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

CLV of the facular contrast using SO/PHI in combination with SDO/HMI

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MPS

Science case (stay on one slide):
Please also state, why is PHI needed; why is the science unique?

- Uncertainties in the facular contrast, in particular its dependence on B and μ, limit the reliability of the spectral irradiance models. This has consequences for our understanding of solar influence on climate.

- Current issues with the available facular contrasts(B, μ):
  - Observations: B is usually not available; observations close to the limb are uncertain;
  - Models: mostly 1D (poor closer to the limb) with no direct link to B; 3D models start appearing (observational validation needed).

- By observing the same regions on the Sun from different viewing angles, SO/PHI and SDO/HMI can provide B directly without foreshortening, which offers a unique opportunity to constrain the facular contrast close to the solar limb.

Requirements/data

Besides best guess requirements, you may also list minimum requirements on the data

- Type of solar feature: faculae/network/QS

- HRT or FDT: FDT; if possible also HRT at a few orbital positions, especially when further away from the Sun

- Physical parameters needed (available: B_LOS, vector B, v_LOS, I_c, raw data): B_LOS, I_c

- Total length of observation: 5-10 minutes daily or every few days throughout the whole window

- Cadence (maximum 1 dataset/min): 1 dataset/min

- Pointing needs (disc centre, limb, active region location, particular μ): For HRT: SW+PW - around disc center, NW - westward of disc centre

- Orbit needs (spatial resolution/co-rotation/angle to Earth/angle to other spacecraft): SW + PW more important; if available, data from the cruise phase would also be helpful

- Total number of datasets: ~ 1 set/min x (5-10 min/day) x (10-30 days) ≈ 50 – 300 sets

- Full frame 2k x 2k or partial frame 1kx1k, 0.5kx0.5: full frame

- Full resolution or 2x2, 4x4 binned data: full

- noise level (default 10^{-3}): default

- Co-observations with other instruments: SDO/HMI (should be available)

- Special requests: For FDT: see pointing needs