

# **Field observation of rainfall, ocean spray and wave with X-band radar in summer season of 2018**

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Between atmosphere and ocean there exists a thick layer of ‘a third fluid’: sea spray and rain droplets, consisting of many droplets under severe conditions. However, serious gaps in knowledge about the air-sea interaction at wind speeds over 40 m/s remain difficult to be filled by observation or experiment.

To reveal the air-sea interaction under severe windy conditions with sea spray, rainfall and wave, marine observations with X-band radar are performed in a coastal area in Wakayama prefecture, Japan, where typhoons often hit. Characteristics of rainfall and turbulent flow under high windy conditions are captured. In this observation, the signal received by radar contains reflections from various objects besides the intended targets clutter, sea clutter. From the X-band radar, vertical cross-sectional observation of rainfall is received in summer 2018. During this period, typhoons No. 20th, 21st, and 24th approached the observation site. We succeeded in getting valuable data.