



# Operation & Application of Korea's Earth Observation Satellite

9<sup>th</sup> GEWEX Open Science Conference

Dr. Sun-Gu Lee (Korea Aerospace Research Institute)



# I Introduction of Korea Aerospace Administration(KASA)

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# II EO Satellite Operation

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# III EO Satellite Image Distribution & Application

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# IV Conclusion

# Introduction of Korea Aerospace Administration(KASA)

**KASA** as  
Center of Korea's  
AeroSpace Sector  
since May 27, 2024



Korea AeroSpace  
Administration



## Mission

Accelerating economic growth and space technology  
innovation by fostering aerospace industry as a key  
national industry

National  
Aerospace  
policy

R&D for  
core space  
technology

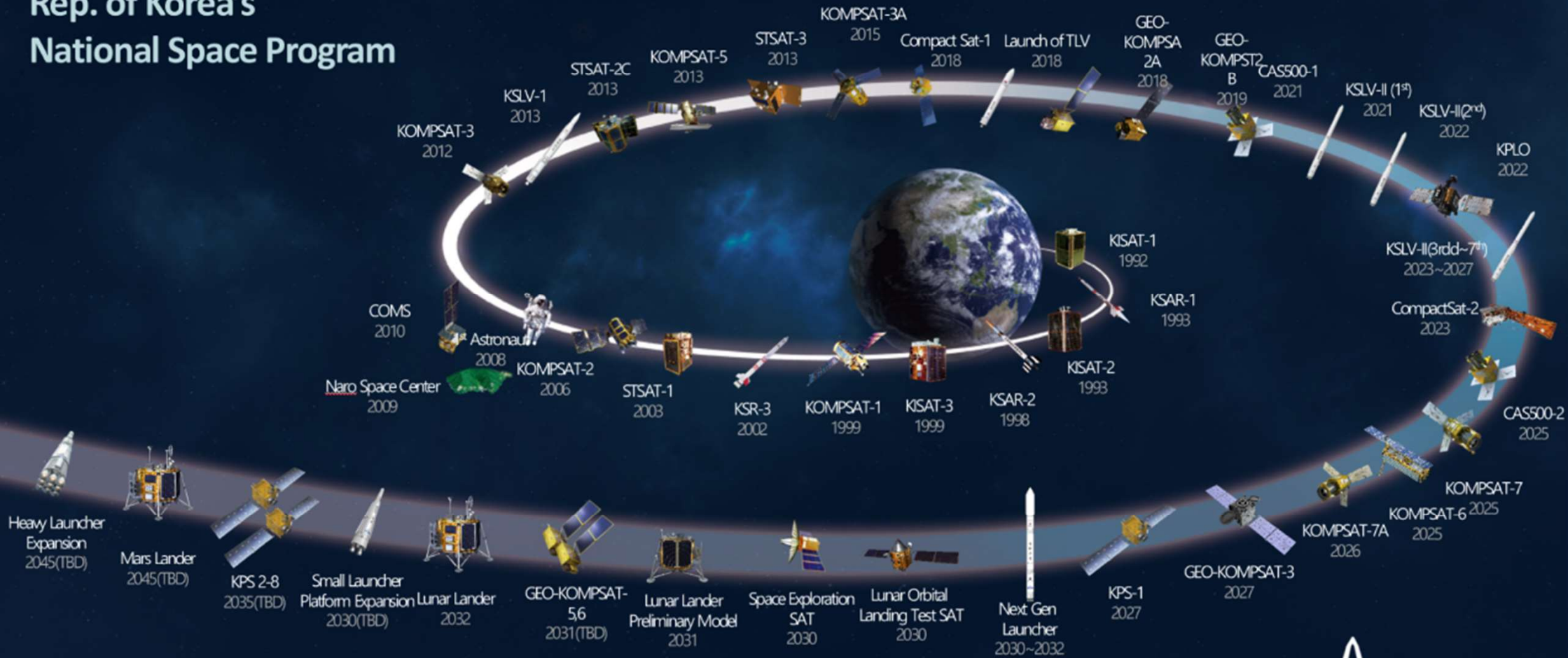
International  
cooperation

Aerospace  
Industry  
promotion

**KARI is an affiliated research institution of KASA**

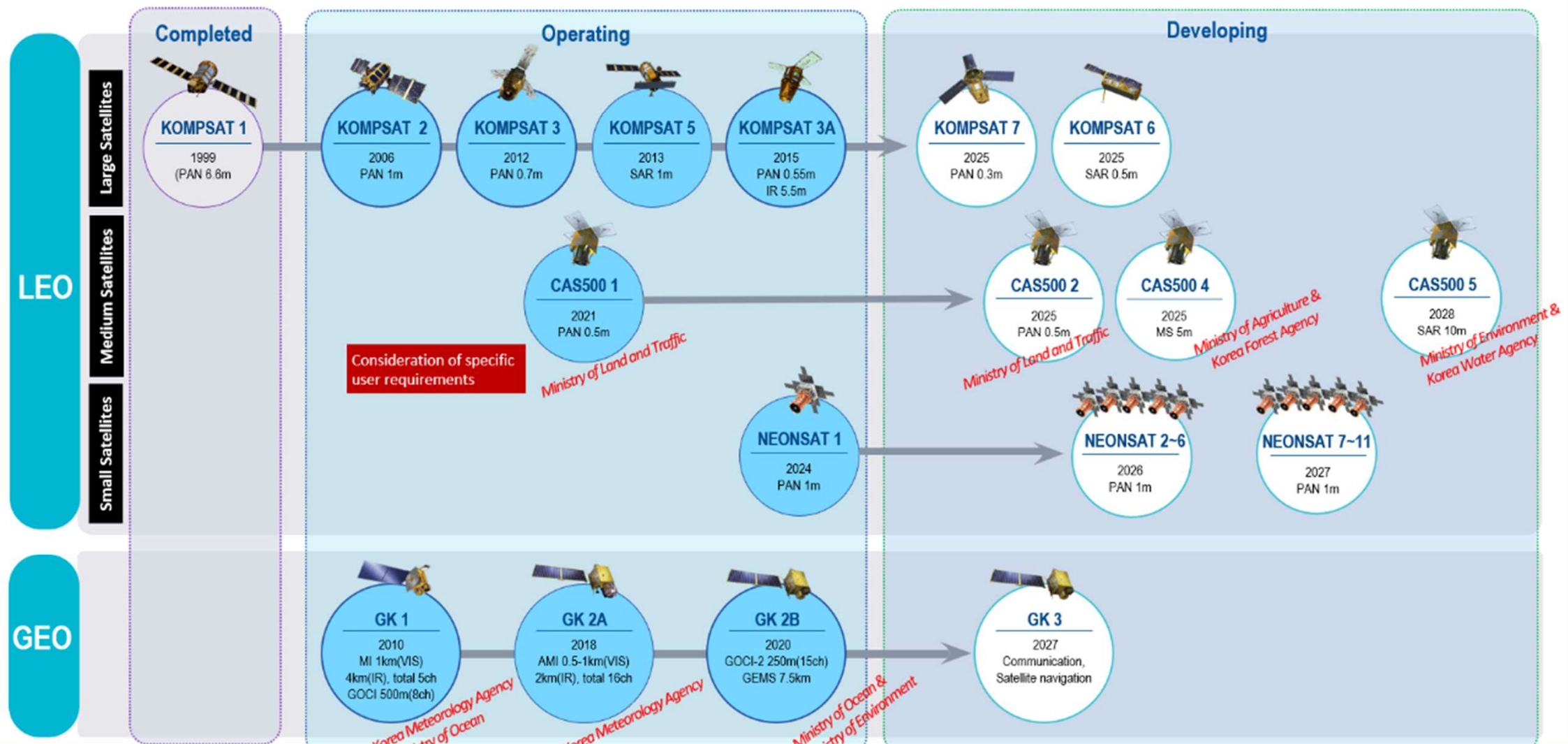


# Rep. of Korea's National Space Program

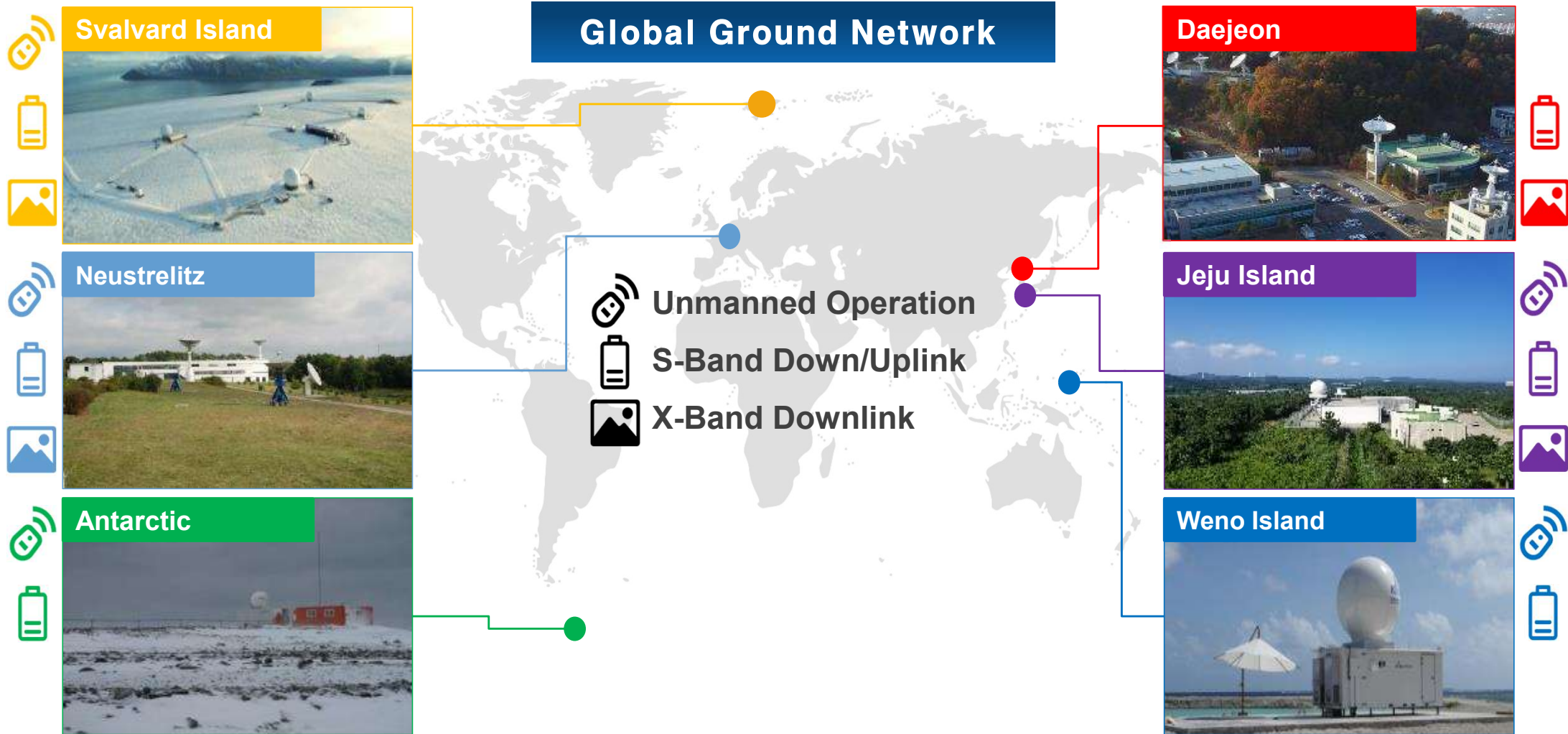


Rep. of Korea's National Space Program (Space Development Promotion Plan, 2023)

# National Satellite Development Program



# Ground System & Infrastructure for the Satellite Operation



# National EO Satellite Operation and Application



Korea AeroSpace Administration

## National Satellite Operation Center

- Satellites attitude and orbit control and operations
- Domestic and International ground segment operations

### Jeju, Korea

Antarctic King Sejong Station  
Weno, Micronesia

### Daejeon, Korea

Svalbard, Norway  
Neustrelitz, Germany

- Satellite imagery data processing and distribution
- International cooperation (e.g. Int'l Charter on Space and Major Disasters, GEO)
- Space situation and object monitoring

