Particle Background and Observation Time

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Summary meeting - Hiroshima University

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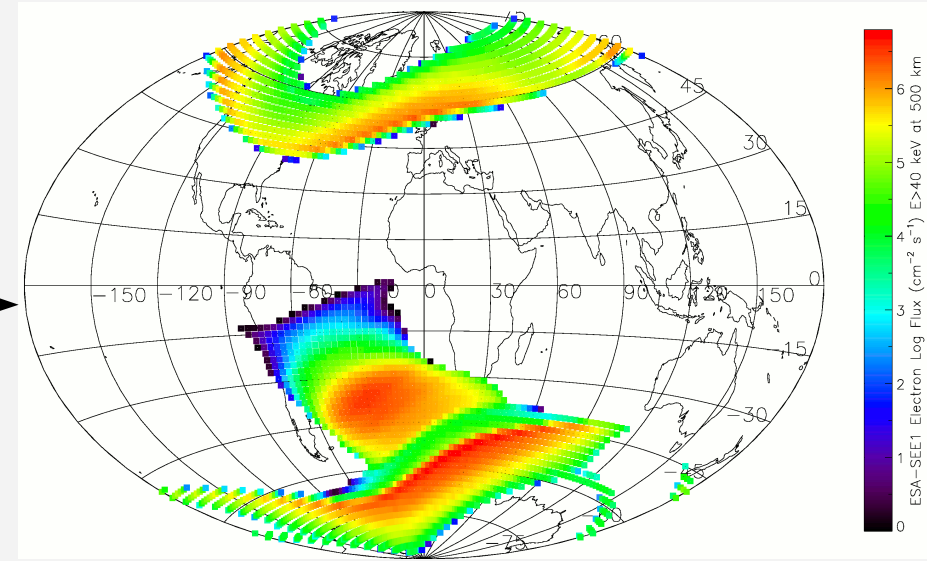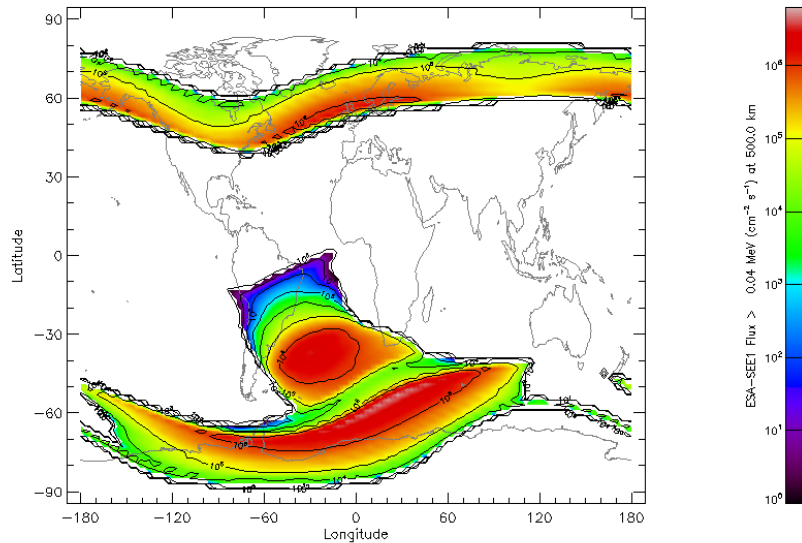Charles University, Prague, Czech Republic
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Data displayed by my IDL code

SPENVIS data, AE-8 ESA-SEE1 update,
flux of electrons with E > 40 keV, 500 km,
solar minimum

1) Simulate circular orbits at 500 km altitude.

2) Calculate how much time a satellite spend in the area with the background electron flux above a given threshold.

