

THE SATURNIAN RIBBON FEATURE--A BAROCLINICALLY UNSTABLE MODEL

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The presentation by Godfrey is largely contained in a paper submitted to Icarus. The abstract of his conference presentation is reproduced below.

We examine in detail, using measurements made by the Voyager spacecraft, an oscillatory feature in the northern midlatitudes of Saturn. Measurements made by the imaging and infrared instruments are used to estimate its horizontal wavelength and vertical extent. Some of these characteristics suggest that the feature could be due to baroclinic instability. We will describe a numerical model of such an instability with parameters based upon the Voyager observations, and using the lower boundary condition developed by Gierasch et al. (1979, Icarus 40, 205) for the Jovian planets.

DR. STONE: What about the propagation characteristics?

DR. GODFREY: I did calculate the phase velocity, but the feature exists in a very rapid jet, in a bland region of the planet, where the local material velocity cannot be accurately determined. Since the calculated phase velocity of 10 m s^{-1} was less than the errors in the velocity profile it was of little use for constraining the model.