

EGU23-7628, updated on 30 Nov 2023

<https://doi.org/10.5194/egusphere-egu23-7628>

EGU General Assembly 2023

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Untangling the Interhemispheric Response to Solar Wind Drivers through Numerical Experiments

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With the increased availability of ground magnetic field measurements from the Northern and Southern hemispheres at higher latitudes, further insight could be gained into how the physical processes coupling magnetosphere and ionosphere vary with solar wind forcing. In this study, we report a solar wind dynamic pressure enhancement followed by an interplanetary magnetic field clock angle change on February 13, 2014. We use measurements from East Antarctica and West Greenland regions to investigate when and where the magnetic field signatures differ. Finally, we use the University of Michigan Space Weather Framework (SWMF) to conduct numerical simulations to explain the differences in the interhemispheric responses to the changes in solar wind dynamic pressure enhancement and IMF clock angle together and separately.

This work is supported by NASA LWS Program and makes use of the NASA High-End Computing Capability.