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Mesoscale simulations over the Ross Sea, Antarctica with the regional climate model MAR

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Mesoscale atmospheric circulation plays an important role in the Antarctic coastal zone and could depend significantly on atmosphere - sea ice - ocean interactions. Some phenomenona such as mesocyclones are poorly represented by the models although they are of essential importance for weather forecasting, since they can be responsible for precipitation and severe conditions. Simulations are performed over the Ross Sea with the regional climate model MAR (Modèle atmosphérique Régional) which has been developed for the polar regions. The sensivity of the model to the horizontal resolution and the surface conditions (sea ice fraction, surface roughness length) is investigated by analysing their impact on the intensity of the mesocyclonic activity. This work is the preliminar stage of the coupling between MAR and the ocean - sea ice model ORCALIM, which could allow a better representation of meteorological process in this region.