
Ballistic aspects of spacecraft flight for deep space study

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The article considers the ballistic part of the aircraft launch project in 300 astronomical units in the direction of Hercules constellation with the aim of interstellar space studying and analyzing its impact on the Earth magnetosphere. During the research we estimate the energy costs. We had to face the requirement to achieve the goal in less than 25 years. At the initial stage of the flight we opted for a liquid rocket engine to leave the so-called Hill sphere of the Earth and then change it for thrusters. To optimize the energy and time characteristics of the set task solution, we plan to perform two gravity-assist maneuvers by Jupiter and Uranus. Moreover, it gives the opportunity to make a survey of Uranus surface.

Keywords: *deep space, spacecraft, interstellar space, an electric engine, gravity assist.*

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