

Optical observation of neutral helium distribution in interplanetary space by Hisaki

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The Hisaki (SPRINT-A) satellite has a main scientific topic of the planetary continuous observation for a long term, but carried out the non-planet observation at the time when no planet during a good observation opportunity phase exists. One case of those is observation of helium atom resonance scattering from the interplanetary space.

A material in the local interstellar medium (LISM) travels into the heliosphere over the heliopause by the relative velocity of the heliosphere and the interstellar medium. The helium atom moves into about 0.5Au from the neighboring of the sun without ionizing because of its high ionization energy. The travelling orbit is bent by sun gravity and forms a high density region on the down wind side. It is called helium cone. The distribution of helium atoms in the helium cone can estimate the speed and direction of the interstellar wind, and the density and the temperature of the helium atom in interstellar space. Such a study was carried out from the 1970s, but the recent IBEX satellite observation results into gradual changes of the interstellar wind direction for several decades (Frisch+13).

The Hisaki satellite carried out the observaiont of the resonance scattering from helium corn. In this season, Hisaki observed the helium cone for two months including a ecliptic longitude with the maximum density of the helium corn. In this presentation, the helium cone observation result and the change of the wind direction are reported.

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