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Snow precipitation in Adelie Land, Antarctica. MAR validation using data from a meteorological radar

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The regional climate model MAR (Modèle Atmosphérique Régional) has been run over Adélie Land in the frame of the APRES3 project, in order to understand the different physical mechanisms affecting precipitation in this region. An horizontal resolution of 5 km is used. Several case studies have been considered during the period between december 2015 and may 2016. MAR snow precipitation flux is compared to observations made with a meteorological radar operating at Dumont d'Urville during this period. It is found that MAR sometimes simulates a maximum in the precipitation flux which is situated well above the ground, as in the observations. Possible causes may the found in the influence of the dry katabatic airflow often observed in Adélie Land. Our work indicates that the retreive of a precipitation climatology from satellite observations must be done with caution, when these observations are possible only for a significant height above the ground.