



User Manual for the Test Dataset of the NWC/GEO v2025.1

NWC/CDOP3/MTG/AEMET/SW/UM/DATASET, Issue 1, Rev. 2.0

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REPORT SIGNATURE TABLE

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Version	Date	Pages	Changes
1.0	13 November 2020	31	First version for NWC/GEO vMTG
1.1.0	31 March 2025	91	Updated for v2025: <ul style="list-style-type: none"> • Update MTG test with real data • Update output of all dataset to generate the newest version of the products • Update data to fit with the new default configuration (upgrade 25 levels in NWP data)
1.2.0	31 March 2025	98	Updated for v2025.1 <ul style="list-style-type: none"> • Added Test Dataset for GOES19

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1 INTRODUCTION

The EUMETSAT’s “Satellite Application Facilities” (SAFs) are dedicated centres of excellence for processing satellite data, and form an integral part of the distributed EUMETSAT Application Ground Segment (<http://www.eumetsat.int>). This documentation is provided by the SAF on Support to Nowcasting and Very Short Range Forecasting, NWC SAF. The main objective of NWC SAF is to provide, further develop and maintain software packages to be used for Nowcasting applications of operational meteorological satellite data by National Meteorological Services. More information can be found at the NWC SAF webpage, <http://nwc-saf.eumetsat.int>.

1.1 PURPOSE

This document presents the User Manual for the Test Dataset for the NWC/GEO v2025

The NWC/GEO v2025 includes test datasets for MTG, MSG, GOES-R and Himawari-8/9 that can be used as reference data by beginner users in order to check the format and content of input/output files, and also to test the correct installation of the application (mainly PGEs) following the procedure presented in this document.

It is assumed that the SAFNWC/GEO v2025 has been properly installed and configured to appropriate satellite (MTG, MSG, GOES-R (16,17,18) or HIMA08/09) according the installation procedure described in the “User Manual for the NWC/GEO: Software Part” ([AD.1])

1.2 DEFINITIONS AND ACRONYMS

See [RD.1] for a complete list of acronyms for the SAFNWC project.

1.3 REFERENCES

1.3.1 Applicable documents

The following documents, of the exact issue shown, form part of this document to the extent specified herein. Applicable documents are those referenced in the Contract or approved by the Approval Authority. They are referenced in this document in the form [AD.X].

For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. For undated references, the current edition of the document referred applies.

Current documentation can be found at the NWC SAF Helpdesk web: <http://nwc-saf.eumetsat.int>

Ref	Title	Code	Vers	Date
[AD.1]	Software User Manual for the NWC/GEO Application: Software Part	NWC/CDOP3/MTG/AEMET/SW/UM	1.3.0	31/03/25

Table 1: List of Applicable Documents

1.3.2 Reference documents

The reference documents contain useful information related to the subject of the project. These reference documents complement the applicable ones, and can be looked up to enhance the information included in this document if it is desired. They are referenced in this document in the form [RD.X].

For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. For undated references, the current edition of the document referred applies.

Current documentation can be found at the NWC SAF Helpdesk web: <http://nwc-saf.eumetsat.int>

Ref	Title	Code	Vers	Date
[RD.1]	The Nowcasting SAF Glossary	NWC/CDOP2/SAF/AEMET/MGT/GLO		

Table 2: List of Referenced Documents

2 MTG11/L1C TEST DATASET

IMPORTANT NOTE: Due to some errors in the MTG TDS for ORR1 used in this test, the NWC/GEO must be patched for this (and only this) test

2.1 REAL TIME OPERATIONS

1. Login as safnwc user (the account used to install and operate the NWC/GEO application)
2. Confirm that the NWC/GEO has been properly installed and configured for MTI1 Real Time operation.

```
MTI1.....L1c...Near Real Time.....(+000.0 deg)
```

If this is not the case, please change the satellite configuration of the NWC/GEO following the procedure described in section 3.3 of the SW User Manual NWC/CDOP3/GEO/AEMET/SW/UM

NOTE: Curently, the system must be patched to use the MTG TDS

3. Clean the environment

```
rm -f $SAFNWC/import/NWP_data/*
rm -f $SAFNWC/import/Sat_data/*
rm -f $SAFNWC/import/Sdi_data/*
rm -f $SAFNWC/export/*/*

rm -rf $SAFNWC/import/Sat_data_archive
rm -rf $SAFNWC/export_archive

rm -f $SAFNWC/logs/*
rm -rf $SAFNWC/tmp/*
```

- The NWC/GEO dataset is available as a compressed tar file (.tgz). It can be downloaded from the NWCSAF Help Desk. Change to the \$SAFNWC directory and decompress the dataset file:

```
cd $SAFNWC
tar xvzf <origin_path>/NWC-CDOP4-GEO-AEMET-SW-DATA-MTI1_DATASET_v2025.tgz
```

- Start the NWC/GEO using the default configuration

```
SAFNWCTM
```

The following output is received in the terminal

Please note that the remapping process (Step 1) will take several minutes.

```
=====
Satellite Application Facility
on support to
Nowcasting and Very Short-Range Forecasting

NWC/GEO v<vers>

DAY MONTH YEAR

Copyright yyyy, EUMETSAT, All Rights Reserved

-----
Visit our web site for information and support at
http://www.nwcsaf.org
=====

Step 1: Remapping NWP data for the NWC/GEO
This step can take several minutes ...
Check the progress in $SAFNWC/logs/safnwctm_yyyy-mm-ddThh:mm:ssZ.log
AllMappingNWP safnwc.cfs ...

Step 2: Initiating the NWC/GEO Task-Manager Cycle
nohup: appending output to `nohup.out'

-----
Task Manager for the NWC/GEO has been started successfully
-----
```

- Set the NWC/GEO printtty terminal

```
tm log printtty `tty`
```

- Simulate the reception of a satellite slot

```
cd $SAFNWC/import/Sat_data_archive/
ln *_0061_* ../Sat_data
```

and check the ingestion of the MTG files:

```
tail -f $SAFNWC/tmp/SAT/nwcsdi_YYYYMMDDThhZ.log
```

Where YYYYMMDDThh is the *current system* date and hour.

Exit “tail -f” command typing CTRL-C

- Check the automatic execution of slots. This takes some time, until all MTG files required to process the region have been ingested (~4 minute)
The following lines appear in the terminal.

```
New SATC file found:
>$SAFNWC/import/Sdi_data/S_NWC_SATC_MTI1_EURMLAND_NR_20250224T100000Z.txt<
```

This indicates that a new slot has been received and the processing of the slot has been commanded

- Check that the following messages are received

```
PGE CRR, Slot 20250224T100000Z, Region EURMLAND (01): Has concluded with status=exit 0
PGE ASII-TF, Slot 20250224T100000Z, Region EURMLAND (01): Has concluded with status=exit 0
PGE CMA, Slot 20250224T100000Z, Region EURMLAND (01): Has concluded with status=exit 0
PGE CT, Slot 20250224T100000Z, Region EURMLAND (01): Has concluded with status=exit 0
PGE CTHH, Slot 20250224T100000Z, Region EURMLAND (01): Has concluded with status=exit 0
PGE ASII-GW, Slot 20250224T100000Z, Region EURMLAND (01): Has concluded with status=exit 0
PGE PC, Slot 20250224T100000Z, Region EURMLAND (01): Has concluded with status=exit 0
PGE CMIC, Slot 20250224T100000Z, Region EURMLAND (01): Has concluded with status=exit 0
PGE PCPh, Slot 20250224T100000Z, Region EURMLAND (01): Has concluded with status=exit 0
PGE CRRPh, Slot 20250224T100000Z, Region EURMLAND (01): Has concluded with status=exit 0
PGE HRW, Slot 20250224T100000Z, Region EURMLAND (01): Has concluded with status=exit 0
PGE EXIM, Slot 20250224T100000Z, Region EURMLAND (01): Has concluded with status=exit -1
PGE ASII-ICE, Slot 20250224T100000Z, Region EURMLAND (01): Has concluded with status=exit 0
PGE RDT-CW, Slot 20250224T100000Z, Region EURMLAND (01): Has concluded with status=exit 0
PGE CI, Slot 20250224T100000Z, Region EURMLAND (01): Has concluded with status=exit 0
PGE iSHAI, Slot 20250224T100000Z, Region EURMLAND (01): Has concluded with status=exit 0
All PGEs for Slot 20250224T100000Z, Region EURMLAND (01) have concluded
All PGEs for Slot 20250224T100000Z have concluded
```

These messages inform about the execution of all different PGEs. Note that all PGEs terminate successfully (status=exit 0) except GEO-EXIM. This is because this PGE requires wind data as input, which is not available in the first slot.

- Repeat steps 6, 7 and 8 for slots *_0062_*, *_0063_*, *_0064*_ , *_0065*_ , *_0066*_

Wait for the finalization of the processing of a slot (see step 9) before simulating the reception of a new one.

Wait for the finalization of all slots before going to next steps

- Check the result of the processing

```
tm status
```

The following output is obtained

```
=====
DD MM YYYY      NWC/GEO Task-Manager Status   hh:mm:ss
=====
Beginning Time: DD MMM YYYY hh:mm:ss
```

```

Elapsed Time:          000d 00:24:01
Task Manager Status:
  REAL_TIME Mode:    ON
  Active Mode:       ON

Number of tasks in Schedule / in execution:    0/ 0 (Max: 2)

Region Priority / PGE:  CMA CT CTTH CMIC PC CRR PCPh CRRPh iSHAI HRW EXIM ASII-TF ASII-GW ASII-ICE RDT-CW CI PLAX L1SD
-----
EURMLAND          01:  XXX XX XXXX XXXX XX XXX XXXX XXXXX XXXX XXXX XXXXXXX XXXXXXX XXXXXXX XXXXXXX XXXX XX ----
-----

Number of PGE executed/successfully/Total RunTime/Mean RunTime
-----
CMA:              6          6          36  6
CT:               6          6          18  3
CTTH:            6          6          54  9
CMIC:            6          6          68 11
PC:              6          6           9  1
CRR:             6          6          24  4
PCPh:           6          6          13  2
CRRPh:          6          6          17  2
iSHAI:          6          6         222 37
HRW:            6          6         523 87
EXIM:           6          5          73 14
ASII-TF:        6          6          30  5
ASII-GW:        6          6         272 45
ASII-ICE:       6          6          10  1
RDT-CW:        6          6          71 11
CI:             6          6          64 10
PLAX:           0          0           0
L1SD:           0          0           0
-----
Total:           96          95         1476 226

Number of Slots completely processed : 6

