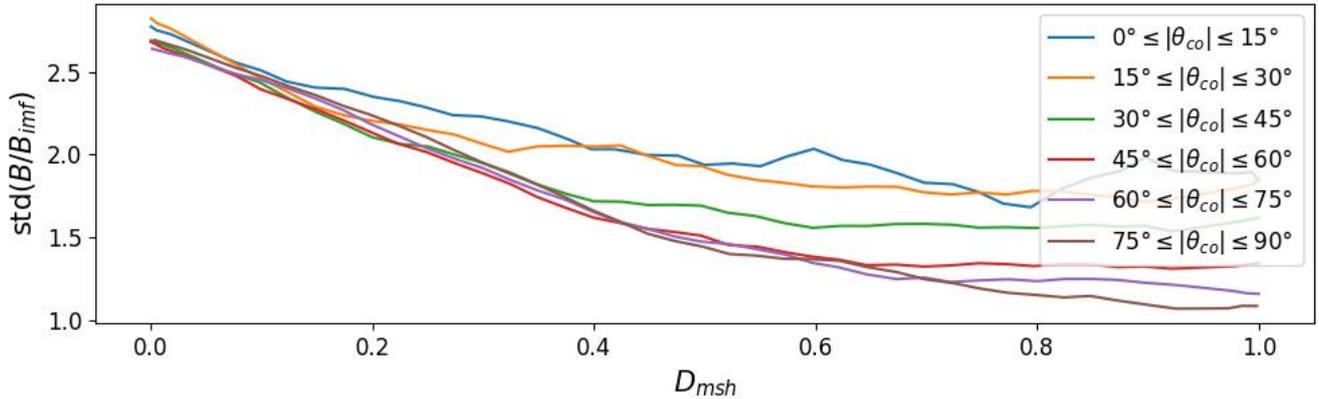
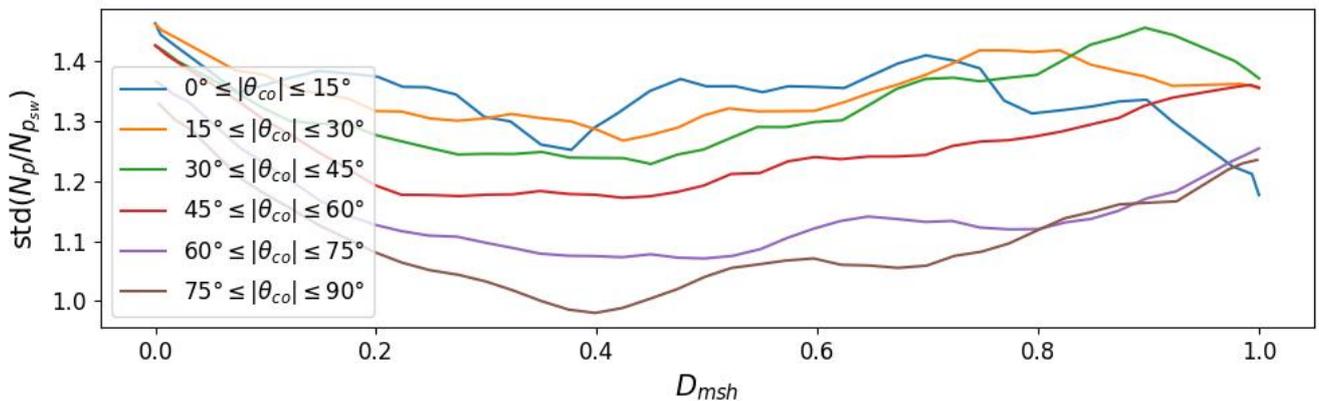


## Supplementary Material

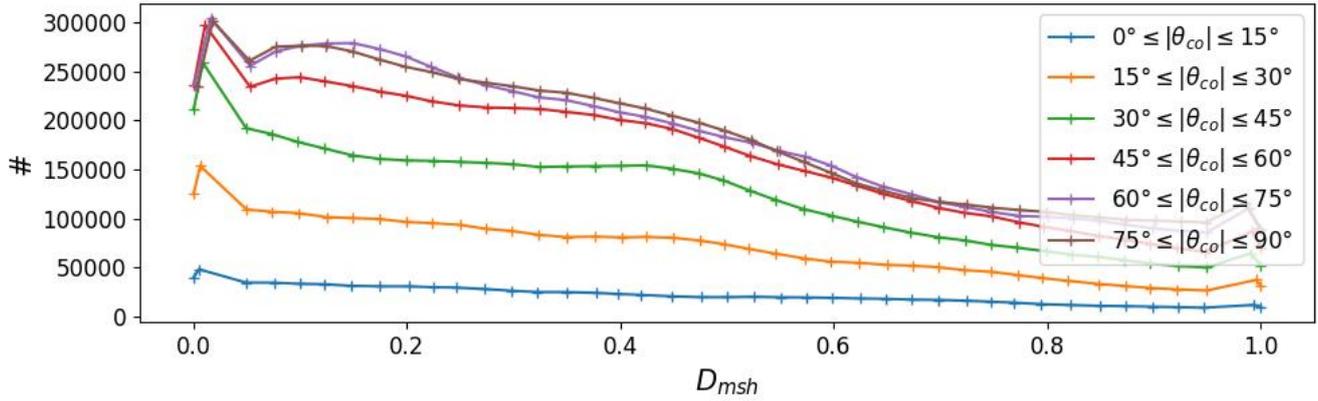
The supplementary material includes the standard deviation of the magnetic field amplitude and plasma density, as well as figures representing the sample size per bin.



