

[Interactive
Comment](#)

Interactive comment on “Possible effect of extreme solar energetic particle events of September–October 1989 on polar stratospheric aerosols: a case study” by I. A. Mironova and I. G. Usoskin

I. A. Mironova and I. G. Usoskin

irini.mironova@gmail.com

Received and published: 6 June 2013

Reply to Referee #1

We thank Referee #1, Alexei Krivolutsky, for his positive assessment of our work. The Referee's Comments are noted first and then we give our Reply to the comments in italic font. All the changes in text of the paper are highlighted in bold face.

[Full Screen / Esc](#)

[Printer-friendly Version](#)

[Interactive Discussion](#)

[Discussion Paper](#)



General comments:

Paper looks interesting. Authors using SAGE-II data for the end of September 1989 found visible response in aerosol to GLEs over Southern polar region between 10-20 km. It should be mentioned that this region is usually under "ozone hole" conditions caused by low temperature and PSCs existence. So that, may be authors found a way to the connections between ionization by GCRs and PSCs. This direction looks fruitful, but needs involving aerosol physics in future. This comments may be included in discussion or conclusions.

We have added some information on the region where obtained results. Now it is mentioned about "ozone hole" conditions caused by low temperature and the existence of PSCs. This comments are included as discussion and referred in the section Conclusion.

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper