

Korea Space Science Highlights



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01

KASI Overview

HISTORY

Established
as the Korean
National Astronomy
Observatory (KAO)

Sep. 1974

Inaugurated Taeduk
Radio Astronomy
Observatory
(TRAO)

Feb. 1985

Sep. 1978
Inaugurated
Sobaeksan Optical
Astronomy
Observatory
(SOAO)

Apr. 1996
Inaugurated
Bohyunsan
Optical Astronomy
Observatory
(BOAO)

Inaugurated
Korean VLBI
Network
(KVN)

Nov. 2008

Jan. 2009
Participated in
international
joint development of Giant
Magellan Telescope
(GMT)

Established East
Asian VLBI
Research Center

Sep. 2012

Jan. 2015
Designated
as National Space
Situational Awareness
Organization
(NSSAO)

Inaugurated observatories
for Korea Microlensing
Telescope Network
(KMTNet)

Oct. 2015

Aug. 2016
Established
Optical Wide
Field Patrol Network
(OWL-Net)

Finished
SNIPE
NANO Sat.

Aug. 2022



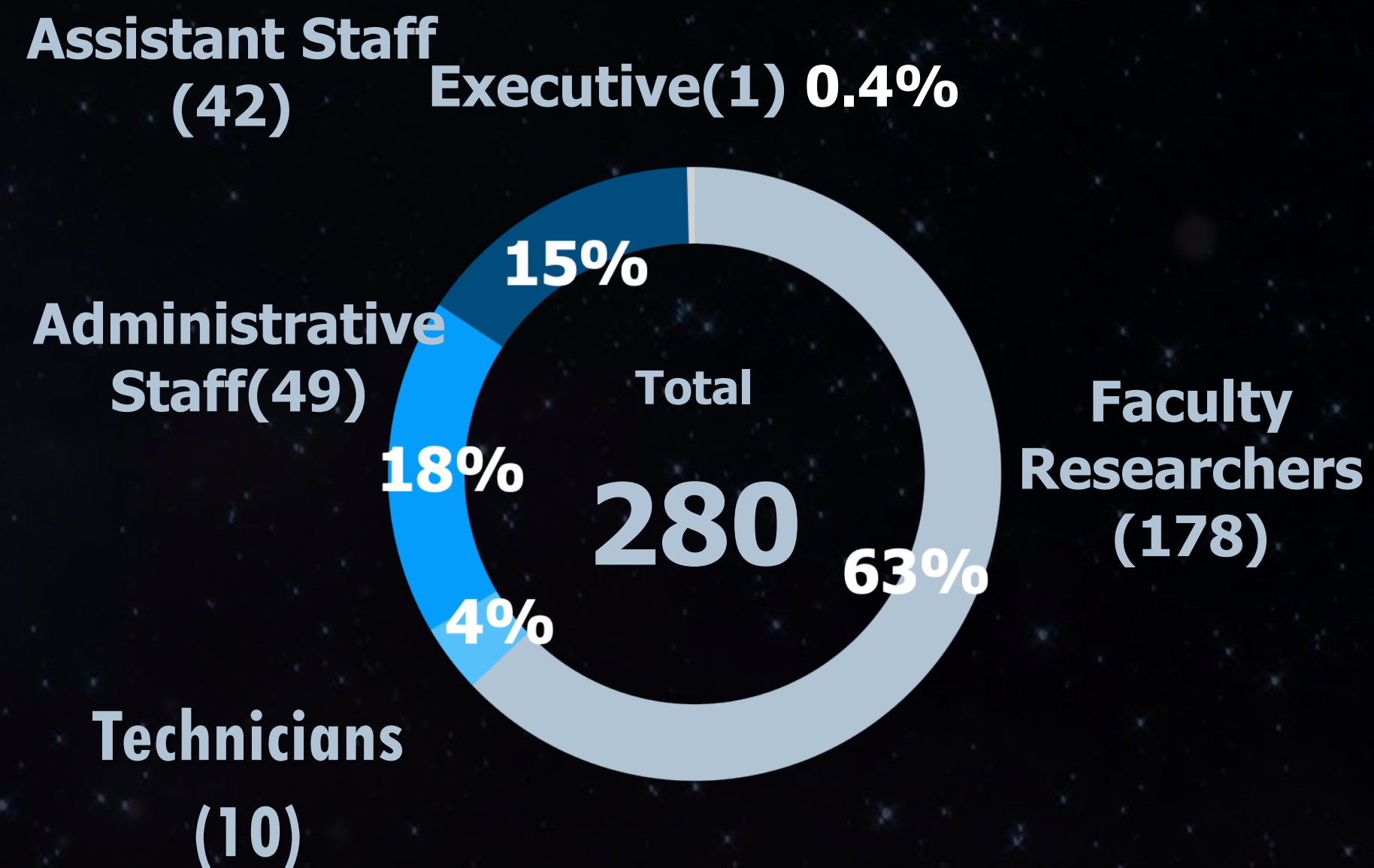
Korea Astronomy and Space Science Institute

Personnel & Budget

Personnel

(permanent positions)

