



## **Ionosphere Scintillation at Low and High Latitudes (Modelling vs Measurement)**

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This paper will address the problem of scintillations characteristics, focusing on the parameters of interest for a navigation system. Those parameters are the probabilities of occurrence of simultaneous fading, the bubbles surface at IPP level, the cycle slips and the fades duration statistics. The scintillation characteristics obtained at low and high latitudes will be compared. These results correspond to the data analysis performed after the ESA Monitor ionosphere measurement campaign [1], [2].

A second aspect of the presentation will be the modelling aspect. It has been observed that the phase scintillation dominates at high latitudes while the intensity scintillation dominates at low latitudes. The way it can be reproduced and implemented in a propagation model (e.g. GISM model [3]) will be presented. Comparisons of measurements with results obtained by modelling will be presented on some typical scenarios.

### References

- [1] R. Prieto Cerdeira, Y. Beniguel, "The MONITOR project: architecture, data and products", Ionospheric Effects Symposium, Alexandria (Va), May 2011
- [2] Y. Béniguel, R Orus-Perez , R. Prieto-Cerdeira , S. Schlueter , S. Scortan, A. Grosu "MONITOR 2: ionospheric monitoring network in support to SBAS and other GNSS and scientific purposes", IES Conference, Alexandria (Va), May 2015-05-22
- [3] Y. Béniguel, P. Hamel, "A Global Ionosphere Scintillation Propagation Model for Equatorial Regions", Journal of Space Weather Space Climate, 1, (2011), doi: 10.1051/swsc/2011004