

Asteroid thermal modeling: recent developments and applications

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A variety of thermal models are used for the derivation of asteroid physical parameters from thermal-infrared observations. Simple models based on spherical geometry are often adequate for obtaining sizes and albedos when very little information about an object is available. However, sophisticated thermophysical models incorporating real shapes and rotation vectors normally provide more accurate results, including information on thermal inertia and surface roughness. Thermal inertia is governed by the degree to which an asteroid's surface is covered in thermally-insulating, dusty material. There is now strong evidence for a dependence of thermal inertia on asteroid size, and indications for a dependence on taxonomic type in some cases. Developments in asteroid thermal modeling will be reviewed and recent results from the application of thermal models will be presented.