



## **Comparison of MM5 and WRF simulations of air pollution transport in the central Himalaya**

**A. Panday** (1), L. Horowitz (2), H. Levy (2)

(1) Princeton University, Princeton, NJ, USA (arnico@princeton.edu / Phone: +1-609-452-6553), (2) Geophysical Fluid Dynamics Laboratory, Princeton, NJ, USA.

In 2004-2005 we carried out a field study of air pollution and meteorology in and around Kathmandu, Nepal. We subsequently set up the meso-scale meteorological model MM5 with four levels of nesting to simulate meteorology and tracer transport at 1 km resolution in the region of very complex topography surrounding Kathmandu. To our surprise and delight, the model was able to capture the observed meteorology to a high degree of accuracy. It correctly simulated the observed temperature and humidity; it correctly captured the temporal and spatial patterns of the valley's nocturnal cold-air pool, morning fog and day-time mixed layer; and it provided wind fields in which we found nothing wrong. We used the model output to run forward and backward trajectories of tracers to better understand the Kathmandu Valley's clean air inflow and polluted air outflow. We are now working on a research project to simulate fine-scale air pollution transport in the Himalaya region using the more advanced Weather Research and Forecast (WRF) model. We present here the output of WRF simulations, comparing them to our existing field data and to our earlier MM5 simulations.