

**Summary of  
'08 Working Group I Meeting for Joint Research  
on Dust and Sandstorms among Korea, Japan and China  
July 17<sup>th</sup>, 2008**

1. '08 Working Group I Meeting for Joint Research on Dust and Sandstorms (DSS) among Korea, Japan and China was held in Seoul, Korea on 17 July 2008.
2. Participants agreed that Korea, the host country of '08 Working Group I meeting, assumed the chairmanship and responsibility to coordinate the meeting in accordance with the TOR of the Working Groups for Joint Research on DSS. Mr. Seung - Bum Kim, Senior Researcher of National Institute of Meteorological Research of Korea, chaired the meeting.
3. In Session One, Mr. Seung - Bum Kim delivered his welcome statement to the participants. Following his statement, each participants of Working Group I introduced themselves to the other countries' participants.
4. In Session Two, Korea, Japan and China introduced their existing research related to DSS, which are being conducted or completed recently by each country. The summary of each presentation has been described in Appendix 1.
5. Participants shared the view on the following items:
  - (1) Real - time data exchange (PM10, visibility and so on)
  - (2) LIDAR data exchange
  - (3) Comparison of dust models between Japan and Korea
  - (4) Need of capacity building for early warning system of DSS in China
  - (5) Encouragement of the participation of Mongolia as an observer
6. In Session Three, Korea and Japan introduced their own project proposals and discussed them. They found some difficulties in carrying out the project proposed by Korea. Thus, the site for joint field campaign was decided to Baicheng in Jilin province of China, tentatively. They reached an agreement on one shared project plan titled "Analysis of selected DSS cases and capability building for Dust and Sandstorms monitoring".

7. In Session Four, the Chair summarized the discussions of the meeting. '08 project plan for Joint Research on DSS among Korea, Japan and China was adopted as attached in Appendix 2 by the members of the Working Group of Korea, Japan and China.
8. Before closing, the members of the Working Group I of Korea, Japan and China agreed that next meeting would be held in the first half of 2009 in Japan in accordance with the TOR of the Working Groups for Joint Research on DSS.
9. It was also agreed that the summary of the existing DSS research of three countries and '08 project plans adopted by the meeting will be reported to the 2<sup>nd</sup> Steering Committee.
10. The participants expressed their satisfaction with the fruitful results of the meeting, and their gratitude to Korea for their efforts to organize and arrange the meeting.

## **Appendix 1**

### **The summary of the existing DSS research of Korea, Japan and China**

#### 1. Japan

Japan representatives gave three presentations:

##### (1) Current DSS Activities by Japan Meteorological Agency

It introduces ADEC (Aeolian Dust Experiment on Climate Impact) and KIBAN - A. ADEC is for the estimate of climate impacts by Aeolian dust and has achievements on precise monitoring of saltation process, monitoring of the long - range transport of Asian dust, physicochemical, mineralogical, and optical characterization of Asian dust.

##### (2) Lidar Network for Asian Dust Monitoring

It introduces Lidar network and data assimilation influence in dust transport modeling. Continuous monitoring is conducted with the lidar network. DSS monitoring network in Mongolia (including 3 lidars) was constructed. Real - time data processing system was developed. Lidar network data on DSS are open to public on the MOE www page. Lidar network data are applied to 4DVAR assimilation of the regional model CFORS.

##### (3) Introduce of recent studies on the chemical characteristics of DSS in Japan

Both concentration of nitrate and sulfate ions in the DSS samples collected along the transport route have been usually increased over 10 times larger in Japan than in China. The reaction mechanism onto DSS particles for SO<sub>2</sub> and NO<sub>2</sub> gases has been performed to prove by laboratory experiments. The differences in the magnitude of inflammation of the tested DSS samples depend on the amounts of toxic substances including accumulated SO<sub>4</sub> onto the particles. From an epidemiological point of view, it must be noticeable to adhere what chemical substances onto DSS particles during the transport. New discrimination method by the stable carbon isotope ratios will usefully support another established chemical method such as enrichment factor method based on Al concentration.

## 2. China

China representatives gave one presentation:

### (1) Sandstorm Monitoring Network

607 sandstorm monitoring stations are now nationwide in China. Sandstorm in year 2007 was rarer than year 2006. There are 13 occurrences of sand storm in North of China. That caused 20 days PM10 pollution in the North cities of China. But the occurrences of sand storm is lower than 2006.

## 3. Korea

Korea representatives gave one presentation:

### (1) Physicochemical Evolution of Dust Particles Observed in March 2007

It shows the results of particle measurement using MOUDI and Cyclone sampler during two Asian dust events of year 2007. The analysis results are  $\text{Ca}^{2+}$  is an indicator of Asian dust,  $\text{K}^+$  is a indicator of Biomass burning,  $\text{NH}_4^+$  is lower during heavy Asian dust, and  $\text{NO}_3^-$  and  $\text{SO}_4^{2-}$  are dependent on available gas precursors.

## **Appendix 2**

### **'08 project plan of Working Group I for Joint Research on DSS among Korea, Japan and China**

#### **1. Project Title**

- Analysis of selected DSS cases and capability building for Dust and Sandstorms monitoring

#### **2. Outline of Cooperative Project**

##### (1) Objective of Project

- Joint research on the analysis of selected DSS cases to improve the capabilities of monitoring and forecasting of Dust and Sandstorms

##### (2) Contents of Project

- Compile all available data for 1 DSS case which is identified by all the parties' interest between 2006 and 2007
- Hold a Joint Conference to discuss findings on the selected case
- Conduct intensive field campaign on a case that is identified by each country
- Publish an annual report on activities described above

#### **3. 2008 Action Plan**

##### (1) Data sharing for 1 DSS case between 2006 and 2007

Meteorological conditions for DSS occurrence

PM physical properties & compositions

Satellite data

Model results

Lidar data

(※ The representative of each country will provide with any necessary information including but not limited to measurement items, measurement stations and temporal resolution of measurements listed above by the end of September, 2008)

(2) Joint Conference

The conference will be hosted by the leading country of the year. The time and place of the joint conference of the year 2008 will be announced by the representative of Korea. The conference will be held no later than the end of April, 2009.

(3) Joint Field Campaign

The site survey will be conducted by the end of April, 2009. The tentative site: Baicheng in Jilin province of China

(4) Annual Report

The annual report consists of

- Papers & presentation materials presented in the joint conference
- Activity report on the joint field campaign

**3. Budget**

- Each country will responsible for its own R&D expenses.