Subject: About Mars, the "Greenish" Planet.
Posted by rgregoryclark on Sat, 04 Jan 2003 14:41:15 GMT
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I'm looking for the NASA PDS programs to perform the image corrections described here:

"Images were acquired by the Viking Orbiters at approximately eight second intervals. In this time
period, the viewing geometry changed enough so that the individual images that make up the color set can not be properly registered unless
the images are geometrically rectified. The brightness of pixels in an image could be adjusted by choosing an exposure duration from a set of values between 0.003 to 2.66 seconds. The brightness values could also be adjusted by using a combination of three mode parameters: gain, offset, and light flood. The gain parameter specified the sensitivity of a VIS camera to light incident on the vidicon. There were two gain settings: 'low' and 'high'. The high gain mode had twice the sensitivity as the low gain mode. Thus, the low gain mode expanded the dynamic range of the camera by 100%. The exposure duration and the expected light level of a scene were the deciding factors for choosing high or low gain modes for an imaging sequence."

And:

"(1) Viking Orbiter images can be radiometrically calibrated by converting the digitized signal received from the camera (DN value) into
a quantity that is proportional to the radiance reaching the sensor [2, 3, 4]. Each Viking Orbiter VIS camera was calibrated before flight.
In addition, changes in the calibration over time have been estimated from analyses of images of deep space and dust storms. The radiometric calibration procedure applies additive and multiplicative corrections that account for the varying sensitivity of the vidicon across the field of view and over time. The calibrated values are proportional to radiance factor, which is defined as the ratio of the observed radiance to the radiance of a normally illuminated lambertian reflector of unit
reflectance at the same heliocentric distance.

(2) Geometric calibration of Viking Orbiter EDR images removes electronic distortions and transforms the point perspective geometry of the original image into a map projection [3, 4]. The electronic distortions are barrel-shaped distortions from the electron beam readout and complex distortions from interactions between the charge

on the vidicon face plate and the electron beam. The electronic distortions are modeled by comparing the predicted locations of undistorted reseau marks with the actual locations in an image."

From:

Archive of Digital Images
from NASA's Viking Orbiter 1 and 2 Missions
http://starbase.jpl.nasa.gov/pdsa_data/vo_1051/document/voli nfo.txt

It has to do with Viking orbiter color image composites such as this one:

Topic: Re: Mars the "Greenish" Planet?
http://www.anomalies.net/ubb/ultimatebb.php?ubb=get_topic;f=25;t=004820

Bob Clark