

UPDATED CTE CORRECTION FORMULAE FOR ACS

The instrument team has re-analyzed data from the external CTE monitor calibration programs CAL/ACS 9648, 10043, 10368 (PI: A. Riess), 10730 (PI: M. Chiaberge). The data are taken at different epochs between March 2003 and March 2006. Thanks to the larger amount of data as compared to those presented by Riess & Mack (IRS ACS 2004-006) we derived updated CTE correction formulae for aperture photometry of drizzled images. The accuracy of the coefficients in the correction formulae is significantly improved. Details of the data analysis and results are presented in a forthcoming ISR (Chiaberge et al.). We encourage the users to utilize the new formulae reported below.

Correction formula for ACS/WFC

$$\Delta\text{mag} = 10^A \times \text{SKY}^B \times \text{FLUX}^C \times Y/2000 \times (\text{MJD}-52333)/365$$

$$A = -0.15 (\pm 0.04)$$

$$B = -0.25 (\pm 0.01)$$

$$C = -0.44 (\pm 0.02)$$

SKY is the sky level in electrons measured near the star, FLUX is the flux of the star in a 3 pixel aperture radius, Y is the number of transfers (i.e. Y = y coordinate on the unrotated drizzled image if the star is on WFC2, Y = 4096 – y if the star is on WFC1) and MJD is the modified Julian date of the observation.

Correction formula for ACS/HRC

$$\Delta\text{mag} = 10^A \times \text{SKY}^B \times \text{FLUX}^C \times Y/1000 \times (\text{MJD}-52333)/365$$

$$A = -0.44 (\pm 0.05)$$

$$B = -0.15 (\pm 0.02)$$

$$C = -0.36 (\pm 0.01)$$

As for the WFC, SKY is the sky level in electrons measured near the star, FLUX is the flux of the star in a 3 pixel aperture radius, Y is the number of transfers (i.e. simply the y coordinate of the star, assuming that the default amplifier C has been used for readout).