Coupled Orbital and Thermal Evolution of Major Uranian Satellites

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Abstract:

We have developed a model of the orbital and thermal evolution of the give major Uranian satellites over millions of years. The model consists of detailed ordinary differential equations for the orbital evolution coupled to the one-dimensional heat equation for the thermal evolution. We present preliminary results that show how the different terms in the orbital equations such as the oblateness of Uranus affect the orbital semi-major axis and eccentricity of the satellites.