

Assembling the HST Carina Nebula Color Mosaic Hubble Heritage



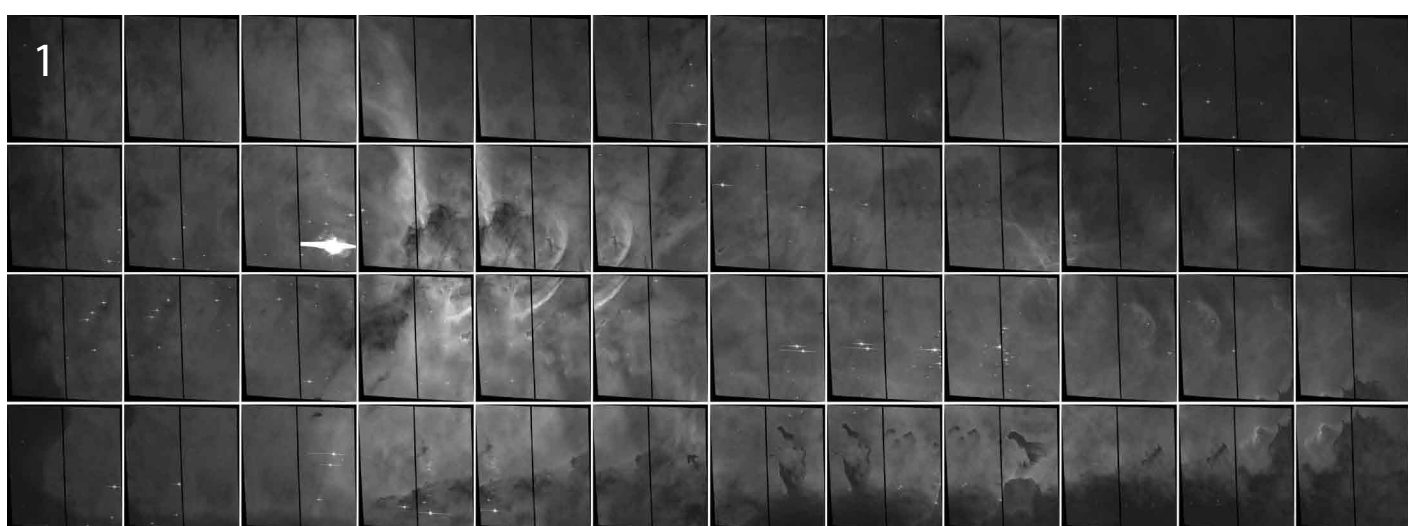
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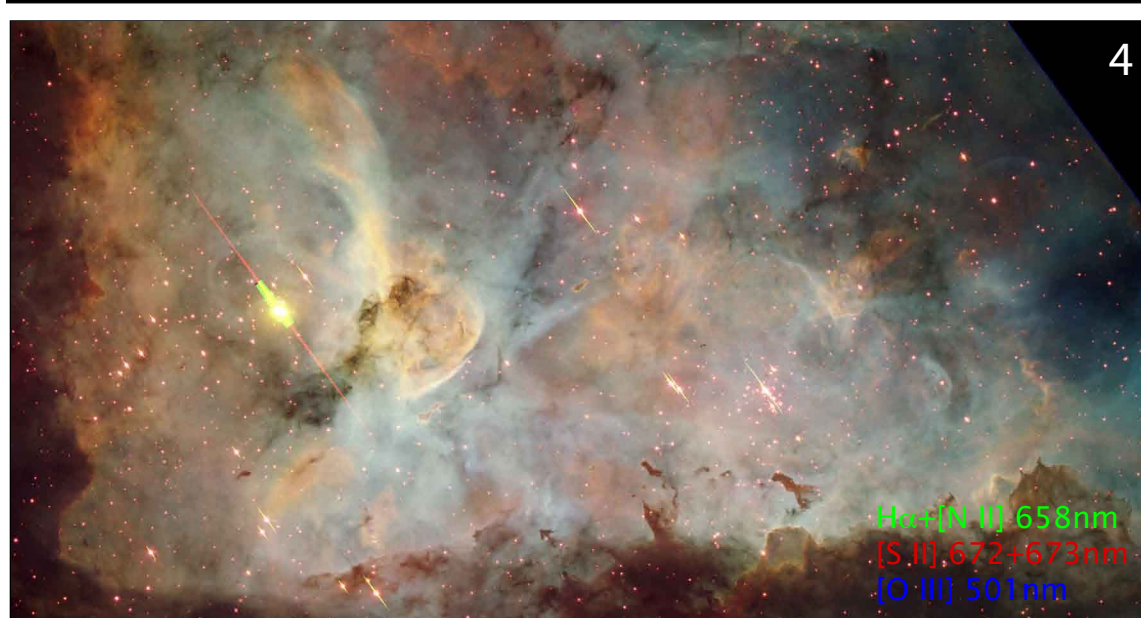
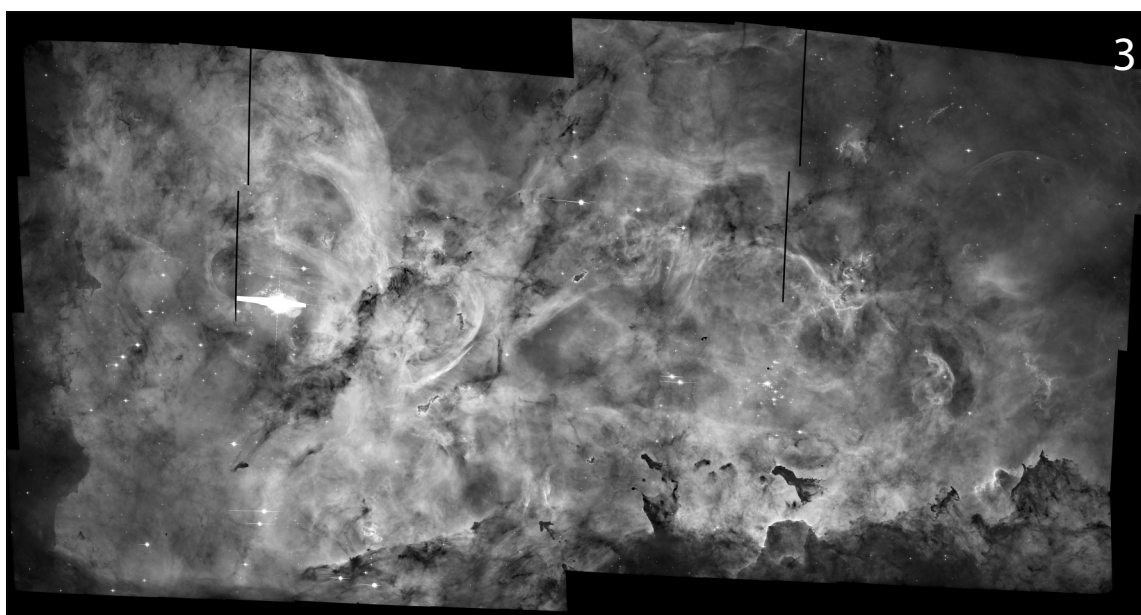
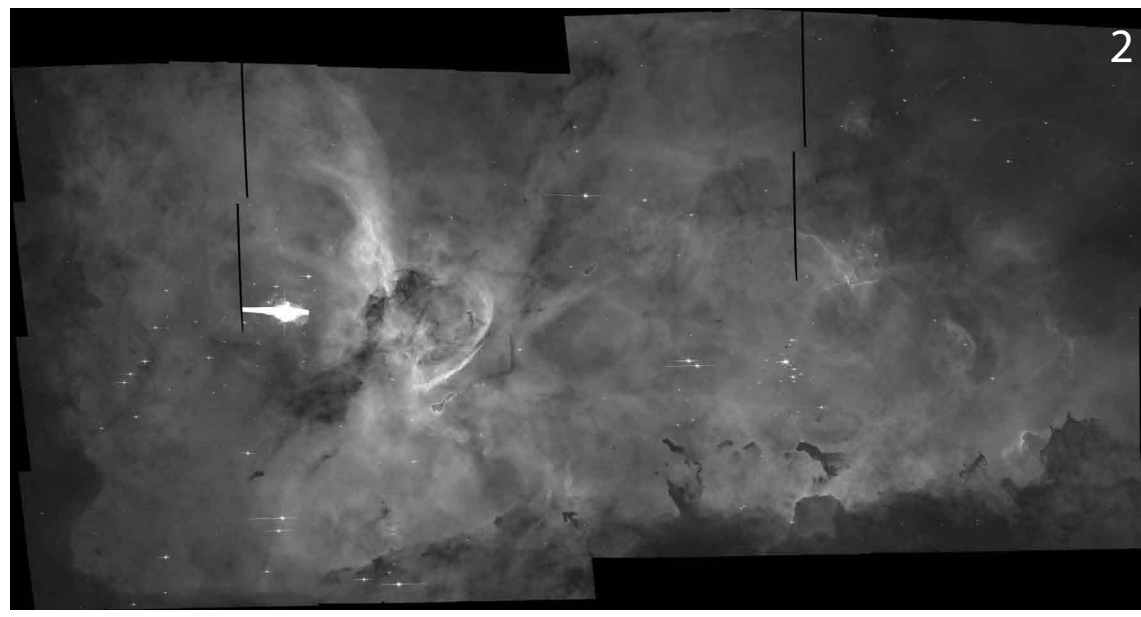
Hubble Space Telescope has obtained numerous images of the Carina Nebula with ACS/WFC using the F658N filter (H α + [N II]), revealing exquisite detail in this active star-forming region rich in finely detailed structure. Forty-eight overlapping fields were composited into a nearly contiguous mosaic of WFC pointings, resulting in a monochrome image of roughly 500 megapixels. In addition, overlapping, wider-field images obtained with the CTIO 4m and MOSAIC2 camera in three narrow-band filters were com-

