

JGR: Space Physics

Supporting Information for

Intermittency at Earth's bow shock: Measures of turbulence in quasi-parallel and quasi-perpendicular shocks

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Introduction

The supplementary material provided here includes spectral index evolution, average spectral index, and kurtosis evolution plots for events B and C. The methods used to create the figures are identical to those used for events A and D and are documented in the 'Results' section of the manuscript.

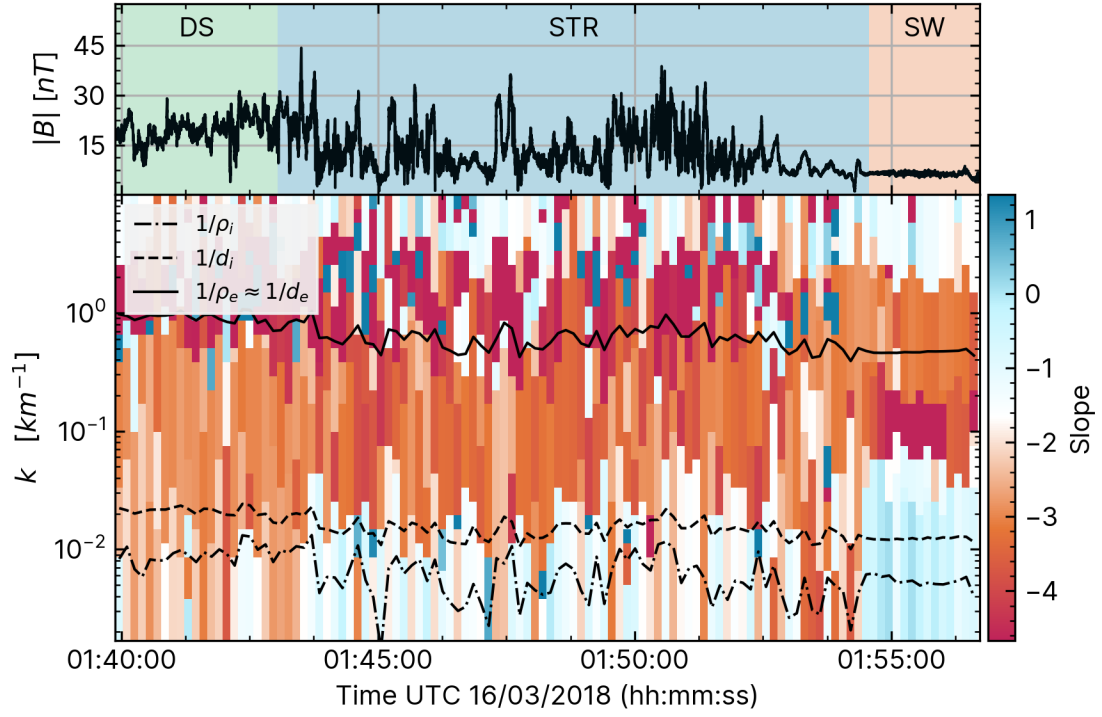


Figure S1. Evolution of spectral slopes as a function of time for event B. *Top:* Magnetic field strength, B . Colours refer to downstream (DS) in green, shock transition region (STR) in blue and solar wind (SW) in orange. *Bottom:* Evolution of spectral indices from MARS fit. Note that this does not always split the spectrum into three regions. The colour represents the slope of the power-law fit. Red indicates steeper than $-5/3$, while blue is shallower than $-5/3$. Breakpoints are indicated by a change in colour. Electron scales, $\rho_e \approx d_e$ are shown as a solid black line, and ion scales d_i and ρ_i are dashed and dot-dashed black lines.

