

# Investigating the effect of ice giants' temperature conditions on impact events

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The accumulation of observation data by the Space Telescope has reported the discovery of a large number of exoplanets. Especially, Uranus-size planets are major planets, which possess a solid core surrounded by a thick atmosphere, or a large amount of ice. Those planets should have experienced giant impact events, which change their rotation period (Slattery et al. 1992) and internal compositional distributions (Nakajima & Stevenson 2015; Deng et al. 2017). The impact events cause mass ejection from the planets, which is essential to understand the materials of satellites. In this study, we calculate the impact events of Uranus-size ice giants. If envelopes and atmosphere are polluted with ices due to the impacts, the thermal evolution of the planet is changed (Kurosaki & Ikoma 2017). However, the initial condition and ejected mass after the impact are not well known. Here we calculate the impact simulation of ice giants composed of a water core surrounded by a hydrogen envelope via the smoothed particle hydrodynamic simulation. We discuss the efficiency of angular momentum transport and the ejected mass due to the collision in case the condition of the target's temperature is different.

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