

## **2.6 RAPID SCAN EXPERIMENT OF DOPPLER WEATHER RADAR FOR MONITORING RAINSTORMS AND TROPICAL CYCLONES IN HONG KONG**

W. KONG<sup>1</sup>

<sup>1</sup> Hong Kong Observatory, Hong Kong  
wkong@hko.gov.hk

The Hong Kong Observatory (HKO) carried out a rapid scan experiment using an S-band Doppler weather radar at Tai Mo Shan in 2017. Low-elevation scan at 0 degree was performed once every minute for more intensive monitoring of severe weather. The one-minute rapid scan enabled reception of radar data 5 to 10 minutes earlier as well as 6 times higher update frequency of radar imageries compared with the conventional 6-minute volume scan. The rapid scan provided better continuity in observing the evolution of rainstorms and tropical cyclones which would be useful for weather diagnosis, nowcasting and numerical weather prediction.

This paper introduces the radar scanning strategy adopted in the experiment and describes the rapid scan observations of several rainstorm cases and tropical cyclone Hato in 2017. The operational applications of rapid scan radar data are also discussed. Preliminary analysis shows that 1-minute rapid scan data are more effective in revealing the formation and dissipation of various small-scale and short-lived weather systems such as downburst, mesocyclone and low-level convergence, etc., thereby enhancing the understanding of rainstorms' precipitation mechanisms. In the case of Hato, rapid scan imageries depict more clearly variation of the rotation speed of its spiral rainbands around the eye, allowing a better diagnosis of Hato's rapid intensification.