TIME VARIATIONS IN ELEMENTAL ABUNDANCES IN SOLAR ENERGETIC PARTICLE EVENTS

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The abundances of elements from Helium to Nickel have now been observed in 28 different solar energetic particle events using the Solar Isotope Spectrometer on-board the Advanced Composition Explorer spacecraft. We report on substantial temporal variations of the observed abundances within events and from event to event. Understanding the causes of these variations is key to obtaining reliable solar elemental abundances and to understanding solar acceleration processes. We will attempt to relate the observed variations to the properties of associated Coronal Mass Ejections (CMEs) as observed by instruments on the SOHO spacecraft. In particular, we will examine the dependence of peak particle intensities on CME speeds and the dependence of composition on the CME starting locations on the sun.