



Generic residue analysis and BV method comparison

Nicolas Dorville (1), Chandra Anekallu (2), Stein Haaland (3), and Gerard Belmont (1)

(1) LPP, Ecole Polytechnique/CNRS, Space Physics, Palaiseau, France (gerard.belmont@lpp.polytechnique.fr), (2) Mullard Space Science Laboratory, University College London, United Kingdom, (3) Max-Planck Institute for Solar Systems Research, Göttingen, Germany & Birkeland Centre for Space Science, University of Bergen, Norway

Determining the orientation of the normal direction to the magnetopause layer is a key issue for studying in detail the structure of this boundary. Both conservation laws methods and the new iterative BV method, that performs a fit of the magnetic field and ion normal flow velocity with an elliptic model, have been developed for this purpose. These methods have different model assumptions and validity ranges. Unlike the conservation laws methods, the BV method also provides spatial profiles inside the layer. However, it is compatible only with a subset of magnetopause crossings with a single layer current sheet. We compare here their results on artificial magnetopause data with noise, to understand their sensibility to small departures from their physical hypothesis. Then we present a statistical study on their comparison on a list of 149 flank and dayside magnetopause crossings.