

**Seminar on Physics and Chemistry of the Atmosphere  
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## **Ozone by the remote subtropical Andes: trends and attribution**

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### **Abstract**

We use a Generalized Additive Model (GAM) approach to identify the sources of change in ozone measured at Tololo (30S, 70W, 2154 m a.s.l.). We consider dynamical and chemical aspects including El Niño Southern Oscillation (ENSO), Madden-Julian Oscillation (MJO), methane, humidity, temperature, etc. Also, we explore the role of stratosphere-troposphere exchange (STE) using an empirical approach, which is further sustained by a composite analysis. So far, we explain 76% of ozone variability for the period 1996-2021, and we find reasonable dependencies on the explanatory variables. Changes in methane and STE are suggested as the key variables explaining the increasing trend of ozone observed at Tololo (ca. 9 ppbv/decade).