



ships4sst

shipborne radiometers for sea surface temperature

Tools and Software L2R converter tool

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Overview

- The L2R converter tool
 - Converts ascii to L2R
 - User configurable
- Easy way to generate L2R
- Python script (v2.7)
 - Libraries
 - mx.DateTime
 - netCDF4
 - uuid
 - mpl_toolkits.basemap
 - Astral
 - A number of standard python libraries
- Download
 - ftp://ftp.noc.soton.ac.uk/pub/isfrn_ftp/software/ascii_to_l2r/v1.0/

Usage

Cmd > python write_l2r_from_ascii_v1.0.py

ISRN ASCII to L2R processor v1.0

(c) 2019 ISAR team

please specify:

-p ASCII file(s) data path

-c configuration file (optional),

only needed if not in above directory or name is different to "ascii_l2r.cfg"

Config

Section	Description
General	General information about the deployment such as dates, instrument name, platform name
Files	File names to be processed
Global	L2R netcdf file name configuration fields and global attributes for individual data providers.
Ascii	Defines the columns in the ascii file.
Flags	Defines the flags for the netcdf file

Config – General

Parameter	Description
Start	Start date of deployment, used for L2R file name and netcdf global attributes
End	End date of deployment, used for netcdf global attributes
InstrumentName	Instrument name (e.g. ISAR, SISTeR, M-AERI, ...)
InstrumentSN	Instrument serial number, used for file name and netcdf global attributes.
Deployment	Deployment identifier, can be a number or string or combination, used in netcdf file name and global attributes.
Platform	Ship or platform identifier used to acquire the data, used in netcdf file name and global attributes.
PlatformID	Platform ID of type as specified by type
PlatformIDType	Platform ID type (IMO, WMO, ...)
PlatformName	Platform description , such as Ships name or location name
InstrumentOrientation	Angle of the ISAR aperture horizontal from ships bow in a clockwise direction. i.e. port is 270, starboard is 90
InstrumentElevation	Height of instrument of the waterline.

Config – Files

Parameter	Description
file<no>	files to be processed, starting at file1, file2, Can be any length and does not have to be continuous, i.e. file2, file4, file5 is acceptable, but files no should be in ascending order. # can be used to comment files out.

Config – General

Parameter	Description
RDAC	Data producer identifier, this needs to be approved by ISRN . Current RDACS are (UoS, RAL, RSMAS, DMI), default is UoS. This is labelled as ISDP in the The Recommended ISRN L2R Data Specification v1.1 rev0.doc.
Product	Default is “SSTskin”, other possible values are SSTsubskin and SSTdepth.
Level	Default is “L2R_ISRN”, no other levels are currently specified.
Acknowledgement	Any acknowledgement to be in the data, such as funding agency, ship operator, ..
CreatorName	Default is UoS
CreatorEmail	Default is w.wimmer@soton.ac.uk
CreatorUrl	Default is www.isar.org.uk
Summary	What the product is meant for. Default is: “ISRN in-situ skin SST data, collected for the validation of SLSTR SST products”
References	Default is “Product Handbook”
License	Default is “These data may be used freely, EXCEPT as inputs to assimilated SST products.”.
PlatformType	Default is “ship”.
InstrumentType	Default is “radiometer”
DataType	Default is “trajectory”
FeatureType	Default is “trajectory”
History	Processing history
Comment	Short data description
ProductVersion	Data producer product version (should be the same as the data processor version used to generate the ascii data)

