Some additional comparisons between FITACF 2.5 and FITACF 3.0

Convection maps

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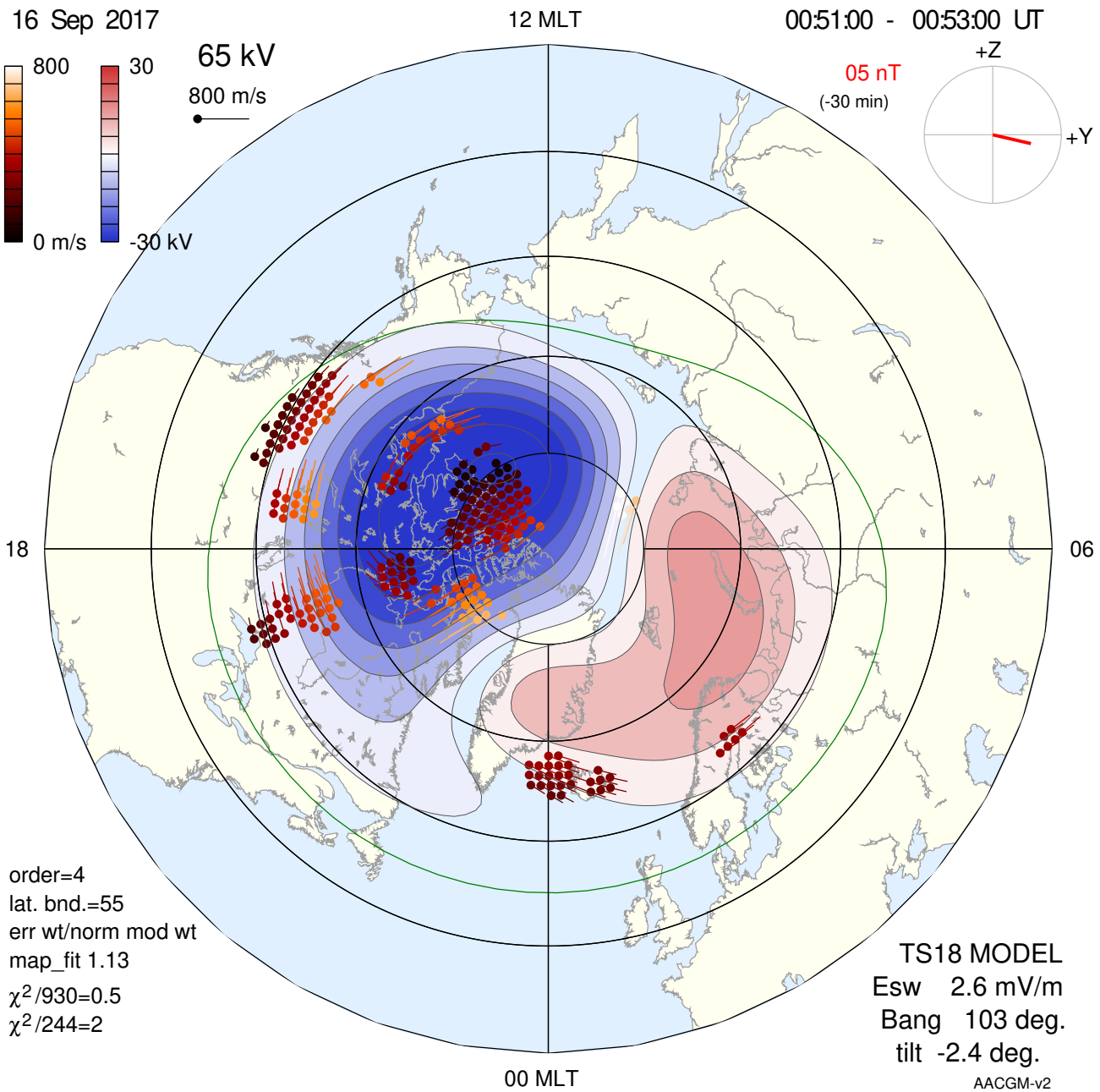
What did we do?

1. Process all northern hemisphere data from 16 September 2017, 00–02 UT using FITACF2.5 and FITACF3.0
2. Remove salt & pepper noise from the FITACF 3.0 data using the new `fit_speck_removal` routine
3. Generate separate convection maps with the data processed using the following options:
   - FITACF 2.5 (no filtering)
   - FITACF 3.0 (with filtering)
   - FITACF 3.0 (no filtering)

