

Comet

Observation plan

The comet target team recommends C/2021 S3 (PanSTARRS), a comet of approximately the peak optical magnitude (6-7) which meets the observing constraints for XRISM and will be available around March 2024. C/2021 S3 reaches closest approach of approximately 1.26 AU during the prime observing period, requiring repointing of XRISM once per hour during the observation time along a pre-defined path. This same operation was successfully performed during the PV comet observation for Suzaku. We will use the Resolve filter wheel in its OPEN position, and no special modes for XTEND are required.

Immediate objectives

- [1] Measure detailed spectral signature of charge exchange from a solar system object
- [2] Benchmark spectral synthesis codes (e.g., AtomDB and SPEX codes, and Kronos database)
- [3] Measure chemical abundance of solar wind ions and cometary neutrals (will be challenging with the 100ks currently in the PV plan)