



Early Warning Message for GNSS User

User's manual

General description

The “early warning message for GNSS users” is especially directed to customers of space based radio systems used in telecommunication, navigation/positioning and remote sensing. The warning shall inform customers and operators of GNSS on approaching space weather events. Thus, GNSS customers and service providers will be aware of potential performance degradation of their systems due to space weather impacts. Based on the early warning, customers shall become prepared to undertake efforts to help mitigate the space weather impacts on the operated systems. The customer himself has to estimate the risk of his decisions with respect to the concrete GNSS application or service he is involved in or is operating. The early warning for GNSS users is done by distribution of a message which contains information primarily directed to users of GNSS systems. It uses solar alerts disseminated by ROB and translates it to the special information needed by GNSS users. The “early warning message for GNSS users” is part of the Forecast System Ionosphere (FSI) developed within the AFFECTS project.

The screenshot shows the AFFECTS website interface. The main content area displays an "Early Warning Message for GNSS users" with the following text:

This Early Warning Message is a fast warning for space weather events potentially impacting GNSS measurements. The Early Warning Message for GNSS users is generated at the German Aerospace Center (DLR) Neustrelitz using presto alert and ursigram information from the Solar Influence Data Center (SIDC) Brussels.

Current Status
Source: SWACI Service at German Aerospace Center - DLR

Predicted ionosphere disturbance scale:	I0 - Normal
Predicted condition of the ionosphere	Maximum DIX: not specified Monitoring of TEC is provided by SWACI.
Expected Hazards	none
Latest Ursigram	Ursigram, generated by Solar Influence Data Center (SIDC), provides 3-day-forecast of solar and geomagnetic activity.

Last Early Warning Issue

issued (UTC): 2013-02-11T12:48:27
 Event type: CME_arrival
 Event time uncertainty: 12
 Event probability of arrival: 10
 Event update No: 1

Predicted ionosphere disturbance scale:	I1 - Disturbed
Predicted arrival time (UTC):	2013-02-12T10:00:00
Predicted condition of the ionosphere	Actual and one hour forecasted TEC maps are provided by SWACI.
Predicted geomagnetic disturbances:	expected minimum Kp: 3
Predicted geomagnetic disturbances:	expected maximum Kp: 3
Expected Hazards	Impacts on high frequency (HF) radio propagation expected. Influence on

Early Warning Message at the SWACI-AFFECTS webpage.



Each interested person, company or institute can request this service by signing in on the SWACI-AFFECTS website. Each registered user shall be able to unsubscribe from the user list at any time. This option is implemented to a service provided on the SWACI-AFFECTS website.

The warning message send automatically to external users contains a html file with a graphical presentation of the warning and a xml-file with all information's.

The xml file can be used for further processing in other processor systems. The warning message also properly links to additional webpages showing nowcast and forecast of the ionosphere.

Limitations

The Early Warning for GNSS user is now in its test and verification phase and will become accessible for the public by end of II/2013. Recent test user are kartverket – Norwegian Mapping Authority, Axio-Net and the German Aerospace Center (DLR).

It is expected that more information's enter the warning message in accordance to the continuous development within AFFECTS in the third year.

Disclaimer

The FSI is created on best efforts basis and is provided “as is” without warranties of any kind. The forecasts issued by the products are accurate to the best knowledge of the developers; however, the developers cannot be held responsible for any damage, loss of profit and similar charges rising out of the use of this product and its output. In particular, the developers of this product cannot be held responsible for the consequences of any action, or the lack of, based on the forecast provided by this product. Any such consequences shall be at sole responsibility of the respective decision makers.

Contact information

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AFFECTS project: <http://www.affects-fp7.eu/>

FSI: <http://swaciwebdevelop.dlr.de/forecast-system-ionosphere/>

Early Warning: <http://swaciwebdevelop.dlr.de/early-warning-gnss/>

	Acknowledgement	
	The research leading to these results has received funding from the European Union's Seventh Framework Programme (FP7/2007-2013) under the grant agreement n° 263506 (AFFECTS).	