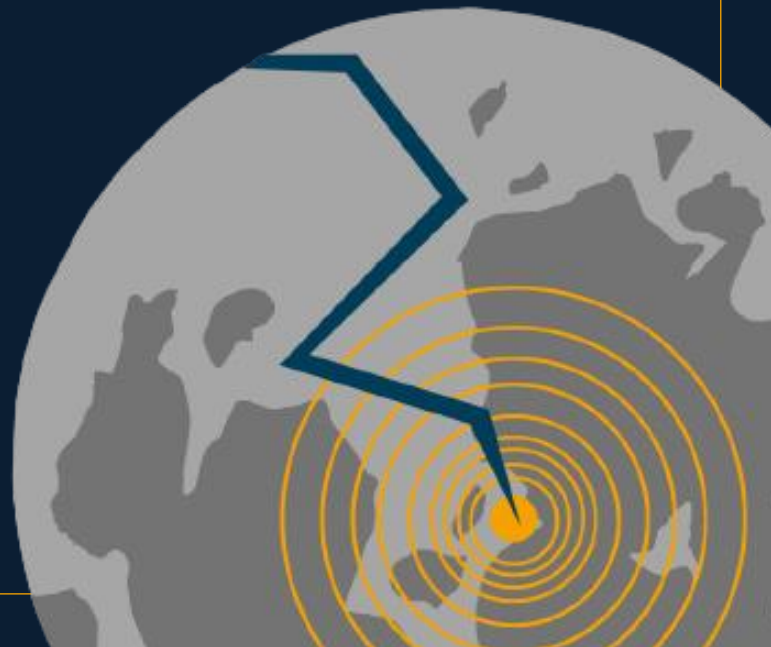
Lunar Quake presents...

# MOONQUAKE MAP 2.0



Submitted: 08th October 2023

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Organizer: NASA International Space Apps Challenge 2023

## Filter by Date and Time

Start Date 1969-07-21 Start Time 04:39:20 AM

End Date 1969-08-26 End Time 02:30:01 AM

APPLY FILTER

World Axes (X, Y, Z)

Latitude & Longitude

Height Map

Apollo Landings

Seas & Oceans

Directional Light Intensity

RESET

Ambient Light Intensity

RESET

Hemisphere Light Intensity

RESET

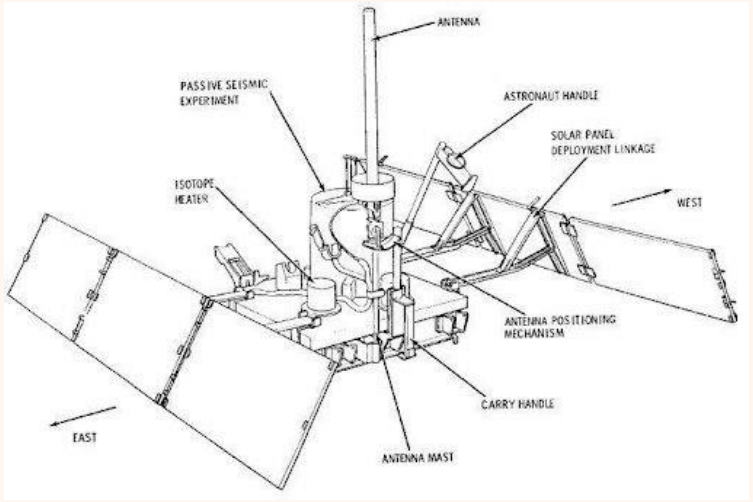
# Introducing Lunar Quake

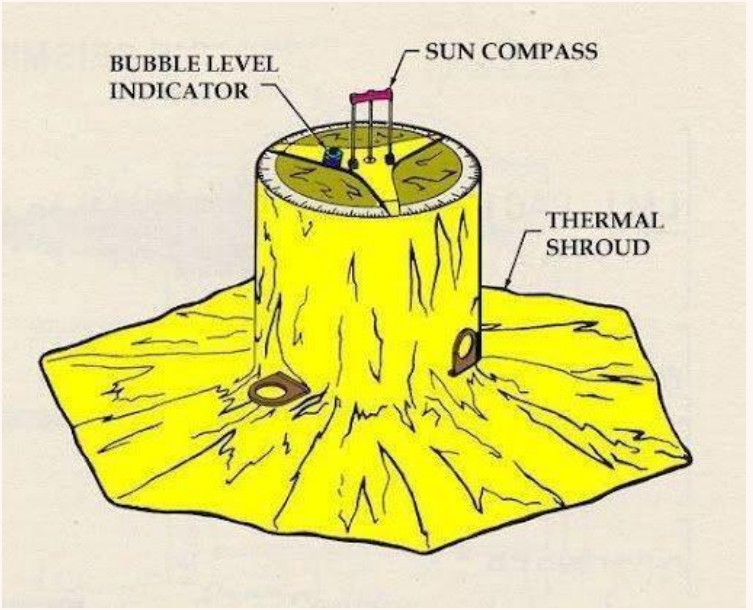
https://lunar-quake.vercel.app/

# Introduction

## THE CHALLENGE

Apollo astronauts left several Passive Seismic Experiments (PSEs) on the lunar surface during the Apollo missions. These instruments were designed to monitor the environment of each Apollo landing site for at least a year after the astronauts departed. Your challenge is to develop an app for the public that plots the seismic events detected by these instruments on an interactive 3-D digital moon globe.



