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Dear SuperMAG Friend

Extensive expansions to the SuperMAG service:

1) SuperMAG general news.
2) Global ULF tools.
3) EMMA, SEGMA and IUGONET collaborate with SuperMAG.
4) New sunlit and darkness auroral electrojet indices available.
5) New solar wind parameters.
6) Large dataset update and error correction.
7) 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.

Recent changes to the service:

- corrected a few website bugs;
- many updates to the interface;
- new tools (see below);
- meridian chain selection tool added;

These improvements were made possible by Brage Foerland and Rob Barnes.

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2) Global ULF tools.

With support from NASA Van Allen Storm Probes ULF data are now included. Global and continuous ULF data are now available from both Polar Plots and Movies. Only the years 2012 and 2013 have been processed as this overlaps with the mission.

Dr. Motoba was the lead on this effort.

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3) EMMA, SEGMA and IUGONET colaborates with SuperMAG.

SuperMAG welcomes our new collaborators EMMA, SEGMA and IUGONET.

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4) New sunlit and darkness auroral electrojet indices available.

Sunlit and darkness auroral electrojet indices are now available. The difference is that the darkness indices (SMU_D and SML_D) are derived from stations located under the dark ionosphere. Likewise, the sunlit indices (SMU_S and SML_S) are derived from stations located under the sunlit ionosphere.

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5) New solar wind parameters.

New solar wind parameters available:

- Clock angle
- Epsilon parameter
- Newell coupling function
- Dynamic pressure

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6) Large dataset update and error correction.

2013 data is now available. We have performed a comprehensive error correction of the entire dataset.

Matt Friel and Polly Martin made this possible.

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7) Recent published papers.

Laundal, K. M., and J. W. Gjerloev (2014), What is the appropriate coordinate system for magnetometer data when analyzing ionospheric currents?, J. Geophys. Res. Space Physics, 119, doi:10.1002/2014JA020484.

Horvath, I., and B. C. Lovell (2014), Perturbation electric fields and disturbance currents investigated during the 25 September 1998 great storm, J. Geophys. Res. Space Physics, 119, doi:10.1002/2014JA020480.

Yao, Z. H., et al. (2014), Current reduction in a pseudo-breakup event: THEMIS observations, J. Geophys. Res. Space Physics, 119, doi:10.1002/2014JA020186.

Newell, P. T., K. Liou, Y. Zhang, T. Sotirelis, L. J. Paxton, and E. J. Mitchell (2014), OVATION Prime-2013: Extension of auroral precipitation model to higher disturbance levels, Space Weather, 12, 368–379, doi:10.1002/2014SW001056.

Wang, Y. A. Du, G. Chen, X. Cao, Y. Zhang, M. Li, X. Liu, J. Guo (2014), Comparing the diurnal variations in the SuperMAG auroral electrojet indices SML and SMU, Chinese Science Bulletin. Volume 59. Issue 29-30. Page 3877 - 3883.

Li, H., C. Wang, and S. Y. Fu (2014), Classification of fast flows in central plasma sheet: Superposed Epoch Analysis based on THEMIS observations, J. Geophys. Res. Space Physics, 119, doi:10.1002/2014JA020105, 2014.

Dougal, E. R., Nykyri, K., and Moore, T. W.: Mapping of the quasi-periodic oscillations at the flank magnetopause into the ionosphere, Ann. Geophys., 31, 1993-2011, doi:10.5194/angeo-31-1993-2013, 2013.

Holappa, L., K. Mursula, T. Asikainen, and I. G. Richardson (2014), Annual fractions of high-speed streams from principal component analysis of local geomagnetic activity, J. Geophys. Res. Space Physics, 119, 4544–4555, doi:10.1002/2014JA019958.

Walsh, A. P., Haaland, S., Forsyth, C., Keesee, A. M., Kissinger, J., Li, K., Runov, A., Soucek, J., Walsh, B. M., Wing, S., and Taylor, M. G. G. T.: Dawn–dusk

asymmetries in the coupled solar wind–magnetosphere–ionosphere system: a review, Ann. Geophys., 32, 705-737, doi:10.5194/angeo-32-705-2014, 2014.
He, M., J. Vogt, H. Lühr, and E. Sorbalo (2014), Local time resolved dynamics of field-aligned currents and their response to solar wind variability, J. Geophys. Res. Space Physics, 119, doi:10.1002/2014JA019776.
Gjerloev, J. W., and R. A. Hoffman (2014), The large-scale current system during auroral substorms, J. Geophys. Res. Space Physics, 119, 4591–4606, doi:10.1002/2013JA019176.
Newell, P. T., K. Liou, Y. Zhang, T. Sotirelis, L. J. Paxton, and E. J. Mitchell (2014), OVATION Prime-2013: Extension of auroral precipitation model to higher disturbance levels, Space Weather, 12, 368–379, doi:10.1002/2014SW001056.
Wang, C., J. P. Han, H. Li, Z. Peng, and J. D. Richardson (2014), Solar wind-magnetosphere energy coupling function fitting: Results from a global MHD simulation, J. Geophys. Res. Space Physics, 119, doi:10.1002/2014JA019834.
Haaland, S., and J. Gjerloev (2013), On the relation between asymmetries in the ring current and magnetopause current, J. *Geophys. Res. Space Physics*, 118, 7593–7604, doi:10.1002/2013JA019345.

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