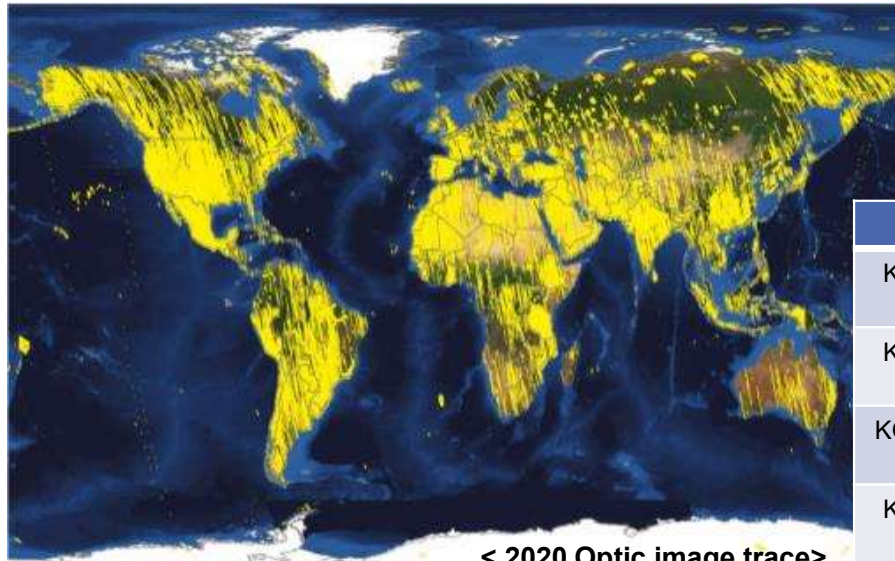


## National Satellite Application Support Center

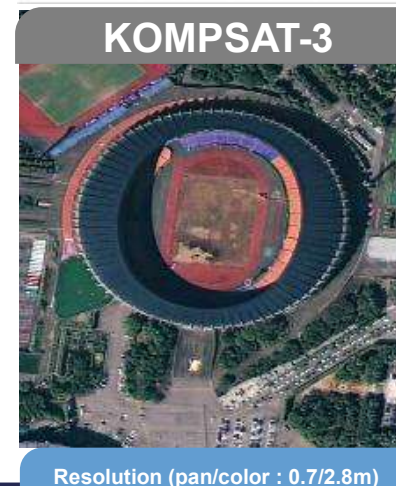
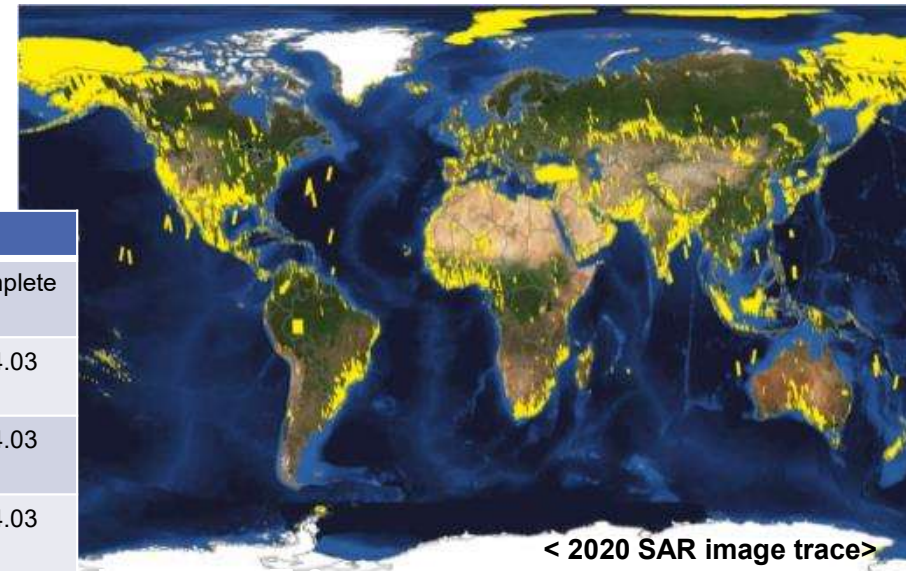
- R&D in Earth observation applications
- R&D in AI-based geospatial Intelligence
- Industry advocacy
- National and international cooperation support for government



# KOMPSAT Satellites Image Acquisition

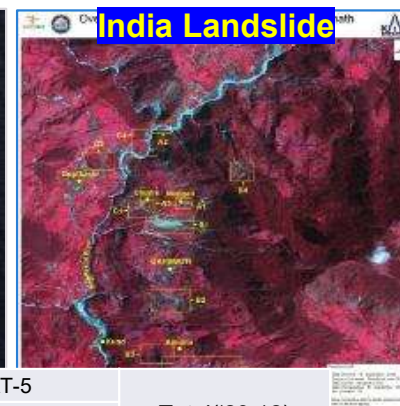
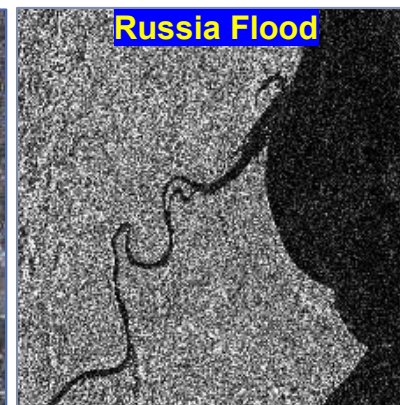
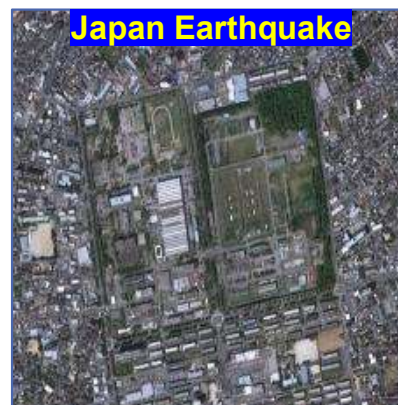


Satellite	Scene	
KOMPSAT2 ('06.7.28)	3,805,307 (15kmx15km)	Complete
KOMPSAT3 ('12.5.18)	2,533,494 (16kmx16km)	'24.03
KOMPSAT3A ('15.3.26)	1,247,244 (13kmx13km)	'24.03
KOMPSAT5 ('13.8.22)	462,173 (HR,ST,WS)	'24.03