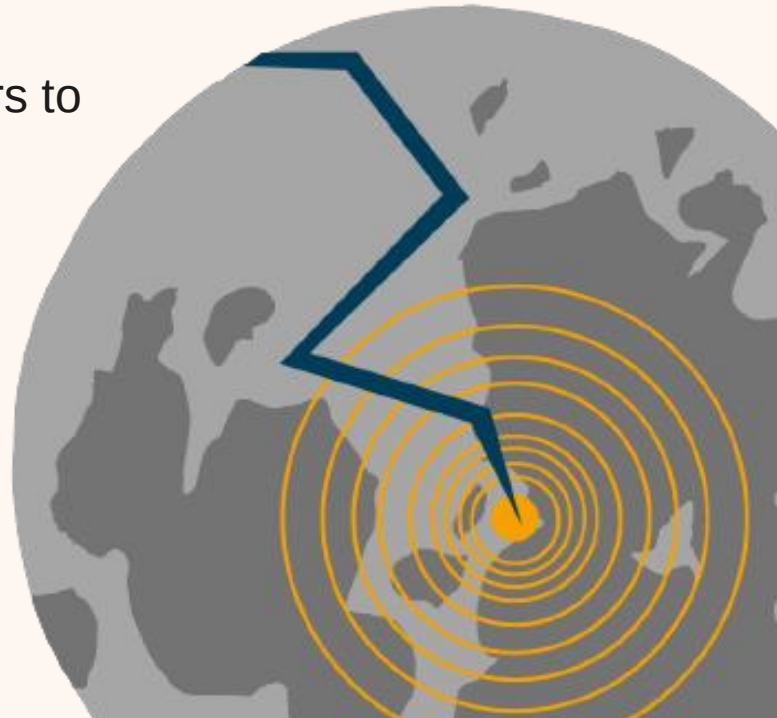
# Considerations

- Visualization of the data: As this is a public-facing project, it must present the data from the PSEs in a comprehensive manner, and made accessible to users across a diverse range of age and education levels.

- Platform and tools: the app must be easily accessible.

- Interactivity from the user's perspective: App must be made interactive to follow challenge guidelines
- but also to drive user engagement and facilitate further learning.

- Data isolation: App should ideally use available range of data and allow users to
- filter by area of interest.



# Methodology

**Data Analysis & Processing**

For the data processing component, we used Python with JupyterLab on the Apollo Seismic Event Catalog from NASA's Planetary Data System (PDS) as analyzed by Nakamura.

**Design and Development**

The frontend of this web app was developed using react.js, three.js, nodeJS, and typescript. Design components (i.e. mock-ups and brand identity) were crafted on Canva. The app is currently in this phase of development.

# Features

When finalized, the webapp will include:

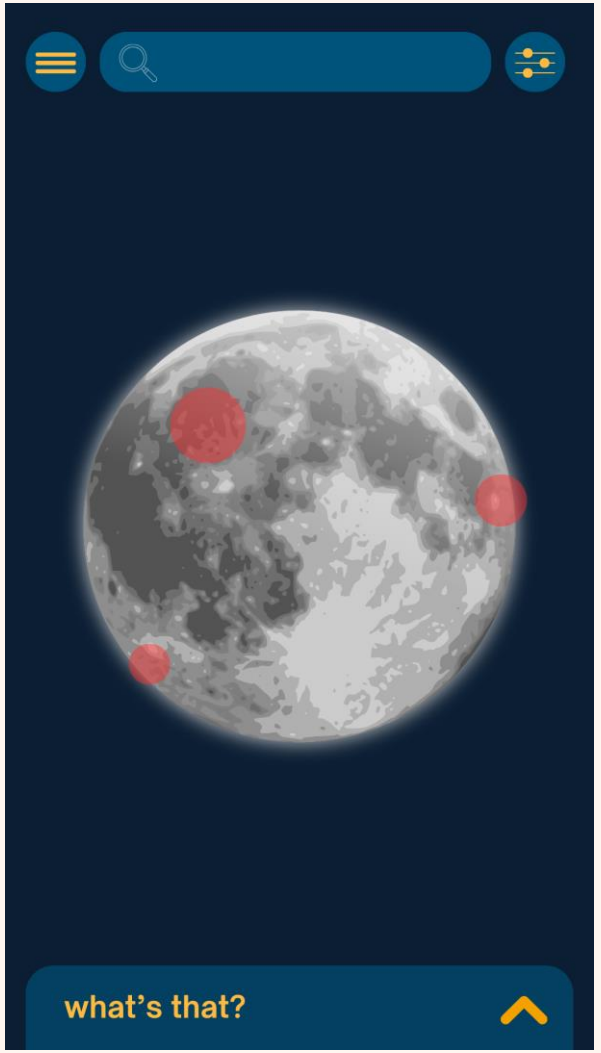
educational background on:

