



## **The new ICME list and the CME-index for the Solar Cycle 23**

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It is well known that the ICMEs play the most important role on the interactions with the magnetosphere as they are the dominant drivers of intense geomagnetic storms. In this work 165 ICMEs associated with CMEs were spotted from SOHO-LASCO coronagraph and their characteristics were calculated by in situ observations from ACE data. The result of this analysis is a new ICME list which contains all the available information for the background geomagnetic conditions before the arrival of the shock, the sheath between the shock and the main part of the ICME and the ICME itself, such as velocities, magnetic fields ( $B_{\text{sheath}}$ ,  $B_{\text{ICME}}$  and  $B_z$ ) and plasma characteristics (plasma  $\beta$ , temperature and density) and the geomagnetic conditions, such as the Dst index minimum and the maximum  $A_p$  values. This new ICME list has been used for the formation of the CME-index ( $P_i$ ) taking in to account for the first time the magnetic field of these ICMEs and other characteristics as well, such as their angular width and their velocity. These ICMEs characteristics show a very high correlation between the examined variables, such as the magnetic field  $z$  component ( $B_z$ ) and the Dst minimum value, during the geomagnetic storm or the mean magnetic field of the sheath and the transit velocity of the ICME, revealing important results. At this point a proposed model based on the CME-index from this list in order to predict geomagnetic conditions is tested in some case studies with very good results.