Jet Propulsion Laboratory
California Institute of Technology

π IN THE SKY 2

Pi is back in our skies, helping mathematical sleuths such as yourself solve stellar problems -- like this one: Estimate the volume of the alien ocean on Jupiter's frozen moon Europa. Remember, pi leads the way.

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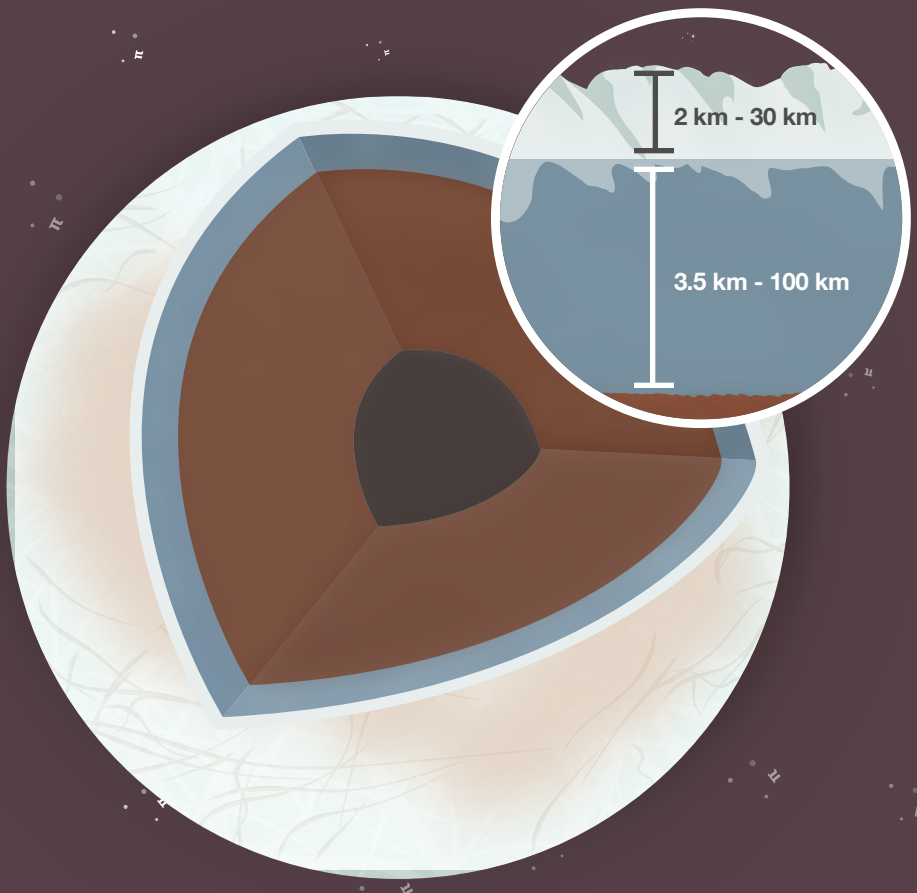
jpl.nasa.gov/edu/piday2015



FROZEN FORMULA

Scientists have good reason to believe that Jupiter's moon Europa has a liquid ocean wedged between its ice shell and a rocky sea floor. Though it has a known radius of 1,561 kilometers -- slightly smaller than Earth's moon -- uncertainty exists about the exact thickness of Europa's ice shell and the depth of its ocean.

Assuming Europa's ice shell is between 2 and 30 kilometers thick and its ocean is between 3.5 and 100 kilometers deep, what is the minimum and maximum volume of its ocean?

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