

4. Eruptions in the solar atmosphere

## Diagnosics of source plasma characteristics in $^3\text{He}$ -rich flares

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$^3\text{He}$ -rich solar energetic particles (SEPs) show peculiar ion abundance enhancement, markedly different from solar corona or solar wind. Such enrichment is believed to be generated by the energy dissipation processes in solar flares, frequently observed in a jet-like form, but the exact mechanism remains unclear. A relation between the element abundances in  $^3\text{He}$ -rich SEPs and plasma characteristics (temperature, emission measure) has been previously studied from the soft X-ray observations. These works have shown that in the relatively narrow and high-temperature range, the heavy-ion abundances correlate with the temperature but  $^3\text{He}/^4\text{He}$  does not. We examine the relation between the temperature and density of source plasma and the elemental composition in several  $^3\text{He}$ -rich SEP events with anomalous enhancement of S and Si. The differential emission measure analysis is applied to study the temperature evolution/distribution of the source regions. Preliminary results show that the temperature of the associated solar source is ranged between 1.2-3.1 MK.