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- Examples for PREDE data processing -

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1. History

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2006.04.20 two examples for Ver.4.2 analysis are given by M.Yamano

2024.01.17 Edited for Ver 5.0 by M.Hahimoto

2. List of contents

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In the directory examples/ there are the following two directories

and this document 'ReadMe\_example.doc'.

(1) example1/ ... Typical processing of measurements on GROUND

(2) example2/ ... Typical processing of measurements on SHIP

3. Example.1

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3-1. Measurements

Test measurements were performed on the rooftop floor of PREDE

building in May '03. There are two data files that include three

measurements in the early morning of the respective days; 29th and 30th.

03052900.dat

03053000.dat

. Make directory DAT/

mkdir DAT

. Store data files in DAT/ DAT/03052900.dat

mv \*.dat DAT 03053000.dat

3-2. Setting of observation conditions files ... parafiles/

Any file name is available for these observation conditions files.

(1) Setting of 'METEO.DAT'

Here a default file 'METEO.DAT.default' in the directory parafiles/

is used as 'METEO.DAT' file (meteorological conditions).

\*'METEO.DAT.default' is not suitable, if the altitude of the

observation site is high. Because it is difficult to assume that

the atmospheric pressure(PRS) is 1 atm.

(2) Setting of 'obs.para'

Here 'obs.para.PREDE' is made as 'obs.para' file (information on

observation). The longitude for the Japan standard time(JST) is

135.0E degree. The longitude and latitude of PREDE building are

139.323E deg. and 35.752N deg. respectively.

East longitude and north latitude are written as positive value,

west longitude and south latitude are as negative.

(3) Setting of 'ins.para'

Here 'ins.para.POM-01' is made as 'ins.para' file (information on

instrument). Serial number(S/N), wavelengths, solid view angles(SVA)

for the instrument are given by PREDE Co.,Ltd.

Calibration constans(F0) for the instrument are expected to be also

given in future. If F0s are unknown, NDAY=0 is set.

Type of instrument(ITYP) gives format type of data files. Here the

type is 30. Available types are given in ReadMe\_para.doc.

The level-1 analysis is impossible in case of unknown F0s. In that

case, data for determination of F0 must be collected in parallel with

the level-0 analysis of sky radiance data. The level-1 analysis will

be possible after determination of F0 ('cal\_f0' processing).

3-3. Format conversion of measurement data files ... dtform/

(1) Setting of 'dtform.par'

IDT5=1 is set for Ver.5.0 analysis. File names of 'obs.para' and

'ins.para' are set.

(2) 'dtform' processing

. Make directories DT5/ and Tag/

mkdir DT5 Tag

. Make 'fname' (a list of input data file names) file

cd DAT

ls -1 \* > ../fname

cd ../

. Run 'dtform.e' (an executable file for 'dtform.f')

dtform.e

(3) Outputs

DT5/03052900.DT5 ... input data files for analysis Ver.5.0

03053000.DT5

Tag/03052900.tag ... 'tag' files

03053000.tag

dtform.log ... processing log file

dtform.tag ... 'tag' file for all processed data

If data fail to be processed because of some error, an error message

is output to 'dtform.log' file. 'dtform.tag' is a merged file of all

'tag' files in Tag/.

3-4. The level-1 analysis by Ver.5.0 ... sproc5/

(1) Setting of 'sproc.par'

IPAR=IVOL=IAUR=IPHS=1 is set. File names of 'ins.para' and

'METEO.DAT' are set. Wavelengths(WL), number of them(NW),

numbers of order for wavelengths having absorptions by ozone(NO3)

and by water vapor(NWV) are set. Data for wavelengths 315nm and

940nm are not used for analysis (IANL=0 is set), because of the

influence of absorption. CR and CI are initial values of retrieval

for real and imaginary parts of complex refractive index respectively.

GA is the ground albedo (assumed). Other parameters need not be

changed in general analysis.

Detailed explanation for 'sproc.par' is given in ReadMe\_v5.doc.

(2) 'sproc5' processing

. Make directories Par/, Vol/, Aur/ and Phs/

mkdir Par Vol Aur Phs

. Make 'fname' (a list of input data file names) file

cd DT5

ls -1 \* > ../fname

cd ../

\* 'fname' for 'dtform' processing is available.

. Run 'sproc5.e' (an executable file for 'sproc5.f')

sproc5.e

\* 'MIEKER' is necessary for this process.

(3) Outputs

Par/03052900.par ... optical thickness, refractive index,

03053000.par single scattering albedo

Vol/03052900.vol ... volume spectrum (dV/dlnr[cm3/cm2])

03053000.vol

Aur/03052900.aur ... measured and retrieved sky radiance

03053000.aur

Phs/03052900.phs ... phase function

03053000.phs

sproc5.log ... processing log file

sproc.tag ... 'tag' file for all analyzed data

If data fail to be analyzed because of some error, an error

message is output to 'sproc5.log' file. 'sproc.tag' is a table

of information on analyzed data (conditions for measurement and

analysis).

