

## ***Interactive comment on “Ionospheric and thermospheric response to the 27–28 February 2014 geomagnetic storm” by Khalifa Malki et al.***

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Dear referee, Thank you very much for your encouraging remarks. Yes, you are right, the sentence “L19/page4: The day-night difference in solar heating and upward propagating atmospheric tides control the thermospheric wind circulation during quiet time conditions” can be misleading and understood as if the solar heating and tide are put in equal weight which is not accurate, as you said. Of course, the solar heating is the primary source that drives the thermospheric winds. Tides play secondary role compared to solar heating but important though as it modulates the wind circulation and deposit energy into the thermosphere. For example, nonmigrating tides shape the longitudinal dependence of the low-latitude ionosphere and an additional important effect is the upward propagating global wave features from the atmosphere below. Upward

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propagating planetary waves, tides and gravity waves deposit in the thermosphere an important amount of energy as their amplitude grow with altitude and reach a point where they break down. It has been shown that thermospheric winds are heavily influenced by upward propagating tides and that they have a significant impact on the day-to-day variability of the winds. In regard to space weather tides are important. We therefore propose to change the sentence mentioned above by the following sentence: “L19/page4: The day-night difference in the solar heating is the primary source that control the thermospheric wind circulation during quiet time conditions. Another important secondary source is upward propagating tides.”

Concerning the remark about the missing reference (L24/page4) here is the answer: Mendillo (2006); Meriwether (2008); Emmert et al.(2004)

Concerning the weather conditions, we have a cloud sensor. The sky has to be clear before measurements.

Concerning the comparison with models, we have compared the winds with the DWM model (see L23/page6).

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