Subject: Re: Bits & Bytes
Posted by wita on Tue, 08 Jan 2008 12:40:23 GMT
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On Jan 8, 12:46 pm, j...@argentina.com wrote:
> Hello there...
> I'm sorry if my question is too basic. I'm working with 8 bits Spot
> Vegetation images. I have two bands:
>
> 1-NDVI data
> 2-Status Map (information about clouds, water, snow...)
>
> I need to apply the status map on the NDVI data, because I need to
> flag cloud and snow pixels.
>
> Below I have some information about the status map.
>
> From MSB to LSB
>
> Bit NR 7 (MSB): radiometric quality for B0 coded as 0 if bad and 1 if
> good
> Bit NR 6: radiometric quality for B2 coded as 0 if bad and 1 if good
> Bit NR 5: radiometric quality for B3 coded as 0 if bad and 1 if good
> Bit NR 4: radiometric quality for MIR coded as 0 if bad and 1 if good
> quality
> Bit NR 7 - 4: coded as 0 for 'no data', missing lines, sea on VGT-S
> products, adjacent blind or defective MIR detectors, interpolated
> data, saturated data, negative data after atmospheric correction
> Bit NR 3: land (code 1) or water (code 0), computed from the "Digital
> Chart of the Worlds"
> Bit NR 2: ice/snow (code 1) , code 0 if there is no ice/snow, computed
> from thresholds from reflectances
> Bit NR1: 0 0 1 1
> Bit NR0: 0 1 0 1
>
> (LSB): clear shadow uncertain cloud
>
> My question is: how can I use the status map to flag cloud and snow
> pixels? I'm reading them into ENVI, but I can't understand the byte
> numbers.
>
> Any comments very welcome.
> Best!
> Jurandir

Dear Jurandir,

You can easily convert a particular bitposition into a 0/1 mask

showing whether that bit was switched on or off using the following function (this assumes bit nr from left to right, so binary value 10000000 = 128):

```
FUNCTION map_bitwise_flag, statusmap, bitposition
  return, BYTE((statusmap AND (2^bitposition))/(2^bitposition))
END
```

You can easily test this:

```
d = byte(dist(250))
tvscl, d
r = map_bitwise_flag(d, 3)
tvscl, r
```

The simples way to apply such a function in ENVI is through the bandmath option. So you first compile the module in ENVI, then in the box labeled as "Enter an expression", you enter 'map_bitwise_flag(b1, 7)' in order to create a binary mask for the radiometric quality status of B0. You then assign the statusmap to variable b1.

with best regards,

Allard
