Plain Language Summary: In recent years, "senjo-kousuitai", characterized as band-shaped areas of heavy rainfall, have frequently caused river floods and landslides in Japan. A challenge for mitigating and preventing such disasters is to forecast accumulated rainfall for several hours with an adequate lead time. This study investigated the usefulness of the immediate very-short-range forecast of precipitation (VSRF), issued by the Japan Meteorological Agency, in terms of prevention of senjo-kousuitai disasters. The usefulness was assessed based on forecast accuracy of 3-h accumulated rainfall for a threshold value of 80 mm at each forecast time (FT; i.e., 1–6 h), using various verification indices.
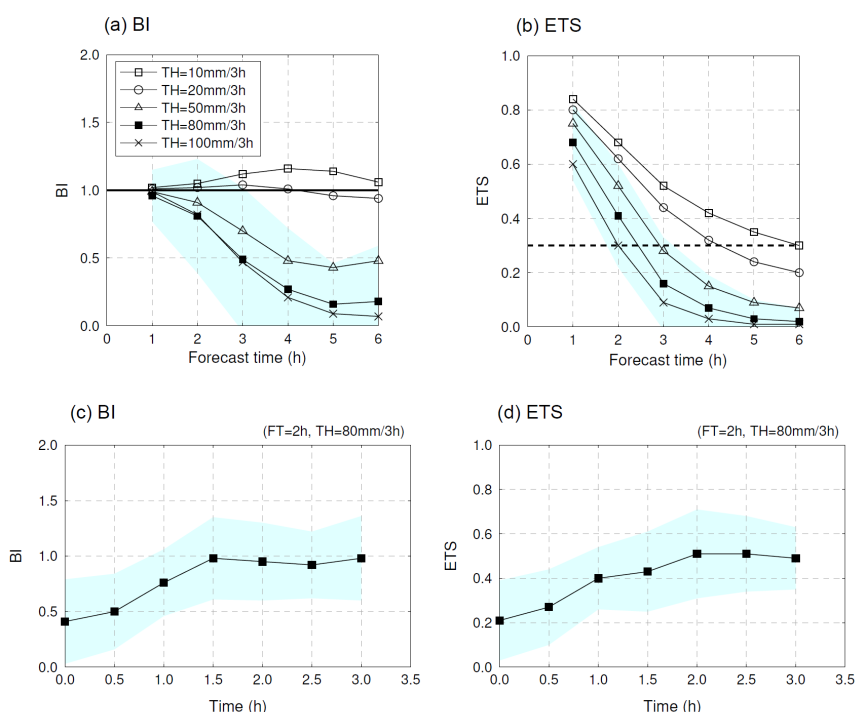

Figure 1. (a) Bias score averaged for all verification times as a function of forecast time. (b) Same as (a) but for equitable threat score (ETS). (c) and (d) are as in (a) and (b) but for scores as a function of elapsed time since the formation of senjo-kousuitai for a threshold of 80 mm $(3h)^{-1}$ at FT = 2 h. Blue shading denotes ±1.0 standard deviation from the average.

- We analyzed 21 senjo-kousuitai events that occurred in Kyushu in 2019 and 2020.
- The VSRF produces useful forecasts of heavy rainfall associated with senjo-kousuitai for up to 2 h ahead (i.e., ETS ≥ 0.3 for a threshold of 80 mm $(3h)^{-1}$).
- Further analysis found that the VSRF is less skillful in the formation stage of senjo-kousuitai even at short FTs, primarily because of poor performance of extrapolation forecast.