

## Formation of localized torrential rainfall associated with a cumulonimbus cloud developed over mountains

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Localized torrential rainfall over mountains in summer is brought by a cumulonimbus cloud maintained for a long time. As the example of such torrential rainfall, the formation process of torrential rainfall brought by the cumulonimbus cloud maintained over Asagiri Highland for a long time on 28 July 2010 was analyzed using the observation of the X-band MP radar of University of Yamanashi (the UYR).

Asagiri Highland with the range of about 10 km is associated with the slope adjoining Mt. Fuji on the east side and the gradual slope toward Mt. Kenashi on the west side; it adjoins Suruga Bay.

The cumulonimbus cloud was composed of 54 precipitating cells which appeared and disappeared repeatedly from 1140 JST to 1740 JST. During the duration, the cumulonimbus cloud maintained including 2 ~ 4 precipitating cells. Then, from the analyses of the echo height and area of radar reflectivity (ZH) larger than 40 dBZ, the precipitating cells appeared from 1300 JST to 1540 JST developed more than those on the other time in the duration.

From the paths of precipitating cells and rainfall amount at 2 km ASL estimated by the UYR observation using Takahori and Maki (2009), from 1300 JST to 1540 JST, 24 precipitating cells which appeared over the gradual slope toward Mt. Kenashi and moved to the northwestern foot of Mt. Fuji formed the maximum rainfall larger than 120 mm in a local region. These suggests to become the dominant factor of the torrential rainfall.

On the other hand, from 1140 JST to 1300 JST, 15 precipitating cells appeared over the slope adjoining Mt. Fuji and moved to the northwestern foot of Mt. Fuji. Then, from 1540 JST to 1740 JST, 15 precipitating cells appeared on the little bit to the north of the appearance position at 1300 JST ~ 1540 JST and moved to the northern west foot of Mt. Fuji. The former and the latter rainfalls, however, formed the maximum rainfalls of about 15 mm and 30 mm, respectively; they were very less than that at 1300 JST ~ 1540 JST. It is suggested that the slight differences in the appearance positions of precipitating cells created a big difference in the development of them, which created a difference of rainfall in the local region.

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