



## **AMIE / SMART-1 New Views and Analysis of the Lunar Poles**

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The AMIE camera on board the ESA SMART-1 mission took images of the Moon from 15 November 2005 to 3 September 2006. During this time it took over thirty thousand images covering a large percentage of the surface. The polar coverage was especially extensive with data taken covering a full year's worth of seasons. This image database has fundamentally enhanced our knowledge of the lunar polar regions. These images show the illumination conditions of both poles including information on seasonal effects which were previously unknown.

SMART-1 was in a 300 x 3000 km elliptical orbit with perilune over the south pole. This resulted in very different coverage between the two polar regions. The south polar images represent the highest resolution regional information available and permit the study of the geology surrounding the Moon's south pole, in particular, the area close to Shackleton crater. The south pole coverage is relatively high resolution and optimal

for a detailed morphological study. These images typically have a spatial resolution of approximately 50 m/pixel and cover a region roughly 50 km by 50 km. These data are especially important in that they cover a large portion of the lunar surface that was previously only seen by medium resolution ( $\sim 250$  m/pixel). As said, the new AMIE data cover these key regions and importantly cover them over an entire year of Sun locations.

The north polar region has excellent field of view and is optimal for regional coverage. These data were obtained at a much higher altitude than the south pole data, making them ideal for a region study. These images typically have a spatial resolution of 500 m/pixel and cover a region approximately 500 km by 500 km. Both Lunar poles will be presented with specific analysis.