

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



INSTITUT FÜR
ASTROPHYSIK
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AFFECTS services

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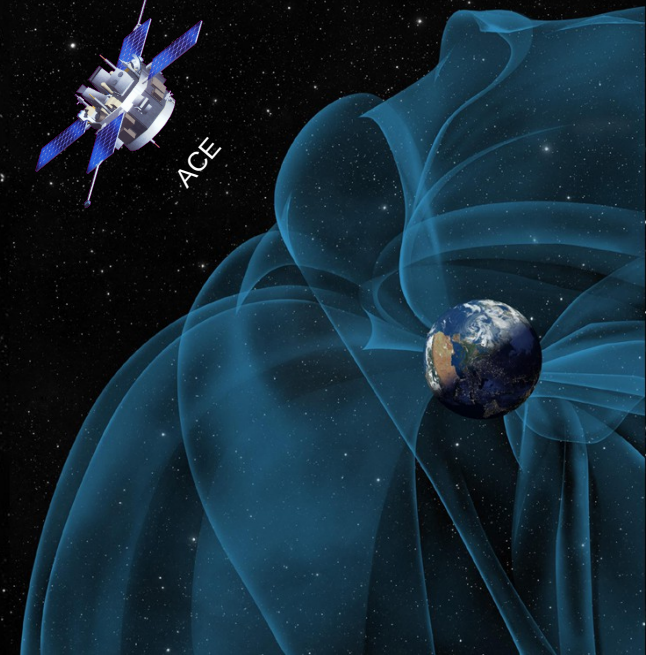
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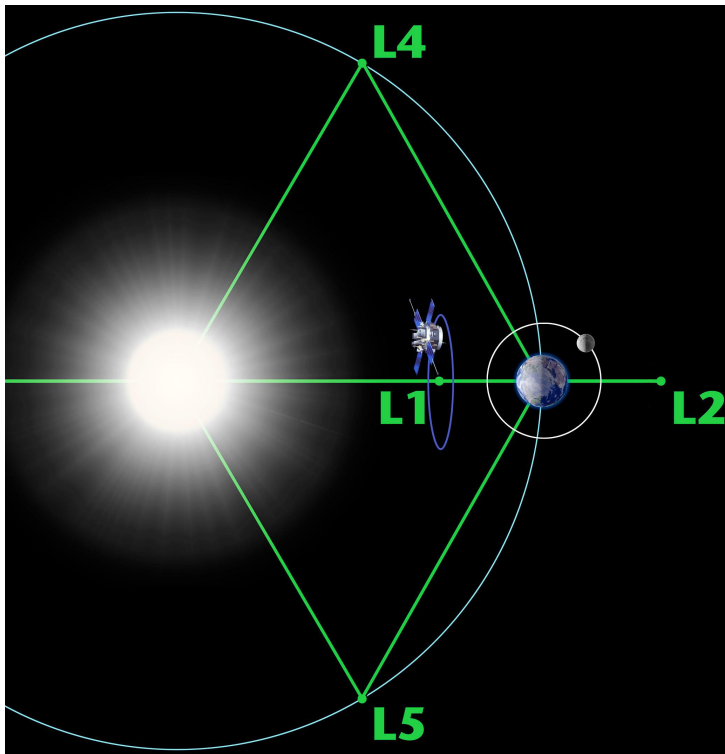
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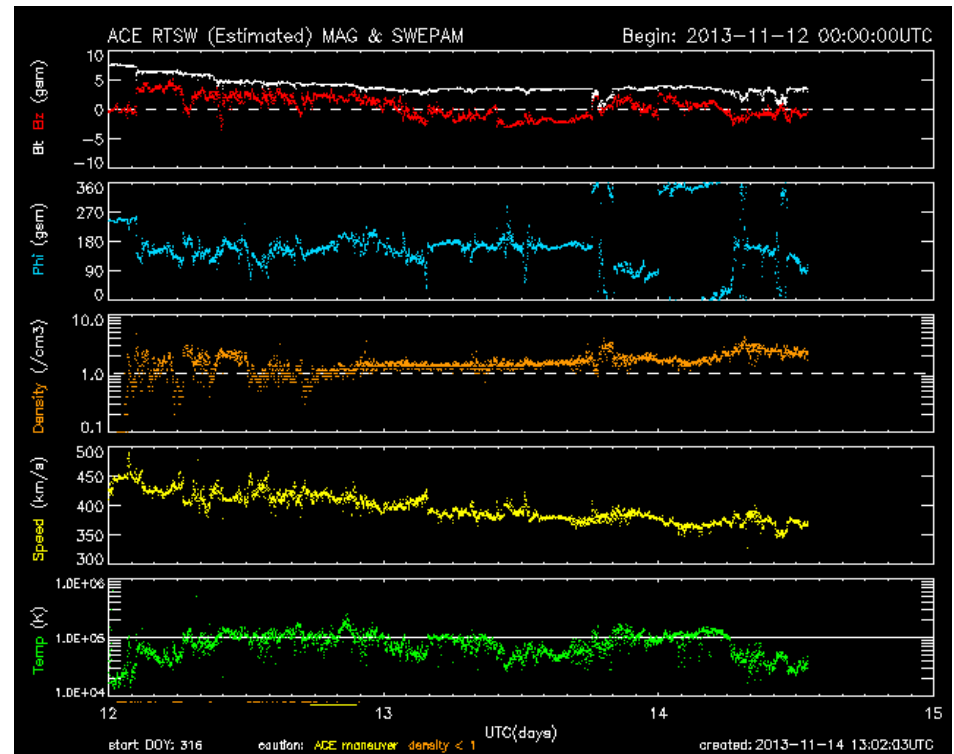
Solar wind data



