

Neutral Density and Orbit Determination

Updates

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Activities

Yongliang Zhang - LWS Institute

Special Section in Space Weather Journal - MS submission March-Sept. 2017

Yue Deng – MURI

Next Generation Advances in Ionosphere-Thermosphere Coupling at Multiple Scales

Mariangel Fedderizzi – NOAA/CIRES activities

CTIPe and WAM

Stan Solomon – HAO/NCAR activities

TIE-GCM and WACCM-X

Sean Bruinsma - Empirical Modeling and Orbit Determination

Coefficient of Drag problem is still a major headache

Kent Tobiska - JB08 and Solar Inputs

DTM and JB08 empirical models have greatly reduced bias and increased fidelity

Progress Toward Proposed Metrics

Physical Quantities:

Neutral density in the altitude range 200 – 800 km

Data Sources:

ESA accelerometer/GPS measurements by CHAMP/GRACE/GOCE

— Need for standard versions of data sets

Global mean neutral density survey by John Emmert

Study intervals:

Candidate Years:

2002, 2007, 2012

CCMC has a list of storms

AF has list of storms behaving badly

Any of these are fine

Spatial / Temporal resolution:

Comparisons at a *range of scales*:

Daily global mean

Orbit averaged

Low-resolution along track

High-resolution along track

Bias Issue:

Normalize biases out or include in metrics?