

Sueki, K., and Y. Kajikawa, 2019: Different precipitation systems between Hiroshima and Keihanshin during extreme rainfall event in western Japan in July 2018. *J. Meteor. Soc. Japan*, **97**, 1221-1232.

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Plain Language Summary: During the heavy rainfall event in western Japan in July 2018, many differently-sized precipitation systems appeared one after another. This paper suggests that particularly large precipitation systems with areas of more than 10,000 km² increased the risk of deadly sediment disasters during the rainfall event. Such a large precipitation system occurred when the wind speed was significantly different between the lower and upper atmosphere.

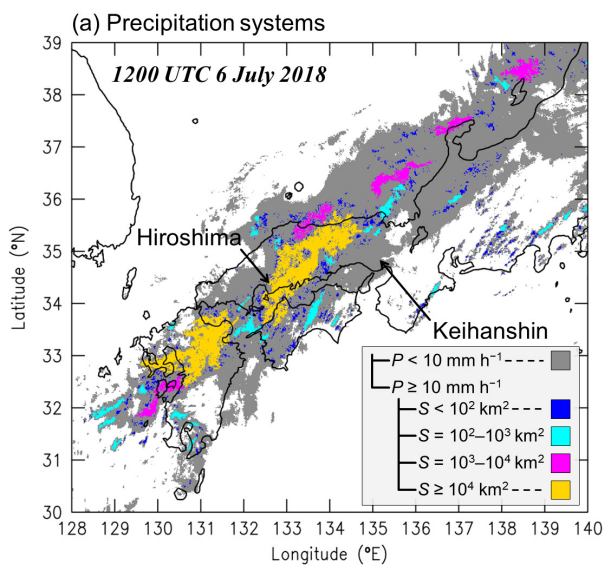
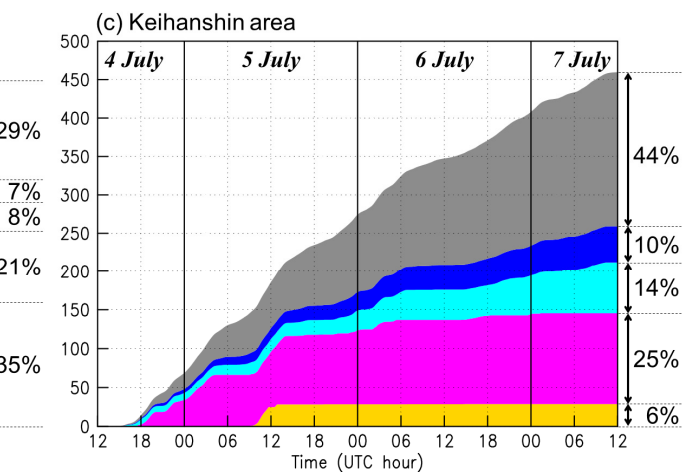
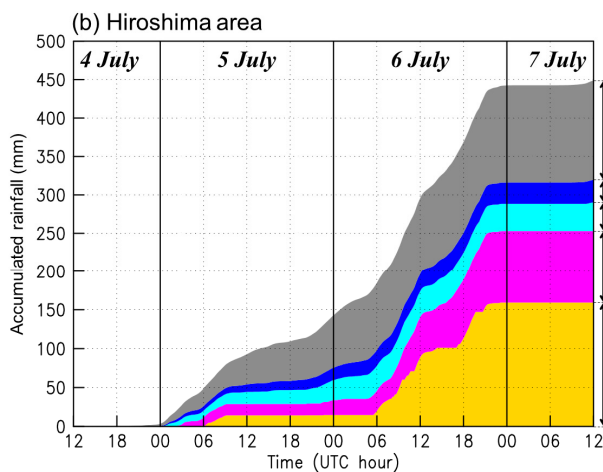


Figure 1. (a) Precipitation systems at 1200 UTC 6 July 2018. Blue, cyan, magenta, and yellow colors correspond to precipitation systems of $S < 10^2$ km², $S = 10^2-10^3$ km², $S = 10^3-10^4$ km², and $S \geq 10^4$ km², respectively, where S denotes the area of the precipitation system. The gray color indicates moderate rain (rainfall intensity $P < 10$ mm h⁻¹). (b, c) Time series of accumulated rainfall both for (b) the Hiroshima and (c) the Keihanshin areas. The different colors denote the contributions from the different rainfall classes.



- During the heavy rainfall event in western Japan in July 2018, both the Hiroshima and Keihanshin areas were subjected to unusual rainfall amounts but their damages were significantly different.
- In the Hiroshima area where the number of sediment disasters was significantly larger, rainfall caused by large precipitation systems with areas equal to or larger than 10⁴ km² were dominant.
- Such a large precipitation system occurred under the condition that vertical wind shear in the 0.5–6.0 km above ground level layer was relatively large.