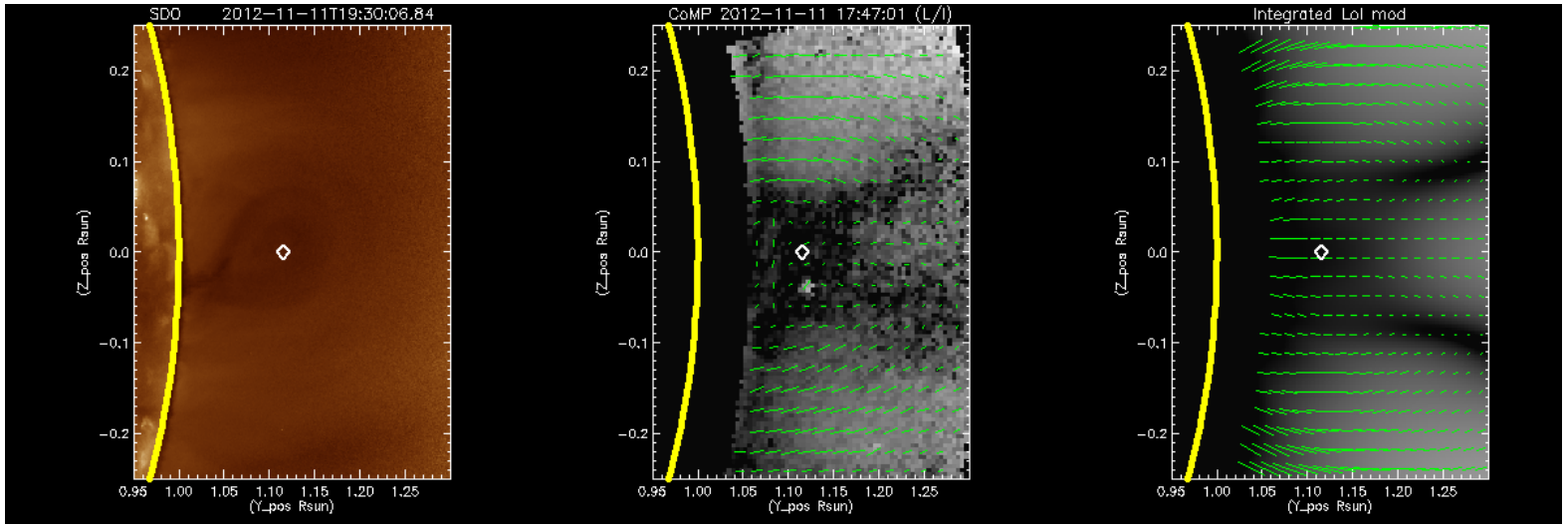
Uniwersytet Wrocławski

The Magnetic Structure of Solar Prominence Cavities: New observational signature revealed by coronal magnetometry

Urszula Bąk-Stęślicka[1], Sarah Gibson[2], Yuhong Fan[2],
Christian Bethge[2], Blake Forland[3], Laurel Rachmeler[4]

[1]Astronomical Institute, University of Wrocław, Poland; [2] High Altitude Observatory, NCAR, Boulder, CO, USA;
[3] Metropolitan State College of Denver, USA, [4] Royal Observatory of Belgium, Brussels



Kanzelhöhe Observatory Colloquium, October 8-10 2013

Uniwersytet Wrocławski

Coronal Multi-channel Polarimeter (CoMP)

Tomczyk, et al. 2008

Information about the magnetic field, plasma density and motion.

