Title : Highlights on very high-energy solar protons events (>100 MeV)

<u>Authors :</u> Manon Jarry, Athanasios Papaioannou, Nasrin Talebpour, Alexis Rouillard, Eleni Lavasa, Christian Palmroos, Rami Vainio, Bernd Heber, Marlon Koeberle

<u>Abstract :</u>

Solar flares and coronal mass ejections (CMEs) can efficiently accelerate particles to high energies in the solar corona and beyond. In some cases, these processes lead to solar energetic particle (SEP) events involving protons with energies exceeding 100 MeV. These events are relatively rare and particularly interesting from a space weather perspective.

A new catalog has been created, bringing together all the high-energy proton events observed over the last three decades, together with their associated solar activity. It enables a global study of their characteristics and offers new perspectives for understanding their origin. Case studies of several recent events also illustrate the diversity of acceleration conditions and particle properties in greater detail.