# JAXA's Overview and S&MA Challenges

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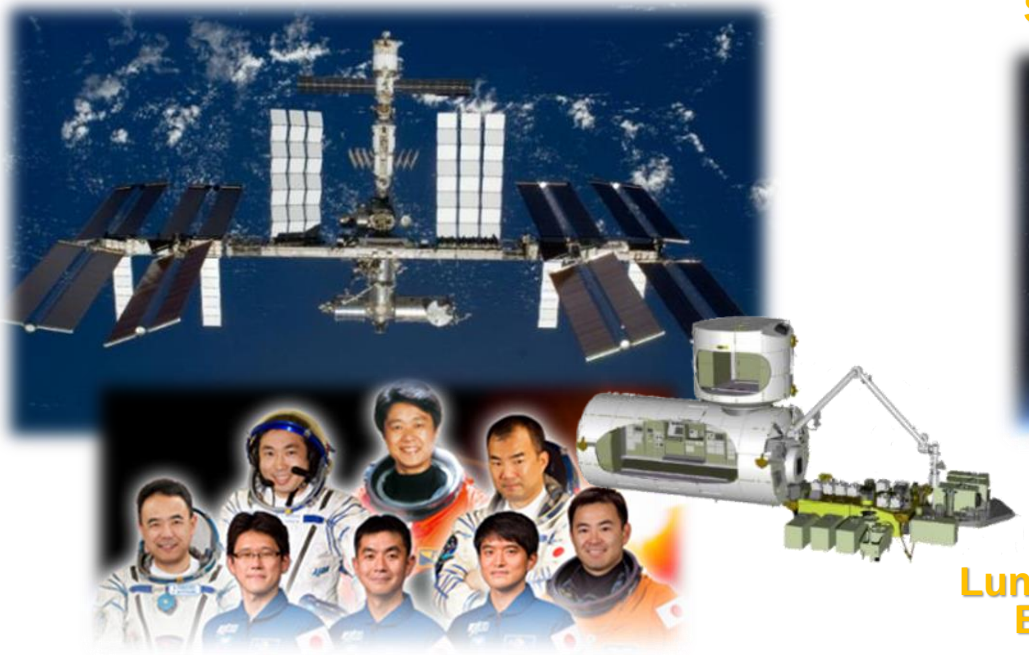
# JAXA's Activities Overview

