

Elemental abundances during SEP events characterized by energy-dependent ionic charge states

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Abstract. Previous studies have established that some solar energetic particle events associated with CMEs exhibit an energy dependence in the ionic charge state distributions of the heavy ions (e.g., Bogdanov et al., 2000; Moebius et al., 1999; Mazur et al., 1999). Bogdanov et al. showed that the amount of energy dependence showed a large event-to-event variation. This was particularly true for Fe. In this paper, we extend this previous study to elemental abundance signatures

(including Ne/O and Fe/O), as measured by the SEPICA experiment on ACE. We investigate the relationship between the elemental composition and the degree of energy dependence on the charge states, and what one may infer regarding the mechanism of SEP particle acceleration and the source population.

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