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Quiet solar wind interaction with Mars over the entire solar cycle.

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This work presents a massive statistical analysis of the ion flows in the Martian induced magnetosphere over the one solar cycle. We performed this analysis using
Mars Express ion mass spectrometer data taken during 2008 - 2014 time interval. This data allows to make an enhanced study of the induced magnetosphere variations as a response of the solar activity level. Since Mars Express has no onboard magnetometer, we used the hybrid models of the Martian plasma environment to get a proper frame to make an adequate statistics of the magnetospheric response. We found that the planetary ions escape rate for the quiet solar wind time intervals do not depend on the solar activity. However the induced magnetosphere structure depends very much on the low/high solar cycle season.