

# Multi-color observation of active comets

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In general, due to a high temperature and a presence of gas sublimation leading to coma emission, a comet is supposed to be active when it is close to the Sun. We start to investigate photometric information from some special active comets. The data were obtained with the 1-m wide field optical telescope (hereafter NOWT) at Nanshan Observatory in Xinjiang. This project was started in 2017. By multi-color observation and cometary morphological studies, we can estimate the surface brightness profiles,  $Af\rho$  parameters, mass production rates, the sizes of nuclei radii and coma colors. Meanwhile the physical driving mechanism of activity in comets needs to be discussed. Here we will give a brief description of our photometric observations of comet C/2015 O1 with NOWT. Object C/2015 O1 was discovered on 2015 July 19 by the Pan-STARRS 1 telescope. The followup observations with NOWT were carried out starting 2017 August 31. In total, the number of observations collected of C/2015 O1 for B, V, R bands are 44, 36, and 37, respectively. The standard IRAF packages were used to measure the core magnitude of coma. We also gave a rough estimate of the possible outside structure of C/2015 O1. Finally we conclude that C/2015 O1 has a lower activity than expected. And a solar radiation pressure model can be used to explain the surface brightness profiles of C/2015 O1.

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