Japan’s Human Space Activity
30-Year History

Chiaki Mukai, M.D., Ph.D.
Astronaut, Senior Advisor,
International Relations and Research Department
Japan Aerospace Exploration Agency (JAXA)
Chapter

I. JAXA Astronauts
II. Astronaut Yui’s Next Mission
III. History of JAXA Astronauts’ Challenges
IV. Dawn of Japan’s Human Space Activities
V. Japan’s Achievements in the ISS Programme
VI. Positive Effects on the Ground
VII. Space Utilization Today
VIII. Future Exploration

*Photo Credit: JAXA/NASA
JAXA Astronauts

ACTIVE

Koichi Wakata
Soichi Noguchi
Soichi Noguchi
Akihito Hoshide
Kimiya Yui
Takuya Onishi
Norishige Kanai

FORMER

Mamoru Mohri
Chiaki Mukai
Takao Doi
Naoko Yamazaki
Astronaut Yui’s Next Mission

KIMIYA YUI
油井 亀美也

Kimiya Yui
Oleg Kononenko
Kjell Lindgren

43S
2016 Onward:
2009: First HTV’s flight
2008-2009: Kibo construction
2013-2014: Wakata became the first Japanese ISS Commander
2015: Yui’s first flight
1992: Mohri’s first flight on the Space Shuttle
1997: Japanese first EVA
1985: Mohri, Mukai and Doi were selected as astronauts
Dawn of Japan’s Human Space Activities

- 7 Japanese astronauts flew 12 times on Space Shuttle
- Conducted scientific experiments
- Acquired experiences created Japan’s human space technologies

- Space-sickness Experiment
- Aquatic animals’ egg-laying behaviour (medaka-fish, newts)
- Plant Growth Experiment
- Extra Vehicle Activity
- Robotic Arm Operation
Japan’s Achievement in ISS Programme

- Kibo and HTVs, making significant contributions in ISS
- Human space system technologies developed from Shuttle experiments
Positive Effects on the Ground

**Ground Team**

- Independent operation skills acquired by the Ground Team
- Broadened research fields and experienced researchers.
- Space photos and experiments inspiring children

**Scientific Research**

**Space Education**
Space Utilization Today

- 4 Japanese astronauts completed 5 long-duration stays on ISS
- Various experiments for space medicine, micro-g research and future space exploration

- Bisphosphonates
- Radiation Dose Measurement
- Biological Rhythms
- Rodent Research
- Protein Crystallization
- Small Satellites Deployment
JAXA’s approach for future space exploration

Technology development at ISS

Robotic Precursor Missions

International Human Space Exploration

Human Lunar Exploration (2025~)

Human Missions in Lunar Vicinity

Human Lunar Surface Missions

Human Mars Exploration (2030~)