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Interactive comment on "Evaluation of the IGS–Global Ionospheric Mapping model over Egypt" *by* Mostafa Rabah and Ahmed Sedeek

Anonymous Referee #1

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The paper attempts to update IGS-GIM using GPS-VTEC over Egypt. Although the goal is worthy since that region of the world is covered sparsely by IGS network. Yet, there are a major number of errors in mathematical notation and the paper suffers from grammatical and syntax errors. General Comments: 1) The review of IGS products are poorly done. If the authors wish to discuss them in detail, they should do the comparison and discussion properly. They mention only UPC and CODE. The complete list lack CAS and WHU. 2) There are problems in the application of double-differencing. It is not clear how the authors handle challenges related to receiver biases and how they resolve ambiguities. At the end of the discussion, they just assume them to be negligible (line 123-138). Also, it is not clear whether they have performed tropospheric correction or not. For real-time kinematic applications, it can be done only in near real-

time and they should correct for the tropospheric delay as well. The data and details should be discussed in the paper. The information given in lines 257-261 is inadequate. The receivers are too far away from each other to apply double differencing. The spatial correlation length of ionosphere is less than 70 km in that part of the world. 3) The discussion on the 'Processing Software' does not make sense at all. How did the authors obtain the TEC over the stations? The VTEC definition in line 169 is only for one epoch, one satellite and one frequency. What happened to the other frequency? How does the software inside a receiver can be trusted? Where are the references that discuss the accuracy and reliability of this computation? What is the purpose of NRCan Online PPP Software? 4) Predicted GIM is only available for certain analysis centers. How does the Trimble receiver obtains these products? What happens if none are available at that time? 5) The discussion in lines (240-247) on GIM data is wrong. 6) The algorithm in Figure 6 is flawed. The authors use only one frequency, one satellite and one receiver to replace the GIM-TEC value in the IONEX file. The resolution of IONEX 2.5 degrees in latitude and 5 degrees in longitude and two hours in time resolution. What happened to the other frequency, other satellites in view, other receivers in the same IONEX map cell and 30 s data from RINEX? 7) The paper should be revised by a native technical editor. There are too many grammatical mistakes to correct. 8) There are problems with the figures. Some are not legible and some just do not make sense. Delta E, Delta N and Delta h are not defined mathematically.

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