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Statistical investigation of Kelvin-Helmholtz waves at the magnetopause of Mercury

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A large study of Kelvin-Helmholtz (KH) waves at the magnetopause of Mercury covering 907 days of data from the MErcury Surface Space ENvironment GEochemistry Ranging spacecraft have resulted in 146 encounters of not only nonlinear KH waves but also linear surface waves, including the first observations of KH waves at the dawnside magnetopause. Most of the waves are in the nonlinear phase (90%) occur at the duskside magnetopause (93%), under northward magnetosheath magnetic field conditions (89%) and during greater magnetosheath Bz (23 nT) values than in general. The average period and amplitude is 30 $\pm$ 14 s and 14 $\pm$ 10 nT, respectively. Unlike duskside events, dawnside waves do not appear at the magnetopause flank (<6 magnetic local time). This is in agreement with previous observations and modeling results and possibly explained by finite Larmor radius effects and/or a lack of a large-scale laminar flow at the dawnside magnetopause boundary.