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The 2014 high record of Antarctic sea ice extent

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In September 2014, Antarctic sea ice extent exceeded the symbolic level of 20 million km^{2}for the first time since 1978, when reliable satellite measurements became available. After the successive records of 2012 and 2013, sea ice extent in 2014 once again reinforced the positive trend observed since the late 1970s. We conduct here a dedicated study to elucidate the origins of a major, and perhaps the most intriguing, event that happened at our Poles recently. Observations, reanalyses and model results all point towards the important role of winds in modifying near-surface heat advection patterns around Antarctica. The role of pre-conditioning (summer conditions) is found to be of lesser importance. Finally, we find no evidence that anomalous freshwater forcing (from atmospheric or continental origin) could have explained the record extent of 2014.