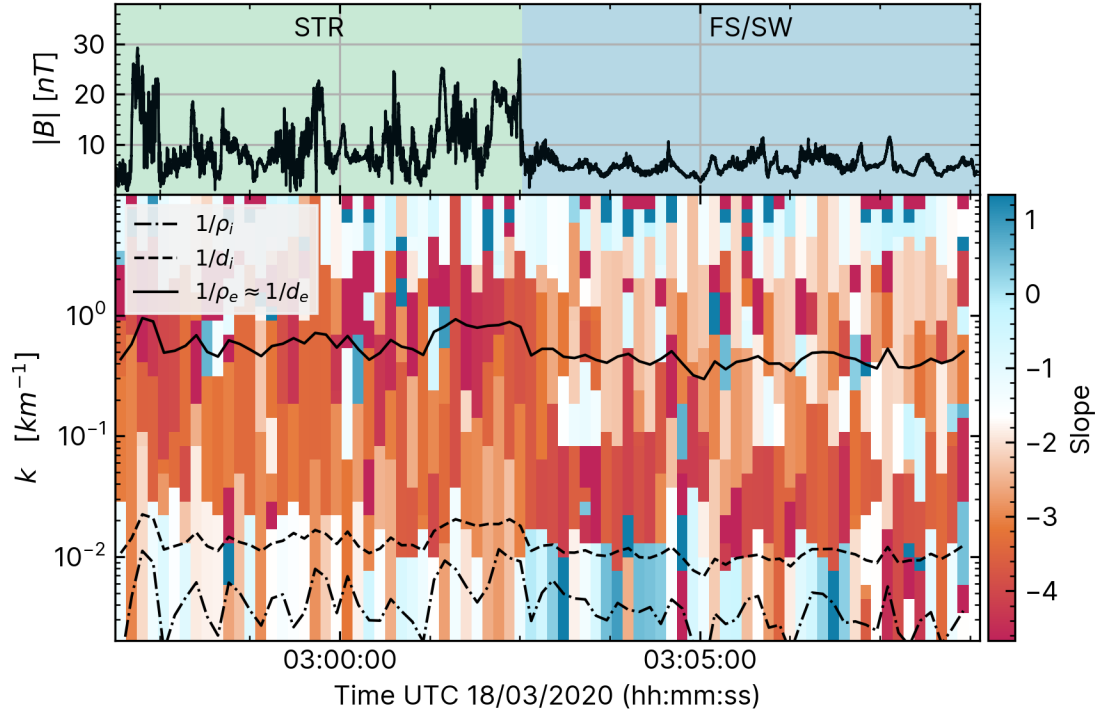


Figure S2. Evolution of spectral slopes as a function of time for event C. *Top:* Magnetic field strength, B . Colours refer to shock transition region (STR) in green and foreshock/solar wind (FS/SW) in blue. *Bottom:* Evolution of spectral indices from MARS fit. Note that this does not always split the spectrum into three regions. The colour represents the slope of the power-law fit. Red indicates steeper than $-5/3$, while blue is shallower than $-5/3$. Breakpoints are indicated by a change in colour. Electron scales, $\rho_e \approx d_e$ are shown as a solid black line, and ion scales d_i and ρ_i are dashed and dot-dashed black lines.

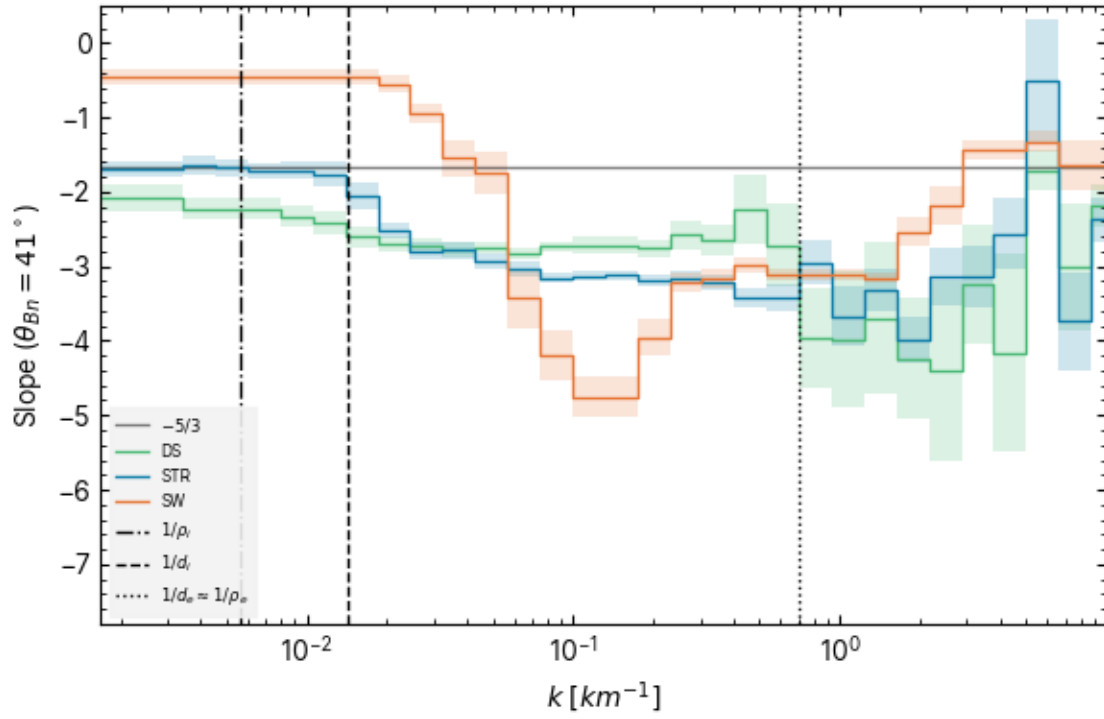


Figure S3. Average slope as a function of scale for event B. Each line represents a subsection of the entire interval. Downstream (DS) in green, shock transition region (STR) in blue, and solar wind (SW) in orange. The average ion gyroradius ρ_i and inertial length d_i are shown as dot-dashed and dashed lines respectively. The average electron gyroradius ρ_e and inertial length d_e are shown as a single dotted line. The Kolmogorov $-5/3$ slope is shown as a horizontal solid black line.

