

スキャン型Kaバンドドップラーレーダとステレオ写真測量による山岳上の積乱雲発生過程の観測  
Evolution of convective clouds initiated over mountains observed by Ka-band scanning  
Doppler radar and stereo photogrammetry

\*三隅 良平<sup>1</sup>、櫻井 南海子<sup>1</sup>、前坂 剛<sup>1</sup>、鈴木 真一<sup>1</sup>、清水 慎吾<sup>1</sup>、岩波 越<sup>1</sup>

\*Ryohei Misumi<sup>1</sup>, Namiko Sakurai<sup>1</sup>, Takeshi Maesaka<sup>1</sup>, Shin-ichi Suzuki<sup>1</sup>, shingo shimizu<sup>1</sup>, Koyuru Iwanami<sup>1</sup>

1.防災科学技術研究所

1.National Research Institute for Earth Science and Disaster Prevention

It is known that convective storms are frequently initiated over mountains in warm and humid environment. According to previous studies, shallow cumuli initiated over heated mountains develop into a deep convective storm. However, the transition process from shallow to deep convection is not well understood due to a lack of observation data. In order to elucidate this problem, we observed convective clouds initiated over mountains in Kanto, Japan on 18 August 2011 using a 35 GHz scanning Doppler radar and a pair of digital cameras. The first cloud observed over the mountains reached the 6 km level, while the maximum echo-top height was about 1 km lower than the cloud top. The maximum radar reflectivity in the cloud was about 10 dBZ found around the 2 to 3 km levels. The reason why the echo-top altitude was lower than the cloud-top height was considered to be due to the mixing with surrounding dry air. After such shallow cumuli appeared three times repeatedly, a deep convective cloud developed. These results are consistent with a "pre-conditioning" hypothesis, that shallow cumuli moisten midlevel air and produce favorable condition for development of deep convective storms.