Plain Language Summary: To investigate the potential use of AI models for tropical cyclone forecasting, an existing AI model was run using the initial conditions from the Japan Meteorological Agency's operational global model. The track forecast errors were significantly smaller than those of the conventional numerical weather prediction model. Tropical cyclone forecasting, particularly track prediction, could see a breakthrough with the use of AI models.
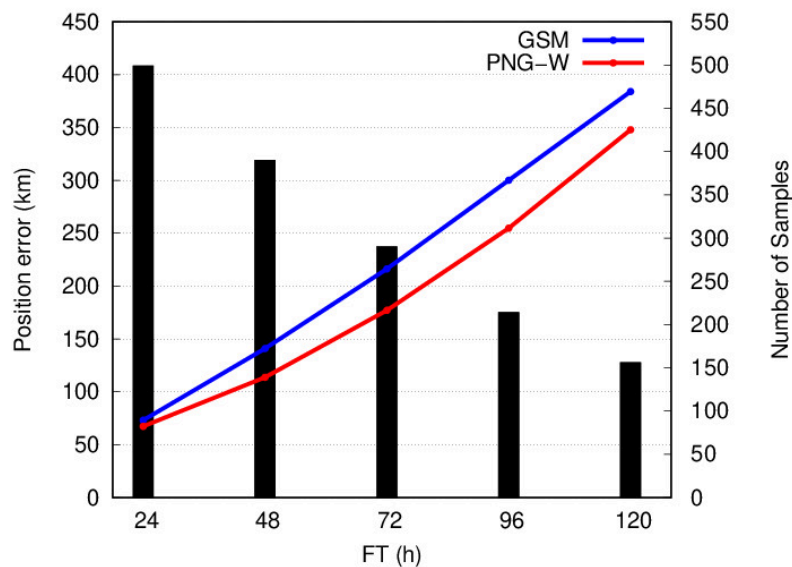
Figure 1. Figure 1. Mean position error of track forecasts of GSM (blue) and PNG-W (red) (km, y-axis on the left). Y-axis on the right represents the number of samples, shown by the black bars. X-axis is the forecast times from 24 to 120 hours. The TCs verified here are all named TCs from 2021 to 2023 (64 TCs in total).

- This study is characterized by its focus on tropical cyclones in the western North Pacific, the verification conducted on a large number of cases, and the use of operationally used initial conditions instead of reanalysis data as the initial conditions for AL models.
- The improvement in 2-day track forecast accuracy, for instance, reached 19 %.
- Challenges such as forecast bust cases and intensity forecasts, which are also present in numerical weather prediction models, persist.