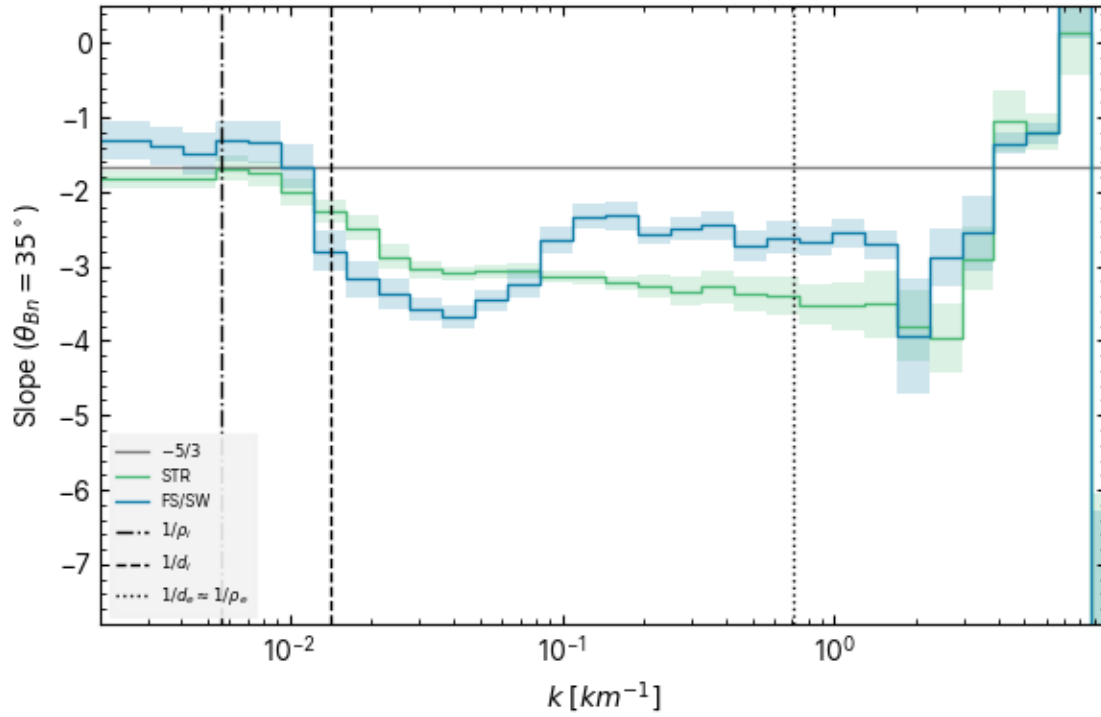


Figure S4. Average slope as a function of scale for event C. Each line represents a subsection of the entire interval. The shock transition region (STR) is shown in green, and the foreshock/solar wind (FS/SW) region is shown in blue. The average ion gyroradius ρ_i and inertial length d_i are shown as dot-dashed and dashed lines respectively. The average electron gyroradius ρ_e and inertial length d_e are shown as a single dotted line. The Kolmogorov $-5/3$ slope is shown as a horizontal solid black line.