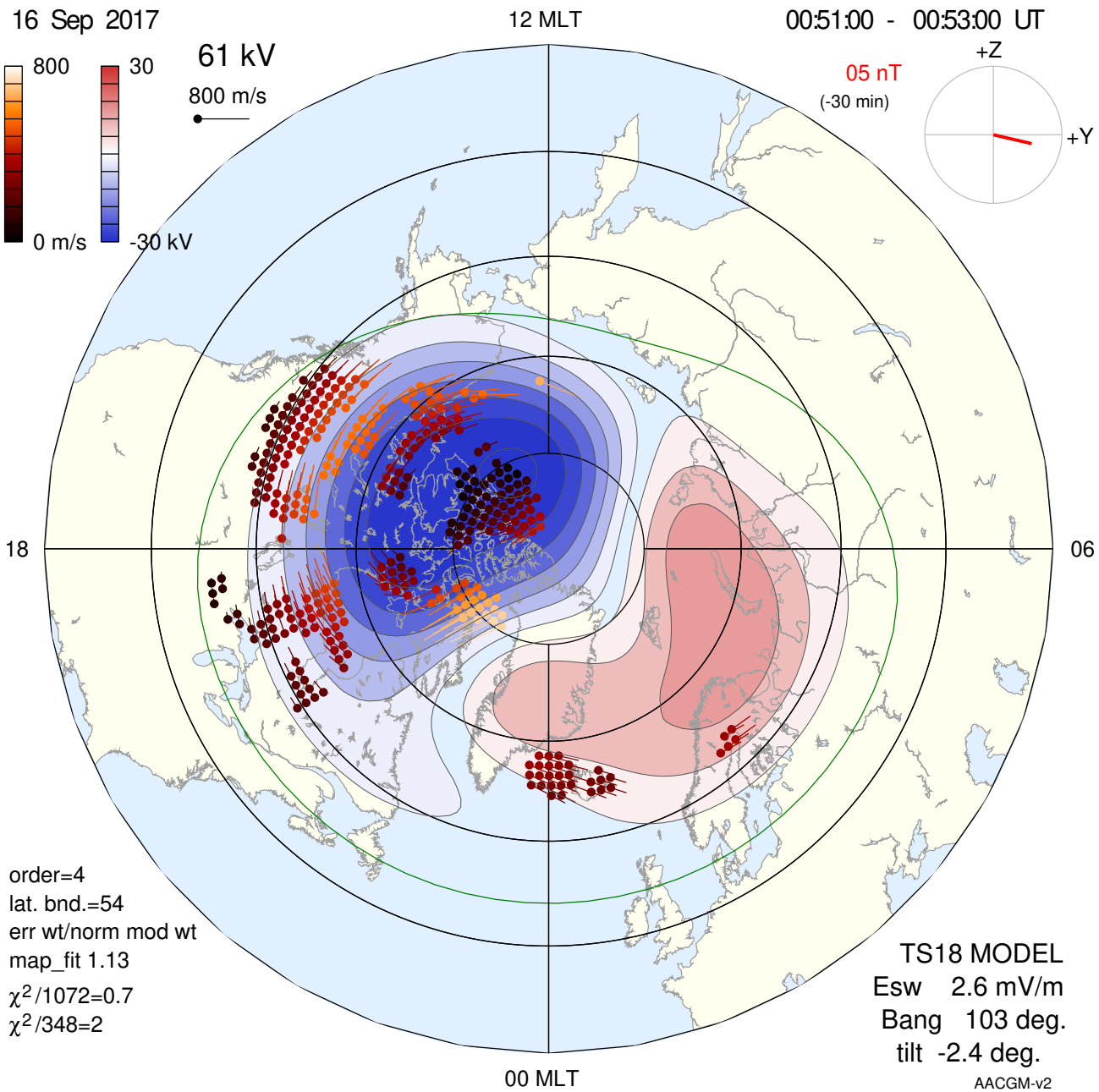
Convection maps were produced using default processing options. IMF data comes from the ACE satellite.

Example 1

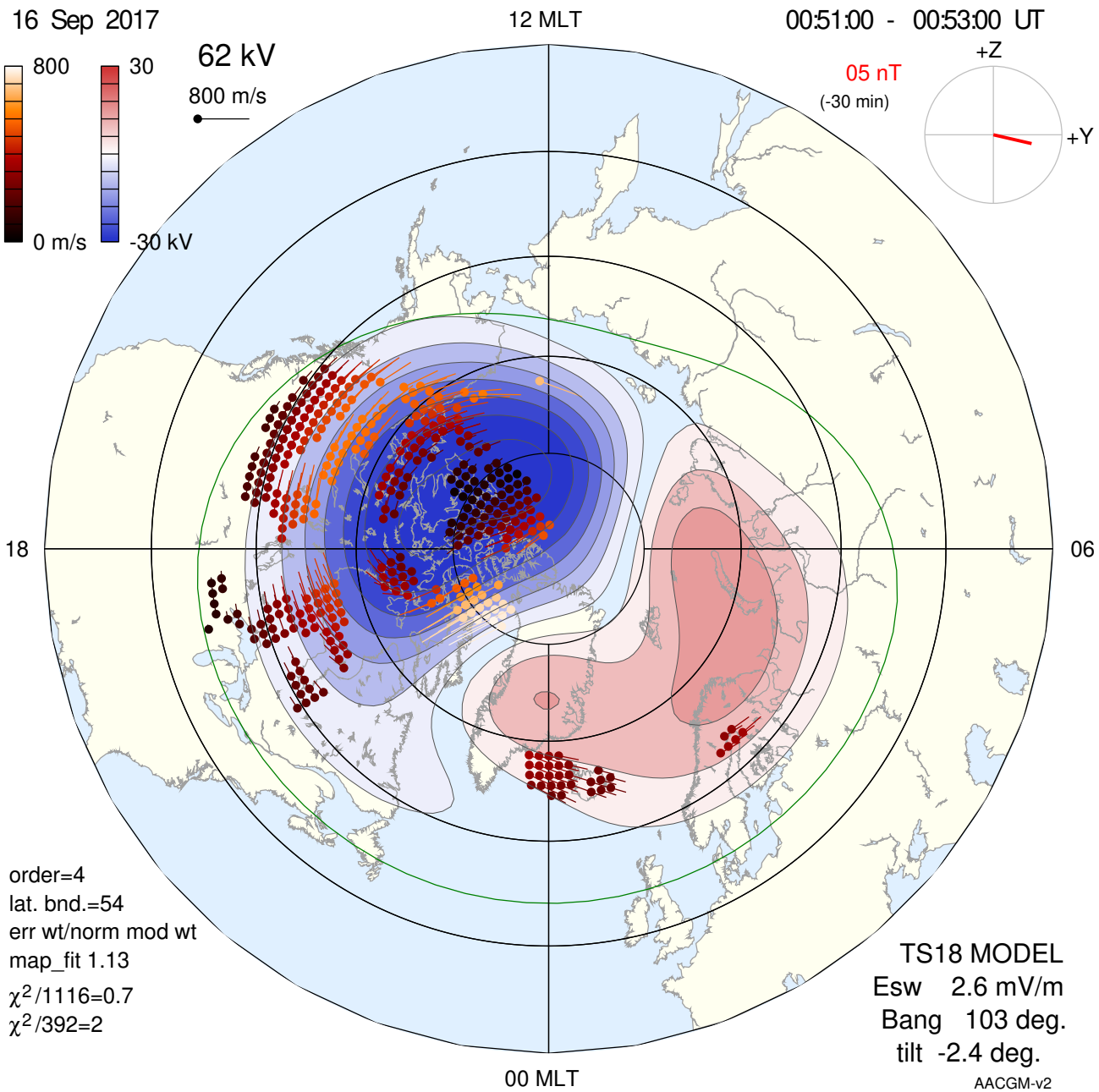
Processed with FITACF 2.5



Processed with FITACF 3.0 (with filtering)

