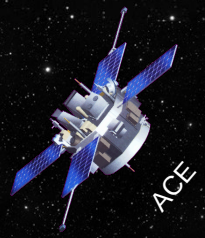
L1 solar wind, Kp and Aurora alerts, RSS feeds and Auroral tracking system

AFFECTS services

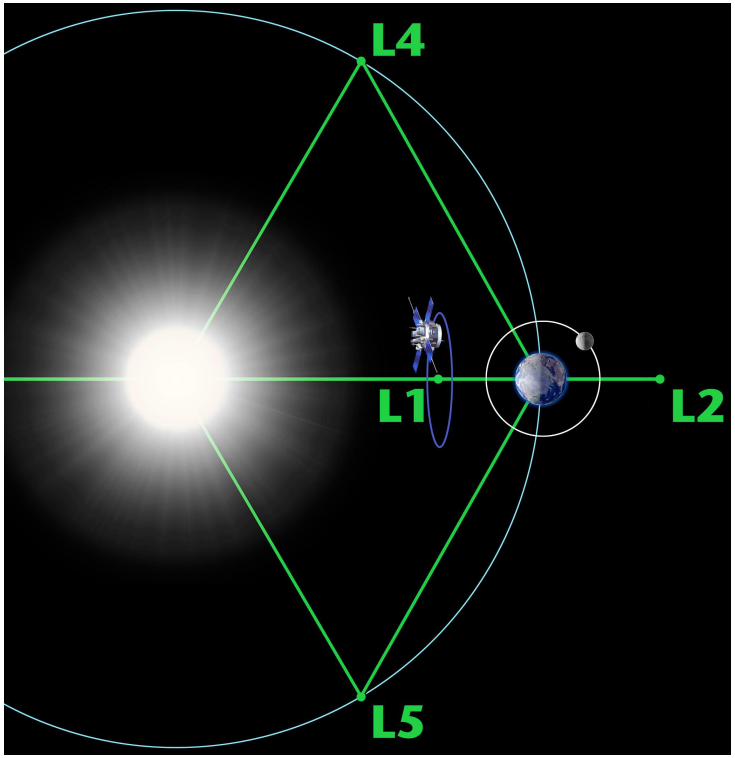
M. Venzmer [1], M. G. Johnsen[2]
[1] Institute for Astrophysics, Göttingen University, Germany
[2] University of Tromsø, Norway



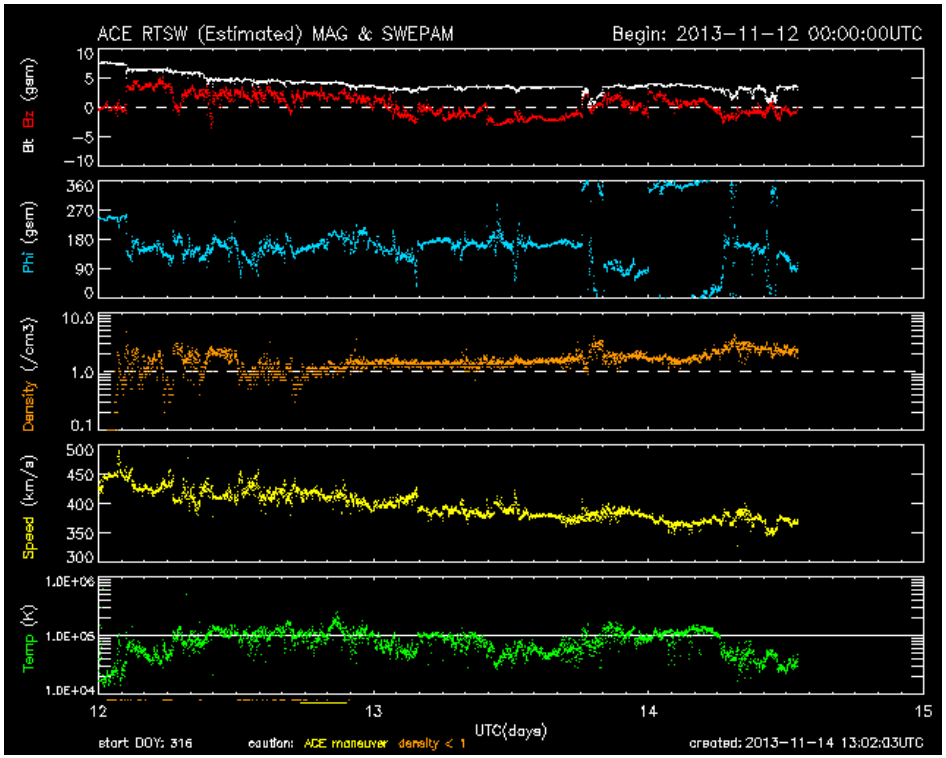
Contact:
0049 551 39 5062
mvenzmer@astro.physik.uni-goettingen.de