- the moon
- Apollo missions 11, 12 and 14-16
- lunar seismic activities

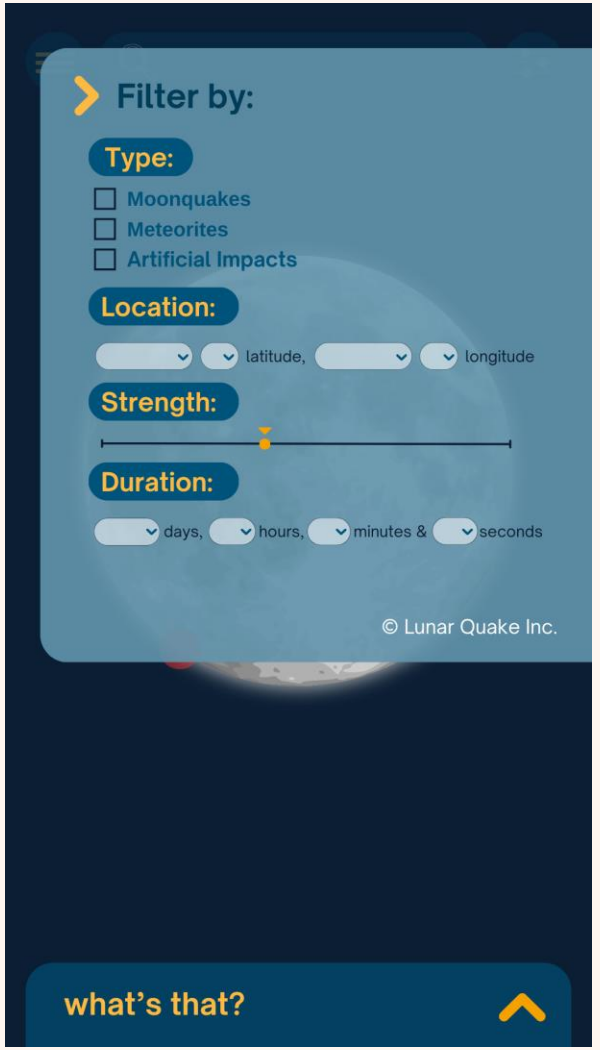
filters allowing users to search by:

- Location of event
- Duration of event
- type of impact
- Strength of event
- And more!

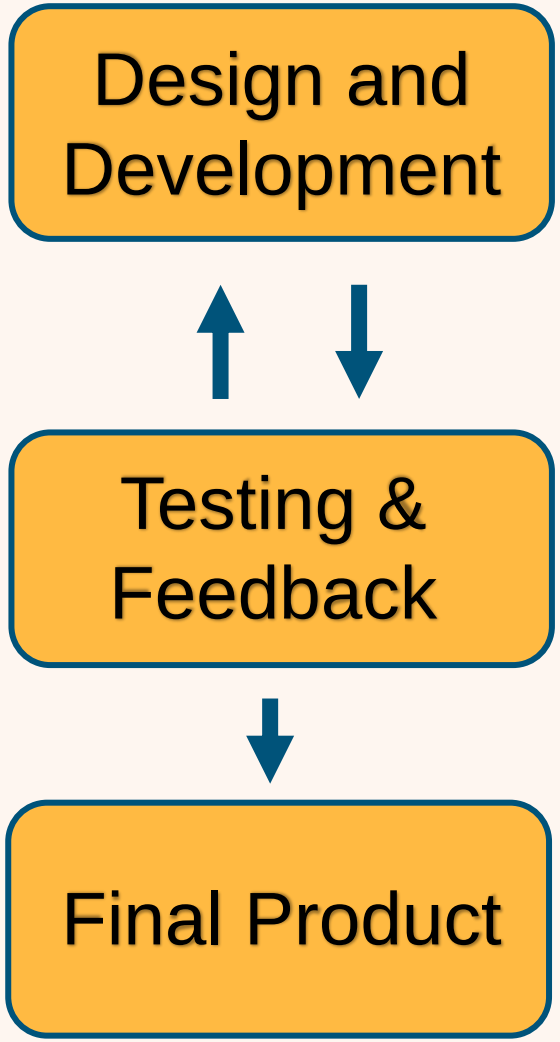
Main Interface (Finalized)




Feature Filters (Finalized)



# Roadmap




With the app currently in its preliminary developmental stages, here are some enhancements that would further elevate this experience:

- Further filtering capability
- Increased device compatibility
- Improved accessibility
- User-defined data import