

Regional Air Quality Issue Related to Climate Change

(Proposal for MICS-Asia phase III)

Zhiwei Han

Institute of Atmospheric Physics, Chinese Academy of Sciences, 100029, Beijing, China

Along with the economic growth in East Asia in recent decades, human activities including releasing emissions and altering land cover have been exerting detectable impacts on atmospheric chemistry and climate both on regional and global scales. On the other hand, regional air quality is closely related to regional climate change which could be a feedback of human activity or a result of global change. There have been evidences showing that increasing human-induced greenhouse gases and aerosols in the atmosphere are affecting Asian monsoon and climate, however, the mechanism and the extent of such impact are still less understood and of high uncertainty which deserve further study.

In order to obtain a better understanding of climate and air quality interactions in East Asia, some studies (or topics) regarding this issue are proposed as follows:

- 1.) Radiative forcing from tropospheric ozone in response to its precursor emission changes.
- 2.) Responses of near surface ozone and particular matter to changes in atmospheric condition and natural emission due to climate change (or under present and future climate).
- 3.) Direct radiative forcings from individual and total aerosols and potential influences of aerosols on atmospheric chemistry, meteorology and regional climate
- 4.) Global impact of ozone and aerosols on regional radiative forcing
- 5.) Modeling aerosol optical depth (AOD) and comparison with ground-level observation and satellite retrievals.
- 6.) Model intercomparison for AOD and direct radiative forcings from individual and total aerosols

Members of this group are:

Dr. Zhiwei Han (Person in charge, *Institute of Atmospheric Physics, Chinese Academy of Sciences, Beijing, China*)

Prof. G. Carmichael (*University of Iowa, IA, USA*)

Dr. K. Sartelet (*Centre d'Enseignement et de Recherche en Environnement Atmospherique, Marne la Valle'e, France*)

Dr. T. Holloway (*University of Wisconsin-Madison, WI, USA*)

Prof. S.U. Park (*Seoul National University, Seoul, South Korea*)

Prof. J. Fu (*The University of Tennessee, TN, USA*)

Dr. M. Kajino (*Tokyo University, Tokyo, Japan*)

On the platform of MICS-ASIA, researchers are encouraged to carry out studies relevant to this issue. Joint research and potential model intercomparison will be done through discussion and collaboration between members, and exciting papers on this issue are expected to contribute to MICS-Asia and our modeling community.