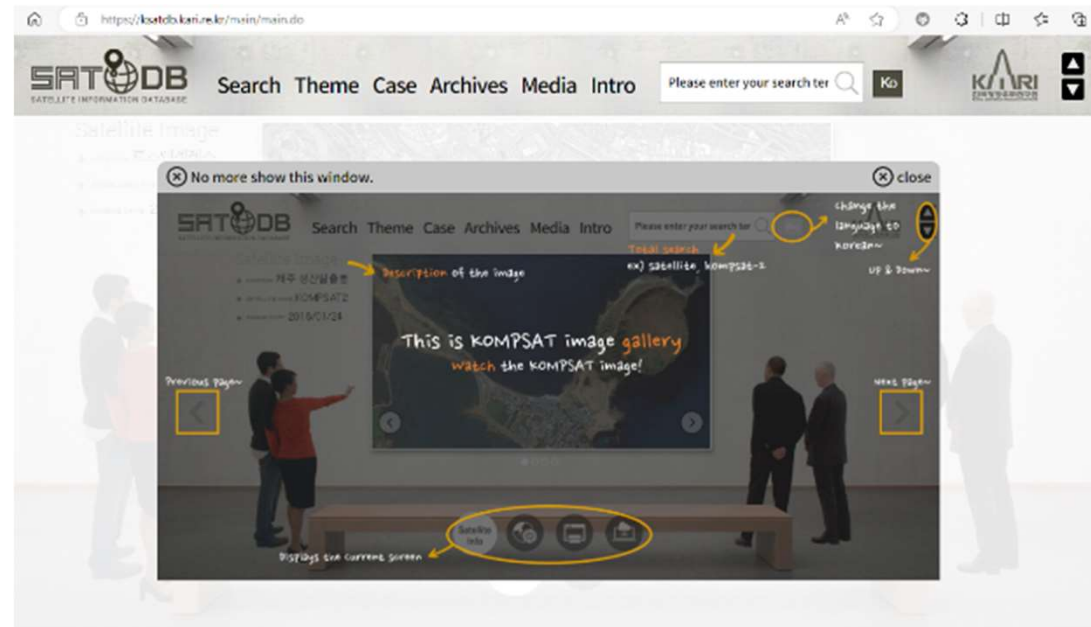
## Korea has been contributed to International Cooperation for Disasters Support: 'International Charter on Space and Major Disaster'



- KARI is one of the 17 International Charter member as an affiliated organization of KASA(Korea Aerospace Administration).
- KOMPSAT image has been provided over 6,000 images since 2010.

	KOMPSAT-2		KOMPSAT-3		KOMPSAT-3A		KOMPSAT-5		Total('23.12)
	Archiving	New Tasking	Archiving	New Tasking	Archiving	New Tasking	Archiving	New Tasking	
Total	189	351	397	1293	151	402	533	2803	6119
	540		1690		553		3336		

# Applications and Search for KOMPSAT image

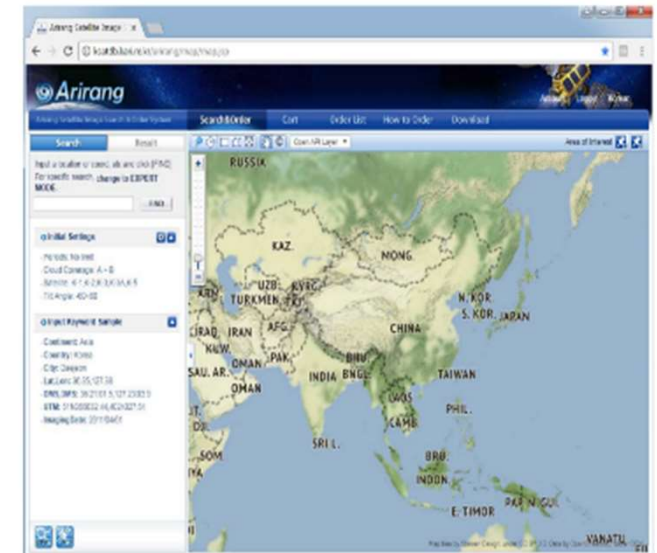


Usage examples....In a variety of fields, and are taking advantage of satellite images! View All

<p><b>GIS (179)</b></p> <p>Development of Multi-Strip Image Mosaicking for</p>	<p><b>OCEAN (99)</b></p> <p>The Impact of GCP Chip Distribution on Kompsat-</p>	<p><b>LAND (152)</b></p> <p>KOMPSAT-3 광학 영상과 KOMPSAT-5 SAR 영상정보를</p>	<p><b>DISASTER (172)</b></p> <p>Flood in Uruguay</p>	<p><b>ENVIRONMENT (125)</b></p> <p>KOMPSAT-3/3A 영상으로부터 담겨진 모래를 활용한 굴착</p>
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## Online website to search KOMPSAT archive image

