

The High-Resolution Coronal Imager 2.1



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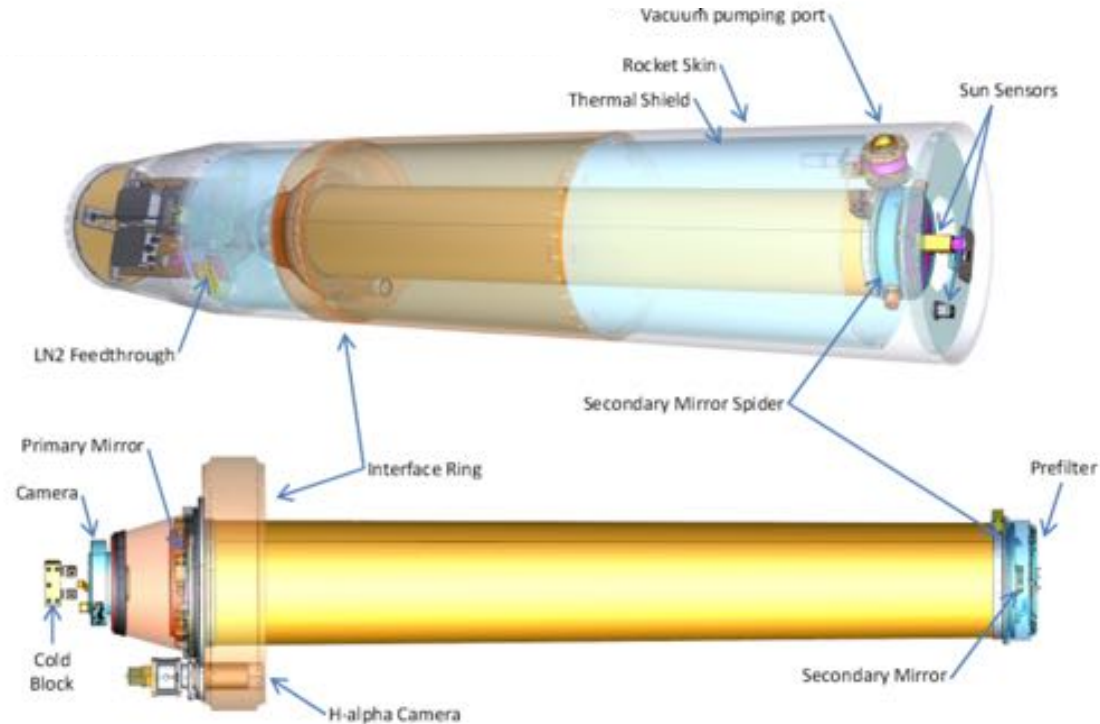
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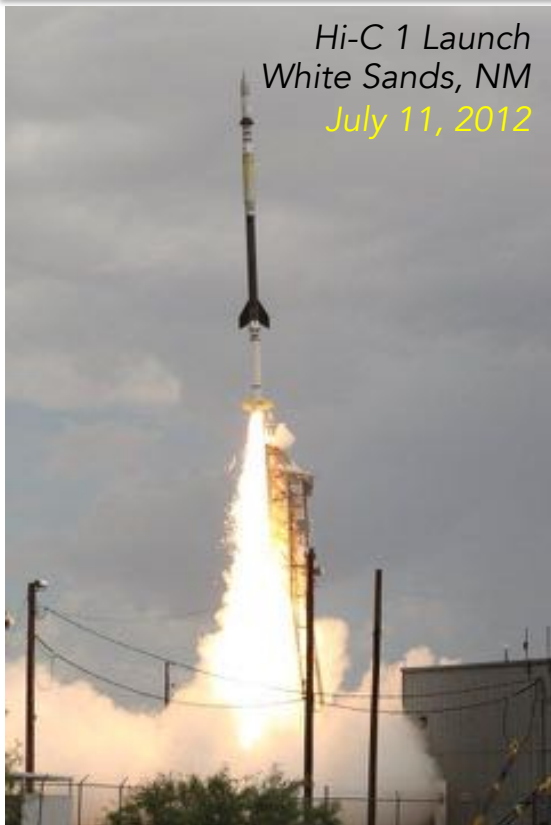
Remembering Hi-C 1

- Flight: 11 July 2012
- Wavelength: 193 Angstrom
- FOV: 399x422 (100x100) arcsec
- Plate Scale: 0.1 arcsec/pix
- Cadence: 5.5 (1.4) sec
- Obs time: ~5 min
- Target: AR 11520
- Noise: 77-102 e⁻ RMS
- # of papers: >26



