**Atmospheric
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Discussions**

Interactive
Comment

Interactive comment on "Extreme events in total ozone over Arosa – Part 2: Fingerprints of atmospheric dynamics and chemistry and effects on mean values and long-term changes" *by* H. E. Rieder et al.

R. Lund (Referee)

lund@clemson.edu

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[11pt]letter

Referee comments on Extreme events in total ozone over Arosa — Part 2: Fingerprints of atmospheric dynamics and effects on mean values and long-term changes by Rieder, Staehelin, Maeder, Peter, Ribatet, Davison, Stubi, Weihs, and Holawe.

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Interactive Discussion

Discussion Paper

Overall Comments: This paper seeks to explain occurrences of low and high stratospheric ozone at Arosa, Switzerland with measured factors such as ENSO, NAO, volcanistic events, etc. It is easy to follow and a pleasant read. As the methods are for the most part graphical (and not quantitative), there is little to argue about. Hence, my comments below are brief.

Specific Comments:

1. It would ne nice if the authors could arrange the subsections in Section 3.2 in their order of importance as factors (however gauged), or note this ordering somewhere in the text. It is not clear what the most important factors are.

2. The discussion on trends in Section 4 is not clear since LOESS is being used. What is the definition of a trend if it is not linear? How does one justify quantitative statements such as a 60% reduction, 1/3 of the trend, etc.? I would prefer a model that fits a linear trend and a seasonal mean to the post 1970 data. Then report a trend estimate and standard error that accounts for autocorrelation. This inference seems fundamental in quantifying ozone changes.

Robert B. Lund, July 1, 2010.