

## Systematic study of the large-scale field-aligned current structures from large database

# Genta Ueno[1], Tomoyuki Higuchi[2], Shin-ichi Ohtani[3]

[1] ISM, [2] Inst. Stat. Math., [3] JHU/APL

Fast and automatic procedure is required in space weather research based on large database obtained satellite observations. Model used in the procedure should be descriptive and flexible enough to identify a phenomenon that is highly variable depending on various conditions. We applied first-order B-spline fitting with variable node positions to the DMSP-F12, 13, 14, and 15 magnetic field data, and identified large-scale field-aligned currents (LSFACs) for each orbit. To the list of LSFACs, we added solar zenith angles at the ionospheric altitude and solar wind conditions observed by IMP-8 satellite.