Hi-C 1 results – 193 Angstroms

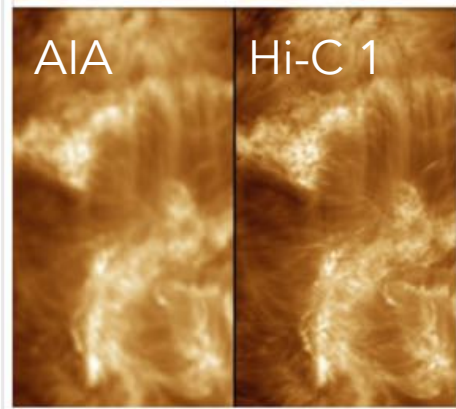
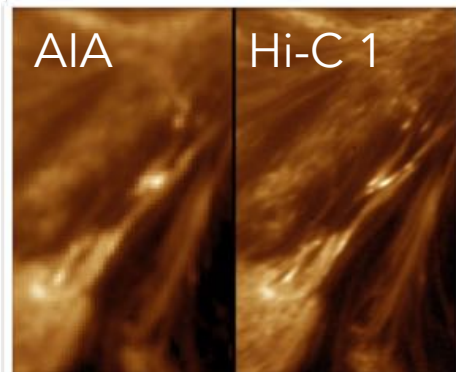
Hi-C 1 Launch
White Sands, NM
July 11, 2012



26 publications for 5 minutes
of data!

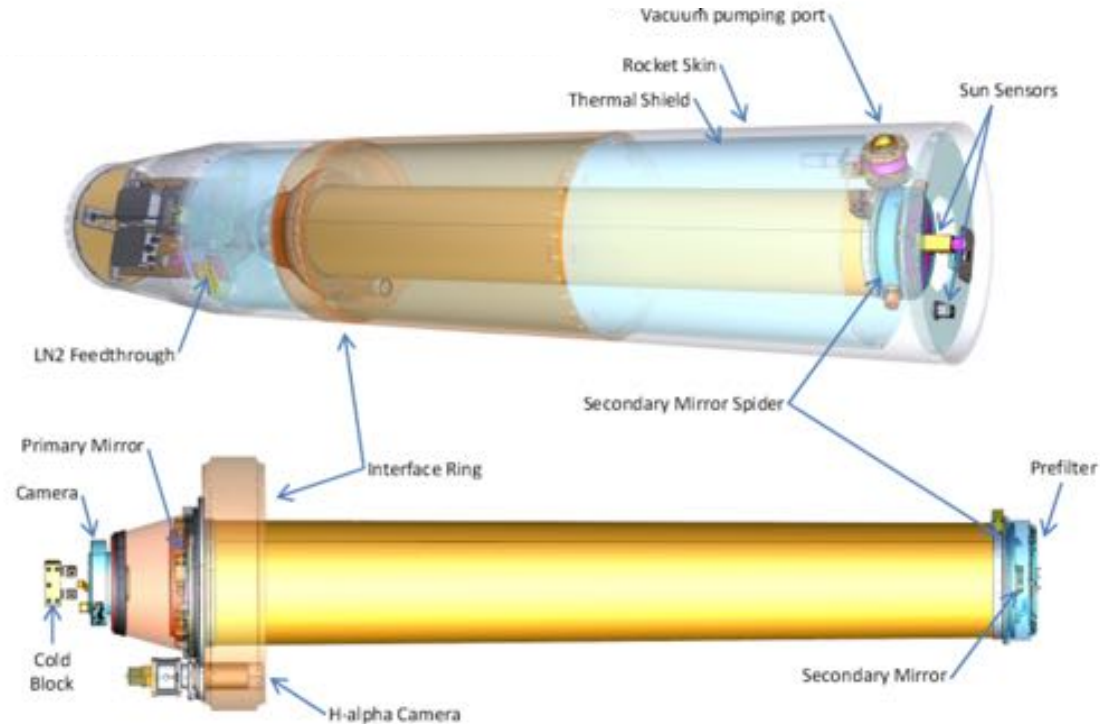
Science highlights:

- Braided loops triggering energy release through magnetic reconnection (*Cirtain et al. 2013, Nature*)
- Subflare triggers
- Nanoflare heating
- Loop sub-structure
- Moss dynamics
- Penumbral jets
- Flows along filament threads
- MHD waves



Learning about Hi-C 2

- Flight: 29 May 2018
- Wavelength: 172 Angstrom
- FOV: 260x260 arcsec
- Plate Scale: 0.13 arcsec/pix
- Cadence: 4.4 sec
- Obs time: ~5 min
- Target: AR 12712
- Noise: 7-13 e⁻ RMS
- # of papers: ...



