

The Center for Scientific Communication MITs said that scientists have created a detailed model of a sparse Martian atmosphere, which will help improve the stability of aircraft flights. The density of the atmosphere of Mars is about a hundred times lower than the earth, which requires special approaches to the design and management of drones.

Scientists have discovered an unexpected effect: when approaching the surface of Mars, a natural stabilizing moment occurs, which helps to extinguish the fluctuations of the apparatus. This is due to the features of the interaction of the wing with the sparse atmosphere, when the forces of viscous friction create a stabilizing effect on the rear edge of the wing.

This phenomenon can be used to increase the safety of planting Martian drones. In earthly conditions, such interactions usually destabilize the device, while on Mars they work for stabilization.

The researchers also analyzed the possibility of creating devices with wave wings for Martian conditions. Calculations showed that such drones will require a fundamentally different strategy of strokes - with maintaining constant angular velocity instead of constant acceleration.

The developed model is based on complex numerical methods for solving singular integral equations. These calculations allow more accurately predicting the behavior of aircraft in a thin Martian atmosphere and can accelerate the development of control systems for future missions.