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# Themis: Locations of dayside magnetosphere boundaries

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Up to now, the models describing locations and shapes of the magnetopause and bow shock as a function of upstream parameters are based on a statistical processing of crossings observed by a single spacecraft and (usually distant) solar wind monitor. This approach implicitly assumes that the downstream parameters are proportional to their upstream values. Moreover, this way contains many in-accuracies, as unusual crossings caused by a sudden change of solar wind parameters, multiple crossings following in a short time, time consumable visual inspection of crossings, etc. For this reason, we are developed a new method of automatic identification of both boundaries from magnetic field measurements. We used continuous measurements of the magnetic field by a particular spacecraft and distinguished three regions – the solar wind, magnetosheath, and inner magnetosphere according the magnetic field values. In our presentation, we explain the method of calculation and apply its results on different spacecraft observations.