Manual for SR-CEReS

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1. General

This is a manual for sky radiometer (SR) analysis program package developed by Center for Environmental Remote Sensing (CEReS), called SR-CEReS. The SR-CEReS consists of the programs running on Unix-like OS such as Linux.

There is an option to choose the version of "sproc" program (the core inversion program of skyrad.pack 4.2 or 5).

2. Compile

After you extract the archive, go to the directory ./sr-ceres/bin and run the script to compile all programs.

```
$ cd sr-ceres/bin
$ ./compileall.sh
```

3. Directory structure

The directory structure is summarized in Table 3.1.

Table 3.1 Directory structure

Directory	Descriptions
# In ./sr-ceres/	
- bin	Main common programs for all observation data
- v01.00.00 (*in the case of ver. 01.00.00 product)	Working directory for a version of products.
- v01.00.00/FORM (*in the case of ver. 01.00.00 product)	Working directory for a site. It is not recommended to edit this directory. You can copy it to prepare the directory for a new site, by a command like: cp -r FORM chiba.
- v01.00.00/chiba	Working directory for the Chiba site, as an example.
- v01.00.00/chiba/s00c00	Working directory for individual serial numbers of SR and individual cases of instrument/retrieval setting. A "s*xx*" represents the order of the serial number and a "c*xx*" represents the order of the case. You can copy s00c00 for other serial numbers and cases.
# In ./sr-ceres/v01.00.00/chiba/s00c00/ (*in the case of chiba/s00c00)	
- bin	Programs for the case
- raw	Raw data. Empty by default.
- tbl	Table files for the calibration constant, the solid view angle, and the meteorological data.
- para0	Parameter files
- para1	Parameter files produced by programs. Empty by default.
- 1	The 1st data/plots produced from data in the "raw" directory (corresponding to the level 1). Empty by default.
- 2	The 2nd data (for the Improved Langley) produced from data in the "1" directory. Empty by default.
- 3	The 3rd data/plots produced from data in the "1" and "2" directories (corresponding to the level 2 data). Empty by default.
svaana	Working directory for SVA analysis.
f0ana	Working directory to make F0 plots.

4. Input files

Necessary input files are raw data, which should be in the "raw" directory. You can modify bin/1_x.sh to automate to transfer raw data. The files you need to modify are listed in Table 4.1.

Table 4.1 Files needed to be modified.

Files	Descriptions
bin/1_x.sh	the main control script for the case
bin/1.0a.exception1.sh	in case with data file(s) not to be retrieved
tbl/met.tbl	meteorological data
tbl/sva.tbl0	SVA data
tbl/f0.tbl0	in case analyzing with pre-determined F_0 values
para0/sproc.par.lv1	for the level-1 analysis
para0/sproc.par.lv2	for the level-2 analysis
bin/header.txt	a header file to be included in output files

5. Output files

The final products are created in 3/Submit/ directory. In the directory, daily and annual data are both created. A header file (bin/header.txt) is added. Data files without the header are in 3/Out3. Quick-look plots are created in 3/Plot.

6. Usage

Follow the readme file ./sr-ceres/bin/readme.txt.

7. Limitations

The number of wavelengths analyzed is limited to 7.

8. Version history for SR-CEReS

Date	Version	Remark
Feb. 13, 2017	20170213	The first distribution.
Apr. 17, 2018	20180417	The 2nd distribution.
Nov. 29, 2018	20181129	The 3rd distribution.
Dec. 6, 2018	20181206	Unnecessary programs have been removed.