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Direct measurement of chemical composition of SO_x in impact vapor using a laser gun SOHSUKE OHNO, Planetary Exploration Research Center, Chiba Institute of technology (PERC/Chitech), TOSHIHIKO KADONO, Institute of Laser Engineering, Osaka University, KOSUKE KUROSAWA, TAIGA HAMURA, Univ. of Tokyo, TATSUHIRO SAKAIYA, Osaka Univ., SEIJI SUGITA, Univ. of Tokyo, KEISUKE SHIGEMORI, YOICHIRO HIRONAKA, TAKESHI WATARI, ILE, Osaka Univ., TAKAFUMI MATSUI, PERC/Chitech — The SO_3/SO_2 ratio of the impact vapor cloud is a key parameter for understanding the environmental perturbation caused by the impact-induced SO_x and the killing mechanism of. the mass extinction at the K-Pg boundary. We conducted hypervelocity impact experiments using a high-speed laser gun (GEKKO XII-HIPER, ILE, Osaka University) and measured the chemical compositions of the SO_x released from CaSO_4 . The experimental result indicates that SO_x are dominated by SO_3 . It implies that the SO_x generated by the K-Pg impact would have been also dominated by SO_3 , because the SO_3/SO_2 ratio of natural planetary scale impact vapor clouds would have been larger than that of the experimental result of this study.

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