SWAP

a third eye for SECCHI

4th

ROB/SIDC

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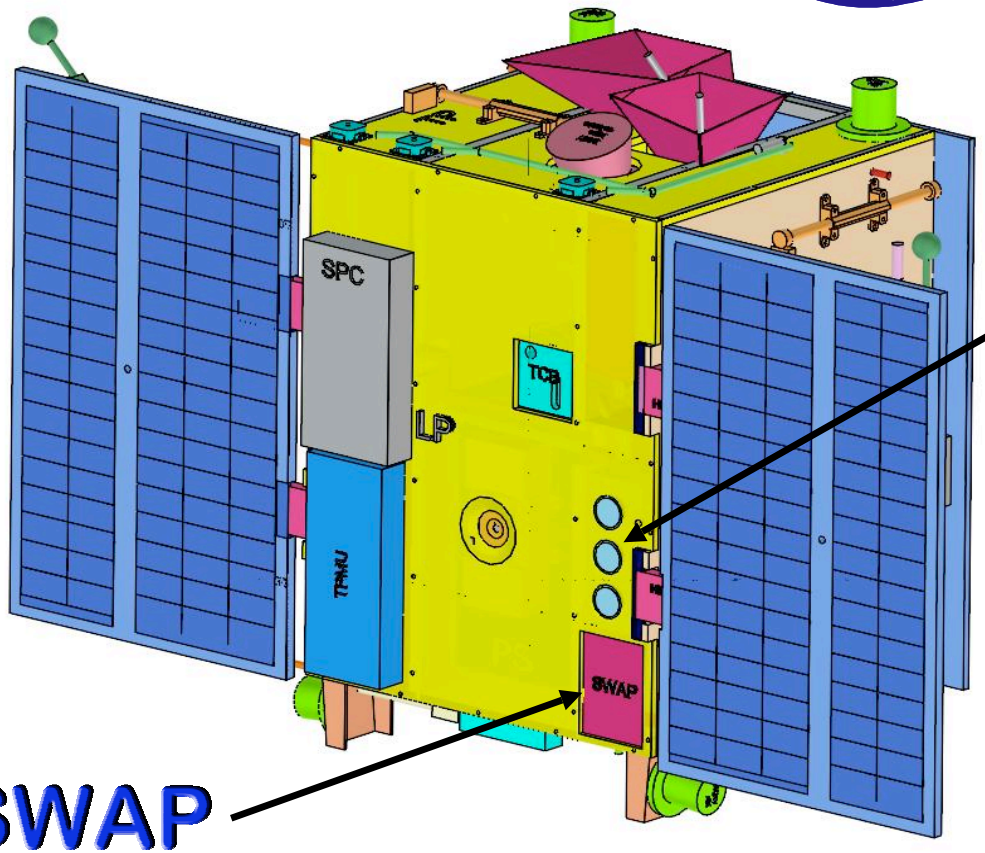
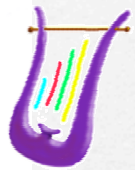
U. Schuhle, A. De Groof, V. Slemzin,
P. Gallagher, V. Bothmer & ISSI team

