Geophysical Research Abstracts, Vol. 9, 09731, 2007
SRef-ID: 1607-7962/gra/EGU2007-A-09731

New interpretation of the clustering of long-period comet aphelion distances

J.B.Murray

Centre for Earth, Planetary, Space and Astronomical Research, The Open University, Milton Keynes MK7 6AA, U.K. Email j.b.murray@open.ac.uk

Comets are considered to be the earliest and most primitive members of the solar system, most of them orbiting in its distant reaches where they form the Oort cloud of comets. The 50k A.U. aphelion distance clustering of comets is the primary evidence upon which the existence of the Oort cloud rests. A re-examination of this fundamental feature leads to the conclusion that it is more simply explained as a predictable artefact of the necessarily time-limited observation of known long-period comets. Tracing back the cometary orbits that make up the Oort spike leads to the conclusion that these comets were ejected from orbits much closer to the centre of the solar system over a limited time period in the recent past; much more recently than had previously been supposed. This alternative interpretation implies that the number and total mass of comets is much smaller than that deduced from the present modifications of Oort's original hypothesis, and ties in well with the results of investigations that have found problems with the Oort cloud model.