SO/PHI data request form
(Cruise phase + first science orbit; SO/PHI-Team internal version)

Multi-View Synoptic Maps with HMI and PHI

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Science case (stay on one slide):

Please also state, why is PHI needed; why is the science unique?

- We combine SO/PHI with SDO/HMI full disk magnetograms (vector & LoS) to produce multi-view synoptic maps.

- The heliocentric orbit of Solar Orbiter gives SO/PHI a unique line of sight that will be used for co-observation with SDO/HMI.

- Combining simultaneous observation of the near and far side of the Sun will reduce the observation time of the solar surface by up to 50% for favourable orbital orientations, thus strongly limiting the solar evolution that is usually encountered during a full Carrington rotation.

- The application of such rapid synoptic charts will allow us to:

    1. check for distortions in the distribution of the surface magnetic flux in classically produced synoptic charts from a single vantage point

    2. check for differences in the magnetic field extrapolated into the heliosphere

Requirements/Data	Optimal	Minimal
Type of solar feature	Full Sun	Full Sun
HRT or FDT	FDT	FDT
Physical parameters needed (available: B_LOS, vector B, v_LOS, I_c, raw data):	Vector B	B_LOS
Total length of observation:	synoptic	synoptic
Cadence (maximum 1 dataset/min):	1 dataset / 1h	1 dataset / 12h
Pointing needs (disc centre, limb, active region location, particular μ):	disc centre	disc centre
Orbit needs (spatial resolution/co-rotation/angle to Earth/angle to other spacecraft):	Any	Any
Total number of datasets:	synoptic	synoptic
Full frame 2k x 2k or partial frame 1kx1k, 0.5kx0.5:	Full frame	Full frame
Full resolution or 2x2, 4x4 binned data:	Full resolution	Full resolution
noise level (default 10^{-3}):	default	default
Co-observations with other instruments:	SDO/HMI	SDO/HMI
Special requests:	no	no