“Persistent pressure belt of high-energy (>100 keV) ions and its implications for the inner magnetosphere dynamics”

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148 keV decrease (adiabatic effect) increase during recovery phase increase ~5 days after the storm main phase

SymH ~ -50 nT
We calculated total energy in the inner magnetosphere by integrating our pressures over dipole flux tube volume.

The energy contributed by the higher energy proton pressure belt (100 - 600 keV) is persistent and independent of Dst index.

The energy contributed by the lower energy protons enhances only during the main phase of the “storm”, thus correlates very well with Dst.

The above two energies are comparable!!!
The contributions of the high energy ion pressure belt and the lower energy ion population to the total energy in the inner magnetosphere are comparable. HOWEVER, unlike the lower energy population, the high energy ion belt persists during quiet time solar wind conditions and varies on much longer than storm-timescales.