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Plain Language Summary: A series of hindcast simulations were performed using the nonhydrostatic icosahedral atmospheric model (NICAM) to reproduce the temporal evolution of the monsoon gyre in August 2016. The simulations that were initiated at dates during the mature stage of the monsoon gyre successfully reproduced its termination and the subsequent intensification of the Bonin high, whereas the simulations initiated before the formation and during the developing stage of the gyre failed to reproduce subsequent gyre evolution even at a short lead time.

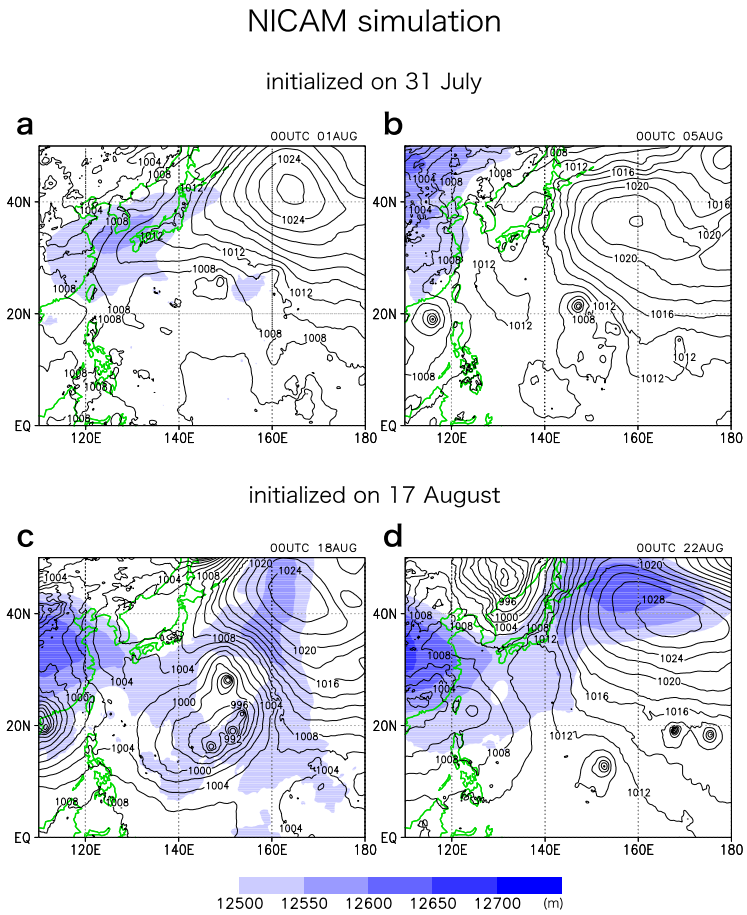

Figure 1. Evolution of the monsoon gyre in August 2016, based on simulations with NICAM initialized (a, b) at 00:00 UTC on 31 July (before the formation of the monsoon gyre) and (c, d) at 00:00 UTC on 17 August (during the mature stage of the monsoon gyre). SLP (contour) and 200 hPa geopotential height (shading) based on NCEP FNL data (a) at 00:00 UTC on 1 August, (b) at 00:00 UTC on 5 August, (c) at 00:00 UTC on 18 August, and (d) at 00:00 UTC on 22 August. The contour interval is 2 hPa.

- In August 2016, a monsoon gyre persisted over the western North Pacific and was associated with the genesis of multiple devastating tropical cyclones.
- The experiments suggest a possibility that the development of the Bonin high is related to the termination of the monsoon gyre.