



## **Inter-hemispheric comparison of polar patch occurrence during 2015 St. Patrick's Day storm.**

Rafał Sieradzki and Jacek Paziewski

University of Warmia and Mazury, Olsztyn, Poland (rafal.sieradzki@uwm.edu.pl)

The ionosphere at high geomagnetic latitudes is characterized by extremely complicated structure being an effect of different geophysical processes occurring at polar and subpolar areas. The one of large-scale phenomena are polar patches, defined as enhancements of F-region plasma density with size of several hundred kilometres. They are formed on the dayside ionosphere and subsequently transported through the cap to the nightside.

Polar patches are currently an object of intensive studies carried out with different measurement methods, including GNSS . With regard to this technique, the increasing number of permanent receivers at high latitudes allow tracing of these structures with high temporal resolution. In this contribution is presented a comparative analysis of polar patch occurrence at both hemispheres during St. Patrick's Day storm in 2015. Their detection was performed with relative STEC values extracted from time series of geometry-free combination (L4) using multi-station data. The signatures of disturbances were isolated from L4 observations using iterative algorithm of 4-degree weighted polynomial fitting applied to particular arcs of data. In order to ensure as high as possible time and spatial resolution of polar ionosphere's view, the given analysis was performed using data from over 200 permanent stations (IGS, EPN, UNAVCO) located at high latitudes.