proba II satellite

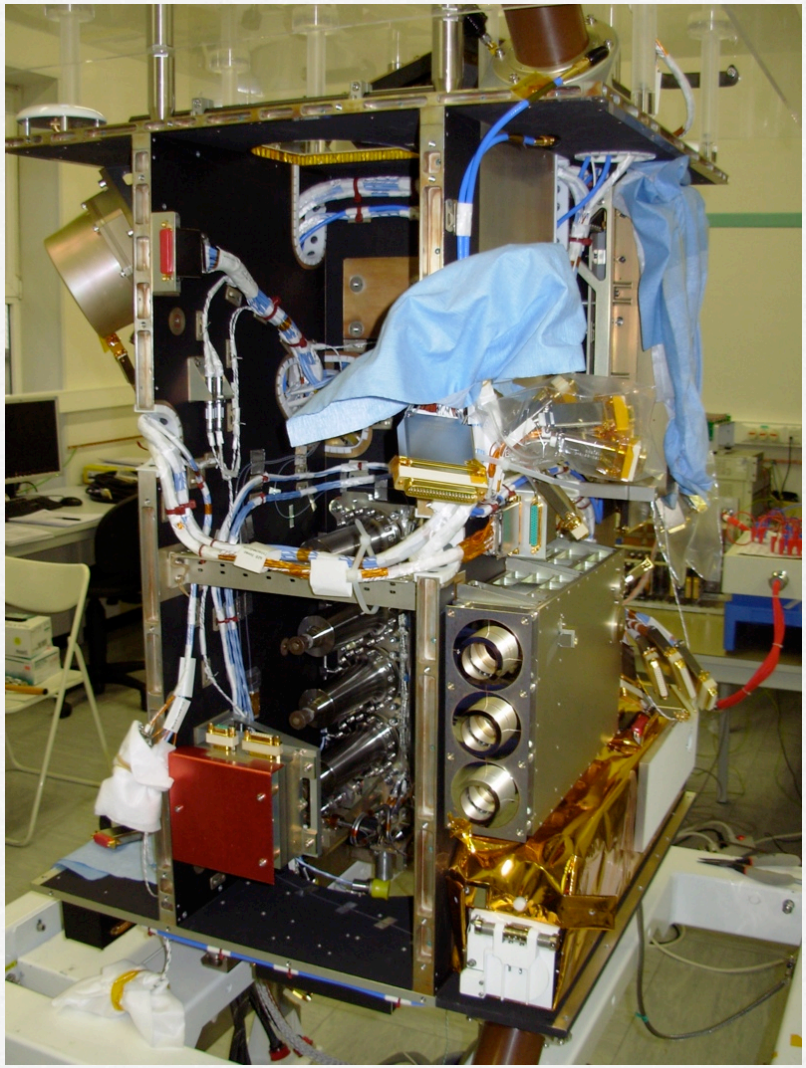




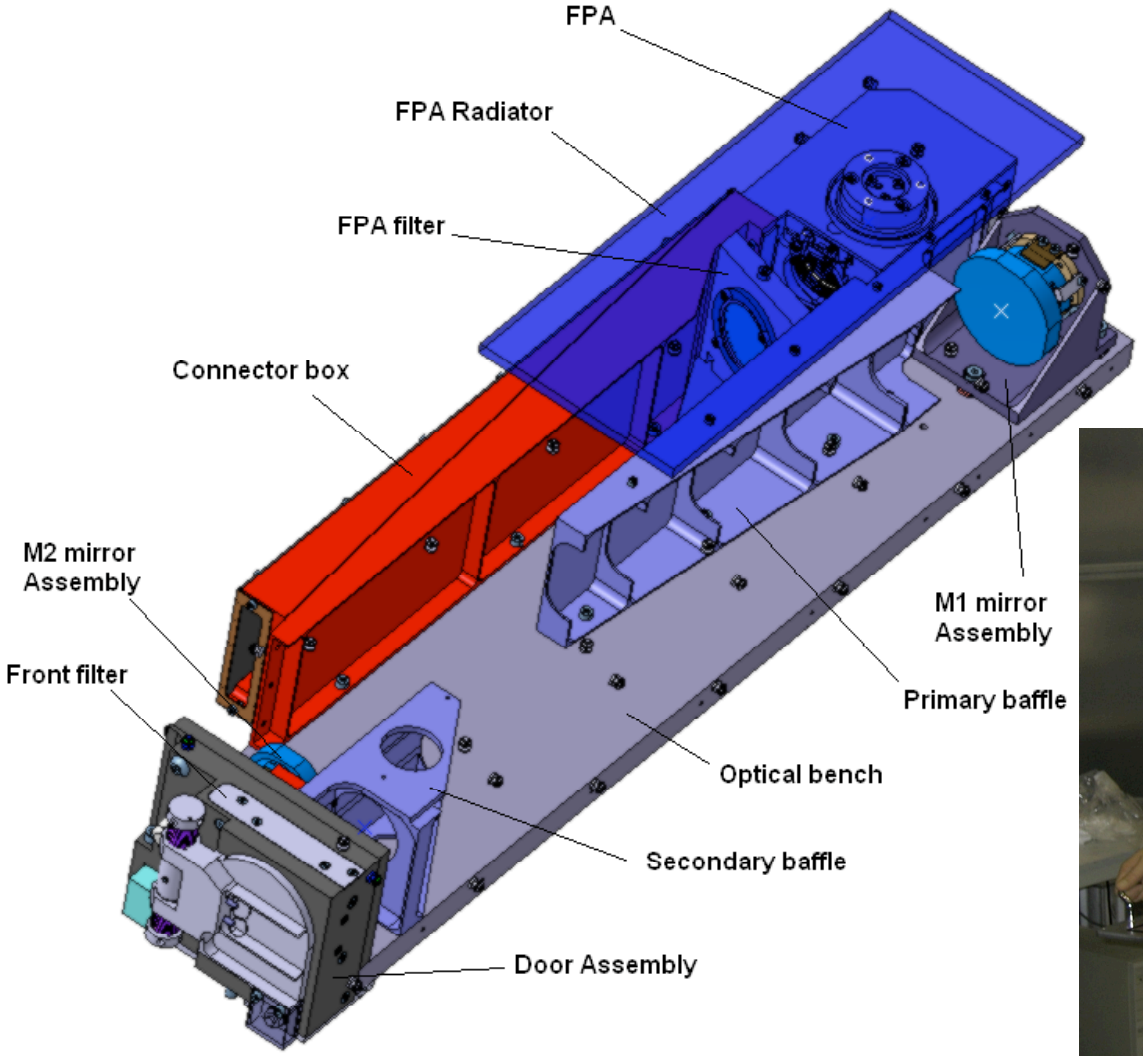
LYRA

JF Hochedez (ROB)
Y. Stockman (CSL)
W. Schmutz (PMOD)