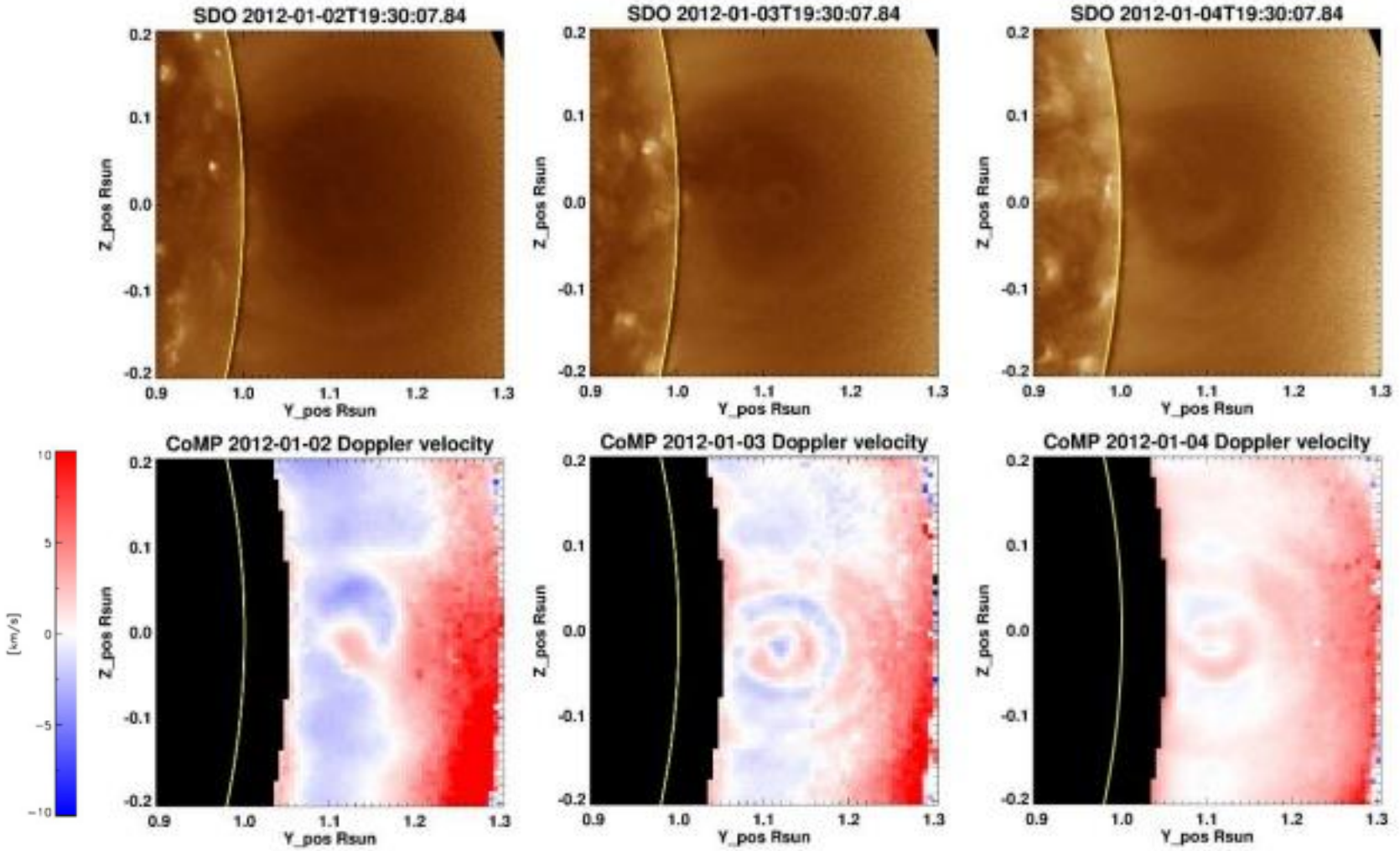
- FOV ~1.04 to 1.4 $R_{\odot}$
- Location: Mauna Loa Solar Observatory - daily observations since October 2010
- CoMP records the intensity and the linear and circular polarization (Stokes I,Q,U,V) of the forbidden lines of Fe XIII at 1074.7 nm and also at 1079.8 nm.
- CoMP also measures the LOS plasma velocity from Doppler observations in the wings of the line intensity (Stokes I), and the POS density from the ratio of the lines at 1074.7 and 1079.8 nm.

Uniwersytet Wrocławski

Doppler velocity

Schmit et al. (2009) found Doppler velocities of 5–10 km s^{-1} within a coronal cavity.

