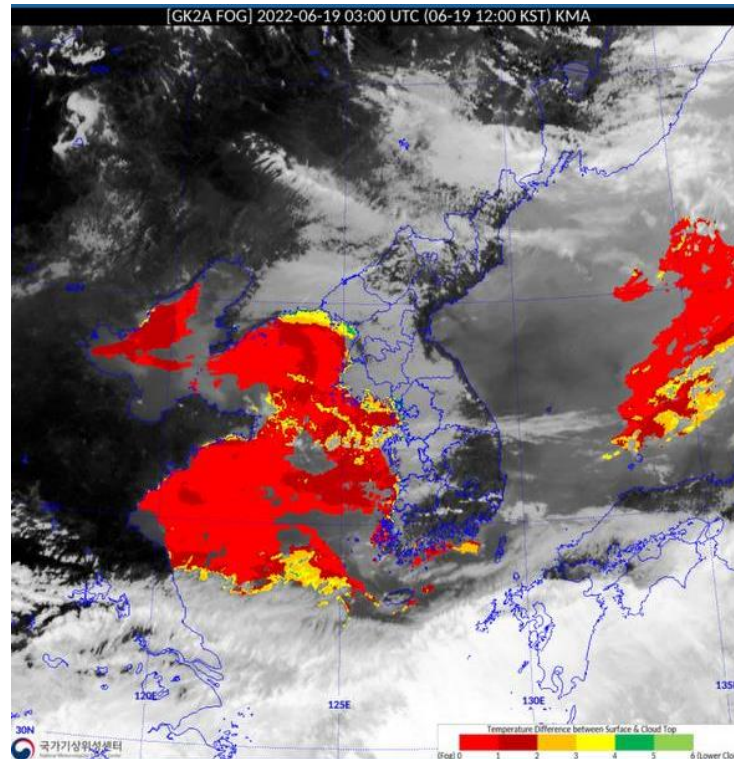


〈Surface Temperature forecast (24h/48h/72h)〉

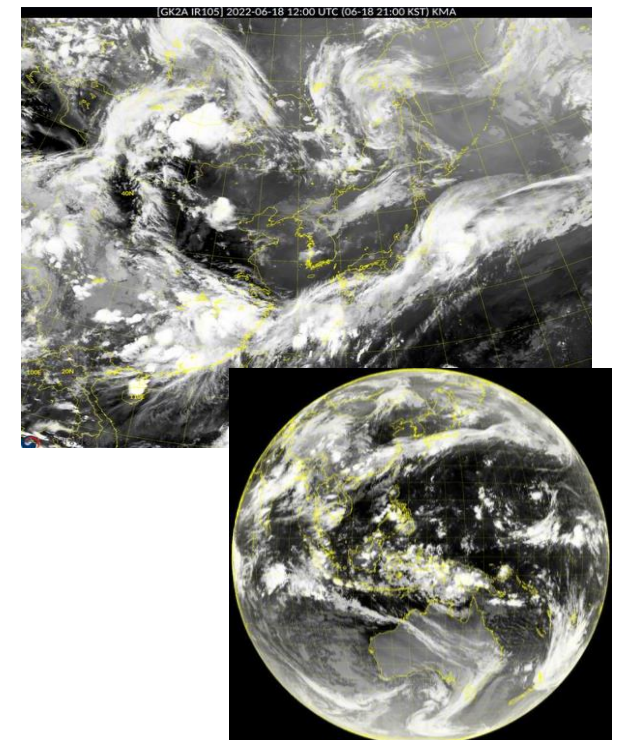
4. Examples of Weather Imagery Product



〈Weather Chart〉



〈FOG〉



〈IR 105〉

4. Product list & Display – S/W for Display

The screenshot displays the WeatherSAT software interface, divided into several functional panels:

