### Hashtags: #earth, #gravitymap

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### Tags: Data Visualization

**Challenge Description**

Create an app that displays the gravity force for any location on Earth. Grab data about gravity around the world on a gravity map, or geoid, and use positioning data to show gravity at any location. You also could add information about the GOCE mission or other missions, and extend the capabilities to include magnetic field data from the SWARM mission.

**Background**

The geoid is a smooth but highly irregular surface that corresponds not to the actual surface of the Earth's crust, but to a surface which can only be known through extensive gravitational measurements and calculations. Missions such as GRACE and GOCE have measured gravitation from Space and allow a precise description of the geoid, or in other words: produce a gravity map of Earth. Recently the SWARM mission has been launched to also map the magnetic field around our Earth.

**Solution Ideas**

Here are some ways for you to frame this solution:

* - User specifies a location on Earth
* - Mobile app or web app displays the gravitational field at that location
* - You can show variations in gravity based on the location of the moon on a specific date and time.
* - Use positioning data to show local gravity force
* - Options: show gravity or gravity maps of other planets, maybe in comparison to Earth’s gravity

**Sample resources**

* ESA GOCE: <http://www.esa.int/Our_Activities/Observing_the_Earth/GOCE>
* NASA GRACE: <http://www.nasa.gov/mission_pages/Grace/>
* ESA SWARM: <http://www.esa.int/Our_Activities/Observing_the_Earth/The_Living_Planet_Programme/Earth_Explorers/Swarm>
* Earth Wind Visualization: <http://earth.nullschool.net/>