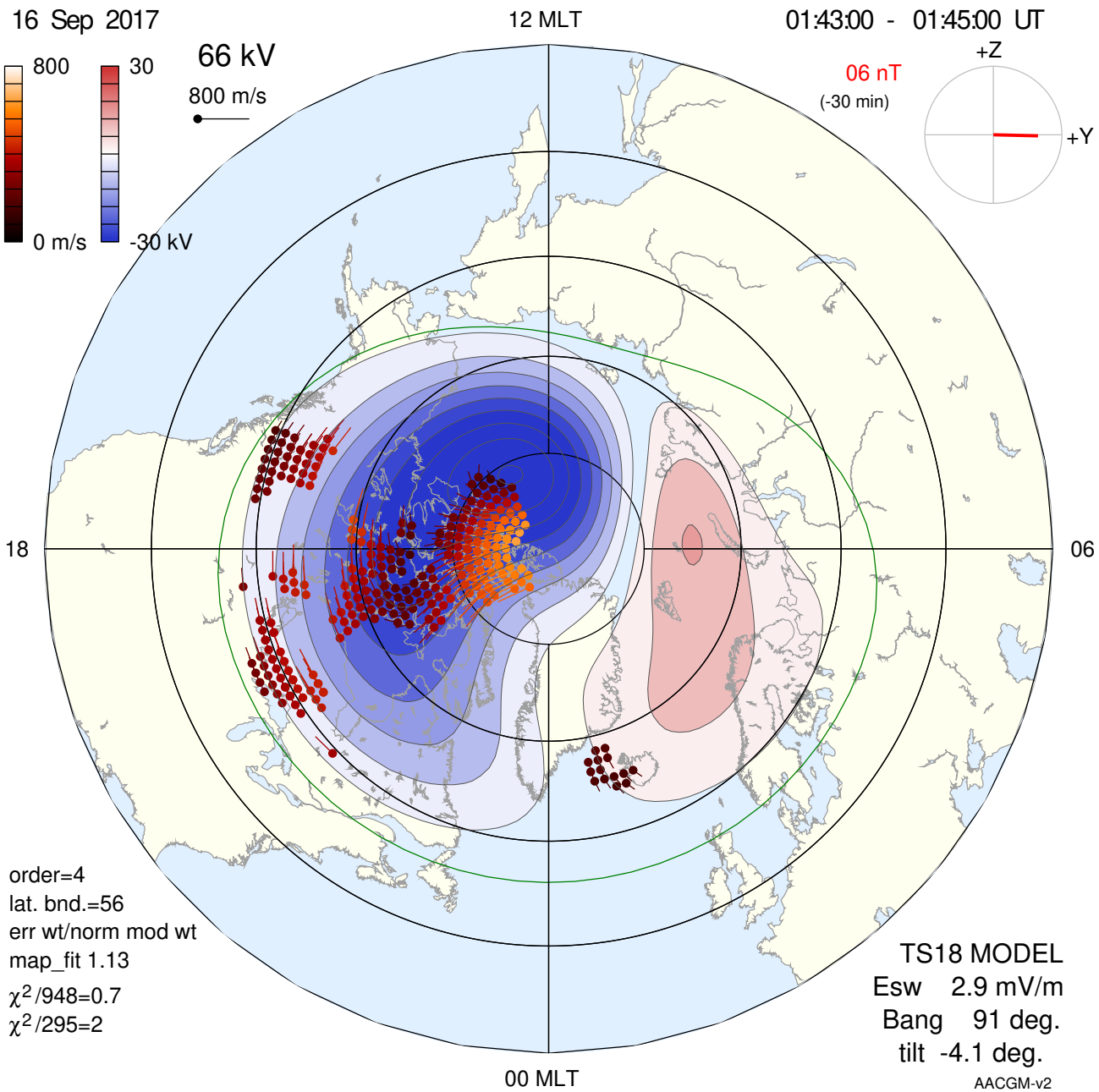


Processed with FITACF 3.0 (no filtering)