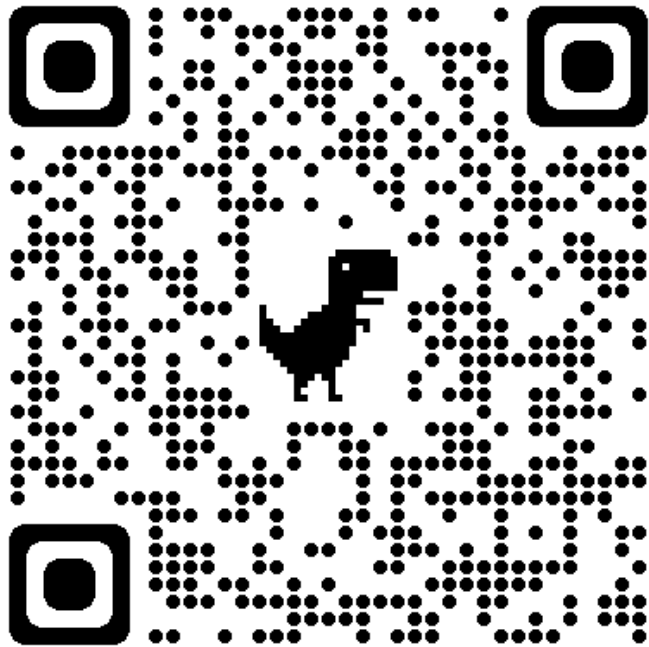
- 수신기 상태 정보 제공 (Receiver Status Information):** Shows receiver status (정상), reception rate (100%), and various control options like COMFOG and automatic update (ON/OFF).
- 해양/기상 산출물 목록 제공 (Ocean/Weather Product List):** A list of available products including:
 - 동아시아 해상 풍파고 예상도
 - 전구파랑 예상도
 - 대중정보A
 - 대중정보B
 - 24시간 보충수온 예상도
 - 48시간 보충수온 예상도
 - 72시간 보충수온 예상도
 - 24시간 해빙 예상도
 - 48시간 해빙 예상도
 - 500hPa 24시간 예상 일기도
 - 500hPa 48시간 예상 일기도
- 산출물 제공 (Product Display):** Displays a map titled "동아시아 파랑예상도" (East Asia Wave Forecast). The map shows wave heights over the East Asian region, with a color scale on the right ranging from 0.0 to 7.5 meters. The map includes the text: "KMA Regional Wave Model (Re WW3; 1/12 deg) UM N1280 Sea Surface Winds (m) and Significant Waveheight (m)". The reception time is noted as 2021-07-09 12:23. The map is valid from 12UTC 08 JUL 2021 to 21KST 08 JUL 2021.
- 기상, 지진/해일 특보 제공 (Weather, Earthquake/Tsunami Special Alerts):** A section indicating that no special alerts are currently available.
- 해양/기상 산출물 대분류 (Ocean/Weather Product Categories):** A grid of icons for categories like 해양 예측 (Ocean Forecast), 위성 영상 (Satellite Imagery), 관측 실태 (Observation Status), and 수신 일정 (Reception Schedule).

4. Product list & Display – Mobile App

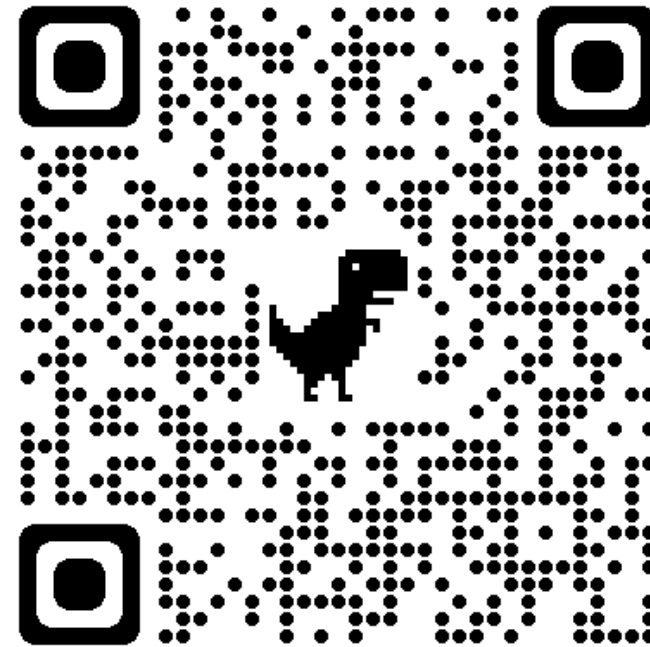


WeatherSAT - 해양기상위성방송

gk2a.suds · Google Play에서 보기



〈WeatherSAT for Android〉



〈WeatherSAT for IOS〉

※ Weather information is displayed only when it is connected with WeatherSAT Receiver

1. Expected effects

DRR

Improving Nature Disaster Management

- ✓ Expected to reduce ship and human accidents occurring in the sea through pre-monitoring of severe weather
- ✓ Provide Weather forecast, disaster texting, and relevant information by individual mobile

ECONOMICAL

Economic Advantages

- ✓ Utilize accurate and advanced marine meteorological services instead of dense observation networks on the sea
- ✓ Regarding the product size, it can be installed even on small fishing boats with a reasonable price
- ✓ Improved the safety and income of fishermen