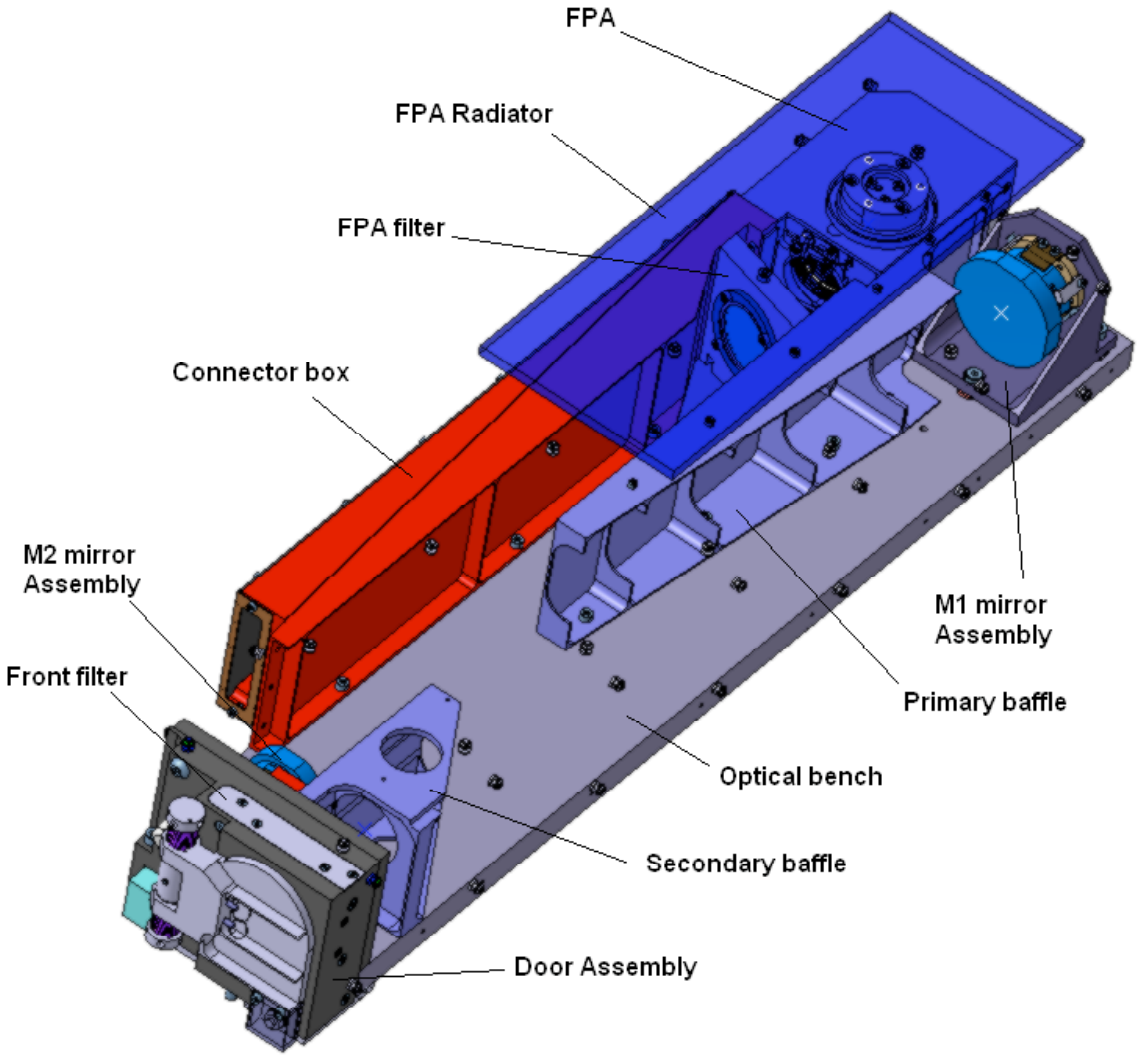
SWAP



SWAP


FPA
FPA Radiator
FPA filter
Connector box
M2 mirror Assembly
Front filter
M1 mirror Assembly
Primary baffle
Optical bench
Secondary baffle
Door Assembly