January 2, 3, 4

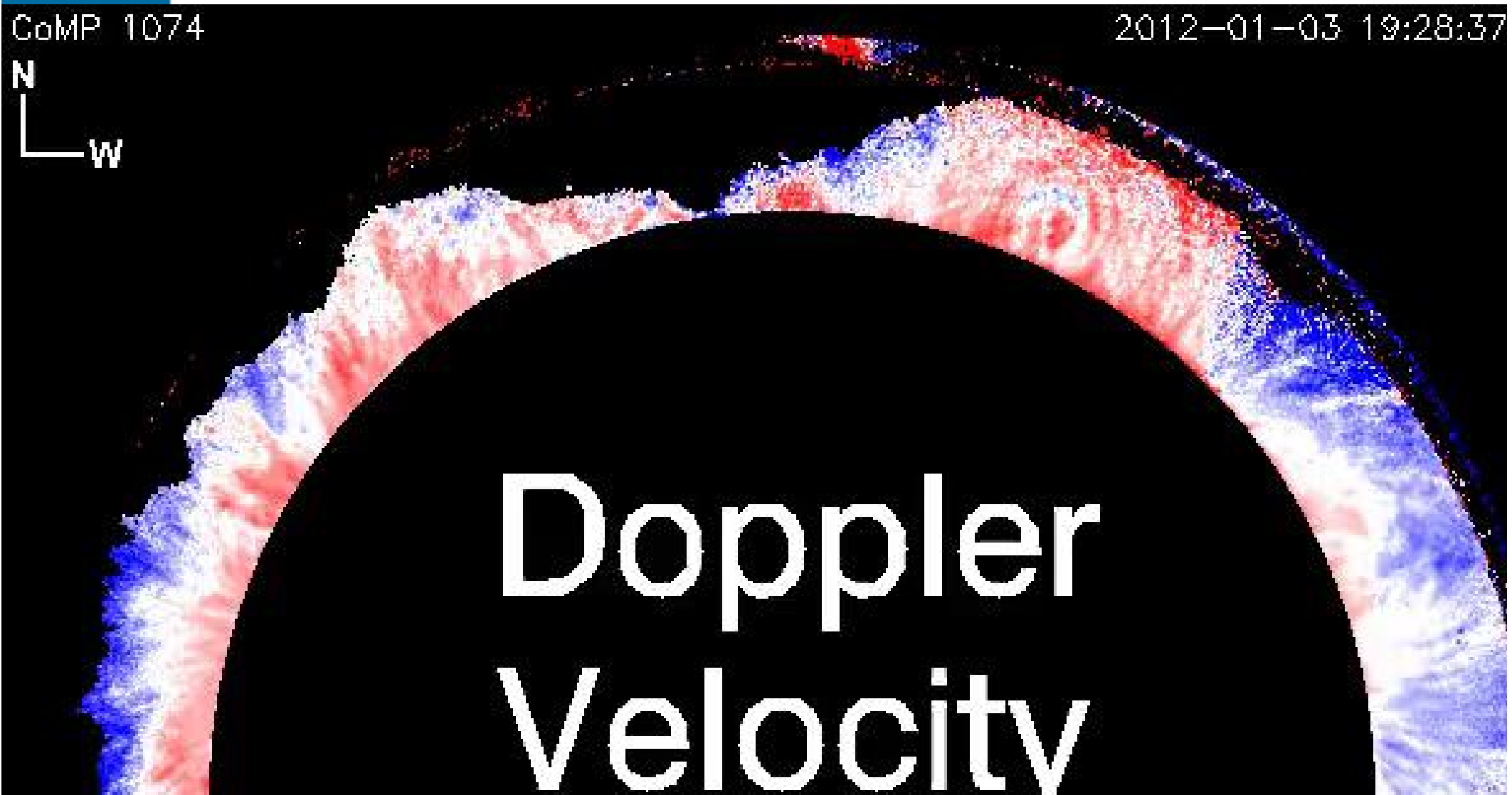


