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Study of reconnection features in chromosphere through chromospheric jets observed by Solar Optical Telescope (SOT)/Hinode

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Abstract. High-resolution observations from Solar Optical Telescope (SOT) onboard Hinode has shown number of jet-like structures in the solar chromosphere. One of the key features in the observations is the clear presence of tiny, inverted Y-shaped jets called Chromospheric Anemone Jets. These jets are supposed to be formed as a result of the magnetic reconnection, however, whether and how fast magnetic reconnection is realized in weakly ionized, fully collisional chromosphere is poorly understood. In order to understand the magnetic reconnection in the solar chromosphere, we observed many chromospheric anemone jets from SOT/Hinode. We focused on the typical features such as time scale, height and velocity of the chromospheric anemone jets. We found multiple blobs ejected along the jets. Study of the light curves and the space-time plots for number of chromospheric anemone jets shows strong correlation between the height of the jet and the brightness of the footpoint in most of the cases. These features indicate an important role of plasmoid dynamics and intermittent nature of chromospheric reconnection. We also notice the undulations in chromospheric anemone jets. Based on the X-ray observations of anemone jets, it seems plausible that such undulations occur due to the reconnection between the twisted and untwisted magnetic flux tubes.