```

Note that the generation of PLAX and L1SD PGEs are not activated in the default configuration, and EXIM is not produced for the first 3 slots because of the lack of HRW product

12. Terminates the execution of the NWC/GEO

```
tm quit
```

13. Check the generation of all different PGEs in \$SAFNWC/export/<PGE_id>

```
ls -lR $SAFNWC/export/* | more
```

Following files have been produced

```

/home/saf_MTG/NWCSAF_GEO/export/ASII:
-rw-rw-r-- 1 saf_MTG saf_MTG 6130368 Feb 24 14:39 S_NWC_ASII-GW_MTI1_EURMLAND-NR_20250224T100000Z.nc
-rw-rw-r-- 1 saf_MTG saf_MTG 6132077 Feb 24 14:40 S_NWC_ASII-GW_MTI1_EURMLAND-NR_20250224T101000Z.nc
-rw-rw-r-- 1 saf_MTG saf_MTG 6135902 Feb 24 14:42 S_NWC_ASII-GW_MTI1_EURMLAND-NR_20250224T102000Z.nc
-rw-rw-r-- 1 saf_MTG saf_MTG 6141882 Feb 24 14:43 S_NWC_ASII-GW_MTI1_EURMLAND-NR_20250224T103000Z.nc
-rw-rw-r-- 1 saf_MTG saf_MTG 6143719 Feb 24 14:44 S_NWC_ASII-GW_MTI1_EURMLAND-NR_20250224T104000Z.nc
-rw-rw-r-- 1 saf_MTG saf_MTG 6143122 Feb 24 14:44 S_NWC_ASII-GW_MTI1_EURMLAND-NR_20250224T105000Z.nc
-rw-rw-r-- 1 saf_MTG saf_MTG 6531264 Feb 24 14:39 S_NWC_ASII-ICE_MTI1_EURMLAND-NR_20250224T100000Z.nc
-rw-rw-r-- 1 saf_MTG saf_MTG 6542695 Feb 24 14:40 S_NWC_ASII-ICE_MTI1_EURMLAND-NR_20250224T101000Z.nc
-rw-rw-r-- 1 saf_MTG saf_MTG 6548033 Feb 24 14:41 S_NWC_ASII-ICE_MTI1_EURMLAND-NR_20250224T102000Z.nc
-rw-rw-r-- 1 saf_MTG saf_MTG 6545064 Feb 24 14:42 S_NWC_ASII-ICE_MTI1_EURMLAND-NR_20250224T103000Z.nc
-rw-rw-r-- 1 saf_MTG saf_MTG 6545827 Feb 24 14:43 S_NWC_ASII-ICE_MTI1_EURMLAND-NR_20250224T104000Z.nc
-rw-rw-r-- 1 saf_MTG saf_MTG 6554459 Feb 24 14:44 S_NWC_ASII-ICE_MTI1_EURMLAND-NR_20250224T105000Z.nc
-rw-rw-r-- 1 saf_MTG saf_MTG 6863443 Feb 24 14:38 S_NWC_ASII-TF_MTI1_EURMLAND-NR_20250224T095000Z.nc
-rw-rw-r-- 1 saf_MTG saf_MTG 6865236 Feb 24 14:39 S_NWC_ASII-TF_MTI1_EURMLAND-NR_20250224T100000Z.nc

```

```
-rw-rw-r-- 1 saf_MTG saf_MTG 6867075 Feb 24 14:40 S_NWC_ASII-TF_MTI1_EURMLAND-NR_20250224T101000Z.nc
-rw-rw-r-- 1 saf_MTG saf_MTG 6868837 Feb 24 14:41 S_NWC_ASII-TF_MTI1_EURMLAND-NR_20250224T102000Z.nc
-rw-rw-r-- 1 saf_MTG saf_MTG 6871317 Feb 24 14:42 S_NWC_ASII-TF_MTI1_EURMLAND-NR_20250224T103000Z.nc
-rw-rw-r-- 1 saf_MTG saf_MTG 6875226 Feb 24 14:43 S_NWC_ASII-TF_MTI1_EURMLAND-NR_20250224T104000Z.nc
-rw-rw-r-- 1 saf_MTG saf_MTG 6879397 Feb 24 14:44 S_NWC_ASII-TF_MTI1_EURMLAND-NR_20250224T105000Z.nc
...

/home/saf_MTG/NWCSAF_GEO/export/AUX:

/home/saf_MTG/NWCSAF_GEO/export/CI:
-rw-rw-r-- 1 llgm llgm 6350932 Feb 24 14:42 S_NWC_CI_MTI1_EURMLAND-NR_20250224T100000Z.nc
-rw-rw-r-- 1 llgm llgm 6368045 Feb 24 14:41 S_NWC_CI_MTI1_EURMLAND-NR_20250224T101000Z.nc
-rw-rw-r-- 1 llgm llgm 6373042 Feb 24 14:43 S_NWC_CI_MTI1_EURMLAND-NR_20250224T102000Z.nc
-rw-rw-r-- 1 llgm llgm 6369061 Feb 24 14:43 S_NWC_CI_MTI1_EURMLAND-NR_20250224T103000Z.nc
-rw-rw-r-- 1 llgm llgm 6368232 Feb 24 14:45 S_NWC_CI_MTI1_EURMLAND-NR_20250224T104000Z.nc
-rw-rw-r-- 1 llgm llgm 6370827 Feb 24 14:44 S_NWC_CI_MTI1_EURMLAND-NR_20250224T105000Z.nc

/home/saf_MTG/NWCSAF_GEO/export/CMA:
-rw-rw-r-- 1 llgm llgm 6812896 Feb 24 14:39 S_NWC_CMA_MTI1_EURMLAND-NR_20250224T100000Z.nc
-rw-rw-r-- 1 llgm llgm 6963701 Feb 24 14:40 S_NWC_CMA_MTI1_EURMLAND-NR_20250224T101000Z.nc
-rw-rw-r-- 1 llgm llgm 6967255 Feb 24 14:40 S_NWC_CMA_MTI1_EURMLAND-NR_20250224T102000Z.nc
-rw-rw-r-- 1 llgm llgm 6964961 Feb 24 14:41 S_NWC_CMA_MTI1_EURMLAND-NR_20250224T103000Z.nc
-rw-rw-r-- 1 llgm llgm 6963515 Feb 24 14:43 S_NWC_CMA_MTI1_EURMLAND-NR_20250224T104000Z.nc
-rw-rw-r-- 1 llgm llgm 6979473 Feb 24 14:43 S_NWC_CMA_MTI1_EURMLAND-NR_20250224T105000Z.nc...
...
...
```

14. Use standard netCDF tools to visualize and/or compare generated products with reference products included in \$SAFNWC/export_archive

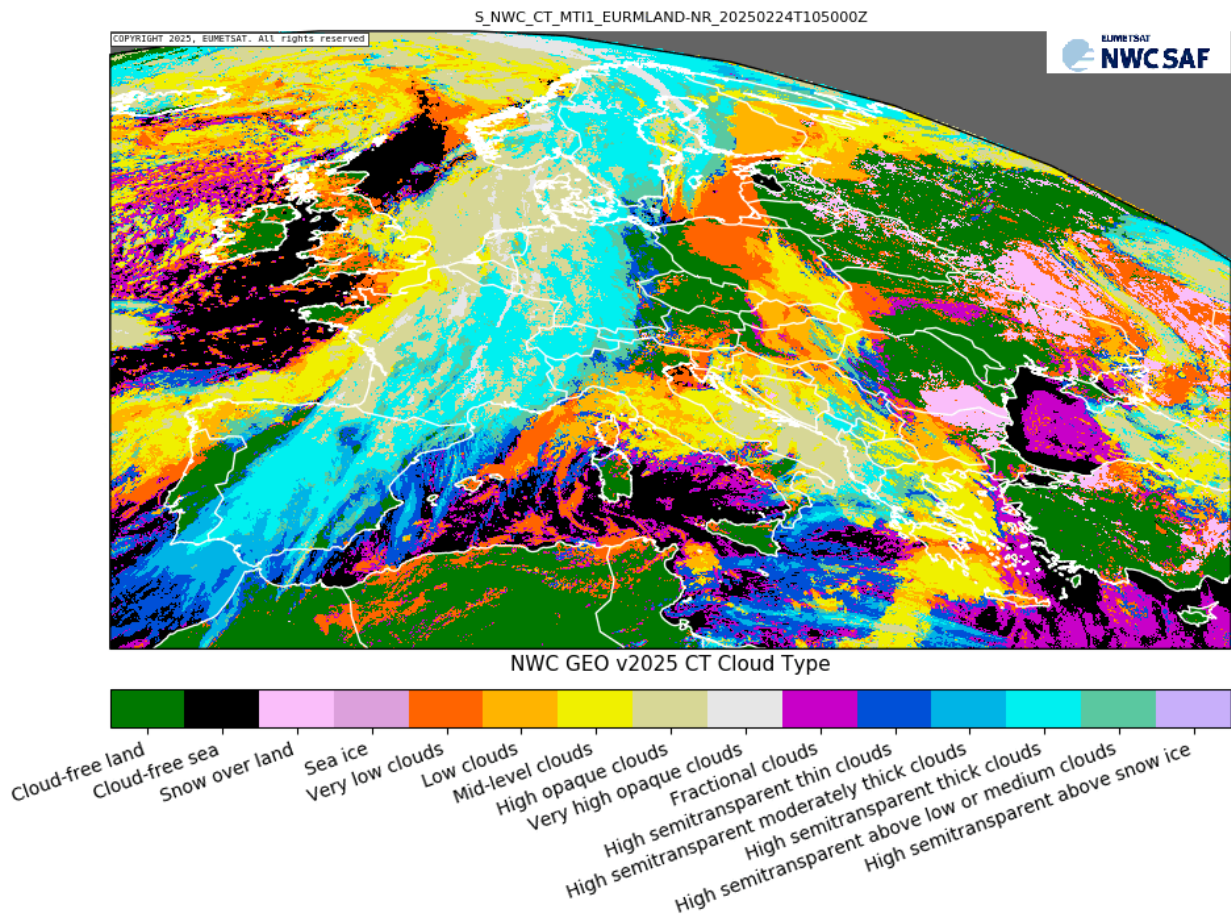


Figure 1: NWC/GEO Cloud Type product for MTG, slot 20250224T105000Z

2.2 REPROCESSING OPERATIONS

Execute the same procedure than that presented for MTG in Real Time (see section 2.1), but with the following changes

- Step 2: Configure the system for Himawari-8 Reprocessing operation.

```
MTI1.....L1c...Reprocessing.....(+000.0 deg)
```

