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Size and Compositional Constraint of Ganymedean Core from the Condition of Driving a Dynamo Activity

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Jovian icy satellite Ganymede has a strong intrinsic magnetic field which is generally considered to be originated by self-excited dynamo activity in the metallic core. However the internal structure of Ganymede, especially the size and composition of the metallic core, has been poorly constrained only based on the moment of inertia factor. We performed numerical simulations about the internal thermal history of Ganymede with various size and composition of the core, and evaluated the temperature and the heat flux through the boundary between the metallic core and rocky mantle. Based on the condition that the dynamo activity is driven, the size and composition of metallic core of Ganymede is constrained.