

On a possible cometary origin of the object 2015TB145

G.I. Kokhirova, P.B. Babadzhanov, U.Kh. Khamroev

(1) Institute of Astrophysics of the Academy of Sciences of the Republic of Tajikistan, Dushanbe, Tajikistan
(kokhirova2004@mail.ru)

The Earth-crossing asteroid 2015TB145 was discovered on 10 October 2015 and on 31 October 2015 it approached to the Earth at the minimal distance. On the base of obtained radio images of the asteroid, the value of an albedo estimated as $p = 0.06$ and comet-like orbit, it was suggested, that the object is a dead comet. In order to verify the supposition, the orbital evolution of the 2015TB145 was investigated under the perturbing action of major planets for the time interval of 100 thousand years. As a result, it was found that one cycle of variations of the argument of perihelion is equal to nearly 40 thousand years and during this period the object intersects the Earth's orbit eight times. Consequently, if the object has a cometary origin, it can be associated with a meteoroid stream producing eight meteor showers which should be observable at the Earth. The features of the predicted meteor showers, theoretically associated with the 2015TB145, were calculated and a search for observable showers identical to predicted ones was realized using all published catalogues. It turned out, that seven from eight predicted showers were identified with the active observable meteor showers. So, a comet-like orbit, the low value of an albedo and the association with the meteoroid stream producing identified showers are strong evidences pointing that the 2015 TB145 is really inactive comet. A conclusion was made that the potentially hazardous object 2015TB145 is very likely extinct nucleus of a parent comet of the revealed meteoroid stream.