- Step 4: After the installation of the TDS, copy all satellite data in the \$SAFNWC/import/Sat_data directory (for reprocessing)

```
cd $SAFNWC
tar xvzf <source>/ NWC-CDOP3-GEO-AEMET-SW-DATA-MTGI1_DATASET_v2025.tgz
cd $SAFNWC/import/Sat_data_archive/
ln * ../Sat_data
```

- Skip steps 7 & 10. Files already copied for reprocessing, instead of simulating the reception of files in Real time).
- In step 10, simply wait for the finalization of the automatic processing of all slots

```
All PGEs for Slot 20250224T105000Z have concluded
```

2.3 REAL TIME OPERATIONS – FULL DISK

Execute the same procedure than that presented for MTG in Real Time (see section 2.1), but with the following changes

- In Step 2, After the configuration of the system for MTG L1c Real Time Operations, edit the following configuration files located in \$SAFNWC/config directoy and modify the value of the keyword according the following table

File	Keyword	Value	Comment
safnwc.cfs	NB_PARALLEL_PGES	1	Avoids the execution of PGEs in parallel than can exhaust memory by running on the entire disk
safnwc.cfr	REG_CONF	global.cfg	To configure the system to be executed in the full disk
	PS_PGES	(remove ASII-GW)	Execution of ASII-GW in the MTG full disk is not feasible (more that 13 minutes)
	PS_PGES	(remove EXIM)	Execution of ASII-GW in the MTG full disk is not feasible (more that 13 minutes)
safnwc_iSHAI.cfm	LSIZE_FOR CSIZE_FOR	7 7	To speed up iSHAI in full disk
pge_conf_file	MAXRUNTIME	1500-3000	Increase the maximum runtime for each product. The lowers values can be increase to 1500 and highest to 3000

- In Step 4, decompress the dataset for MTG-FD instead of only MTG.

```
cd $SAFNWC
tar xvzf <origin_path>/NWC-CDOP4-GEO-AEMET-SW-DATA-MTI1FD_DATASET_v2025.tgz
```

- In Step 11, the following output is obtained

```
=====
DD MM YYYY      NWC/GEO Task-Manager Status   hh:mm:ss
=====

Beginning Time: DD MMM YYYY hh:mm:ss
Elapsed Time:    000d 02:18:33
Task Manager Status:
  REAL_TIME Mode:  ON
  Active Mode:    ON

Number of tasks in Schedule / in execution:    0/ 0 (Max: 1)

Region Priority / PGE:  CMA CT CTTH CMIC PC CRR PCPh CRRPh iSHAI HRW EXIM ASII-TF ASII-GW ASII-ICE RDT-CW CI PLAX L1SD
-----
global      01:    xxx xx xxxx xxxx xx xxx xxxxx xxxxxx xxx --- xxxxxxxx ----- xxxxxxxx xxxxxx xx ---- xxxxx
-----

Number of PGE executed/successfully/Total RunTime/Mean RunTime
-----
CMA:          6          6          627 104
CT:           6          6          140 23
CTTH:        6          6          351 58
CMIC:        6          6          318 53
PC:          6          6           48 8
CRR:         6          6          677 112
PCPh:        6          6          152 25
CRRPh:       6          6          119 19
iSHAI:       6          6          7068 1178
```

HRW:	6	6	3973	794
EXIM:	0	0	0	
ASII-TF:	6	6	648	108
ASII-GW:	0	0	0	
ASII-ICE:	6	6	45	7
RDT-CW:	6	6	678	113
CI:	6	6	726	121
PLAX:	0	0	0	
L1SD:	6	6	2287	381

Total:	84	84	17857	2976
Number of Slots completely processed : 6				

Note that the generation of PLAX and L1SD PGEs are not activated in the default configuration, and EXIM is not produced for the first 3 slots because of the lack of HRW product

Note that ASII-GW and EXIM is disable in this full disk test because of the high processing time (more than 10 minutes).

- In Step 16, the visual representation of the products is:

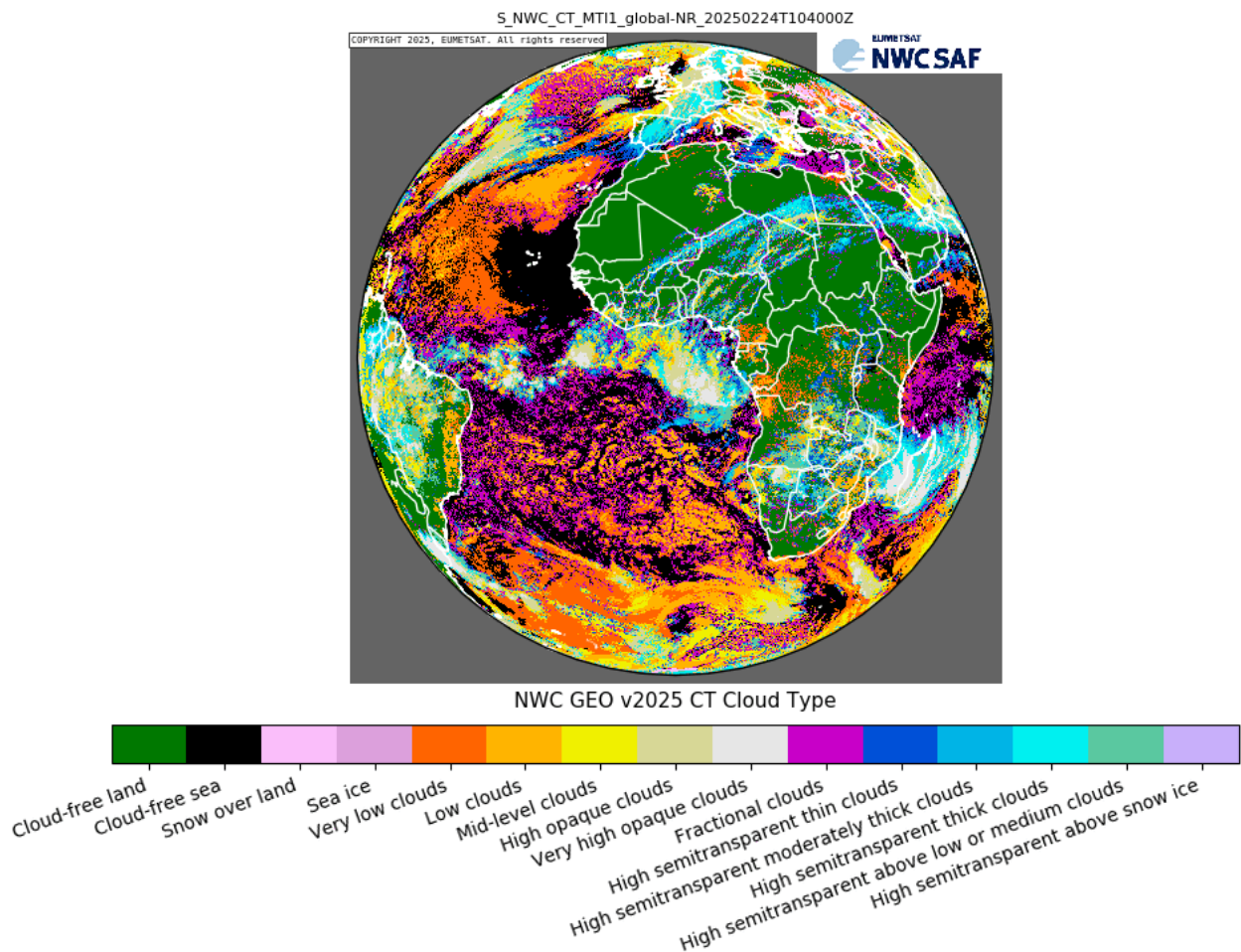


Figure 3: NWC/GEO Cloud Type product for MTG in the full disk, slot 20250224T104000Z

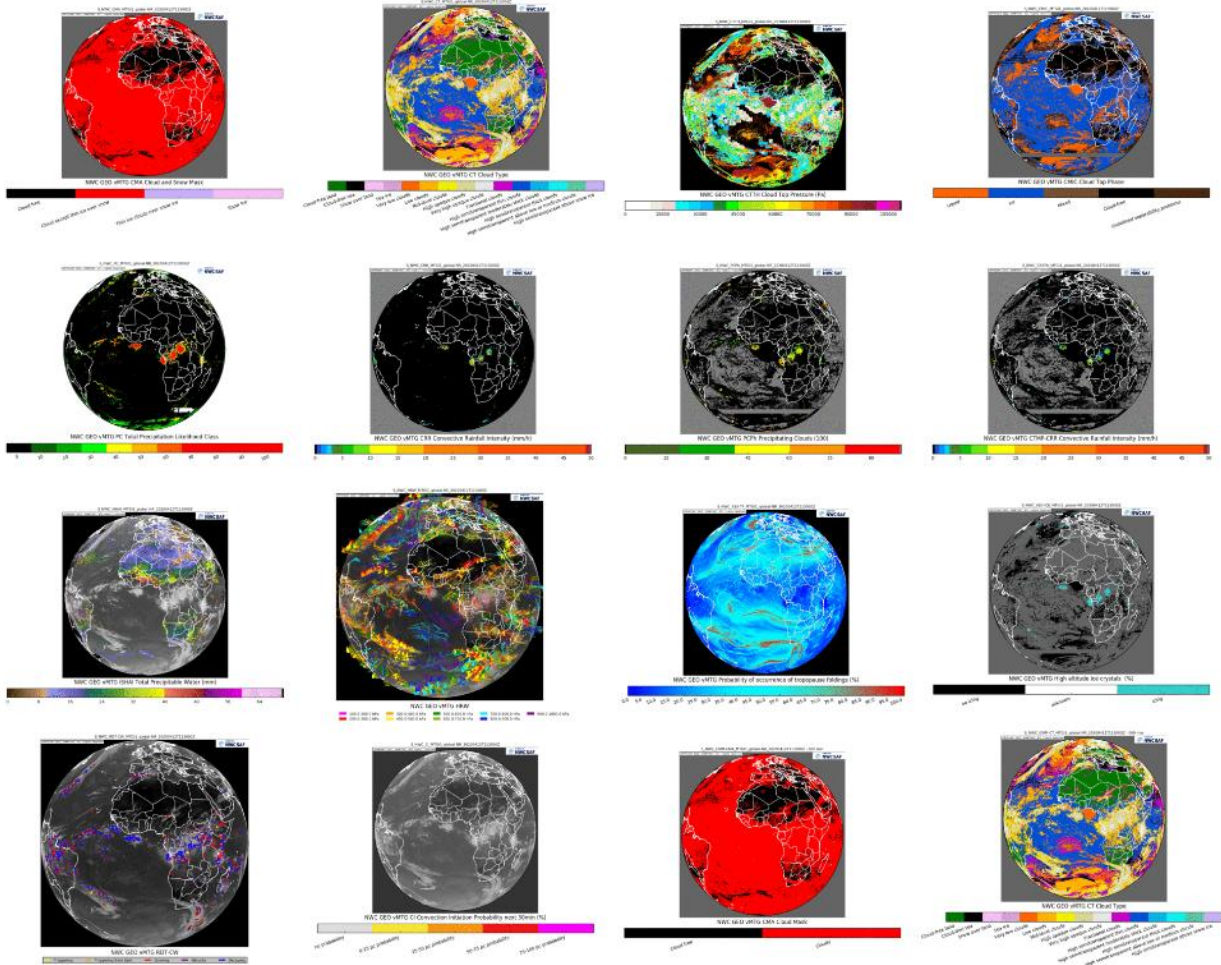


Figure 4: NWC/GEO products for MTG in the full disk, slot 20250224T104000Z

2.4 REPROCESSING OPERATIONS – FULL DISK

Execute the same procedure than that presented for MTG in Reprocessing (see section 2.2), but with the following changes