## Space Transportation

## Human Spaceflight

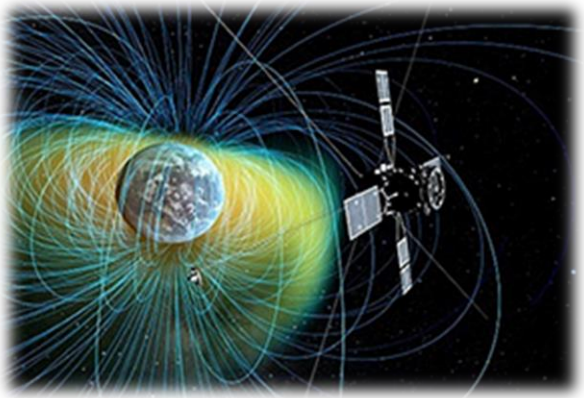


## Satellite Utilization

## Lunar& Planetary Exploration

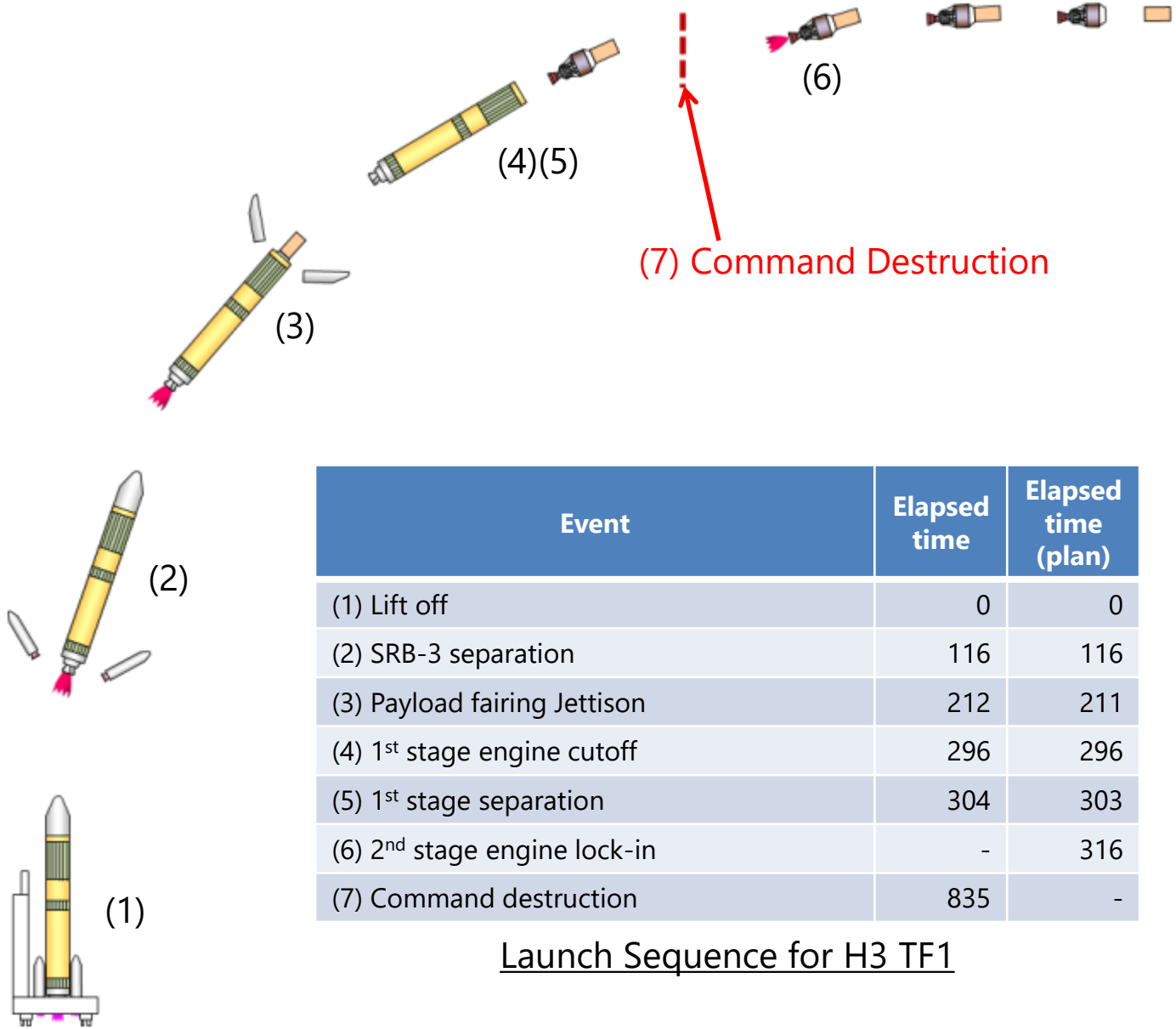
## Aeronautics

## Space Science



# Return to Flight: H3 TF1 Launch Vehicle

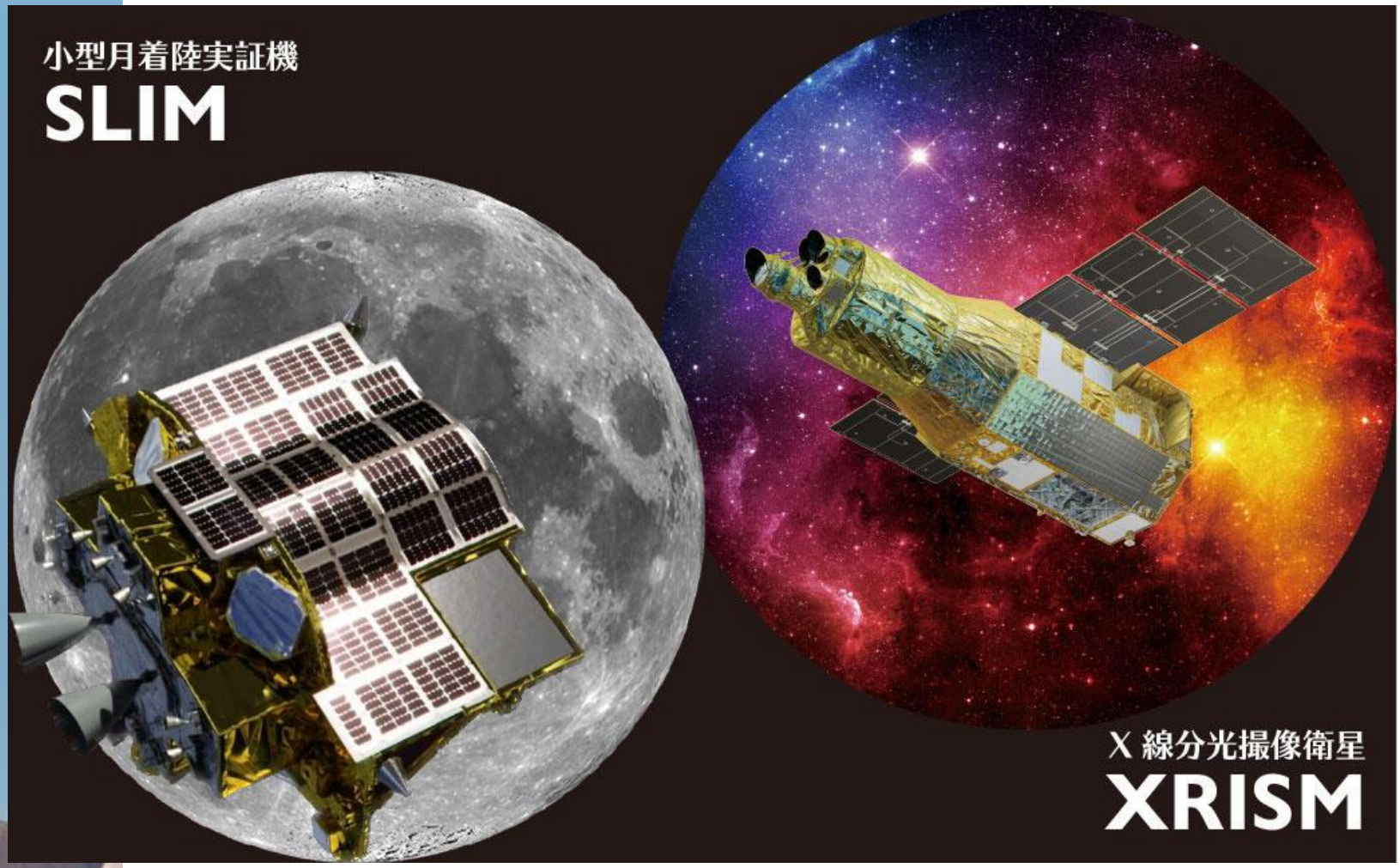
- Launched in March 2023
- The 2nd stage engine failure
  -> Not be injected into the desired orbit
  -> Command destruction
- The cause of the failure:
  damage to the exciter or propulsion system controller due to an overcurrent condition
- Not only measures to address the causes but also improvements that will enhance the reliability of the launch vehicle




| Event | Elapsed time | Elapsed time (plan) |
|---|---|---|
| (1) Lift off | 0 | 0 |
| (2) SRB-3 separation | 116 | 116 |
| (3) Payload fairing Jettison | 212 | 211 |
| (4) 1st stage engine cutoff | 296 | 296 |
| (5) 1st stage separation | 304 | 303 |
| (6) 2nd stage engine lock-in | - | 316 |
| (7) Command destruction | 835 | - |

