



Dear SuperMAG Friend

Latest news from the SuperMAG service:

- 1) SuperMAG general news.
- 2) GFZ joins SuperMAG.
- 3) Fall AGU Special Session.
- 4) Updated solar wind data holdings and error correction.
- 5) Recent published papers.

As always, comments and suggestions are most welcome.

Best wishes on behalf of the entire SuperMAG team,  
Jesper W Gjerloev and Shin Ohtani

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- 1) SuperMAG general news.

Since we launched the new website we have corrected a few minor bugs. We have further made a few updates to the interface.

SuperMAG general usage

- >615 registered users;
- >19,000 data products downloaded in 2013;
- 25 peer reviewed papers in 2013.

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- 2) GFZ joins SuperMAG.

SuperMAG welcomes our new collaborator – GFZ.

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- 3) Fall AGU Special Session.

Fall AGU Special Session

Conveners

Jesper W Gjerloev  
Mervyn Freeman  
Akimasa Yoshikawa  
Shin Ohtani

Causes of large-scale geomagnetic disturbances

Historically ground magnetic perturbations have been used widely to study a variety of source currents flowing in the magnetosphere and ionosphere. This is possible because

of three observational strengths that make their application in monitoring and understanding the M-I current system particularly useful: 1) Continuous uninterrupted monitoring; 2) Nearly global coverage; 3) Decades of observations. The observations have been used to gain valuable information about a variety of source currents flowing in the ionosphere and magnetosphere. This session calls for papers that use ground-based magnetometers to gain insight into the distribution and temporal variations of those current systems. Theory as well as data-analysis with a focus on large-scale currents are encouraged.

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4) Updated solar wind data holdings and error correction.

With the help of Dr. James Weygand we have updated the ACE data holdings. We are grateful to Dr. Weygand and the ACE/MFI and ACE/SWEPAM teams.

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5) Recent published papers.

Ohtani, S., and T. Uozumi (2014), Nightside magnetospheric current circuit: Time constants of the solar wind-magnetosphere coupling, *J. Geophys. Res. Space Physics*, 119, doi:10.1002/2013JA019680.

Hajra, R., E. Echer, B. T. Tsurutani, and W. D. Gonzalez (2014), Solar wind-magnetosphere energy coupling efficiency and partitioning: HILDCAAs and preceding CIR storms during solar cycle 23, *J. Geophys. Res. Space Physics*, 119, doi:10.1002/2013JA019646.

Guo J., H. Liu, X. Feng, T. I. Pulkkinen, E. I. Tanskanen, C. Liu, D. Zhong and Y. Wang (2014), MLT and seasonal dependence of auroral electrojets: IMAGE magnetometer network observations, *J. Geophys. Res. Space Physics*, doi:10.1002/2014JA019843

Noah, M. A., and W. J. Burke (2014), Magnetospheric conditions for sawtooth event development, *J. Geophys. Res. Space Physics*, 119, doi:10.1002/2013JA019573.

Chu, X., et al. (2014), Development and validation of inversion technique for substorm current wedge using ground magnetic field data, *J. Geophys. Res. Space Physics*, 119, 1909–1924, doi:10.1002/2013JA019185.

Guo, J., T. I. Pulkkinen, E. I. Tanskanen, X. Feng, B. A. Emery, H. Liu, C. Liu, and D. Zhong (2014), Annual variations in westward auroral electrojet and substorm occurrence rate during solar cycle 23, *J. Geophys. Res. Space Physics*, 119, 2061–2068, doi:10.1002/2013JA019742.

Cresswell-Moorcock, K., C. J. Rodger, A. Kero, A. B. Collier, M. A. Clilverd, I. Häggström, and T. Pitkänen (2013), A reexamination of latitudinal limits of substorm-produced energetic electron precipitation, *J. Geophys. Res.*, (in press).

Lui, A. T. Y. (2013), Cross-tail current evolution during substorm dipolarization, *Ann. Geophys.*, 31, 1131-1142, doi:10.5194/angeo-31-1131-2013.

Newell, P. T., J. W. Gjerloev, and E. J. Mitchell (2013), Space climate implications from substorm frequency, *J. Geophys. Res. Space Physics*, 118, doi:10.1002/jgra.50597.

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- Ohtani, S., T. Uozumi, H. Kawano, A. Yoshikawa, H. Utada, T. Nagatsuma, and K. Yumoto (2013), The response of the dayside equatorial electrojet to step-like changes of IMF Bz, *J. Geophys. Res. Space Physics*, 118, doi:10.1002/jgra.50318.
- Ohtani, S., H. Korth, S. Wing, E. R. Talaat, H. U. Frey, and J. W. Gjerloev (2012), The double auroral oval in the dusk-midnight sector: Formation, mapping and dynamics, *J. Geophys. Res.*, 117, A08203, doi:10.1029/2011JA017501.
- Singh, A. K., R. Rawat, and B. M. Pathan (2013), On the UT and seasonal variations of the standard and SuperMAG auroral electrojet indices, *J. Geophys. Res. Space Physics*, 118, doi:10.1002/jgra.50488.
- Wei, L. H., N. Homeier, and J. L. Gannon (2013), Surface electric fields for North America during historical geomagnetic storms, *Space Weather*, 11, 451-462, doi:10.1002/swe.20073.
- Zou, S., M. B. Moldwin, M. J. Nicolls, A. J. Ridley, A. J. Coster, E. Yizengaw, L. R. Lyons, and E. F. Donovan (2013), Electrodynamics of the high-latitude trough: Its relationship with convection flows and field-aligned currents, *J. Geophys. Res. Space Physics*, 118, 2565-2572, doi:10.1002/jgra.50120.