- In Step 2, After the configuration of the system for MTG L1c Reprocessing Operations, edit the following configuration files located in \$SAFNWC/config directoy and modify the value of the keyword according the following table

File	Keyword	Value	Comment
safnwc.cfs	NB_PARALLEL_PGES	1	Avoids the execution of PGEs in parallel than can exhaust memory by running on the entire disk
safnwc.cfr	REG_CONF	global.cfg	To configure the system to be executed in the full disk
	PS_PGES	(remove ASII-GW)	Execution of ASII-GW in the MTG full disk is not feasible (more that 13 minutes)
	PS_PGES	(remove EXIM)	Execution of EXIM in the MTG full disk is not feasible
safnwc_iSHAI.cfm	LSIZE_FOR CSIZE_FOR	7 7	To speed up iSHAI in full disk
pge_conf_file	MAXRUNTIME	1500-3000	Increase the maximum runtime for each product. The lowers values can be increase to 1500 and highest to 3000

- In Step 11, note that Note that ASII-GW is disabled in the full disk tests because of the high processing time (more than 10 minutes).

3 MSG/HRIT (MSG3 PRIMARY SERVICE) TEST DATASET

3.1 REAL TIME OPERATIONS

1. Login as safnwc user (the account used to install and operate the NWC/GEO application)
2. Confirm that the NWC/GEO has been properly installed and configured for MSG Primary Service Real Time operation.

```
MSG Primary Service.....HRIT...Near Real Time.....(+000.0 deg)
```

If this is not the case, please change the satellite configuration of the NWC/GEO following the procedure described in section 3.3 of the SW User Manual NWC/CDOP3/GEO/AEMET/SW/UM

3. Clean the environment

```
rm -f $SAFNWC/import/NWP_data/*
rm -f $SAFNWC/import/Sat_data/*
rm -f $SAFNWC/import/Sdi_data/*
rm -f $SAFNWC/export/*/*

rm -rf $SAFNWC/import/Sat_data_archive
rm -rf $SAFNWC/export_archive

rm -f $SAFNWC/logs/*
rm -rf $SAFNWC/tmp/*
```

4. The NWC/GEO dataset is available as a compressed tar file (.tgz). It can be downloaded from the NWCSAF Help Desk. Change to the \$SAFNWC directory and decompress the dataset file:

```
cd $SAFNWC
tar xvzf <origin_path>/NWC-CDOP4-GEO-AEMET-SW-DATA-MSGPS_DATASET_v2025.tgz
```

5. Start the NWC/GEO using the default configuration

```
SAFNWCTM
```

The following output is received in the terminal

Please note that the remapping process (Step 1) will take several minutes.

```
=====
Satellite Application Facility
on support to
Nowcasting and Very Short-Range Forecasting

NWC/GEO v<vers>

DAY MONTH YEAR
```

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Visit our web site for information and support at
<http://www.nwcsaf.org>
=====

Step 1: Remapping NWP data for the NWC/GEO
This step can take several minutes ...
Check the progress in \$SAFNWC/logs/safnwctm_yyyy-mm-ddThh:mm:ssZ.log
AllMappingNWP safnwc.cfs ...

Step 2: Initiating the NWC/GEO Task-Manager Cycle
nohup: appending output to `nohup.out`

Task Manager for the NWC/GEO has been started successfully

6. Set the NWC/GEO printtty terminal

```
tm log printtty `tty`
```

7. Simulate the reception of a satellite slot

```
cd $SAFNWC/import/Sat_data_archive/  
ln *202306300800* ../Sat_data
```

8. Check that the following message is received in some seconds

```
New SATC file found:  
>$SAFNWC/import/Sdi_data/S_NWC_SATC_MSG3_MSG-N_VISIR_20230630T080000Z.txt <
```

This indicates that a new slot has been received and the processing of the slot has been commanded

9. Check that the following messages are received

```
PGE CMA, Slot 20230630T080000Z, Region MSG-N (01): Has concluded with status=exit 0  
PGE CT, Slot 20230630T080000Z, Region MSG-N (01): Has concluded with status=exit 0  
PGE CTHH, Slot 20230630T080000Z, Region MSG-N (01): Has concluded with status=exit 0  
PGE CMIC, Slot 20230630T080000Z, Region MSG-N (01): Has concluded with status=exit 0  
PGE PC, Slot 20230630T080000Z, Region MSG-N (01): Has concluded with status=exit 0  
PGE CRR, Slot 20230630T080000Z, Region MSG-N (01): Has concluded with status=exit 0  
PGE PCPh, Slot 20230630T080000Z, Region MSG-N (01): Has concluded with status=exit 0  
PGE CRRPh, Slot 20230630T080000Z, Region MSG-N (01): Has concluded with status=exit 0  
PGE iSHAI, Slot 20230630T080000Z, Region MSG-N (01): Has concluded with status=exit 0  
PGE HRW, Slot 20230630T080000Z, Region MSG-N (01): Has concluded with status=exit 0  
PGE EXIM, Slot 20230630T080000Z, Region MSG-N (01): Has concluded with status=exit -1  
PGE ASII-TF, Slot 20230630T080000Z, Region MSG-N (01): Has concluded with status=exit 0  
PGE ASII-GW, Slot 20230630T080000Z, Region MSG-N (01): Has concluded with status=exit 0  
PGE ASII-ICE, Slot 20230630T080000Z, Region MSG-N (01): Has concluded with status=exit 0  
PGE RDT-CW, Slot 20230630T080000Z, Region MSG-N (01): Has concluded with status=exit 0  
PGE CI, Slot 20230630T080000Z, Region MSG-N (01): Has concluded with status=exit 0  
All PGEs for Slot 20230630T080000Z, Region MSG-N (01) have concluded  
All PGEs for Slot 20230630T080000Z have concluded
```

These messages inform about the execution of all different PGEs. Note that all PGEs terminate successfully (status=exit 0) except GEO-EXIM. This is because this PGE requires wind data as input, which is not available in the first slot.

10. Repeat steps 6, 7 and 8 for slots **202306300815**, **202306300830**, **202306300845** and **202306300900**

Wait for the finalization of the processing of a slot (see step 8) before simulating the reception of a new one.

Wait for the finalization of all 5 slots before going to next steps

11. Check the result of the processing

```
tm status
```

The following output is obtained

```
=====
DD MM YYYY      NWC/GEO Task-Manager Status   hh:mm:ss
=====

Beginning Time: DD MMM YYYY hh:mm:ss
Elapsed Time:      000d 00:24:01
Task Manager Status:
  REAL_TIME Mode:  ON
  Active Mode:     ON

Number of tasks in Schedule / in execution:    0/ 0 (Max: 2)

Region Priority / PGE:  CMA CT CTTH CMIC PC CRR PCPh CRRPh iSHAI HRW EXIM ASII-TF ASII-GW ASII-ICE RDT-CW CI PLAX L1SD
-----
MSG-N      01:   XXX XX XXXX XXXX XX XXX XXXX XXXXXX XXXX XXX XXXX XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX XX --- XXXX
-----

Number of PGE executed/successfully/Total RunTime/Mean RunTime
-----
CMA:          5          5          64  12
CT:           5          5           7   1
CTTH:        5          5          15   3
CMIC:        5          5          42   8
PC:          5          5           7   1
CRR:         5          5          32   6
PCPh:        5          5           6   1
CRRPh:       5          5          13   2
iSHAI:       5          5          110  22
HRW:         5          5          392  78
EXIM:        5          4           5   1
ASII-TF:     5          5          25   5
ASII-GW:     5          5          88  17
ASII-ICE:    5          5           9   1
RDT-CW:     5          5          23   4
CI:          5          5          28   5
PLAX:        0          0           0   0
L1SD:        5          5          76  15
-----
Total:       85          84          942 188

Number of Slots completely processed : 5
```

Note that the generation of PLAX and L1SD is not activated in the default configuration)

12. Terminates the execution of the NWC/GEO

```
tm quit
```

13. Check the generation of all different PGEs in \$SAFNWC/export/<PGE_id>

```
ls -lR $SAFNWC/export/* | more
```

Following files have been produced

```
/home/saf_MTG/NWCSAF_GEO/export/ASII:
-rw-rw-r-- 1 saf_MTG saf_MTG 4443823 ene 17 09:27 S_NWC_ASII-GW_MSG3_MSG-N-VISIR_20230630T080000Z.nc
-rw-rw-r-- 1 saf_MTG saf_MTG 4443656 ene 17 09:27 S_NWC_ASII-GW_MSG3_MSG-N-VISIR_20230630T081500Z.nc
...
-rw-rw-r-- 1 saf_MTG saf_MTG 4851384 ene 17 12:02 S_NWC_ASII-ICE_MSG3_MSG-N-VISIR_20230630T080000Z.nc
-rw-rw-r-- 1 saf_MTG saf_MTG 4876538 ene 17 12:04 S_NWC_ASII-ICE_MSG3_MSG-N-VISIR_20230630T081500Z.nc
...
-rw-rw-r-- 1 saf_MTG saf_MTG 4949429 ene 17 12:02 S_NWC_ASII-TF_MSG3_MSG-N-VISIR_20230630T080000Z.nc
-rw-rw-r-- 1 saf_MTG saf_MTG 4946590 ene 17 12:04 S_NWC_ASII-TF_MSG3_MSG-N-VISIR_20230630T081500Z.nc
...

/home/saf_MTG/NWCSAF_GEO/export/AUX:

/home/saf_MTG/NWCSAF_GEO/export/CI:
-rw-rw-r-- 1 saf_MTG saf_MTG 4745033 ene 17 12:02 S_NWC_CI_MSG3_MSG-N-VISIR_20230630T080000Z.nc
-rw-rw-r-- 1 saf_MTG saf_MTG 4773764 ene 17 12:04 S_NWC_CI_MSG3_MSG-N-VISIR_20230630T081500Z.nc
...

/home/saf_MTG/NWCSAF_GEO/export/CMA:
-rw-rw-r-- 1 saf_MTG saf_MTG 5040547 ene 17 12:02 S_NWC_CMA_MSG3_MSG-N-VISIR_20230630T080000Z.nc
-rw-rw-r-- 1 saf_MTG saf_MTG 5173046 ene 17 12:03 S_NWC_CMA_MSG3_MSG-N-VISIR_20230630T081500Z.nc
...

/home/saf_MTG/NWCSAF_GEO/export/CMIC:
-rw-rw-r-- 1 saf_MTG saf_MTG 5035209 ene 17 12:02 S_NWC_CMIC_MSG3_MSG-N-VISIR_20230630T080000Z.nc
-rw-rw-r-- 1 saf_MTG saf_MTG 5128874 ene 17 12:03 S_NWC_CMIC_MSG3_MSG-N-VISIR_20230630T081500Z.nc
...
...
...
```

