Subject: Polywarp order

Posted by wlandsman on Thu, 09 Dec 2010 14:39:40 GMT

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I have used POLYWARP/POLY_2D successfully for many years. lt seems to be robust and simple method to align images using grid points (or in astronomy to align images with different world coordinate system information).
But I have always been bothered by the definition of order in POLYWARP
>Xi = sum over i and j of: $Kx[i,j] * Xo^j * Yo^i < br > Yi = sum over i and j of: <math>Ky[i,j] * Xo^j * Yo^i < br > so$ for second order $Xi = Kx[0,0] + Kx[0,1]*Y0 + Kx[0,2]*Y0^2 + Kx[1,0]*X0 + Kx[1,1]*X0*Y0 +$ $Kx[1,2]*X0*Y0^2 + Kx[2,0]*X0^2 +
Kx[2,1]*X0^2*Y0 + Kx[2,2]*X0^2*Y0^2 < br>To me this$ is not a second order equation because it has cubic terms (Kx[1,2]*X0*Y0^2) and a quartic term (Kx[2,2]*X0^2*Y0^2). So while POLYWARP works, I wonder if it requires more control points than necessary. I have successfully fit a "true" second order, such as $\frac{\sin^2 x}{\sin^2 x} = \frac{\sin^2 x}{\sin^$ $Kx[1,0]*X0 + Kx[1,1]*X0*Y0 + Kx[2,0]*X0^2$
vsing mpfit2dfun to determine the Kx[i,i] and then using POLY 2d with the "extra" terms such as Kx[2,2] set to zero to transform the image. But I am not sure in what way, if any, this is a "better" solution. and sp; and sp; (My google searching suggests) that both definitions are used, but that a "true" second order is more common.) --Wayne