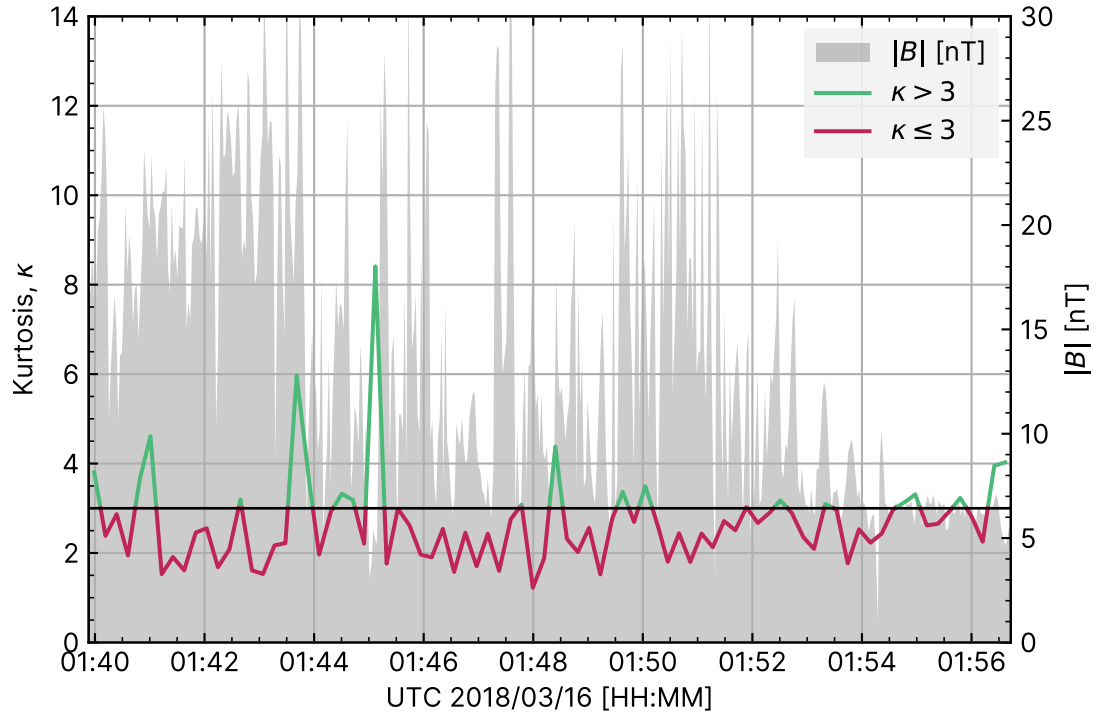


Figure S5. Kurtosis examined for event B. $\kappa > 3$ is shown green, and $\kappa \leq 3$ is red. A horizontal black line highlights $\kappa = 3$. $|B|$ is displayed for reference as a grey shaded background, with the vertical scale on the right.

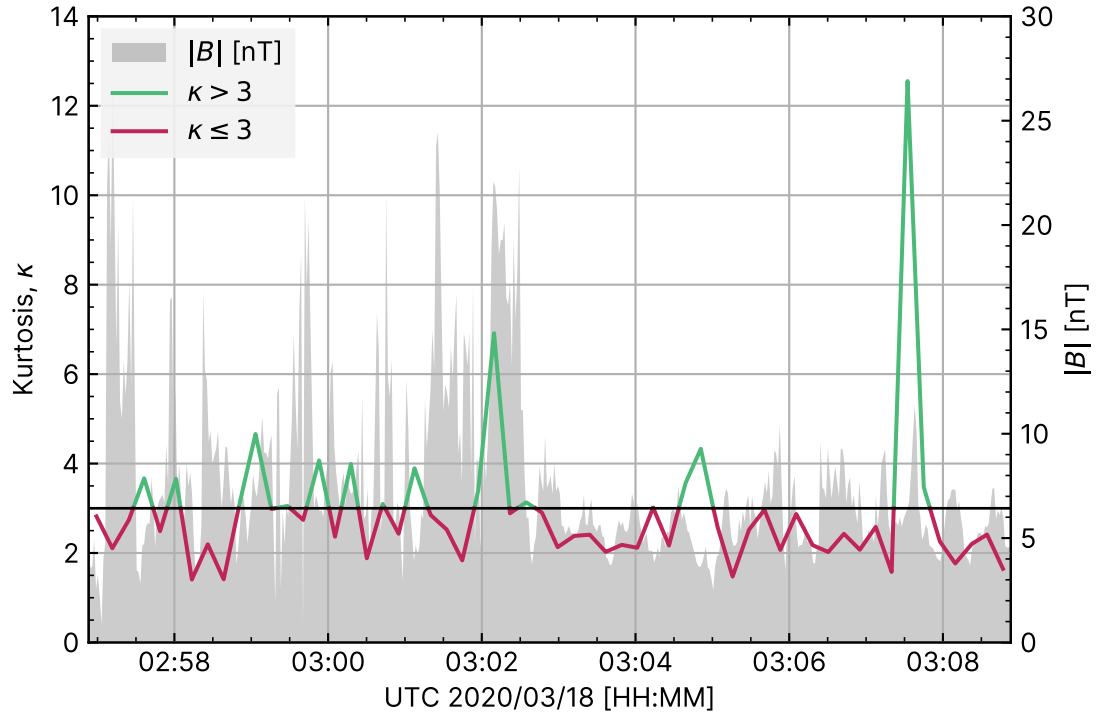


Figure S6. Kurtosis examined for event C. $\kappa > 3$ is shown green, and $\kappa \leq 3$ is red. A horizontal black line highlights $\kappa = 3$. $|B|$ is displayed for reference as a grey shaded background, with the vertical scale on the right.