

2008 Fall Meeting  
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Cite abstracts as **Author(s) (2008), Title, Eos Trans. AGU, 89(53), Fall Meet. Suppl., Abstract xxxxx-xx**

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**"G41A-0619"**

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HR: 0800h

AN: **G41A-0619**

TI: [Detection of ionospheric scintillations and impact on GPS kinematic positioning](#)

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AB: Monitoring the ionospheric state is essential for many scientific applications, e.g. accurate GPS-based positioning, radio-waves transmission, space weather. Additionally, the Earth's atmosphere is one of the major error sources degrading the potential of GPS kinematic positioning. To quantify the impact of high ionospheric activity on GPS kinematic positioning, a subset of 40 stations from the European Permanent Network (EPN) was processed using the Bernese v5.0 software. During the Halloween geomagnetic (super-) storm of 29-31 October 2003, we observed a decrease by a factor ten or greater of the hourly repeatability for the horizontal and vertical components compared to positions obtained during normal ionospheric activity. We also produced Total Electron Content (TEC) maps from continuous operating GPS stations of the EPN to characterize the ionospheric activity during this period. Those maps, computed each hour with a one degree step grid, have a higher spatial and temporal resolution than the CODE or IGS TEC maps, and allow detecting rapid and isolate abnormal ionospheric activity above Europe. We investigate the potential benefit of using residuals from the geometry-free carrier phases as well as slant TEC estimate to detect small scale ionospheric disturbances.

DE: 1220 Atmosphere monitoring with geodetic techniques (6952)

DE: 2435 Ionospheric disturbances

DE: 2487 Wave propagation (0689, 3285, 4275, 4455, 6934)

DE: 7949 Ionospheric storms (2441)

SC: Geodesy [G]

MN: 2008 Fall Meeting

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