Minutes: ITT 5433/07/NL/HE – Towards a Generic Radiative Transfer Model for the earth's Surface – Atmosphere System: ESAS light

Deutsches Zentrum für Luft- und Raumfahrt e.V. in der Helmholtz-Gemeinschaft

Minutes-Nr.	Meeting	Organisations	Date	Meeting place
03	ESAS light	ESA, DLR	23.09.2008	Oberpfaffenhofen Germany

Arbeitssitzung/Besprechungsthema

Minutes of the 02nd progress meeting of ESAS light

Start: 10:00

End: 16:40

Meeting leader	Telefon-Nr.	Minute taker	Telefon-Nr.	Invitation and Agenda from
		Robert Buras (RB)	+49 08153 28 1433	18.09.2008

Meeting participants — absent with valid excuse — Additional distribution list

Marc Bouvet (MB), ESA
Bernhard Mayer (BM), DLR
Claudia Emde (CE), DLR
Robert Buras (RB), DLR
Arve Kylling (AK)

Agenda

1. Introduction
2. Review of action items from PM1
3. WP2100: Technical specifications of libRadtran toolbox
4. WP2200 / WP2300: ATBDs and development plan
   a) Polarization
   b) Raman scattering
   c) Line-by-line model
   d) OPAC aerosols
   e) Surface properties – BRDF
   f) Refraction
   g) Graphical User Interface
5. libRadtran webpage
6. Wrap-up, agreements, next steps, review of action items, date of next meeting

1. Introduction

2. Review of action items from PM1

All action items from PM1 were closed.

3. WP2100: Technical specifications of libRadtran toolbox

CE presented the WP2100. MB suggested to extend the WP and show more precisely the architecture of the code. However, he proposed not to go into too much detail since WP5000 would include a detailed description of the code.

4. WP2200 / WP2300: ATBDs and development plan

Polarization

CE elaborated on the implementation of polarization into the 3D Monte Carlo package MYSTIC, to be done in WP 3200. Specific stress was put on the problem of implementing polarization for oriented particles, since this would require extremely large amount of memory, which at current time are not available. MB accepted this argument and agreed that only randomly oriented particles should be implemented within this project.

Raman scattering

AK gave an overview over the equations to be implemented for Raman scattering (WP 3100).

Line-by-line model

CE explained that a good freely available model for line-by-line calculation was ARTS. She suggested that it should stay as a separate module within the RT package, but that the interface between ARTS and libRadtran should be automatized. AK mentioned that this would make it easy to replace ARTS by other line-by-line models.

OPAC aerosols

CE gave an overview over the OPAC database for aerosols. It will be necessary to make the treatment of aerosols more flexible within WP 3400. In particular, mixing of aerosols must be allowed. Detailed evaluation and testing will be necessary.

Surface Properties - BRDF

BM briefed the BRDFs to be implemented into libRadtran. MB had no particular additional requirements. According to BM it was still an open question how to include polarization effects from water. CE replied that Mishchenko provides a Fortran code for computing polarized BRDFs on his homepage, which might solve this question. BM noted that polarization effects of land surface should be negligible. The extension of the surface properties will be done in WP 3300

Refraction

CE gave a summary of the implementations to be done for refraction, in WP 3500.

Graphical User Interface

AK presented the possibilities available from a GUI based on the programming language Python. MB confirmed that the presented framework complied with the requirements for the GUI. He added that the GUI was meant to help new users with getting used to libRadtran, thus the GUI would not have to include all possible options of libRadtran. Several suggestions were made concerning details of the GUI: It should be easy to implement new options into the GUI (BM), the GUI should maybe not be provided as python file, but as executable, so that the user would not have to install python. Several existing GUIs were mentioned, suchs as MSIXS (used for 6S), UI (used for MODTRAN) and an old GUI for libRadtran working on MS Windows only. The GUI will be programmed in WP3500.

5. libRadtran webpage

BM introduced the new webpage for libRadtran, based on Wiki. It includes two new features, a User Area where external users can present their own applications, and a FAQ page.

6. Wrap-up

It was decided that the next meeting should be in the beginning of January 2009. The meeting should only be informal and only consist of the developpers (AK, CE, BM, UH). It should be complemented by a tele-conference with MB, prospected to be on January 9th 2009, 10-12 a.m.
Following action items were defined as a consequence of the meeting:
A1: Update technical specifications document (CE)
A2: Check Mishchenko code to compute polarized BRDF (UH, BM)
A3: Launch new libRadtran webpage, include FAQ and interesting applications (BM)

Bernhard Mayer Claudia Emde Arve Kylling Ulrich Hamann