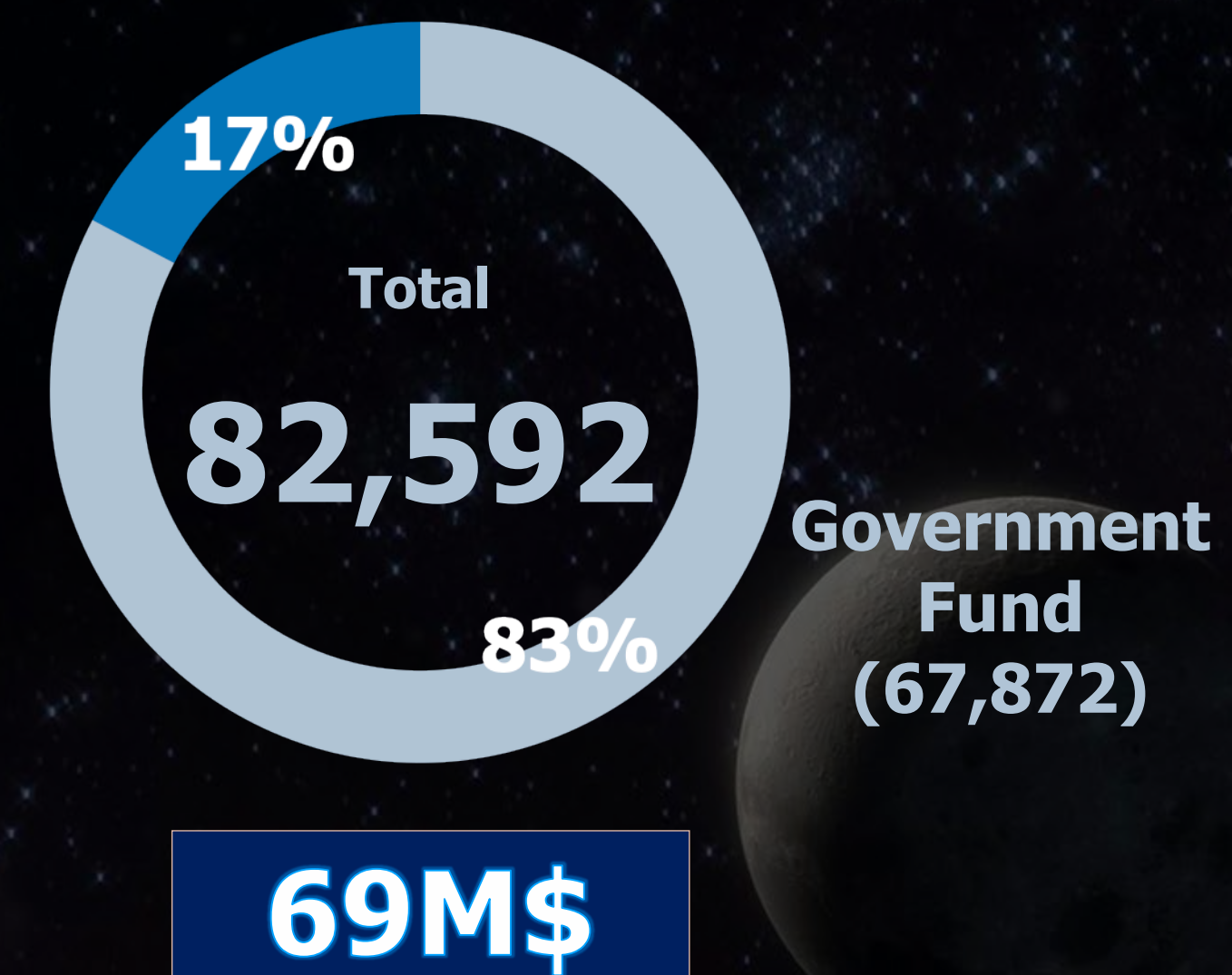
As of Feb. 2023



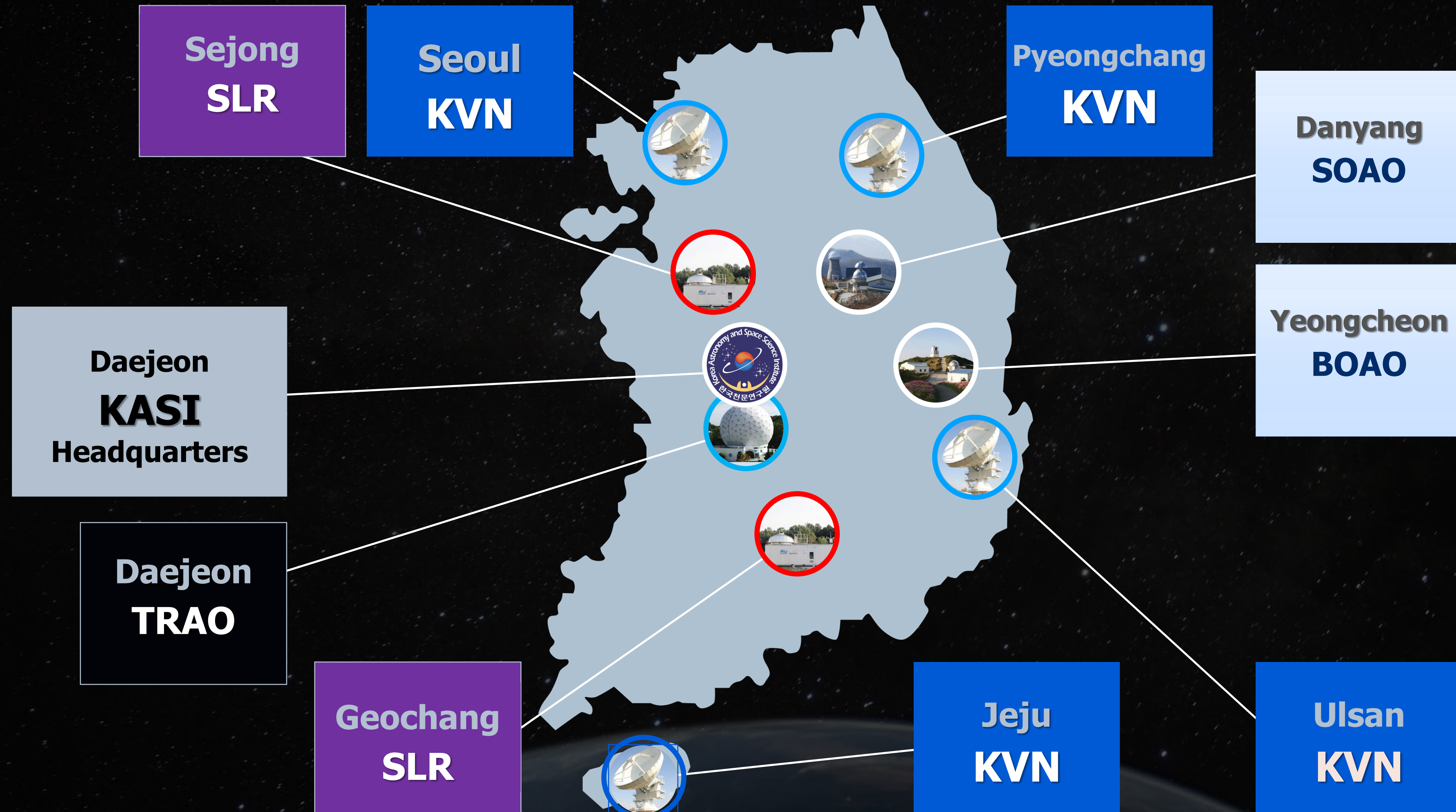
Budget

Non-government Fund
(From private sector)
(14,720)

