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The Askaryan Radio Array —current status and design considerations for a larger array

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The South Pole is an excellent location for a radio neutrino detector, with exceptional quality of ice and significant existing South Pole station and IceCube infrastructure. The Askaryan Radio Array (ARA) at the South Pole has successfully deployed two more stations, one of them with a phased array string, in the 2017–2018 austral summer season.

I will discuss some design changes and explain their motivation as well as design questions for future detector stations. For example, how does the station size, the depth of sensors, and the choice of bandwidth impact the effective area for neutrinos and the quality of event reconstruction? What lessons can we learn from past ARA deployments for the future? I will discuss these questions and will present sensitivities for various detector scenarios.

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