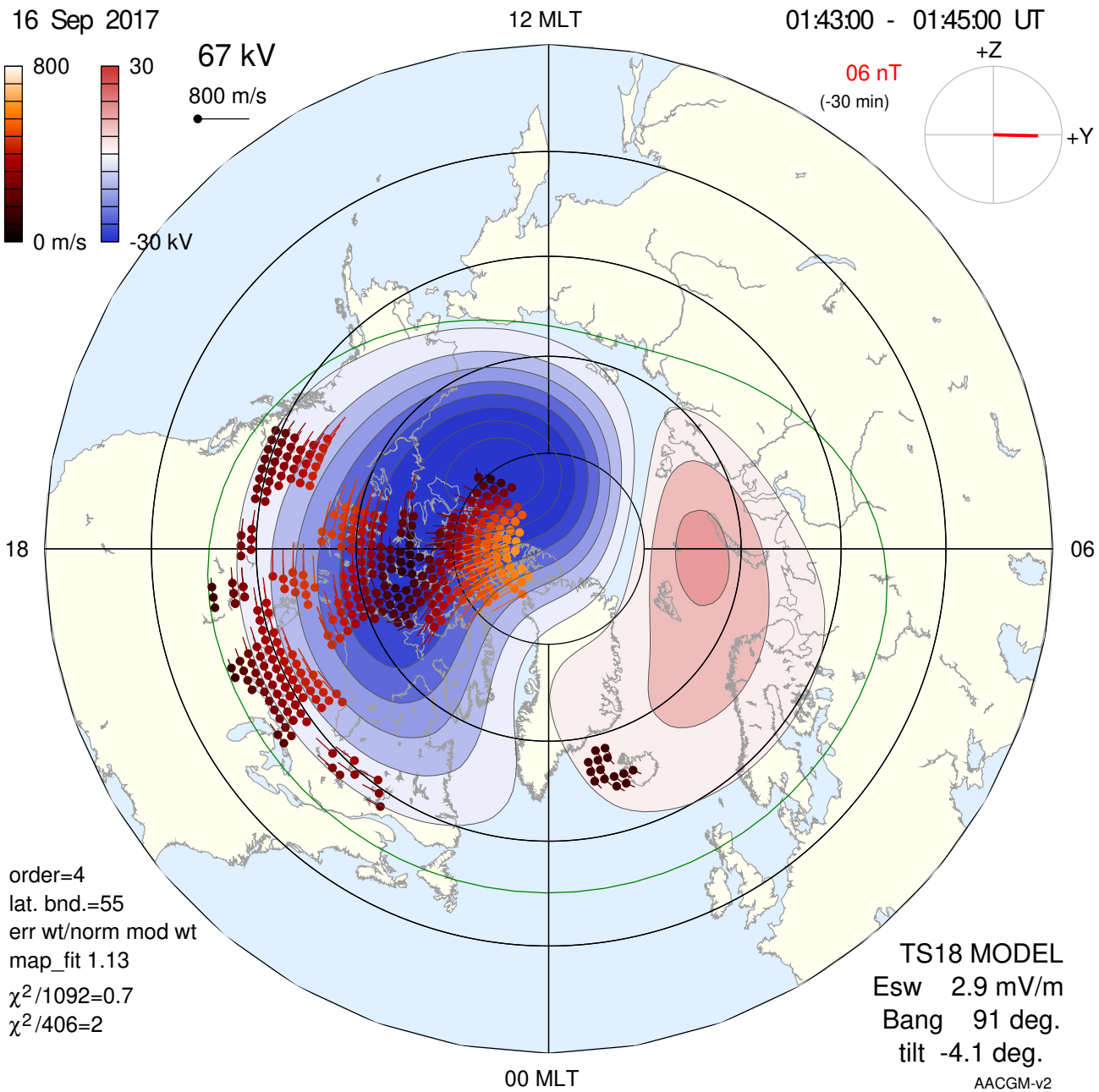


Example 2

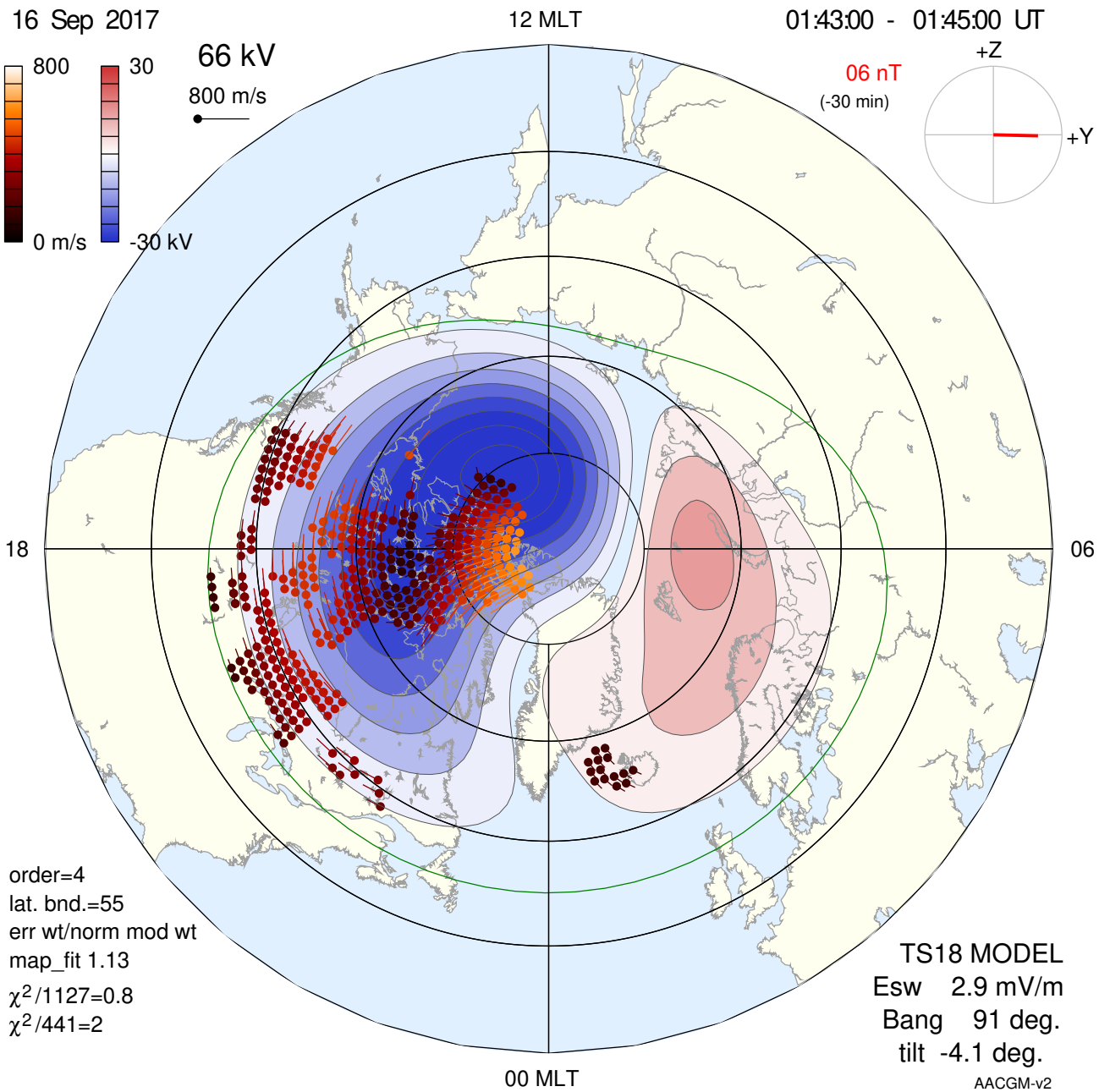
Processed with FITACF 2.5



Processed with FITACF 3.0 (with filtering)



