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Can ^{59}Ni Synthesized in OB Associations Decay to ^{59}CO Before Being Accelerated to Cosmic-Ray Energies? R. BINNS, M. ISRAEL, Washington University, St. Louis, MO 63130, A. CUMMINGS, R. LESKE, R. MEWALDT, E. STONE, Caltech, Pasadena, CA 91125, G. DE NOLFO, T. VON ROSENVINGE, NASA/GSFC Greenbelt, MD 20771, M. WIEDENBECK, JPL, Pasadena, CA, 91109 — Observations from the Cosmic Ray Isotope Spectrometer (CRIS) aboard NASA's Advanced Composition Explorer (ACE) have shown that all relevant galactic cosmic ray isotopic ratios measured are consistent with an OB-Association origin of galactic cosmic rays (GCRs). Additionally CRIS measurements of the isotopic abundances of ^{59}Ni and ^{59}Co have shown that the ^{59}Ni has completely decayed into ^{59}Co, indicating a delay of $>10^5$ years between nucleosynthesis and acceleration. However, it has been suggested that shocks generated from high-velocity Wolf-Rayet winds in the OB-Association environment must accelerate nuclei synthesized in nearby core-collapse SNe on a time scale short compared to the ^{59}Ni lifetime of 7.6x10^4 years. This would imply that OB Associations could not be the source of most galactic cosmic rays. In this paper, we describe the OB-Association history and environment and show that the time scales for acceleration are such that ^{59}Ni should be expected to decay naturally in that setting, strengthening the argument that OB associations are the likely source of a large fraction of galactic cosmic rays.

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