The Chromospheric Layer SpectroPolarimeter (CLASP2) Mission: Introduction

David E. McKenzie(1), Ryohko Ishikawa(2), Ryouhei Kano(2), Laurel Rachmeler(3), Javier Trujillo Bueno(4), Ken Kobayashi(1), Donguk Song(2), Masaki Yoshida(2), Frederic Auchere(5), Joten Okamoto(2), Tanausu del Pino Aleman(4), and the CLASP2 Team

(1)NASA Marshall Space Flight Center; (2)National Astronomical Observatory of Japan; (3)National Oceanographic and Atmospheric Administration; (4)Instituto Astrofisica de Canarias; (5) Institut d'Astrophysique Spatiale

CLASP and CLASP2 Scientific Objectives

This iPoster is an introduction to the CLASP and CLASP2 missions, flown as sounding rockets in collaboration between NASA, NAOJ, JAXA, IAC, and IAS. The Chromospheric Lyman-Alpha Spectro-Polarimeter (CLASP) and the Chromospheric LAyer Spectro-Polarimeter (CLASP2) launched from White Sands Missile Range in 2015 and 2019, respectively.

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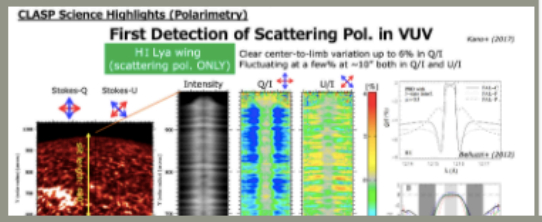
Findings from 1st flight of CLASP

The 2015 CLASP observations showed a striking center-to-limb variation in the Stokes Q/I, in the *wings* of the Ly-alpha line. It was not present in the U/I, and that is as expected.



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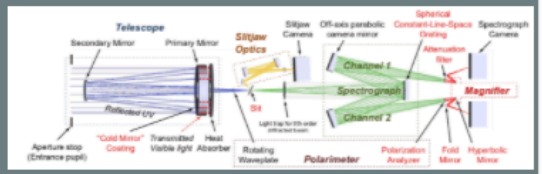
The CLASP instrument, and updates for CLASP2

The CLASP/CLASP2 instrument is a Cassegrain telescope feeding a spectrograph, with a slitjaw imager for context imaging. The telescope mirror features a "cold mirror" coating to reflect only the wavelengths of interest -- other wavelengths go through the primary mirror to a heat trap.



Ahead of the spectro-polarimeter (SP) slit is a constantly rotating waveplate; polarization analyzers ahead of the cameras determine the intensity of light that falls upon the detectors. The instrument has two identical channels in the SP for redundancy, and with perpendicular analyzers can be combined to removed any residual instrumental polarization.

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CLASP2 Sensitivity and Resolution

To spectrally resolve the linear polarization (Stokes Q/I and U/I) in the center of Mg II k, and circular polarization (Stokes V/I) in Mg II h & k, required spectral resolution is 0.01 nm (i.e., 0.005 nm/pix plate scale), and polarization sensitivity = 0.1% (3σ).

Calibration has been performed with a combination of pre-flight measurements and flight data. Specifically, the flight data from disk-center observations were used

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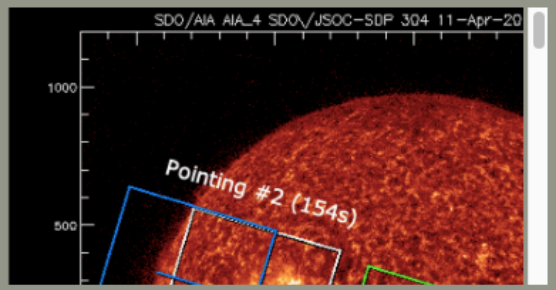
Observing Plan for CLASP2



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