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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**
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Tel. number(s)	**+82-61-852-1851**
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Email(s)	**sanpark@korea.kr**
Has contact person changed in last 2 years?	Yes
If yes, who was the previous contact person?	Dr. Sangok Han

Report on Activities

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

- Build the observation-basis for the research on the meteorological vertical structure.
  - The basic observation system (Thermometer, Hygrometer, and Ultrasonic Anemometer 2D) was

installed at 11-levels on the Boseong tall tower (December 2013).

- The flux observation system (Net radiometer, Barometer, Infrared gas analyzer, and Ultrasonic Anemometer 3D) was installed at 60, 140, and 300m heights on the Boseong tall tower (September 2014).

- Develop the quality-control algorithm for the data from the Boseong tall tower (software, 2014).
- Establish and display the system to compare the T, H, u, and v components from the local forecasting model and those from the Boseong tall tower on the intra-website of NIMS.
- Perform the local Intensive Observation Campaign 2015 (15^{th} June ~ 15^{th} July, Radiosonde Observation)
- Study the feasibility for observing vertical structure of PBL using the drone with a radiosonde-sensor attached (10^{th} and 11^{th} August in 2015).
- Study on the local circulation using the data of the Boseong tall tower Ⅰ, Ⅱ (Report in Korean).
- Construct the Matlab program to calculate the turbulence kinetic energy equation using the meteorological observation data (software, 2015).

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

- 300m tall tower measurements at Boseong Meteorological Observatory, Dat. J. Geosci.(in progress).
- Occurrence Characteristics of Nocturnal Temperature Fluctuations Determined using Three Different Towers in Korea and China, APJAS (in progress).

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

- Development of application technique of the Boseong tall tower: Ⅰ. The observation system (Technical Note in Korean).
- Application and operation of the drone which loaded the radiosonde sensor (Technical Note in Korean).

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?

- Workshop on the standard observation technique 2013 (26^{th} ~ 27^{th} September / Boseong).

Has your testbed developed a twinning activity / special relationship with a companion station/site from a developing country? Yes

If yes, with which station/site?

- NIMS collaborated with IAP (Institute of Atmospheric Physics) in China to develop the quality control program (15th September ~13th December 2014).

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))

- N/A

Recent Changes in Circumstance

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

- Some members of the CIMO Testbed supporting team are working on the site since January 2015. There are three operators and four researchers at the Boseong site. So, we can operate many instruments at the site properly and take action on the problems quickly.

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

- The Ka-band cloud radar was installed in April 2013.
- The basic observation system was installed at 11-levels on the Boseong tall tower in December 2013.
- The flux observation system was installed at 60, 140, and 300m–high levels on the Boseong tall tower in September 2014.
- Facility Information
  - Instruments on the ground in Boseong site
    - ➢Optical rainfall rate sensor : OSI (2002)
    - ➢Micro Rain Radar : METEX GmbH (2002)
    - ➢Microwave Radiometer : Radio Metrics (2007)
    - ➢Ceilometer : Jenoptik (2010), 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, RH & 2D Wind	10, 20, 40, 60, 80, 100, 140, 180, 220, 260, 300 m (11 levels)
Wind speed and direction (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, 300 m (three 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:

- Most of the Boseong Testbed's staffing were changed on January 2015.
  - Program Director
    - ➢Cho, Chunho, DG of National Institute of Meteorological Science, KMA
  - Project Manager
    - ➢Lim, Eunha, Director of Observation Research Division, NIMS, KMA
  - Site Manager
    - ➢Park,Young-San, Deputy Director of Observation Research Division, NIMS, KMA
  - Operation Manager:
    - ➢Go, Gwang Il, Meteorologist, Observation Research Division, NIMS, KMA
    - ➢Kim, Hye Lim, Meteorologist, Observation Research Division, NIMS, KMA
    - ➢Nam, Ho Jin, Meteorologist, Observation Research Division, NIMS, KMA
  - Research Supporting Team
    - ➢Shin, Seungsook, Researcher, Observation Research Division, NIMS, KMA
    - ➢Hwang, Sung Eun, Researcher, Observation Research Division, NIMS, KMA
    - ➢Kim, Chang Mo, Researcher, Observation Research Division, NIMS, KMA
    - ➢Park, Sung Won, Research assistant, Observation 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 on-site experiments using the Tarps on the ground to assess and verify the satelite data.
- Assess and verify the ground based remote sensing equipments based on the Boseong tall tower data.
- Develop the assessment and verification techniques on the UM regional forecasting errors in lower PBL region.
- Develop the observation technology for the vertical meteorological structure using the drone.

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 March 2016	Young-San Park
Date	**Name of Person Filling the Form**