14. Use standard netCDF tools to visualize and/or compare generated products with reference products included in \$SAFNWC/export_archive

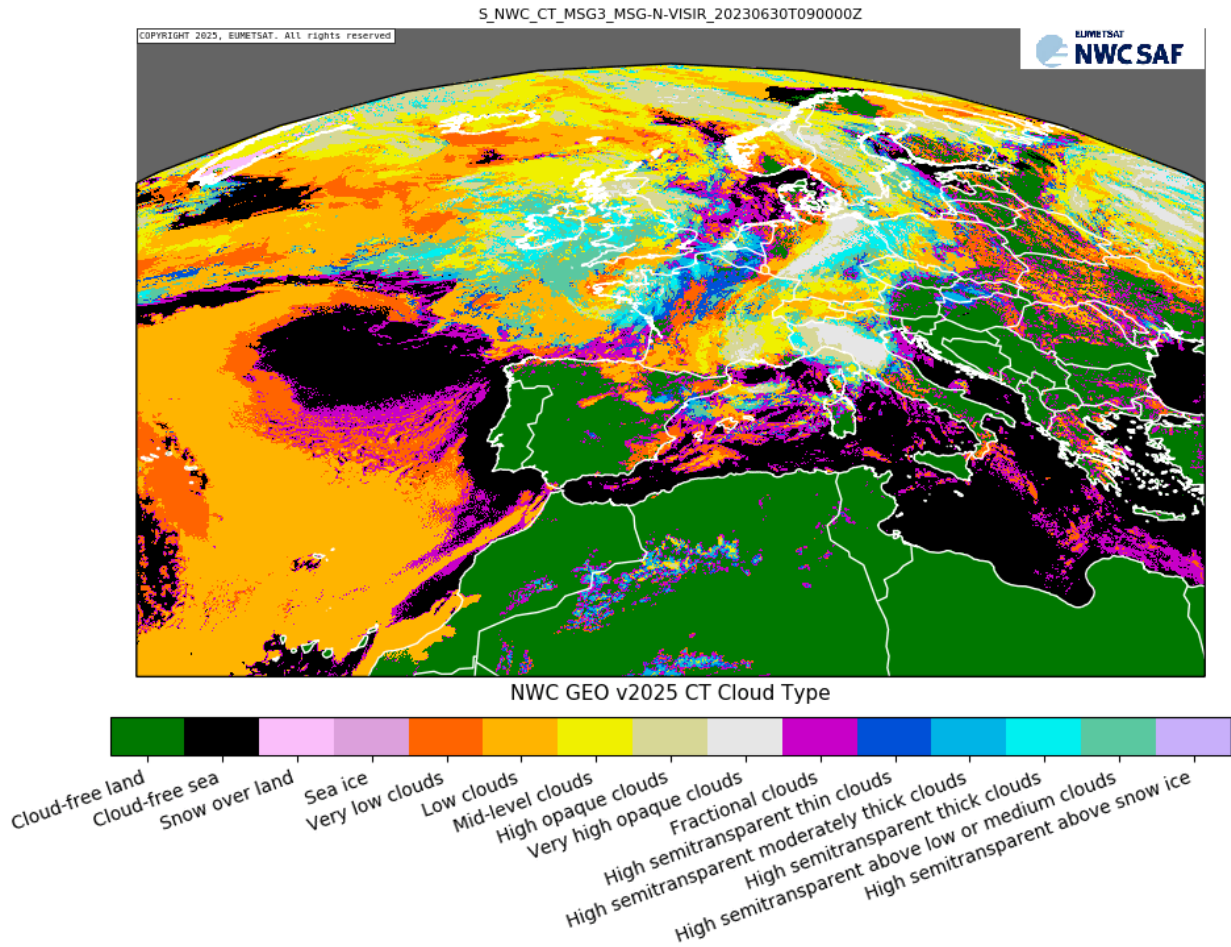


Figure 5: NWC/GEO Cloud Type product for MSG, slot 20230630T090000Z

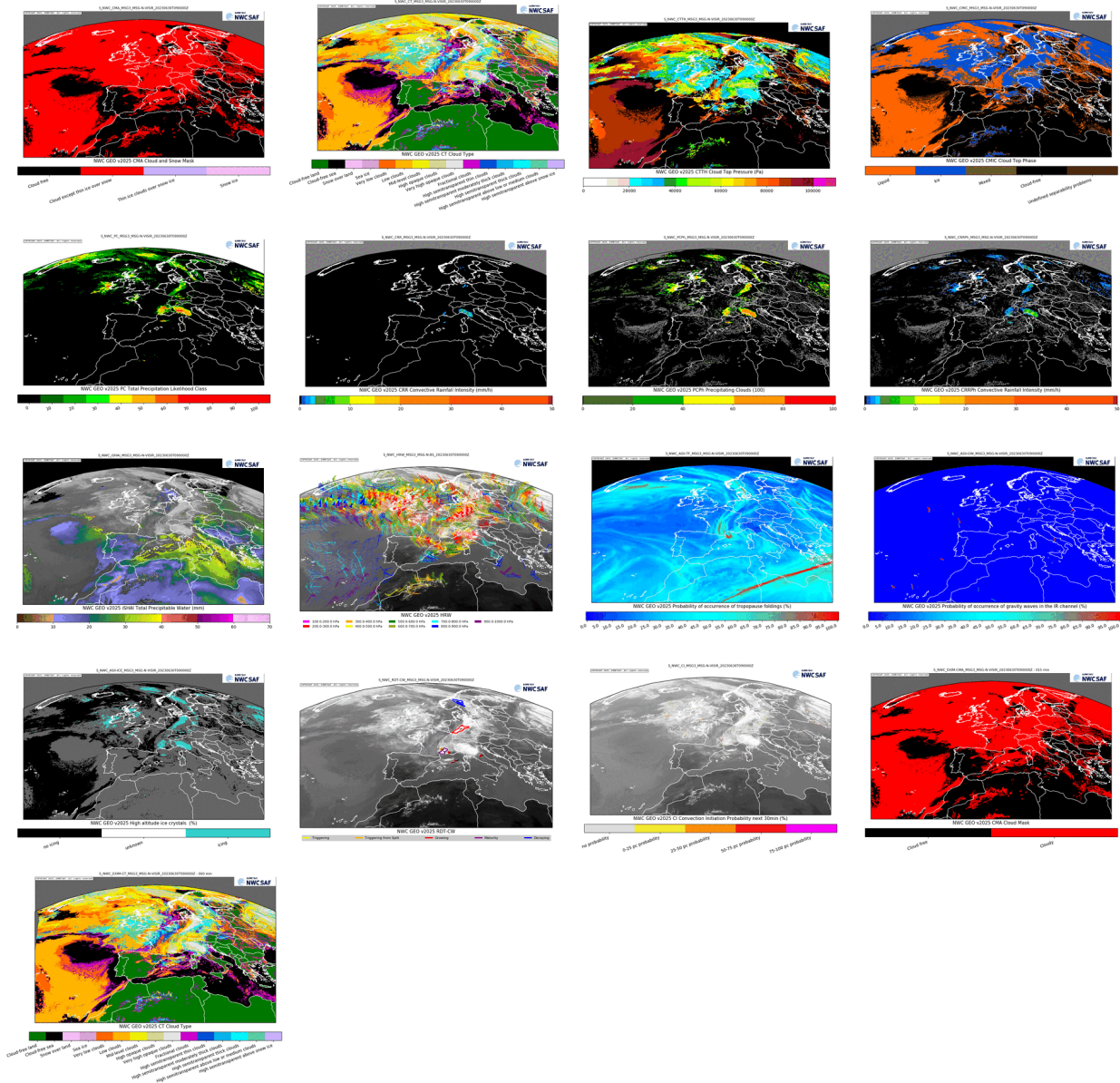


Figure 6: NWC/GEO products for MSG, slot 20230630T090000Z

15. Uninstall MSG dataset

```
rm -f $SAFNWC/import/NWP_data/*
rm -f $SAFNWC/import/Sat_data/*
rm -f $SAFNWC/import/sdi_data/*
rm -f $SAFNWC/export/*/*

rm -rf $SAFNWC/import/Sat_data_archive
rm -rf $SAFNWC/export_archive

rm -f $SAFNWC/logs/*
rm -rf $SAFNWC/tmp/*
```

3.2 REPROCESSING OPERATIONS

Execute the same procedure than that presented for MSG/HRIT in Real Time (see section 3.1), but with the following changes

- Step 2: Configure the system for MSG Primary Service Reprocessing operation.

```
MSG Primary Service.....HRIT...Reprocessing.....(+000.0 deg)
```

The MSG primary service reprocessing configuration is by default defined in MSG4. This TDS provides data prior to MSG3 and MSG Swap. For this reason, it is necessary to change the satellite configuration file.

```
cd $SAFNWC/config
cp sat_conf_file.MSG3 sat_conf_file
```

- Step 4: After the installation of the TDS, copy all satellite data in the \$SAFNWC/import/Sat_data directory (for reprocessing)

```
cd $SAFNWC
tar xvzf <origin_path>/NWC-CDOP4-GEO-AEMET-SW-DATA-MSGPS_DATASET_v2025.tgz
cd $SAFNWC/import/Sat_data_archive/
ln * ../Sat_data
```

