

Rotationally resolved visible spectroscopy of (3200) Phaethon and (155140) 2005 UD

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(3200) Phaethon classified as B-type spectral taxonomy is known as a parent of Geminid meteor shower and is thought to be a Comet-Asteroid Transition object (CAT). It is also shown that 2005 UD has similar orbital evolution and same B-type spectral which suggests a break-up pair. To investigate surface heterogeneity caused by break-up process, rotationally resolved visible spectroscopic observations for (3200) Phaethon in 2007 and that in 2017 were carried out using 1.0 m Cassegrain telescopes at Lulin observatory in Taiwan and Kawabe Space Park in Japan, respectively. The same rotationally resolved observation of (155140) 2005 UD spectra were obtained by using 4.1 m SOAR telescope at Chili in 2018. To conclude, Phaethon has C-like positive slope in the visible wavelength range between 500 and 850 nm which can be seen around equator and southern hemisphere terrains. On the other, spectral heterogeneity was not identified for 2005 UD which shows B-type negative slope. In this paper, we will discuss possible hypothesis of break-up mechanism.