

PROBA2 STOWG ☀ NOV 2018 ☀ M J WEST ON BEHALF OF P2SC

P2SC OVERVIEW

P2SC STATUS UPDATE

THE TEAM - NO CHANGE

ESA Technical Officer:

- Joe Zender

SWAP PI:

- Elke D'Huys

LYRA PI:

- Marie Dominique

P2SC Technical Coordinator and Liaison
Scientist:

- Matthew J West

PROBA2 Liaison Scientist:

- Marilena Mierla

PROBA2 / SWAP Support:

- David Berghmans

Operator Emeritus / Software Upgrade
Supervisor:

- Koen Stegen

Operators:

- Laurence Wauters
- Jennifer O'hara

LYRA Research Team:

- Ingolf Dammasch
- Thanassis Katsiyannis

Software Developer:

- Boris Giordanengo

P2SC SOFTWARE UPGRADES

- Elke D'huys, Koen Stegen, & Marie Dominique have continued server updates and reprocessing
- Continued bug fixes, system software updates, including:
 - Updating the various tools of P2SC to get rid of deprecated routines (in particular Python). -
Currently verifying

PROBA2 SWT☀ 13 NOVEMBER 2018

GUEST INVESTIGATOR PROGRAM REVIEW

GI STATUS UPDATE

GI PROGRAM

11 of the 12 GI teams selected for the period October 2017 – December 2018 have visited the P2SC:

- Thiemann - Comparing the response of the thermospheres of Earth and Mars to solar forcing with contemporaneous solar EUV occultations.
- Ryan - The Relationship Between Hard X-ray and Ly- α Emission in Coronal Energy Release Events.
- Wyper- Pseudostreamer Filament Eruptions Comparison with MHD Simulations.
- Meyer- Investigation of the middle corona with SWAP and a data-driven non-potential coronal field model.
- Wallace - Identifying pseudostreamers with PROBA2 SWAP: A comparative study of observed and model-derived fundamental properties of pseudo streamers.

GI PROGRAM

- Kourkras - A unique opportunity of observing and modeling a CME event from the low to the outer corona.
- Banerjee - Automated detection of Coronal Mass Ejections (CMEs) in SWAP images.
- Palmerio - Earth-impacting coronal mass ejections erupting from the solar limb.
- Sarkar - Evolution of coronal cavities leading to CMEs.
- Cécere - A systematic study of CME deflections.
- Georgiou - Relativistic electrons precipitation due to geomagnetic activity in coordinated POES, PROBA-2 and PROBA-V observations.
- Alzate - A Closer Look at 'Stealth' Coronal Mass Ejections.

GI PROGRAM REVIEW

7 ROUNDS COMPLETE

- Round 1 - Sep 2010 - Sep 2011
- Round 2 - Sep 2011 - Jun 2012
- Round 3 - Sep 2012 - Jun 2013
- Round 4 - Sep 2013 - Jun 2014
- Round 5 - Aug 2014 - Apr 2015
- Round 6 - May 2015 - Apr 2016
- Round 7 - Apr 2016 - Sep 2017
- Round 8 - Sep 2017 - Dec 2018

7 ROUNDS COMPLETE

- 63 Guest Investigator Teams
- 80 Guest Investigators have visited ROB
- 1 to visit
- 18 Countries
- 9 Mphys / PhD Thesis

AREAS OF STUDY

FLOWS AND ERUPTIONS

- Study of the solar inner corona and search for quasi-stationary coronal streams from active regions using SWAP off-disk observations
- Connection between solar flares and CMEs
- Investigation of Jet-like TR/ Coronal Phenomena and mini-CMEs in 171 and 304
- Study of CME Onsets and EUV waves with SWAP on PROBA2
- Study of the origin, evolution and geo-effectiveness of 'narrow' CMEs
- Regularities of CME propagation in new solar cycle according to data from PROBA2, STEREO and LASCO
- Studying the Low-Corona Initiation Phase of CMEs
- Estimation of acceleration and evolution of angular width of Coronal Mass Ejections within SWAP FOV using CACTus.
- Role of eruptive filaments/prominences in initiation and propagation of CMEs in heliosphere using SWAP & LYRA Observations

FLARES

- Investigation of UV radiation of solar flares with LYRA
- Probing flare reconnection regions with LYRA and AIA
- Investigation of solar flares at the Lyman-alpha wavelength with LYRA & GOES data
- Modelling flare induced ionization enhancements of the lower ionosphere with LYRA data.

IRRADIANCE & EMISSION STUDIES

- Investigation of UV radiation of solar flares with LYRA
- Probing flare reconnection regions with LYRA and AIA
- Investigation of solar flares at the Lyman-alpha wavelength with LYRA & GOES data

CORONAL HOLES

- Studies of coronal holes and solar wind velocity forecasts based on SWAP data analysis
- EUV/Xray jets from coronal holes and the origin of the solar wind

CALIBRATION STUDIES

- Cross-Calibration and Comparison of LYRA and SOLSTICE
- Blind deconvolution technique for accurately estimating the PSF of SWAP
- Degradation analysis of SDO-EVE and PROBA-2 LYRA data

SOLAR VARIABILITY

- Reconstructing the solar variability from bandpass measurements
- Long-term study of the solar EUV corona, its dependence on the magnetic field structure and local sources of plasma outflow

EUV WAVES

- Drivers and character of EIT waves
- The relationship between the on-disk "EIT wave" and its associated CME
- Studying the dome-like structure of large scale coronal propagating fronts and their relation with shock waves.

FILAMENTS & PROMINENCES

- Study of the pre-eruptive and eruptive phase of filaments/prominences in EUV 17.5nm using SWAP telescope on PROBA2

QPPS

- Nature of red noise processes in solar flares and effect on observations of QPP.
- Enhancing understanding of pulsations in flares using LYRA data

ACTIVE REGIONS

- Studying AR-AR Reconnection after Flux Emergence.
- Search for active region expansion using PROBA2/SWAP.

PSEUDOSTREAMERS AND STREAMERS

- Combining SWAP and CoMP to study coronal pseudostreamers and their influence on solar wind speeds.
- Performing tomographic reconstruction, in order to study the geometrical properties of coronal streamers.

ECLIPSES

- Observations and Modelling of Solar Coronal Structures Using High-Resolution Eclipse Images and Space-based telescopes with Wide FOV

LOOPS

- Investigating the nature and extent of large-scale AR loop expansion off-limb.

PLUMES

- Morphology of evolution of plume and inter-plume regions.

SOLAR WIND

- Transients and their role in heating and acceleration of the solar wind
- Solar EUV & solar wind effects on the ionosphere of Venus.

PLANETARY STUDIES

- Effects of the EUV on Venus' Ionosphere

REDU SYMPOSIUM

END OF SCIENCE DIRECTORATE CELEBRATION

After 9 years of successful operations of PROBA-2, ESA's SSA Programme takes full control of the PROBA-2 activities (and contributions from ESA's Science Directorate as Mission of Opportunity come to an end).

To celebrate the achievements of PROBA-2 a Symposium is planned to take place on 7 - 8 February 2019, in Redu, Belgium.

Register here: <https://www.cosmos.esa.int/web/proba2-symposium-2019/home>

An outline of the Symposium is available here: <https://www.cosmos.esa.int/web/proba2-symposium-2019/agenda>