How 2.1 came to be

- Hi-C 2.0 successful launch on 27 July 2016
 - No science data due to short circuit in the camera shutter.
 - Fixed the cable, added extra sensor, re-checked electrical & optical components
 - Hi-C 2.1 re-re-flight approved in Feb 2018
 - Launched 3.5(!) months later
-

Hi-C 2.1 – Launch

AR target



Hi-C 2.1 – key components of success

HIGH SPATIAL RESOLUTION

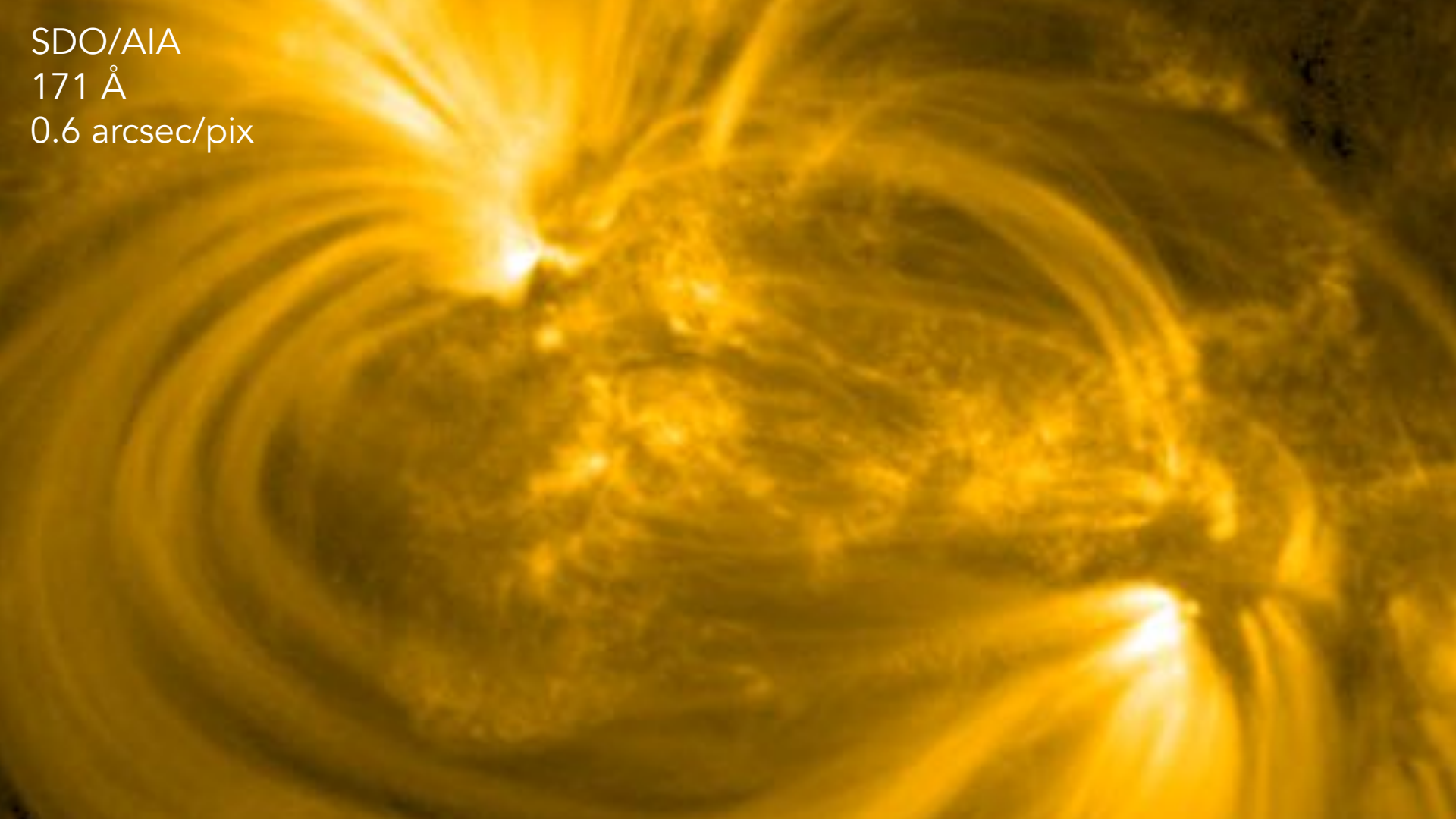
HIGH TEMPORAL RESOLUTION

LOW NOISE CAMERA

ON-DISK ACTIVE REGION TARGET

COORDINATED DATA SETS