bined into a color composite. We demonstrate a luminosity layering technique to reconstruct a high-resolution color image by combining the monochrome HST image with the color composite CTIO data which preserves the high spatial resolution brightness structure superimposed on the lower spatial resolution color values. We also touch on some cosmetic techniques to clean the image, including filling in small areas of data gaps and saturation.

<http://heritage.stsci.edu/2007/16/>

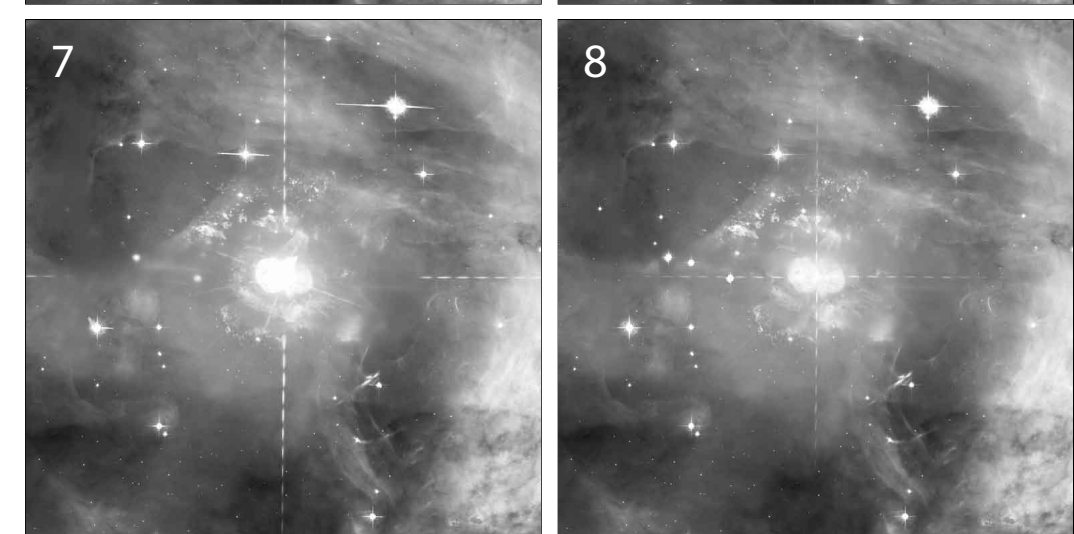
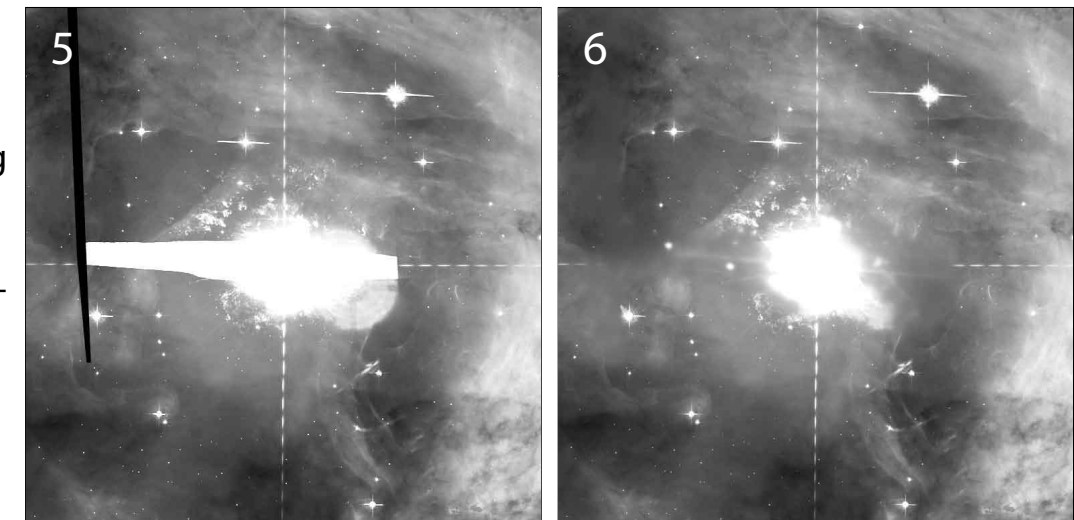


1. 48 separate HST ACS/WFC F658N (H α + [N II]) pointings comprising the Carina Nebula mosaic, each combined from two identical exposures.



Retouching artifacts

5. A small section of the HST/ACS mosaic around η Car showing a gap, saturation and reflection artifacts.
6. Gaps and some saturation replaced by CTIO data.
7. Remaining saturation replaced by HST/WFPC2 data.
8. The filled gap, diffraction spikes and CCD bleeds further retouched.



Processing Steps

2. The mosaic of registered ACS pointings.
3. Brightness and contrast adjustments to optimize structure and detail throughout. Gaps within the mosaic and at the edges have been filled with CTIO data.

4. Color composite of images from CTIO 4m MOSAIC2: red: [S II], green: H α + [N II], blue: [O III]

In Adobe Photoshop the ACS image was rendered using "Luminosity" layer blend mode which preserves the high spatial resolution in the grayscale, and applies color from the RGB image to produce the final image (above).