SWAP



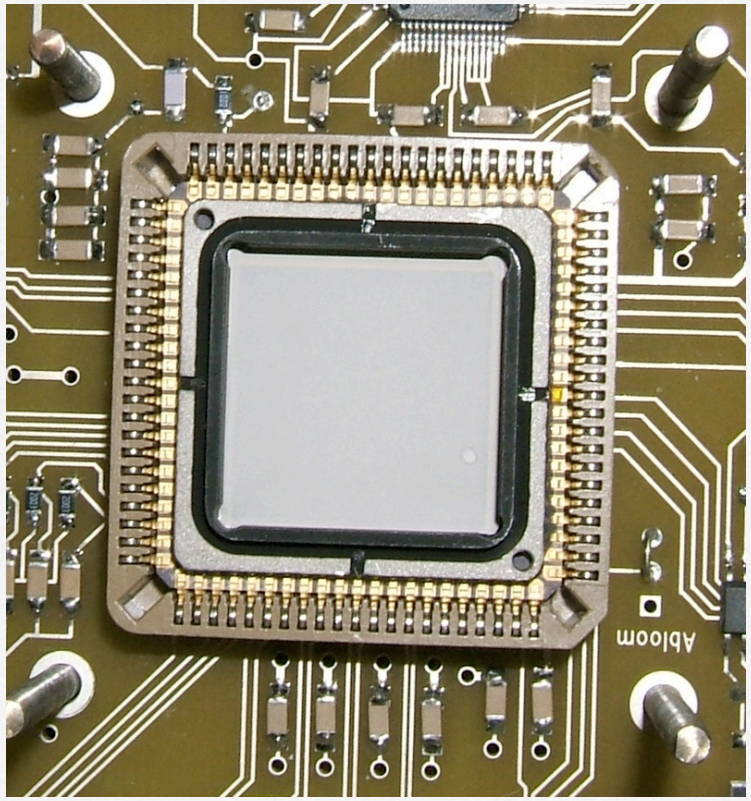
Hardware: low resources

- lightweight, off-axis EUV telescope
- CMOS-APS detector
- no mechanisms

Software: onboard autonomy

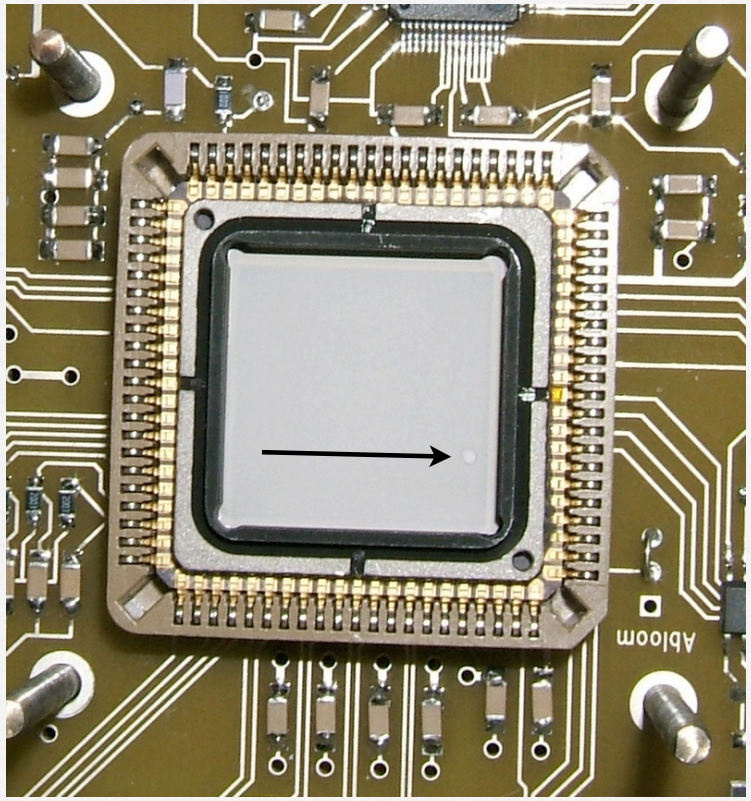
- data prioritization
- automated pointing
- data compression

CMOS-APS detector



- "High Accuracy Star Tracker" by Fillfactory (B), now Cypress (US)
- 1024x1024 pixels
- low power consumption
- no charge transfer, non-destructive read-out
- coated for EUV sensitivity

