Impact of Space Weather on the Security of Earth & Space Assets.

Dr R. Van der Linden, Dr D. Berghmans
Solar-Terrestrial Centre of Excellence (STCE), Royal Observatory of Belgium (ROB)

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Take home messages

1. The Sun is a variable star whose magnetic activity drives the space weather of the Earth environment.
2. The electromagnetic flashes of solar flares reach us in 8 min. High-energetic particles of solar proton events reach us in 30min. Plasma clouds of coronal mass ejections reach us in 1 day.
3. Life on Earth is protected by the Earth magnetosphere and the atmosphere. Life in space and at high-latitude flights can be affected during solar proton events.
4. Technology in space and on the ground can be seriously affected, in particular GNSS navigation, radio communication and power grid infrastructure.
5. Mitigating space weather impacts requires (1) awareness, (2) engineering, (3) monitoring & forecasting
6. The Royal Observatory of Belgium, through partnerships, is at the forefront of monitoring and forecasting space weather

Further information

- "Space Weather: The Impact on Security and Defense" In: Handbook of Space Security. Springer, Cham. https://doi.org/10.1007/978-3-030-22786-9_94-1 (2019). Janssens, J., Berghmans, D., Vanlommel, P. and Andries J.

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- ROB and BISA host together the "Space Weather Office" of the European Space Agency (ESA, https://www.esa.int/Space_Safety/Space_Weather_Office)
- ROB is a Regional Warning Center for space weather of the International Space Environment Service (ISES, http://www.spaceweather.org/)
- STCE is the scientific core of the PECASUS consortium (http://pecasus.eu) that provides space weather services to the civil aviation organization ICAO (https://www.icao.int/). STCE is supported for this 24h/7d by METEOWING of the Belgain Air Force.

Contacts

- Dr Ronald Van der Linden, Director General of the ROB and Manager of the STCE (ronald.vanderlinden@oma.be)
- Dr David Berghmans, senior scientist at ROB/STCE (david.berghmans@oma.be)
- operational support at ROB: sidc-support@oma.be