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The Interior Structures of the Moon and Mercury from Recent Data

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Recent observations of lunar gravity and topography coupled with similar observations of Mercury enable a comparison of some of the fundamental processes that have taken place on each body since their formation. For Mercury the new observations suggest a different interior model is needed to explain the gravity and needs to be in concert with the surface chemistry and radar measurements of the rotation. Gravity data from the twin spacecraft GRAIL mission to the Moon, due to begin observations in early March, is expected to resolve features of a few 10's of km in dimension offering the possibility of identifying the gravity signals from small craters and the central peaks of major basins, as well as looking for evidence of a solid inner core. With the use of high quality altimetry obtained on recent lunar missions and GRAIL gravity we anticipate being able to look into the structure of the lunar crust and provide plausible explanations of features such as mascons.