Subject: To get the Fraction of diffuse light from Skyl_lut.dat table
Posted by kim20026 on Tue, 15 May 2007 08:10:23 GMT
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I have been thinking about calculating Actual albedo (Aa) with white sky albedo (Albedo_ws) and black sky albedo (Albedo_bs) retrieved from MODIS43 image for several days.

As many of you may know, MODIS43 images have only Albedo_ws and Albedo_bs info, and we need additional value, fraction of diffuse light (Fdl), to calculate Aa. If these values are ready we can calculate Aa this way.

Aa = Albedo_ws * Fdl + Albedo_bs * (1-Fdl)

Fdl values are provided through the skyl_lut.dat table and the contents are as follows.
2 aerosol types
10 bands (7 MODIS bands + 3 broad bands (VIS, NIR, SW)
90 degrees (0-89 degrees with 1 degree step
50 optical depth (0-1 with 0.02 step)

The table shown below is a part of skyl_lut.dat. I made this just for testing.

; Skyl_lut.dat00.dat
Aerosol_type: Continental
MODIS_Band_1: (0.620,0.670)
S&O 0.00 0.02 0.04 0.06 0.08 0.10
0 0.029 0.042 0.055 0.067 0.079 0.091
1 0.029 0.042 0.055 0.067 0.079 0.091
2 0.029 0.042 0.055 0.067 0.079 0.091
3 0.029 0.042 0.055 0.067 0.079 0.091
4 0.029 0.042 0.055 0.067 0.079 0.092
MODIS_Band_2: (0.841,0.876)
S&O 0.00 0.02 0.04 0.06 0.08 0.10
0 0.016 0.027 0.037 0.047 0.057 0.067
1 0.016 0.027 0.037 0.047 0.057 0.067
2 0.016 0.027 0.037 0.047 0.057 0.067
3 0.016 0.027 0.037 0.047 0.057 0.067
4 0.016 0.027 0.037 0.047 0.057 0.067
Aerosol_type: Maritime
MODIS_Band_1: (0.620,0.670)
S&O 0.00 0.02 0.04 0.06 0.08 0.10
0 0.029 0.046 0.063 0.080 0.096 0.112
1 0.029 0.046 0.063 0.080 0.096 0.112
2 0.029 0.046 0.063 0.080 0.096 0.112
3 0.029 0.046 0.063 0.080 0.096 0.113

4 0.029 0.047 0.064 0.080 0.097 0.113
MODIS_Band_2: (0.841, 0.876)
S&O 0.00 0.02 0.04 0.06 0.08 0.10
0 0.016 0.035 0.054 0.072 0.089 0.106
1 0.016 0.035 0.054 0.072 0.089 0.106
2 0.016 0.035 0.054 0.072 0.089 0.106
3 0.016 0.035 0.054 0.072 0.089 0.106
4 0.016 0.035 0.054 0.072 0.089 0.107

I found a C code tell.skyl.c and I posted it several days ago. (No one replied (T.T)... Maybe the questions was too broad... I think. anyway) After I compiled it, I got tell_sky.exe and tested it with spawn statements like this.

```
------------------
pro test_spawn

dir='C:\Documents and Settings\Yi\harry'
cmd='tell_skyl.exe'
option=' -od 0.2 -szn 30.0'

cd, dir
print, cmd+option
spawn, cmd+option, result
----------------------
```

However, my knowledge on C is limited. I believe that trying with IDL is less time-consuming and simpler for me.

Now… I am reading this table with structure in IDL, because this table has different format of data and I have a feeling that structure is the one of the best solutions to read this table.

Therefore, I began this way

```
S1 = {Fdl, solza, nb, AOT2, amt}

; where
;  Fdl = Fraction of diffuse light



0.10)
;  amt = aerosol model type: 2 (continental/ maritime)
```

what I want to do now is to read the Fdl values from Skyl_lut00.dat. If input variables are as follows, how can I get the Fdl values from Skyl_lut00?

Fdlinput.txt

; solza, nb, AOT2, amt
30 10 0.04 continental
40 9 0.5 continental
55 5 0.4 continental
39 8 0.3 maritime
77 7 0.2 maritime

Sorry everyone if I bothered you.

Harry
