

Antarctic Meteorology and Climate Research Activity of Korea Polar Research Institute

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Korea Polar Research Institute launched a research project last year to investigate what causes the regionally different climate responses over Antarctica. To achieve this purpose, we utilize the observed meteorological data from the King Sejong station and Jang Bogo station. The King Sejong station is located in the Antarctic peninsula where a rapid warming was observed, whereas the Jang Bogo station is in the Terra Nova Bay off the Ross Sea where a cooling trend and increase of sea ice is observed. Through an analysis of the observed data from the King Sejong station, we obtained a plateau of temperature since 1988 as in other stations. We obtained meteorological data from the Lindsey Island, Amundsen Sea from 2008 to 2014 examined the characteristics of the data, but there was no significant trend in temperature during the observed period. We also use numerical model from synoptic scale to global-scale model from the past to future to understand the climate response of the southern hemisphere to external forcing change. Using polar WRF model, we reproduced the strong wind event in January 2013 with different model resolutions and found that the high resolution reproduced more realistically. Using CAM AGCM version 5, we examined the response of the southern hemisphere westerly jet to the LGM sea ice, ice sheet, tropical SST change, and total LGM forcing and found the stronger and southward displaced westerly wind in LGM than present.