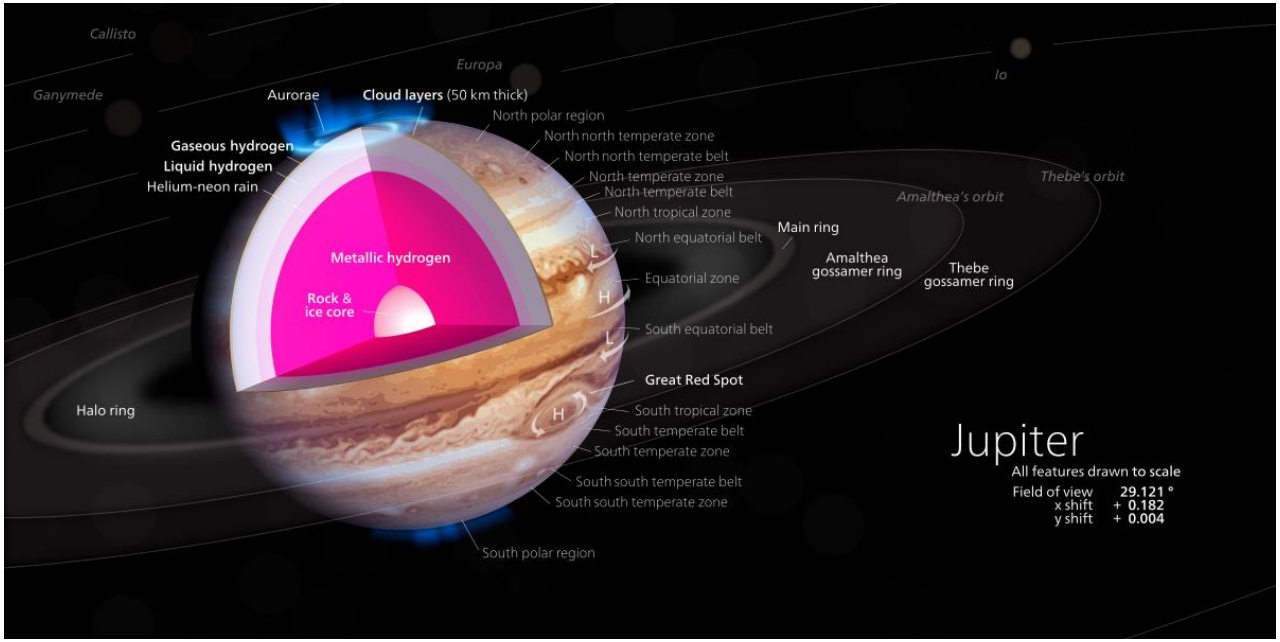
https://nasa.gov/juno

Is there a solid core inside?

The *Juno* mission to Jupiter, still ongoing, has already delivered a trove of new data about the atmosphere, the magnetosphere, the rings, and, our focus, the gravity field.



https://commons.wikimedia.org/

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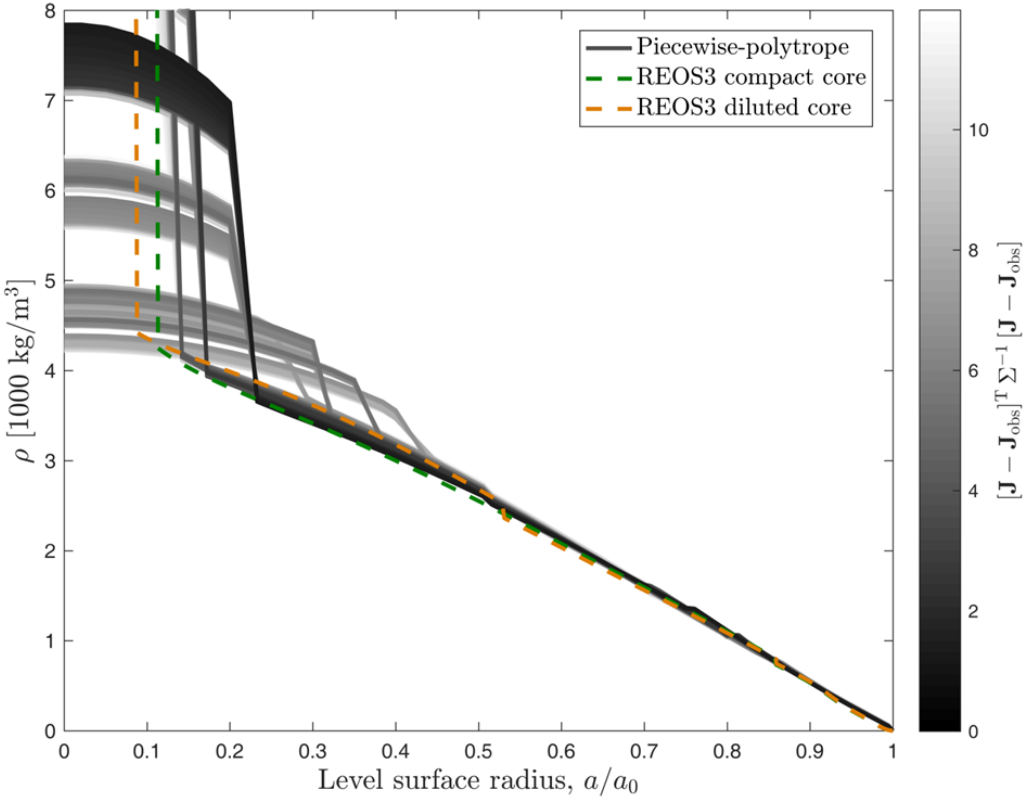
The gravity field is determined by the spatial distribution of mass. Therefore, the spatial distribution of mass can be deduced from the measured gravity field, *with some assumptions*



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A measurement or observation or a physical quantity is never a single value. It always comes with an associated uncertainty. All the *models* depicted above have gravity fields that match the *observed* gravity field, to some precision! Some show evidence of a sharp boundary around a solid core. Some show a gradual increase in density throughout. Is it possible, with increased precision, to rule out enough of them to determine what the real Jupiter is like inside?