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Title of Proposed Observation: Constraining the temperature and heating mechanisms in the solar plage chromosphere

Main Objective: Constrain the temperature, velocity, microturbulence and magnetic field structure in solar plage

Scientific Justification: Both the structure of the plage chromosphere as well as the heating mechanisms that act there are poorly understood. We have submitted an ALMA observing proposal that received a grade A (highest priority), to study the temperature and heating mechanism of plage. The idea is to use combined ALMA, IRIS and Hinode observations, and use an advanced non-LTE, multi-atom, multi-wavelength inversion code based in RH (Uitenbroek 2001) to retrieve the temperature, velocity and microturbulent structure of the observed plage. SOT/SP scans will provide photospheric constraints to the inversions, as well as provide photospheric magnetic field maps for context. We requested 2.5 hours of alma observations, mapping an area of 80x80 arcsec containing plage. Therefore we request 12 repeats (=180 min) of a SOT/SP Fast map with 82x82 arcsec field of view, to cover the spatial and temporal extent of the ALMA observation.

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SSC Point of Contact: Sabrina Savage (NASA/MSFC)

Dates: The date depends on exactly when the ALMA observations will be scheduled, which is unknown at this time. However, it will most likely happen between Dec 8, 2016 and Dec 28, 2016.

Time window: The time depends on when the ALMA observations are scheduled, which is unknown at this time. We require a minimum of 180 minutes of uninterrupted observing time.

Target(s) of interest: Plage, as much disk-centre as possible. The pointing will be decided given the ALMA constraints.

SOT Requests:

12 repeats of a SOT/SP fast map: 0.32"pixel, 3.2sec integration, 82"x 82" FOV, taking full Stokes data in the standard pair of Fe I lines at 6301 and 6302 A, for a total of 924 Mbits.

EIS Requests:

None

XRT Requests:

None

IRIS Requests:

The PI has requested IRIS co-pointing. Bart de Pontieu is CO-I on this proposal and has agreed to give it priority for IRIS.

Additional instrument coordination:**Previous HOP information:****Additional Remarks:**