

IHOP_Submission

Title of Proposed Observation:

[SOOP: burst SOOP] Solar Orbiter & DKIST coordinated observation

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Main Objective:

Upflow region at AR border

Scientific Justification:

The upflow regions at the boundaries of active regions may be potential sources of the slow solar wind. However, the mechanisms driving plasma flow in these coronal upflow regions and the underlying layers of the solar atmosphere remain open questions. This study aims to understand the mechanisms responsible for plasma upflow at the borders of coronal active regions. To achieve this, we propose coordinated observations involving Solar Orbiter, DKIST, IRIS, and Hinode.

Dates: The most important is to provide a coordinated observation between DKIST, Solar Orbiter (high-resolution instrument) and IRIS: start time: 23 September 2025 19:00 UT - end time: 23 September 2025 20:00 UT. It is possible to extend the coordinated observation time to provide a coordination between DKIST, IRIS and Hinode: start time: 23 September 2025 18:00 UT and end time: 23 September 2025 22:00 UT.

Time window: Minimum duration time window: 23 September 2025 19:00 UT - end time: 23 September 2025 20:00 UT containing coordinated observation with DKIST, Solar Orbiter (high-resolution instruments) and IRIS; Extended time windows: 23 September 2025 18:00 UT - end time: 23 September 2025 22:00 UT containing coordinated observation with DKIST and IRIS. Short interruptions during minimum duration time window are not recommended, but during extended time window are allowed.

Target(s) of interest: Upflow region at an active region borders, close to disk centre

SOT requests:

Fast Map, Full FOV 1 side CCD Q75; FOV 314"x162" at 19:00 UT on 23 September 2025

EIS requests:

We would like observation mode: HH_AR+FLR_RAS_N03J (66 Mbits, 79.04 kBits/s), FOV: 240"x240", exp. time: 5 sec; 2" slit; at least core spectral lines; continuous raster; the observation mode should be repeated continuously at least between 19:00 and 20:00 UT on 23 September 2025; if telemetry allows the observation should be repeated between 18:00 and 22:00 on 23 September 2025.

XRT requests:

We would like to run the Be-thin filter at 30s cadence (or less), during the co-observation with DKIST from 19:00 to 20:00UT on 23 September 2025, if telemetry allows the observation should be extended to 18:00 -22:00 UT we would like to run the Al/poly filter at 30s cadence (or less), during the co-observation with DKIST from 19:00 to 20:00UT, if telemetry allows the observation should be extended to 18:00 -22:00 UT

IRIS requests:

The proposal will be submitted to IRIS team.

Additional instrument coordination:

SOOP:R_SMALL_HRES_HCAD_RS-burst;

<https://s2e2.cosmos.esa.int/confluence/display/SOSP/Solar+Orbiter+Planning+-+for+coordination+with+external+parties>

Previous HOPs:

HOP0492- sucessfull coordination of AR and upflow region observation using IRIS, Hinode and Solar Orbiter. The highest temporal cadence observation of Solar Orbiter EUV/HRI with cadence of 1 sec. DKIST didn't observed due to poor weather condition; HOP0497 -sucessfull coordination of AR and upflow region observation using IRIS, Hinode and Solar Orbiter, DKIST didn't observed due to poor weather condition

Additional remarks: