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# East Antarctic Atmospheric Rivers: The view from the ground

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## Abstract

Over recent years, we have deployed remote-sensing instruments to probe the atmosphere during atmospheric river (AR) events at Davis, Antarctica (69S, 78E). The passage of ARs, and their associated cyclones, at this location is characterized not only by relatively large snowfall, but also by Foehn winds. Data collected at Davis allowed an understanding of cloud and precipitation microphysics through the atmospheric column during these events. Observational data during ARs were used for numerical modelling case studies and model evaluations. We will discuss the outcome of some of these studies, including an understanding on the local interaction between the cloud system during ARs and topography, and the effects of the ice sheet on creating local ‘rain-shadows’. Looking forward, we are proposing a major multi-year field campaign at Casey, Antarctica (66S, 110E) to commence in 2027. We plan to probe the precipitation, cloud, radiation and aerosol characteristics during AR events using a broad suite of instrumentation, including three radars, lidars, and microwave radiometer. We will discuss our plans for linking these observations to model simulations and in particular wish to discuss opportunities for collaboration with the broader AR community in order to understand these AR events across seasons from a coastal Antarctic perspective.

**Keywords:** East Antarctic, radar, lidar, snowfall, cloud

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