- Skip steps 7 & 10. Files already copied for reprocessing, instead of simulating the reception of files in Real time).
- Message received in step 8 is

```
New Satellite file found: >$SAFNWC/import/Sat_data/H-000-MSG4__-MSG4_____-
_____-EPI_____- 202306300800-__<
```

- In step 10, simply wait for the finalization of the automatic processing of all slots

```
All PGEs for Slot 20230630T090000Z have concluded
```

4 MSG/HRIT (MSG1 IODC SERVICE) TEST DATASET

4.1 REAL TIME OPERATIONS

1. Login as safnwc user (the account used to install and operate the NWC/GEO application)
2. Confirm that the NWC/GEO has been properly installed and configured for MSG IODC Service Real Time operation.

```
MSG1 IODC Service.....HRIT...Near Real Time.....(IODC)
```

If this is not the case, please change the satellite configuration of the NWC/GEO following the procedure described in section 3.3 of the SW User Manual NWC/CDOP3/GEO/AEMET/SW/UM

3. Clean the environment

```
rm -f $SAFNWC/import/NWP_data/*
rm -f $SAFNWC/import/Sat_data/*
rm -f $SAFNWC/import/Sdi_data/*
rm -f $SAFNWC/export/*/*

rm -rf $SAFNWC/import/Sat_data_archive
rm -rf $SAFNWC/export_archive

rm -f $SAFNWC/logs/*
rm -f $SAFNWC/tmp/*
```

4. The NWC/GEO dataset is available as a compressed tar file (.tgz). It can be downloaded from the NWCSAF Help Desk. Change to the \$SAFNWC directory and decompress the dataset file:

```
cd $SAFNWC
tar xvzf <origin_path>/NWC-CDOP4-GEO-AEMET-SW-DATA-MSGIODC_DATASET_v2025.tgz
```

5. Start the NWC/GEO using the default configuration

```
SAFNWCTM
```

The following output is received in the terminal

Please note that the remapping process (Step 1) will take several minutes.

```
=====
Satellite Application Facility
on support to
Nowcasting and Very Short-Range Forecasting

NWC/MSG v<vers>

DAY MONTH YEAR
```

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Visit our web site for information and support at
<http://www.nwcsaf.org>
=====

Step 1: Remapping NWP data for the NWC/GEO
This step can take several minutes ...
Check the progress in \$SAFNWC/logs/safnwctm_yyyy-mm-ddThh:mm:ssZ.log
AllMappingNWP safnwc.cfs ...

Step 2: Initiating the NWC/GEO Task-Manager Cycle
nohup: appending output to `nohup.out`

Task Manager for the NWC/GEO has been started successfully

6. Set the NWC/GEO printtty terminal

```
tm log printtty `tty`
```

7. Simulate the reception of a satellite slot

```
cd $SAFNWC/import/Sat_data_archive/  
ln *202203151100* ../Sat_data
```

8. Check that the following message is received in some seconds

```
New SATC file found:  
>$SAFNWC/import/Sdi_data/S_NWC_SATC_MSG1_IODC_VISIR_20220315T110000Z.txt<
```

This indicates that a new slot has been received and the processing of the slot has been commanded

9. Check that the following messages are received

```
PGE CMA, Slot 20220315T110000Z, Region IODC (01): Has concluded with status=exit 0  
PGE CT, Slot 20220315T110000Z, Region IODC (01): Has concluded with status=exit 0  
PGE CTHH, Slot 20220315T110000Z, Region IODC (01): Has concluded with status=exit 0  
PGE CMIC, Slot 20220315T110000Z, Region IODC (01): Has concluded with status=exit 0  
PGE PC, Slot 20220315T110000Z, Region IODC (01): Has concluded with status=exit 0  
PGE CRR, Slot 20220315T110000Z, Region IODC (01): Has concluded with status=exit 0  
PGE PCPh, Slot 20220315T110000Z, Region IODC (01): Has concluded with status=exit 0  
PGE CRRPh, Slot 20220315T110000Z, Region IODC (01): Has concluded with status=exit 0  
PGE iSHAI, Slot 20220315T110000Z, Region IODC (01): Has concluded with status=exit 0  
PGE HRW, Slot 20220315T110000Z, Region IODC (01): Has concluded with status=exit 0  
PGE EXIM, Slot 20220315T110000Z, Region IODC (01): Has concluded with status=exit -1  
PGE ASII-TF, Slot 20220315T110000Z, Region IODC (01): Has concluded with status=exit 0  
PGE ASII-GW, Slot 20220315T110000Z, Region IODC (01): Has concluded with status=exit 0  
PGE ASII-ICE, Slot 20220315T110000Z, Region IODC (01): Has concluded with status=exit 0  
PGE RDT-CW, Slot 20220315T110000Z, Region IODC (01): Has concluded with status=exit 0  
PGE CI, Slot 20220315T110000Z, Region IODC (01): Has concluded with status=exit 0  
All PGEs for Slot 20220315T110000Z, Region IODC (01) have concluded  
All PGEs for Slot 20220315T110000Z have concluded
```

These messages inform about the execution of all different PGEs. Note that all PGEs terminate successfully (status=exit 0) except GEO-EXIM. This is because this PGEs require some inputs from previous slot (and this is the first one).

10. Repeat steps 7, 8 and 9 for slots **202203151115**, **202203151130**, **202203151145** and **202203151200**

Wait for the finalization of the processing of a slot (see step 9) before simulating the reception of a new one.

Wait for the finalization of all 5 slots before going to next steps

11. Check the result of the processing

tm status

The following output is obtained

```

=====
DD MM YYYY      NWC/GEO Task-Manager Status   hh:mm:ss
=====

Beginning Time: DD MMM YYYY hh:mm:ss
Elapsed Time:      000d 00:mm:ss
Task Manager Status:
  REAL_TIME Mode:  ON
  Active Mode:     ON

Number of tasks in Schedule / in execution:    0/ 0 (Max: 2)

Region Priority / PGE:  CMA CT CTTH CMIC PC CRR PCPh CRRPh iSHAI HRW EXIM ASII-TF ASII-GW ASII-ICE RDT-CW CI PLAX L1SD
-----
IODC          01:      XXX XX XXXX XXXX XX XXX XXXX XXXXX XXXXX XXX XXXX XXXXXXXX XXXXXXXX XXXXXXXX XXXXXX XX ---- ----
-----

Number of PGE executed/successfully/Total RunTime/Mean RunTime
-----
CMA:           5          5          10    2
CT:            5          5           6    1
CTTH:         5          5          15    3
CMIC:         5          5          25    5
PC:           5          5           5    1
CRR:          5          5          10    2
PCPh:         5          5           6    1
CRRPh:        5          5           6    1
iSHAI:        5          5          116  23
HRW:          5          5          98   19
EXIM:         5          4          23    5
ASII-TF:      5          5          11    2
ASII-GW:      5          5          96   19
ASII-ICE:     5          5           5    1
RDT-CW:      5          5          17    3
CI:           5          5          23    4
PLAX:         0          0           0    0
L1SD:         0          0           0    0
-----
Total:        80          79          472  94

Number of Slots completely processed : 5

```

(Note that the generation of PLAX and L1SD is not activated in the default configuration)

12. Terminates the execution of the NWC/GEO

```
tm quit
```

13. Check the generation of all different PGEs in \$SAFNWC/export/<PGE_id>

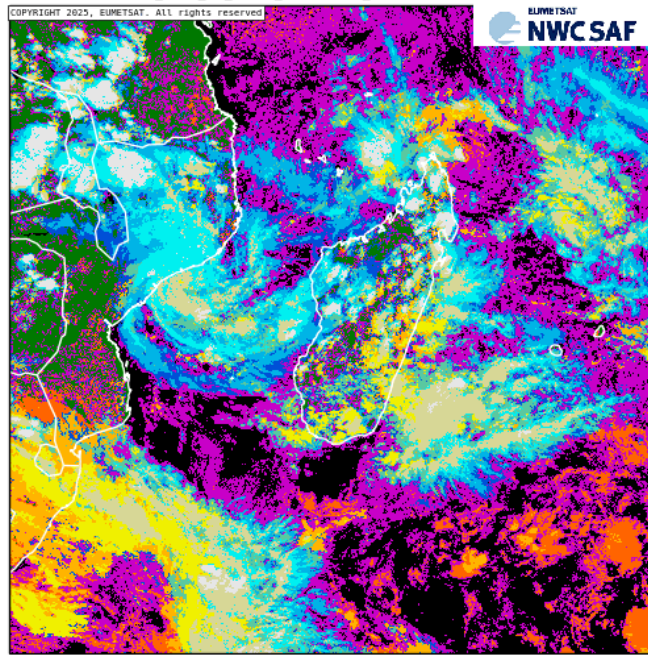
```
ls -lR $SAFNWC/export/* | more
```

Following files have been produced

```
$SAFNWC/export/ASII:  
S_NWC_ASII-GW_MSG1_IODC-VISIR_20220315T110000Z.nc  
S_NWC_ASII-GW_MSG1_IODC-VISIR_20220315T111500Z.nc  
S_NWC_ASII-GW_MSG1_IODC-VISIR_20220315T113000Z.nc  
S_NWC_ASII-GW_MSG1_IODC-VISIR_20220315T114500Z.nc  
S_NWC_ASII-GW_MSG1_IODC-VISIR_20220315T120000Z.nc  
S_NWC_ASII-ICE_MSG1_IODC-VISIR_20220315T110000Z.nc  
S_NWC_ASII-ICE_MSG1_IODC-VISIR_20220315T111500Z.nc  
S_NWC_ASII-ICE_MSG1_IODC-VISIR_20220315T113000Z.nc  
S_NWC_ASII-ICE_MSG1_IODC-VISIR_20220315T114500Z.nc  
S_NWC_ASII-ICE_MSG1_IODC-VISIR_20220315T120000Z.nc  
S_NWC_ASII-TF_MSG1_IODC-VISIR_20220315T110000Z.nc  
S_NWC_ASII-TF_MSG1_IODC-VISIR_20220315T111500Z.nc  
S_NWC_ASII-TF_MSG1_IODC-VISIR_20220315T113000Z.nc  
S_NWC_ASII-TF_MSG1_IODC-VISIR_20220315T114500Z.nc  
S_NWC_ASII-TF_MSG1_IODC-VISIR_20220315T120000Z.nc  
  
$SAFNWC/export/AUX:  
  
$SAFNWC/export/CI:  
S_NWC_CI_MSG1_IODC-VISIR_20220315T110000Z.nc  
S_NWC_CI_MSG1_IODC-VISIR_20220315T111500Z.nc  
S_NWC_CI_MSG1_IODC-VISIR_20220315T113000Z.nc  
S_NWC_CI_MSG1_IODC-VISIR_20220315T114500Z.nc  
S_NWC_CI_MSG1_IODC-VISIR_20220315T120000Z.nc  
  
$SAFNWC/export/CMA:  
S_NWC_CMA_MSG1_IODC-VISIR_20220315T110000Z.nc  
S_NWC_CMA_MSG1_IODC-VISIR_20220315T111500Z.nc  
S_NWC_CMA_MSG1_IODC-VISIR_20220315T113000Z.nc  
S_NWC_CMA_MSG1_IODC-VISIR_20220315T114500Z.nc  
S_NWC_CMA_MSG1_IODC-VISIR_20220315T120000Z.nc  
  
[...]  
[...]
```

