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Coverage, resolution and calibration of SMART-1/AMIE images

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The SMART-1 spacecraft was launched on 27 September 2003 end reached its lunar baseline science orbit on 13 March 2005 for a nominal science period of six months and one year extension. During these 18 months, the AMIE camera aboard the spacecraft acquired about 32.000 images. SMART-1 operated in an eccentric polar orbit with the perilune close to the South pole at a minimum distance of 400 km and an apolune distance of about 6400 km. The small but scientifically quite interesting area south off 87 S and various spots in the southern hemisphere are covered by the AMIE camera with a resolution better than 50 meters per pixel. The complete Southern hemisphere is covered with a resolution better than 100 meters per pixel. Finally, global coverage is achieved with a resolution better than 250 meters per pixel.

Each AMIE image frame of 1024 x 1024 pixels is divided into areas covered by four different filters and one area of 512 x 512 pixels which is uncovered. First inspections of the images had revealed that the dark current of the CCD increased significantly during the cruise. Therefore the dark frames acquired in the laboratory prior to the mission are not adequate to perform the dark correction. From the analysis of dark sky images taken during the mission, new master dark frames have been estimated which are now used to calibrate the images. We discuss the calibration of AMIE images and

present examples from different regions of the lunar surface.