Turbulence Locations and Intensities from Radio Occultation Soundings

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Radio occultation, with GPS satellites acting as the source of the occulted radio signals, is in extensive use at present for extraction of temperature profiles in the global atmosphere for insertion into numerical weather forecast models. However, the vast potential of radio occultation soundings in extracting valuable information on locations and intensities of turbulence, using the technique described in Clayson and Kantha (2008), is yet to be realized. We discuss here the utility of routinely monitoring turbulence in the global atmosphere with radio occultation soundings from GPS satellites and other radio signal sources. Potential applications include research into turbulence in the global atmosphere aimed at a better understanding of its spatio-temporal variability. Operational uses include enhancing the safety of the flying public through turbulence monitoring at flight levels all around the globe.