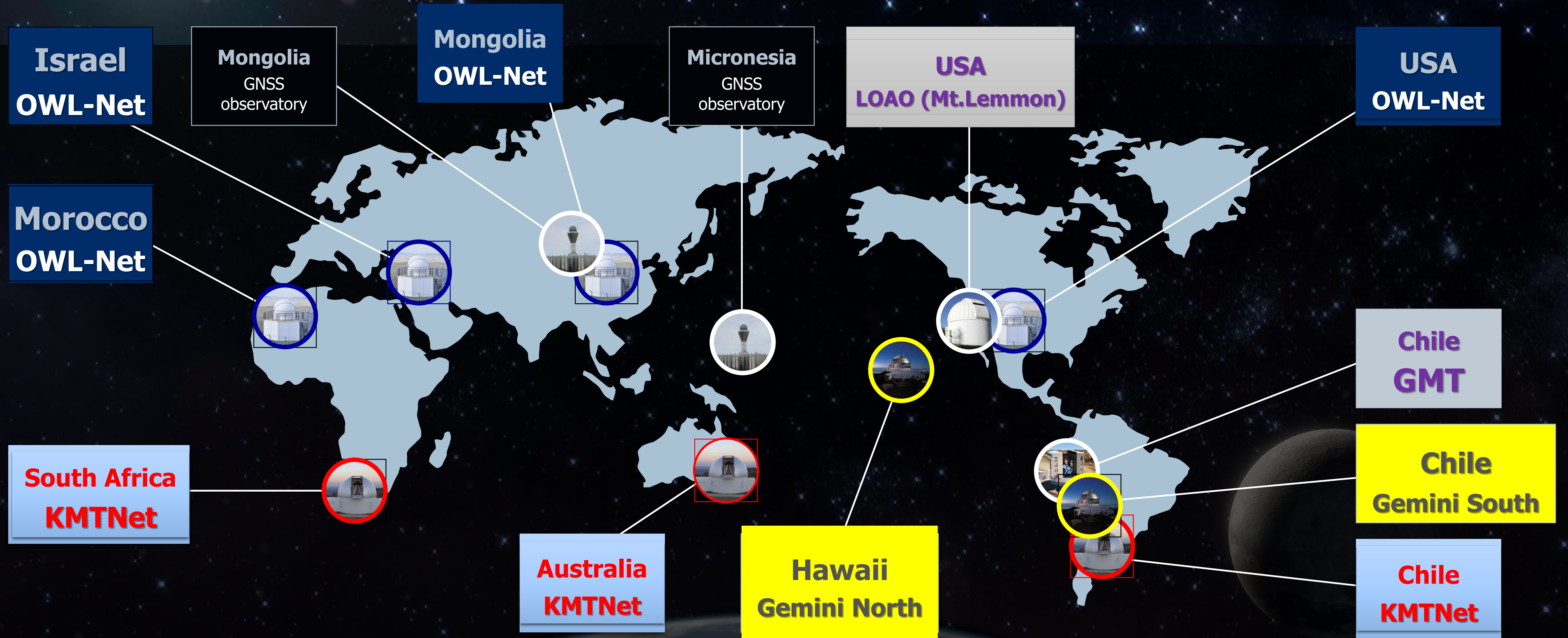
As of Feb. 2023



Domestic Research Facilities



Overseas Research Facilities



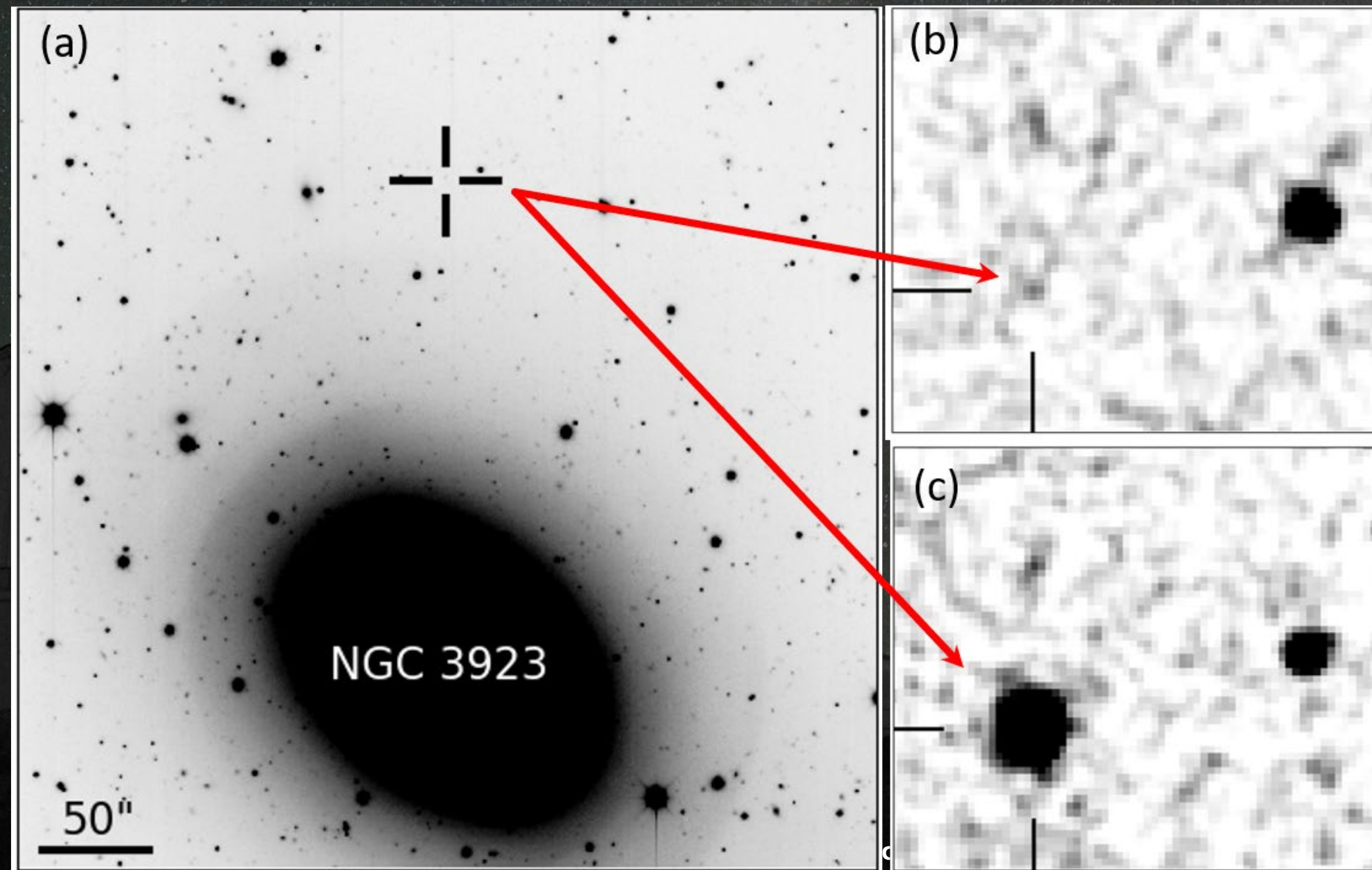
02

KASI science Highlight

Type Ia Supernova detected through KMTNet

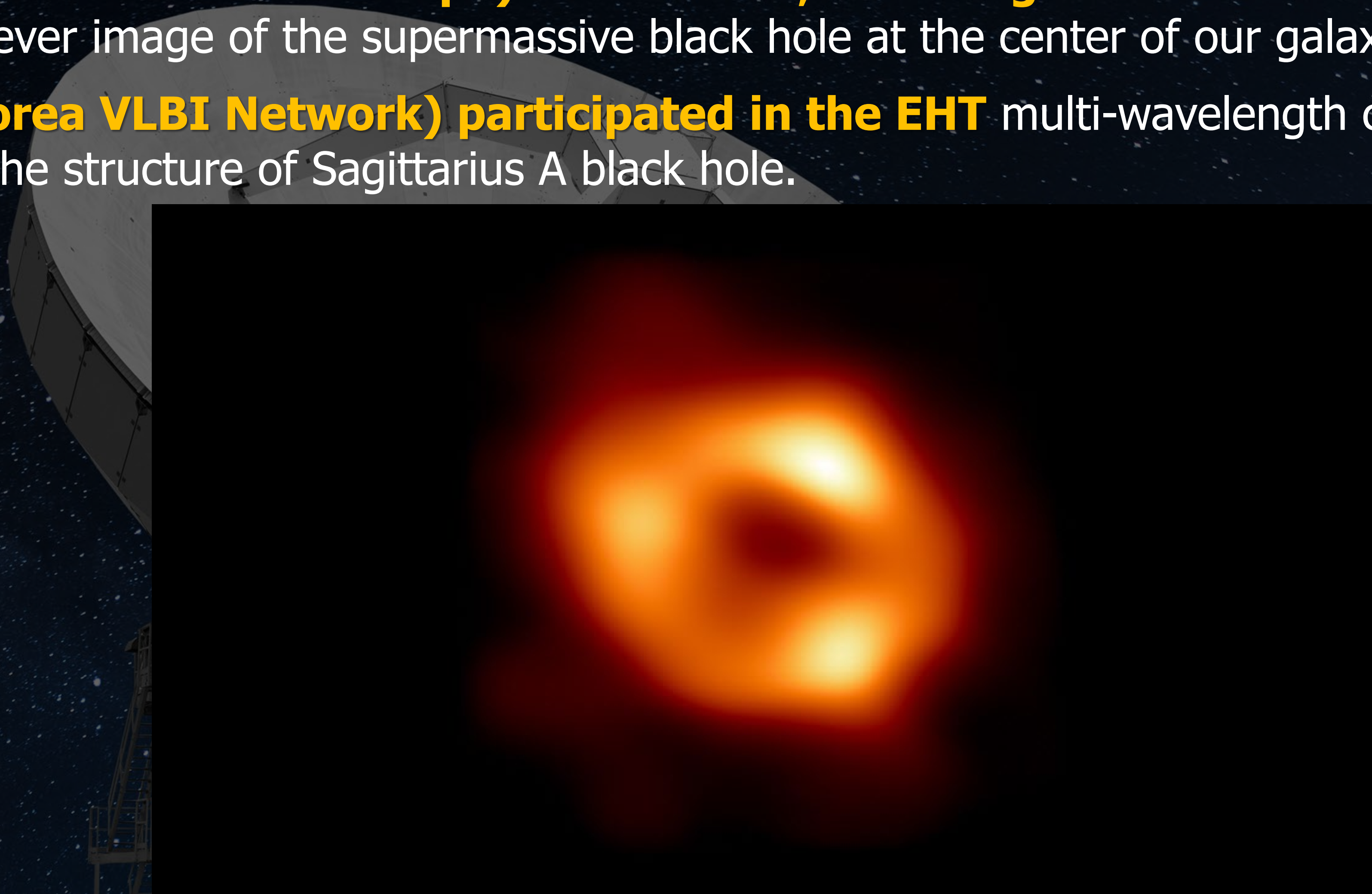
(Feb. 2022)

- KASI's **KMTNet** observed the supernova 'SN 2018aoz' only one hour after the explosion.
- It is **the fastest observation** of light immediately after a supernova explosion and the first study to clarify how an explosion occurs in an Ia-type supernova.



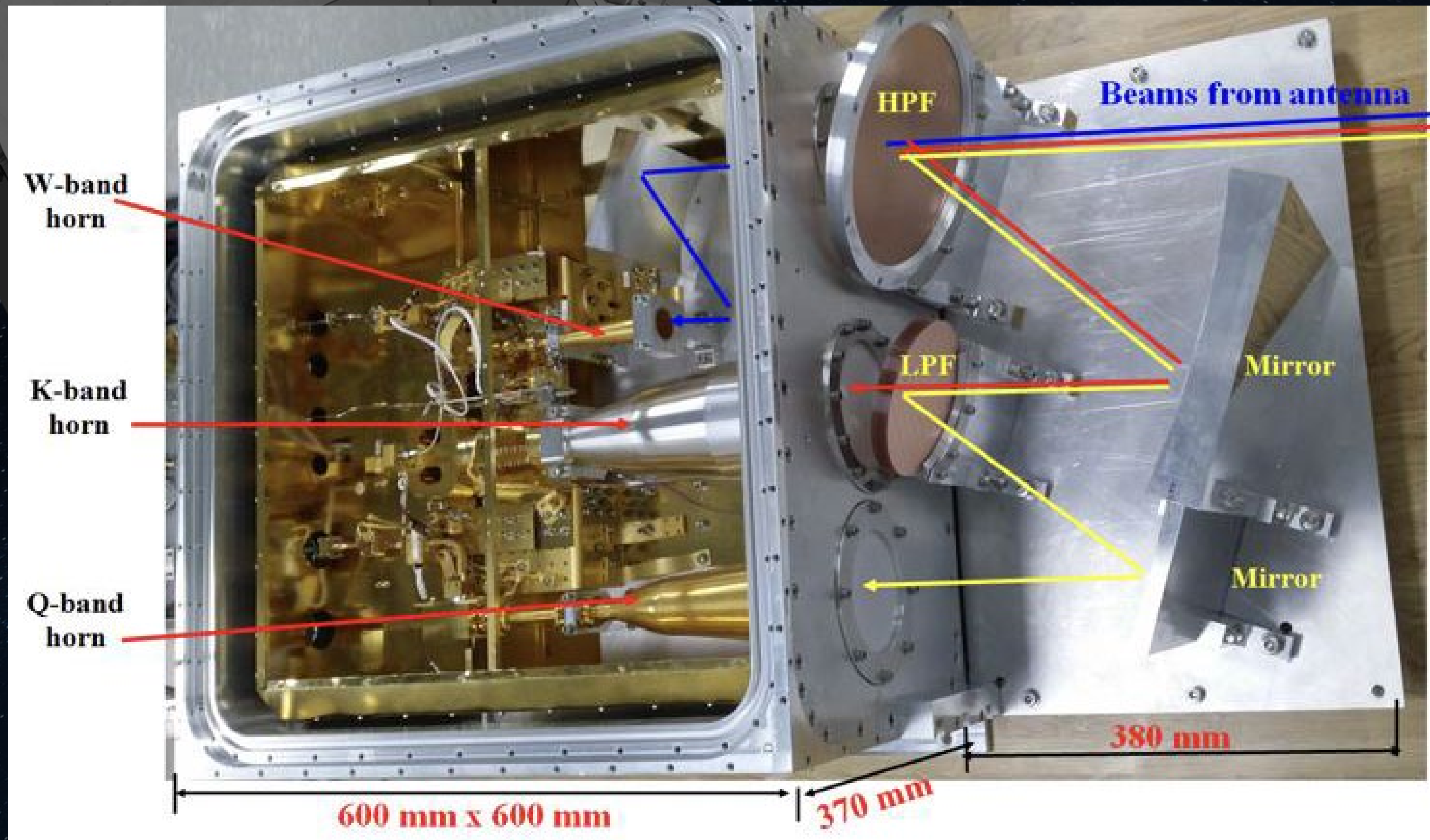
First-ever image of supermassive black hole at the center of our Galaxy by EHT

- **EHT(Event Horizon Telescope) researchers, including KASI researchers**, captured the first-ever image of the supermassive black hole at the center of our galaxy, Sagittarius A.
- **KVN(Korea VLBI Network) participated in the EHT** multi-wavelength campaign to confirm the structure of Sagittarius A black hole.



CTR(Compact, Triple-band Receiver) for Radio Telescope

- KASI succeeded in developing and miniaturizing the world's first simultaneous observation radio telescope system with KASI's technology. It is significantly more compact.



