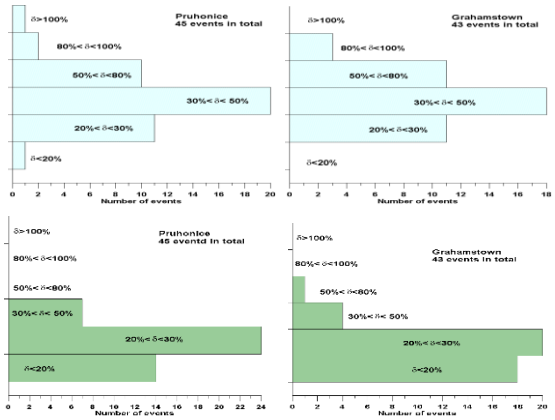
Differences in regular and storm time ionospheric variability at magnetically conjugated locations of the Northern and Southern Hemisphere

D. Buresova, J.B. Habarulema, E. Araujo-Pradere, M. Tshisaphungo, Z. Katamzi, J. Watermann and J. Lastovicka *(for more information buresd@ufa.cas.cz)*

Summary of the results:

Our study was focused particularly on CME- and CIR/CHSS-related ionospheric disturbances above magnetically conjugated ionospheric stations located at Northern and Southern Hemisphere. We also used digisonde verical and D2D soundings and information on TEC, TEC deviations in space and time from a background reference (dTEC), and the Rate of TEC change in time (ROT), all inferred from GPS receiver networks in Europe and Africa to compare behavior of LSTIDs at both hemispheres.
It is necessary to point out that:

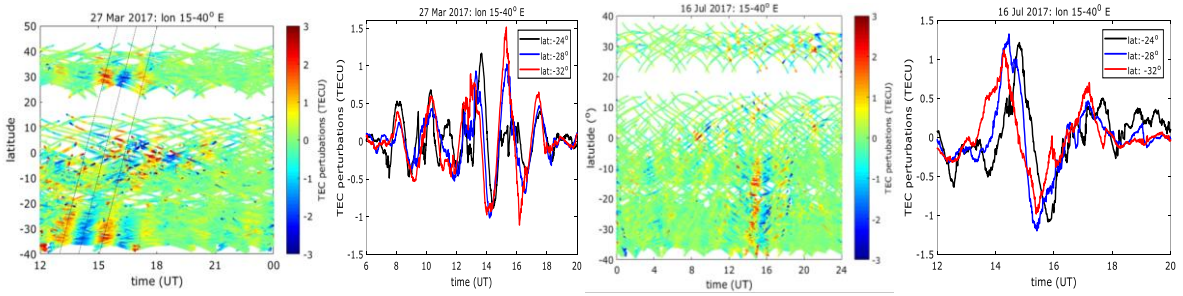
- in general, both positive and negative deviations of *foF2* and *hmF2* from their 27-days means have been observed independent on season and location. During CIR-related events changes in *foF2* were more substantial and rather positive.



- as for possible hemispheric asymmetry, in average the asymmetry of ionospheric response to geomagnetic storms at middle latitudes of European-African region is not a dominant and/or strong feature. The asymmetry in individual events may be well pronounced both in *foF2* and *hmF2* but mostly it is an impact of other factors like seasonal dependence of ionospheric response, intensity of geomagnetic storm, difference between geographic and geomagnetic coordinates etc.

- hemispheric conjugacy of LSTID is highly probable during both CME- and CIR/CHSS-related storms while interhemispheric circulation rather unlikely but still occurring during some periods.

Interhemispheric circulation events:
- main phase of major storm (SYM-H -230 nT, IL & IU large, PC index high)
- minor storm right after main phase (SYM-H -60 nT, IL & IU moderate, PC index moderate)
- well into recovery phase of strong storm (5 days after min SYM-H -120 nT)



(for more information buresd@ufa.cas.cz)