WMO OMM

World Meteorological Organization
Organisation météorologique mondiale
Organización Meteorológica Mundial
Всемирная метеорологическая организация
المنظمة العالمية للأرصاد الجوية
世界气象组织

Secrétariat
7 bis, avenue de la Paix – Case postale 2300
CH 1211 Genève 2 – Suisse
Tél.: +41 (0) 22 730 81 11
Fax: +41 (0) 22 730 81 81
wmo@wmo.int – public.wmo.int

Form for
Regular Reporting of CIMO Testbeds and Lead Centres

(expand the cells as required to properly reflect your activities)

Terms of Reference for CIMO Testbeds and Lead Centres are available under:
ttp://www.wmo.int/pages/prog/www/IMOP/Testbeds-and-LC.html

Name of Testbed / Lead Centre	**Boseong**
Location of Testbed / Lead Centre	**Place: Boseong, Jeollanam-do, Republic of Korea** **Location: 34.7633N, 127.2123E, 2.8m above mean sea level (AMSL)** **Area: 135,000 ㎡**

Contact Person for the Testbed/Lead Centre	
Courtesy Title	Dr
Family name	**Park**
First name	**Young-San**
Full Postal Address	**National Institute of Meteorological Sciences** **385, Deungnyangman-gil, Deungnyang-myeon, Boseong-gun,** **Jeollanam-do, 59438**
Country	**Republic of Korea**
Tel. number(s)	**+82-61-987-3551**
Fax number(s)	**+82-61-852-4297**
Email(s)	**sanpark@korea.kr**
Has contact person changed in last 2 years?	No
If yes, who was the previous contact person?	

Report on Activities

Main activities that TB/LC carried out in the last 2 years for which results are already available:

- Expand the basic observing system in the Boseong tall tower
  - The basic observation system is duplexed by adding temperature sensors and aerovane anemometers at 11-levels of the Boseong tall tower (April 2017, December 2016).

- Develop the meteorological observation technique using a rotary Unmanned Aerial Vehicle (UAV).
  - Study the feasibility for observing vertical structure of PBL using an UAV with a weather sensor, WTX-520 attached (2016~2017)
  - Observe and analyze the local meteorological phenomena such as sea-land breeze, fog, and mountain-valley wind (2017)
- Analyze the local meteorology characteristics in the planetary boundary layer such as sea-land breeze and nocturnal inversion using the observation data at the Boseong tall tower (2016~2017)
- Improvement and validation of the numerical weather forecasting system using the observation data at the Boseong tall tower (2016~2017)
  - Improve the displaying system comparing the T, H, u, and v component from the local forecasting model and those from the Boseong tall tower on the intra-website of NIMS.
  - Validate the numerical weather forecasting system using the observation data at the Boseong tall tower (T, H, u, and v)
- Study on the local circulation using the data of the Boseong tall tower Ⅲ (Report in Korean, 2016)
- Develop the application techniques of the flux data at the Boseong tall tower (Report in Korean, 2017)

Main activities that TB/LC carried out in the last 2 years for which results will soon be available:

- A pilot study on the local weather observation using a rotary Unmanned Aerial Vehicle, APJAS. (in progress)
- Characteristic analysis of the local meteorological phenomenon at a coastal area using the Boseong tall tower, APJAS. (in progress)

Which guidance documents/standard procedures were developed during the last 2 years (please include full reference and web-link if available)?

- **N/A**

Which IOM reports / peer-reviewed publications were published in the last 2 years (please include full reference and web-link if available)?

- **N/A**

Title(s) of IOM report(s) presently being developed by your Testbed/Lead Centre:
(please specify level of development: draft, ready for review, …)

- **N/A**

Has your Testbed/Lead Centre collaborated with one or more CIMO Expert Teams in developing guidance material? No

If yes, with which CIMO Expert Team(s)?

N/A

Capacity Building and Training Activities

Which capacity building/training activities have been carried out by the Testbed in the last 2 years?

- **N/A**

Has your testbed developed a twinning activity / special relationship with a companion station/site from a developing country? No

If yes, with which station/site?