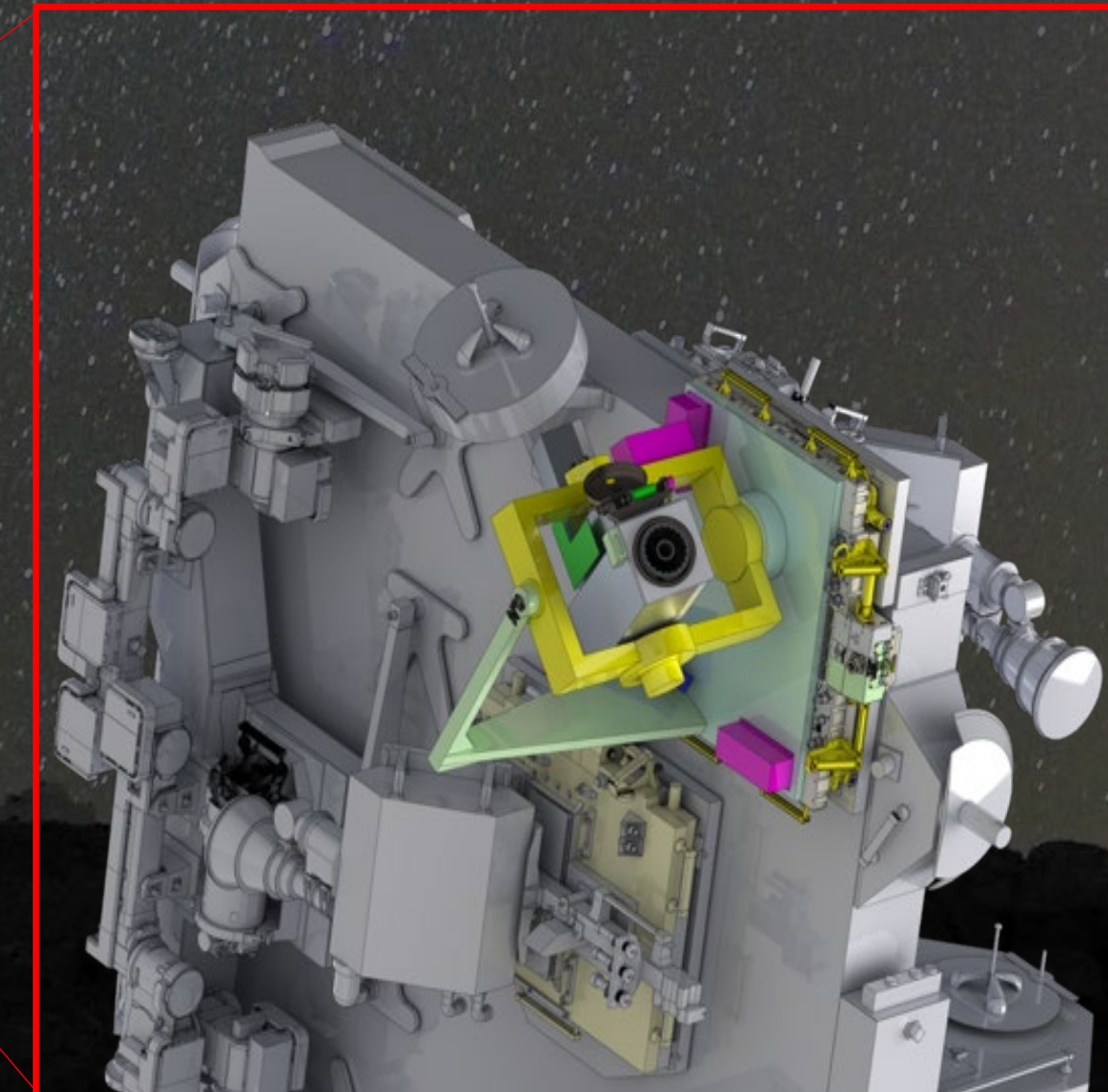
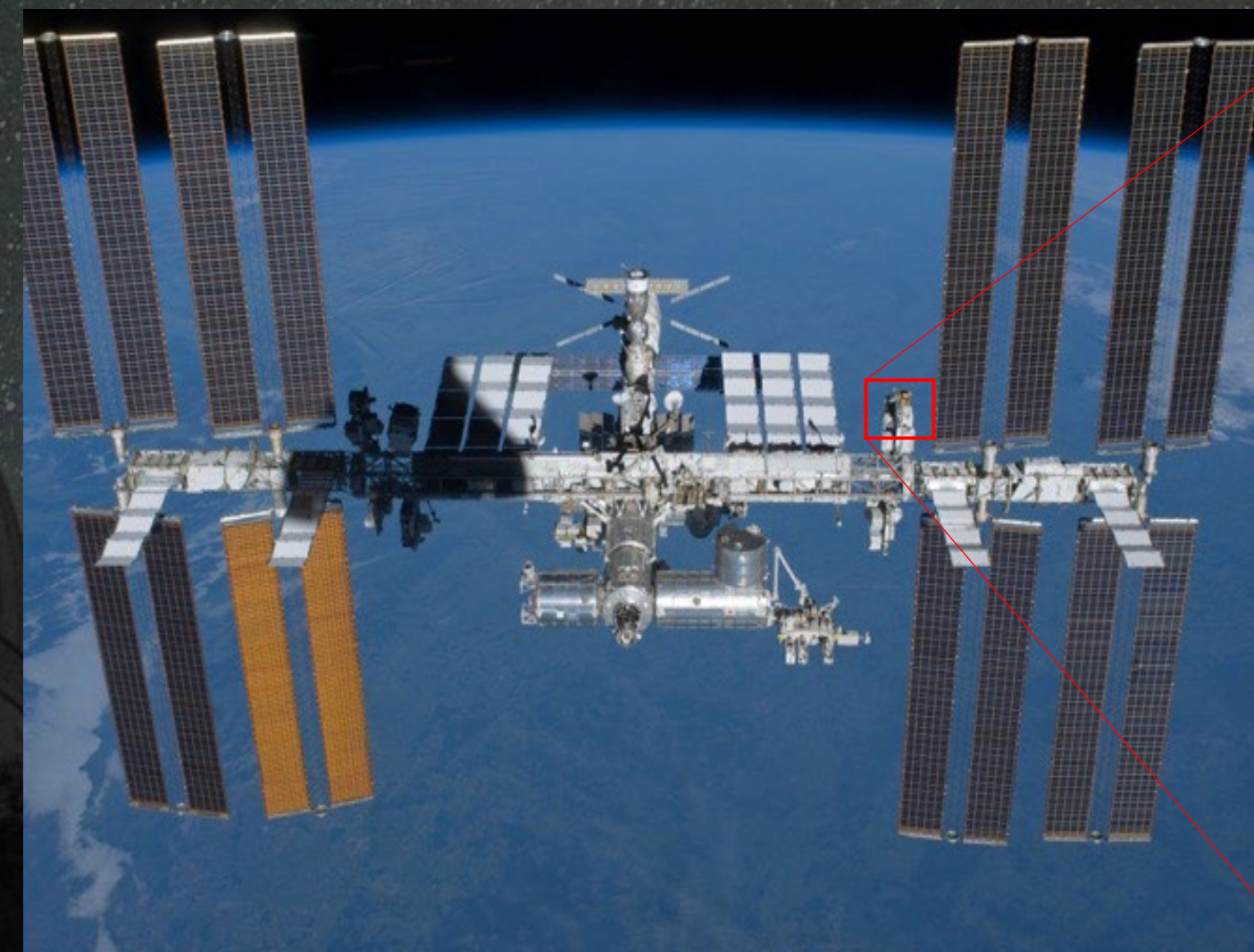