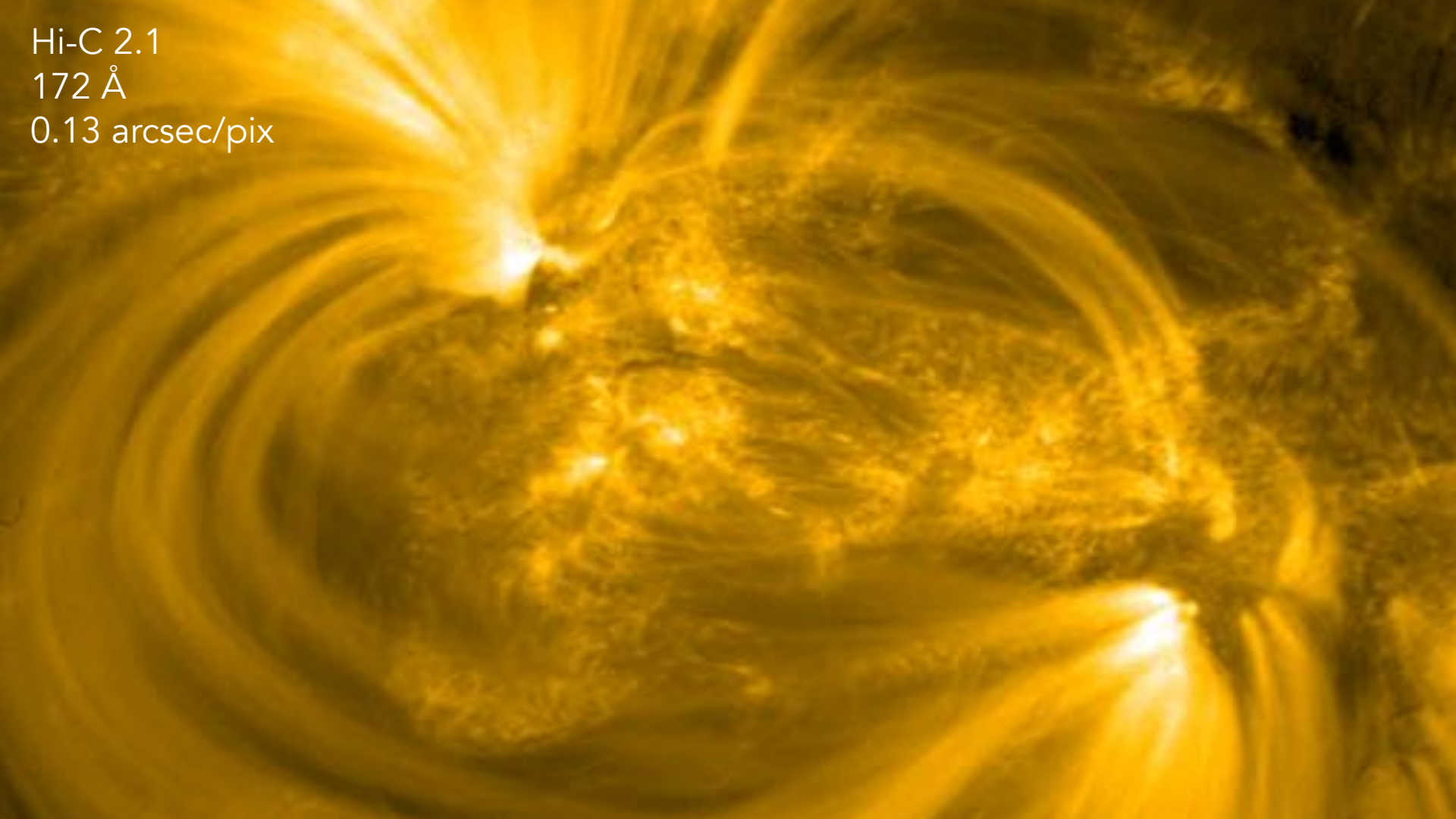
SDO/AIA
171 Å
0.6 arcsec/pix



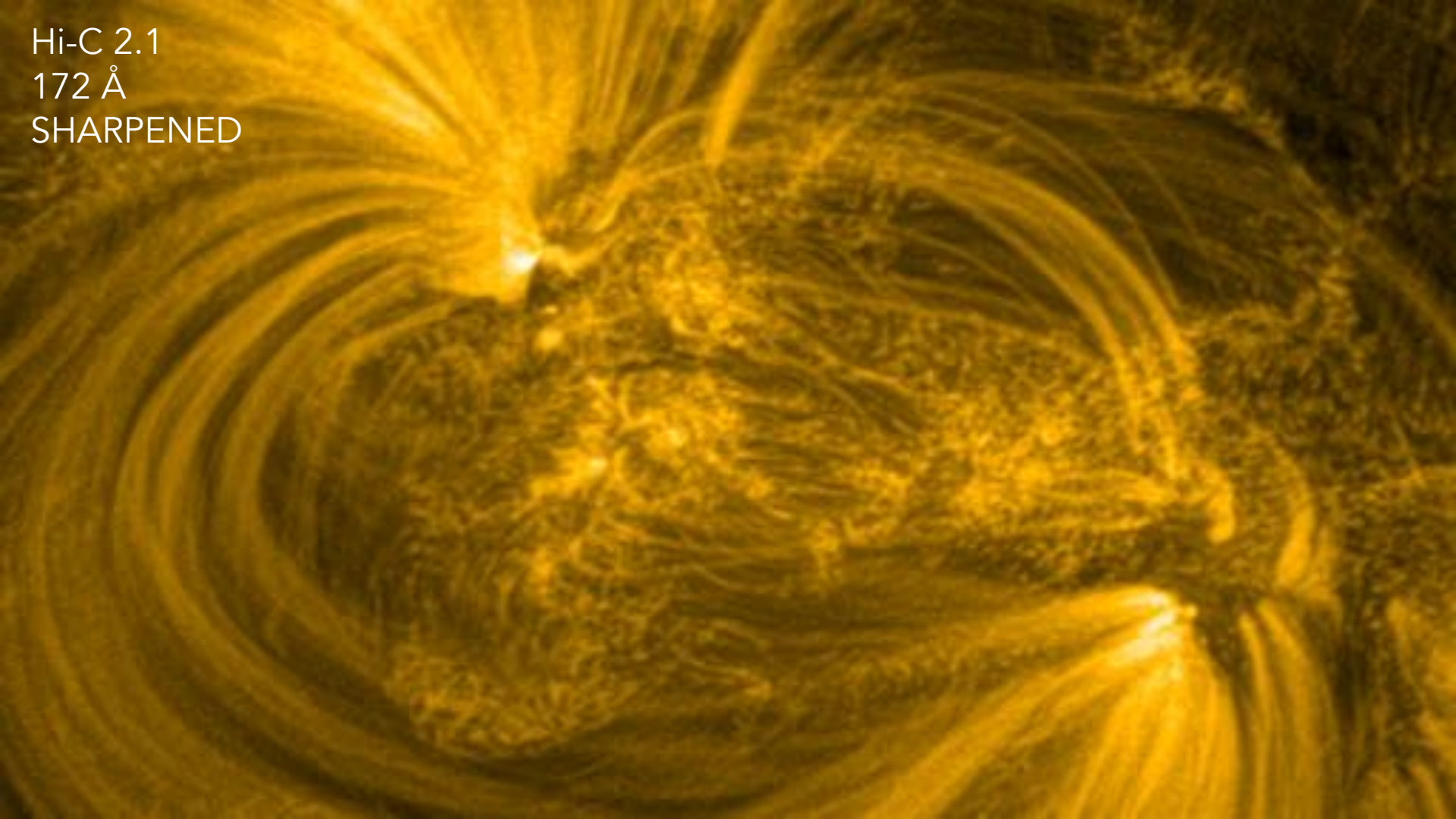
Hi-C 2.1

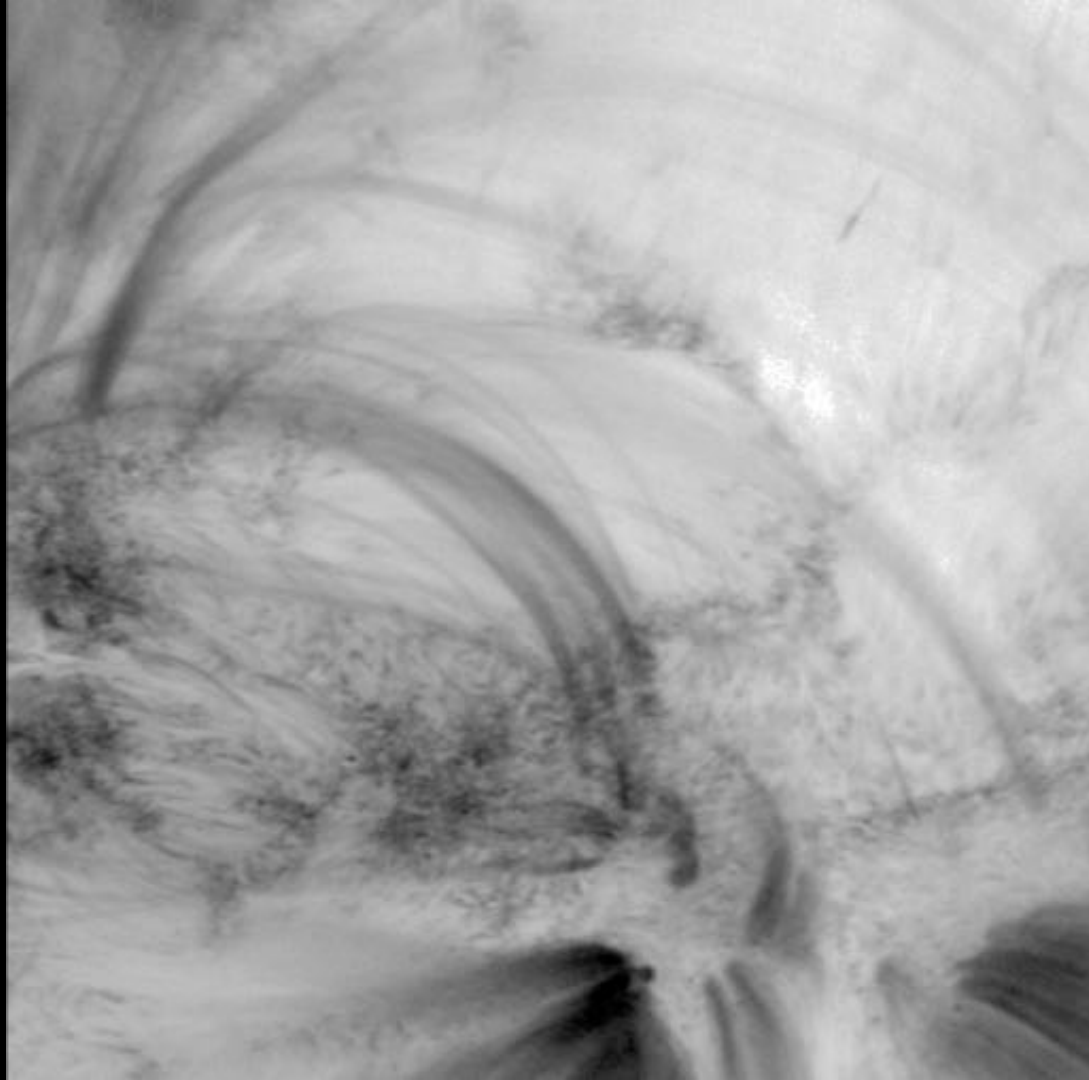
172 Å

0.13 arcsec/pix



Hi-C 2.1
172 Å
SHARPENED



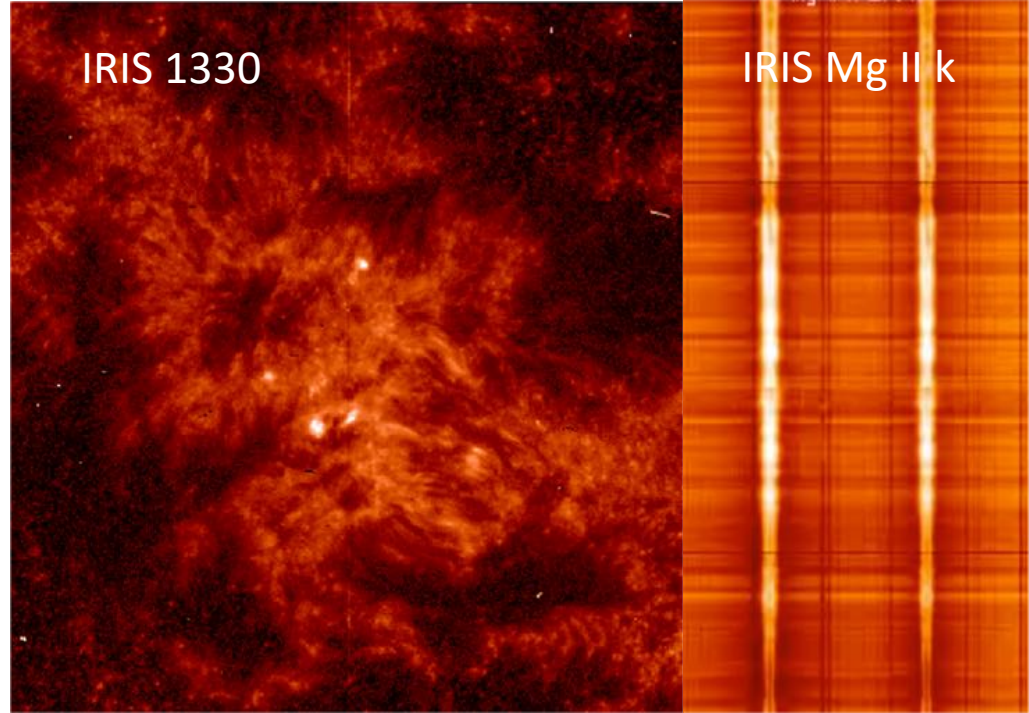


Science topics being pursued for Hi-C 2.1