- **N/A**

Is your Testbed/Lead Centre making an oral/poster presentation at this year's TECO? No
(If yes, please specify Title(s) and Author(s) of the presentation(s))

- Young-San Park, Sung Eun Hwang, Seungsook Shin, Ho Jin Nam, and Eunha Lim, 2016: Characteristics of vertical profiles observed from a tall tower in Korea

Recent Changes in Circumstance

Have there been any recent changes in your Test Bed/Lead Centre's capabilities? If so, please specify:

- Infrastructures such as the electric wiring and the intranet communication system are expanded in the Boseong Test Bed. So, we could install more instruments at the site.

Have there been any recent changes in your Test Bed/Lead Centre's infrastructure? If so, please specify:

- The basic observation system is duplexed by adding temperature sensors and aerovane anemometers at 11-levels of the Boseong tall tower on April 2017 and December 2016, respectively.
- The Infrared gas analyzer was installed at 140 m–high level on the Boseong tall tower in September 2016.
- Facility Information
  - Instruments on the ground in Boseong site
    - ➢Optical rainfall rate sensor : OSI (2002)
    - ➢Microwave Radiometer : Radio Metrics (2007)
    - ➢Ceilometer : Vaisala (2012)
    - ➢Disdrometer : OTT (2012)
    - ➢Cloud radar : Beijing Institute of Radio Measurement (2013)
    - ➢Visibility meter : Vaisala (2014)
    - ➢Automatic Weather System (AWS)

      : Wind speed and direction, temperature, humidity, pressure, precipitation, solar radiation, sunshine duration, soil temperature/moisture : Jinyang (2009)
  - Instruments on the Tall tower

Observation Variables	Height (m)
Temperature(two sensors), RH, aerovane & 2D Wind	10, 20, 40, 60, 80, 100, 140, 180, 220, 260, 300 m (11 levels)
Wind Speed (3-cup & aerovane)	60, 140, 300 m (three levels)
3D Wind (Ultrasonic Anemometer)	Ground, 60, 140, 260, 300 m (five levels)
Infrared gas analyzer	Ground, 60, 140, 300 m (four levels)
Net Radiometer	Ground, 60, 300 m (three levels)
Barometer	60, 140, 300 m (three levels)

Soil Moisture (Cosmic-ray probe)	Ground (one level)
Rain (Disdrometer)	300 m (one level)

Have there been any recent changes in your staffing? If so, please specify, and advise whether replacement staff have the required competencies:

- The Boseong Testbed's new staffs are underlined.
  - Program Director
    - ➢Cho, Chunho, DG of National Institute of Meteorological Sciences, KMA
  - Project Manager
    - ➢Joo, Sangwon, Director of Observation and Forecast Research Division, NIMS, KMA
  - Site Manager
    - ➢Park,Young-San, Deputy Director of Observation and Forecast Research Division, NIMS, KMA
  - Operation Manager:
    - ➢Kang, Ka Woong, Meteorologist, Observation and Forecast Research Division, NIMS, KMA
    - ➢Choi, Yong oun, Meteorologist, Observation and Forecast Research Division, NIMS, KMA
    - ➢Nam, Ho Jin, Meteorologist, Observation and Forecast Research Division, NIMS, KMA
  - Research Supporting Team
    - ➢Shin, Seungsook, Researcher, Observation and Forecast Research Division, NIMS, KMA
    - ➢Hwang, Sung Eun, Researcher, Observation and Forecast Research Division, NIMS, KMA
    - ➢Lee, Seong Ho, Researcher, Observation and Forecast Research Division, NIMS, KMA
    - ➢Park, Sung Won, Research assistant, Observation and Forecast Research Division, NIMS, KMA

Future Plans

What are your plans for the next two years?

- Improve the observing system of the Boseong tall tower.
- Conduct the intensive observation experiments using the radio sondes and the UAVs.
- Add the remotesensing instruments such as a 2DVD, disdrometers, and a windprofiler in order to produce the data for validating a single column model.
- Develop the assessment and verification techniques on the UM local forecasting errors in lower PBL region

Is your Testbed/Lead Centre able to continue in the role of a Test Bed/Lead Centre during the coming two years?	**Yes**

Other relevant information (other activities of special interest to CIMO, etc…)

- **N/A**

15th February 2018 — **Date**

Young-San Park — **Name of Person Filling the Form**