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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.

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[11pt]letter

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

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

Specific Comments:

1. It would ne nice if the authors could arrange the subsections in Section 3.2 in th order of importance as factors (however gauged), or note this ordering somewhere 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. W is the definition of a trend if it is not linear? How does one justify quantitative stateme such as a 60% reduction, 1/3 of the trend, etc.? I would prefer a model that fits a lin trend and a seasonal mean to the post 1970 data. Then report a trend estimate a standard error that accounts for autocorrelation. This inference seems fundamenta quantifying ozone changes.

Robert B. Lund, July 1, 2010.