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Mercury surface and subsurface temperature distribution

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Mercury is the most enigmatic and less known planet of the inner solar system and it can be defined as an end-member since, being the closest to the Sun, it can give important information on the origin and evolution of the solar system. The lack of data about the majority of the Mercury surface leaves many open questions: the mineralogical, chemical and isotopic composition of Mercury's surface is unknown. Due to the characteristics of the orbit the material on the surface and subsurface layers is subjected to extreme conditions. Mercury is the target of two space missions: Messenger, already on its way, and BepiColombo, in preparation. For the scientific payload design and operation it is important to have an idea of the surface physical properties and of their dependence on solar input along th hermean day. In the framework of the participation to BepiColombo, a code computing a thermal map of Mercury surface and subsurface layers has been developed; surface material is described, to the moment, as having lunar measured properties. The heat equation is solved for the whole crust, so the code is also giving subsurface temperatures and properties. This code is being developed also to serve as an input for the theoretical models of hermean exosphere. The results of a first version of this code are presented.