

**Paper “Atmospheric changes caused by galactic cosmic rays over the period 1960-2010”  
by C. H. Jackman et al.**

**Reply to Editor and Reviewer:**

We thank the Editor and Reviewer for helpful comments and the suggested addition to our manuscript (given below in italics).

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***Editor Decision: Reconsider after minor revisions (Editor review) (11 Apr 2016) by Dr Mathias Palm***

*Comments to the Author:*

*Dear authors, although the issue with the inappropriate ionization model has not been fully resolved, it is acknowledged, that you would like to avoid the extra time consuming work involved replacing the ionization model.*

*However, the reviewer feels, that the reader has to be informed about possible consequences of using a model which arise be underestimating the ionization and suggest that the abstract and conclusions are appended with the following note:*

*"This result serves as a lower limit because of the use of the deficient ionization model NAIRAS/HZETRN which underestimates the ion production by neglecting electromagnetic and muon branches of the cosmic ray induced cascade. This will be corrected in the forthcoming works."*

*Please consider this suggestion before the decision of the final publication.*

*Kind regards  
Mathias Palm*

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**Authors' Reply:** We accept the suggestion for two additional sentences to be added to the abstract and conclusions. We have modified the wording in the two sentences just slightly and suggest that we add the following two sentences:

***"This result serves as a lower limit because of the use of the ionization model NAIRAS/HZETRN which underestimates the ion production by neglecting electromagnetic and muon branches of the cosmic ray induced cascade. This will be corrected in the forthcoming works."***