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The Galileo Solid State Imaging system (SSI) [1] obtained multispectral images of the western nearside and farside of the Moon during the December 1990 Earth flyby [2, 3]. New data of scientific significance include multispectral observations of the western limb and farside; preliminary geologic results are presented in companion abstracts in these volumes [4-6]. Images were acquired through 7 bandpasses: VLT (0.41 ± 0.03 μm), GRN (0.56 ± 0.04 μm), RED (0.66 ± 0.04 μm), MT1 (0.73 ± 0.01 μm), NIR (0.75 ± 0.02 μm), MT2 (0.89 ± 0.01 μm), and 1MC (0.99 ± 0.03 μm).

CALIBRATION

Several calibration issues [6] must be addressed before the mosaics can be prepared. A dust cover over the SSI aperture has several effects: it (1) reduces the transmission, especially at the wavelength extremes (near 0.4 and 1.0 μm) [7]; (2) creates "ghost" images (reflected off cover) [1]; and (3) causes a diffuse scattering over the images. To complicate these problems, the inflight calibration images were not properly acquired, and only preflight radiometric files were available. New inflight calibration will be acquired in May, 1991. In the meantime, we have tried to remove the various artifacts to allow accurate mapping of spectral units.

GEOMETRIC CONTROL AND REPROJECTION

Images from seven of the Lunar mapping sequences were chosen for optimal longitudinal coverage at low phase angles (Table 1). The USGS shaded relief maps of the Moon [8, 9, 10] were scanned into digital format and used as base maps for geometric control. Camera angles were corrected using techniques described in [11]. Each frame was then reprojected into both Sinusoidal Equal-Area and Orthographic projections. The Orthographic images are centered on the average subspacecraft latitude and longitude of each mapping sequence (Table 1).

MOSAICS AND MERGED DATASETS

The Sinusoidal images were reduced to normal albedo [12] and mosaicked into a dataset covering slightly more than 50% of the Moon, centered on the western (Orientale) hemisphere. A variety of color-ratio composites and combined albedo/color ratio images highlight compositional variations. These color-ratio composites will be shown in this poster both alone and merged with the airbrush map and with a geologic map overlay.

REFERENCES: [1] M. Belton et al., 1990, Space Sci. Rev., in press; [2] F. Fanale, 1990, EOS 71, 1803; [3] M. Belton et al., this volume; [4] J. Head et al., this volume; [5] R. Greeley et al., this volume; [6] C. Pieters et al., this volume; [7] H. Breneman and K. Klaasen, 1988, JPL D-5880, 214 pp.; [8] USGS, 1978, Misc. Inv. Map I-1089; [9] USGS, 1981, Misc. Inv. Map I-1326-A; [10] USGS, 1980, Misc. Inv. Map I-1218-B; [11] K. Edwards, 1987, Photo. Eng. Remote Sensing 53, 1219; [12] P. Helfenstein and J. Veverka, 1987, Icarus 72, 342.

Table 1

Mapping Sequence	Resolution (km/pixel)	Subspacecraft lat, long	Phase Angle (degrees)
LUNMAP08	3.9	-7.1, 25.4	57
MAPCAL01	4.6	-15.7, 56.9	32
LUNMAP12	6.4	-19.7, 83.5	20
LUNMAP14	8.4	-20.7, 98.3	20
LUNMAP16	12.5	-20.9, 116.2	25
LUNMAP21	25.3	-20.5, 147.9	33
LUNMAP23	29.0	-20.3, 155.2	35