*#Try to open input image, and get metadata*

***Open File***

indataset **=** gdal**.**Open**(** infile**,** GA\_ReadOnly **)**

cols**,** rows **=** indataset**.**RasterXSize**,** indataset**.**RasterYSize

*#need to read band 1 to get data type (Byte, Int16, etc.)*

inType **=** indataset**.**GetRasterBand**(**1**).**DataType

*# Read geotransform matrix and calculate ground coordinates*

geomatrix **=** indataset**.**GetGeoTransform**()**

X **=** geomatrix**[**0**]**

Y **=** geomatrix**[**3**]**

*#define output format, name, size, type mostly based on input image*

out\_driver **=** gdal**.**GetDriverByName**(**format**)**

outdataset **=** out\_driver**.**Create**(**outfile**,** indataset**.**RasterXSize**,** \

indataset**.**RasterYSize**,** indataset**.**RasterCount**,** outGdalType**)**

outdataset**.**SetProjection**(**indataset**.**GetProjection**())**

***Do Something***

*#loop over bands*

**for** band **in** range **(**1**,** indataset**.**RasterCount **+** 1**):**

iBand **=** indataset**.**GetRasterBand**(**band**)**

outNoData**=**iBand**.**GetNoDataValue**()**

raster\_data **=** iBand**.**ReadAsArray**(**0**,** 0**,** cols**,** rows**)**

**if** baseline **==** 1**:**

slope **=** generic\_filter**(**raster\_data**,** calc\_slope\_baseline1**,** size**=**2**,** mode**=**'constant'**,**

cval**=**outNoData**,** extra\_arguments**=(**cellsizeX**,** cellsizeY**,** outNoData**))**

newGeomatrix **=** **(**X **,** geomatrix**[**1**],** geomatrix**[**2**],** Y**,** geomatrix**[**4**],** geomatrix**[**5**])**

outdataset**.**SetGeoTransform**(**newGeomatrix**)**

**elif** baseline **==** 2**:**

slope **=** generic\_filter**(**raster\_data**,** calc\_slope\_baseline2**,** size**=**3**,** mode**=**'constant'**,**

cval**=**outNoData**,** extra\_arguments**=(**cellsizeX**,** cellsizeY**,** outNoData**))**

outdataset**.**SetGeoTransform**(**indataset**.**GetGeoTransform**())**

**else:**

slope **=** generic\_filter**(**raster\_data**,** calc\_slope**,** size**=**3**,** mode**=**'constant'**,**

cval**=**outNoData**,** extra\_arguments**=(**cellsizeX**,** cellsizeY**,** outNoData**))**

outdataset**.**SetGeoTransform**(**indataset**.**GetGeoTransform**())**

***Write File***

*#write out band to new file*

outband **=** outdataset**.**GetRasterBand**(**band**)**

outband**.**SetNoDataValue**(**outNoData**)**

outband**.**WriteArray**(**slope**)**