CLEV2ER Sea Ice and Iceberg

AO/1-11448/22/I-AG

Software Release Note

[DD-SRN]

Ref: CRIS-TN-SII-GS-4102

CLEV2ER-SII GPP Software Version 0.1.3

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Change Log

Issue	Author	Change	Status	Date
0.1.3	A.Muir	release of v0.1.3 of the GPP Software	Completed	01/03/25

Acronyms and Abbreviations

AD	Applicable Document
GPP	Ground Processor Prototype
IODD	Input Output Data Definition

Reference Documents

Ref. Id	Doc. Title	Date	Version
RD1	Input/Output Data Definition V1, DD-IODD (CRIS-DS-SII-GS-1103)	07/2024	1.1
RD2	Requirements Specifications, (CRIS-RS-SII-GS-1001)	07/2024	1.1

RD3	Software User and Installation Manual (CRIS-MA-LIG-GS-5101)	06/2024	0.1
RD4	Algorithm Theoretical Basis Description (CRIS-DS-LIG-GS-2101)	06/2024	1.2

Table of Contents

1   Introduction

1.1   Purpose and Scope

This is the **Software Release Note** for v0.1.3 of the CLEV2ER Sea Ice and Iceberg GPP software.

The purpose of a Software Release Note is to detail the delivered L2 GPP software version in terms of dependencies, known/solved problems and status with respect to its approved baseline.

2   Release Version Summary

This Version: 0.1.3, release date: 04/03/2025

Version 0.1.3 is a development release as part of Phase-1 of the CLEV2ER Sea Ice and Iceberg project for Technical Checkpoint #1. As a development release it is not expected to be fully featured with respect to the full software requirements [RD-02] but is intended to demonstrate operation of the GPP's algorithm framework at Technical Checkpoint #1 with a few examples of scientific algorithms and a test harness.

3   Delivery Components

The GPP software is delivered in several different package options for:

- Native Install (on supported Linux OS).

- Docker Install.
- An external ADF/TDS package.

For both install options, there is also the option to install:

- Sea Ice GPP only.
- Iceberg GPP only.
- Both Sea Ice and Iceberg GPPs in one package.

The GPP packages for this release comprising of the above options are available for download from the project release portal:

Release Portal: https://www.cpom.ucl.ac.uk/downloads/clev2er_sii

Links within the portal are provided below for this release:

Install Type	File	Size
Native Install	clev2er_sii_siib-0.1.3.tar.gz	85MB
	clev2er_sii_si-0.1.3.tar.gz	84MB
	clev2er_sii-ib-0.1.3.tar.gz	84MB
	SHA256 checksums (in order):	
	192423487a2bfcb669337666689aa8624fa86088c555d1903247 7d43e1f93689	
	6061effa9e8ede30641c69959364a0a5197a24a38788d2eef5a2 3fbe820de5e9	
	cf7321909273513de975e14d5b864db64dce6a85108b14a6890 52407c565e08d	
Docker Install	clev2er_sii_siib-0.1.3.docker.tar.gz	1.1GB
	clev2er_sii_si-0.1.3.docker.tar.gz	1.1GB
	clev2er_sii_ib-0.1.3.docker.tar.gz	1.1GB
	clev2er_sii_siib_with_tds-0.1.3.docker.tar.gz	1.2GB
	clev2er_sii_si_with_tds-0.1.3.docker.tar.gz	1.2GB
	clev2er_sii_ib_with_tds-0.1.3.docker.tar.gz	1.2GB
	SHA256 checksums (in order):	
	870aaf35ab6cade81ade86330144393094d502d37f7c8955f07d 9cb11385656a	
	9b7de522dbc4a2a39e1586a902375096ebc598e3d1a90a1d7bd 34271f380dbe5	
	d12e76c3b87fe7658e6da69a0f2ef62016f45449f0106535e2dd4 e4cd88d8ec3	

	d310ef66f8da64ac1997b98d8d1edbdf8c3e02fd0e9a27f65c758 d5fe6e5b012 94217c252d67cea974b71c1832d5fc0a236b96ffa21513ba450f b0d9f3877cce 303eacd9cdab8463198780d4611793c987e19942250b3a6fcad 75eaedfbc3c3b	
ADF/TDS Package	testdata_external_siib_0.1.3.tar.gz testdata_external_si_0.1.3.tar.gz testdata_external_ib_0.1.3.tar.gz SHA256 checksum: 4dc160538b3bc69d0d369805c8284f9d34dec40bb1acec2577b 71d2ad5eb7171 7ea641d556b83060338d54b8d130b098f6aef5fa7c510c2e1a44 8c87f26be26c 1d7cdc0af07af72fc164a494bfb7da3728b18cccf08202ca13bf3f adfa3e8f65	0.02GB 0.01GB 0.01GB

4 Installation

Software installation procedures are detailed in the CLEV2ER Sea Ice and Iceberg **Software User and Installation Manual** (DD-SUM), [RD-03]. The installation scripts for each install method are provided on the release portal.

