Optimizing ISOCAM data processing using spatial redundancy

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Several instrumental effects of the Long Wavelength channel of ISOCAM on board the Infrared Space Observatory generally degrade the processed images. We present new data processing techniques that correct these response defects, taking advantage of the fact that a position on the sky has been observed by several pixels at different times. We use this redundant information (1) to correct the long term drift, (2) to correct memory effects after glitches and point sources and (3) to refine the deglitching process. As an example we have applied our processing on the gamma-ray burst observation GRB 970402. Our new data processing techniques allows the detection of faint extended emission with contrast smaller than 1 percent of the zodiacal background. The noise in the final map is dominated by the readout and the photon noises.