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AMIE camera on SMART 1: a preliminary analysis of colour information from the Oppenheimer region on the Moon

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The Advanced Moon micro-Imager Experiment (AMIE) was the imaging system on board the ESA mission to the Moon SMART-1. During the time spent in lunar orbit AMIE provided high resolution CCD images of selected lunar areas where it performed colour imaging through three filters at 750, 915 and 960 nm. The positions of the filters were optimised to allow discrimination between mafic minerals which dominate the mare (revealed by the Fe2+ absorption feature at 950 nm) and the anorthosite rich highland materials. In this work we present data from the well known Oppenheimer crater centered at 35.4 S, 194 E in the South Pole-Aitken basin. This Nectarian-aged crater (205 km diameter) presents a fracturated floor composed of Imbrian-Nectarian plains with seven pyroclastic deposits . During the first pushbroom operation, AMIE acquired 2 sets of data inside the Oppenheimer crater. AMIE obtained in this region 3 sets of 3 colour images, located precisely in the center of the crater where there is no central peak and no pyroclastic deposits. Spectral profiles were obtained for these two regions and were compared with results from Clementine and they are found to be remarkably similar. AMIE data yield promising results for colour imaging of selected lunar regions; we plan to validate the approach described here by more extensive comparison with regions which are spectral standards for calibration, such as for example the Apollo 14 landing site, imaged in colour by AMIE during SMART1 second push-broom phase.