Sunpy: Python for Solar Physics. An implementation for Local Correlation Tracking (LCT)

J. I. Campos Rozo, S. Vargas Domínguez, Observatorio Astronómico Nacional - Universidad Nacional de Colombia, Bogotá, Colombia

Abstract

The development of astronomy goes hand in hand with advances in instrumentation and data analysis. Python, a mature programming language for general purpose, object-oriented, is becoming popular for several reasons in science.

The community of Python has haven a rapid growth in astronomical research, in particular, in solar astrophysics. SunPy is a new tool that specializes in data analysis and it is providing the necessary software to analyze solar and heliospheric data sets. Sunpy implements data analysis routines of the mean solar missions, such as SDO and others.

In this work, a widget implemented in Python and Sunpy is developed, to generate a user-friendly graphical user interface (GUI) using Local Correlation Tracking (LCT) technique to control various parameters for the process of calculating flow maps of proper motions for a series of filtergrams.