

Lunar international science coordination/calibration targets (L-ISCT)

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Received 7 November 2006; received in revised form 19 April 2007; accepted 13 May 2007

Abstract

Eight lunar areas, each ~200 km in diameter, are identified as targets for coordinated science and instrument calibration for the orbital missions soon to be flown. Instrument teams from SELENE, Chang'E, Chandrayaan-1, and LRO are encouraged to participate in a coordinated activity of early-release data that will improve calibration and validation of data across independent and diverse instruments. The targets are representative of important lunar terrains and geologic processes and thus will also provide a broad introduction to lunar science for new investigators. We briefly identify additional cross-calibration issues for instruments that produce time series data rather than maps.

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Keywords: Calibration targets; L-ISCT; International lunar targets; Lunar calibration targets

1. Introduction

A new era of international lunar exploration has begun, starting with the SMART-1 spacecraft (Europe) and continuing over the next four years with data acquired from four sophisticated remote sensing missions: SELENE (Japan), Chang'E (China), Chandrayaan-1 (India), and LRO (United States). It is recognized that this combined activity at the Moon with modern sensors will provide unprecedented new information about the Moon and will dramatically improve our understanding of Earth's nearest neighbor. It is anticipated that this blooming of scientific exploration of the Moon by nations involved in space activities will seed and foster peaceful international coordination and cooperation that will benefit all.

Presented below are eight lunar International Science Coordination/Calibration Targets (L-ISCT) that are

intended to (a) allow cross-calibration of diverse multinational instruments and (b) provide a focus for training young scientists about a range of lunar science issues. Five of these targets were identified and presented during the COSPAR meeting in Beijing and were discussed more thoroughly at the subsequent 8th International Conference on Exploration and Utilization of the Moon. The concept was endorsed by the international community and included in the resulting Lunar Beijing Declaration. During a November 2006 international LRO Science Working Group meeting in Hawaii, the original five targets were expanded to include additional targets in the maria, at high latitudes, and a polar region. These eight were presented and discussed at a SELENE Science Team Meeting and later at a Chandrayaan-1 Science Team meeting in early 2007. In addition, several specific lunar areas are of common interest for “ground truth” (all Apollo and Luna landing sites) or science (SMART-1 and LCROSS impact sites) and are additional prime targets for coordinated study.

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