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High intensity peak magnetic fields in ICMEs and sheaths

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In this work we explore a particular characteristic of some ICMEs which is the presence of very high intensity magnetic field peaks in particular in their shock-sheath regions. These magnetic field peaks are short duration when compared to the total extent of the ICME but they often drive intense geomagnetic storms. In this work, we study the magnetic field and plasma observations obtained at the L1 point from 1997 to present. To evaluate the geomagnetic impact we use the Disturbance Storm-time Dst index. We also study the solar origins of these events when solar observations are available. In the context of Space Weather, it is known that shock sheath fields are very important origins of energy injection in the Earth's magnetosphere. Their forecasting though is still very challenging.

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