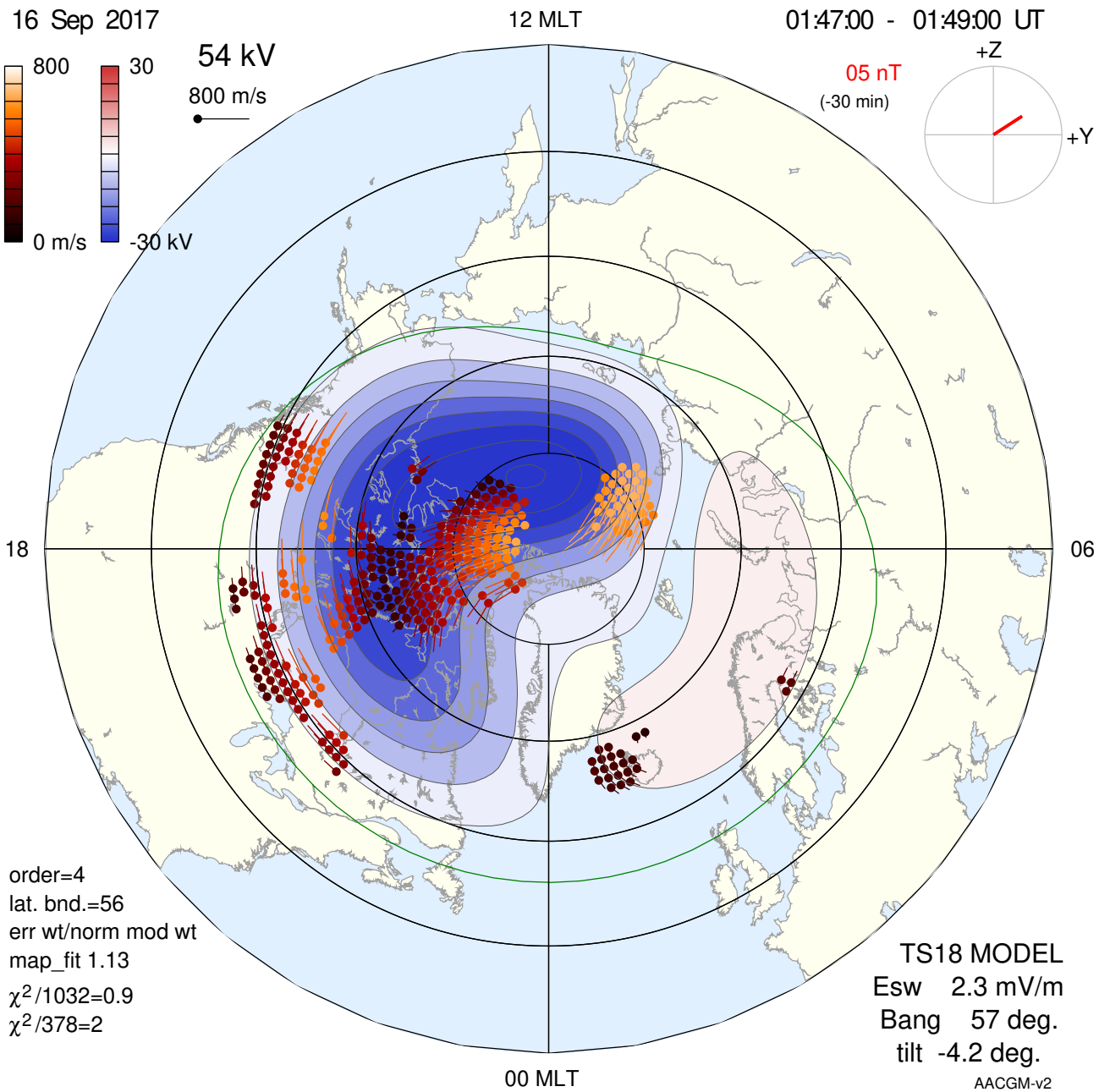
Processed with FITACF 3.0 (no filtering)



