



Is the pre-storm enhancement a real effect?

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Several authors reported the pre-storm enhancements a couple of hours before the onset of geomagnetic/ionospheric storm. However, such enhancements were reported only for some storms. Mikhailov (Ann. Geophysicae, 2009) questioned the existence of the pre-storm enhancements and claimed that they only accidentally occurred before storms, and their drivers were claimed to be different from the coming geomagnetic storm. Here we re-analyze data set of 65 strong-to-severe geomagnetic storms from the period 1995-2005 and confirm previous funding that about 25% of all storms are accompanied by sufficiently strong pre-storm enhancements, confined to the F region only. It is difficult to say if the remaining 75% of storms are or are not accompanied by a pre-storm enhancement, because when the pre-storm enhancement amplitude is smaller than a limit, it cannot be distinguished from effects caused by other factors and for still weaker magnitude even from noise. Also the results about latitudinal distribution, seasonal variation etc. together with a brief discussion of possible origin of the pre-storm enhancements will be presented.