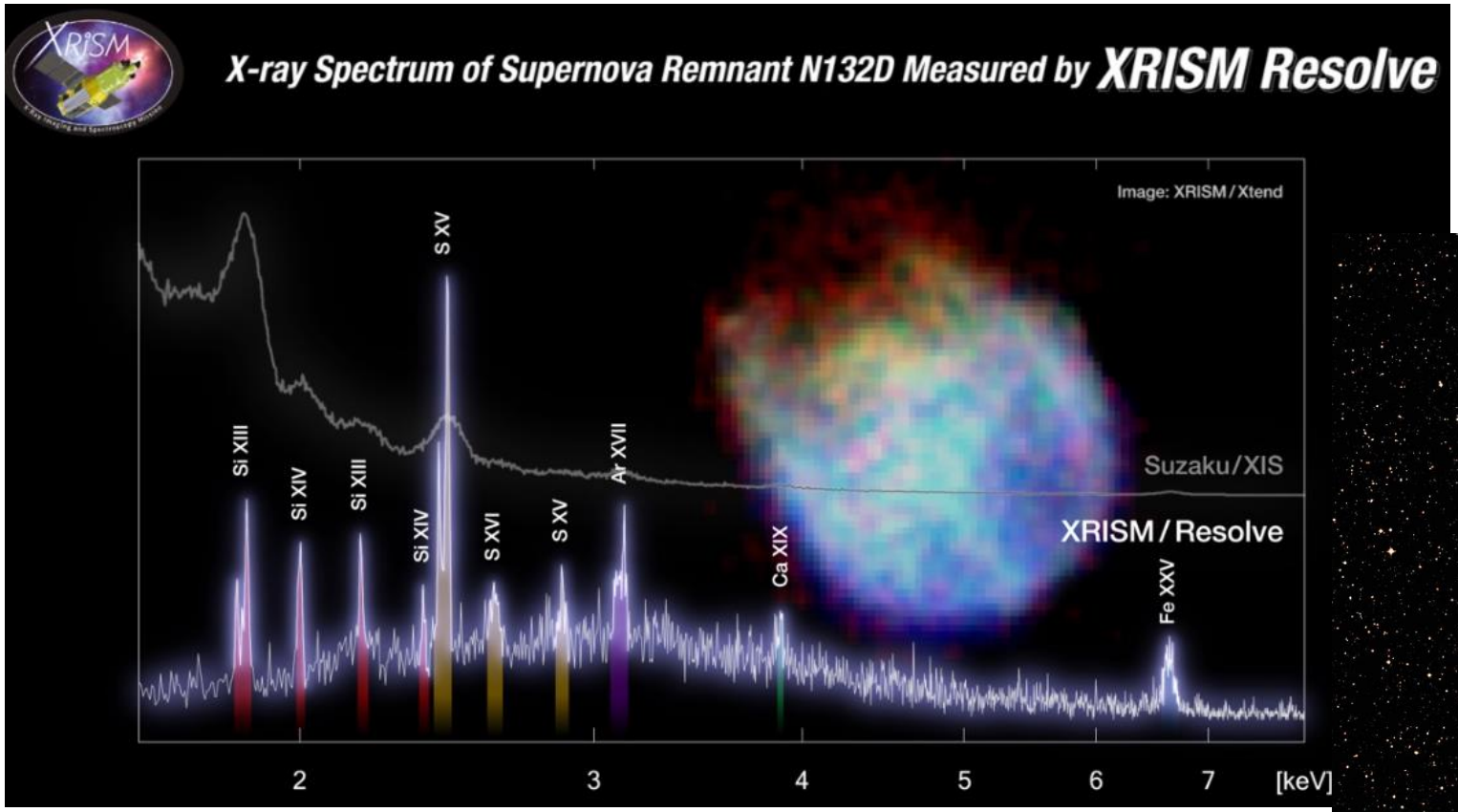
Launch Sequence for H3 TF1

# H-2A F47 Launch

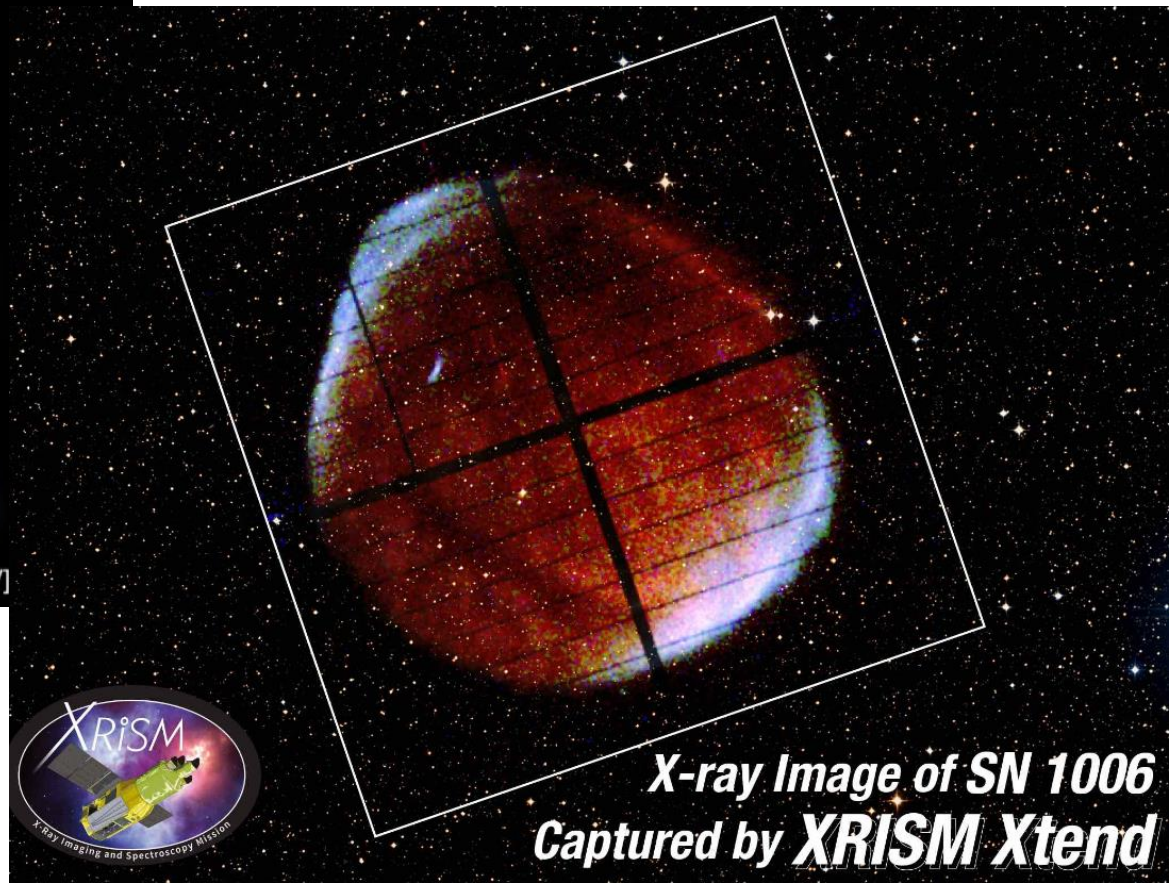



**2023.9.7 Launched Successfully!**

# XRISM




X-ray spectrum of the Perseus cluster obtained with XRISM's onboard soft X-ray spectrometer (Resolve)

