

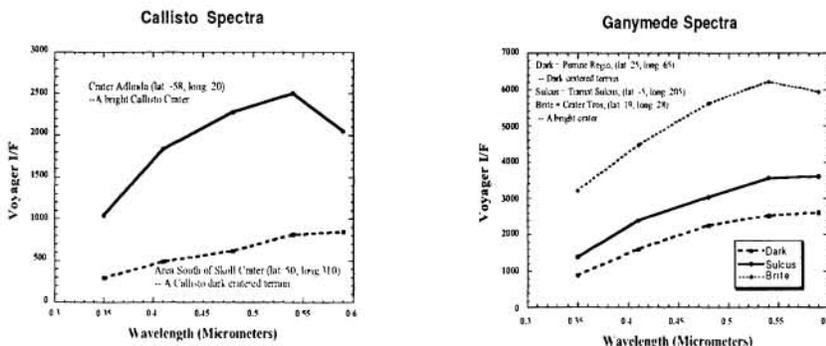
## SPECTRAL/IMAGE DATA CUBES OF EUROPA, GANYMEDE, AND CALLISTO

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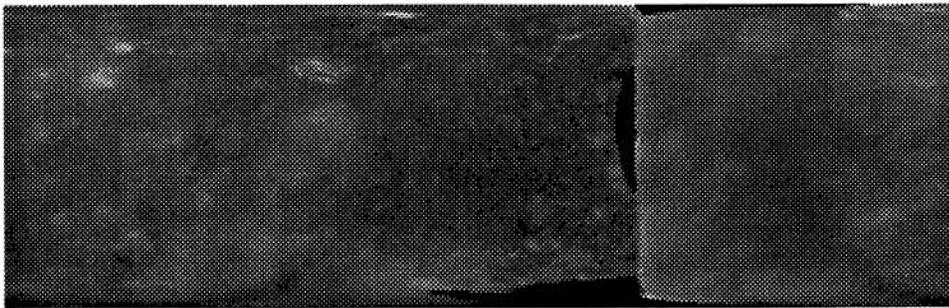
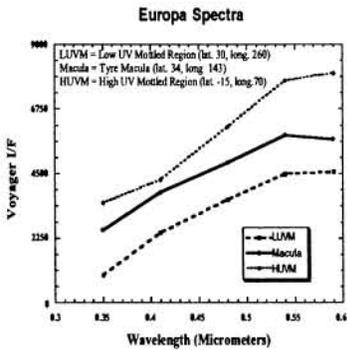
A set of spectral image cubes of Europa, Ganymede, and Callisto have been constructed from Voyager mission images in an effort to prepare for the Jovian system portion of the Galileo spacecraft mission. Unfortunately, due to the fact that this spacecraft is presently restricted by an optimal 40 bits per second downlink and a finite onboard tape data storage many general observations of these moons will be restricted. Galileo imaging experiments like the Solid State Imager (SSI) and the Near Infrared Mapping Spectrometer (NIMS) will be restricted to making specific targeted observations due to their data intensive usage of spacecraft downlink and tape storage. These spectral image cubes are designed to provide complementary spectral and spatial coverage of Europa, Ganymede, and Callisto utilizing up to date control network measurements and photometric correction algorithms.

The primary purpose of this exercise is to produce a set of standard format spectral image cubes of Europa, Ganymede, and Callisto for integration into Galileo spacecraft studies of these satellites. A spectral image cube is a three dimensional array in which the X and Y coordinates represent spatial (image) information and the Z coordinates contain spectral data. These spectral image cubes consist of the 5 band (0.35, 0.41, 0.48, 0.54, and 0.59 micrometer filter images) obtained by the Voyager mission at a scale of 0.5 degrees/pixel for the three moons. They are projected into a cylindrical projection which is bound by the longitude ranges of  $180^\circ$  and  $180^\circ$  and the latitude ranges of  $-90^\circ$  and  $90^\circ$ . The geometric registration is anchored to the latest control geodetic control network develop by the RAND Corporation. The data has formatted into the UNIX/ISIS and VMS/ISIS cube formats, VICAR image format, and UNIX floating point raster format. The ISIS (Integrated Software for Imaging Spectrometers) is the standard data analysis software environment for the Galileo NIMS team. The VICAR imaging process software is the standard analysis package for the Galileo SSI team. Two sets of these spectral image cubes have been constructed using Voyager radiance calibration values and Earth based telescopic calibration values.

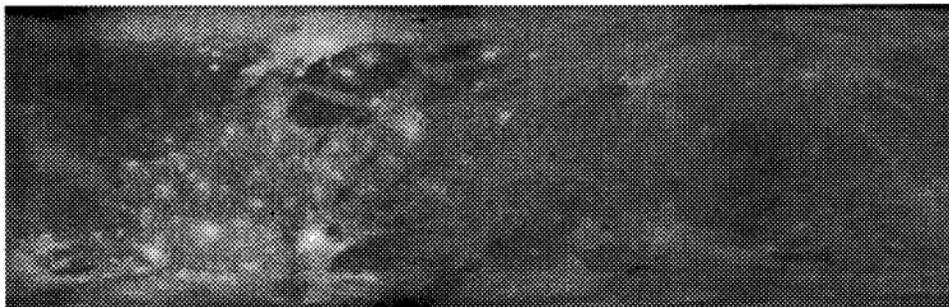
The following are examples of this data that can be derived from this dataset:



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The Callisto 0.56 $\mu$  mosaic from the Callisto image cube.



The Ganymede 0.56 $\mu$  mosaic from the Ganymede image cube.



The Europa 0.56 $\mu$  mosaic from the Europa image cube