

Astro-HS sprite observation campaign

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<http://www.astro-hs.net/jp/index.html>

Practical approach of science education using interesting astronomical events has been successfully spread to high school students by Astro Classroom (Astro-HS) since 1998. As an observation theme of Astro-HS in 2004, sprites are selected. Sprites are light-emitting discharge phenomenon between clouds and ionosphere firstly detected in 1989. In December 2003, a meteor observer in Osaka detected sprites by a high-sensitivity video camera WAT-100N with a motion-capture software UFOCapture. This leading observation created new observing method for unexpected and rare phenomena like sprites.

In the Forum of Astro-HS held in March 2004, sprite was selected as an observing theme of Astro-HS. In order to lead successful observation campaign of sprites by high school students, promotion of sprites campaign was carried out by Astro-HS staff from July 2004, having local meeting of high school students with scientists and publishing 'Astro-HS sprite observation handbook 2005.' In the handbook, basics of upper atmosphere, sprites, and scientific targets are introduced as well as observing manual of WAT-100N and UFOCapture is written in detail. The handbook is probably the first guidebook of sprite observation to public people, so that many amateur observers including high school students can begin their observations to sprites at home or school.

An observation campaign of sprites was operated from December 2004 to February 2005 because sprites are observed in relatively large numbers in winter season in Japan. From the entire nation, 21 high school teams were participated in the campaign and more than 10 observations were successfully reported from several sites. On December 26, students of Ichinomiya high school in Aichi pref. detected the first high-school-student observation of sprites. Students of Sendai-daini high school in Miyagi pref. as well as students of Higashi-katsushika high school in Chiba pref. also detected sprites in success.

Sprites observers were gradually spread to the high school students due to the promotion of Astro-HS, resulting in multiple auto-observing stations for sprites in Japan. Scientifically significant results are expected to be obtained by many high school observatories in near future. The most important point of this educational activity is having excitement feelings from their own experience of scientific observation for unexpected rare phenomena in upper atmosphere.