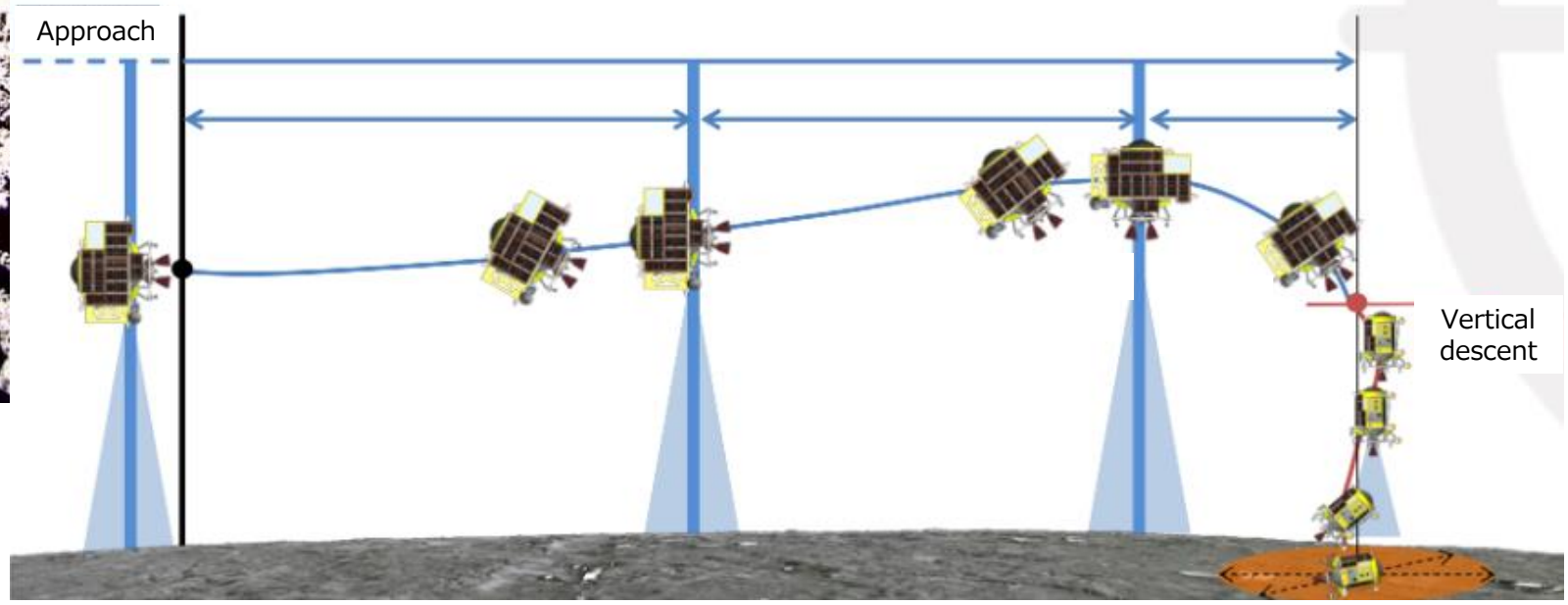



X-ray and visible light composite image of the supernova remnant SN 1006

# SLIM

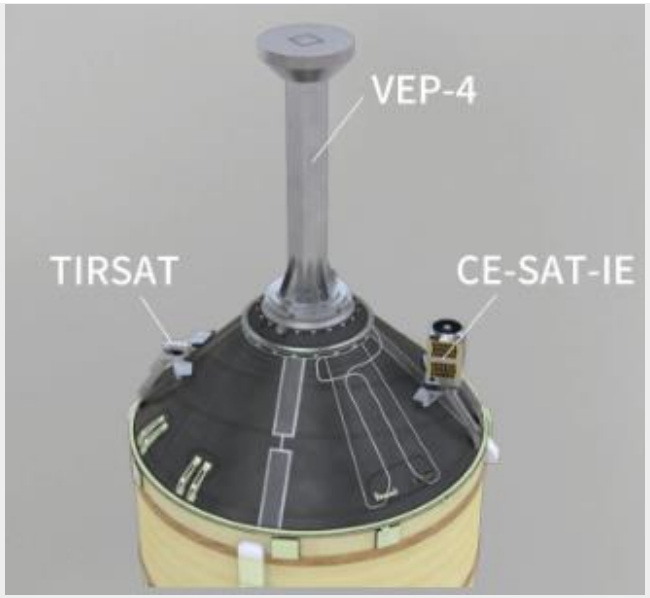
SLIM on the moon taken from LEV-2

LEV-2 (SORA-Q)