CMOS-APS detector



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- 1024x1024 pixels
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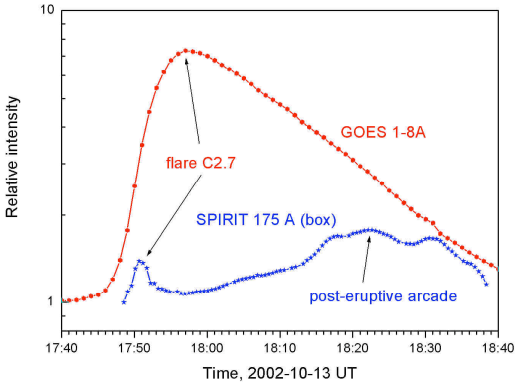
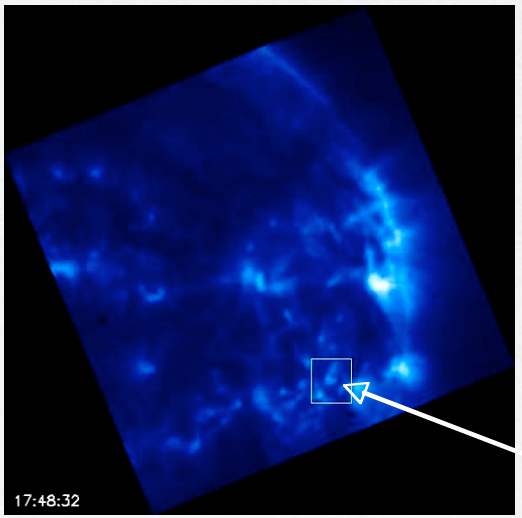
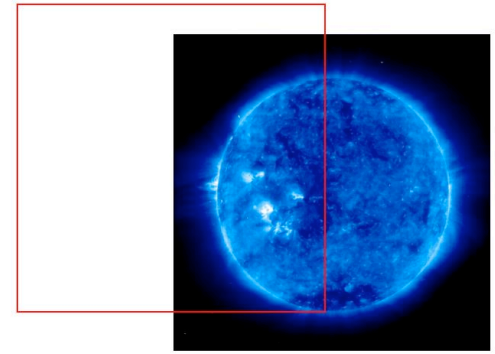
Data prioritization

- only 1 buffer
- each image gets a 'priority number'
- 'priority number' is decided by the ground and adapted by the platform
- 1: calibration images
  2: synoptic images
  3: special campaigns
  4-254: 'interesting' images
  255: images not analyzed by platform
- images are sent to the ground first in order of priority
- new images overwrite older images if they have a higher priority

