*Internal use only*
Abstract number: S2-532
The active Sun and its implication for the heliosphere
oral preferred

**On the initiation of the 2011 February 15 coronal mass ejection**

Nindos, Alexander[1], Patsourakos , Spiros[1] and Wiegelmann, Thomas[2]
[1]Section of Astrogeophysics, Physics Department, University of Ioannina, Ioannina GR-45110, Greece
[2]Max-Planck-Institut für Sonnensystemforschung (MPS), Max-Planck-Strasse 2, 37191, Katlenburg-Lindau, Germany

When significant amount of magnetic helicity is injected into the corona, its main part is put in a magnetic flux rope. When the flux rope forms in the corona, it would expand and propagate outward unless its confinement is efficient. In active regions, the principal confinement agent is provided by the overlying background anchored magnetic field whose tension acts to hold the flux rope in place. Using magnetic field data from both the Helioseismic and Magnetic Imager (HMI) aboard Solar Dynamic Observatory (SDO) and the spectropolarimeter of the Solar Optical Telescope (SOT/SP) aboard Hinode spacecraft, we calculate the magnetic helicity injected into the corona from a few days prior to a major coronal mass ejection (CME) until well after the eruption. For the same time interval, we also assess how the overlying magnetic field inhibits eruptions by calculating the temporal evolution of its decay index (i.e. how fast the field decreases with height). The CME was associated with an X2.2-class flare that occurred relatively close to the disk center on 2011 February 15 in active region NOAA 11158. The early stages of the CME are further constrained by comparing the temporal evolution of both the injected magnetic helicity and the magnetic field's decay index with data provided from the Atmospheric Imaging Assembly (AIA) imagers aboard SDO and the EUV imagers and white-light coronagraphs aboard Solar Terrestrial Relations Observatory (STEREO) spacecraft.