14. Use standard netCDF tools to visualize and/or compare generated products with reference products included in \$SAFNWC/export_archive

S_NWC_CT_MSG1_IODC-VISIR_20220315T120000Z



NWC GEO v2025 CT Cloud Type

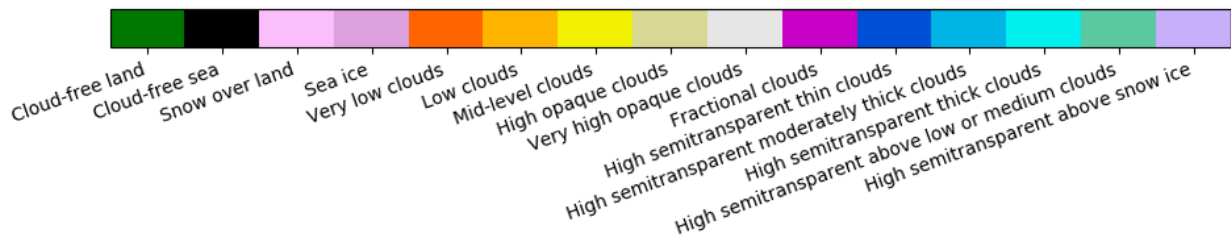


Figure 7: NWC/GEO Cloud Type product for MSG1/IODC, slot 20220315T120000Z

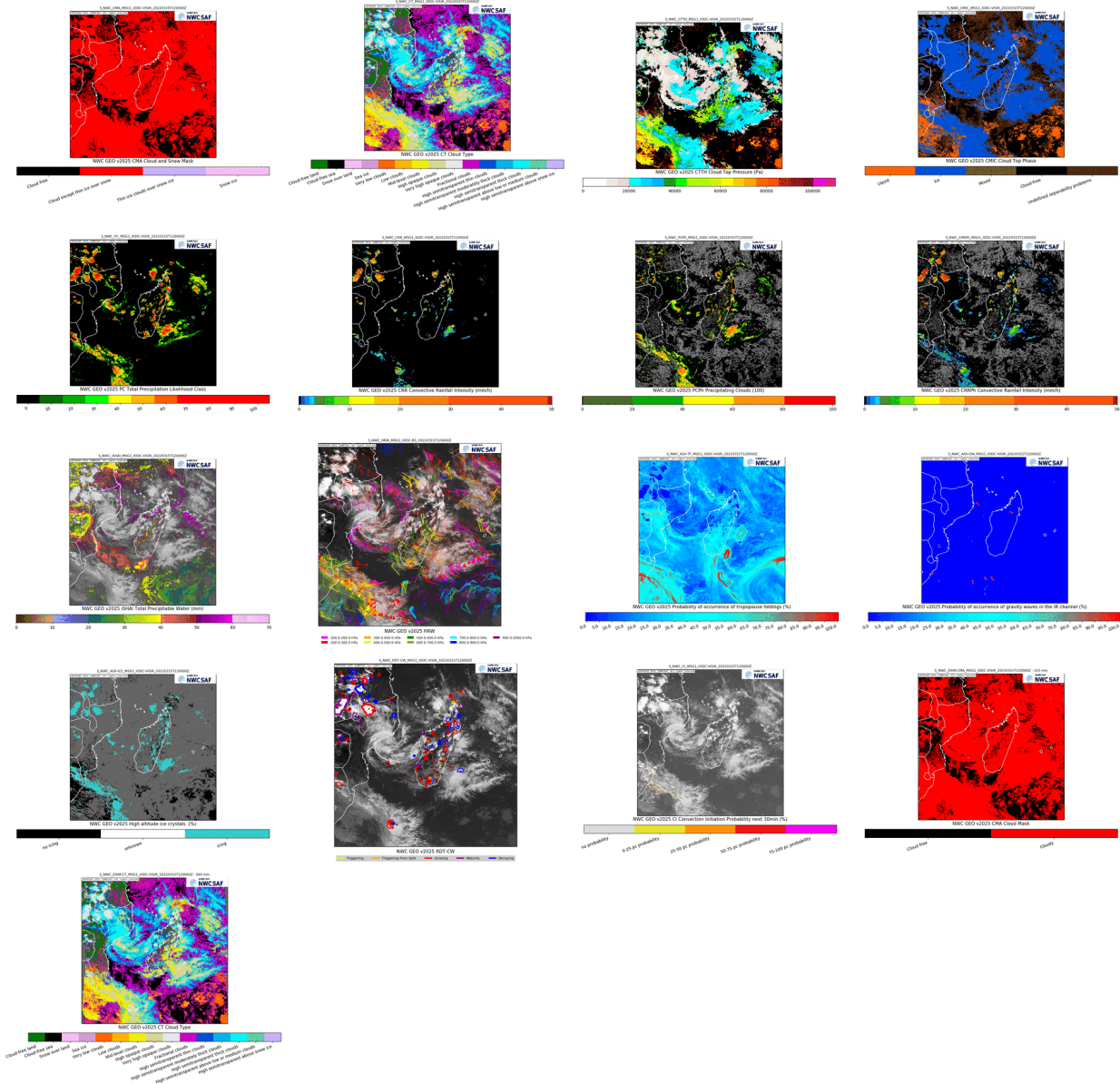


Figure 8: NWC/GEO products for MSG1-IODC, slot 20220315T120000Z

15. Uninstall MSG dataset

```
rm -f $SAFNWC/import/NWP_data/*
rm -f $SAFNWC/import/Sat_data/*
rm -f $SAFNWC/import/sdi_data/*
rm -f $SAFNWC/export/*/*

rm -rf $SAFNWC/import/Sat_data_archive
rm -rf $SAFNWC/export_archive

rm -f $SAFNWC/logs/*
rm -f $SAFNWC/tmp/*
```

4.2 REPROCESSING OPERATIONS

Execute the same procedure than that presented for MSG/HRIT in Real Time (see section **Error! Reference source not found.**), but with the following changes

- Step 2: Configure the system for MSG Primary Service Reprocessing operation.

```
MSG1 IODC Service.....HRIT...Reprocessing .....(IODC)
```

- Step 4: After the installation of the TDS, copy all satellite data in the \$SAFNWC/import/Sat_data directory (for reprocessing)

```
cd $SAFNWC  
tar xvzf <origin_path>/NWC-CDOP4-GEO-AEMET-SW-DATA-MSGIODC_DATASET_v2025.tgz  
cd $SAFNWC/import/Sat_data_archive/  
ln * ../Sat_data
```

- Skip steps 7 & 10. Files already copied for reprocessing, instead of simulating the reception of files in Real time).
- Message received in step 8 is

```
New Satellite file found: >$SAFNWC/import/Sat_data/H-000-MSG1__-MSG1_IODC___-  
_____-EPI_____ -202203151100-__<
```

- In step 10, simply wait for the finalization of the automatic processing of all slots

```
All PGEs for Slot 20220315T120000Z have concluded
```

5 MSG/HRIT (MSG4 RSS SERVICE) TEST DATASET

5.1 REAL TIME OPERATIONS

1. Login as safnwc user (the account used to install and operate the NWC/GEO application)
2. Confirm that the NWC/GEO has been properly installed and configured for MSG Primary Service Real Time operation.

```
MSG Rapid Scan Service...HRIT...Near Real Time.....(+009.5 deg)
```

If this is not the case, please change the satellite configuration of the NWC/GEO following the procedure described in section 3.3 of the SW User Manual NWC/CDOP3/GEO/AEMET/SW/UM

3. Clean the environment

```
rm -f $SAFNWC/import/NWP_data/*  
rm -f $SAFNWC/import/Sat_data/*  
rm -f $SAFNWC/import/Sdi_data/*  
rm -f $SAFNWC/export/*/*  
  
rm -rf $SAFNWC/import/Sat_data_archive  
rm -rf $SAFNWC/export_archive  
  
rm -f $SAFNWC/logs/*  
rm -f $SAFNWC/tmp/*
```

- The NWC/GEO dataset is available as a compressed tar file (.tgz). It can be downloaded from the NWCSAF Help Desk. Change to the \$SAFNWC directory and decompress the dataset file:

```
cd $SAFNWC  
tar xvzf <origin_path>/NWC-CDOP4-GEO-AEMET-SW-DATA-MSGRSS_DATASET_v2025.tgz
```

- Start the NWC/GEO using the default configuration

```
SAFNWCTM
```

The following output is received in the terminal

Please note that the remapping process (Step 1) will take several minutes.

```
=====
Satellite Application Facility
on support to
Nowcasting and Very Short-Range Forecasting

NWC/MSG v<vers>

DAY MONTH YEAR

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-----
Visit our web site for information and support at
http://www.nwcsaf.org
=====

Step 1: Remapping NWP data for the NWC/GEO
This step can take several minutes ...
Check the progress in $SAFNWC/logs/safnwctm_yyyy-mm-ddThh:mm:ssZ.log
AllMappingNWP safnwc.cfs ...

Step 2: Initiating the NWC/GEO Task-Manager Cycle
nohup: appending output to `nohup.out'

-----
Task Manager for the NWC/GEO has been started successfully
-----
```

- Set the NWC/GEO printtty terminal

```
tm log printtty `tty`
```

- Simulate the reception of a satellite slot

```
cd $SAFNWC/import/Sat_data_archive/  
ln *202306300800* ../Sat_data
```

- Check that the following message is received in some seconds

```

New SATC file found:
>$SAFNWC/import/Sat_data/
H-000-MSG4_-MSG4_RSS_-_-_-_-EPI_-_-202306300800-_-<

```

This indicates that a new slot has been received and the processing of the slot has been commanded

