Toulouse 21 November 2011

Dear DART users,

Please note that the new DART 5.3.2 version can be downloaded on DART web site. It is much improved from the previous DART 5 version, both on science, functionality and technique. Major science and functionality improvements are listed below.

*Science improvement*:

- More accurate radiative transfer modeling in the atmosphere (non Beer law behavior of atmosphere radiative transfer in spectral regions where atmosphere optical properties vary strongly, etc.).
- Possibility to simulate the exact 1$^{st}$ scattering order, even in presence of vegetation.
- Possibility to simulate the different components of satellite measurements of an Earth scene with atmosphere (*e.g.*, direct - direct" and "direct - hemispheric" reflectance).
- Possibility to simulate radiance values in addition to reflectance and brightness temperature values.

*Functionality improvements*:

- Better simulation of trees: possible azimuth rotation of tree crown, tree trunks made of a larger number of trapezoids at several altitude levels.
- Improved 3D radiation budget in vegetation and urban canopies.
- Possibility to specify the sun illumination direction as an upward direction (*i.e.*, zenith angle < 90°), which is much more intuitive for users.
- Possibility to store DART results in a SQL database. Development is going on for using it for the display of results and for the inversion of satellite data.

I am very pleased to thank you all for the advices and suggestions you regularly send us. They contribute to improve DART.

Best regards and enjoy DART 5.3.2

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