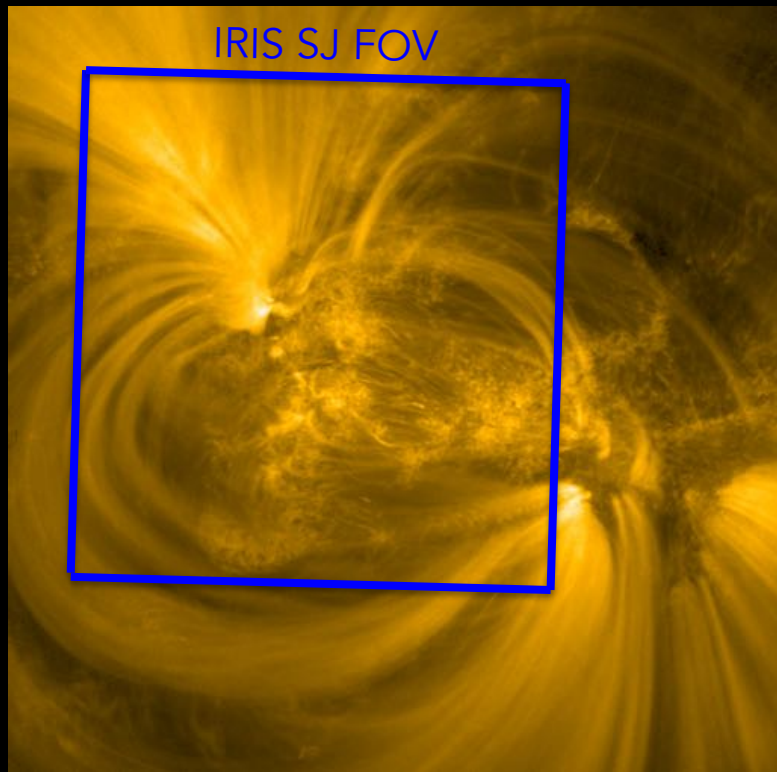
- Thin, stranded loops [width variations]
 - Flows between transition region, chromosphere, and corona
 - Spicules
 - Nano/microflares
 - Moss/Plage brightenings
 - Flows along loops
 - Waves
 - Mini-jets
 - Etc.
-

