

Possibility of Lightning and thundercloud observation in Jupiter by JUICE and ground-based-telescope

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Lightning measurement is an excellent way to explore the planetary atmosphere like as in the Earth based on the knowledge of the relationship between the atmospheric dynamics and electrical charge. It has been suggested for a decade that thunderstorms in Jupiter take important roles not only in the investigation of meteorology, which determines the large scale structures such as belt/zone and big ovals, but also in probing the water abundance of the deep atmosphere, which is crucial to constrain the behavior of volatiles in early solar system. Here we suggest lightning measurement with optical camera onboard spacecraft especially in JUICE mission and on a

ground-based telescope. Making use of two H Balmer Alpha line at 656.3 nm filters, the information on the depth of lightning discharge could be derived.

We are suggesting such functions to the onboard camera of JUICE and also plan to try to detect lightning flashes with a 1.6 m reflector of Hokkaido University.

Keywords: Jupiter, thunderstorm, lightning, JUICE, telescope