

Topical Discussion Meeting report

A Topical Discussion Meeting aims at active participation or interaction between the participants. The participants work and discuss on a predefined theme or problem heading towards an outcome or target. A working meeting is a 1h 15min informal afternoon meeting with NO abstract submission form and therefore NO poster contributions.

Name of the meeting: Atmospheric Effects

Convener: Sean Bruinsma

Data – Time – Room: 7 November 2018 – 14:00-15:15 – Small lecture room

Nr of participants: 12

Objective of the TDM

Inform the community about projects and initiatives regarding thermosphere modeling, discussion

Some discussion highlights

- Data availability was presented and discussed, and notably the failure of recent low-cost (cubesat) missions to deliver. Mass spectrometer measurements of the neutral species is still not possible with the new miniaturized instruments.
- ESA (Swarm, GOCE) is taking the lead in setting up and maintaining a high-quality data processing chain
- Main results of the workshop organized by CCMC-LWS in 2017 (Assessing Space Weather Understanding and Applications) are compiled in a Special Issue of AGU's Space Weather Journal
- Thermosphere model assessment and satellite drag model assessment is complicated due to the use of satellite shape and surface properties models, for which standards are absent; but both should be done in the framework of Space Weather research
- Thermosphere and drag are not part of the most recent COSPAR roadmap (Schrijver et al. paper), and this must be remedied by next COSPAR meeting
- Storm time model assessment requires slightly different metrics than quiet time, in particular the satellite drag impact (cumulative).

Main conclusion of the meeting

Thermosphere models must now be assessed, on CCMC, and the score cards will indicate weaknesses and strengths; based on the findings, Roadmap recommendations on data collection and modeling can be formulated.

The satellite drag (aerodynamic coefficient) modeling remains a problem and must be addressed in cooperation with the Flight Dynamics community.