

Observational Evidence for an Impact on the Main-Belt Asteroid (596) Scheila

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We made imaging observations of the main-belt asteroid (596) Scheila which was found to exhibit an outburst and a comet-like activity, using Murikabushi 105 cm telescope at the Ishigakijima Astronomical Observatory and Subaru 8.2 m telescope at the NAOJ Hawaii observatory.

We restricted the amount and size distribution of the dust particles with the analysis of the dust structure, and found when it exhibited the outburst, comparing the position angle of the dust tail and synchrones [1].

Then, we constructed the numerical model based on the laboratory experiment of the asteroid impact, and showed that the model reproduced the morphology of the comet-like dust structure [2].

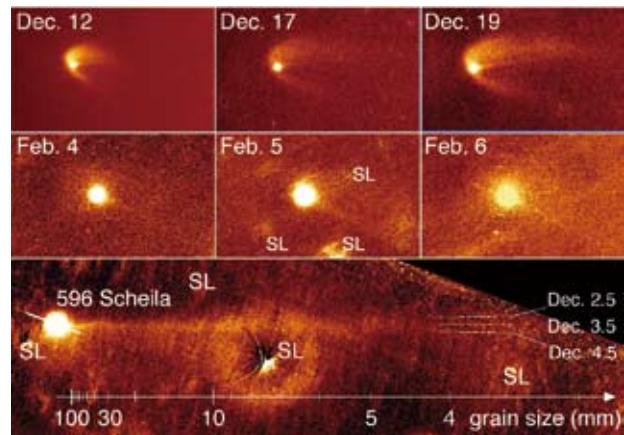


Figure 1: (596) Scheila which showed an outburst and cometlike activity. Upper and middle panels, except the middle center panel, show the dust tails observed with Murikabushi 105 cm telescope at the Ishigakijima Astronomical Observatory. The lower panel is the image of the dust tail observed with Subaru 8.2 m telescope at the NAOJ Hawaii observatory.

References

- [1] Ishiguro, M., et al.: 2011, *ApJ*, **740**, L11.
- [2] Ishiguro, M., et al.: 2011, *ApJ*, **741**, L24.