IRIS coordinated data

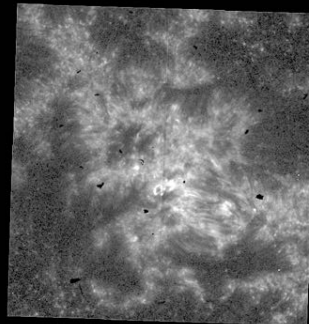
IRIS observations of a subset of the region at high resolution and spectra will be used to tie small features in the chromosphere to those in the corona.



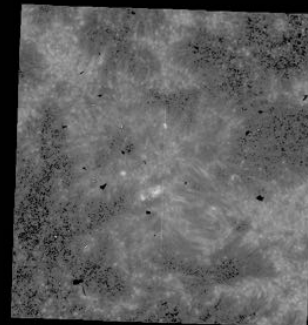
IRIS coordinated data



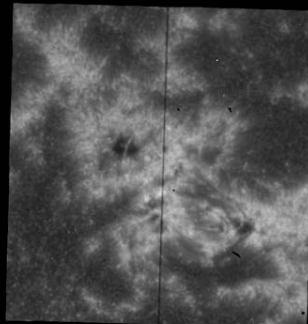
IRIS 1300



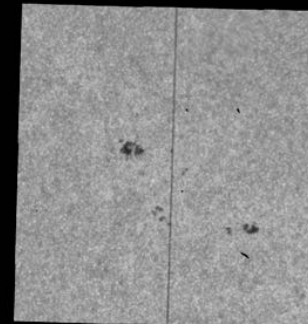
IRIS 1400



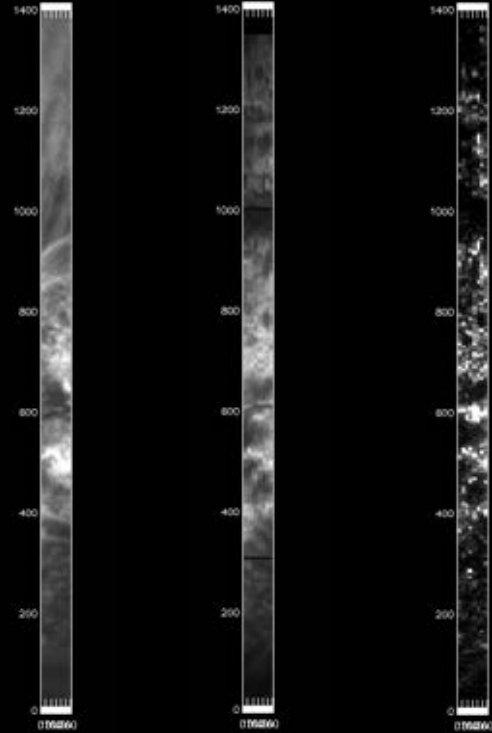
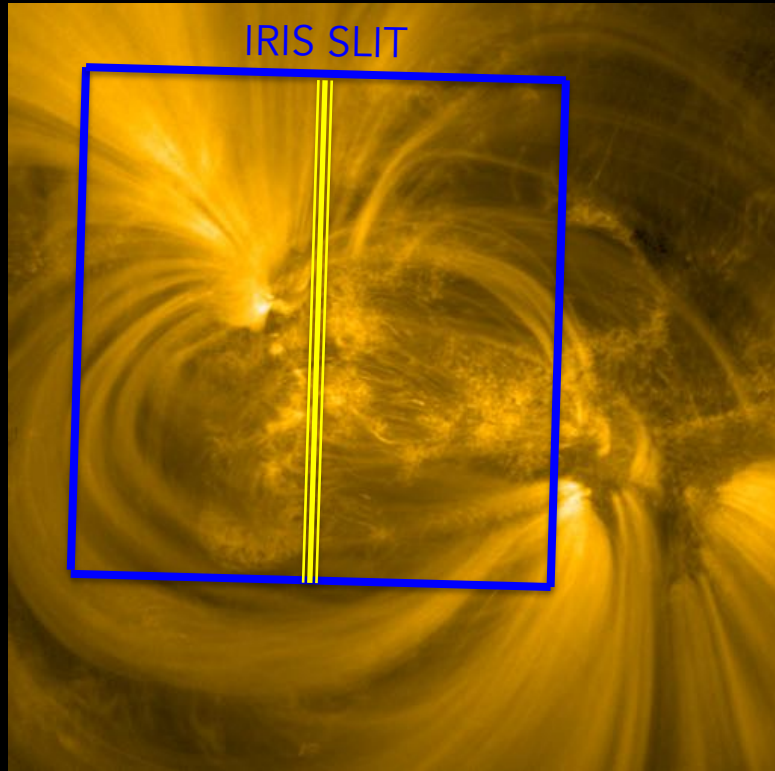
IRIS 2796



