EPSC Abstracts,
Vol. 2, EPSC2007-A-00296, 2007
European Planetary Science Congress 2007

Influence of solar activity on photometrical evolution of comets

V. S. Filonenko (1), K. I. Churyumov (2) and L. S. Chubko (2)

(1) Astronomical Institute of V. N. Karazin Kharkov National University, Kharkov, Ukraine,
(2) Astronomical Observatory of T.Shevchenko Kiev National University, Kiev, Ukraine,
(filonenko@astron.kharkov.ua)

The first evidences of influence of solar activity upon integrated brightness of comets have been obtained at the beginning of 19 century. But physical mechanism of this influence still is not known in detail. At that activity of some comets closely related with solar activity but other comets are not revealing this relation. Therefore the study of relation between solar activity and photometrical behavior of each comet is important. We present the results of our study of light curves and their relation with solar activity indices for comets 67P/Churyumov-Gerasimenko (target for ROSETTA mission), 1P/Halley, C/1983 H1 (IRAS-Araki-Alcock), C/1999 S4 (LINEAR), C/2001 Q4 (NEAT), C/2002 T7 (LINEAR), C/2002 V1 (NEAT), C/2004 Q2 (Machholz) and 153P/2002 C1 (Ikeya-Zhang).

Also we found the influence of secular 90-year cycle of solar activity upon brightness secular variations of short-period comets with correlation coefficient $R = 0.81 \pm 0.07$. This phenomenon can explain the observational fact of non-monotone secular fading of short-period comets.