

## **1.088 Ozone variations at and around a high altitude site in the central Himalayas.**

Presenting Author:

**Manish Naja**, ARIES, [manish@aries.res.in](mailto:manish@aries.res.in)

Co-Authors:

**Piyush Bhardwaj**, ARIES

Abstract:

In-situ observations of trace gases are severely lacking in the economically developing countries, particularly in the tropics where photochemistry is intense. These observations are more important and critical in the regions where spatial variations in emission characteristics, environment and topography are large within a small region. Here, we report the extensive observations of surface ozone carried out around a high altitude site in the central Himalayas. Observations are made at Manora Peak (29.4 N, 79.5 E, 1958 m amsl) and at a school in Nainital Town. Both the observation sites are at nearly similar altitude and less than about three km apart. A campaign based observations are also made during different seasons in last 4 years, using a mobile van that started from Manora Peak, moved around surroundings and moved down the mountain region, covering different small villages, towns, densely polluted regions, few rural areas and a small-scale industrial region. Large differences are seen in ozone variations at Manora Peak and Nainital town. Dominance of the photochemical ozone production is observed even at a high altitude Nainital town region, however, simultaneous observations made at Manora Peak do not show such increase. In-contrast, there have been occasions, when daytime ozone decrease is observed at Manora Peak. Contrasting ozone variations are also seen at both the sites during an Indian festival, when large amount of fire crackers are burnt. Observations from mobile van showed daytime ozone decrease by about two times, when moving downward from about 2000 m to about 400 m altitude region. Few incidents are observed with simultaneous enhancement in ozone levels in the urbanized region and the central Himalayas, suggesting transport of ozone rich air-masses to the pristine region. Results will be presented in details during the conference.