Subject: RESIZE_DOIT with INTERP=1 shifts image !!!
Posted by Josip Krizan on Fri, 10 Nov 2006 13:58:53 GMT
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Hi!

I have problem with applying RESIZE_DOIT procedure with bilinear resampling
on georeferenced images. It seems to me that resulting image is shifted for
half size of pixel of original image to right and down, for any rfact<1. Is
it by design or there is a bug or am i doing something wrong.
I wrote small test routine to demonstrate this. If someone can just look at
it ...

Thanks,

Code:

```
PRO TEST_RESIZE_DOIT
   compile_opt IDL2
   envi, /restore_base_save_files
   envi_batch_init, log_file='batch_log.txt'

 imgName = 'C:\RSI\IDL63\products\envi43\data\bhtmref.img'
 RFACT = REPLICATE(1.0/3.0, 2)

 ENVI_OPEN_FILE, imgName, R_FID=fidOrig
 mapInfo = ENVI_GET_MAP_INFO(FID=fidOrig)

 ; bound rect of some region
 xCImg=[100, 110]
 yCImg=[300, 310]
 dimsC = [-1L, xCImg[0], xCImg[1]-1, yCImg[0], yCImg[1]-1]

 ENVI_CONVERT_FILE_COORDINATES, fidOrig, xCImg, yCImg, $
  xCMap, yCMap, /TO_MAP

;INTERP =0
 ENVI_DOIT, 'RESIZE_DOIT', FID=fidOrig, DIMS=dimsC, $
  POS=0, INTERP=0, RFACT=rfact, R_FID=fidRes, /IN_MEMORY

 ENVI_FILE_QUERY, fidRes, NS=ns, NL=nl

 ;bound rect of whole image
 ; as i understand: center of UL pixel is [0.5, 0.5],
 ; and BR is [ns-0.5, nl-0.5]

 xC1Img = [0, ns]
 yC1Img = [0, nl]
```

```
dimsRes=[-1L, 0, ns-1, 0, nl-1]

ENVI_CONVERT_FILE_COORDINATES, fidRes, xC1Img, yC1Img, $
 xC1Map, yC1Map, /TO_MAP

dataOrig = ENVI_GET_DATA(FID=fidOrig, DIMS=dimsC, POS=0)
dataRes0 = ENVI_GET_DATA(FID=fidRes, DIMS=dimsRes, POS=0)

ENVI_FILE_MNG, ID=fidRes, /REMOVE

PRINT, '*************** NEAREST NEIGHBOURHOOD (INTERPOL=0) *******
PRINT, 'Original pixel size: ', mapInfo.PS
PRINT, 'Resized pixel size; ', mapInfo.PS * rfact
PRINT, 'delta X: ', xC1Map - xCMap
PRINT, 'delta Y: ', yC1Map - yCMap

PRINT, 'Orig. data: ', SIZE(dataOrig, /DIMENSIONS)
PRINT, dataOrig

PRINT, 'Resized data:', SIZE(dataRes, /DIMENSIONS)
PRINT, dataRes0

;INTERP = 1

ENVI_DOIT, 'RESIZE_DOIT', FID=fidOrig, DIMS=dimsC, $
 POS=0, INTERP=1, RFACT=rfact, R_FID=fidRes, /IN_MEMORY

ENVI_FILE_QUERY, fidRes, NS=ns, NL=nl

;bound rect of whole image
; as i understand: center of UL pixel is [0.5, 0.5],
; and BR is [ns-0.5, nl-0.5]

xC1Img = [0, ns]
yC1Img = [0, nl]
dimsRes=[-1L, 0, ns-1, 0, nl-1]

ENVI_CONVERT_FILE_COORDINATES, fidRes, xC1Img, yC1Img, $
 xC1Map, yC1Map, /TO_MAP

dataOrig = ENVI_GET_DATA(FID=fidOrig, DIMS=dimsC, POS=0)
dataRes1 = ENVI_GET_DATA(FID=fidRes, DIMS=dimsRes, POS=0)

PRINT, '*************** BILINEAR (INTERPOL=1) *************
PRINT, 'Original pixel size: ', mapInfo.PS
PRINT, 'Resized pixel size; ', mapInfo.PS * rfact
PRINT, 'delta X: ', xC1Map - xCMap
PRINT, 'delta Y: ', yC1Map - yCMap
```

```
 PRINT, 'Orig. data: ', SIZE(dataOrig, /DIMENSIONS)
 PRINT, dataOrig

 PRINT, 'Resized data:', SIZE(dataRes, /DIMENSIONS)
 PRINT, dataRes1

 PRINT, 'Difference: '
 PRINT, BYTE((LONG(dataRes1) - dataRes0)+20)

 ENVI_BATCH_EXIT
END
```