Ozone line problem
&
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Ozone line problem

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Ozone line problem...

Has the ozone line at 184 GHz an influence on AMSU B channel 18?

10 years ago several calculations have been done at METOffice , the influence was found to be negligible thus it is not included in RTTOV.

We made some quick calculations and the effect seems not to be so negligible (0.3 K). We are currently doing some more calculations, similar to the ones presented in the "Lindenberg" paper but including the stratosphere and including and excluding ozone.

AI: send the FASCOD profiles to Steve to perform similar calculations at METOffice.

AMSU B scan angle dependence

AMSU A: biases are not symmetric because of the reflectivity of the scan mirror.

AMSU B that was characterized pre-launch, so the biases are symmetric.

Biases for AMSU A can be found of the NCEP web site.

NOAA 15 & 16 BT difference

We found a 1K difference on AMSU B channel 18 between NOAA 15 and 16.

This is not yet reported by NWP-SAF monitoring.

AI: Compare NOAA 15 and 17

Side bands

We are using rectangular pass band response for AMSU channels.

This is the same in RTTOV.

We checked with a Gaussian pass band and found that the difference is negligible.

ARTS-RTTOV comparison

AMSU B channel 18 has been simulated using ARTS and using RTTOV, the differences between the results have been plotted on a map, so it is possible to visualise where the differences are the greatest .

On some particular places the differences are larger than the mean difference.

AI: check that the profiles are within the RTTOV limits.

AI: check temperature profiles, to see whether this is due to strong inversion.

AI: extract the profiles exhibiting the largest differences and do ARTS simulations with finer and RTTOV pressures grids.

AMSU B channel 18 simulations with RTTOV

AMSU B channel 18 has been simulated with RTTOV.

Brightness temperature seasonal mean is computed. Seasonal means are also computed for the synoptic times and compared to the total mean.

When the difference between single time mean and total mean is computed some features appear, until we didn't come up with any explanations.