Solar wind data

- The ACE spacecraft is located at L1 and is monitoring the solar wind parameters.
- This data is provided online in near real-time from NOAA/SWPC. (www.swpc.noaa.gov/ftpmenu/lists/ace.html)



ACE spacecraft position around Lagrange 1.
Credit: NASA/H. Zell



ACE dynamic real-time solar wind plot for the last 3 days.
Credit: SWPC/NOAA

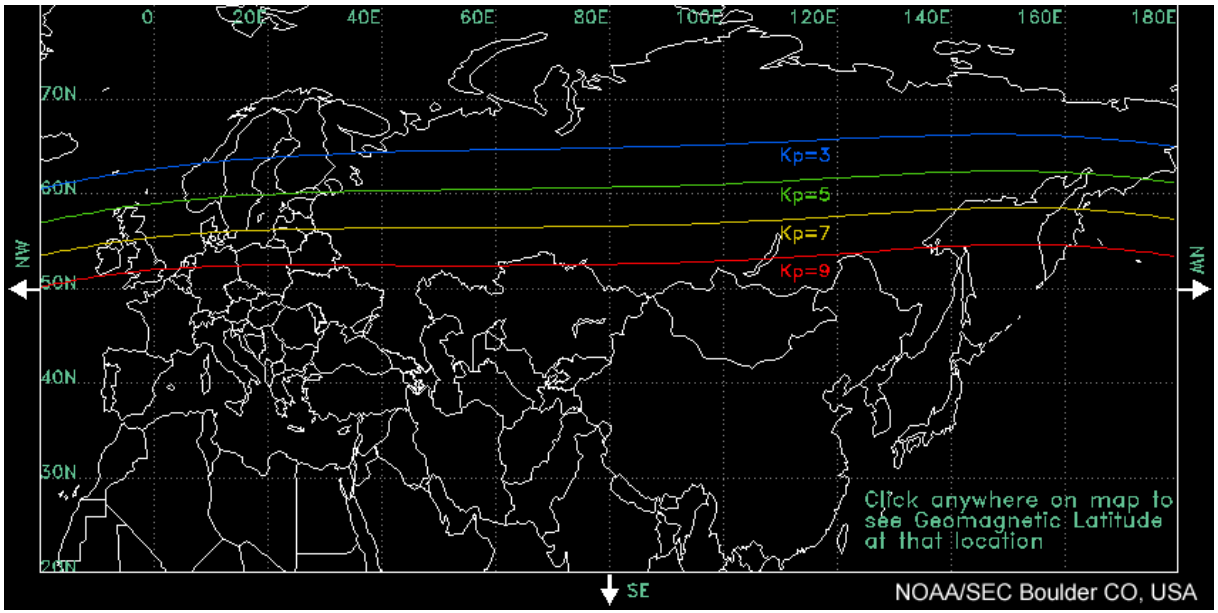
Kp and auroral position

Solar wind affects the Earths magnetosphere. We estimate the geomagnetic disturbance index Kp via empirical correlation from the ACE data.

→ near real-time Kp estimate

The midnight equatorward auroral boundary position correlates with Kp index. We can derive the auroral position via estimated Kp

→ near real-time auroral position estimate



Map of midnight equatorward auroral boundaries for a Kp of 3, 5, 7 and 9. Credit: NOAA/SEC Boulder CO

L1 Alerts

We use the ACE data to create warnings of severe space weather conditions at Earth.

Automatic threshold alerts are implemented for solar wind parameters, the derived Kp index and auroral position.

The alerts are provided as RSS feeds:

- L1 Solar Wind Alert
- L1 Kp Alert
- L1 Aurora Alert

Accessible via the AFFECTS website:
www.affects-fp7.eu/services

Another AFFECTS service is the Auroral tracking system from the University of Tromsø.