

Crossing Disciplinary Boundaries: Novel Techniques for Data Analysis in Space Physics

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Analyzing spatio-temporal patterns is a fundamental part of understanding geophysical processes. The goal of time series analysis is to determine some of the system's key properties, such as its periodic components and associated periods, amplitudes, and phases. These properties can then help understand and predict the system's future behavior. Borrowing mainly from ocean-atmosphere research, this talk will review some novel methods for studying short, noisy time series, which may exhibit uneven sampling or gaps. Advanced spectral analysis, gap filling and prediction are illustrated using synthetic, as well as observational records from various branches of the geosciences, including space physics.

