

第4部 課題

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【課題】

第4部 英文B

Akatsuki probe provides hope for unraveling mysteries of Venus

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Editorial: Akatsuki probe provides hope for unraveling mysteries of Venus 


The Japan Aerospace Exploration Agency (JAXA) has succeeded in putting its Akatsuki probe into orbit around Venus. To space enthusiasts, the feat no doubt stirred up memories of the Hayabusa asteroid explorer's return to Earth in 2010. 


JAXA had attempted to put the Akatsuki probe into orbit in Venus five years ago, but was unsuccessful due to failure of the probe's main engine. Scientists accordingly waited for another opportunity for the probe to approach the planet. The latest achievement marks the first time that a Japanese probe has been put into orbit around a planet other than Earth. 


The Akatsuki project team deserves credit for its strenuous efforts, overcoming dangers to succeed in putting the probe into orbit on its second attempt. Its experiences will surely be a valuable asset for Japan's future space science exploration projects. 


Earth and Venus are similar in size and mass, and they have been described as twin planets. But the environment on Venus is completely different from that on Earth. Venus' atmosphere consists of a thick layer of carbon dioxide, with sulfuric acid clouds. The surface temperature hovers around a searing 460 degrees Celsius. The atmosphere is in a state of super-rotation, with winds blowing at a fierce 100 meters per second. Akatsuki's main job is to unravel the reasons behind the weather phenomena. 


A total of 25 billion yen went into development of Akatsuki, which was launched in May 2010 from Tanegashima Space Center in Kagoshima Prefecture. The probe spent seven months heading toward Venus, but failed to enter the planet's orbit, and instead went into a different orbit around the sun. 


On a renewed attempt to insert the probe into orbit around Venus, JAXA scientists only had use of small attitude control engines. After tens of thousands of calculations, they settled on the method of waiting for the probe to pass Venus again, then putting the small engines' thrusters in reverse as it flew by. 

Furthermore, because the probe flew closer to the sun than had originally been envisioned, scientists always had the most heat-resistant part facing the sun. The successful renewed attempt to enter Venus' orbit -- a result of original ideas and efforts -- attests to the high level of Japanese science and technology. 

Akatsuki has survived beyond its planned lifespan, but the equipment on board is functioning properly, and test measurements have begun. The probe is the first with a focus on the weather of Venus to be successfully put in orbit around the planet. We hope it will be successful in delivering its results to the world. 


Under Japan's basic plan for space projects, which was set in January, Japan will be involved in three projects similar the Akatsuki mission over the next decade. One of the projects under consideration is a mission to bring back a sample from a natural satellite of Mars. 


Akatsuki has achieved results of which it can be proud from a global perspective, but Japan must concede that it doesn't have the same level of experience with probes of planets as the United States or Europe. It is possible that the probe could encounter all sorts of problems in the future. 


Nevertheless, such scientific exploration does not only pursue the mysteries of space, but also facilitates technological development and personnel training. We hope that the government and JAXA will make an effort to convey the significance and appeal of this exploration. 


December 11, 2015 (Mainichi Japan)

Yoroku: Strands of joy for the blind who brave the cold rain 


A woman is walking on a wet street up a hill. The cold rain requires the use of both her hands -- one for her umbrella, and the other for her white cane. Every time it rains nowadays, we can feel the gradual approach of winter, a particularly difficult time for those who are visually impaired. Despite the harsh conditions, though, there's a place the woman is determined to get to, relying on the braille blocks on the ground. 

She's headed to The Japan Braille Library in the Takadanobaba district in Tokyo's Shinjuku Ward. It was founded by the late Kazuo Honma -- whose 100th anniversary of his birth is on Oct. 7 -- when he was just 25. Honma, who lost his sight at a young age, learned the joy of reading through the Braille Mainichi newspaper. He trained volunteer braille translators, and delivered the braille books that they produced to the post office using a hand-drawn cart. During World War II, Honma evacuated from Tokyo with his books and continued his activities, because there were people across the country who were waiting. 

Back in the day, braille was embossed by hand. In the winter when his fingertips would go numb from the cold, Honma would sit out on the veranda, longing for the sun to peak through the clouds. "The blind do not experience the sun as light, but as warmth," he wrote in one of his books. He said that in old age, whenever he felt the warmth of the sun, he became nostalgic for his younger years, despite them having been filled with hardships. 

The Internet has dramatically changed the experience of "reading" among the visually impaired. Nowadays, printed books can automatically be translated into talking books and distributed to users. By linking the collections of various braille libraries together, the number of talking books that one can listen to on a computer has greatly increased. 

Despite the advances in technology, however, the system is not almighty. The machines that translate books into talking books sometimes misinterpret or misunderstand the meanings of words and phrases. Moreover, not all people who are visually impaired have access to the Internet. And that's where volunteers -- like those who teach braille to people who have lost their vision, and those who read books to the visually impaired -- come in. Their spirit remains unchanged from that of Honma's in his time.

Unfortunately, however, it has become increasingly difficult for the library to scrape together enough donations to support its operation. 

There are multiple strands of chains that adorn the exterior wall of the library. They have come to be known as "the cascade of knowledge," though no one knows for certain when that name came into wide usage. There is an overflowing joy over gaining knowledge. And those strands of joy welcome those who visit the library like a warm rain. ("Yoroku," a front-page column in the Mainichi Shimbun)