Landing sequence for SLIM

# H3/TF2 Launch

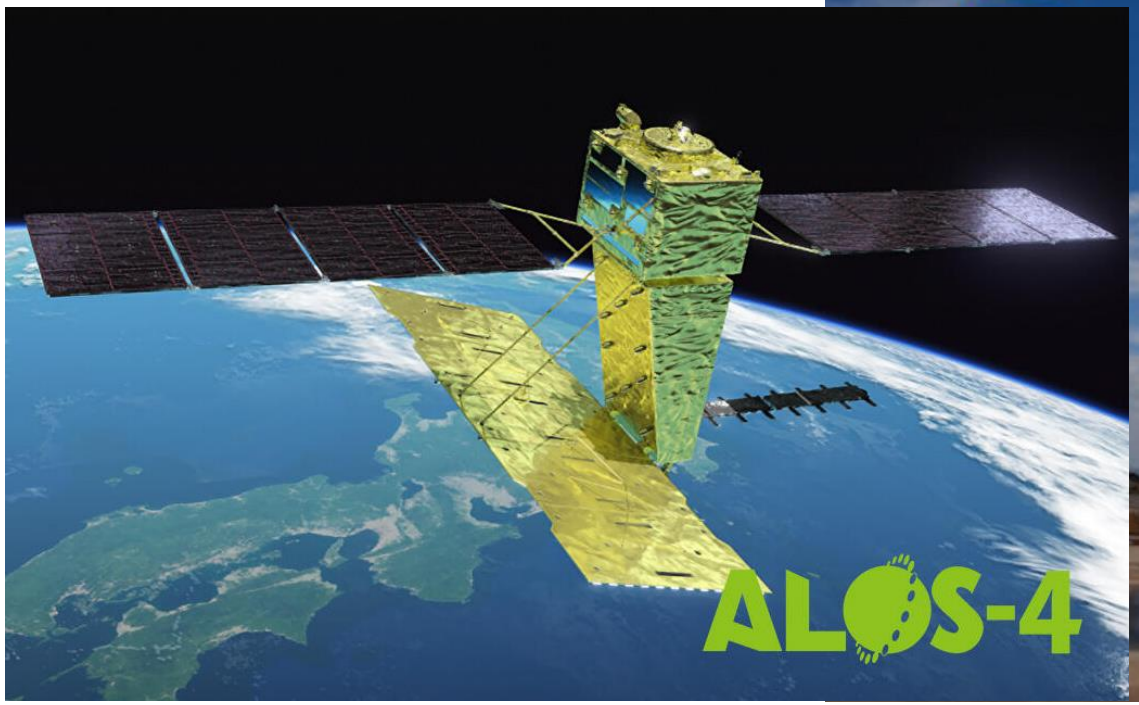





**2024.2.17**

**Launched Successfully!**

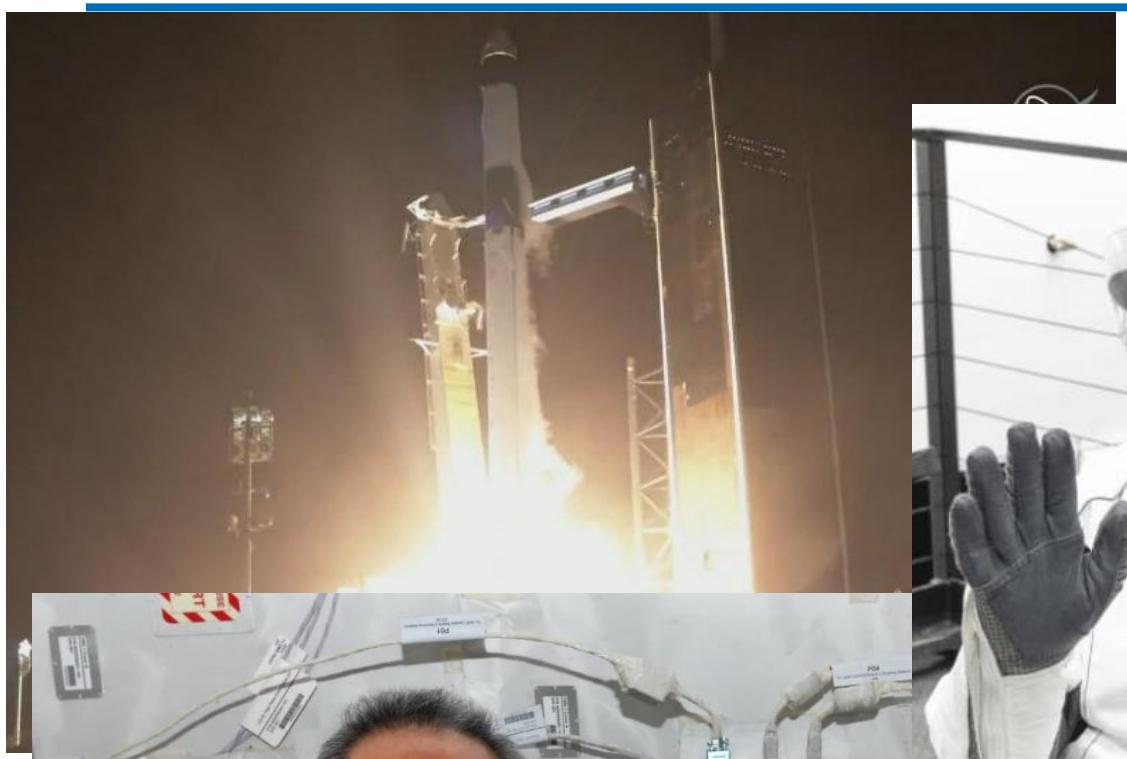
# H3/F3 Launch

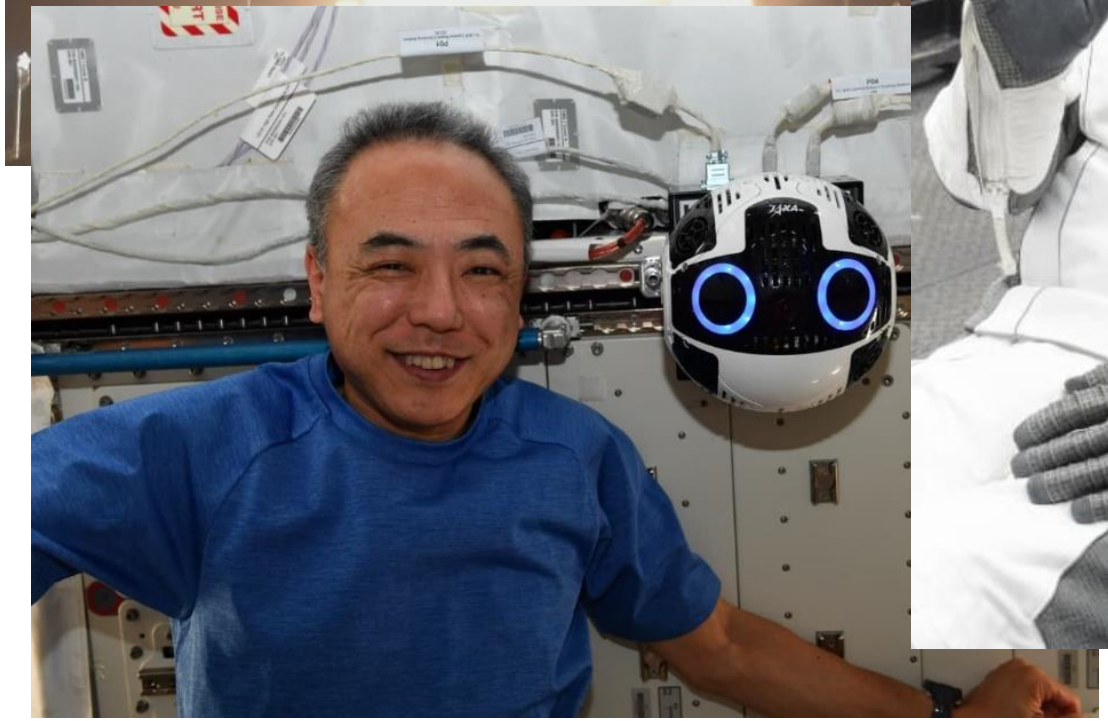



**2024.6.30 LIFT OFF!**

# EarthCARE/CPR Launch

# Human Flight - Crew 7 / FURUKAWA Satoshi





# Gateway and New JAXA Astronauts

# S&MA Challenges

順番入れ替え、表現見直し

(1) Management of space debris and ensuring orbital utilization safety
- JAXA principles for sustainable space

(2) Research and development for S&MA technologies
- Additive manufacturing
- Radiation tolerance evaluation by simulation

(3) Comprehensive measures for space components
- Transfer of components qualification review to the private sector

(4) Education and training about S&MA technologies
- Mission success for smallsats

(5) Management and promotion of standards
- Improvement of searchability

# LTS Guidelines

表現見直し

The COPUOS adopted the guidelines for the long-term sustainability of space activities (LTS Guidelines) in June 2019, after 8 years of discussion in the Working Group.


