

Review of revised version of

**Prognostic parameterization of cloud ice with a single category in the aerosol-climate model ECHAM(v6.3.0)-HAM(v2.3)**

by Dietlicher et al.

**General comment:**

Almost all comments in the discussion were addressed adequately and the manuscript has improved a lot. However, I have two only minor comments, which should be addressed until the manuscript can be accepted.

**Minor issues:**

1. My comment about the validity of the autoconversion scheme was not really addressed. Of course, parameterisations were developed from different sources. However, if in the original source of the parameterisation the use of the scheme for coarser resolution is seen as questionable (or even as not appropriate), the authors have to state a bit more than their actual answer. Why do they use this parameterisation and what is the actual justification?
2. In principle I agree that there is no best numerical method for treating hyperbolic problems in a conservative and gradient-preserving way. As the authors have pointed out, the integration method is obviously of secondary importance. Nevertheless, the statement that the explicit Euler method is good in terms of gradient-preserving should be omitted; it is very clear that this method is smearing out the gradients in a strong way. Generally, it would have been better to use schemes with flux corrections since they are able to preserve the gradients in a better way. For details see, e.g., LeVeque (2004).

Reference:

LeVeque, R., 2004: Finite Volume Methods for Hyperbolic Problems. Cambridge University Press, Cambridge, UK, 558 p.