

Engineering-Level Model Atmospheres For Titan and Mars

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An engineering-level atmospheric model for Titan has been developed for use in NASA's systems analysis studies of aerocapture and entry, descent and landing (EDL) applications in potential missions to Titan. Analogous to highly successful Global Reference Atmospheric Models for Earth (GRAM) and Mars (Mars-GRAM), the new model is called Titan-GRAM. Like GRAM and Mars-GRAM, an important feature of Titan-GRAM is its ability to simulate quasi-random perturbations for Monte-Carlo analyses in developing guidance, navigation and control algorithms, and for thermal systems design. Titan-GRAM features and sample results will be presented. Features of Mars-GRAM especially related to EDL applications will also be presented and illustrated.