



## **Deformation of ICME: Statistical study of their propagation from 1 to 30 AU**

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The shocks that are often observed in front of the interplanetary coronal mass ejections (ICMEs) can give us information about two dimensions of ICMEs even with one spacecraft observations. The radius of curvature of the ICME can be obtained from the magnetosheath thickness, i.e., the distance between the shock and corresponding ICME. We identified the shocks driven by ICMEs observed by Voyager 2 in course of the 1977-1989 years to obtain magnetosheath thicknesses. We calculated the normal to the ICME boundary for more precise estimations of the ICME thickness. We found that the relative magnetosheath thickness (the ratio of the thickness to ICME radius) is by a factor of 4 larger than calculated from a gas-dynamical assumption. The deformation of ICMEs is discussed as a possible source of this effect.