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Apophis, Earth and Moon I.V. LOMONOSOV, IPCP RAS, A.M. KAZANTSEV, Astr. Observ. Kyev T. Shevchenko Nat. Univ., V.V. KIM, A.V. OSTRIK, IPCP RAS — The asteroid Apophis is of great potential danger for our civilization. According to results of astronomical observations and calculations, it will fly at 40000 km distance from the Earth centre without collision in 2029. However, the greater risk of collision is estimated in 2036. Traditionally, it is only proposed to correct this asteroid orbit for preventing the collision in 2036. In such a case the estimation of consequences of this correction is not obviously possible in the long period of time after 2036. So, the deviation of Apophis from a collision trajectory will not solve the problem completely. We propose to target Apophis on the Moon. It will remove totally the danger of the asteroid strike on the Earth and will give us a possibility to study the structure of the Moon. Note, that it requires a pretty small correction of the asteroid's orbit. As a result of calculations, the correction of Apophis orbit is necessary on January, 9^{th} 2013 with an increment of speed of 7.4 m/s. It will provide passage of asteroid Apophis on distance from the Moon surface hardly more than its radius on April 14th 2029. The second correction will guarantee the collision with the Moon surface. We notice that strong sensitivity of the solution to indignations doesn't allow to carry out the correction with the guaranteed result in one stage. We also discuss methods of changing the orbit, evaluate the impact crater and the amount of ejected matter and seismic disturbances resulting from the impact.

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