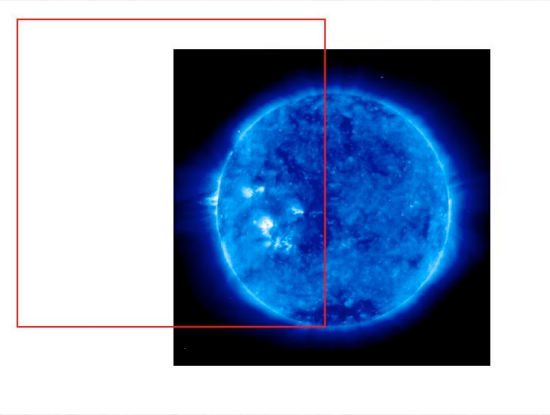


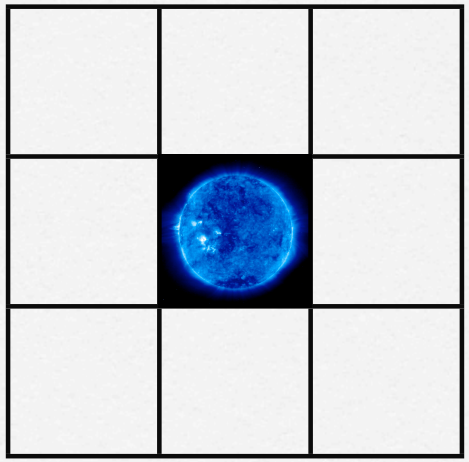


Fancy pointing

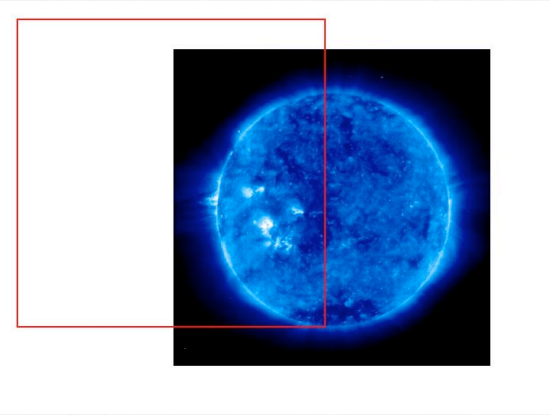


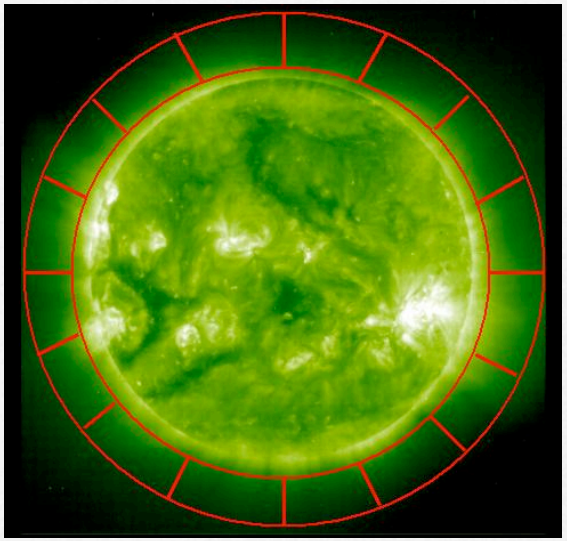
Fancy pointing

