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Abstract

The Royal Meteorological Institute of Belgium (RMIB) as one of the three Belgian Space Pole institutes has participated as a partner to the SIDC ESA Space Weather Pilot Project with the Royal Observatory of Belgium (ROB), the Belgian Institute for Space Aeronomy (BISA) and CREACTION, Inc.



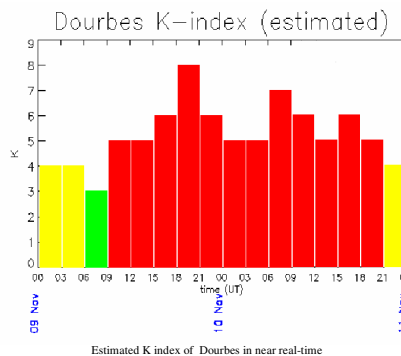
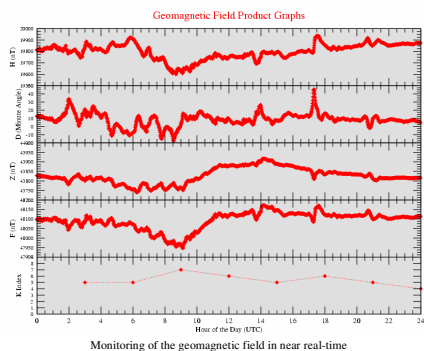
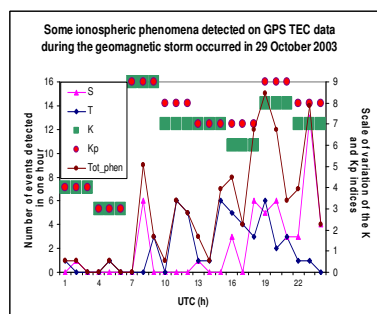
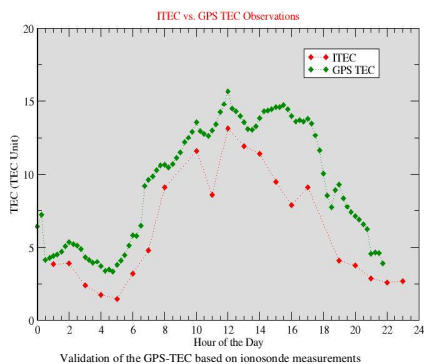
In particular, the Ionospheric Profiles division of the RMIB and The Earth Rotation, Geodysie and Time division have exploited their synergies to develop a forecast service for GPS users. In this paper, we present the different tasks developed and done at the RMIB to reach this goal.

The project results lead to several Web pages (see <http://gpsatm.oma.be>) where one sees in particular the geomagnetic K index of Dourbes estimated in real time and the comparison between of GPS Total Electronic Content (GPS-TEC) and Ionosonde Electronic Content (IEC) ...

Tasks entrusted to the RMIB

- Calculation of the IEC (Ionospheric Electronic Content) from measurements of the digisonde at Dourbes and validation of the GPS-TEC (Total Electronic Content) in near real-time.
- Automatic Transfer of the data from Dourbes and preparation of the parameters requested for specific work packages.
- Based on the 10 year data bank accumulated at ROB about the occurrence of small-scale ionospheric disturbances, the Dourbes ionosonde and geomagnetic data bank, study of the correlation between geomagnetic activity and the occurrence of severe to extreme ionospheric small-scale variability.

Products



Publications:

- Nebdi H., R. Warnant, S. Lejeune, 2004. *Study of the correlation between small-scale TEC variability and geomagnetic activity*. Technical Report of Work Package 222, Solar Influences Data Centre Space Weather Pilot Project, ESA contract 16913/03/NL/LvH.
- Warnant R., S. Lejeune, Nebdi H., 2004. *Forecasts of black and red conditions for RTK users*. Technical Report of Work Package 223, Solar Influences Data Centre Space Weather Pilot Project, ESA contract 16913/03/NL/LvH.
- Warnant R., Nebdi H., E. Pottiaux, 2004. *Near real-time validation of GPS-TEC using ionosonde TEC at Dourbes*. Technical Report of Work Package 212, Solar Influences Data Centre Space Weather Pilot Project, ESA contract 16913/03/NL/LvH.
- Andonov B., Kutiev I., Warnant R., Nebdi H., Rasson J., Bavier M., 2004. *Forecasting the Dourbes K index by using solar wind parameters*. Proceedings of the Beacon Satellite Symposium, Trieste, 18-22 october 2004.
- Warnant R., Bavier M., S. Lejeune, E. Pottiaux, Nebdi H., Rasson J., Andonov B., Kutiev I., Barré A., Van der Linden R., 2005. *Development of Space Weather related services for real-time GPS applications*. Proceedings of the Space Environment Centre Space Weather Week, Boulder, April 5-8 2005.

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