## Canopy absorption

Modelling only using diffuse fluxes at time of model simulation (satellite overpass)

Modification in PROSAIL5b:

;M+ Compute canopy absorption for diffuse radiation (by my calculations and by Verhoef Pro5FourSail2.f90)

absh = **1.0** - rddt - tdd/dn + tdd/dn \* rsoil0

;M-

Absh is now added to PROSAIL5b

In order to get a single FAPAR value, spectral values of absh are weighted using the relative contribution of each wavelength to total at ground incident irradiance, as simulated by 6S (direct+diffuse irradiance). &s input parameter are listed in: d:\Users\meronmi\Documents\IDL\PROSAIL\_5B\_IDL\fortran\_albedo\_prosail\solar terrestrial irrad da 6s\ output93

The weight w is compute from 5 nm step irradiances between 400 and 700 nm as

w(i) = I(i) / (SUM400-700(I(i))

where I is at incident irradiance (direct + diffuse at ground).

~~VERSION 2 for real angles~~

VERHOEF sent the correct equation

~~Fapar = apar/par\_i~~

~~pari = dir\_a\_down + dif\_a\_down = 1~~

~~apar = dir\_a\_down + dif\_a\_down – dif\_a\_up - dir\_a\_up – (dif\_b\_down + dir\_b\_down) + dif\_b\_up +dir\_b\_up =~~

~~1 – dif\_a\_up - dir\_a\_up – (dif\_b\_down + dir\_b\_down) + dif\_b\_up + dir\_b\_up~~

~~1 – rddt – rsdt – (tdd + (tss + tsd)) + rsoil0\*tdd/dn + (tsd+tss)\*rsoil0/dn~~

~~abs = 1.0 - skyl\*rddt - (1.0 - skyl)\*rsdt - (skyl\* tdd + (1.0 - skyl)\*(tss + tsd))+ skyl\*rsoil0\*tdd/dn + (1.0 - skyl)\*(tsd+tss)\*rsoil0/dn~~

## Ellipse function

It’s not clear where the code come from (in addition it is written “value currently wrong when computing excent!!)

Ladge implemented (according to Wout, the matlab one of Feret was giving strange results for planophile as with a = 1 it was doing another computation), now it uses a and b parameters

## Use of Es and Ed (as derived from paper of Francois et al, 2002, Agronomie)

This use is very strange:

data=**dataSpec\_P5B**();;

Es=data(**7**,\*);;

Ed=data(**8**,\*);;

and then

resh = (rddt\*PARdifo+rsdt\*PARdiro)/(PARdiro+PARdifo);

resv = (rdot\*PARdifo+rsot\*PARdiro)/(PARdiro+PARdifo);

Faccio come col pro5FourSail2 dove avevo fatto:

legge una skyl spettrale (skylarr, diff/total) e poi

hcrf = (1-skylarr)\*rsot+skylarr\*rdot

VEDI d:\Users\meronmi\Documents\IDL\PROSAIL\_5B\_IDL\Pro5FourSail2\alfalfa\skylarr da lorenz