

Proposal for a STEREO / SOHO joint plume campaign in January 2010

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Rationale

The aim of the proposed campaign is to acquire a sequence of observations of polar plumes simultaneously with STEREO and SOHO. This continuous sequence will be used to obtain a tomographic reconstruction of polar plumes using the computer code developed by Barbey et al. (2008)

Solar tomography typically requires 14 days of observations (half a rotation). Because of the three viewpoints now available, the duration of the sequence can be significantly reduced. Furthermore, the computer code developed by Barbey et al. is able to take into account the time evolution of the observed structures. Therefore, the availability of both STEREO and SOHO data, combined with the innovative capabilities of the code, is a unique opportunity to obtain a reliable 3D reconstruction of the polar plumes.

Beginning of 2010 seems an ideal period for such observations. The 120 degrees separation of the STEREO spacecraft reduces the observation time to 5 days and the solar activity is still very low, thus reducing the artifacts caused by the evolution of structures.

The quality of the reconstructions is largely driven by the signal to noise ratio in the images. We would therefore like to obtain images with a low compression ratio. For EUVI especially, lossless images would be a plus.

Proposed observing parameters for the campaign

Dates: January 2010

Duration: 6 days

Participating instruments:

SOHO: EIT, LASCO C2, LASCO C3

STEREO: EUVI, COR1, COR2, HI1

Instrument	Wavelength	Cadence	Compression
EIT	171	12 minutes	Lossless
	195 / 284 / 304	6 hours	Lossless
LASCO C2	TB, 1 PB sequ. every hour	10 minutes	Lossless
LASCO C3	TB, 1PB sequ. every hour	30 minutes	Lossless
EUVI	171	2.5 minutes	ICER X, Lossless ?
	195 / 284 / 304	10 minutes	ICER X, Lossless ?
COR1	PB	5 minutes	ICER X, Lossless ?
COR2	PB	10 minutes	ICER X, Lossless ?
HI1	TB	1 hour	ICER X, Lossless ?

Bibliography

Barbey et al. 2008, "A Time-Evolving 3D Method Dedicated to the Reconstruction of Solar Plumes and Results Using Extreme Ultraviolet Data", *Sol. Phys.* 248(2), 409

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