An Update on the Constant MTF Interpolator: An Image Resampler with Minimal MTF Losses and Geometric Error
Ellis Freedman (Serious Science, LLC) and Dr. Robert Fleming

The CMTF Interpolator Provides Significantly Better Radiometric, Geometric, Spectral and Image Quality Than Any Other Resampler

MTFs of 6 Element CMTF with Compensation
MTFs of 4 Element Cubic
MTFs of 14 Element CMTF
Placement Error vs. Interpolation Distance


RapidEye Performance with Bicubic and CMTF Interpolation
Upper Row: Ratio of CMTF Image to Bicubic Image
Lower Row: Measured Crosstrack MTF of Unresampled Image (blue), and Images Resampled with Bicubic (red) and CMTF (green)

Band 1
Band 2
Band 3
Band 4
Band 5

Percent Difference Between Original Image and Image Interpolated

CMTF 6 Element Kernel with Compensation
CMTF 14 Element Kernel
Bicubic 4 Element Kernel
Lagrange 14 Element Kernel
BSpline 4 Element Kernel

A Comparison of Simulated 30 Meter True Color Imagery
Interpolated 11/32 of a Pixel in the X and Y Directions

Bicubic
Unresampled
CMTF 14 Element