Switchback-like structures observed by Solar Orbiter

Andrey Fedorov¹, Philippe Louarn¹, Christopher Owen³, Lubomir Prech⁶, Timothy Horbury², Alain Barthe¹, Alexis Rouillard¹, Justin Kasper⁴, Stuart Bale⁵, Roberto Bruno⁷, Helen O’Brien², Vincent Evans², Virginia Angelini⁵, Davin Larson⁸, Roberto Livi⁸, and the SWA-PAS, MAG, SWEAP, and FIELDS teams

¹IRAP UPS CNRS, Toulouse, France (andrei.fedorov@irap.omp.eu)
²Imperial College, London, UK
³MSSL, University College London, UK
⁴Climate and Space Sciences and Engineering, University of Michigan, USA
⁵Physics Department, University of California, Berkeley, CA, USA
⁶Faculty of Mathematics and Physics, Charles University, Prague, Czech Republic
⁷INAF-Istituto di Astrofisica e Planetologia Spaziali, Rome, Italy
⁸UC Berkeley, Space Sciences Lab, Berkeley, CA

*© Author(s) 2021. This work is distributed under the Creative Commons Attribution 4.0 License.

During 27th September 2020 NASA Parker Solar Probe (PSP) and ESA-NASA Solar Orbiter (SoIO) have been located around the same Carrington longitude and their latitudinal separation was very small as well. Solar wind plasma and magnetic field data obtained throughout this time interval allows to consider that sometimes the solar wind, observed by both spacecrafts, originates from the same coronal hole region. Inside these time intervals the SoIO radial magnetic field experiences several short variations similar to the “switchbacks” regularly observed by PSP. We used the SoIO SWA-PAS proton analyzer data to analyze the ion distribution function variations inside such switchback-like events to understand if such events are really “remains” of the alfvenic structures observed below 60 Rs.

SWA-PAS, MAG, SWEAP, and FIELDS teams: Elena Budnik, Illya Plotnikov, Vincent Genot, Emmanuel Penou, Benoit Lavraud, Tony Case, Leon Golub, Kelly Korreck, Michael Stevens, Jim McFadden, Phyllis Whittlesey, George Ho, Matthieu Berthomier, Peter Gary, Ruth Skoug, John Steinberg, John Belcher, John Richardson, Adam Szabo, Dennis Gallagher, Qiang Hu, Nikolai Pogorelov, Gary Zank, Steven Cranmer, Jasper Halekas, Ken Wright