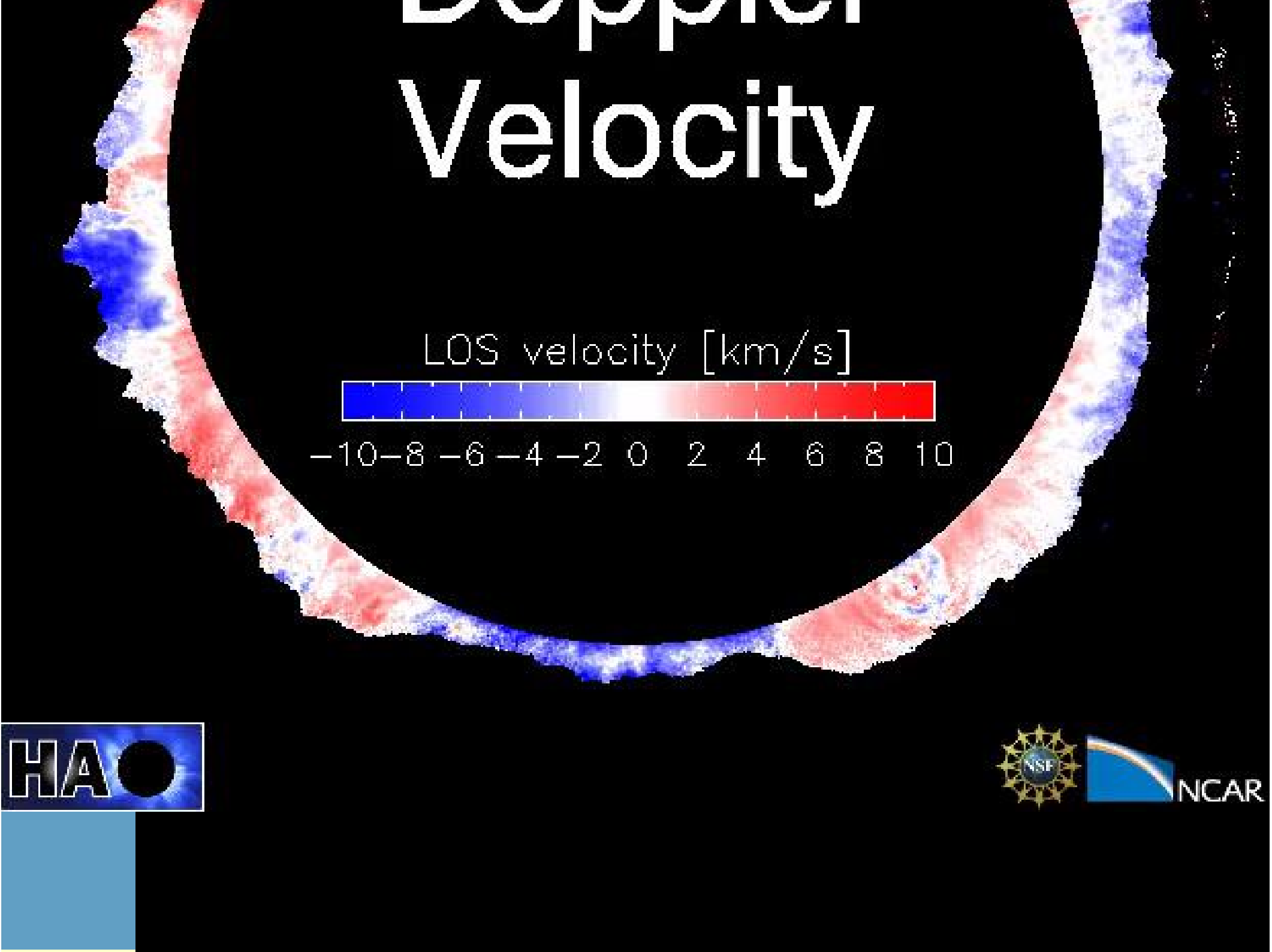
Bąk-Stęślicka et al. 2013, ApJL, 770, 28

