[JJ] Evening Poster | M (Multidisciplinary and Interdisciplinary) | M-IS Intersection

[M-IS19]Atmospheric electricity

convener:Yasuhide Hobara(Graduate School of Information and Engineering Department of Communication Engineering and Informatics, The University of Electro-Communications), Masashi Kamogawa(Department of Physics, Tokyo Gakugei University)

Tue. May 22, 2018 5:15 PM - 6:30 PM Poster Hall (International Exhibition Hall7, Makuhari Messe)

All aspects of research area on Atmospheric Electricity will be discussed in this session, including global circuit, ion and fair weather electricity, thunderstorm electrification, lightning physics, lightning and meteorology, electrical effects of thunderstorms on the middle and upper atmosphere such as transient luminous events and high energy phenomena, lightning protection, terrestrial electromagnetic environment and so on.

[MIS19-P04]Predication of ULF geomagnetic field based on nonlinear system identification approach

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Keywords:ULF, Geomagnetic field variation, Nonlinear system identification, Prediction

Nonlinear Auto Regressive Moving Average Model with Exogenous Inputs (NARMAX) was applied to the time series of terrestrial ULF geomagnetic field. The one-step-ahead (OSA) prediction model was built with Orthogonal Least Square (OLS) methodology, which can unveil significant and important quantities for geomagnetic field variation. As a result, the correlation coefficient between predicted and observed values was found to be around 0.8. Moreover, the model shows a good prediction performance. Furthermore, the model suggests some controlling parameter in relation with solar activity and inner radiation belt.