### Hashtags: #spaceflight, #solarsyshabitats

Contact: [[email protected]](http://www.cloudflare.com/email-protection)

### Tags: Data Visualization, Model

**Challenge Description**

Create an app that provides real-time notification when the rocky planets and moons of the solar system have surface temperatures that are possible for human habitation .

Some planets and moons have temperatures that are within a habitable range for a limited time at points of their orbit. Similarly, there are times in an orbit when a section of a planet or moon rotates from facing away from the sun to facing towards the sun or Mercury, the Moon, and Mars. This capability could indicate the possibilities out in the solar system where humans can survive on solid ground.

**Background**

A number of missions are dedicated to orbiting certain planets in the solar system with such a frequency that enables the detection of changes in surface temperature via remote sensing. In addition, spectrometers within the visible spectral range can be used to determine the spectral lines where absorption or the transmissivity in the planetary atmosphere maximizes and determine the color of the sky one could see. Ice cover can be detected by imagery. A measure for ultraviolet protection is Ozone detection.

**Details**

· The app can allow users to select a temperature range, and include the set of objects in our solar system that have the potential for being within the selected temperature range.

· The app can have the capability to send users a real-time notification of when a region on one of these bodies demonstrates temperatures within the target range.

· The app can provide search results about other parameters that are decoupled from the temperature criteria, such as sky color, longest night in the solar system, ice cover, clouds, UV protection – which could enable gaseous planets to be included in the results.

· Developers can use data from dedicated missions such as Mars Express and rovers, Mars Reconnaissance Orbiter (MRO), Venus Express, and Lunar Atmosphere and Dust Environment Explorer (LADEE).

**Sample resources**

* <http://www.nasa.gov/mission_pages/ladee/main/#.Uupo4NJ5OSp>
* <http://sci.esa.int/mars-express/>
* <http://mars.jpl.nasa.gov/mro/mission/>
* <http://sci.esa.int/venus-express/>
* [http://www.nasa.gov/mission\_pages/cassini/spacecraft/index.html#.UuppwdJ5 OSo](http://www.nasa.gov/mission_pages/cassini/spacecraft/index.html#.UuppwdJ5OSo)