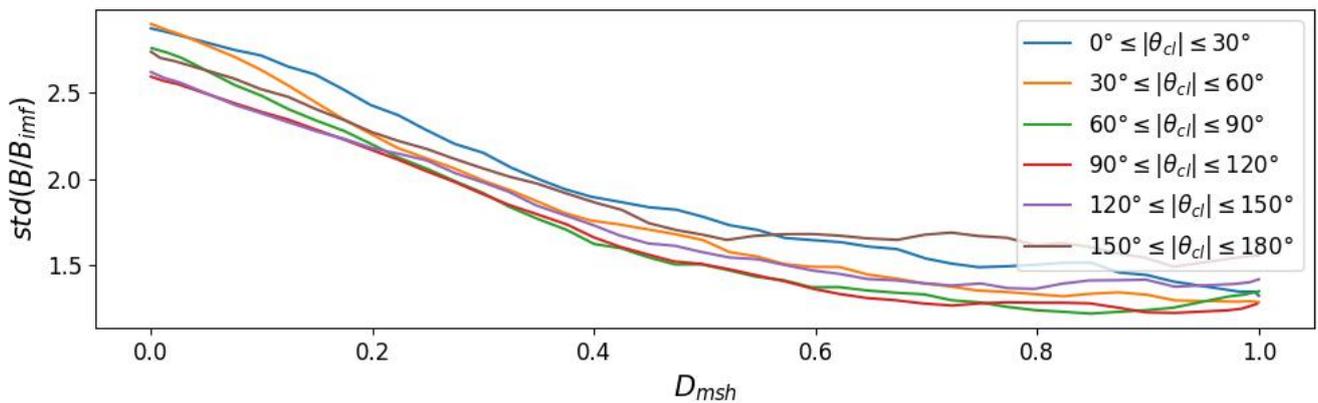
**Figure S1.** Standard deviation of the magnetic field amplitude in the subsolar magnetosheath ( $\sqrt{Y_{SWI}^2 + Z_{SWI}^2} \leq 5 \text{ Re}$ ) normalized by the IMF ( $B_{imf}$ ) as a function of the position in the magnetosheath  $D_{msh}$  relative to the magnetopause and bow shock. The magnetopause and bow shock are positioned at  $D_{msh}=0$  and  $D_{msh}=1$ , respectively. The different colored lines represent the compression profiles of the magnetic field for different absolute value of IMF cone angles ( $|\theta_{co}|$ ).



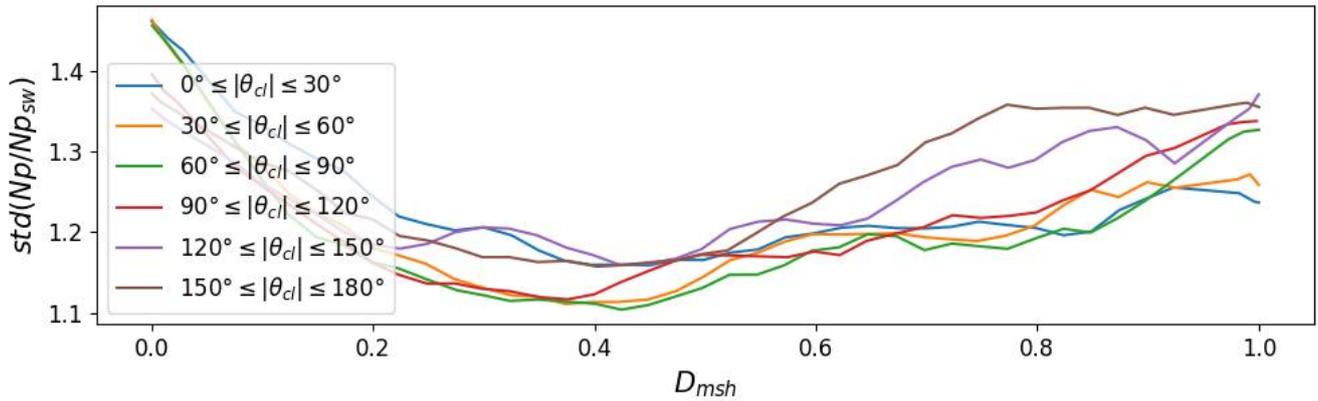
**Figure S2.** Standard deviation of the plasma density in the subsolar magnetosheath ( $\sqrt{Y_{SWI}^2 + Z_{SWI}^2} \leq 5 \text{ Re}$ ) normalized by the IMF ( $B_{imf}$ ) as a function of the position in the magnetosheath  $D_{msh}$  relative to the magnetopause and bow shock. The magnetopause and bow shock are positioned at  $D_{msh}=0$  and  $D_{msh}=1$ , respectively. The different colored lines represent the compression profiles of the plasma density for different absolute value of IMF clock angles ( $|\theta_{co}|$ ).



