



## **Strong Wintertime Ozone Events in the Upper Green River Basin, Wyoming**

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Over the last years elevated ozone values have been observed repeatedly in the Upper Green River Basin, Wyoming during wintertime.

Here we will report results from the Upper Green Winter Ozone Study (UGWOS) 2011. This campaign included comprehensive in-situ measurements of O<sub>3</sub>, NO, NO<sub>2</sub>, NO<sub>x</sub>, NO<sub>y</sub>, HNO<sub>3</sub>, HONO, HCHO, CH<sub>4</sub> and speciated VOC canister and particulate matter measurements. Also, data about the vertical distribution of meteorological parameters as well as some selected trace gases (O<sub>3</sub>, NO, NO<sub>x</sub>, NMHC) were collected at a tall tower (levels: 5 m, 25 m, 50 m, and 73 m) and on selected intensive operational days (IOPs) at a tethered balloon system (levels: 4 m, 33 m, 67 m, and 100 m). On IOP days the suite of measurements were complemented by radiosondes, ozonesondes and SODAR measurements.

During UGWOS 2011 high O<sub>3</sub> values were observed during the IOPs days, These days were characterized by light wind conditions and low mixing layer heights. Extensive snow cover was consistently present on those days. The presentation will focus on selected IOP days, when maximum hourly ozone values reached up to 166 ppb, and describe the meteorological and chemical processes leading to these extreme events during wintertime.