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Realtime follow-up of astrophysical transients with the IceCube Neutrino Observatory

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Realtime analyses are necessary to identify the source of high energy neutrinos. As an observatory with a 4π steradian field of view and near-100% duty cycle, the IceCube Neutrino Observatory is a unique facility for investigating transients. In 2016, IceCube established a pipeline that uses low-latency data to rapidly respond to astrophysical events that were of interest to the multi-messenger observational community. Here, we describe this pipeline and summarize the results from all of the analyses performed since 2016. We focus not only on those analyses which were performed in response to transients identified using other messengers such as photons, but also on how this pipeline can be used to constrain populations of astrophysical neutrino transients by following up high-energy neutrino alerts.

Keywords

Realtime, neutrino astronomy

Collaboration

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other Collaboration

Subcategory

Experimental Results

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