

[EE] Evening Poster | A (Atmospheric and Hydrospheric Sciences) | A-AS Atmospheric Sciences, Meteorology & Atmospheric Environment

[A-AS03]Advances in Tropical Cyclone Research: Past, Present, and Future

convener:Masuo Nakano(JAMSTEC Japan Agency for Marine-Earth Science and Technology), Akiyoshi Wada(Typhoon Research Department Meteorological Research Institute), Sachie Kanada(名古屋大学宇宙地球環境研究所, 共同), Kosuke Ito(University of the Ryukyus)

Wed. May 23, 2018 5:15 PM - 6:30 PM Poster Hall (International Exhibition Hall7, Makuhari Messe)

Tropical cyclones (TCs) often bring torrential rainfall, gale, storm surge, and high surf that sometimes cause tremendous disasters. Therefore, understanding such phenomena associated with translation, intensity change, and precipitation of TCs and their accurate forecasts are important in the earth and planetary science. In addition, changes in the number and intensity of TCs due to global climate changes have been extensively studied by various approaches such as data rescue, data analyses, and climate modelling. Especially in 2017, Typhoon Talim made landfall on all of four major islands of Japan first ever since 1951 and Typhoon Noru had a strange track. In the Northern Atlantic, Hurricanes Harvey, Irma and Maria caused tremendous damage in U.S.

Advances in innovative observations such as Himawari-8,9, unmanned drone, meteorological aircraft reconnaissance and supercomputers such as the earth simulator and K-computer have led to novel development of numerical weather forecasting and understanding of the phenomena due to the improvement of numerical modelling.

In this session, we welcome papers on various aspects of TC studies. We hope that the session will provide new direction for future TC research activity.

[AAS03-P01]Prediction and attribution of quiescent tropical cyclone activity in the western North Pacific in the early summer of 2016

★ Invited Papers

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Keywords:tropical cyclone, seasonal prediction, western North Pacific, indian Ocean

This study investigated the inactive tropical cyclone (TC) condition in the western North Pacific (WNP) during the early summer (May–July) of 2016. We conducted and analyzed seasonal predictions and sensitivity experiments with an atmosphere–ocean coupled prediction system (JMA/MRI-CPS2). The system used in this study successfully predicted the inactive TC condition during the period. We also conducted sensitivity experiment simulations, in which the warmer-than-normal sea surface temperature (SST) in the Indian Ocean (IO) was restored to the climatology. This sensitivity experiment results in a weakened lower-tropospheric anticyclonic anomaly and near-normal TC activity over the WNP. These results indicate that the inactive TC condition can be attributable to the warm IO SST anomalies induced by the preceding 2015/2016 El Niño. Verification and analysis of reforecasts show that the TC count in early summer is more predictable than other seasons due to a strong influence of IO warming induced by preceding El Niño events, indicating the high seasonal predictability of the TC activity in the early summer.