



02 DEC 2024 to  
01 APR 2025

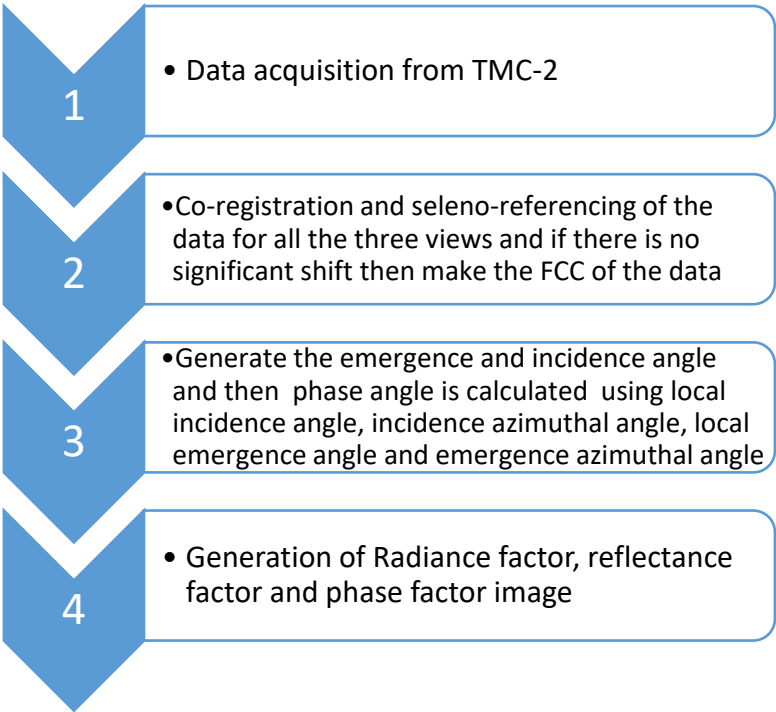
**Name:** Palakben Pratikkumar Mahida  
**Designation:** Research Intern  
**Institution:** ISTAR-CVM UNIVERSITY

**External Guide:** Sri. Rohit Nagori  
**Contact e-mail:** rohitnagori@sac.isro.gov.in  
**Internal Guide:** Dr. Krunal Suthar  
**Contact e-mail:** krunal.suthar@cvmu.edu.in

**MAJOR OBJECTIVES:**

1. Analyze photometric properties by examine how light interacts with the surface of the cold spot crater to understand its reflectance and albedo characteristics, using several TMC-2 datasets.
2. Process the TMC images to create phase angle and radiance factor images, which help in understanding surface reflectance characteristics.
3. Compare the reflectance and surface roughness of the cold spot with nearby lunar terrain.

**METHODOLOGY FLOW CHART:**



**RESULTS/MAJOR FINDINGS:**

- Done the processing of multiple TMC-2 datasets to study the interested lunar cold spot crater which lies near Balmer R crater. Generated phase angle and radiance factor images, which helped analyse the reflectance properties of the surface.
- Compared thermal and photometric properties of the cold spot with surrounding lunar terrain.
- The cold spot exhibited unusual photometric and thermal properties, suggesting recent surface modifications.

**CONCLUSION:**

This study confirms that the cold spot crater near Balmer R is a geologically young feature with high rock abundance, minimal space weathering, and distinct photometric traits. The results suggest recent surface disturbance and highlight the need for further analysis using multi-angle TMC-2 data and other lunar instruments.