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## Galactic and Extragalactic Southern Sky Neutrino Source Searches with IceCube Starting Track Events in the 1 to 100 TeV Energy Range.

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Astrophysical neutrinos are an important piece of the TeV multimessenger astrophysics puzzle. However, the significant background of atmospheric neutrinos seen in our neutrino observatories makes it difficult to study neutrino sources below 100 TeV in the southern sky. Looking for starting events from the southern sky with IceCube allows us to reject not only events from incoming atmospheric muons but also atmospheric neutrinos that are escorted into the detector by muons from the same shower. This creates a muon neutrino sample of a purity that can only be achieved with throughgoing events above an energy of 100 TeV in the 1 to 100 TeV range. In our sample presented here, we specifically look for well-localized tracks generated by muon neutrino interactions occurring inside the detector. With this sample we search over the full sky for significant neutrino point sources. We also look for neutrino emission from bright GeV gamma ray extragalactic sources, TeV gamma ray galactic plane sources, and diffuse neutrino emission from cosmic ray interactions in the Galactic Plane.

### Collaboration name

IceCube

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