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The IceCube Realtime Program

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In 2013, the IceCube collaboration announced the detection of diffuse high-energy astrophysical neutrino flux. The origin of these particles is still unknown as there is still no identification of a source at the 5-sigma level. To answer this question, IceCube releases realtime alerts triggering follow-up observations in multiple wavelengths looking for electromagnetic counterparts to individual neutrinos. One of these alerts led to the association of the high-energy neutrino event IC170922A with the flaring gamma-ray blazar TXS 0506+056 at 3-sigma level. This work presents an overview of the IceCube Realtime Program with a brief exposition of possible future improvements to overcome issues with systematic errors, such as incomplete knowledge of the Antarctic ice.

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