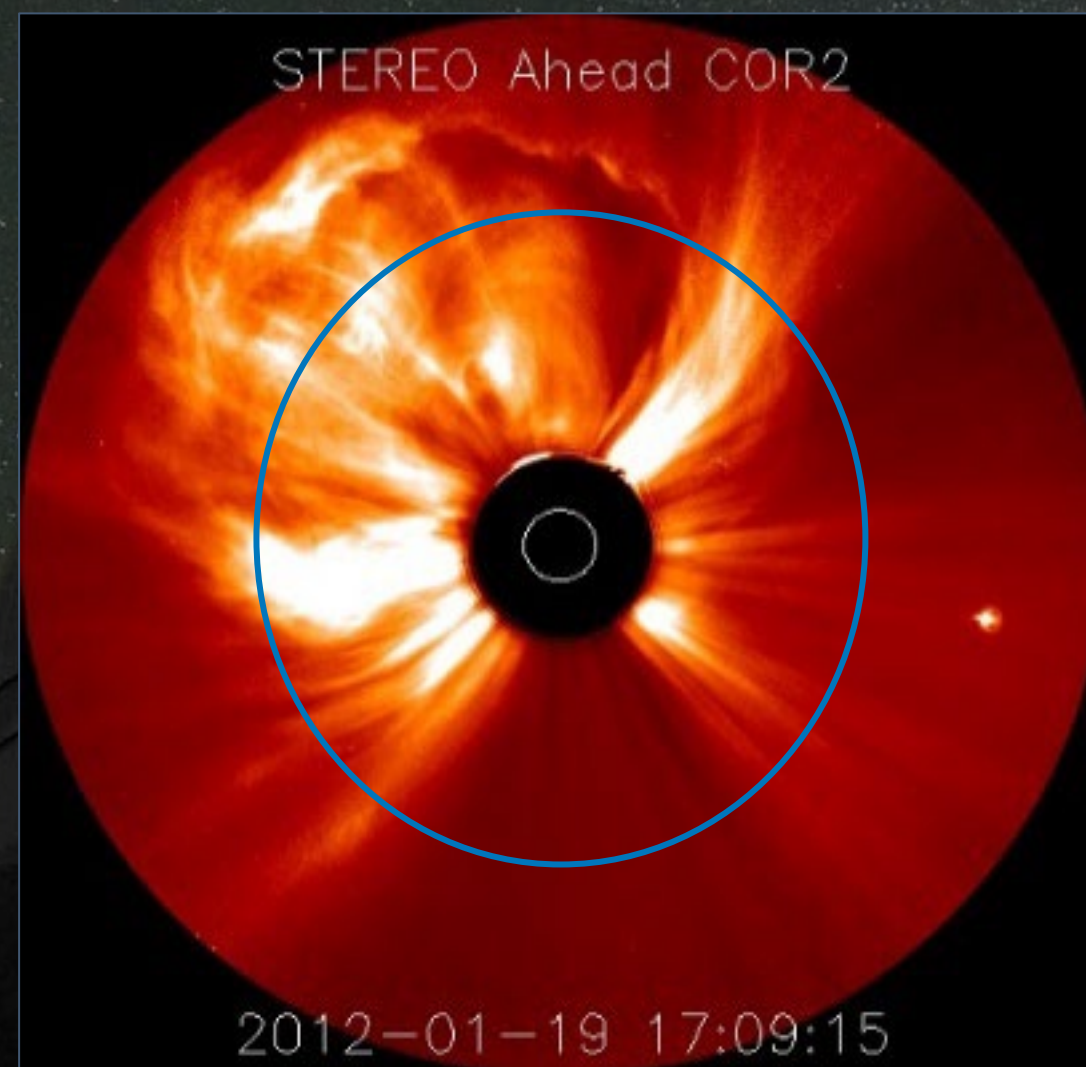
KASI's cryogenic vacuum chamber for SPHEREx

