

Discussion within satellite group

Based on presentations on ACSO workshop on
Monday and Tuesday

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BP vs BDM

- Generally agreement within the nadir looking satellite groups (TOMS, SBUV, OMI, GODFIT) that BDM is better than BP
- Signal to noise ratio better
- w/ registration better
- Fitting residuals better
- Effective temp retrievals show better agreement with ECMWF

Serdyuchenko vs BDM cross sections in total ozone retrievals

- Total ozone:
 - w/ registration similar
 - Signal to noise similar
 - Residuals similar
 - Quality equivalent
- Sensitive to temperature
 - Reliable temp dependence needed.
 - Effective temperature retrievals: mixing results: not possible to say which is better (SER or BDM).
- SER lead to larger ozone values 1-2 %

Serdyuchenko vs BDM cross sections

Nadir profiling

- Below 300 nm seem to be systematic differences compared to BDM
 - Profiling instruments not willing to change to Bremen.
- In order to maintain consistency btw profiling and total ozone: preference to stay in BDM

Hartley, Huggins, Chappuis, Wulf band

- Limb viewing instruments sufficient temperature and wavelength coverage needed.
- Presently SAGE II/III, OSIRIS, GOMOS using Bogumil cross sections
- Large differences in Bogumil and Ser cross sections in Wulf band
 - Need to clarify the difference
- Need to clarify also the temperature dependence and difference in Bogumil v3, v4 and Ser cross sections
- Wavelength shift in Chappuis unclear (reported by DOAS/ M. Gil) - need to be clarified?

Uncertainties in cross sections

- Common agreement that it is important to improve uncertainty characterization of spectroscopy measurements
 - This information can be used for improving retrievals
 - Needed for uncertainty estimation of ozone measurements.
- Important to separate random and systematic uncertainties
- Example, IR / HITRAN error classification
 - Suggest to report:
 - Random part
 - For each band: which systematic error is applicable

Wish list

- Merging of many instruments important for trend detection
 - Biases btw instruments, partly caused by spectroscopic inconsistencies.
 - Further work needed on evaluating consistency in spectroscopy
 - Simultaneous measurements?
- Temperature important
 - Consistency in temperature parametrization needed
 - Clarification of temperature dependence (Bogumil vs Serdyuchenko et al)
 - Lower temperatures (<193 K) important at polar area to avoid extrapolation.

Wish list cont.

- Isotope spectroscopy measurements
 - Can these be measured in Huggins?
- Investigation of consistency of ozone measurements should include present and past satellite instruments
 - Re-processing with improved spectroscopic data is needed also in the future