# Prompt release and prolonged production of solar energetic particles during a large flare and coronal mass ejection on 1998 May 02

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Large enhancements of solar energetic particle (SEP) fluxes in space, termed SEP events, occur in association with fast and broad coronal mass ejections (CMEs) and flares. The basic observation which gives a hint to the specific solar activity associated with the SEP event is the arrival time of the first escaping particles at a spacecraft, from which the solar release time can be inferred. While this release time is frequently found to lag behind the onset of the flare or the extrapolated liftoff of the CME by up to tens of minutes, the large SEP event on 1998 May 02 is one where both electrons (tens to hundreds of keV) and deka-MeV protons escape rapidly. Using the ERNE experiment aboard the SoHO mission, we present improved evaluations of the solar release time of deka-MeV protons. It appears that the protons propagate nearly scatter-free in a transient interplanetary flux tube (see Torsti et al., 2004 ApJ 600, L83). Using the improved release time determination of the protons, we investigate the specific features of the coronal activity, especially imaging radio observations in the middle corona and spectrographic radio observations from the corona to 1 AU, during the fast rise of the proton production profile to its maximum. We discuss the results in the context of different models of the origin of SEP events.