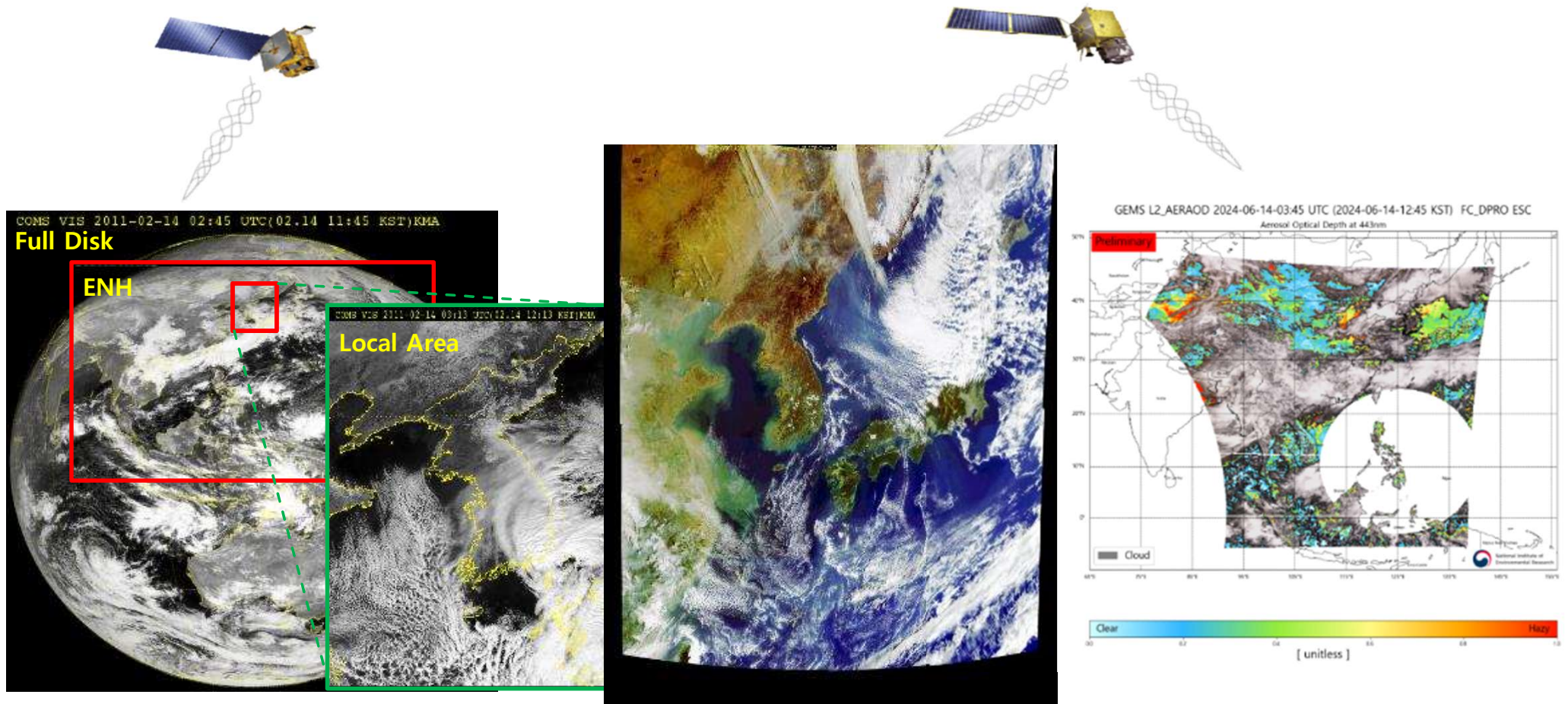
- Developed by KARI
- Operated by SIIS



## <http://ksatdb.kari.re.kr/arirang/map/map.jsp>

KARI is distributing to government, public and commercial users.