Config – Ascii

Parameter	Description	Flags	Flags as defined by The Recommended ISRN L2R Data Specification v1.1 rev0.doc. 16 bit integer value, bit 1 is LSB:
Comment	Symbol used for comments in text file (default is #), any text in a row started with this symbol is ignored.		
Delimiter	Symbol used to separate the columns (default is ,)		
TimeStamp	Column id (zero indexed) of the time stamp.		
Latitude	Column id (zero indexed) of latitude.		
Longitude	Column id (zero indexed) of longitude.		
SOG	Column id (zero indexed) of speed over ground.		
COG	Column id (zero indexed) of course over ground.		
SST	Column id (zero indexed) of sea surface temperature (SST).		
BT_sky	Column id (zero indexed) of the brightness temperature of the sky.		
BT_sea	Column id (zero indexed) of the brightness temperature of the sea.		
BB_amb	Column id (zero indexed) of the ambient black body temperature.		
UC_total	Column id (zero indexed) of the total uncertainty for each SST value.		
UC_A	Column id (zero indexed) of the type A uncertainty for each SST value.		
UC_B	Column id (zero indexed) of the type B uncertainty for each SST value.		
UC_I	Column id (zero indexed) of the instrument uncertainty for each SST value. For the definition of instrument uncertainty see Wimmer and Robinson, 2016.		
UC_M	Column id (zero indexed) of the measurement uncertainty for each SST value. For the definition of measurement uncertainty see Wimmer and Robinson, 2016.		
		Quality	Quality as defined by The Recommended ISRN L2R Data Specification v1.1 rev0.doc. 1. Q = [5,4,3,2,1,0] with 5 is best. Q = [5,4,3,2] depending on total uncertainty Q = 1 is proximity to land (closer than 0.075 degrees). Q = 0 no usable data.
		Viewangle	View angle of the sea view from nadir (looking down)
		Roll	Instrument roll data
		Pitch	Instrument pitch data
		Azimuth	Instrument azimuth data
		Roll_sd	Instrument standard deviation of the roll data in one scan cycle.
		Pitch_sd	Instrument standard deviation of the pitch data in one scan cycle.
		Azimuth_sd	Instrument roll standard deviation of the azimuth data in one scan cycle.

Config – flags

Parameter	Description
Radiometric	0 (non radiometric measurements) or 1 (radiometric measurements)

Usage (2)

- Cmd > `python write_l2r_from_ascii_v1.0.py -p /data/ISAR/ascii_l2r_test/`
- Output
 - New folder Processed :

20170922070333-UoS-L2R_ISRN-SSTSkin-ISAR_3-AMT27_DCY-v01_debug.txt	This file only get generated when the debug flag is switch on in <code>write_l2r_from_ascii_v1.0.py</code> (<code>debug=1</code> , after the import section). This file has the same information as the daily netcdf files in ascii form and as a single file.
20170922071032-UoS-L2R_ISRN-SSTSkin-ISAR_3-AMT27_DCY-v01.1-fv1.0.nc	Daily netcdf files for the processed isar data, to L2R specification

Example data

```
# ISAR debug nc data - processing date: 20171102T150657Z
# (c) 2017 ISAR team
# SST calculation version: 3.5
# SST write version: 3.5
# format: time, lat, lon, sog, cog, sst, bt_sky, bt_sea, bb1_temp, uc, uc_a, uc_b, uc_i,
uc_m, flags, quality, viewangle, skyangle, solar_azimuth, solar_azimuth_isar,
solar_zenith, roll, roll_sd, pitch, pitch_sd, azimuth, azimuth_sd
20170922T071032Z, 50.891968, -1.395400, 0.00, 0.00, 287.489,
202.655,287.052,285.018, 0.089731, 0.046586, 0.076691, 0.081267, 0.038045,
323, 1, 25.000, 154.980, 104.2, -999.0, 78.6, 0.52, 0.003831, -0.17, 0.005100,
302.7, 0.055031
20170922T071418Z, 50.891998, -1.395380, 0.00, 0.00, 287.655, 202.804, 287.218,
284.617, 0.087892, 0.035473, 0.080416, 0.078251, 0.040023, 323, 1, 25.000,
154.950, 104.9, -999.0, 78.0, 0.51, 0.001289, -0.19, 0.001289, 302.7, 0.057656
```

Manual

- On ftp server with python code
- Example data file and config

