

Supplement to ACP article: Radiative effect by cirrus cloud and contrails – A comprehensive sensitivity study

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1 Example libRadtran input-file

Here, an exemplary libRadtran input file is provided, which is used to simulate the upward and downward solar irradiances. The code is annotated and the comments are marked with "#- #-".

```
#--Radiative transfer equation solver--#
rte_solver fdisort2
#--Number of streams--#
number_of_streams 16
#--Location of the extraterrestrial spectrum--#
source solar ../data/solar_flux/kurudz_5.0nm.dat
#--Solar zenith angle--#
sza 70.0
#--Simulated wavelength range [nm]--#
wavelength 300.0 3500.0
#--location of selected atmosphere file--#
atmosphere_file ../data/atmmod/afglus.dat
#--molecular absorption and resolution--#
mol_abs_param reptran coarse
#--Surface albedo--#
albedo 1.00
#--Specification of ice cloud (file)--#
ic_file 1D ../lib_input/ice_cloud_13.0alt_0.1000iwc_50.0um.dat
ic_properties yang interpolate
ic_habit rough-aggregate
#--Specification of liquid cloud (file)--#
wc_file 1D ../lib_input/wc_cloud.dat
#--scaling liquid water cloud optical thickness--##
wc_modify tau set 20.0
#--selection of output altitudes in km--#
zout 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
#--user defined output wavelength sza altitude direct_down diffuse_down diffuse_up irradiance
↔ --##
output_user lambda sza zout edir edn eup
#--integration over all wavelength--#
output_process integrate
```