3) Since the flux increases rapidly at the edges of the regions of high electron background level, I simply took a threshold of 1 particle cm^{-2} s^{-1}, but this can be easily changed.
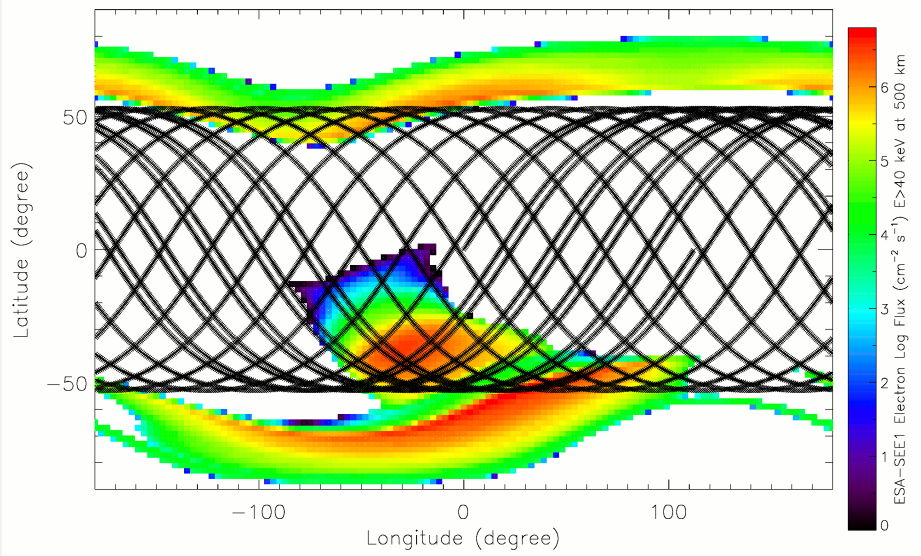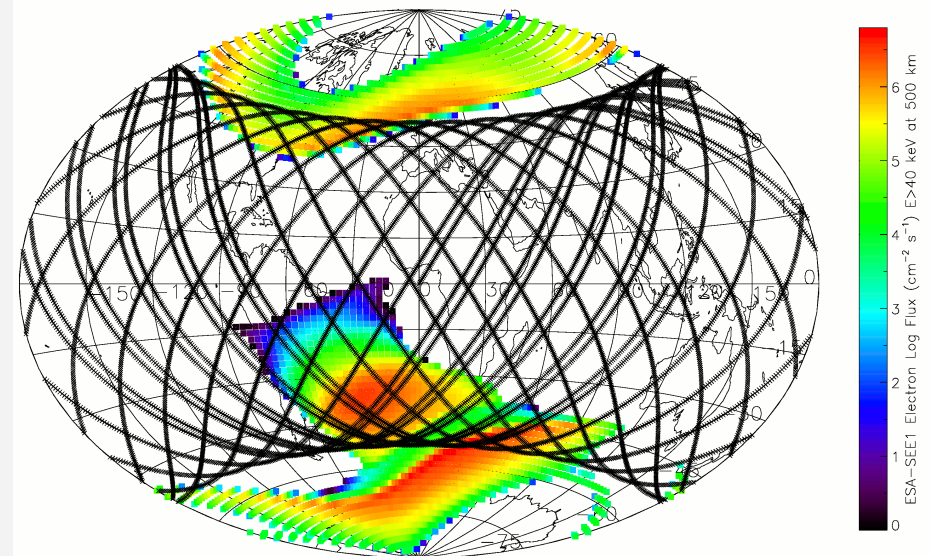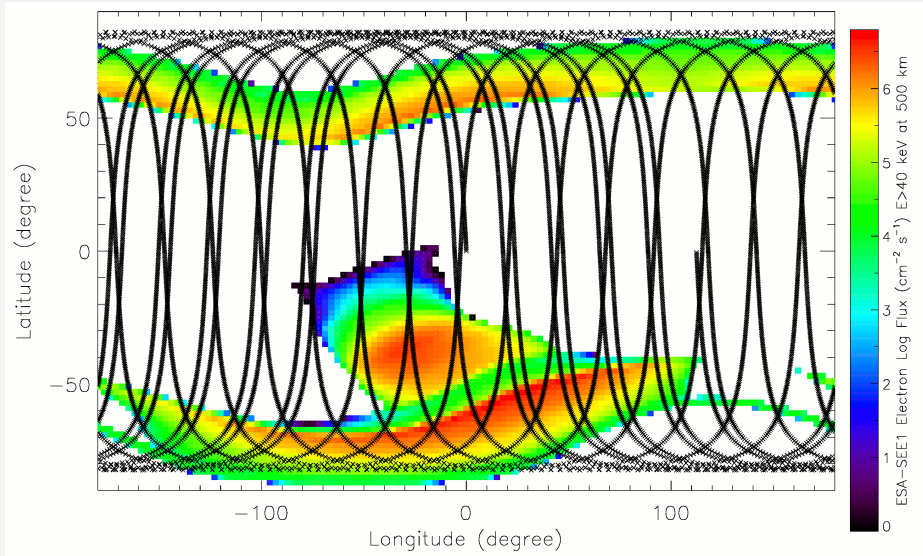
2

Displayed is 20 orbits

Aitoff projection

- For calculation of the "lost observation" time I used 1000 orbits (~ two months of orbiting).

- **23 %** of the time the satellite will be in the regions with electron flux > 1 cm^{-2} s^{-1}.
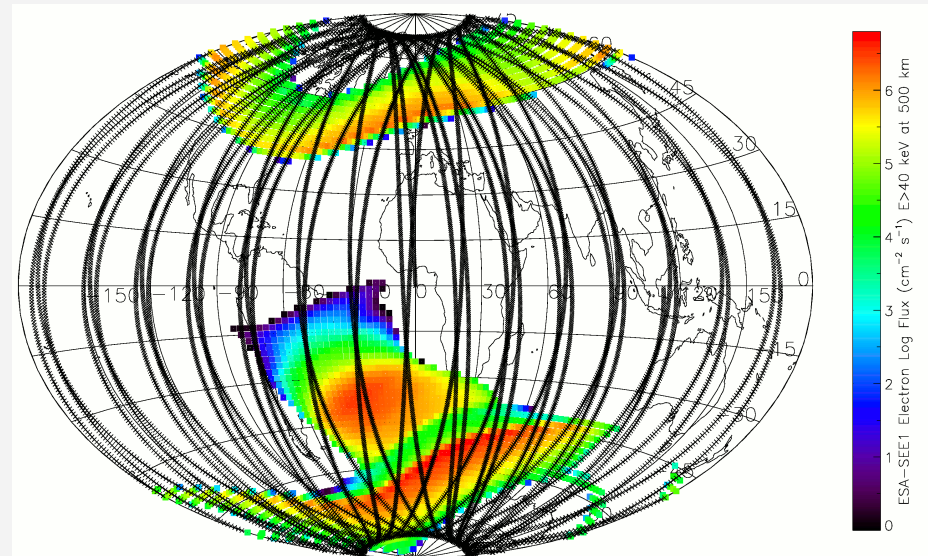
Displayed is 20 orbits

Aitoff projection

- For calculation of the "lost observation" time I used 1000 orbits (~ two months of orbiting).

- **32 %** of the time the satellite will be in the regions with electron flux > 1 cm^{-2} s^{-1}.