Subject: Re: Question regarding HDF file
Posted by James Kuyper on Tue, 07 Aug 2007 21:55:25 GMT
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None wrote:
>>> But if i open the hdf file, I am getting values like -3.5123 -1.5232
>>> -3.5138 .....
>>
>> How exactly are you reading the file? If you use the same methods
>> shown in this code, you should be reading in the ImageData SDS as a
>> BYTE array, which should be incapable of representing either negative
>> or fractional values.
>
> Hi. The dataset I am using is a kind of remote sensing dataset
> (ASTER). Sorry to let you know lately that I was opening the hdf file
> in ENVI 4.1 software. ...

Without being familiar with ASTER data, it sounds like ENVI is handling it the same way it handles MODIS L1B data when you choose the File/Open External File/EOS/MODIS option. A floating point scale factor and offset for each band is stored as an SDS attribute for each image SDS in a MODIS L1B file. ENVI knows how to apply those scale factors and offsets to calculate correct values.

If you want to take an existing ASTER image, transform it in some fashion, and then write it back to the file, you're going to have to find out how the corresponding scale and offset values are stored in the ASTER data. This should be documented in their file specifications. You'll have to apply that scale and offset before applying your transformation. After performing your transformation, you'll have to apply the scale and offset in reverse. Depending upon your transformaiton, the new values should also be within the range from 0 to 255, just like the original values, so they'll still fit in 8-bit unsigned integers. Those are the values you'll want to write back to the file.

> ... Yes, if I read it using HDF_SD_GETDATA, I will
> get all zeros. I understood your point,
> This result is consistent with my expectation that HDF_SD_AddData
> performs automatic conversion from the IDL data type to the HDF data
> type.
>
> But is there a way to avoid this?

You can't do what you wanted to do; not this way. You need to choose from a wide variety of alternatives which are NOT what you originally wanted to do.

You can't change the data type of an HDF SDS once it has been created.
If you want to store actual floating point values in an SDS, you'll
have to create a new SDS for that purpose, with the appropriate HDF
data type, either in the same file or a new one. Of course, this loses
whatever advantage you hoped to gain by re-writing the data in-place.