Uniwersytet Wrocławski

Doppler velocity

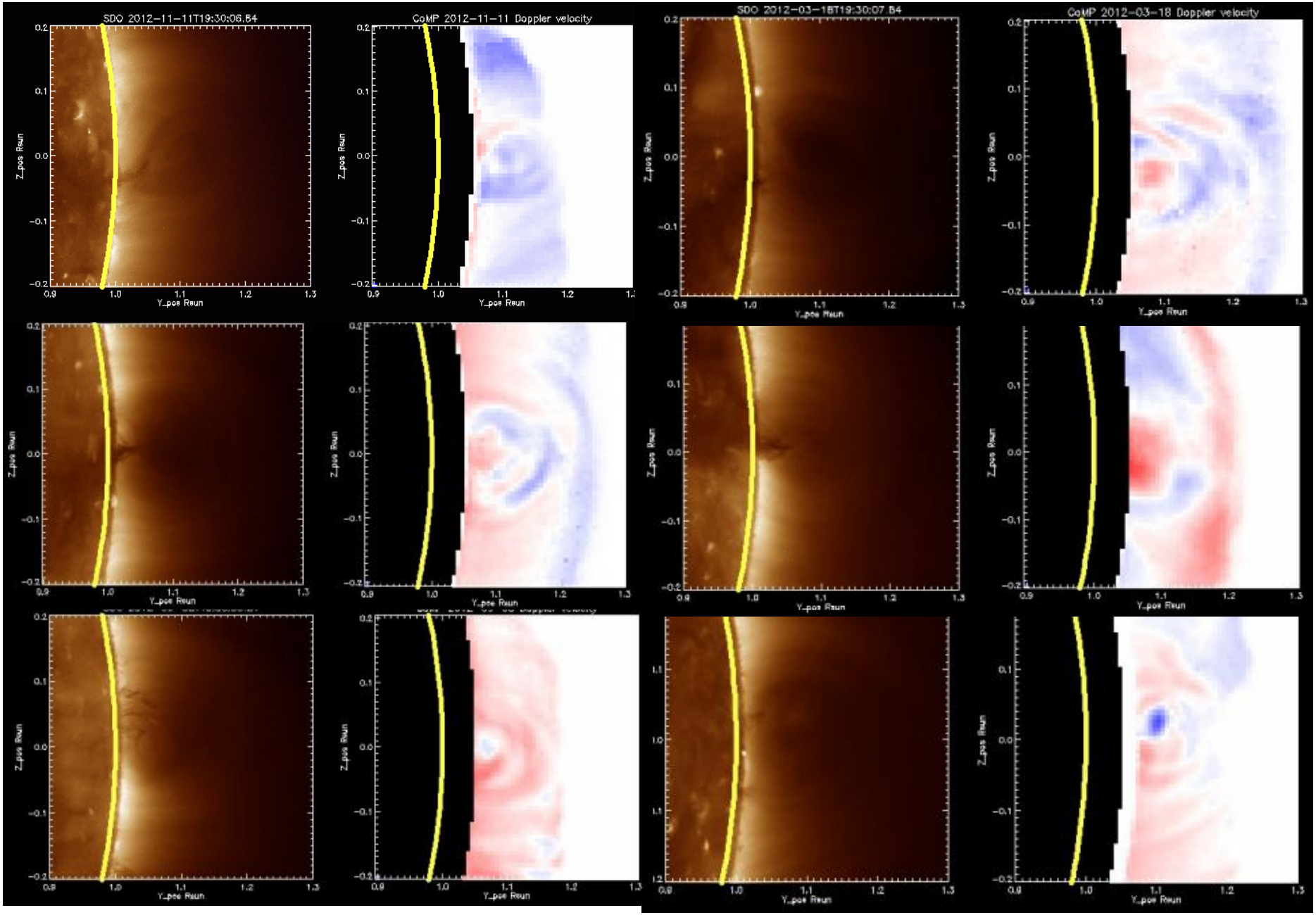
2012 January 3




Doppler
Velocity
LOS velocity [km/s]
−10 −8 −6 −4 −2 0 2 4 6 8 10
HAO
NSF
NCAR

Uniwersytet Wrocławski

Doppler velocity



Uniwersytet Wrocławski

The spatial relation between EUV cavities and linear polarization signatures