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# Flow structure and hydrodynamic impacts on the return vehicle at the touch-down onto the water surface

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*The article describes a return vehicle, which forms part of the new generation crew transfer spacecraft “Federation” designed by RSC Energia, in the contingency situation when at the stage of leading out or reentry this vehicle has an opportunity to make a touch-down onto the water surface with the propulsion module switched off. We examine the environmental impact on the vehicle to formulate the structure integrity requirements and to analyze the acceptability of the stresses endured by the crew in such landing conditions. The article looks at the results of computerized simulation of the return vehicle touch-down process when the vehicle with the propulsion module switched off touches the smooth water surface through variation of entering dynamic parameters such as the angle of entry into the water and the horizontal velocity. We show kinematic and load characteristics of the return vehicle.*

**Keywords:** touch-down onto the water, return vehicle, computerized simulation

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