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Low-Energy Ions and Electrons in Mercury's Magnetosphere: Initial Reports of Mio's Third Flyby

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We report on the initial analyses of low-energy ion and electron data obtained during Mio's third Mercury flyby. The first and second flybys demonstrated the highly variable nature of Mercury's magnetosphere in response to varying upstream solar wind conditions. Specifically, magnetospheric ions measured during the second flyby are characterized by a factor of >10 higher energies near the closest approach than those of the first flyby, and cold dense ions detected around midnight during the first flyby were completely absent during the second flyby. Dynamic electron signatures were observed during both flybys and characteristic "inverted-V" electrons were identified in the second flyby data. We will discuss the latest third flyby results in comparison to the past two flybys with a particular focus on low-energy ion and electron signatures in Mercury's magnetosphere.