

2012年8月に発生した顕著な北極低気圧：北極低気圧への遷移機構 An Intense Arctic Cyclone in August 2012: A Transition Mechanism to Arctic Cyclone

相澤 拓郎^{1*}, 田中博²

Takuro Aizawa^{1*}, Hiroshi L. TANAKA²

¹ 筑波大学生命環境科学研究科, ² 筑波大学計算科学研究センター

¹Life and Environmental Sciences, University of Tsukuba, ²Center for Computational Sciences, University of Tsukuba

An intense arctic cyclone in August 2012 is investigated in this study. Especially, we analyzed i) three dimensional structures and ii) mechanisms of the development focused on a transition process to arctic cyclone from extratropical cyclone.

The center pressure of the arctic cyclone decreases to 965 hPa, which is an all-time minimum in August arctic cyclones. In the early phase, the arctic cyclone is a shallow baroclinic cyclone originated with an arctic front of 60 degree north. Then the baroclinic cyclone undergoes the transition process of the arctic cyclone due to the merger with a relatively weak (990 hPa) preceding arctic cyclone. The shallow baroclinic cyclone becomes a deeper and wider barotropic cyclone with a couple of stratospheric warm core and tropospheric cold core. Analyses show that the transition to arctic cyclone plays some important role in the development of the arctic cyclone.

キーワード: 北極低気圧, 温帯低気圧, 遷移過程

Keywords: arctic cyclone, extratropical cyclone, transition process