Detailed explanation for outputs are given in ReadMe\_v4.doc.

4. Example.2

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4-1. Measurements

These are samples of observation data measured on ship 'SHIRASE'

mooring in Tokyo Bay in Oct. '02. There is a data file that include

three measurements in the afternoon of the 5th day.

021005.DAT

. Make directory DAT/

mkdir DAT

. Store data files in DAT/ DAT/021005.DAT

mv \*.DAT DAT

4-2. Setting of observation conditions files ... parafiles/

Any file name is available for these observation conditions files.

(1) Setting of 'METEO.DAT'

Here a default file 'METEO.DAT.default' in the directory parafiles/

is used as 'METEO.DAT' file (meteorological conditions).

(2) Setting of 'obs.para'

In case of measurements on ship, data of 'obs.para' necessary for

analyses are all included in measurement data files(\*.DAT). So

there is no problem, if data of 'obs.para' file are not exact.

Here an example file 'obs.para.example' in the directory parafiles/

is used as 'obs.para' file (information on observation).

(3) Setting of 'ins.para'

Here 'ins.para.SHIRASE' is made as 'ins.para' file (information on

instrument). Serial number(S/N), wavelengths, solid view angles(SVA)

for the instrument are given by PREDE Co.,Ltd.

Calibration constans(F0) for the instrument are expected to be also

given in future. If F0s are unknown, NDAY=0 is set.

Type of instrument(ITYP) gives format type of data files. Here the

type is 21. Available types are given in ReadMe\_para.doc.

The level-1 analysis is impossible in case of unknown F0s. In that

case, data for determination of F0 must be collected in parallel with

the level-0 analysis of sky radiance data. The level-1 analysis will

be possible after determination of F0 ('cal\_f0' processing).

\* measurements for purpose of collecting data for determination of F0

should be done on ground if possible, or when the ship moors in bay

at least.

4-3. Format conversion of measurement data files ... dtform/

(1) Setting of 'dtform.par'

IDT5=1 is set for Ver.5.0 analysis. File names of 'obs.para' and

'ins.para' are set.

(2) 'dtform' processing

. Make directories DT5/ and Tag/

mkdir DT5 Tag

. Make 'fname' (a list of input data file names) file

cd DAT

ls -1 \* > ../fname

cd ../

. Run 'dtform.e' (an executable file for 'dtform.f')

dtform.e

(3) Outputs

DT5/021005.DT5 ... input data files for analysis Ver.5.0

Tag/021005.tag ... 'tag' files

dtform.log ... processing log file

dtform.tag ... 'tag' file for all processed data

If data fail to be processed because of some error, an error message

is output to 'dtform.log' file. 'dtform.tag' is a merged file of all

'tag' files in Tag/.

4-4. The level-1 analysis by Ver.5.0 ... sproc5/

(1) Setting of 'sproc.par'

IPAR=IVOL=IAUR=IPHS=1 is set. File names of 'ins.para' and

'METEO.DAT' are set. Wavelengths(WL), number of them(NW),

numbers of order for wavelengths having absorptions by ozone(NO3)

and by water vapor(NWV) are set. Data for wavelengths 315nm and

940nm are not used for analysis (IANL=0 is set), because of the

influence of absorption. CR and CI are initial values of retrieval

for real and imaginary parts of complex refractive index respectively.

GA is the ground albedo (assumed). Other parameters need not be

changed in general analysis.

Detailed explanation for 'sproc.par' is given in ReadMe\_v5.doc.

(2) 'sproc5' processing

. Make directories Par/, Vol/, Aur/ and Phs/

mkdir Par Vol Aur Phs

. Make 'fname' (a list of input data file names) file

cd DT5

ls -1 \* > ../fname

cd ../

\* 'fname' for 'dtform' processing is available.

. Run 'sproc5.e' (an executable file for 'sproc5.f')

Sproc5.e

\* 'MIEKER' is necessary for this process.

(3) Outputs

Par/021005.par ... optical thickness, refractive index,

single scattering albedo

Vol/021005.vol ... volume spectrum (dV/dlnr[cm3/cm2])

Aur/021005.aur ... measured and retrieved sky radiance

Phs/021005.phs ... phase function

sproc5.log ... processing log file

sproc.tag ... 'tag' file for all analyzed data

If data fail to be analyzed because of some error, an error

message is output to 'sproc5.log' file. 'sproc.tag' is a table

of information on analyzed data (conditions for measurement and

analysis).

Detailed explanation for outputs are given in ReadMe\_v5.doc.

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* End of ReadMe\_example.doc \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*