IRIS 2832



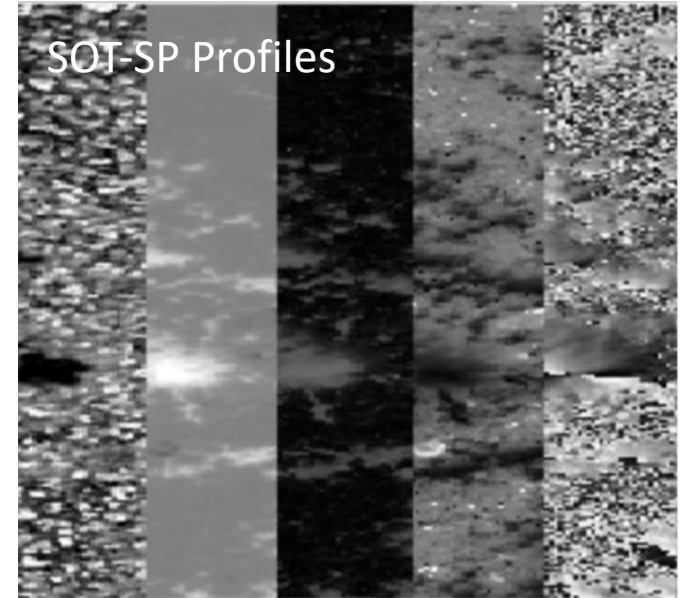
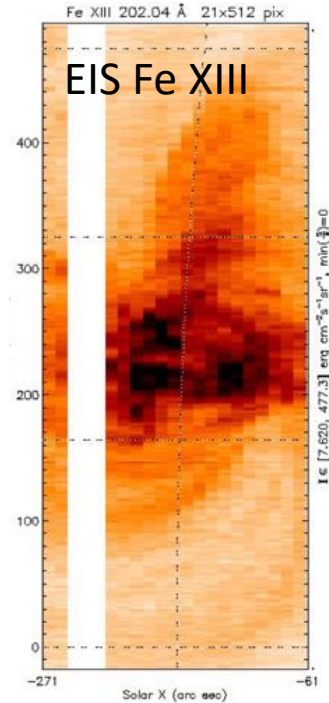
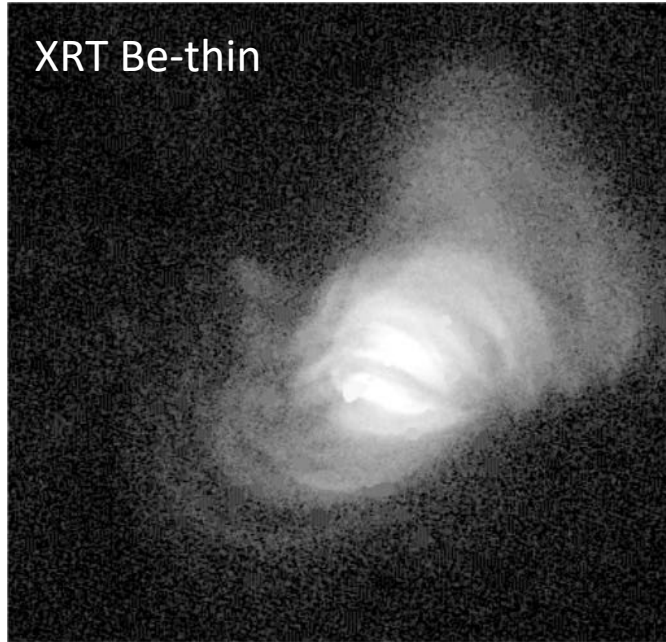
IRIS coordinated data



Hinode coordinated data

- XRT: movement of hot plasma above the Hi-C features.
 - EIS: narrowband spectra of the hot coronal loops: plasma flow properties.
 - SOT-SP: underlying magnetic field information to high precision.
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Hinode coordinated data



Additional Coordinated Data Sets

- NuSTAR
- BBSO
- Owens Valley
- ~SST

** Special thanks for assisting with the coordination goes out to:

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Grega Vissers

Science Results at AGU!

AGU session SH23A

Breakthrough Observations of the Sun on Suborbital-Class Platforms

11 December 2018

13:40 - 15:40



FALL MEETING

Washington, D.C. | 10-14 Dec 2018

Hi-C 2.1 data to be released by AGU

More to come!

