

Successful space missions to Jupiter and Saturn provided important data bearing information about topography and internal structure of icy bodies in the outer Solar System. One of the possibilities how to explain the observed topography of an icy moon is to assume the existence of subsurface reservoir of liquid water transferring heat from the rocky core to icy crust causing its deformation. In this thesis, we develop a computer program to model the convective heat transfer in a rotating liquid shell, which we use to analyze heat flux anomalies on the top of the subsurface ocean. The results obtained for Titan are in agreement with those independently obtained from modelling the icy crust.