NEW VALUE

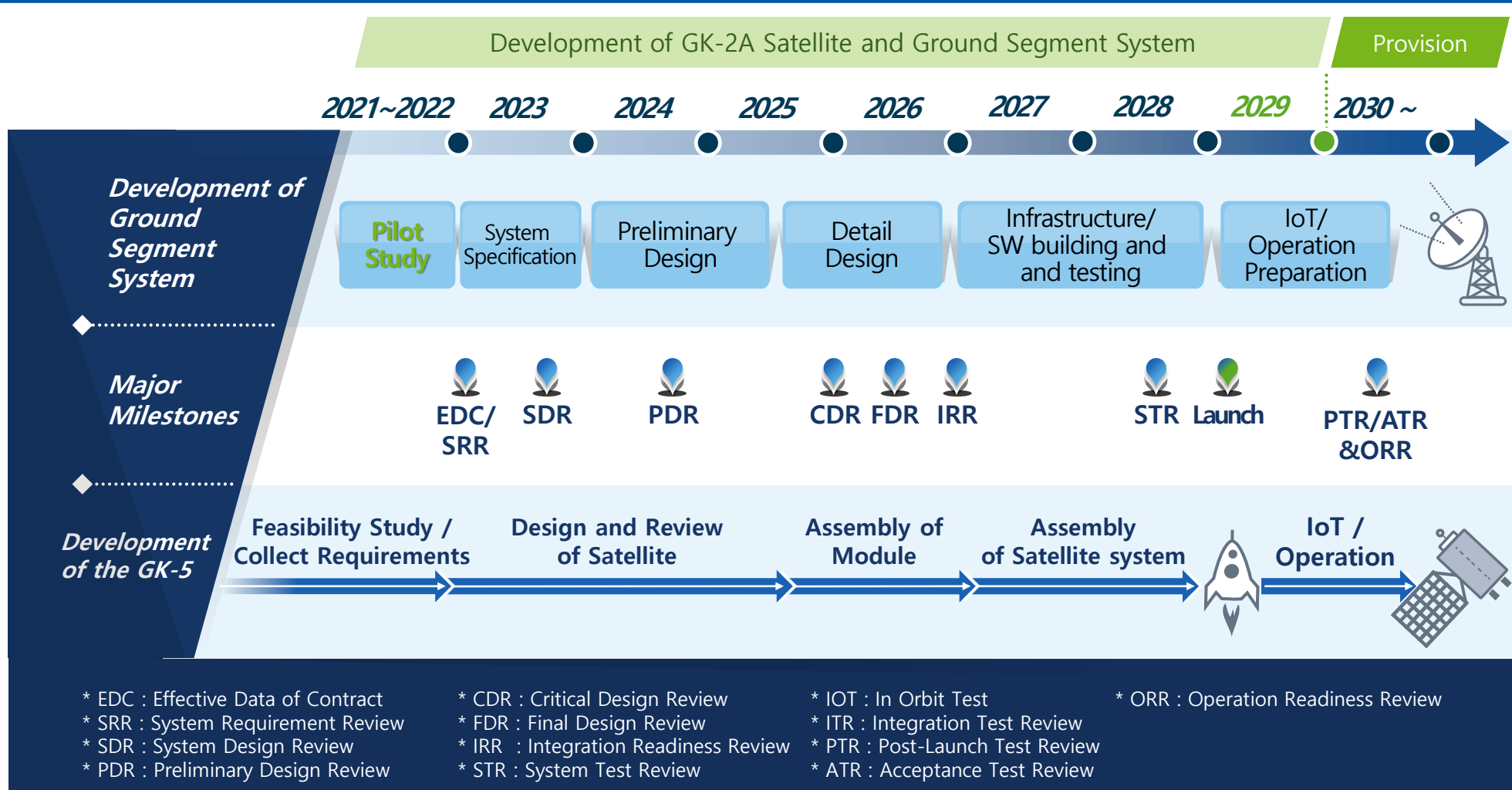
Expand various services

- ✓ Strengthening cooperation with related organizations by providing meteorological/marine output services
- ✓ Create of high value-added convergence Services

Securing marine accident safety through the real-time information

*DRR : Disaster Risk Reduction

2. Development Plan of GK-5



*Reference : GK-5 planning report (2021)



Thank you.
Created the **future value**
with **technology** and **humanity** !

SOLETOP

Q&A



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