5 Dependencies of this Version

This section defines the software and hardware dependencies of this release.

5.1 Software Dependencies

5.1.1 Operating System Dependencies

This release is designed to install and operate on:

Operating System	Version
Linux	Any Linux released since 2020 Target release: Ubuntu 24.04 LTS

MacOS*	macOS >= 12.4

*system tested on MacOS, but not a requirement, so only supported on a best effort basis.

5.1.2 Docker Installation

For Docker installations of this software release all dependencies are pre-built in the container. For key dependencies used to build the Docker image please refer to the dependencies listed for a native installation.

Software Dependency	Version
Docker	Docker Engine or Docker Desktop installed >= version 26.1.3
curl	latest (>= 7.6) for downloading release packages

5.1.3 Native Installation

For native installation (on supported operating systems) of the CLEV2ER GPP software for this release, the key software dependencies are:

Software Dependency	Version
Python	3.12.x
Poetry	latest (>= 2.0.1)
curl	latest (>= 7.6) for downloading release packages
ncdump	latest (optional), for verification/validation
pv	latest (optional). This optional package improves the installation progress readability.

Python package dependency requirements for this version are provided in the following table:

Package	Version
affine	2.4.0
attrs	25.1.0
cartopy	0.24.1
certifi	2025.1.31
cftime	1.6.4.post1
click-plugins	1.1.1
click	8.1.8
cligj	0.7.2
codetiming	1.4.0
colorama	0.4.6
contourpy	1.3.1
cycler	0.12.1
envyaml	1.10.211231
fonttools	4.56.0
imagecodecs	2023.9.18
imageio	2.37.0
kiwisolver	1.4.8
lazy-loader	0.4
matplotlib	3.10.1
netcdf4	1.7.2
networkx	3.4.2
numpy	1.26.4
packaging	24.2
pandas	2.2.3
pillow	11.1.0
pygments	2.19.1
pyparsing	3.2.1
pyproj	3.6.1
pyshp	2.3.1
python-dateutil	2.9.0.post0
pytz	2025.1
pyyaml	6.0.2
rasterio	1.4.3
schema	0.7.7
scikit-image	0.22.0
scipy	1.15.2
shapely	2.0.7

six	1.17.0
tifffile	2023.12.9
toml	0.10.2
types-toml	0.10.8.20240310
tzdata	2025.1
xmltodict	0.13.0

5.1.4 Hardware Requirements of this Version

Each algorithm chain and related tools (gridding tool) have their own minimum recommended hardware (RAM, CPU, Storage) requirement, based on the resources they consume during processing. These have been measured for this release.

GPP Chain	Minimum Memory (RAM) per L1b file	Other Minimum Hardware Requirements	Criteria Used
seaice	TBD	TBD	TBD
iceberg	TBD	TBD	TBD

The L1b file used for this test was in TBD mode and contained TBD seconds of data. Note that the hardware specification used will affect the potential scalability of the GPP as far as multi-processing of a chain (the ability to process multiple L1b files in parallel).

6 Evolutions since Previous Release

6.1 Problems solved in this version

None – first release.

6.2 Other changes in this version

In this development version the CLEV2ER Algorithm Framework and sample algorithms for Sea Ice and Iceberg have been completed. This release also includes the first version of the test harness.

7 Known Issues in this Version

As this is a development release, only a small subset of scientific algorithms defined in the ATBD [RD03] for the sea ice and iceberg chains have been completed. No output algorithms to create L2 CRISTAL files have been created yet.

8 ADF/TDS Versions Included in this Release

In this section we detail the ADF and TDS files included in the GPP software package and additional ADF/TDS package (for large files or datasets > 1GB).

8.1 Common ADF

ADF are located in one of two locations referenced in the table.
GPP: $CLEV2ER_BASE_DIR/testdata/adf/common
EXT: $CLEV2ER_BASE_DIR/testdata_external/adf/common
The location of testdata_external is configurable during installation.

Type	File	Ver	Where	Source	Size
Physical Constants	CR__AX_GR_CST_ _AX_00000000T00 0000_99999999T9 99999_20240201T	1.0	GPP	MSSL	4KB

000000_____ _____CPOM_SI R__V01.NC					

*in this development release, the ADF included is a small subset of the final required ADF.

8.2 Sea Ice ADF

ADF are located in one of two locations referenced in the table.
GPP: $CLEV2ER_BASE_DIR/testdata/adf/seaice
EXT: $CLEV2ER_BASE_DIR/testdata_external/adf/seaice.
The location of testdata_external is configurable during installation.

Type	File	Ver	Where	Source	Size
TBD	TBD	X.X	GPP	TBD	-

*in this development release, the ADF included is a small subset of the final required ADF.

8.3 Iceberg ADF

$CLEV2ER_BASE_DIR/testdata/adf/iceberg

Type	File	Version	Source

*in this development release, the ADF included is a small subset of the final required ADF.

9 Version History

Version	Date	Description
0.1.3	04/03/2025	Development release for TC1. Algorithm framework + sample algorithms. First version of test harness.