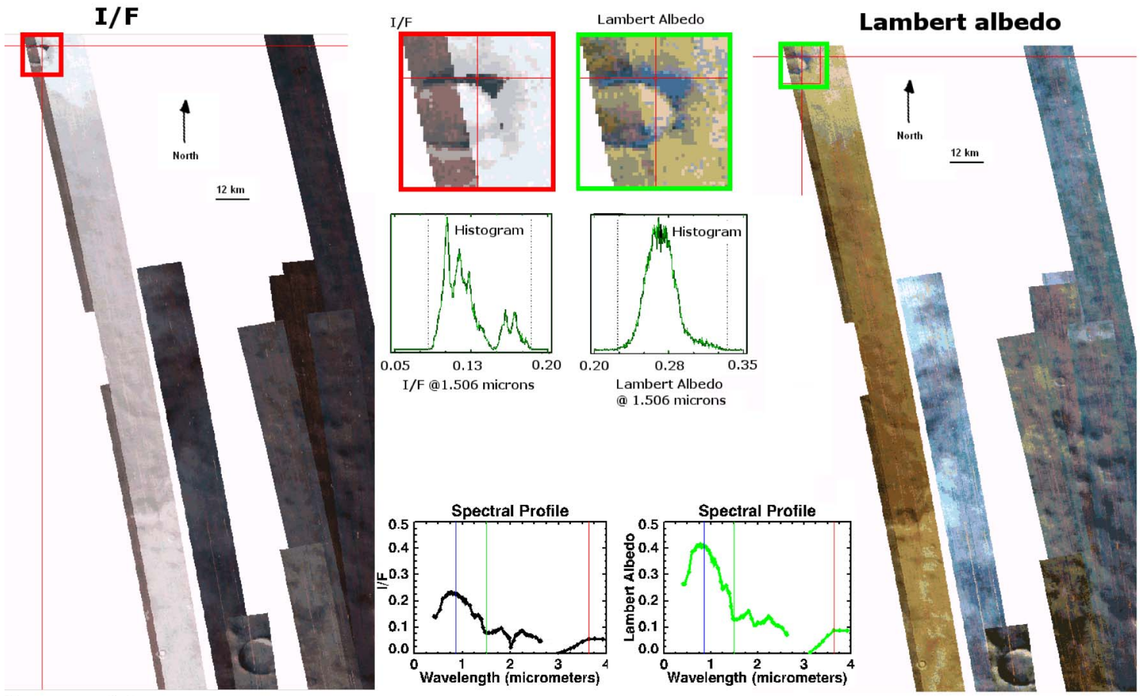

Fig. 10. CRISM multispectral map tile (with both the S and L detectors concatenated), T1889, near the Phoenix landing site region is shown, corrected with the CRISM_LambertAlb DISORT-based software. On the left, we show a portion of the uncorrected I/F map tile and the spectrum. The lower left corner of this image is at 69.21° S, 118.11° W, and the upper right corner of this image is at 72.50° S, 112.88° W. On the right, we show the corrected version of the same map tile and spectrum. These map tiles were constructed with a summer-only constraint on solar longitude (L_s between 105° and 165°). North is up in this image. The three color bands in the map tiles are $B = 0.83$ μm, $G = 1.506$ μm, and $R = 3.6$ μm. The stretching of the color space is min–max, with the bounding values chosen independently for each of the R, G, B planes for I/F and for Lambert albedo ({I/F}: R 0.067–0.173, G 0.083–0.184, and B 0.092–0.177; Lambert albedo: R 0.187–0.316, G 0.224–0.334, and B 0.240–0.364); the bounding values for the color stretching were not chosen to be the same for both I/F and Lambert albedo due to the change in range. Each strip in the tiles is approximately 12 km in width. In the middle of the figure, we show histograms over the whole map tile of the I/F and the Lambert albedo at 1.506 μm. We also show zoom-ins of the ice-rimmed crater at 72.4° N, 117.5° W, north of the Phoenix landing site; this ice-rimmed crater is the location of the spectra shown here. There is no spatial averaging for these spectra. Note that the portion of the Lambert albedo map tile shown on the right has much better correction for photometric and atmospheric effects than the uncorrected I/F version on the left. This is apparent in several ways: 1) much better matching of the strips; 2) much less structure in the 1.506-μm histograms; and 3) much better visibility of some of the small dark rock fields in the right side of the Lambert Albedo map tile. For clarity, known channels of poor data quality (wavelengths of 0.97–1.05, 1.65, and 2.66–2.80 μm) have been removed from these spectra.

will allow improved CRISM and HiRISE targeting of the martian surface during the primary science phase of the MRO. This disambiguation is particularly important near the CO_2 gas bands at a wavelength of 2.0 μm, since there are a hydration band at ~ 1.9 μm and a water ice band at 2.0 μm. The atmospheric aerosol correction will be important for enabling mineralogical retrievals for the shorter wavelengths (shortward of ~ 1.3 μm), where pyroxene and olivine have different spectral characteristics. Furthermore, the thermal correction will allow the identification of different minerals that have absorptions between 3.0 and 3.9 μm, including H_2O and CO_2 ices, carbonates, and organics. Carbonates and organics may not be particularly abundant at the multispectral mapping pixel scale of 200 m/pixel, but certainly the ices are abundant on these scales. The multispectral mapping resolution of CRISM will allow us to map these ices and other minerals at unprecedented spatial scales in the visible to near-infrared spectral range (0.362–3.92 μm). Hence, the next landed missions to Mars will have ever-increasing prospects for going to the right place for more detailed *in situ* analyses.

APPENDIX

LIST OF ACRONYMS[25]

A_L	Lambert albedo
ADR	Ancillary Data Record
ADR TE	ADR Thermal Emission
ADR AC	ADR Atmospheric Correction
ADR CL	ADR Climatology
CAT	CRISM Analysis Tool
CRISM	Compact Reconnaissance Imaging Spectrometer for Mars (which is onboard MRO)
CRISM_LambertAlb	Name of the pipeline software system described here
DISORT	DIScrete-Ordinate-method Radiative Transfer
EDR	Experimental Data Record
EMI	Emission or Emergence angle

[25]We also define some of these acronyms in the text, for ease of reading. They are defined here, in order to have a comprehensive list, for easy reference.

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