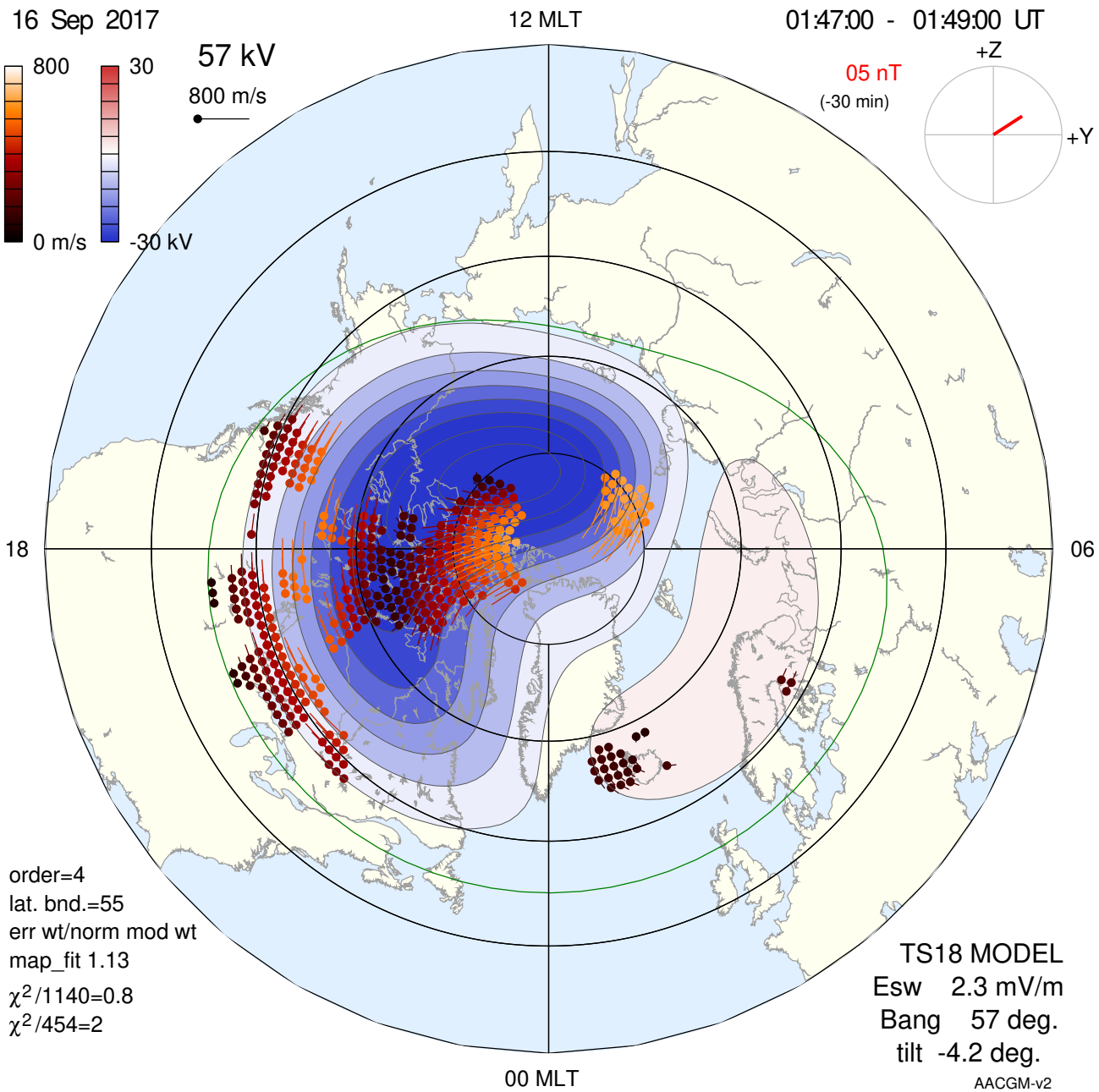
Example 3

This example shows the effect of interference/noise on the position of the HMB

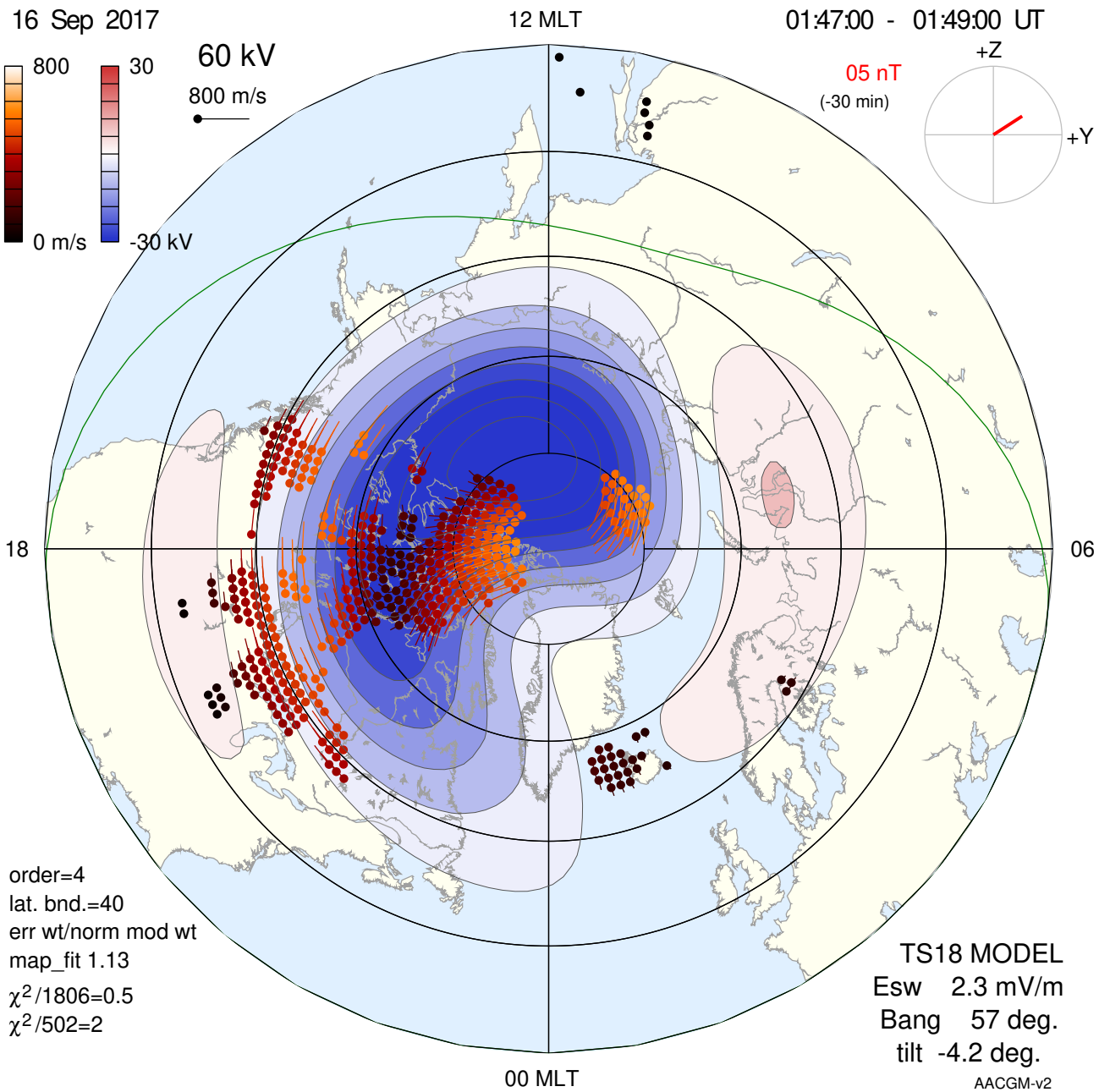
Processed with FITACF 2.5



Processed with FITACF 3.0 (with filtering)

