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The preliminary results of the Boundary Layer Identification Code project

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The Boundary Layer Identification Code (BLIC) project determines automatically four selected boundary layers: the bow shock, the magnetopause, the neutral sheet and the outer rim of the outer radiation belt. The neutral sheet and the radiation belt positions are determined from magnetic field and energized electron measurements, respectively, working properly onboard all Cluster spacecraft. For bow shock and magnetopause identification we use magnetometer data and, when available, ion plasma instrument data. In addition, WHISPER electron density, EFW spacecraft potential measurements and wake indicator auxiliary data are also used so the events can be identified by all Cluster probes in highly redundant way, as the magnetometer and these instruments are still operational in all spacecraft.
The particle instrument teams can use these results for instrument calibration. The scientific community also can enjoy the benefit of this preliminary evaluation of measurements and use the results for e.g. statistical studies or for finding interesting events. The software tool could later be modified to analyze the measurements of other satellites. The products and the developed software tool will be made available on the CAA site in 2012.