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# Computing heat flow parameters for an artificial Earth satellite using software developed in the Python programming language and the Blender 3D modeller

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*We developed software to model thermal conditions of an artificial Earth satellite (AES) and find a solution to one of the three problems: determining the optimum emissivity and absorptivity of a material; computing parameters of the total heat flow affecting the AES; estimating the outer surface temperature of an AES for pre-computed external heat flows. We obtained analytical equations of the thermal load on the AES at different orbital positions, plotted the curves for heat flows affecting the satellite shell and temperatures over the AES shell cross-section depending on the AES orbital position. We created accurate satellite models in the Blender 3D software to study heat flows and temperatures of complex surfaces.*

**Keywords:** *thermal conditions, modelling, artificial Earth satellite, software.*

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