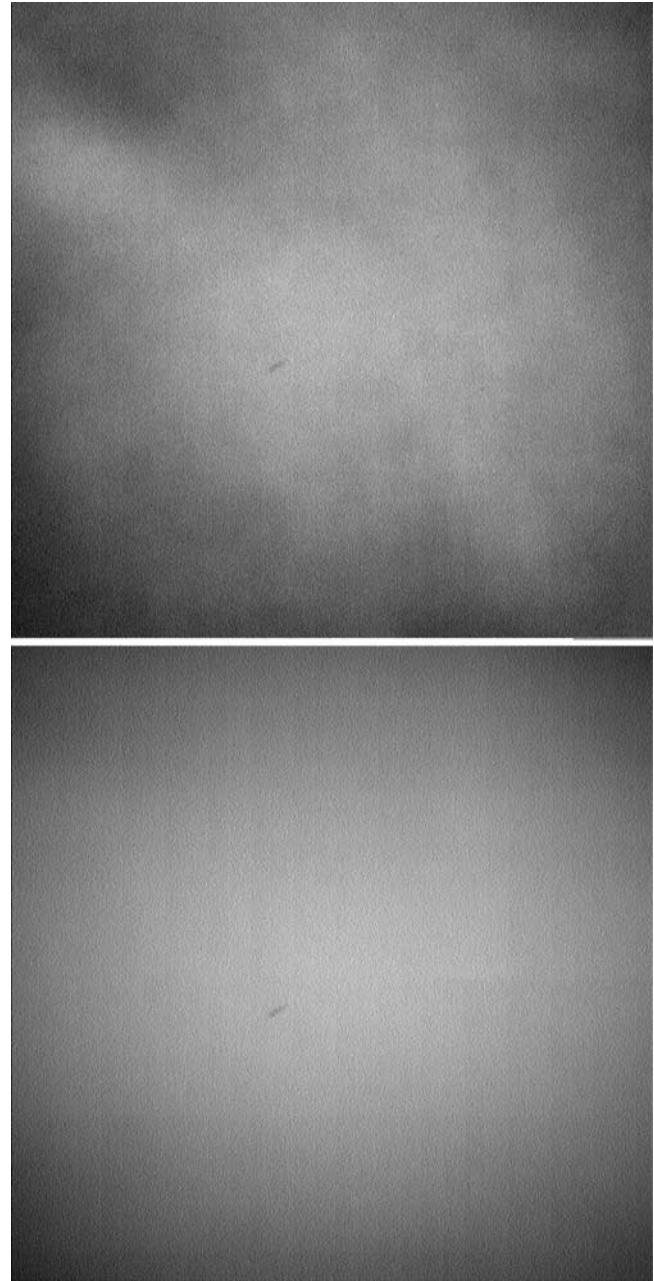


**Figure 5.** Sky flats acquired on sol 90. (top) MI image 1M136188650, taken with dust cover open and corrected for dark current. Note subtle structure near the upper left corner, possibly caused by scattering from the MI contact sensor or housing. (bottom) Radiometrically calibrated left Navcam image 1N136188772, acquired 2 min after the MI image. The field of view of the MI, about  $24^\circ$ , is entirely within the  $45^\circ$  field of view of the Navcam.

acquired after landing show that zero clipping did not occur. These data are compared with the reference pixel model developed using preflight calibration data in Figure 4. Reference pixel averages show a trend that is significantly different than the preflight data, with a standard deviation of 1.9 DN between the in-flight data and the model based on preflight data. A revised model, based on

the in-flight observations, fits the data much better, with a standard deviation of only 0.9 DN. The revised model has not been used to reprocess the MI images returned by Opportunity; we plan to analyze all the reference pixel data after the end of the mission before applying a new reference pixel model. The magnitude of the error in applying the preflight reference pixel model to in-flight MI data for which reference pixels were not returned is small (less than 1% for a well-exposed image).

[11] The variation in reference pixel values with line number changed during flight relative to the preflight calibration data, with a maximum standard deviation of



**Figure 6.** MI flat fields. (top) Processed sky flat acquired on sol 90. (bottom) Processed flat field acquired during preflight calibration. Note probable dust speck near center did not move after preflight calibration.