COMET HOLMES: EXAMINING FOUR MONTHS OF EVOLUTION USING WIDEFIELD IMAGES. R. Stevenson[1], J. Kleyna[1], P. Lacerda[1], and D. Jewitt[1]. [1]Institute for Astronomy, University of Hawaii, USA (rach@ifa.hawaii.edu)

Abstract: We have been monitoring comet 17P/Holmes since shortly after its spectacular outburst on Oct 24 2007. We will present data from the 29 and 31 October, taken using a Tektronix CCD on the University of Hawaii's 2.2m telescope. Subsequent images were obtained on 17 nights between 6 Nov 2007 and 15 Feb 2008 using MegaCam on the Canada-France-Hawaii Telescope which provided a 1deg^2 field of view. A dusty region was observed to separate from the nucleus at a rate of 136±1m/s, and became more diffuse with time. We propose that during the initial outburst small chunks of cometary material were ejected from the nucleus. Volatile material within these chunks then rapidly sublimated, creating a second, approximately spherical, coma centered on a region behind the nucleus. We present evidence of individual fragments radiating outwards two weeks after the outburst.

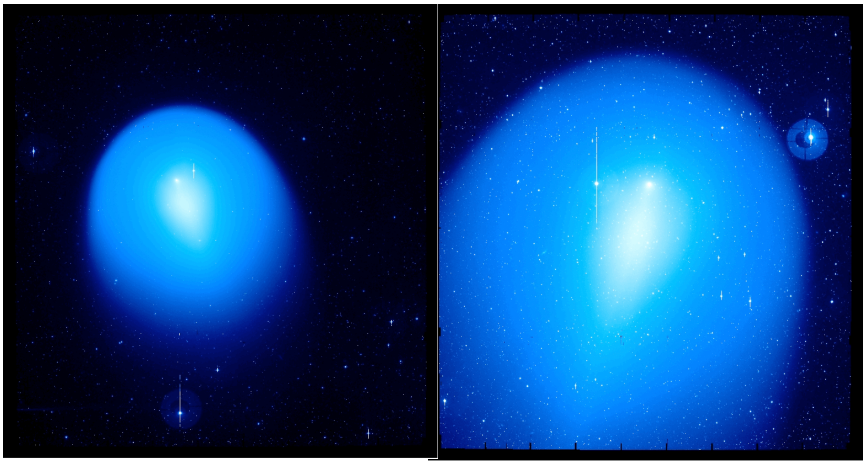

Figure 1: Images of Comet 17P/Holmes taken on 15 Nov (left) and 13 Dec (right) 2007 UT. The images are 0.96deg on each axis and are oriented with north upwards and east to the left. We have used these widefield images to track the expansion of the coma and the development of the inner structure over four months.

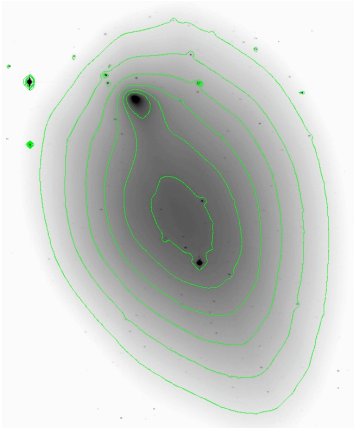

Figure 2: The dusty region as imaged on Nov 11 2007 UT. Streaks of dust were apparent in some images which were probably caused by sublimating chunks expelled from the nucleus.

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