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***Milagro* Measurements of Solar Energetic Particles during the 2005 January 20 Ground Level Event**[1] TREVOR MORGAN, University of New Hampshire, MILAGRO COLLABORATION — *Milagro* is a ground-based TeV gamma-ray telescope employing the water Çerenkov technique. As such, it is sensitive to muons produced by GeV solar protons entering the atmosphere. Located in the Jemez Mountains near Los Alamos New Mexico, it is near the Climax neutron monitor station operated by the University of New Hampshire. Using both instruments that have different instrument responses one can obtain a measure of the solar energetic proton spectrum above several GV rigidity. The 2005 January 20 event was the most intense in a half century. At several GV it exhibited a strong impulsive signal at both these stations suggesting that a narrow proton beam was well aligned with the asympototic direction associated with *Milagro*. Using multi-PMT scalers and the signal from Climax we can estimate the spectrum above the geomagnetic cutoff and can constrain the degree of anisotropy during the intense leading edge of the event. Based on extensive computer simulations of the *Milagro* response to isotropic and beam-like bursts of protons over a range of rigidity, we will report results of this exercise.

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