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Atmospheric Measurement Techniques Discussions

Interactive comment on "Remote Sensing of Tropospheric Turbulence Using GPS Radio Occultation" *by* Esayas Shume and Chi Ao

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General comments:

The manuscript presents research that use scintillation index to detect ionospheric turbulence, therefore represents a substantial contribution to scientific progress within the scope of AMT journal.

Detail comments:

The used methods for signal filtering and removal of multipath are correct but well known and presented in few papers: 1. Knepp, D. L., Multiple phase-screen calculation of the temporal behaviour of stochastic waves, Proc. of the IEEE, 71, (6), 722–737, 1983 2. Martin, J. M., and S. M. Flatt′e, Intensity images and statistics from numerical simulation of wave propagation in 3-D random media, Appl. Opt., 27, (11), 2111–2126, 1988. 3. Karayel, E. T., and D. P. Hinson, Sub-Fresnel-scale vertical resolution in atmo-

spheric profiles from radio occultation, Radio Sci., 32, (2), 411–423, 1997. 4. Grimault, C. (1998). A multiple phase screen technique for electromagnetic wave propagation through random ionospheric irregularities. Radio Science, 33(3), 595-605. 5. Carrano, C. S., Groves, K. M., Caton, R. G., Rino, C. L., & Straus, P. R. (2011). Multiple phase screen modeling of ionospheric scintillation along radio occultation raypaths. Radio Science, 46(6).

Other authors use methods that are "more up-to-date" as: Full Spectrum Inversion (FSI) and Phase Matching (PM). Reference to the authors of the above publications and other methods is advisable.

The criteria of method selection criteria should be clearly emphasized.

The interesting result is that the authors created global seasonal maps of turbulences and fund a relation between scintillations and water vapor.

The results and conclusions are presented clearly and visualized by figures.

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