

Seminar on
Planetary Entry and Aerodynamics

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1. Overview
2. Objectives
3. Review of Planetary Entry
4. Aerodynamic Forces and Moments
5. Impact of Aerodynamics on Trajectories
 - a. Effects of drag and lift
 - b. Effects of dynamic parameters
 - c. Other issues
6. Review Sources of Aerodynamic Data
 - a. Theory
 - b. CFD
 - c. Experimental
 - i. Wind tunnels
 - ii. Ballistic ranges
7. Review Flight Regimes
 - a. Free molecular
 - b. Transition
 - c. Continuum Hypersonic
 - d. Supersonic/Transonic
 - e. Subsonic
8. Review Aerodynamics in Various Flight Regimes
 - a. Free molecular and transition
 - b. Hypersonic
 - i. Newtonian on simple shapes
 - ii. CFD
 - iii. Ballistic range
 - c. Supersonic/Transonic--CFD/Ballistic Range
 - i. Several mission vehicles-e.g. Stardust and MER
 - ii. Summary of effect of parameters
9. Concluding Remarks