

SPARC SOLARIS & HEPPA intercomparison activities: Composition changes after the "Halloween" solar proton event (HEPPA-I exercise)

Bernd Funke[†]; Andreas Baumgaertner; Marco Calisto; Tanja Egorova; Charles Jackman; Jens Kieser; Alexei Krivolutsky; Manuel L pez-Puertas; Dan Marsh; Thomas Reddmann; Eugene Rozanov; Sanna-Mari Salmi; Miriam Sinnhuber; Gabrielle Stiller; Pekka Verronen; Stefan Versick; Thomas von Clarmann; T. Vyushkova; Nadine Wieters; Jan Wissing

[†] Instituto de Astrof sica de Andaluc a, Spain

Leading author: bernd@iaa.es

The High Energy Particle Precipitation in the Atmosphere (HEPPA) model vs. data inter-comparison initiative, as part of the SPARC SOLARIS & HEPPA joint activities, brings together scientists involved in atmospheric modeling using state-of-the-art CCMs and CTMs on one hand and scientists involved in the analysis and generation of satellite data on the other hand. The objective of this community effort is (i) to assess the ability of state-of-the-art atmospheric models to reproduce EPP-induced composition changes, (ii) to identify and - if possible - remedy model deficiencies related to chemistry, dynamics, and ionization schemes, and (iii) to serve as a platform for discussion between modelers and data producers. This is achieved by a quantitative comparison of observed and modeled species abundances during selected periods of pronounced particle forcing, as well as by inter-comparing the simulations performed by different models. In the past, the initiative has focused on the inter-comparison of MIPAS/Envisat data obtained in the aftermath of the "Halloween" SPE (26 October - 30 November 2003) with simulations performed by a large number of CCMs and CTMs (B2dM, B3dCTM, CAO, FinROSE, HAMMONIA, KASIMA, EMAC, SOCOL(i), and WACCM4). This allowed for an evaluation of the overall ability of atmospheric models to reproduce observed atmospheric perturbations generated by SPEs, particularly with respect to NO_y, Cly, and ozone changes. This poster gives an overview over the results obtained in this HEPPA-I inter-comparison exercise.