The improvement of weighing and drainage cross-modal precipitation measuring system

Keunhee Lee, Chulkyu Lee, Hee-Jung Yoo, Young-Jean Choi
National Institute of Meteorological Research,
Korea Meteorological Administration

Abstract

The accurate measurement and prediction of the amount of precipitation are important to prevent the damages of properties and casualties from the heavy rainfall and snowfall events. Generally, the tipping bucket rain gauges are widely used in South Korea, but the errors from the tipping bucket type are known to be related with the rain intensity. As the heavy rain occurs, the observational error is increased. Moreover, the range of measurement and continuous estimation of precipitation in the tipping bucket type are limited. By the several intercomparison studies between the precipitation data from the weighing type and the tipping bucket type rain gauge, the error of observational data from the weighing type can be reduced and the problem of discontinuity can be also solved. For the improvement of precipitation measurement, the weighing and drainage cross-modal precipitation measuring system had been introduced and developed by Korea Meteorological Administration. This precipitation measuring system is more advanced and distinct system due to its patented duplex structure and automatic draining system in order to operate automatically. By the comparison with the conventional precipitation measurement systems such as the tipping bucket type and other weighing rain gauges, the ability of precipitation measurement of the weighing and drainage cross-modal system is enough to compensate for the existing precipitation measuring system.

Acknowledgements

This work was supported by the "Advanced Research on Bio- and Industrial Meteorology" and "Development of meteorological resources for green growth" of National Institute of Meteorological Research (NIMR), Korea Meteorological Administration (KMA).