

Interactive comment on “Migrating tide climatologies measured by a high-latitude array of SuperDARN HF-radars” by Willem E. van Caspel et al.

Anonymous Referee #1

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Review: Migrating tide climatologies measured by a high-latitude array of SuperDARN HF-radars by van Caspel et al.

This work uses an array of 10 high-latitude superDARN HF-radars to analyze migrating tides (DW1, SW2, TW3). SuperDARN radars can cover 180 degrees of longitudes and allow tidal analysis. Their modeling works indicated that missing parts of longitudinal coverage (radar sampling) do not show significant influences of their tidal analysis method. Their method provide higher-frequency tidal variability compared to satellite observations, and it is useful for future tidal studies. I recommend publication after several minor/major revisions.

C1

Comment (1) This is my main comment for this work. Do SuperDARN radar tides compare well with your model (NAVGM-SD)? I saw NAVGEM-SD and NAVGEM -360 comparison, and results look great. Authors mentioned in the section 2.3, NAVGEM – HA show good agreement with tides and winds from previous radars and satellite observations. I am wondering if your tides show good agreement with NAVGEM. Can you add SuperDARN radar tidal results in Figure 5 along with NAVGEM-SD and NAVGEM-360? Or can you show us comparisons between modeling work and SuperDARN radar observed tides?

Comment (2) It is hard to see where are DOY 250, 260, 365 etc mentioned in the page 4-5 for Figures 2-3. Also it is hard to see where is “late summer” and “mid-winter” from Figure 2 and 3. Would you add vertical lines for every year (currently every two years)? Can you also specify “late summer” and “mid-winter”(which months are you talking about?).

Figures 2,3, and 4: Authors discussed a lot about DOY 260. Would you indicate DOY 260 in some of your figures? X-axis is years and it is hard to see from Figures 2-3.

Comment (3) Figure 5: What are you plotting? Zonal wind? Or meridional wind? (I think it is zonal wind, but it is not clear).

Comments (4) Line 185. Authors discussed that radars can see high-temporal resolutions, resulting in the peak around DOY 260. Would you discuss more about this? What are temporal resolution of previous terdiurnal tide work?

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C2