- SPHEREx (Spectro-Photometer for the History of the Universe, Epoch of Reionization, and Ices Explorer)
: NASA's medium-sized space telescope mission, which began in 2015. It is the world's first all-sky spectral survey by a space telescope.
- KASI developed a cryogenic vacuum chamber for the SPHEREx mission.
- It creates a vacuum environment to protect the instruments from the Earth's atmosphere before launch.



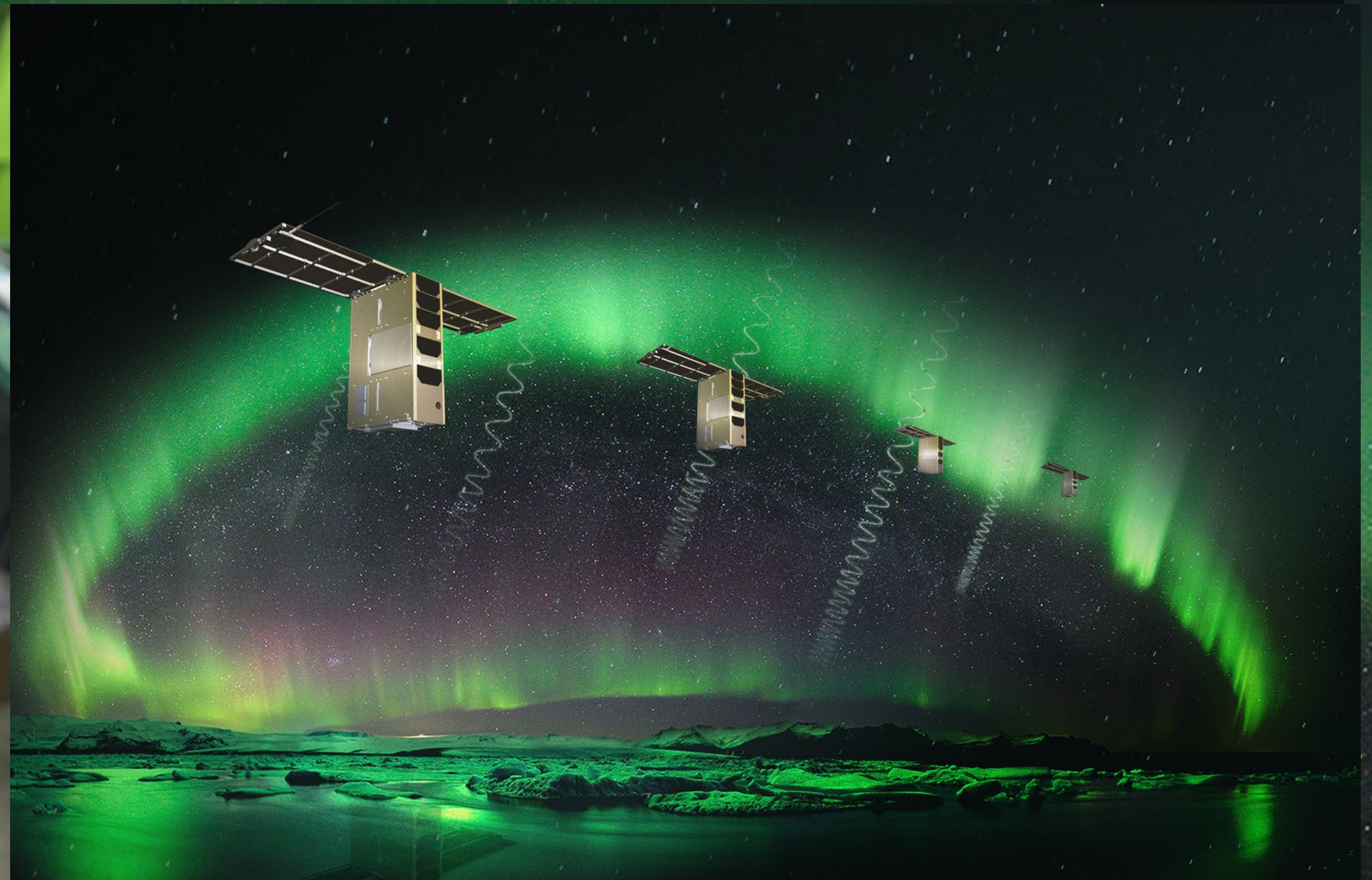
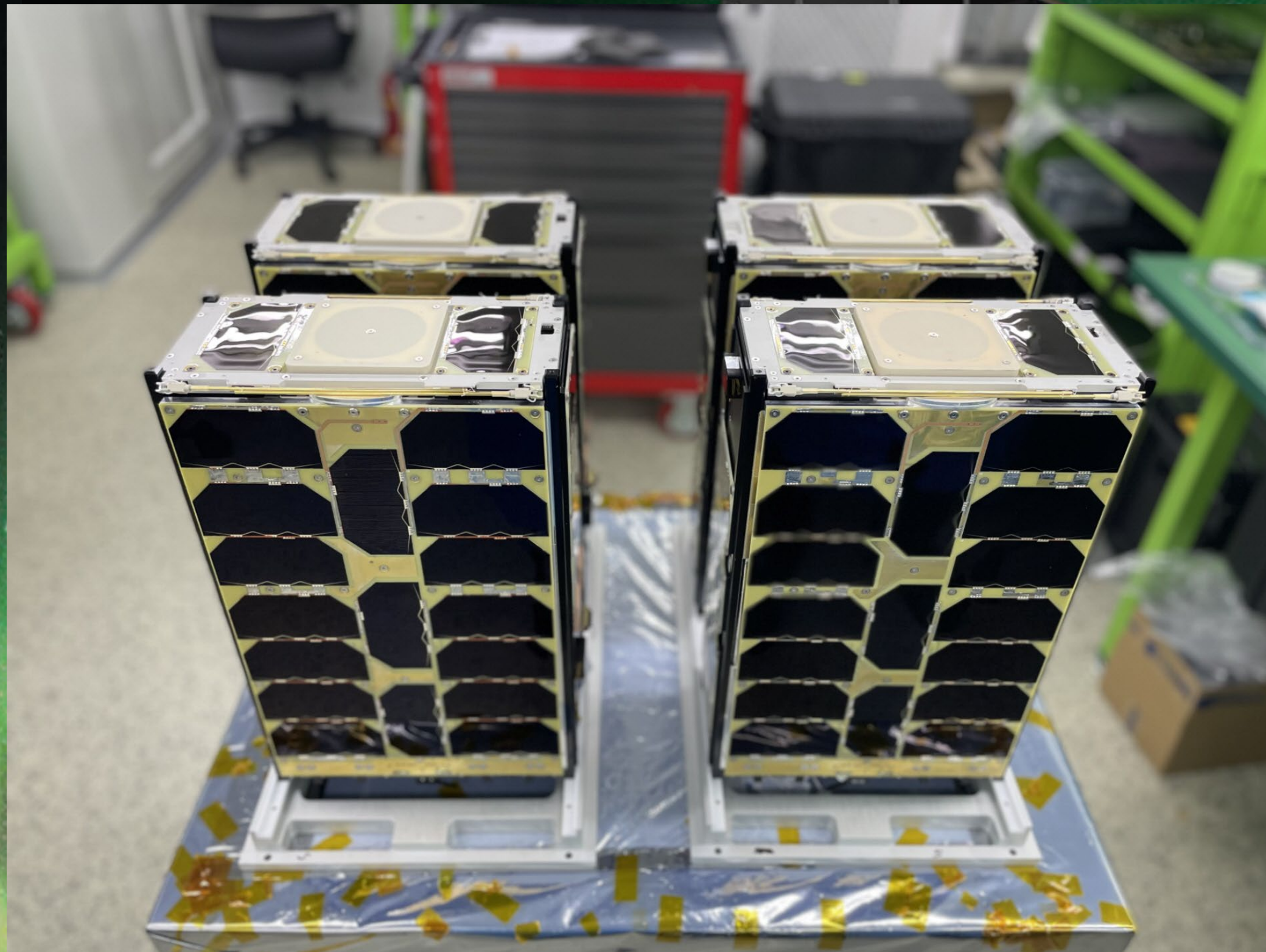
CODEx

- Coronagraph on the International Space Station
- Joint development with KASI (Main Electronics, Camera, & SW) and NASA (Manage & Optical/Mechanical assemblies)
- To be installed in 2023 (> 2 years operation)
- Wavelength: 3935 Å / 4050 Å (T), 3987 Å / 4234 Å (V)
- FoV: 3 – 10 Rs, Time cadence: 1 min (Dynamic mode, 4550 Å)
- Density, Velocity and Temperature from 3 – 10 Rs, Time cadence: 90 min



Space Weather Observation Nanosat 'SNIPE' Flight Model Revealed

- The SNIPE (Small-scale magnetospheric and Ionospheric Plasma Experiment) mission, four **6U CubeSats** developed by KASI are waiting for **launch in May, 2023**.
- The KASI's researchers have developed the SNIPE mission **for space weather study at an altitude of 500km in a sun-synchronous orbit** since 2017.



