

Interactive comment on “EuBrewNet – A European Brewer network (COST Action ES1207), an overview” by John S. Rimmer et al.

Anonymous Referee #3

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This paper provides a concise overview of the motivation for and implementation of the EuBrewNet activity. However, it falls short in summarizing the breadth of specific early achievements and in discussing EuBrewNet progress in developing improved linkages to other agencies and networks. This project is, indeed, a major step towards achieving a quality-assured uniform international database for ozone, spectral UV, and aerosol optical depth from Brewer measurements. However, consideration should be given to revising the manuscript so as to acknowledge already existing efforts that this action builds upon and to provide an indication of the road forward beyond EuBrewNet. As written, a reader without extensive knowledge of existing measurement activities (either isolated or coordinated within established networks) could get the impression that such measurements have been in such disarray as to be useless for scientific

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trends and process studies. Further, while I am a strong supporter of EuBrewNet. I do not think that it will solve every problem (as seems to be indicated) but rather will point to the next steps that must be taken. Specific page-by-page comments follow.

Page 1, lines 15-20: The inclusion of more details on the specific achievements to date in these areas would make this a much-improved paper.

Page 2, lines 3-4: It is incorrect to state that there are uncertainties regarding the effects of ozone protection policy measures. The efficiency of the Montreal Protocol with respect to protecting the ozone layer from depletion by halocarbons is well understood and documented. The combined effects of the declining influence of chemical depletion and the increasing influence of climate change complicate the prediction of future ozone trends. Indeed, this is mentioned. However, the way it's presented makes it sound like we don't have a handle on the chlorofluorocarbon issue.

Page 2, lin6 6: Suggest changing the wording to "will influence the evolution of the ozone layer".

Page 2, lines 8-9: This statement is simply not true! The possibility of severe Arctic ozone depletion, such as occurred in spring 2011, was stated following the results obtained from airborne campaigns conducted during 1989-1992. Substantial ozone loss was projected to occur in years when low vortex temperatures persisted into late February and beyond. Our understanding of the chemical depletion processes is quite robust.

Page 3, lines 4-5: The COST action is a great mechanism for facilitating harmonization and quality assurance in Brewer measurement. However, to state that it is the only mechanism is somewhat of an overstatement. There are efforts in existing networks to achieve similar results. For example, the Dobson/Brewer Working Group of the Network for the Detection of Atmospheric Composition Change has developed specific protocols for such work and the investigators are involved in EuBrewNet.

Page 3, lines 7-21: Admittedly there has been a lack of uniformity and standardization in Brewer measurements. However, are there no examples of stations at which experienced investigators have been conducting measurements and analyses “properly”? If so, would it not be appropriate to cite some examples and then discuss how EuBrewNet will amplify such procedures throughout Europe. As presented, the reader is given the impression that previous data from Brewer sites should be viewed with great skepticism.

Section 2: There is no mention in this section of the possible effects of using different ozone cross-sections. In addition, while the ATMOZ project is mentioned, none of the initial results are summarized. Admittedly, there is a reference to (Redondas, 2017). However, the references include two such papers, both of which were submitted very recently. My understanding is that there were some wavelength calibrations issues discovered. Some mention of the results and the path forward would improve this manuscript. In addition, I would have expected a section on characterization and calibration to address how possible comparisons with data obtained using other co-located instrument types might be used for establishing measurement accuracy. Finally, there is no mention of how long-term instrument stability will be verified.

Section 3: While details are provided on the retrieval of TOC, the section does not specifically address how central data processing will actually be implemented throughout the network. The need for valid mercury lamp wavelength calibration is stated; however, specific details or recommendations for such calibrations are not provided.

Section 4: The implementation of a near real time database will be an important aspect of EuBrewNet. However, unless provisions are made for some preliminary scientific analyses of the results by someone (i.e., to ascertain whether the data make sense from a geophysical point of view) there is a risk that erroneous data could be posted. Having two versions of the level 2.0 data corresponding to the use of two different sets of cross sections can be quite valuable when trying to intercompare with data obtained outside of the network or when attempting to generate a merged data set. Are there no

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results that can be shown on the effect of using one or the other set of cross sections?

Section 5: Is there a path forward suggested by the results from the recent intercomparison campaign. There is a reference given; but the paper has just been submitted.

Section 6: This manuscript could be improved considerably if it included more specific details to support the achievements listed in this section.

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