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Thermal evolution of outer solar system minor bodies

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The outer part of the Solar System should contain primitive bodies, probably remnants of the solar system formation. They seem to be dark volatile rich objects showing strong relation to comets. These objects could still contain ices and organic compounds with the same proportion as in the epoch of their formation from the primordial solar nebula. Thermal models of Centaturs and bodies moving on Kuiper belt orbits have been developed with the aim to follow their evolution and differentiation and to better understand the relations between them and the minor bodies of the solar system. For the KBOs, we have seen that moderate heating can permit the sublimation of the most volatile ices toward the surface. The main result is that the Kuiper Belt Objects can be strongly volatile depleted. In the upper layers, several hundred meters below the surface, the most volatile ices (like CO) are completely absent. From the outcomes of these different simulations, we have seen that some phenomena can be explained but there are still many open questions. To understand the complex scenario of the outer solar system, more investigations on the thermal evolution of Centaurs, KBOs and Comets are needed.