**[Key Point]**

- Voluntarily implemented by member countries
- All space activities and all mission phases covered
- Japan conducted a variety of outreach efforts during the negotiation process, based on the idea that sustainable space activities should be actively promoted:
  - (1) Chair of the expert group in the WG
  - (2) Participation in all expert groups
  - (3) Host of WG informal discussions
  - (4) Proposal for the establishment of a new WG after the WG mandate
  - (5) Organization of related events

# JAXA Principles for Sustainable Space

- **JAXA announced "Establishment of JAXA Sustainable Space Principles" to the public in June 2022. The content is shown below:**

JAXA commits to the following three principles to ensure that a viable space environment can be passed on to future generations and that the humankind can continue to obtain the benefits of outer space.

①Together with space related entities from around the world, JAXA commits to the preservation of the outer space as a realm of all mankind.

②JAXA brings the benefits of outer space exploration and utilization equally to the present and future generations.

③By developing innovative technologies, JAXA contributes to the resolution of challenges associated with the promotion of sustainable space activities.

These commitments serve as our guiding principle to achieve the "JAXA's priority areas for sustainable outer space" in JAXA's basic policy on the SDGs.

# Activities for Sustainable Space

Astroscaleクレジット追加

UNITED NATIONS
Office for Outer Space Affairs

IADC
Inter-Agency Space Debris Coordination Committee

ISO

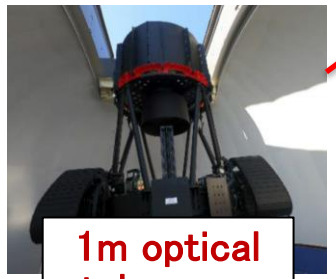
**Harmonize**

**International Standards and Norms**

JAXA Explore to Realize

**JMR/JERG**
**(JAXA Management Requirement/JAXA Engineering Requirement and Guideline)**

Capability: 10cm



1m optical telescope

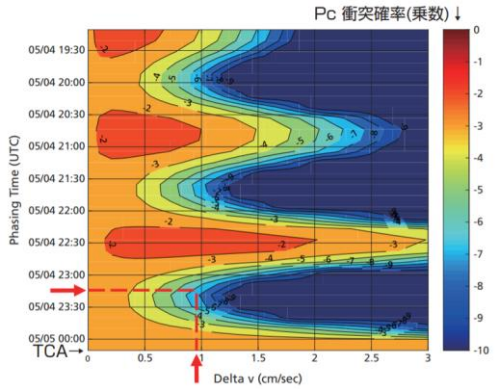

OKAYAMA

**SSA radar & telescope**

CRD2 Phase I
COMMERCIAL REMOVAL OF DEBRIS DEMONSTRATION


**Commercial Removal of Debris Demonstration (CRD2)**

RABBIT
JAXA
Risk Avoidance assist tool based on debris collision proBaBIliTy




**Risk Avoidance assist tool based on debris collision proBaBIliTy (RABBIT)**


Go together !
S&MA community can improve space to be safe.