A study of ionospheric disturbance using GPS occultation TEC data.

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The occultation Total Electron Content(TEC) data observed by Low Earth Orbit(LEO) satellites were analysed about effects of horizontal structures of ionospheric electron density.Horizontal structures of ionospheric electron density are continuously observed by ground-based GPS receivers with high resolution in space and time.On the other hand,there is relatively small number of observations of the vertical structures.Ionospheric occultation GPS receivers on LEO satellite is one of the methods to measure vertical profile of the electron density.In most cases we can get smoothness vertical profiles.There are many exceptional cases analysed with wavelet analysis.As a result,they have several hundreds vertical structures.Occultation TEC data is an integrated value of the electron density in the region extending 3,000km horizontally. We have to assume horizontal uniformity of electron density to estimate the electron density from the occultation TEC data. In most cases there are horizontal variations. Therefore,there are cases that have several hundreds vertical structures.