

Cosmic Ray Removal

Individual "CR split" images



Bright, sharp spots and streaks from cosmic rays appear on every HST exposure. Multiple exposures at the same pointing allow the randomly-appearing noise to be removed relatively easily, as long as nothing else changed in the meantime (easier for non-variable deep space targets such as nebulae and galaxies rather than closer fast-moving solar-system targets).

Resulting combined image



"Good" pixels from one exposure replace "bad" (cosmic ray) pixels from another exposure in a combined image. Otherwise, the exposures add together exactly as if it were one longer exposure.