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Digital terrain model reconstruction and preliminary scientific exploration planning of the Chang'E 3

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Keywords: Digital terrain Model, Chang' e-3, Yutu, panoramic camera

Abstract. At 13:11 (GMT) December 14, 2013 Chang' e 3 (CE-3) successfully landed at 19.51° W, 44.12° N northwestern Mare Imbrium on the Moon, making it China's first planetary mission to land on a celestial body other than Earth. CE-3 explore comprises a lander and a rover. It carries eight scientific instruments onboard, including the descent camera on the lander, and the panoramic camera on the rover. These cameras imaged the topographic features around the landing site. This paper mainly presents the digital terrain model reconstruction techniques for the panoramic camera. Image pairs obtained during the first lunar day are used to reconstructed 3D Digital Terrain Models of 0.02 m resolution near observation points E and S3. The maps have been extensively used to support Yutu operations and strategic planning of the mission. The preliminary scientific exploration planning of the Yutu rover for the second lunar day has been made.

[Conference Paper](#) (PDF, 648 KB)

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