



Project of Strategic Interest NEXTDATA

Deliverable D2.1.4 Report describing the activities of the data elaboration center in HKKH

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Within WP2.1, data processing activities at the data elaboration center in Kathmandu, Nepal, have been carried out by Dr. Bhupesh Adhikary at the modeling center implemented by Ev-K2-CNR in Kathmandu, Nepal.

In particular, for the year 2013 the foreseen activities have been focused on the drafting of scientific papers/presentations, on the modeling studies of meteorology and air quality over the Himalayas and their illustration both locally and internationally, on the growth and implementation of the modeling laboratory in terms of activities and personnel and Assessment of the Weather Research Forecasting / Sulfur Transport Deposition Model (WRF/STEM) skills and on the supplying of real time forecast to the general public in cooperation with local meteorological organization.

Modeling results have been presented in various workshops and conferences. Some example results are also shown below. The first figure shows the comparison of model skills with respect to temperature at NCO-P illustrating meteorological model evaluation. The second result shows the comparison of PM2.5 at NCO-P illustrating chemical model performance evaluation.

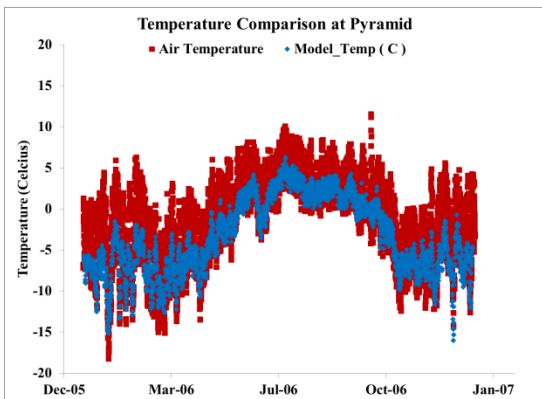


Fig. 1. Comparison of observed Temperature with WRF model temperature at Pyramid

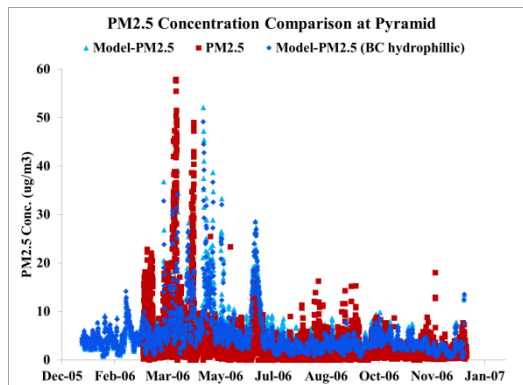


Fig. 2: Comparison of modeled PM2.5 aerosols with observed PM2.5 aerosols at NCO-P.

The third graph, based on the modeling study, shows the source area from where these pollutants are reaching measurement site, NCO-P. Studies like these are useful to policymakers for understanding the phenomena and devising suitable mitigation strategies. Such results have been also presented at scientific and policy level meetings.

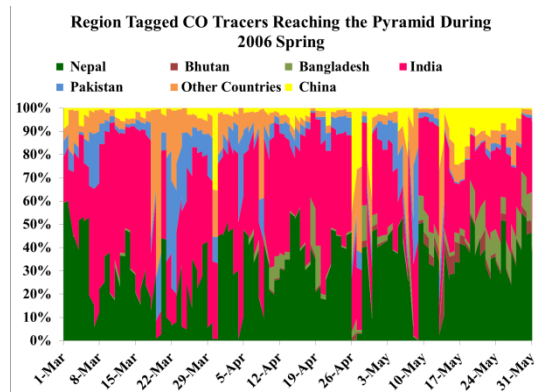


Fig. 3. Modeling results illustrating the source regions and contribution to pollutant reaching NCO-P

Capacity building activities have been also carried out and researchers from the Nepal Academy of Science and Technology have been trained on air pollution studies and air pollution/meteorological modeling work.

Modeling personnel are also involved in the daily maintenance and operational aspects of the SusKAT air quality laboratory (rif. Deliverable 1.1.4). The data elaboration center is also supporting the SusKAT Project in terms of results interpretation, contributing in particular to the first joint modeling exercise organized by Institute for Advanced Sustainability Studies (IASS) of Postdam, coordinator of SusKAT Project.

The daily meteorological data forecasting activities are also ongoing. A website has been created where the data have been continuously uploaded and is ready for delivering to public as soon as permission is gotten from local authorities. The modeling framework was able to provide forecast throughout 2013 except for 1 day due to internet problems. Some of the data generated from 2012/13 modeling activity including the chemistry data has been uploaded to the UNEP ABC project's modeling data center in Japan.

The prosecution of the work at the data elaboration center in Kathmandu will foresee the provision of modeling results and analysis in Khumbu in aid to SusKAT and SHARE Projects. Continuous support to the maintenance and the operation of the SusKAT air quality laboratory in Paknajol is also foreseen.

Further activities will concern the improvement of emissions inventory currently used in the chemistry transport model to better constrain model results. For example, Hemispheric Transport of Air Pollutant (HTAP) project has come up with a new emissions inventory for the year 2010 at a 10km grid resolution for the globe. One goal will be to use this emission in the modeling framework for Nepal for future analysis. In addition, the modeling work will still pursue the goal of disseminating meteorological and pollution forecast to the citizens in collaboration with Department of Hydrology and Meteorology (DHM – Gov. Nepal).

Dissemination activities at scientific and local level are also scheduled.

Meetings and conferences attended in 2013

BC Consultation Workshop, World Bank Country Office, Kathmandu Nepal, 5 December, 2013.

Short Lived Climate Forcers over Nepal Himalayas: Overview, Cryosphere Climate Change and Development, United Nations Framework Convention on Climate Change (UNFCCC), COP-19, ICCI-Side Event, Warsaw (Poland), November 16, 2013.

Short Lived Climate Forcers over Nepal Himalayas: Observations and Modeling Results, Day of the Cryosphere Radisson Blu Centrum, Warsaw (Poland), 17 November, 2013.

High Summit: International Conference on Mountains and Climate Change, Lecco (Italy), 23-28 October, 2013.

Air pollution over Nepal Himalaya, Institute of Advanced Sustainability Studies (IASS) and International Center for Integrated Mountain Development (ICIMOD) organized High Level Update on Atmospheric Research in Nepal, Kathmandu, 26 August, 2013.

Workshop on atmospheric composition and the Asian summer monsoon, Kathmandu (Nepal), 9-12 June 2013.

Society of Hydrologists and Meteorologists (SOHAM), Babarmahal Kathmandu, Nepal, February 19, 2013.