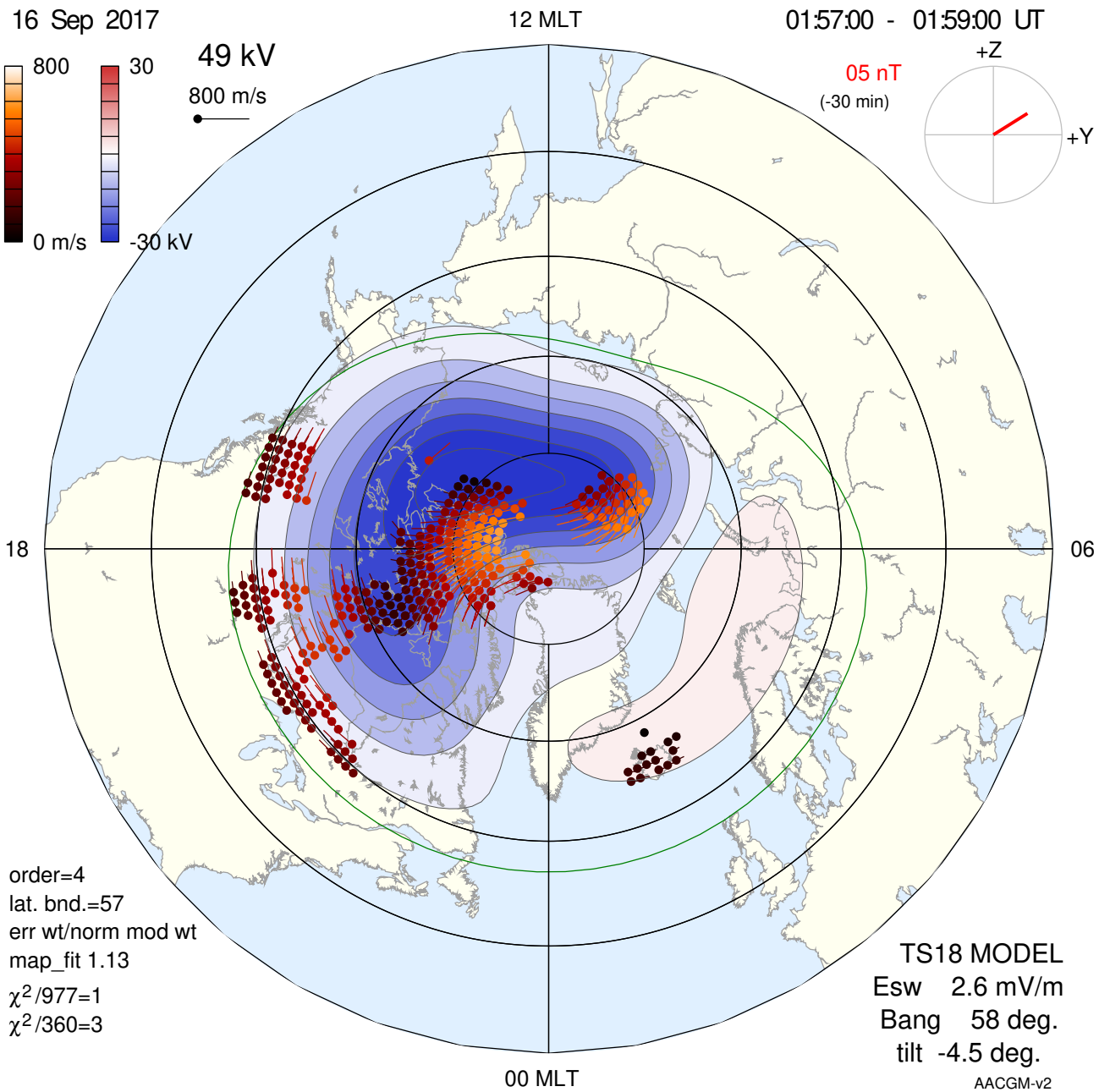


Processed with FITACF 3.0 (no filtering)

