

Interactive comment on “Model-aided radiometric determination of photolysis frequencies in a sunlit atmosphere simulation chamber” by B. Bohn and H. Zilken

S. Thiel (Referee)

stephan.thiel@imk.fzk.de

Received and published: 21 December 2004

This paper presents a model to calculate the photolysis frequencies in dependence from outdoor measurements within the atmosphere simulation chamber SAPHIR which is used to investigate photochemical reactions in the troposphere. Therefore, this paper is an important basis for future results from SAPHIR experiments and should be published after consideration of the following minor comments:

General comments:

1.) The spectral transmission of several such materials are dependent on “age” or

Full Screen / Esc

Print Version

Interactive Discussion

Discussion Paper

“state” of the material (long term changes in transmission caused by atmospheric conditions or temperature effects). Can you exclude that for FEP?

2.) Do you have experience with the variability of optical properties between different FEP production runs? This could be a problem in case of material exchange e.g. because of mechanical damage.

3.) You verify your model for overcast and clear sky conditions (here I also miss the results like in Fig. 16 for overcast conditions). Can you give an estimate for the uncertainty of the method under broken cloud conditions?

4.) The photolysis frequencies in your chamber are approx. 20-30% lower than outside. Does this have any impact on your research goals with SAPHIR?

Specific comments:

1.) P. 6970, line 6: Please specify what you mean with “little small-scale” spatial variability. Depending on the ground area e.g. the spatial variability under broken cloud conditions can be remarkably high (up to factors between shadowed and sunny areas).

2.) P6971, line 13: Please explain the accuracy of 5-7%? Does it refer to a certain wavelength? Which uncertainties contribute to this accuracy?

Interactive comment on Atmos. Chem. Phys. Discuss., 4, 6967, 2004.

[Full Screen / Esc](#)[Print Version](#)[Interactive Discussion](#)[Discussion Paper](#)