

Many thanks for the referees' suggestions, and we double check and revise the paper according to the request of editor, and rewrite the author comments according to the second referees' suggestions.

1 Authors should give a detailed parameters information or a parameters value table when using eq.(1) to simulate multi-angle reflectance, which is illustrated in Fig.1.

The detail simulation condition has been added in the manuscript, ($\theta_s = 36^\circ, \phi = 44^\circ, LAI = 4.25$, LAD is Erectophile) the input leaf and soil spectrum and the input sky diffuse light ratio are also provided.

2 It's not clear to induce Eq.(2) from Eq.(1)

We have correct the Eq.(1), and a term of Eq.(2) was left out in the manuscript, which has been added up.

As $\rho = \rho^1 + \rho^m$

$$\rho^1 = \rho_g \left\{ e^{-\lambda_0 \left[\frac{G_s + G_v}{\mu_0} - \frac{G_v}{\mu_v} \cdot \Gamma(\phi) \right] LAI} + \left[e^{-\lambda_0 \frac{G_v}{\mu_v} \cdot LAI} - e^{-\lambda_0 \left[\frac{G_s + G_v}{\mu_0} - \frac{G_v}{\mu_v} \cdot \Gamma(\phi) \right] LAI} \right] \frac{E_d}{\mu_0 F_0 + E_d} \right\} +$$

and

$$\rho_v \left\{ \left(1 - e^{-\lambda_0 \frac{G_v}{\mu_v} \cdot LAI \cdot \Gamma(\phi)} \right) + \left[e^{-\lambda_0 \frac{G_v}{\mu_v} \cdot LAI \cdot \Gamma(\phi)} - e^{-\lambda_0 \frac{G_v}{\mu_v} \cdot LAI} \right] \frac{E_d}{\mu_0 F_0 + E_d} \right\}$$

After second derivative of wavelength

We have

$$\rho'' = \rho_1'' + \rho_m'' \approx \rho_g'' \left\{ e^{-\lambda_0 \left[\frac{G_s + G_v}{\mu_0} - \frac{G_v}{\mu_v} \cdot \Gamma(\phi) \right] LAI} + \left[e^{-\lambda_0 \frac{G_v}{\mu_v} \cdot LAI} - e^{-\lambda_0 \left[\frac{G_s + G_v}{\mu_0} - \frac{G_v}{\mu_v} \cdot \Gamma(\phi) \right] LAI} \right] \frac{E_d}{\mu_0 F_0 + E_d} \right\} +$$

$$\rho_v'' \left\{ \left(1 - e^{-\lambda_0 \frac{G_v}{\mu_v} \cdot LAI \cdot \Gamma(\phi)} \right) + \left[e^{-\lambda_0 \frac{G_v}{\mu_v} \cdot LAI \cdot \Gamma(\phi)} - e^{-\lambda_0 \frac{G_v}{\mu_v} \cdot LAI} \right] \frac{E_d}{\mu_0 F_0 + E_d} \right\} + \rho_m'' \quad (2)$$

3 What is the background difference between the plots of Fig.2?

We has added the information in the caption of the figure. A is water body; b is soil; c is concrete; d is asphalt, all the spectra are cited from the Johns Hopkins University Spectral Library, it can be found at <http://asterweb.jpl.nasa.gov/speclib/>.

4 Simulation condition of Fig.(3) should be given in detail for it seems that the reflectance on NIR band is doubtful.

The simulated spectra is reflectance spectra of Continuous vegetation canopy, the simulation condition has been added in the manuscript. "(LAI=4.87; the leaf angular distribution is spherical; the leaf and soil reflectance spectrum was measured using ASD; the sky diffuse light ratio was measured using CE318)

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5 When estimation and validation the NDVI method using ground measurement data, how the 11 ground LAI is separated as modeling and validating subset?

Since there are only 11 simultaneous ground LAI in the study area on the day when the remote sensing image was acquired, they are used only as validating dataset. The relationship between NDVI and LAI was established by using other ground measurement data measured during different growth period, LAI changed from 0.5 to 6 in other 4 sites.