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3d Hybrid Simulation of the Martian Plasma Environment and Comparison With Rosetta Flyby Data

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The interaction of the solar wind with the Martian magnetosphere is simulated by a 3d hybrid code model. This approach is applied as the gyroradii of the solar wind protons are in the range of several hundred kilometers and therefore they are comparable to the characteristic scale of the subsolar ionospheric interaction region. Characteristic boundaries as bow shock and ion composition boundary are identified and they are compared with Mars flyby measurements of the Rosetta spacecraft.