

Monthly report / January 2009

On the 16th of January the status of the project has been discussed in a phone conference. Minutes of the phone conference are available at

http://esaslight.libradtran.org/internal/Wiki/doku.php?id=minutes_20090116.

WP 3100: Raman scattering

As reported during the phone conference, the Raman scattering addition is basically implemented. The spectral signature of the Raman-scattered radiation compares well with existing results, however the absolute magnitude is not yet correct. To calculate the Raman scattering source term radiances are needed at a number of angles. The implementation of this user angle specified calculation, was not correctly done within qdisort. That includes interpolation of the source term to user angles. This has been corrected. There is still an unresolved issue in connection with the magnitude of the Raman scattering cross section. The ratio of the summed Raman scattering cross sections to the Rayleigh scattering cross section is a little too low. This is under investigation. Testing of the code against published results is ongoing.

Status: ongoing

WP 3200: Polarization in 3D atmosphere

The algorithm has been implemented also for thermal radiative transfer. The effect of polarization in this wavelength region is very small (at least for randomly oriented particles), which makes the validation difficult. Since polarization due to Rayleigh scattering is very important in the visible region, the focus has been on validation of polarization in this spectral range. It turned out that some special cases were not implemented correctly, e. g. if the sensor viewing direction is exactly nadir. For unpolarized RT the viewing azimuth of the sensor is arbitrary, whereas in polarized RT the azimuth corresponds to a plane of polarization of the sensor. In the first version of the code, this plane could not be specified. This problem has been fixed now.

Status: ongoing

WP 3300: Extension of surface properties

No progress in January.

Status: ongoing

WP 3400: More flexible aerosol handling

Status: closed

WP 3500: Further extensions

On www.libradtran.org in the “User Area” under “Interesting applications” a new application “UV radiation on tilted surfaces” has been added. The polradtran examples in libRadtran has been updated.

To improve user friendliness, the option to display cloud water content and effective radius as flexible output_user variables has been implemented.

WP 4100: Verification plan

Updated verification plan for Raman scattering and polarization.

Status: ongoing

WP 4210: Verification against other RT models

Some verification of new algorithms is in progress:

- MYSTIC with polarization against polradtran and DISORT for various atmospheric conditions.

Status: ongoing

WP 5100: Final ATBDs

Writing of final ATBDs in progress.

Status: ongoing