

Chemical evolution of the atmosphere of Neptune and Jupiter induced by the cometary impact

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Gases produced after the collision of comet or asteroid in the atmosphere of giant planets, such as carbon monoxide, hydrogen cyanide, and sulfur compounds have key information to reveal the distribution and composition of minor bodies which exists in the outer solar system and the atmospheric evolution of gas giants. From the observational result, a collision of comet Shoemaker-Levy/9 on Jupiter in 1994 had produced large amount of short-lifetime volatile gases. Similar supplying process is predicted to be existed in the atmosphere of Neptune from the observational results that CO, which is not considered as a main reservoir of carbon, exists with high mixing ratio. In this presentation, I am presenting our observational results toward Neptune using ASTE telescope of NAOJ to constrain such supplying system and a new implication that the short-time variation of collision-induced gases in Jupiter using 45-m telescope.

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