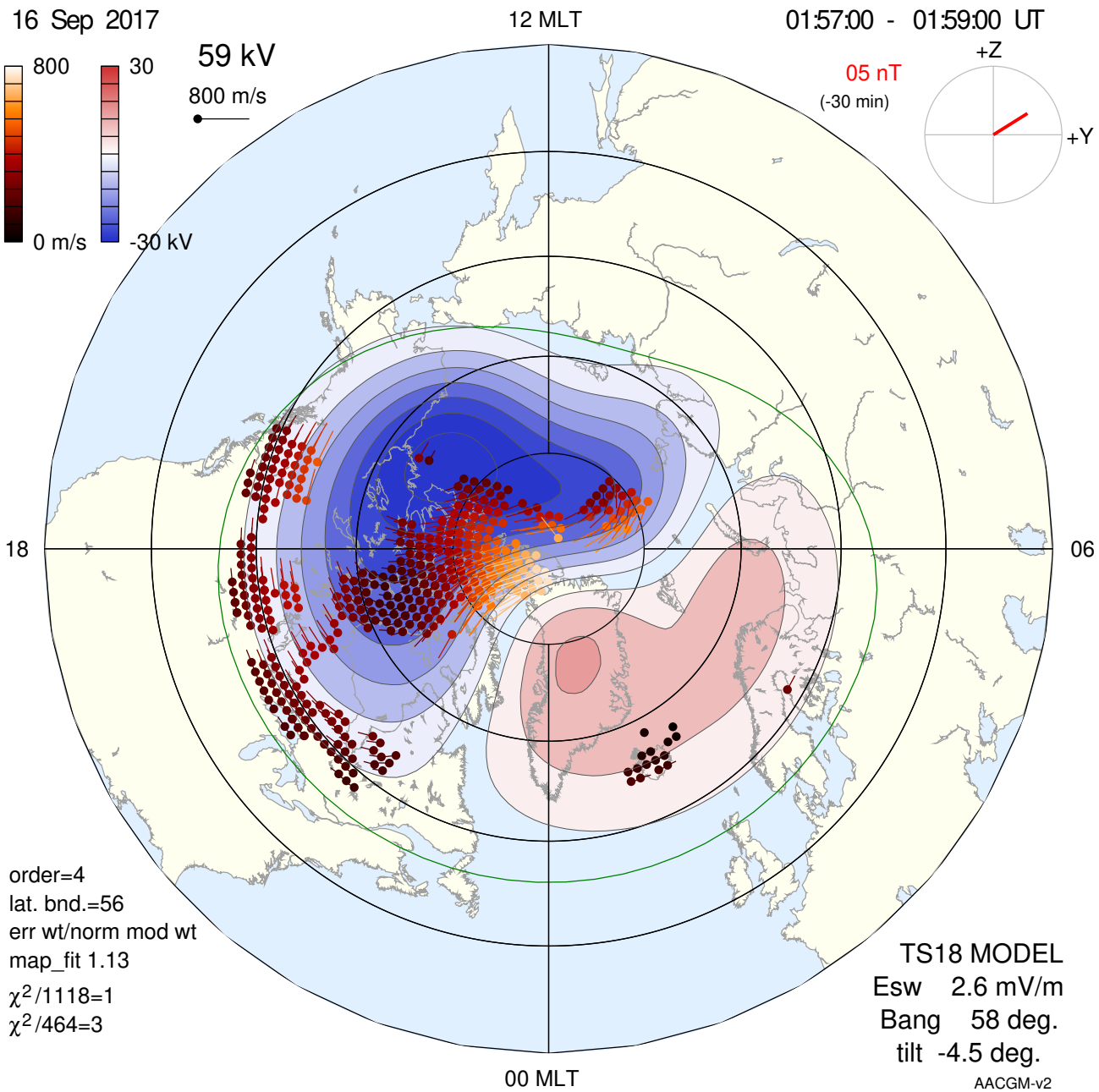


Example 4

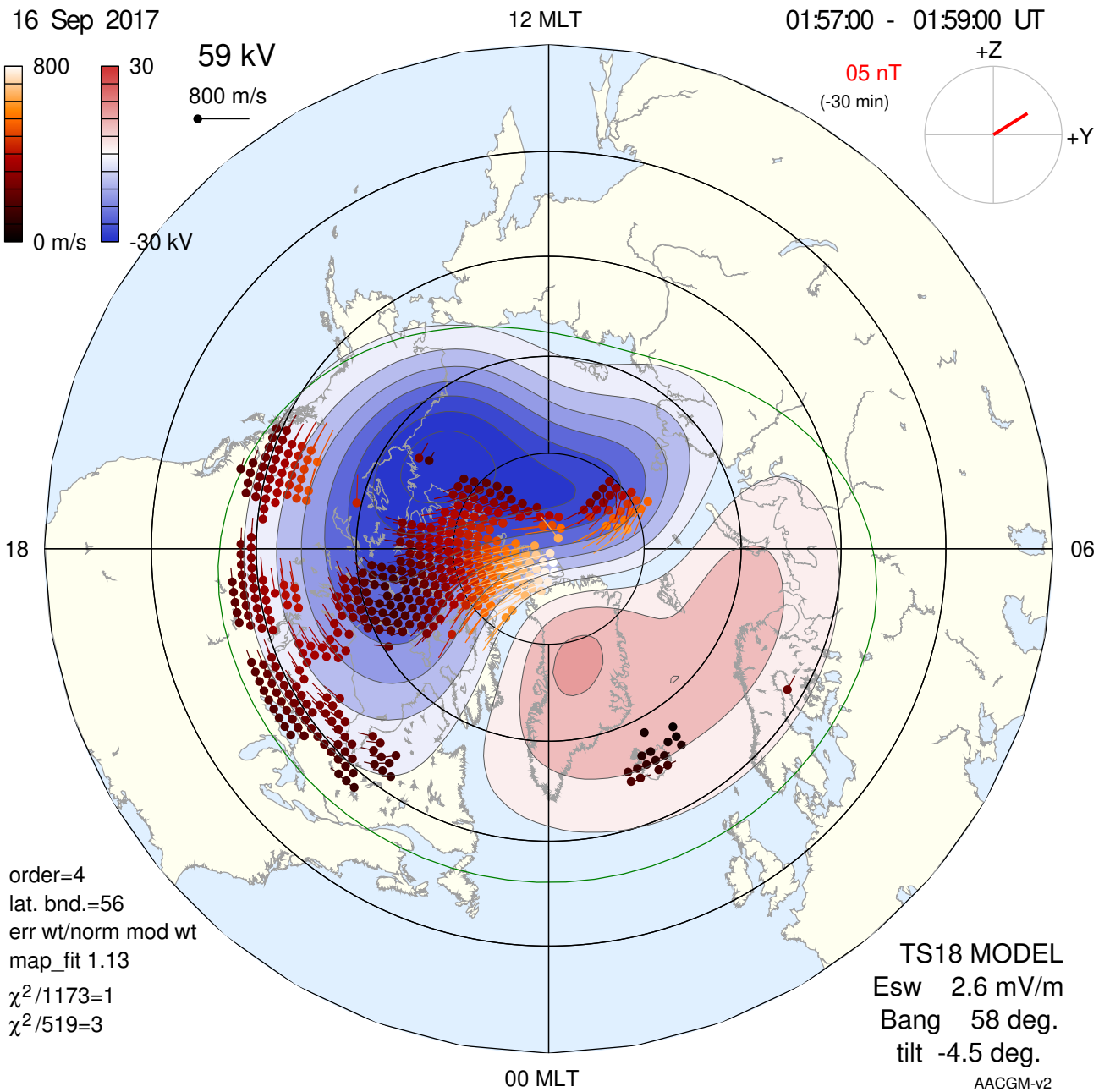
Processed with FITACF 2.5



Processed with FITACF 3.0 (with filtering)



Processed with FITACF 3.0 (no filtering)



Conclusions

1. Convection patterns produced using input data from FITACF 2.5 and FITACF 3.0 are very similar
2. When the FITACF 3.0 data includes some interference/noise, it is essential to use the `fit_speck_removal` routine before gridding (example 3)

   Without filtering, the latitude of the HMB is too low
3. There are generally more vectors in the convection pattern for the filtered FITACF 3.0 data compared to FITACF 2.5

   This may shift the HMB slightly equatorward