DOI: 10.5281/zenodo.3229961, Version August 14, 2019
Typeset using AASTeX62

CRISpy: A Python module for working with CRISP data from the Swedish 1-m Solar Telescope

A.G.M. Pietrow[1]

[1] *Institute for Solar Physics, Stockholm University, Albanova University Centre, SE-106 91 Stockholm, Sweden*

Keywords: Sun: general; methods: miscellaneous

SUMMARY

This Python package is a collection of tools for working with data taken by the Swedish 1-m Solar Telescope (SST) (1; 2; 3). It is used for 1) opening, manipulating and saving legacy Solarsoft formatted data.(4) E.g. .fcubes and ANA-files. 2) Cleaning, calibration and interpreting MOMFBD data outputted by the CRISPRED pipeline(5; 6). E.g. FFT filtering, PCA fringe removal, calibration to the Solar Atlas. And 3) contains a set of basic visualisation tools allowing the user to make quick look images or videos of the data. It is available from the project github.[1]
The code is partially based on IDL routines from the CRISPRED library.

REFERENCES

[1]Scharmer, G. B., Kiselman, D., Lfdahl, M. G., Rouppe van der Voort, L. H. M. (2003). First results from the Swedish 1-m solar telescope. In Solar Polarization (Vol. 307, p. 3).

[2]Scharmer, G. B. (2006). Comments on the optimization of high resolution Fabry-Prot filtergraphs. Astronomy Astrophysics, 447(3), 1111-1120.

[3]Scharmer, G. B., Narayan, G., Hillberg, T., de la Cruz Rodriguez, J., Lfdahl, M. G., Kiselman, D., ... Lagg, A. (2008). CRISP spectropolarimetric imaging of penumbral fine structure. The Astrophysical Journal Letters, 689(1), L69.

[4]Bentely, R. D., Freeland, S. L. (1998). Solarsoft-an analysis environment for solar physics. In Crossroads for European Solar and Heliospheric Physics. Recent Achievements and Future Mission Possibilities (Vol. 417, p. 225).

[5]de la Cruz Rodriguez, J., Lfdahl, M. G., Stterlin, P., Hillberg, T., van der Voort, L. R. (2015). CRISPRED: A data pipeline for the CRISP imaging spectropolarimeter. Astronomy Astrophysics, 573, A40.

[6]Van Noort, M., Van Der Voort, L. R., Lfdahl, M. G. (2005). Solar image restoration by use of multi-frame blind de-convolution with multiple objects and phase diversity. Solar Physics, 228(1-2), 191-215.

Corresponding author: A.G.M. Pietrow
alex.pietrow@astro.su.se

[1] https://github.com/AlexPietrow/CRISpy