Studying the Universe

In Japan there are more than stargazing parties for citizens. People can buy a telescope or can see stars through a space with a satellite. Radio and infrared telescopes allow us to observe gas and waves. Just beyond violet, there is invisible light called infrared light and after that, radio waves.

How has our view of the universe been changed together with the evolution of the telescope?

Galileo's Great Discoveries

In 1609 the telescope was invented by a Dutchman who was a spectacle maker. The following year, 1610, Galileo heard about the telescope and made one of his own. He pointed his telescope to the night sky and discovered the four large moons of Jupiter, the waning and waning of Venus, and the Milky Way. He published a book on it.

Stargazing at an Observatory

Astronomical telescopes are not only for astronomers. High-quality telescopes can be bought in telescope shops or online stores. Even the world's largest observatory which provides telescope services for public observation is open to the public. We can love stars or galaxies in the universe through a telescope.

Studying the Universe in Various Ways

We observe many bodies in the sky, that is, in the sky, electromagnetic waves from outer space. The light we can see with the human eye is called visible light and we can observe the sun, moon, stars, and other bodies. There are invisible light that visible light and ultraviolet light (UV), followed by X-rays, gamma rays. When we observe bodies in outer space, we cannot observe them directly. Even if we can observe them, we can detect invisible light and burn-out stars. Other than electromagnetic waves, we also observe cosmic rays and neutrinos which are not particles. Gravitational waves may even reach Earth.

400 Years of the Astronomical Telescope

The Optical Telescope

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The Optical Telescope

This astronomical telescope observed visible light. Visible light is called "visible light". Mirrors and lenses are used in this telescope. A variety of instruments are mounted at four foci in the Optical Telescope. A more accurate record of an astronomical image was made.

The Radio Telescope

Radio waves, which are used for telecommunications, come to us from space. With a radio telescope we can observe radio waves and map invisible light which cannot be observed in visible light. The characteristic point of a radio telescope is that it can be used even at night or in cloudy weather. Combined with many antennas in various regions, it works as a huge radio telescope.

The X-ray Telescope

X-rays are absorbed by Earth's atmosphere and do not reach the Earth. With the Subaru Telescope, we obtain X-ray images of distant objects. Using X-rays, we observe black holes and other astronomical objects. They are very important for the future of astronomy. X-rays are used to image massive objects like black holes.

Are there any planetary systems outside the Solar System? How were the first stars and galaxies formed? What is the future of the expanding universe? Astronomers are looking for the clues and answers to these unsolved mysteries by using telescopes all over the world.