NASA Mission Management Updates to the *Hinode* Science Working Group

September 2018



On behalf of the US instrument teams

Hi-C 2.1

- Launched May 29, 2018.
  - Successful reflight
- High resolution EUV imager (172 Å)
  - Science focus is mass and energy transfer from the chromosphere to corona
- Relies on complementary Hinode and IRIS observations (plus ground-based).
- Initial results to be presented at AGU and data to be released in Dec. 2018

SDO/EVE underflight

- Launched June 18, 2018.
  - Successful reflight
- EUV Irradiance monitor
  - Calibration activities; constraining QS and AR coronal temperature distributions; elemental abundance variation
- Requested complementary Hinode (particularly XRT & EIS).

FOXSI-3

- Launched on Sept. 7, 2018 launch
- Successfully acquired data
- HXR imager
- Targeting AR DEMs, QS, and possibly microflares
- Addition of SXR photon counter
  - Narukage-san's Phoenix instrument
- Requested complementary Hinode observations (particularly XRT)

EUNIS

- Scheduled for November 6, 2018 launch
- Two co-aligned multilayer telescope/spectrographs (EUV)
- Searching for nanoflare coronal heating
- Requests complementary Hinode (particularly EIS for cross-calibration) and IRIS observations.

MaGIXS

- Scheduled for August 2019 launch
- Soft X-Ray spectrograph (high resolution)
- Targeting AR loop heating frequency.
- Relies on complementary Hinode and IRIS observations.

CLASP-2

- Scheduled for April 3, 2019 launch
- Spectropolarimeter, Mg II & K
- Targeting chromospheric magnetic fields with the Hanle effect.
- Requests complementary Hinode and IRIS (required) observations.

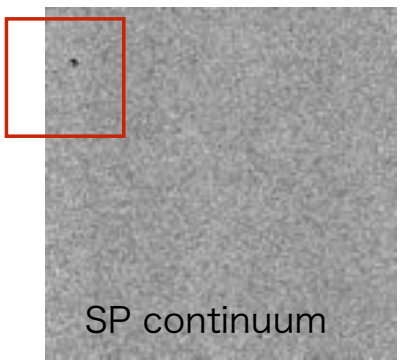
- HOP 308
  - Hinode-BBSO / Long
    - Seeing from the BBSO not sufficient during campaign
    - Hinode/IRIS data was excellent but not good enough to address purpose of campaign due to resolution

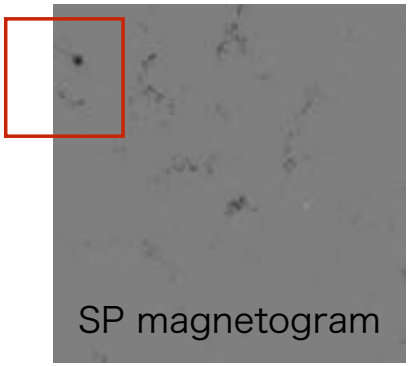
- HOP 315
  - Hinode-GREGOR / Meetu
    - Verma et al., High-resolution imaging and near IR spectroscopy of penumbral decay, 2018 A&A 614, A2
    - NO HINODE DATA in that article
    - Plan to follow up with Hinode data
    - Hinode data shown in presentation:
      - SOLARNET-GREGOR Science Meeting (2016)
      - SOLARNET IV (2017)

- HOP 316
  - Hinode-Comp / Dudik
    - “The density-sensitive Fe XIII lines observed by COMP contain intensities incompatible with the theoretical density-sensitive ratio; possibly due to stray light affecting the observed intensities. This is still under investigation. The Fe XII line in the IRIS observation is weak. The EIS spectra themselves are wonderful (Giulio’s words). The HOP was repeated as IHOP 343, without COMP.”

- HOP 317
  - Hinode-BBSO / Yang
    - No response

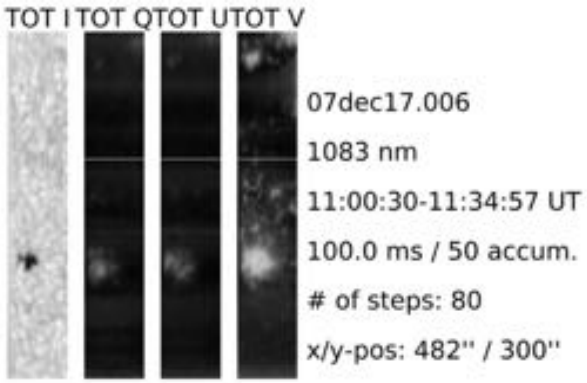
- HOP 346
  - Hinode-GREGOR / Kawabata
    - No active region, only small pore during campaign
    - 3 maps with Hinode and 7 maps with GREGOR
    - Pointing misalignment
      - pore at the corner of FOV in SP
      - difficult to use for NLFFF extrapolation





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GREGOR full stokes

4-2. Focused Mode

- Status: Operable
  - No major issues reported from the teams.

- Focused Mode coordination
  - Routine communication during weekly instrument team meetings

  - Mid-week pointing changes implemented when necessary
    - Bamba-san has been monitoring solar conditions and suggesting repointing when appropriate (very successful for 2017 Sept events)

  - Priority list circulating with weekly meetings
    - Active Region evolution (flux emergence, waves in sunspots, flare monitoring)
    - Coronal Holes
    - Prominence / Filament
    - Disk-center (long baseline synoptic scans)
    - Polar magnetic network

4-2. Focused Mode



*** Includes Hi-C 2.1 (May), FOXSI-3 (September), EUNIS (November)

*** Other launches / campaigns [ALMA ~ Dec. 15-Jan 5 (Jan 6 – Feb 1, Mar 1 – 31), Apr 1 - 14]

November 22nd is Thanksgiving week (less US support). FM during Dec/Jan holidays.

4-2. Focused Mode



*** Includes CLASP 2 (April 3). MaGIXS (August 28). ESIS (~June 26)?

*** Other launches / campaigns [ALMA ~ Dec. 15-Jan 5 (Jan 6 – Feb 1, Mar 1 – 31), Apr 1 - 14]

November 28th is Thanksgiving week (less US support). FM during Dec/Jan holidays.

4-3. HOP Program Status

- Refer to previous SWG presentation for program updates (nothing new to report on that front)
  - Exception: automated responses implemented, finally

- HOP activity since Hinode 11 meeting:
  - ALMA observations (April 2018, Sept 2018)
    - microflares, nanoflares, chromospheric heating, center-to-limb QS, etc.
  - HOP 336:Cycle 25 Bright Points
    - weekly campaign to observe solar cycle BP dependence since March 2017
    - extended indefinitely
  - HOP 344: Quarterly EIS full-disk scans
  - HOP 349: XRT full-sun image campaign
  - HOP 361: **High** cadence EIS/XRT/IRIS
  - North American Eclipse, MHD waves (thesis), small loops, Non-Maxwellian distributions, Coronal cavities, energy storage, pulsations, HXRs with cycle, spicules, chromospheric jets, solar pores, plumes.
  - ALMA: polar jets, chromospheric heating, CHs, coronal rain, chromospheric network, filament, CTL variations

- ~78% of HOP proposals request IRIS coordination

- Senior Review successfully completed. Panel presentation occurred October 2017.
  - Extension approved through 2020.

- 3-year Senior Review cycle approved.
  - Next SR call in Fall 2019; Due in Winter 2020.