

*Monthly report / November 2008*WP 3100: Raman scattering

The implementation of Raman scattering is proceeding and has entered the testing phase. Some time has been spent on a few unexpected problems related to the implementation of the discrete ordinate solution method. The causes of the problems have been identified and the problems resolved. Testing is currently proceeding and comparisons with published results are in preparation.

WP 3200: Polarization in 3D atmosphere

Implementation of polarization is complete for solar radiative transfer. It handles molecular, aerosol and cloud scattering. The new algorithm includes optimizations to calculate polarized radiances accurately and efficiently (local estimate technique). It can be used for 3D model atmospheres as well as for spherically symmetric model geometry.

The next step is to extend the algorithm for the thermal spectral range.

WP 3300: Extension of surface properties

No progress in November.

WP 3400: More flexible aerosol handling

OPAC aerosols can now be used as input for RT calculations in combination with all solvers in a flexible way, i. e. the user may define arbitrary aerosol mixtures of the different types. The newly generated OPAC optical properties database includes the phase matrix, therefore it can be used for polarized RT simulations with aerosols.

WP 3500: Further extensions

On www.libradtran.org in the "User Area" under "Interesting applications" the three following applications have been added:

- Rainbows with libRadtran
- Plane-parallel versus pseudo-spherical versus spherical
- Water reflectivity

WP 4100: Verification plan

Started to write the verification plan for Raman scattering and polarization.

WP 4210: Verification against other RT models

Some verification of new algorithms is already in progress:

- MYSTIC with polarization against polradtran and against Collins et al., 1972

A small model comparison between libRadtran and MODTRAN has also been done.

WP 5100: Final ATBDs

Started to update the preliminary ATBDs.

Status:

WP 3100: ongoing
WP 3200: ongoing
WP 3300: ongoing
WP 3400: closed
WP 3500: ongoing
WP 4100: ongoing
WP 4200: ongoing
WP 5100: ongoing