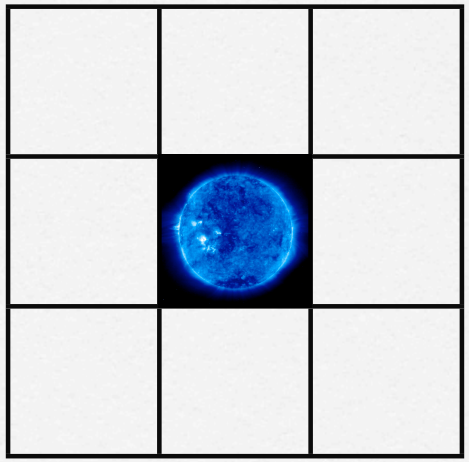




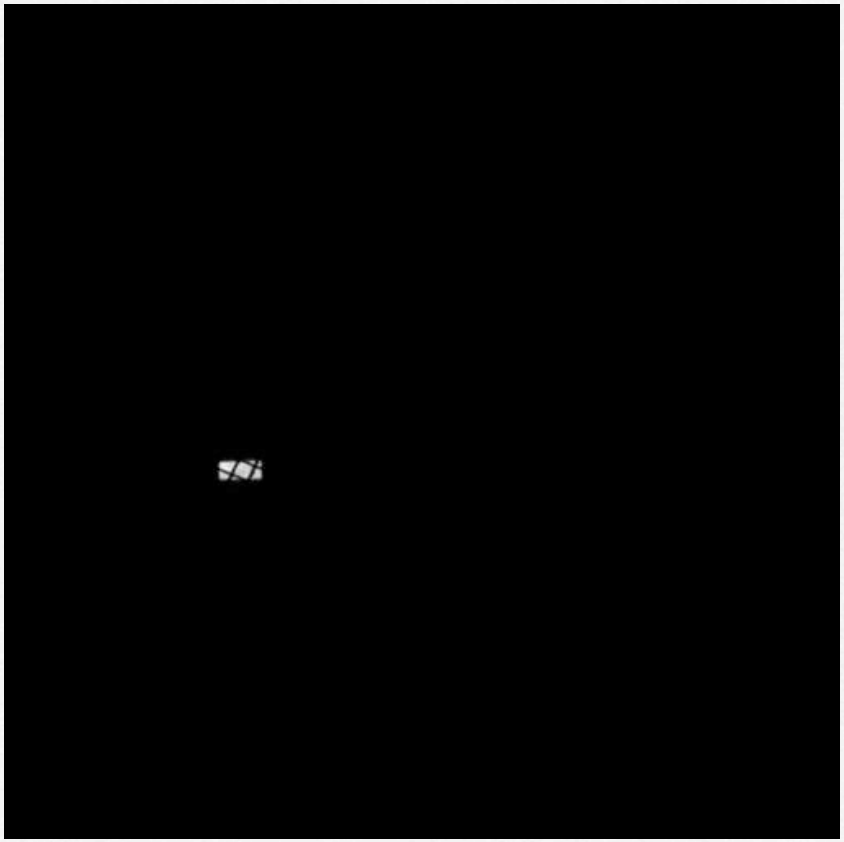
Fancy pointing



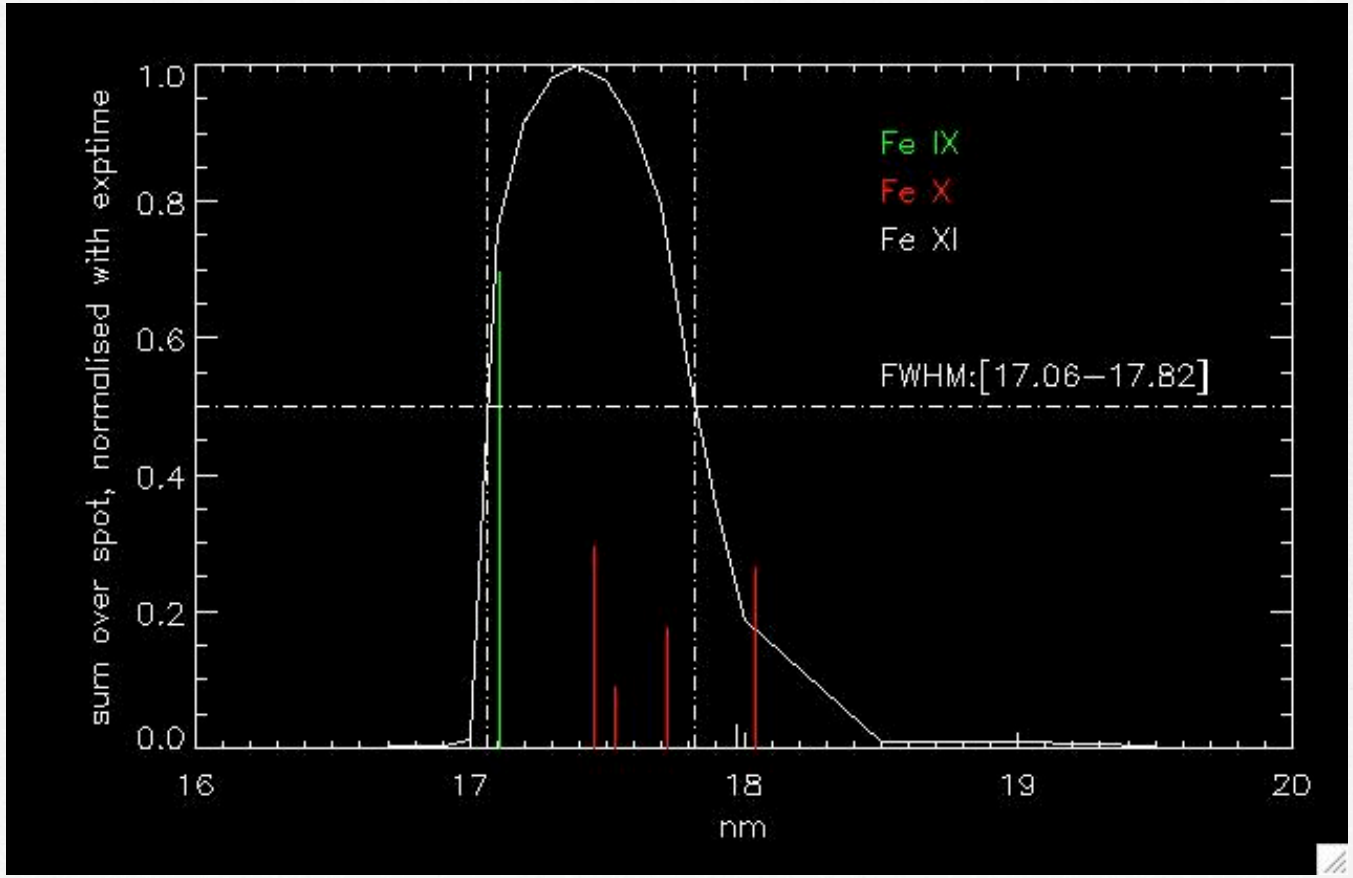




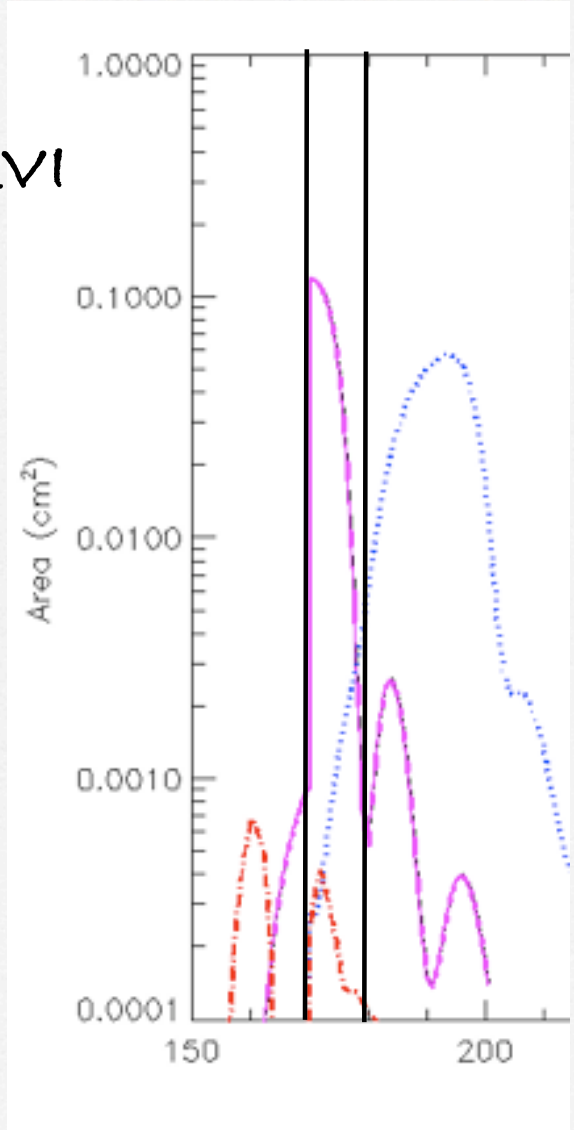
End-to-end calibration
Bessy/PTB (Berlin), last week



