

Validation of a regional climate model over Dome C, Antarctica, for summer conditions

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Regional climate model MAR (Modèle Atmosphérique Régional) was run for the region of Dome C located on the East Antarctic plateau, during summer. A very high vertical resolution is set up in the lower troposphere. Model output is compared with temperatures and winds observed near the surface and from a 45 m high tower as well as sodar and radiation data. MAR is generally in very good agreement with the observations during clear sky days, but sometimes underestimates cloud formation, leading to an underestimation of the simulated downward long-wave radiation. Absorbed short-wave radiation may also be slightly overestimated due to an underestimation of the snow albedo, and this influences the surface energy budget and atmospheric turbulence.