Answer to referee 2.

Dear referee, thank you very much for your interest in our work an your valuable comments. We will improve the structure of our text according to your remarks.

Reply on specific comments:

S1:
We agree on your comment regarding the information provided in the introductions to our papers and will try to harmonize them.

S2:
Polynomial parameterization is just an empiric approximation used in cases when experimental data is not available (like in satellite retrieval algorithms using DOAS technique). We only used it to i) test validity of this approximation on a wider range of temperatures than before and ii) provide cross-sections for temperatures where experimental data from other researchers was not available for comparison. We don't see a necessity to use this approximation without a need for specific practical application. At the same time, Hartley band shift is defined by repopulation of energy levels depending on temperature.

S3:
Agreed, we'll take this into account and review the word use.

6616, 13:
Probably meant (6615, 13). When speaking of "absolute measurements", we mean that the data was not scaled based on the values obtained (with often unknown uncertainty) by previous researchers, but was scaled using known experimental parameters. To our opinion, quality of the BMD data is also defined by the fact that it was obtained with presumably known uncertainty of experimental parameters.

6616, 25:
Agreed, this needs to be corrected, "Hartley" is obviously misplaced here.

6617, 13-20:
Pre-cooling is not relevant for part 1, because it reports on room temperature measurements. Pre-cooler was i) internally coated with passivation layer and ii) used for relative measurements, when the exact concentration of ozone was not important as long as it remained sufficient and stable.

6617, 21-24:
Calibration of alcohol thermometers and PT-sensors was tested using a mixture of melting snow and distilled water (to check the 0 degree Celsius point). These were subsequently used to check if internal temperature sensor of the cryostat has any offset, which it didn't. Therefore, no re-calibration of the cryostat sensors was considered necessary.

6617, 27:

Both cells used have identical length, we will mention it in reviewed version.

6620, 2:
It's a general remark and we do not insist on including it in the paper. However, we think that averaging somewhat non-independent datasets (when values from one were used to scale another) might be not the best idea.

6621:
We determined that 2nd order polynomial approximation interpolates the cross-section data within experimental uncertainty. It seemed unnecessary to use other sophisticated empirical approximations with unknown physical background at the time. We might consider including a small section with a review of two other models in the manuscript if it doesn't disrupt the structure.

6621, 21:
We will add the relevant information.

6623, 2-4:
We think it makes sense and will modify the text according to your remarks.

6623, 10-12:
We don't see a big problem with this small but useful piece of information appearing in both papers.

6624:
Parameterization itself is a manipulation of the data and introduces uncertainty of about 1%. We performed a comparison of slightly temperature-mismatched data to estimate sensitivity of unchanged experimental data to small temperature mismatch. We will have to articulate it more explicitly in the manuscript.

6625:
Although we don't see the necessity to strictly follow the structure of paper 1, we agree that the title and conclusion should be added.

6625, 13; 6626,11:
We will introduce additional (sub) titles.

6626, 21:
We do not present it as an argument, rather as an observation. Which you actually seem to share with us.

6626, 25:
The value present in the table under "Ozone decay <1%" is the upper safe estimate.

Table 2:
Some inconsistencies are merely cosmetic: instead of "Temperature measurements" here we have "Offset of temperature sensors" in paper 1. Paper 1

is about measurements at a stable temperature of 293K, which is easier to maintain compared to lower cryogenic temperatures (thus higher uncertainty of 1.6% or 3K). Uncertainty span due to the temperature is about 1%, we don't think we need a finer quantification.

Table 3:
We inherited the idea for the structure of this table from the well-known review by J. Orphal. We and many other researchers find this table very useful for straightforward comparisons between different datasets. Data presented in the table doesn't become more useful or self-explanatory when put on a graph.

Figure 4b:
The goal of the plot is to visually demonstrate capabilities of parameterization for the given spectral region without involving complicated statistical tools.

Figure 6:
We wanted to use experimental data comparison as much as possible. Apparently in some cases it looks confusing and we should restrict to comparisons of inter/extrapolated values.

There is a reason for duplicate symbols for BMDexp. BMDexp values for 218K and 228K were compared with our closest data at 213K, 223K and 233K. It is mentioned in the manuscript but apparently needs to be more elaborated.

Editorial/technical corrections:
Agreed, will be corrected in the future revision.