

Near-Earth Object Observed at ESO

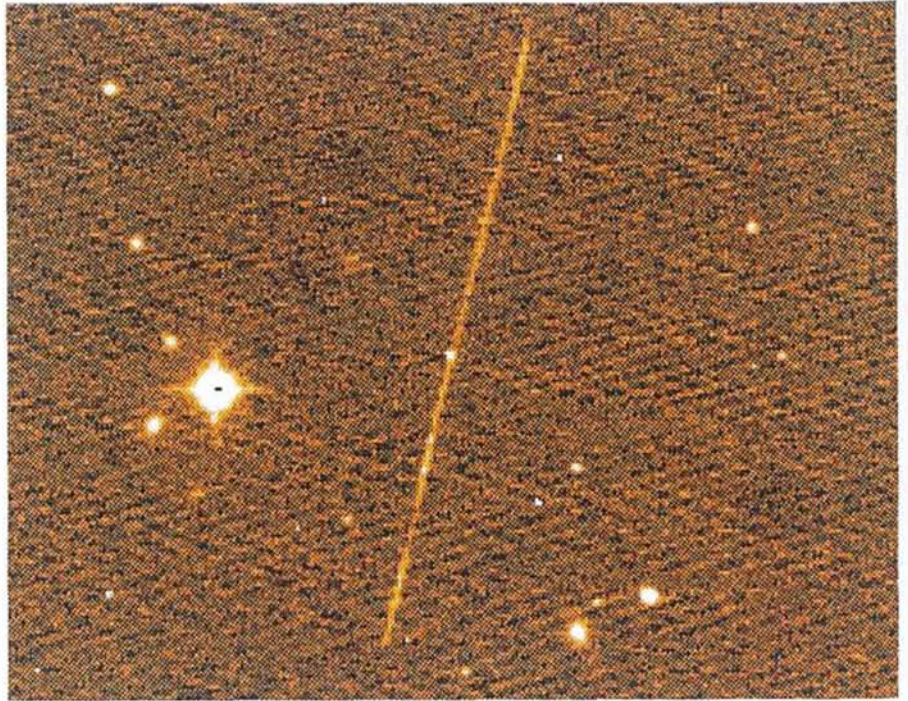
The strange object 1991 VG was observed at ESO with the Danish 1.54-m telescope during the night of December 1–2, 1991.

This object in the solar system was first seen as a small, moving point of light with the Spacewatch camera by astronomers in the USA in mid-November.

After some days, it became possible to compute its orbit and, most unusually, it was found to move in an orbit that is very similar to that of the Earth. It was also calculated that it would pass very close to the Earth in early December, possibly at a distance of about 450 000 km, that is just outside the orbit of the Moon.

The observations at ESO indicate that this object may not be a natural object (a celestial boulder), but is perhaps artificial. It may for instance be an old rocket which was used to launch a spacecraft into interplanetary space many years ago.

The observations were carried out by ESO astronomers Richard M. West and Olivier Hainaut in the early morning of December 2, when this object, now known under the designation 1991 VG, was less than 600,000 km from the Earth. It was moving rapidly over the sky (about $12^\circ/\text{day}$) and could just barely be followed by the telescope. They measured the brightness to $V = 17.7$, which transforms into a size of about 10 metres, and found that it



The figure shows the raw CCD image with the very long trail of 1991 VG, as obtained on December 2.15 UT, when it was moving at a rate of nearly $12^\circ/\text{day}$. The exposure lasted 4 minutes. The variable brightness along the trail is caused by the tumbling motion of the object.

rotates rapidly, several times each minute; it is probably tumbling during its flight.

The ESO astronomers also obtained accurate positions of 1991 VG, which will now help the Arecibo radio observa-

tory to direct radar beams towards 1991 VG, when it comes within the reach of these instruments later in December. The radar studies may finally settle the question about the nature of this mysterious object.



Sunrise over La Silla, behind the 3.6-m dome, as photographed by ESO astronomer Alain Smette at the end of October 1991. The sky is coloured red by the dust ejected into the stratosphere by the eruption earlier this year of the Pinatubo volcano on the Philippines.