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$\nu_e - {}^{16}O$ Interactions in Super-Kamiokande With Low Energy Atmospheric Neutrinos BARAN BODUR, KATE SCHOLBERG, Duke University, SUPER-KAMIOKANDE COLLABORATION — Charged-current scattering of ν_e below 100 MeV from ^{16}O nucleus is not yet measured. This interaction is a ν_e detection channel for water Cherenkov detectors in case of a supernova burst. Furthermore, in Super-Kamiokande diffuse supernova neutrino background (DSNB) is being searched with the inverse beta decay process and $\nu_e - {}^{16}O$ interactions from atmospheric neutrinos are a background to this search. Finally, atmospheric neutrinos at this energy range will be a background for the future WIMP dark matter searches via coherent elastic neutrino-nucleus scattering, and $\nu_e - {}^{16}O$ interactions are a way to probe the atmospheric ν_e flux at low energies to better estimate this background. A study for the first observation of this interaction from atmospheric ν_e with 20 years of Super-Kamiokande data is currently underway, with the goal of measuring atmospheric ν_e flux weighted cross section below 100 MeV. For this purpose, a custom event generator that can accurately simulate products of $\nu_e - {}^{16}O$ and $\bar{\nu}_e - {}^{16}O$ interactions has been built, and now methods to separate signal from the backgrounds are being studied. In this talk, both the event generator and the status of the analysis will be discussed.

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