

Japan's lunar probe nicknamed *Kaguya*, said to be the largest in scale since the United States embarked on its Apollo space program in the 1960s and 1970s, is in lunar orbit and continuing exploration of the celestial body. Its main objective is to collect data to unravel the origin of the moon and the process of its evolution. The observation conducted by the probe, officially known as SELENE (Selenological and Engineering Explorer), is necessary for the future utilization of the natural satellite of the Earth.

The Apollo project succeeded in sending humans to the moon for the first time. However, as a result of the top priority it placed on landing astronauts there, it surprisingly left almost untouched detailed exploration of the moon's crustal structure and the secrets of its birth and evolution. For that reason, high expectations are placed on the *Kaguya* probe, which was launched Sept. 14 with leading-edge observation gear on board.

The name *Kaguya* is derived from the "Shining Princess" in the *Tale of the Bamboo Cutter*, a fairy story in the early Heian period (794-1192). According to the account, an old bamboo cutter found a baby in a gleaming bamboo. The baby grew up to become the very beautiful "Princess *Kaguya*" but, one night, a flying oxcart came and took her to her home on the moon. From ancient times, Japanese people expanded a variety of images on the moon. *Kaguya* ranked top among the names the Japan Aerospace Exploration Agency (JAXA) received in response to a call for the public to suggest some nickname to the lunar probe.

*Kaguya* is 2.1 meters in height and width and is 4.8 meters long. It weighs about 3 tons. *Kaguya* comprises two kinds of spectrometers to examine the distribution of elements on the surface of the

look into the moon by such means as manned lunar exploration. China, in particular, successfully launched its first lunar probe late in October. Each country has diverse expectations such as gaining a foothold in carrying out manned planet exploration, enhancing national prestige or securing new resources. However, it may be just like Japan to focus its mission on scientific research.

The next stage after the completion of *Kaguya's* mission calls for Japan to dispatch its successor SELENE-2 for landing on the moon for direct exploration. The launch planned sometime in the first half of the 2010s will aim at placing the projected probe on high land in a polar zone of the moon – a candidate site for the base of future manned lunar examination activities – or in a belt in the middle latitudes. SELENE-2 will be equipped with a probe capable of running on the surface of the moon for assignments, including observation of interior substances.

Japan has already performed the spectacular feat of having a probe named *Hayabusa* twice land on and take off from a small planet called Itokawa, measuring 548 meters long and 312 meters wide and 300 million km away from the Earth. It made automatic landings and takeoffs, not by remote control. JAXA is expected to make use of that technology in SELENE-2.

Speaking of the moon, the first thing that comes to a person's mind is its exploration by humans, but the spectacle of a humanoid robot – a forte of Japanese engineers – engaging in activities on the moon's surface would seem to be more attractive. "Princess *Kaguya*" is a story that could be seen in a film directed by Steven Spielberg of the United States. A robot would lean more to science fiction in this sense. **J.S**

## Japan's SF-like Lunar Mission

By ADACHI Isao

moon, a device to study the makeup of geological features and minerals, a geographical camera to collect data on the figuration of the ground, an apparatus to study the structure of the moon's surface extending several kilometers underground, equipment to observe the distribution of magnetism on the surface and around the moon, and two subsatellites to observe the moon's gravity.

The moon, the celestial body located closest to the Earth, exists like a fossil of a solid planet similar to the Earth and Mars, made up of solid crusts. Therefore, it is said to be a valuable object lending itself to the resolution of the origin and progress of solid planets. The Japanese lunar probe could achieve a great accomplishment on its current mission, particularly if it succeeds in obtaining clues to the expanse and depth of the magma ocean that was considered to have been present when the moon came into being and other phenomena such as a magnetic field, which once was reportedly in existence.

The competition for the moon is entering a new era at present as the United States, Russia, China and India, among others, plan to



Photo: PANA

*Tsukuda Kazuo, president of Mitsubishi Heavy Industries Ltd. (second from left), smiles to photographers following the successful launch of the H-2A 13 rocket carrying lunar probe Kaguya to explore the moon at the Tanegashima Space Center, Kagoshima Prefecture. Mamiya Kaoru, vice president of the Japan Aerospace Exploration Agency, is at the center.*

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