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Observation of Neutron and Gamma Ray Emission from the October 28, 2003 Solar Flare

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Recently we published an analysis [1] of the response of the Tsumeb neutron monitor to the large solar flare of October 28, 2003. We concluded that the flare produced neutrons over an extended interval of approximately seven minutes. Gamma-rays observed from the SAMPEX spacecraft now confirm the extremely long duration of energetic emission from this event. Both POLAR and SAMPEX may have detected protons resulting from the decay of neutrons emitted by this flare. We use these data to determine the energy spectrum of neutrons emitted by the flare, and to further refine our calculation of the time structure of the emission. We compare the emission time structure of the neutrons and gamma-rays with available optical data, and with the injection profile of the GeV interplanetary protons in an attempt to identify the source region of this energetic radiation.

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References

[1] J. W. Bieber, J. Clem, P. Evenson, R. Pyle, D. Ruffolo, and A. Sáiz, GRL, 32, L03S02 (2005).