Titan Interaction with Saturn's Magnetosphere: Mass Loading and Ionopause Location

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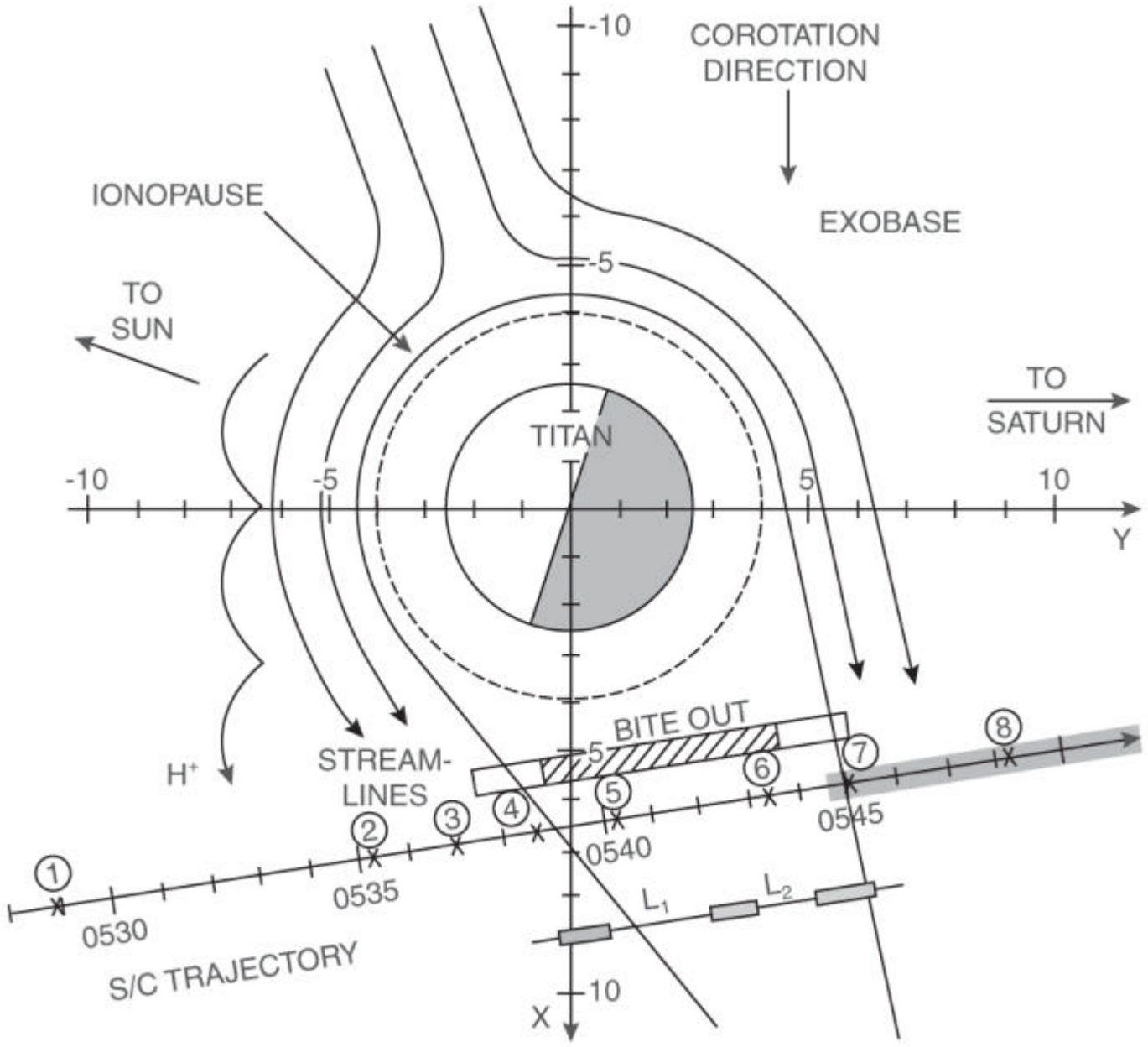
Summary

- Revisit analysis by Hartle et al. (1982)
  - Upstream Parameters Reviewed.
  - Flow and ion gyro-radii of ambient plasma and pickup ions composition dependent.
  - Voyager 1 PLS ion data consistent with pickup ions.
  - Ring distributions were used to model pickup ions.
  - Finite gyro-radius effects evident in Voyager 1 PLS ion data.
  - Used exosphere model with H and N_2.
- 3D Exosphere Model for Titan interaction being developed to extend original work by Hartle and co-workers.
- Have added H_2, N* and CH_4 to Hartle et al. (1982) exosphere model.
- Looked into local time variations in exospheric temperature.
- Revised mass loading calculations show that CH_4^+ pickup ions could be important and may provide an important source of carbon to Satum's magnetosphere.
- Height of ionopause critical for Titan Nitrogen Torus source strength. Ionopause thickness ~ ion gyro-radii of plasma.



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