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Title:
Analysis of Longitudinal Variation in Saturn's F Ring Using Wavelets

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Abstract:
Saturn's F ring exhibits dramatic radial and longitudinal variation, ranging from the kinks and clumps (diffuse bright features around 5-20 degrees in longitudinal extent) found by Voyager to the more recently discovered kinematic spirals, fans, streamers, and channels. These features change over short time spans ranging from hours to months. While some features are understood to be caused by the interaction of the ring with the inner shepherd moon Prometheus, the sources of others are as yet unexplained. Previous work by Showalter (2004, Icarus, 171, 356) used Voyager imagery to study the occurrence of clumps and track their movement relative to the F ring's core over time. Here we build on that work using 6 years' worth of images from Cassini. We use wavelet analysis, a process uniquely suited to characterizing aperiodic features, to automatically detect clump candidates. We will present our current progress and future plans.

Category:
Planetary Rings

Additional Information (Complete):
Did you give a contributed presentation in 2010 (Pasadena)?: No
Did you give a contributed presentation in 2011 (Nantes)?: No
Student Status: None
Special Instructions: Unable to present on Monday
I am willing to serve as a Chair: No
I have a video for Press Officer review: No
Newsworthy?: No