# Image Acquisition of GK2A and GK2B

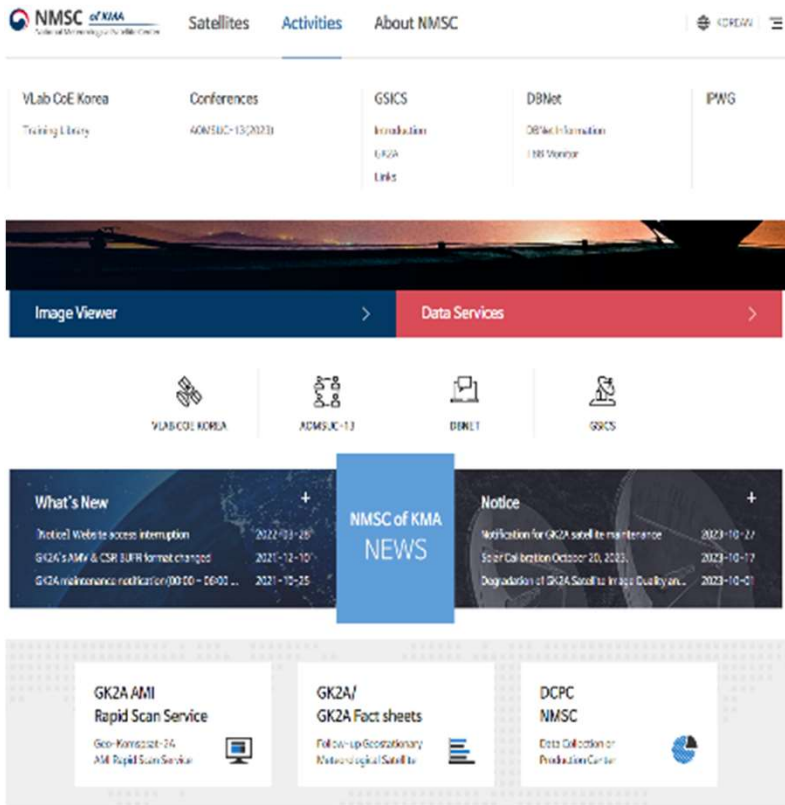


GK2A AMI(left),

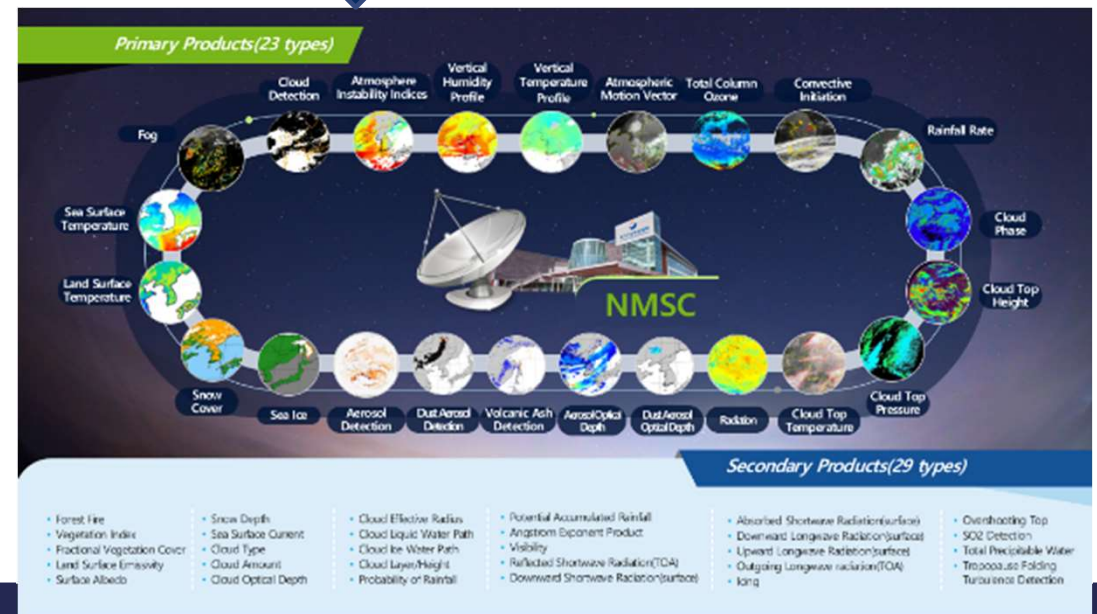
GK2B GOSI(medium),

GK2B GEMS(right)

# GK2A Service(AMI : Meteorology Monitoring, National Meteorological Center)

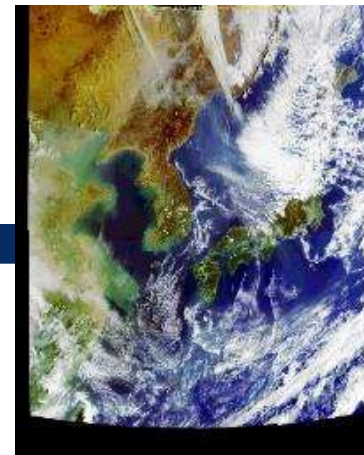


Primary Products: 23 types including Cloud Detection etc.



