



## **SOTERIA Project: Real-time reconstructions of the solar total and spectral irradiance for space weather applications**

Luis Eduardo Vieira, Thierry Dudok de Wit, Matthieu Kretzschmar, and Gaël Cessateur  
LPC2E, CNRS and University of Orleans, France (luis.vieira@cnr-orleans.fr)

The solar irradiance is the main external energy source of the Earth's system. Its variability on time-scales ranging from days to millennia drives the evolution of the several components that constitute this system. Consequently, the total and spectral solar irradiance are key input parameters for atmospheric/oceanic and space weather models. Here, we discuss a procedure to compute the evolution of the solar total and spectral irradiance based on solar disk magnetograms and continuum images employing a neural network model. In this work, we use full disk magnetograms from HMI instrument on board of the Solar Dynamics Observatory (SDO) spacecraft. The preliminary results, uncertainties and operational issues are discussed in details. This work was supported by the European Commission's Seventh Framework Programme (FP7/2007-2013) under the grant agreement n° 218816 (SOTERIA project).