Wada, A., 2021: Roles of oceanic mesoscale eddy in rapid weakening of Typhoons Trami and Kong-Rey in 2018 simulated with a 2-km-mesh atmosphere-wave-ocean coupled model. *J. Meteor. Soc. Japan*, **99**, 1453−1482.
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**Plain Language Summary:** To understand the role of a cold-core eddy in the intensity change of Typhoons Trami and Kong-Rey (2018), numerical simulations were performed with a 2-km-mesh nonhydrostatic atmosphere model and an atmospheric-wave-ocean coupled model. The ocean's role in the simulated rapid weakening of two typhoons was related to the low upper-ocean heat content caused by typhoon-induced sea surface cooling. The reductions in downward motion in the center of two typhoons and the associated adiabatic heating were closely related to the weakening. The difference of ocean's role between the two typhoons were discussed.

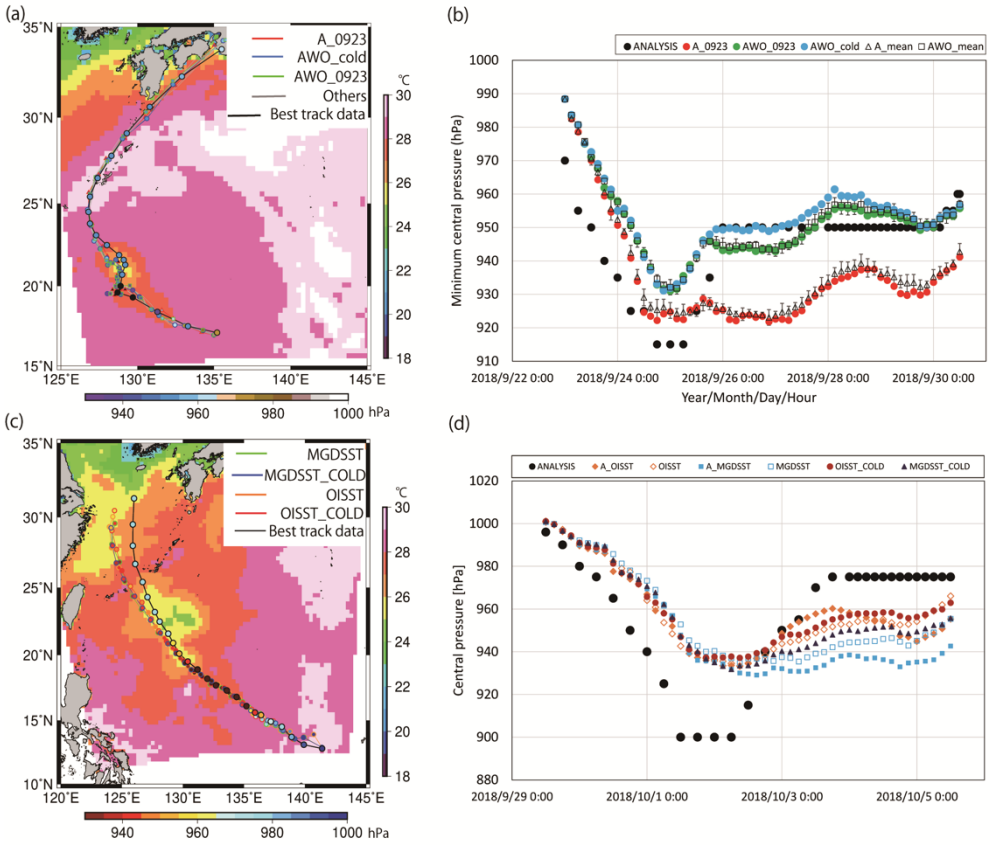


Figure 1. (a) Best track and simulated tracks for Trami (2018) with the horizontal distribution of simulated SST at 1800 UTC on 27 September, (b) simulated and best track central pressure for Trami, (c) best track and simulated tracks for Kong-Rey (2018) with the horizontal distribution of simulated SST at 1800 UTC on 4 October, and (d) simulated and best track central pressure for Kong-Rey.

- The difference of the role of mesoscale cold eddy in the simulations of Typhoons Trami and Kong-Rey (2018) was discussed.
- Embedding an artificial cold-core eddy of which magnitude is not based on in situ observations into the oceanic initial condition helped promote sea surface cooling induced by Trami and suppress the overdevelopment.
- A reasonable simulated track of Kong-Rey would have spent more time traveling over the Trami-induced sea surface cooling area, which enhanced the weakening.