

# Torus Spectral Image and Composition vs. time

- Spectral images to the left show the torus as seen by Cassini UVIS at 4 different magnetic (System III) longitudes
  - The UVIS slit is parallel to the Jovian equator
  - Jovian north is to the left and the dusk side is up
- Minimize line-of-sight effects by analyzing only the dawn and dusk ansa
- Use spectral model described in Steffl et al. [2004b] to derive torus ion composition, electron temperature and column density
- Torus ion mixing ratios ( $N_{\text{ion}}/N_e$ ) for a 45 day period during approach shown at right
- Torus composition changes dramatically during this period
  - $S^+$  falls off while  $S^{3+}$  increases
  - $O^+$  and  $S^{++}$  remain relatively constant
  - Modeled by 3x increase in neutral source [Delamere et al. 2004]
- High frequency (near Jovian rotation frequency) variations in torus composition seen throughout observing period