- 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

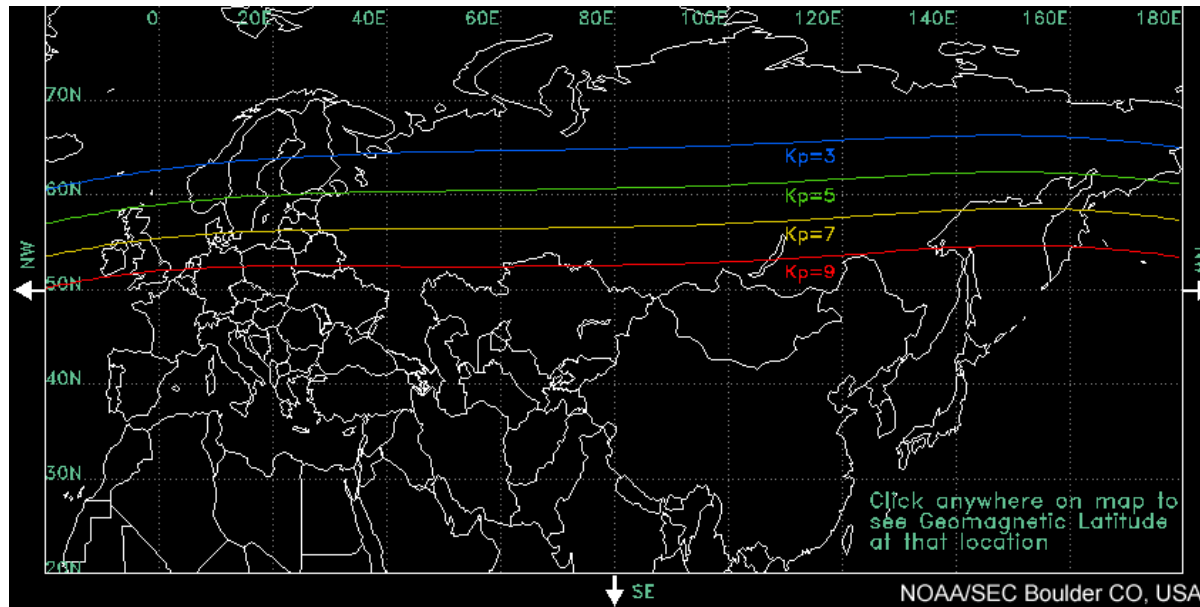


Solar wind affects the Earth's magnetosphere. We estimate the geomagnetic disturbance index Kp via empirical correlation from the ACE data.

→ 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.

The screenshot shows the AFFECTS website homepage. The browser address bar is www.affects-fp7.eu. The navigation bar includes links for HOME, SERVICES, NEWS & EVENTS, PR, WEATHER, and LINKS. A red arrow points to the 'SERVICES' link. The main content area features a large orange and red background image of a solar flare. Below this, there is a section titled 'AFFECTS' with a sub-header 'Advanced Forecast For Ensuring Communications Through Space'. A 'LATEST NEWS' section on the right contains several news items with dates. At the bottom, there is a table titled 'THE FOLLOWING INSTITUTIONS ARE INVOLVED IN AFFECTS:'.

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1	Germany	Georg-August-University Göttingen	UGOE	Dr. Volker Bothmer, project coordinator
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3	Ukraine	Space Research Institute	SRI NASU-NSAU	Dr. Aleksii Parnowski
4	Germany	Fraunhofer IPM	IPM	Dr. Raimund Brunner
5	Norway	University of Tromsø	UiT	Prof. Chris Hall
6	Germany	German Aerospace Center	DLR	Dr. Norbert Jakowski, Dr. Jens Berdermann