JAXA's corporate slogan, "Explore to Realize," captures both our aim of "exploration," which is the very foundation of our activities, and our determination as an organization to strive for "realization," which is our management philosophy. JAXA intends to unlock the door to a new era by uncovering true values, and in doing so, solve its own problems within the society.

Missions

**Missions**

**Global Change Observation Mission-Climate (GCOM-C): Observe Earth’s rich array of colors from space**

- BepiColombo project, the first joint project of JAXA and the European Space Agency (ESA).
- The Mercury Magnetospheric Orbiter (MMO) is a space probe tasked with investigating the magnetic field and magnetosphere of Mercury under the BepiColombo project, the first joint project of JAXA and the European Space Agency (ESA).
- By comparing two planets, namely Mercury and Earth, this project will help explain the magnetic fields and magnetosphere of the Earth and explore the mysteries of Mercury.
- Moreover, this project will investigate the various magnetospheres found in outer space and the mechanism of planet formation.

**Aiming to understand the magnetic field and magnetosphere of Mercury**

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- Moreover, this project will investigate the various magnetospheres found in outer space and the mechanism of planet formation.

**New-generation astronaut Norishige Kanai will be aboard the ISS**

- Astronaut Norishige Kanai, who was selected as a crewmember for the long-term stay mission of the International Space Station (ISS) expedition 54 and 55, is expected to be the flight engineer in charge of ISS operations and scientific experiments in the space environment during his 6-month stay.
- His mission will be performed with Russian Soyuz Spacecraft.

Japanese fiscal 2016 brought a series of disappointing moments to JAXA and the rest of the country. One such instance was the discontinuation of the operation of the 8-ray Astronomy Satellite ASTRO-H. JAXA accepted the failure and carried out a thorough error analysis and overhaul of the projects. JAXA will continue reforming the procedures of the projects and ensuring their execution.

JAXA aims to enrich the quality of life through research and development of key technology and thereby to contribute to solving social issues.
Supporting the space development of developing countries through KiboCUBE

The JAXA and the United Nations Office for Outer Space Affairs (UNOOSA) provide countries who are incapable of launching satellites on their own, with opportunity to deploy microsatellites (e.g., small satellites or CubeSats) from the Japanese Experiment Module (Kibo).

In this way, the countries’ opportunities for space utilization will enlarge, thereby stimulating them to contribute to international efforts in space exploration.

The University of Nairobi in Kenya was selected as the first nation from 13 applicants. They developed a CubeSat, which is to be launched in 2018.

Monitoring the world’s tropical forests using JAXA’s satellite

JAXA and the Japan International Cooperation Agency (JICA) have launched the ACA-JAXA Forest Early Warning System in the Tropics (ACA-PAST) service to frequently monitor deforestation and forest change in tropical regions using JAXA’s Advanced Land Observing Satellite 2 (ALOS-2). (ACA-PAST) aims to monitor vast forest areas from space, making it an effective means to monitor activities such as illegal logging, in developing countries that have problems doing so owing to inadequate infrastructure, public security issues, a shortage of qualified personnel, or budgetary issues.

Solving the impending energy problems

The Space Solar Power Systems (SSPS) have a potential to solve global issues that human beings face.

These systems are aimed to convert energy from solar rays in outer space into microwave or laser energy, and then transmit the latter from space to Earth where the energy is utilized as electricity.

From May to June 2016, the JAXA research team conducted an experiment on wireless power transmission by laser from the top of a 200-meter-high tower to the ground. The experiment succeeded in transmitting a gigawatt of power for several hours.

Developing technologies to make aircraft quieter is an example of our efforts to reduce noise.

JAXA has been conducting a flight demonstration test on an aircraft noise reduction technology as a part of the FQUROH (Flight Demonstration of Quiet Technology to Reduce Noise from High-lift Configurations) project. Noise reduction designs developed and applied to flaps and main landing gear of JAXA’s Kibo will be deployed from this project.

Preventing accidents by detecting clear-air turbulence

JAXA’s clear-air turbulence detection system has successfully been flight demonstrated in the JAL flight using the Japanese lithium-ion battery, and seven microsatellites (KiboCUBE) from the Japanese Experiment Module (Kibo).

Human space activities passed on by new generation astronauts

Antonin Talege Oritaka is among the new generation of astronauts selected after the end of the EUS operation. During his first long-term mission aboard the International Space Station (ISS), he conducted various experiments on aging and the design of new medicines, such as the growth of high-quality protein crystals and long-term raising of small animals, in order to contribute to the development of an environment for using Kibo, for the benefit of our society.

Please stay tuned for more updates on the roles played by Japanese astronauts and the results obtained from the ISS.

Supporting the International Space Station (ISS) with the world’s most capable cargo spacecraft

Launched from the Tanegashima Space Center, the KOUNOTORI cargo spacecraft also called HTV5, made a successful delivery of supplies, such as drinking water for the astronauts, experimental samples, a new type of Japanese vegetable, sesame, and seven microsatellites developed for use in universities and companies, to the International Space Station (ISS).

Cooperation on human resource training on the space development of Asian countries

In April 2016, the JAXA deployed DIWATA-1, which is the Philippines’ first domestic satellite, from the Japanese Experiment Module, Kibo.

Only in a year, DIWATA-1 was developed by young Filipino engineers from the Department of Science and Technology and the University of the Philippines, in collaboration with Hokkaido University and Tohoku University.

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Solving a mystery of space storms

TheExplanation of energization and Radiation in Geospace, or ARAE(R), was launched by the second Epsilon Launch Vehicle on December 20, 2016 from the Uchinoura Space Center.

The Epsilon will reveal how highly charged electrons are energized, which are generated, which are caused by solar wind in the Van Allen radiation belt lying within the geospace.