

Conclusions

- Variation of torus parameters with System III longitude over the entire 45 day period is relatively small ($\sim 5\%$) with significant scatter
- Longitudinal variations of up to 25% exist on shorter timescales (50-100 hours)
- Observed short-term longitudinal variations are nearly sinusoidal
- Phase of variations increases quasi-linearly with time
- Phase increase/time \rightarrow difference between plasma rotation frequency and Jupiter rotation frequency
- Torus plasma subcorotates by 1.4% or 1 km/s
 - Plasma rotation period of 10.07 hours
 - Halfway between System III and System IV
- Amplitude of longitudinal variation modulated with ~ 29 day period
 - Beat between System III period and plasma subcorotation period = 29.6 days
- Reproducing the observed subcorotation and amplitude modulation using torus chemistry models has proven to be difficult
 - At 1.2 km/sec subcorotation, compositional variations tend to become fixed in longitude with no amplitude modulation
 - Perhaps observed torus behavior is a non-equilibrium state resulting from earlier x3 increase in neutral source