SNIPE Flying



03

Korea Space Science Future

Korea Space Forum

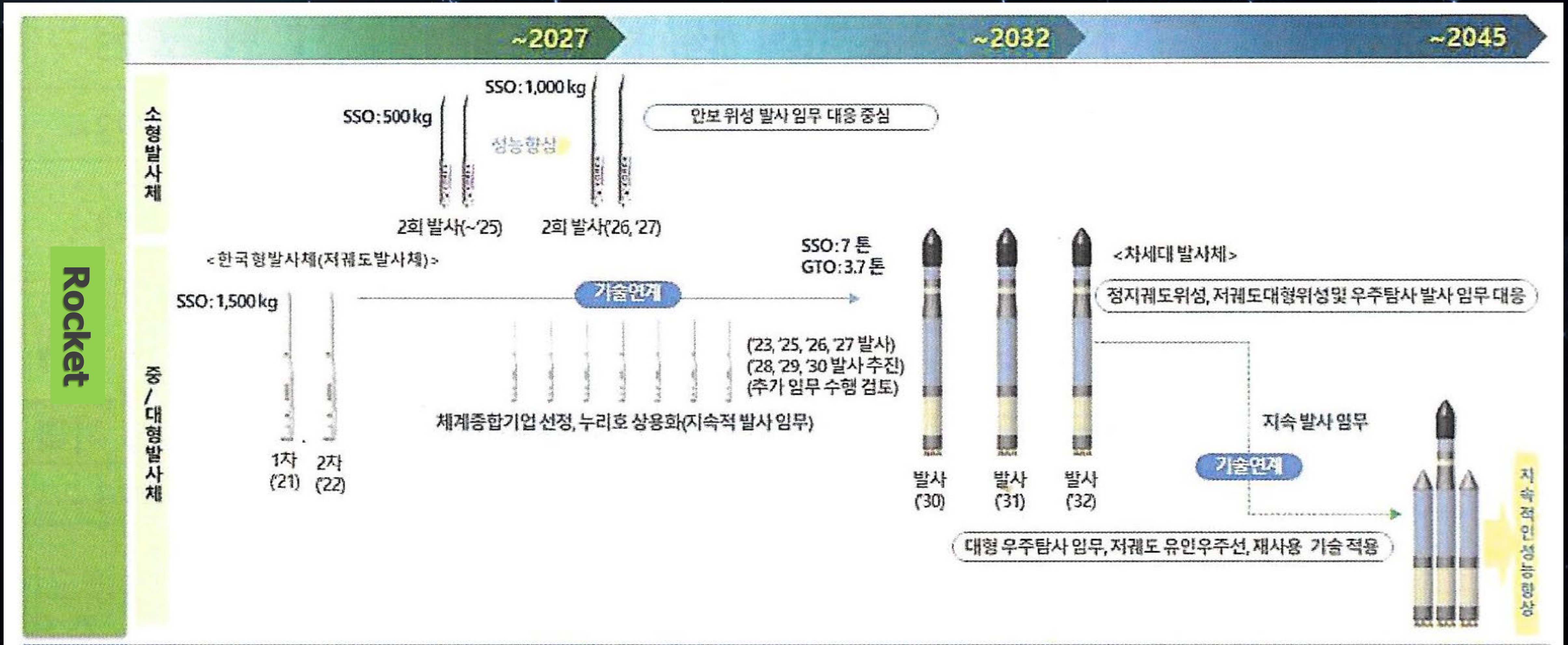
On Nov. 28, 2022

DECLARE

By President

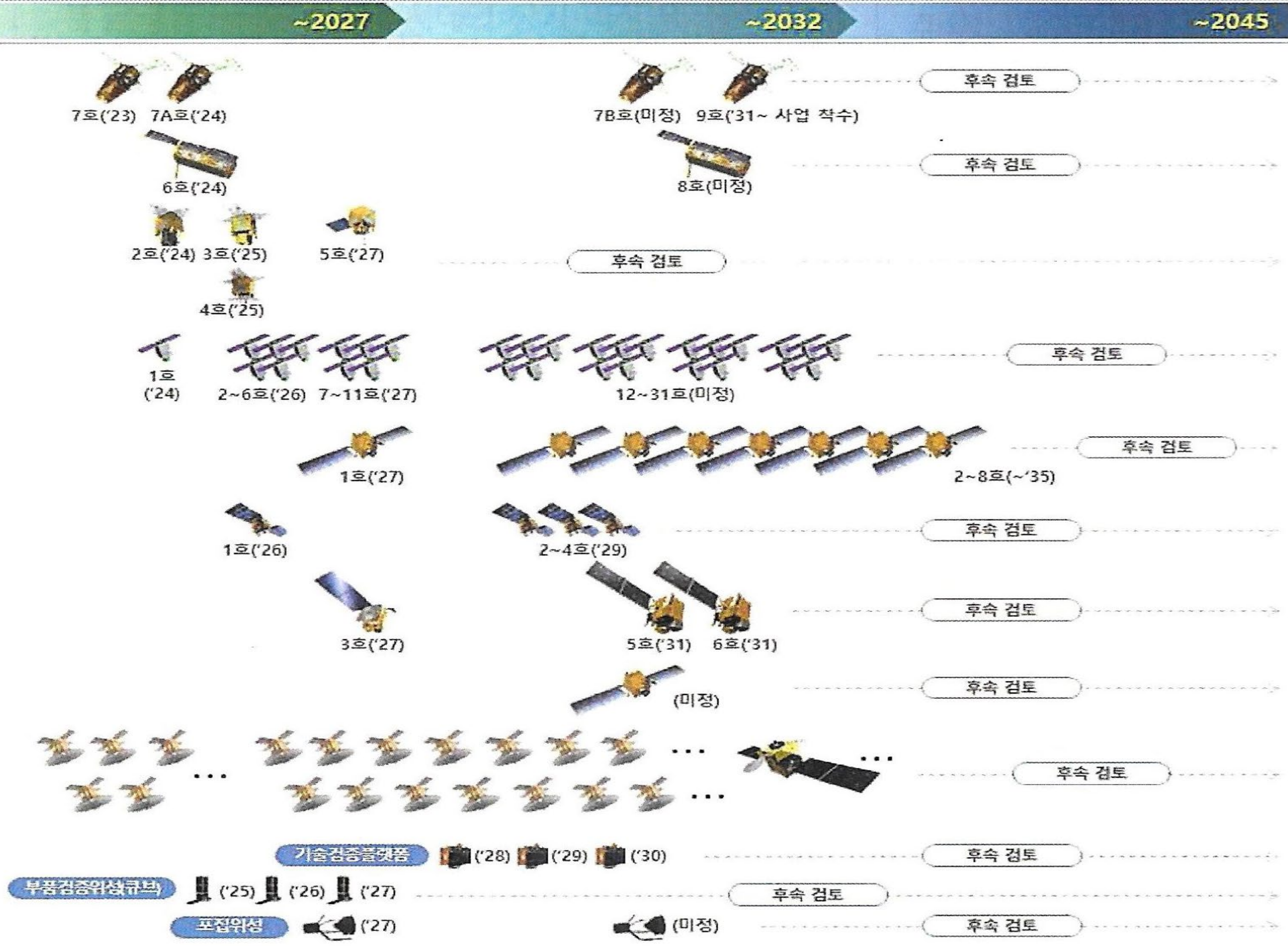
- 1. Estimate Korean Aero Space Agency up to end of 2023**
- 2. Increase double space budget up to 2027(\$1.25b)**
- 3. Go to Moon up to 2032i**
- 4. Go to Mars before 2045**

4th Long term Space Dev. Plan



Satellite

다목적실용위성 차세대중형위성 초소형군집 KPS 6G 천리안 중계위성 안보위성 검증위성



4th Long term Space Dev. Plan

Space Exploration & Space science



Thank you

