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Title: Influence of the reduction in the Antarctic sea ice in the redistribution of the trajectories of extratropical cyclones in a future scenario on the region of Confluence Brazil-Malvinas

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abstract: Sea ice (SI) plays an important role in the climate of polar regions in terms of modifying the radioactive processes, momentum and mass exchange, in addition, modulates the interaction and coupling between the ocean and the atmosphere. So, it becomes very important to study the changes caused in the thickness of the Antarctic SI under the influence of global warming and its relation to the positioning of the preferred range of operation of extratropical cyclones (Storm Tracks, ST) that play an important role to define the global climate. In this context, the influence of reducing the Antarctic sea ice in the redistribution of ST in a future scenario on regions of middle and high latitudes are investigated from the coupled climate model ECHAM5/MPI-OM in this period between 1981 to 2000 and in a future one for the period from 2081 to 2100. Results show that the anomaly observed in the simulations SI has reduced ice thickness up to 0.5 m in regions like the Weddell Sea and up to 2m in the Bellingshausen and Amundsen Seas and the Northern Antarctic Peninsula, which is the most affected region in a scenario under the influence of global warming. This anomaly at the Cryosphere due to a substantial increase in the quantity of oceanic heat transported to the region Antarctica. This retreat of ice from induced heat by the increased CO2 concentration is decisive to the displacement of the ST in a future scenario. That´s why it´s reasonable suggest a strong influence in terms of zonal baroclinidade induced by thermal contrast between ice and water and their possible influence on ST. The results showed that SI has a well-defined seasonal cycle and the notable interannual variation, and the anomalies in the extent of the ice field denoted a good consistency with the anomalous position of the ST around five degrees towards the pole. Probably in a future scenario, there will be increased activity of the extratropical cyclones in high latitudes around 60°S due to this repositioning caused by retraction of Antarctic SI, and less activity in regions of middle latitudes directly influencing the region of Confluence Brazil-Malvinas (CBM) where there should be a lower cycle genetic activity, but more intense than the one presented by the current scenario, may have strong influence on precipitation and cloud cover in the region.