

## ***Interactive comment on “On the use of ATSR fire count data to estimate the seasonal and interannual variability of vegetation fire emissions” by M. G. Schultz***

### **Anonymous Referee #2**

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This manuscript presents an interesting approach for assessing the temporal variability of fire activity and then to use the output to correct the existing global inventories of biomass burning emissions considered as average conditions. The approach is quite elegant as it prevents from performing, each year, a very heavy compilation of global inventory of emissions from biomass burning. This method gives the modeling community a possibility to benefit from the archives of active fire night-time observations done with the ATSR sensor onboard the ERS-2 satellite: the World Fire Atlas. However, this approach suffers from the limitations which are specific to this dataset (see comment # 2 below). It is probably quite difficult, if not impossible for the author to assess quantitatively how much these limitations impact on the estimation of temporal variability. But some comments on this issue would be wellcome.

Technical corrections proposed before publication in ACPD All suggestions listed in the Quick-report have been accepted by the author and the manuscript has been revised accordingly.

The manuscript can therefore be published

Specific comments 1. Assessment of fire activity at global scale: In section 1 Introduction, last sentence of paragraph beginning with "the only study, which has addressed this problem on the global scale". The author might mention the first global inventory of vegetation fires (active fires) done by satellite observation: Dwyer E., J. M.C. Pereira, J-M. Grégoire, and C. C. DaCamara, 1999, Characterization of the spatio-temporal patterns of global fire activity using satellite imagery for the period April 1992 to March 1993. Journal of Biogeography, Volume 27, Issue 1, pp 57 - 69, December 1999.

2. Measure of fire activity: use of active fire observations from the ATSR sensor. Section 2 Method. The author is right to say that the World Fire Atlas (based on night-time observations) is the only global dataset available for several years. However, this inventory introduces a strong bias in the characterization of fire activity, for three main reasons: - night-time fires represent a quite small proportion of the fire events in many parts of the globe - night-time fires usually develop in specific land cover types and land-use conditions. Particularly in forest and dense woodland cover. - ATSR imagery provides a global coverage once every 6 days, if constant viewing conditions have to be kept. Therefore, the fire related information provided by the World Fire Atlas is quite specific. The question is: is-it really the type of information required to assess the seasonal and inter-annual variability of fire activity?

In the near future, similar studies will benefit from two recent initiatives in the field of burnt area mapping from Earth observation data: - the GLOBSCAR initiative of the European Space Agency (ESA): areas burnt globally in 2000, as derived from ERS2-ATSR day-time imagery - the GBA2000 initiative of the EC Joint Research Cen-

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tre (JRC): areas burnt globally in 2000, as derived from SPOT-VEGETATION day-time imagery.

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Interactive comment on Atmos. Chem. Phys. Discuss., 2, 1159, 2002.

**ACPD**

2, S388–S390, 2002

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