# GK2B Service (GOSI : Ocean Monitoring, Korea Ocean Satellite Center)

The screenshot shows the KOSI website with a search bar at the top. The main navigation includes 'Ocean Observation Satellite', 'Satellite Image Service', 'Data Analysis Tools', 'Research', and 'Korea Ocean Satellite Center'. A large satellite image of the Korean peninsula is displayed with a text box for the 'KOREA OCEAN SATELLITE CENTER'. Below the image, there are service details for GOCI, GOCI-II, ANRR, VRS, VICO/SANQU, and VICO/SIBRU. The 'Satellite Image Service' section includes icons for GOCI, GOCI-II, and Ocean Satellite. The 'Research' section features a 'Research List' and 'Major Research Results'.

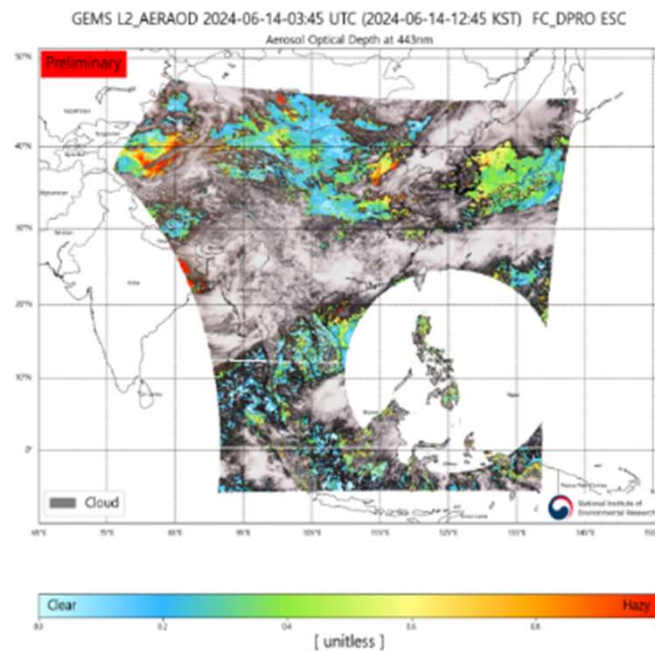


Primary Products: 26 types including Aerosol Optical Depth, Aerosol Type, Chlorophyll-a Concentration etc.

No.	Product	Product Code	Category	Temporal Resolution
1	Rayleigh-corrected reflectance	Rhoc	AC	60 min
2	Remote Sensing Reflectance	Rrs	AC	60 min
3	absorption coefficient	a	IOP	60 min
4	backscattering coefficient	bb	IOP	60 min
5	Aerosol Optical Depth	AOD	AERO	60 min
6	Aerosol Type	AT	AERO	60 min
7	Aerosol Type Number 1 (yellow dust)	AT_NO.1	AERO	60 min
8	diffuse attenuation coefficient	Kd	OC	60 min
9	Secchi disk depth	Zsd	OC	60 min
10	Chlorophyll-a concentration	Chl	OC	60 min
11	absorption of Colored Dissolved Organic Matter	CDOM	OC	60 min
12	Total Suspended Sediments concentration	TSS	OC	60 min
13	Floating Algae	FA	OCEAN	60 min
14	Primary Production	PP	OCEAN	60 min
15	Chlorophyll(a) Front	CF	OCEAN	60 min
16	Sea Surface Current	SSC	OCEAN	60 min
17	Low Sea Surface Salinity	LSSS	OCEAN	60 min
18	Sea Ice	SI	OCEAN	60 min
19	Red tide Index	RI	OCEAN	60 min
20	Fishing Ground Index	FGI	OCEAN	60 min
21	Marine Fog	MF	OCEAN	60 min
22	Land Surface Reflectance	SRL	LAND	60 min
23	Land Surface Narrow-band Albedo Land Surface Broadband Albedo	LSAN LSAB	LAND	1 day
24	Normalized Difference Vegetation Index	NDVI	LAND	1 day
25	Enhanced Vegetation Index	EVI	LAND	1 day
26	Land Cover			

# GK2B Service (GEMS : Environment Monitoring, National Institute of Environmental Research)

20 types products including No2, So2 etc.



- AEH
- Aerosol
- Cloud
- NO2
- O3P
- O3T
- SFC
- SO2
- UVI
- VOC

## Conclusion

- With its low-orbit and geostationary satellites, Korea has gained comprehensive monitoring capabilities, enhancing the ability to effectively respond to both local and widespread environmental changes and natural disasters.
- Additionally, we will continue to promote international cooperation by participating in disaster and space cooperation programs such as the 'International Charter.
- The establishment of the Korea AeroSpace Administration(KASA) is expected to expand investment in space and further advance the development of satellites for various purposes.



우주항공청  
Korea AeroSpace Administration



Thank you for your attention