Halley Back to Normal

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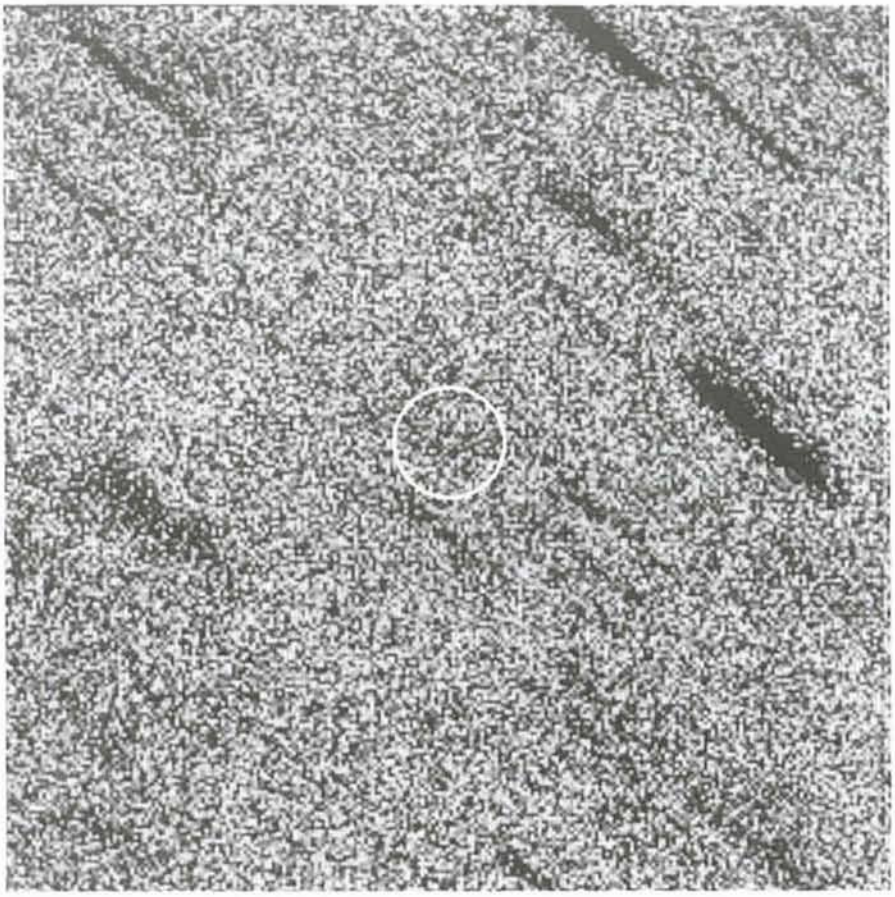
This photo shows a small sky area in the direction of Comet Halley, obtained with the ESO 3.5-metre New Technology Telescope (NTT) in the morning of April 6, 1992.

It is a composite of 10 individual exposures in the standard V-band, obtained between UT 2:33 and 4:58 with a total integration time of 130 minutes. They were combined in such a way that the image of the moving comet remains at the same position and the stars are therefore seen as trails. The position of Comet Halley is at the centre of the circle and is located only 2 arcmin north-west of a magnitude-7 galactic star. Its strong light introduced a very skew background illumination which was removed by fitting a 3rd-degree and subtracting.

At the time of the observations, Comet Halley was 15.67 AU (2343 million km) from the Earth and 16.22 AU (2424 million km) from the Sun. The predicted mean magnitude of the nucleus alone is V = 25.95, with variations from about 25.5 to 26.5 due to the rotation. A careful analysis indicates that there may be a very faint image near the limit of the combined frame at the predicted position, and with magnitude $V = 25.8 \pm 0.4$. However, it is hardly visible and this value must rather be considered an upper limit of the present brightness of the comet. But in any case, the magnitude cannot be much brighter than what is expected from the nucleus alone.



This observation therefore shows that the large dust cloud which was ejected during a dramatic eruption in late December 1990 and first observed at La Silla in mid-February 1991, has now effectively disappeared. At the present time, 16 1/2 months after the 19-mag outburst, there is very little, if any dust left near the nucleus.

The ESO observations of comet Halley will continue.

The photo covers an area of 85×85 arcseconds; north is up and east is to the right.

Spectroscopic Observations in the Cluster of Galaxies Abell 151

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Introduction

Redshift surveys in clusters of galaxies are needed to study their dynamical and evolutionary states, estimating parameters such as the mass, shape and distortion of the velocity field, presence of substructures or projected galaxies and groups, strength of dynamical friction and two-body processes and, in general, the present stage of their dynamical evolution. This information is useful not only to test scenarios of galaxy formation, but also of the formation and evolution of large structures.

In clusters, the mean velocity is a key factor in deriving distances, permitting the study of matter distribution over very large scales. Within clusters the analysis of the velocity field can lead to an estimate of the virial mass, constraining models of the dark matter content. Galaxy velocity measurements provide information complementary to that obtained through X-ray observations of clusters. Both form basic pieces of information for the understanding of clusters. However, reliable parameters are derived from analysis of large samples of velocities. These are laborious to obtain, a task made more efficient by the