Atmospheric Chemistry and Physics Discussions

Interactive Comment

Interactive comment on "The semianalytical cloud retrieval algorithm for SCIAMACHY – I. The validation" *by* A. A. Kokhanovsky et al.

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Reply to Referee 2 comments:

1. SACURA as described in the paper is applied to completely cloudy pixels only. However, it can deal with partially cloudy scenes as described by Kokhanovsky et al.(2004). Therefore, it can be used in the trace gas retrieval procedures. It was designed specifically for this purpose. The application of the algorithm to ozone retrieval is underway at IUP(Bremen) at the moment. 2. The paper on comparisons of SACURA with Look-Up-Table approach of Nakajima (1995) and MODIS team is accepted by Atmospheric Research and will be published later this year. It is presented among with other papers in press at www.iup.physik.uni-bremen.de/˜ alexk. 3. We can not provide more details on methods of others in this paper without substantial increase of the volume

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of this paper. Interested readers can look in references for a comprehensive account of the work of others. The comparison with FRESCO has been performed in yet another paper (Rozanov et al., 2004). It is presented among with other papers in press at www.iup.physik.uni-bremen.de/˜ alexk. 4. The paper by Nakajima et al.(1995) is given in the reference list. 5. We do not agree that a paper which does not use SCIAMACHY data cannot conclude that SACURA is working for SCIAMACHY. The argument is as follows: if the technique is working with data from other instruments, why it must fail for SCIAMACHY?.. The only reason can be the calibration of SCIAMACHY and its spatial resolution. The second issue plays a role only for broken cloud fields and this is a well-known problem for all retrieval techniques. The issue of calibration is dealt in Part_II, which is given at the website specified above. 6. Authors neglect pixels over land to avoid the problems related to unknown surface albedo. The surface albedo database is not included in the retrieval scheme (partially, because the technique is limited to thick clouds only). 7. The SACURA was extended to partially cloudy pixels as described by Kokhanovsky et al. in IEEE TGRSL(2004). The paper can be downloaded from www.iup.physik.uni-bremen.de/˜ alexk. 8. We did not change the paper.

A. Kokhanovsky on behalf of co-authors

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