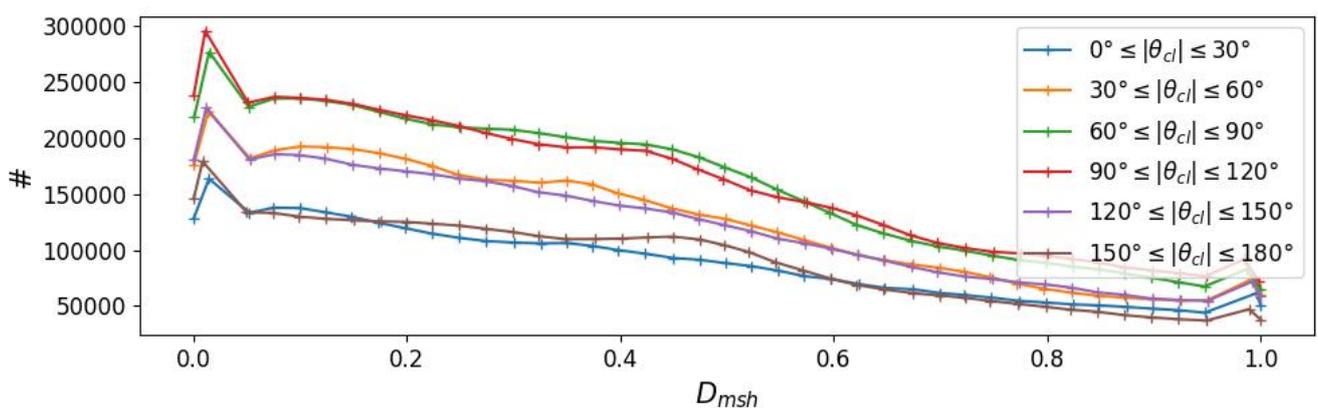
**Figure S3.** Number of data points per bin in figures S1 and S2 for the various cone angles. The bins are spaced by  $\Delta D_{msh}=0.025$  and contain all the data points within a radius of 0.05. The number of points near the magnetopause and bow shock is higher due to the position normalization of points outside the magnetosheath, which is delimited by the boundaries of the models. The first and last bins are half the size of the other bins due to the presence of the boundaries.



**Figure S4.** Standard deviation of the magnetic field amplitude in the subsolar magnetosheath ( $\sqrt{Y_{SW1}^2 + Z_{SW1}^2} \leq 5 \text{ Re}$ ) normalized by the IMF ( $B_{imf}$ ) as a function of the position in the magnetosheath  $D_{msh}$  relative to the magnetopause and bow shock. The magnetopause and bow shock are positioned at  $D_{msh}=0$  and  $D_{msh}=1$ , respectively. The different colored lines represent the compression profiles of the magnetic field for different absolute value of IMF clock angles ( $|\theta_{cl}|$ ).



**Figure S5.** Standard deviation of the plasma density in the subsolar magnetosheath ( $\sqrt{Y_{SWI}^2 + Z_{SWI}^2} \leq 5 \text{ Re}$ ) normalized by the IMF ( $B_{imf}$ ) as a function of the position in the magnetosheath  $D_{msh}$  relative to the magnetopause and bow shock. The magnetopause and bow shock are positioned at  $D_{msh}=0$  and  $D_{msh}=1$ , respectively. The different colored lines represent the compression profiles of the plasma density for different absolute value of IMF cone angles ( $|\theta_{cl}|$ ).



**Figure S6.** Number of data points per bin in figures S4 and S5 for the various clock angles. The bins are spaced by  $\Delta D_{msh}=0.025$  and contain all the data points within a radius of 0.05. The number of points near the magnetopause and bow shock is higher due to the position normalization of points outside the magnetosheath, which is delimited by the boundaries of the models. The first and last bins are half the size of the other bins due to the presence of the boundaries.