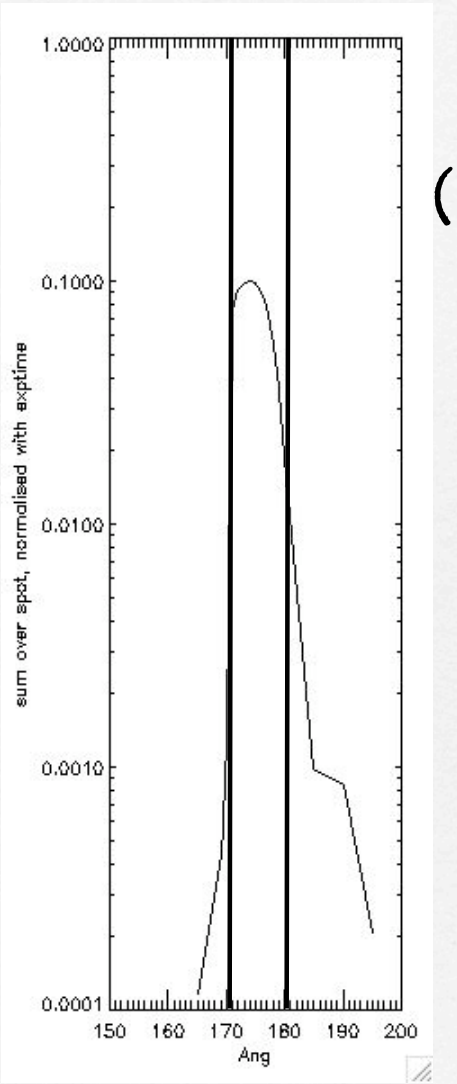
SWAP spectral bandpass



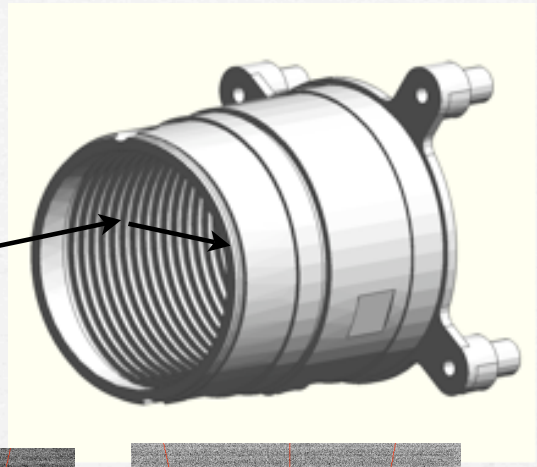
EUVI

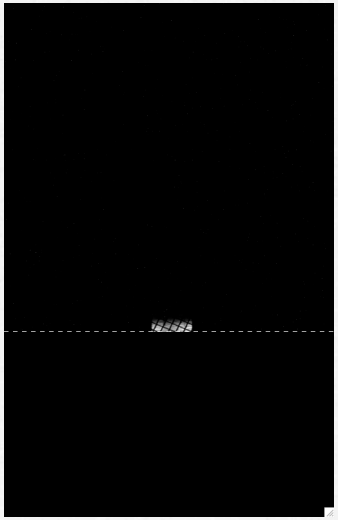


SWAP
(not to scale)

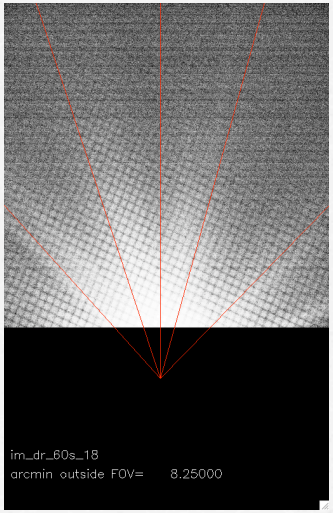


Straylight

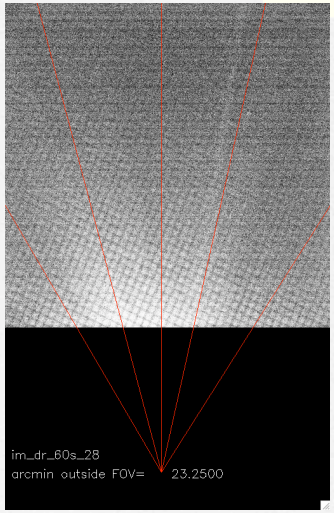




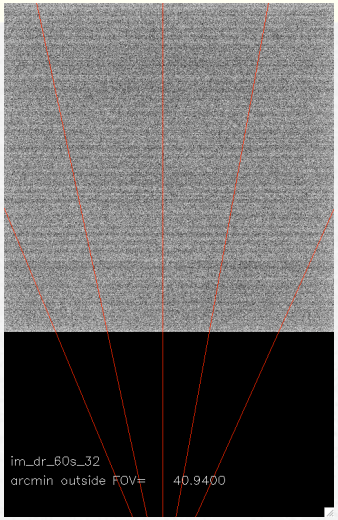
reference



beam x 4
integration time x 6
signal 1/10



beam x 4
integration time x 6
signal 1/100



beam x 4
integration time x 6
signal not observable

SWAP, The Conclusions

1. EUV imager at 17.4nm
2. 1 min cadence
3. > EUVI like FOV
4. project for technology demonstration
5. EIT like spatial resolution
6. launch May 2008, LEO noon/midnight