

SO/PHI data request form

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

Effects of granulation on the visibility of solar oscillations

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Science case (stay on one slide):

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

- The interactions of solar oscillations with the surface granulation are very difficult to model. One of the directly observable effects is the dependence of the complex mode amplitude on the position in the granulation, as described in Schou (2015, A&A, 580, L11), who used HMI observations.
- Due to the modest resolution, the contrast of the granulation as observed by HMI is very small which makes using HMI data very challenging.
- The superior spatial resolution of PHI, combined with a very good stability, means that the granulation can be substantially better resolved, thereby improving our ability to infer details of the interactions.

Requirements/data (use additional slide if needed)

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

- Type of solar feature: Quiet Sun
- HRT or FDT: HRT
- Physical parameters needed (available: B_LOS, vector B, v_LOS, I_c, raw data): V_LOS, and I_c
- Total length of observation: 6 hours. Tradeoff can be made with extract size.
- Cadence (maximum 1 dataset/min): 1/min
- Pointing needs (disc centre, limb, active region location, particular μ): Disk center. Ideally also 45-60 degrees.
- Orbit needs: Significantly better resolution than HMI. Say 200km/pixel or inside 0.55AU.
- Total number of datasets: 360.
- Full frame 2k x 2k or partial frame 1kx1k, 0.5kx0.5: Sim. done with 48Mm patch, so 256^2 , 384^2 or strips should do.
- Full resolution or 2x2, 4x4 binned data: Full resolution.
- noise level (default 10^{-3}): Default should be fine, no polarimetry
- Co-observations with other instruments: None.
- Special requests: Smaller datasets and/or different FOV/duration may be possible.