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Space Development and Its Basic Research

By FUNADA Hajime

Almost exactly 51 years ago, on July 20, 1969, Commander Neil Armstrong of the Apollo 11 mission marked the first moon landing in the history of mankind. The National Aeronautics and Space Administration (NASA) had kept the Apollo mission and dispatched to the moon up to the Apollo 17, then the program was suspended after 1972. NASA, however, recently initiated a new crewed lunar exploration program, called the "Artemis program."

The Artemis program plans to complete crewed spaceflight on the lunar orbit by 2022, through the Space Launch System (SLS), a new scheme of launching the spaceship. Two men and two women will be sent to the lunar surface by 2024 for the exploration and resource development there, which will mark "the first female astronaut's lunar landing in the history of mankind." In this connection, the Ministry of Education, Culture, Sports, Science and Technology (MEXT) of Japan and NASA announced the declaration for cooperation in the Artemis program the other day. It gives Japanese astronauts a higher chance to land on the moon in near future.

NASA also plans to establish the Lunar Orbital Platform-Gateway (LOP-G), a space station on lunar orbit so that moon landing missions would be easier than launched from Earth. In specifics, the Lunar Gateway is the crewed station to be built on the lunar orbit under multinational cooperation. The facility includes communication hub, science laboratory, short-term habitation module, is solar powered, and equipped with every space development and research tool thinkable. Many manned and unmanned ships will be launched from September 2022 on till 2033, which in total is estimated to cost ten times higher than the current International Space Station project that Japan has been part of. The Gateway project is not only meant to explore moon but also planned to serve as the staging point for Mars exploration, which Japan, too, is willing to participate.

In recent years, the United States, China and Europe are in competition in space exploration. There is more than single reason ---hoping to secure the resources on the moon before others, to build an advantage in space security, and/or raise its own nationalism, etc. Nevertheless, the race undertaking the national pride has already begun.

On the other hand, Japan is apparently and unfortunately lagging behind the US, Europe or China in the space exploration and development. With that reality in mind,

Japan's cooperation with NASA in the Artemis project and LOP-G are appropriate in light of its national interest.

Japan, meanwhile, has steadily conducted the space research as pure science for years, rather than as aforementioned somewhat more practical space development. The researches were led by the Institute of Space and Astronautical Science (ISAS), originally founded in the University of Tokyo. Then, since it merged with the National Space Development Agency of Japan (NASDA) and formed today's Japan Aerospace Exploration Agency (JAXA), their focus seems to be shifted to the areas of development and utilization than basic research.

The ISAS built the Hayabusa, a near-Earth object explorer that made quite a news when it successfully landed on the targeted asteroid, Itokawa. Various challenges the Hayabusa faced and overcame on its return back to Earth made the mission more dramatic. The successor, Hayabusa2, has been in operation and fulfilling the mission tasks perfectly. Its return to Earth is scheduled on December 6, 2020, which should add another worthy scientific achievement in the field of space research.

The new Basic Plan on Space Policy will be effective from the next year on. While it states to promote the scientific research, it also seeks the development, commercial and security usage in the space. The scientific research part ended up consisting smaller part than others in the new Plan, though I sincerely wish the scientific research part will not be cared less.

(This is an English translation of the article written by FUNADA Hajime, GFJ Political Governor / Member of the House of Representatives (Liberal Democratic Party), which originally appeared on the e-forum "Giron-Hyakushutsu (Hundred Views in Full Perspective)" of GFJ on July 22, 2020.)