9. Check that the following messages are received

```

PGE CMA, Slot 20230630T080000Z, Region Spain (01): Has concluded with status=exit 0
PGE CT, Slot 20230630T080000Z, Region Spain (01): Has concluded with status=exit 0
PGE CTTH, Slot 20230630T080000Z, Region Spain (01): Has concluded with status=exit 0
PGE CMIC, Slot 20230630T080000Z, Region Spain (01): Has concluded with status=exit 0
PGE PC, Slot 20230630T080000Z, Region Spain (01): Has concluded with status=exit 0
PGE CRR, Slot 20230630T080000Z, Region Spain (01): Has concluded with status=exit 0
PGE PCPh, Slot 20230630T080000Z, Region Spain (01): Has concluded with status=exit 0
PGE CRRPh, Slot 20230630T080000Z, Region Spain (01): Has concluded with status=exit 0
PGE iSHAI, Slot 20230630T080000Z, Region Spain (01): Has concluded with status=exit 0
PGE HRW, Slot 20230630T080000Z, Region Spain (01): Has concluded with status=exit 0
PGE EXIM, Slot 20230630T080000Z, Region Spain (01): Has concluded with status=exit -1
PGE ASII-TF, Slot 20230630T080000Z, Region Spain (01): Has concluded with status=exit 0
PGE ASII-GW, Slot 20230630T080000Z, Region Spain (01): Has concluded with status=exit 0
PGE RDT-CW, Slot 20230630T080000Z, Region Spain (01): Has concluded with status=exit 0
PGE CI, Slot 20230630T080000Z, Region Spain (01): Has concluded with status=exit 0
All PGEs for Slot 20230630T080000Z, Region Spain (01) have concluded
All PGEs for Slot 20230630T080000Z have concluded

```

These messages inform about the execution of all different PGEs. Note that all PGEs terminate successfully (status=exit 0) except GEO-EXIM. This is because this PGE requires some inputs from previous slot (and this is the first one).

10. Repeat steps 7, 8 and 9 for slots 202306300805, 10, 15, 20, 25, and 202306300830

Wait for the finalization of the processing of a slot (see step 9) before simulating the reception of a new one.

Wait for the finalization of all 7 slots before going to next steps

11. Check the result of the processing

```
tm status
```

The following output is obtained

```

=====
DD MM YYYY      NWC/GEO Task-Manager Status   hh:mm:ss
=====
Beginning Time: DD MMM YYYY hh:mm:ss
Elapsed Time:      000d 00:mm:ss
Task Manager Status:
  REAL_TIME Mode:  ON
  Active Mode:     ON

Number of tasks in Schedule / in execution:    0/ 0 (Max: 1)

Region Priority / PGE:  CMA CT CTTH CMIC PC CRR PCPh CRRPh iSHAI HRW EXIM ASII ASII-TF ASII-GW RDT-CW CI PLAX L1SD
-----
Spain          01:     xxx xx xxxxx xxxxx xx xxx xxxxx xxxxxx xxxxxx xxx xxxxx ---- xxxxxxxx xxxxxxxx xxxxxx xx -----

Number of PGE executed/successfully/Total RunTime/Mean RunTime
-----
CMA:           7       7           8   1
CT:            7       7           7   1
CTTH:         7       7           9   1
CMIC:         7       7          14   2
PC:           7       7           7   1

```

CRR:	7	7	9	1
PCPh:	7	7	7	1
CRRPh:	7	7	7	1
iSHAI:	7	7	36	5
HRW:	7	7	85	12
EXIM:	7	5	13	2
ASII-TF:	7	7	8	1
ASII-GW:	7	7	29	4
ASII-ICE:	7	7	7	1
RDT-CW:	7	7	8	1
CI:	7	7	9	1
PLAX:	0	0	0	
L1SD:	0	0	0	

Total:	112	110	263	37
Number of Slots completely processed : 7				

(Note that the generation of ASII, PLAX and L1SD is not activated in the default configuration. And EXIM is not generated in the first 2 slots because of lack of HRW winds)

12. Terminates the execution of the NWC/GEO

```
tm quit
```

13. Check the generation of all different PGEs in \$SAFNWC/export/<PGE_id>

```
ls -lR $SAFNWC/export/* | more
```

Following files have been produced

```
$SAFNWC/export/ASII:
S_NWC_ASII-GW_MSG4_Spain-VISIR_20230630T080000Z.nc
S_NWC_ASII-GW_MSG4_Spain-VISIR_20230630T080500Z.nc
S_NWC_ASII-GW_MSG4_Spain-VISIR_20230630T081000Z.nc
S_NWC_ASII-GW_MSG4_Spain-VISIR_20230630T081500Z.nc
S_NWC_ASII-GW_MSG4_Spain-VISIR_20230630T082000Z.nc
S_NWC_ASII-GW_MSG4_Spain-VISIR_20230630T082500Z.nc
S_NWC_ASII-GW_MSG4_Spain-VISIR_20230630T083000Z.nc
S_NWC_ASII-TF_MSG4_Spain-VISIR_20230630T080000Z.nc
S_NWC_ASII-TF_MSG4_Spain-VISIR_20230630T080500Z.nc
S_NWC_ASII-TF_MSG4_Spain-VISIR_20230630T081000Z.nc
S_NWC_ASII-TF_MSG4_Spain-VISIR_20230630T081500Z.nc
S_NWC_ASII-TF_MSG4_Spain-VISIR_20230630T082000Z.nc
S_NWC_ASII-TF_MSG4_Spain-VISIR_20230630T082500Z.nc
S_NWC_ASII-TF_MSG4_Spain-VISIR_20230630T108030Z.nc

$SAFNWC/export/AUX:

$SAFNWC/export/CI:
S_NWC_CI_MSG4_Spain-VISIR_20230630T080000Z.nc
S_NWC_CI_MSG4_Spain-VISIR_20230630T080500Z.nc
S_NWC_CI_MSG4_Spain-VISIR_20230630T081000Z.nc
S_NWC_CI_MSG4_Spain-VISIR_20230630T081500Z.nc
S_NWC_CI_MSG4_Spain-VISIR_20230630T082000Z.nc
S_NWC_CI_MSG4_Spain-VISIR_20230630T082500Z.nc
S_NWC_CI_MSG4_Spain-VISIR_20230630T083000Z.nc

$SAFNWC/export/CMA:
S_NWC_CMA_MSG4_Spain-VISIR_20230630T080000Z.nc
S_NWC_CMA_MSG4_Spain-VISIR_20230630T080500Z.nc
S_NWC_CMA_MSG4_Spain-VISIR_20230630T081000Z.nc
S_NWC_CMA_MSG4_Spain-VISIR_20230630T081500Z.nc
S_NWC_CMA_MSG4_Spain-VISIR_20230630T082000Z.nc
S_NWC_CMA_MSG4_Spain-VISIR_20230630T082500Z.nc
S_NWC_CMA_MSG4_Spain-VISIR_20230630T083000Z.nc

[...]
[...]
```

14. Use standard netCDF tools to visualize and/or compare generated products with reference products included in \$SAFNWC/export_archive

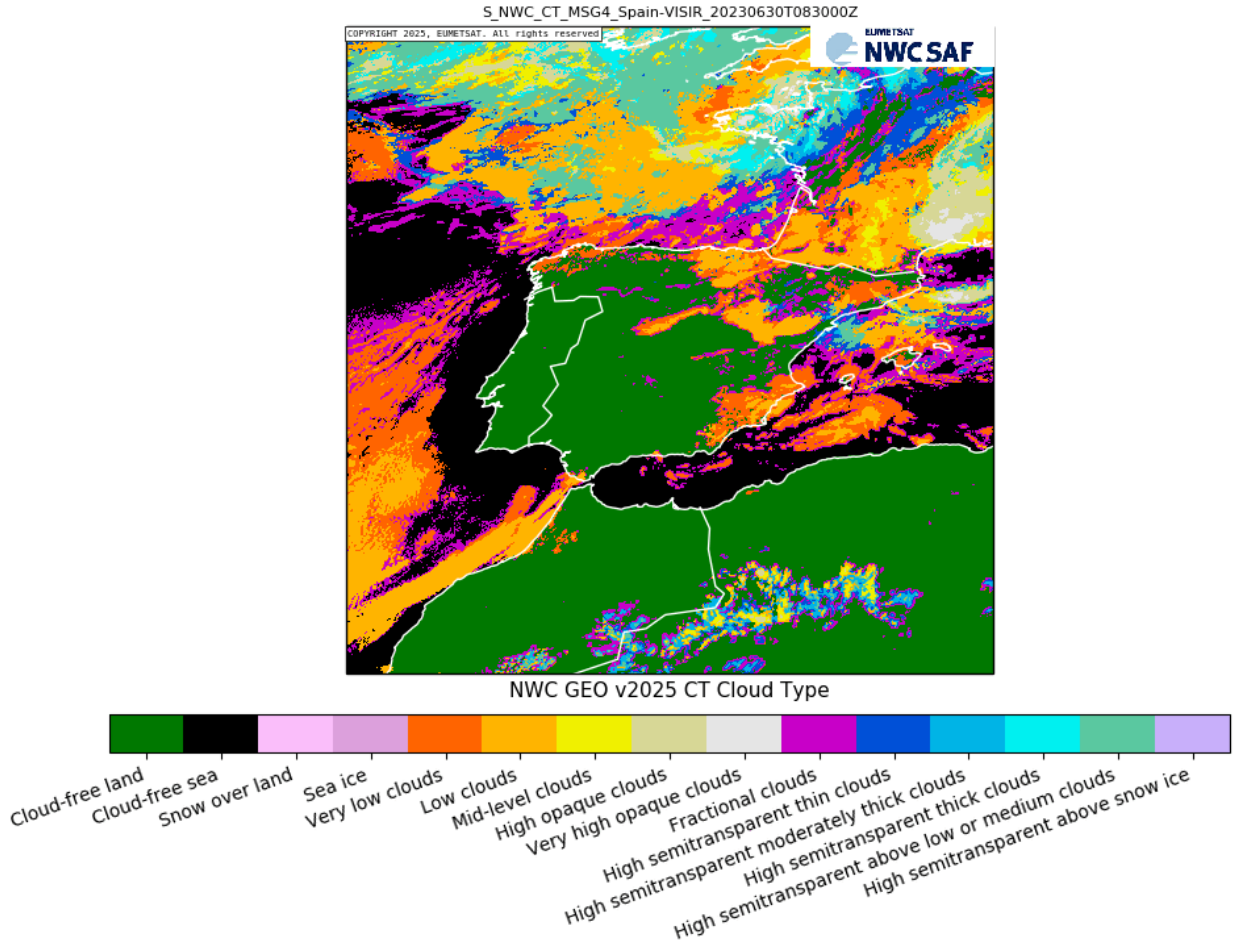


Figure 9: NWC/GEO Cloud Type product for MSG4-RSS, slot 20230630T083000Z

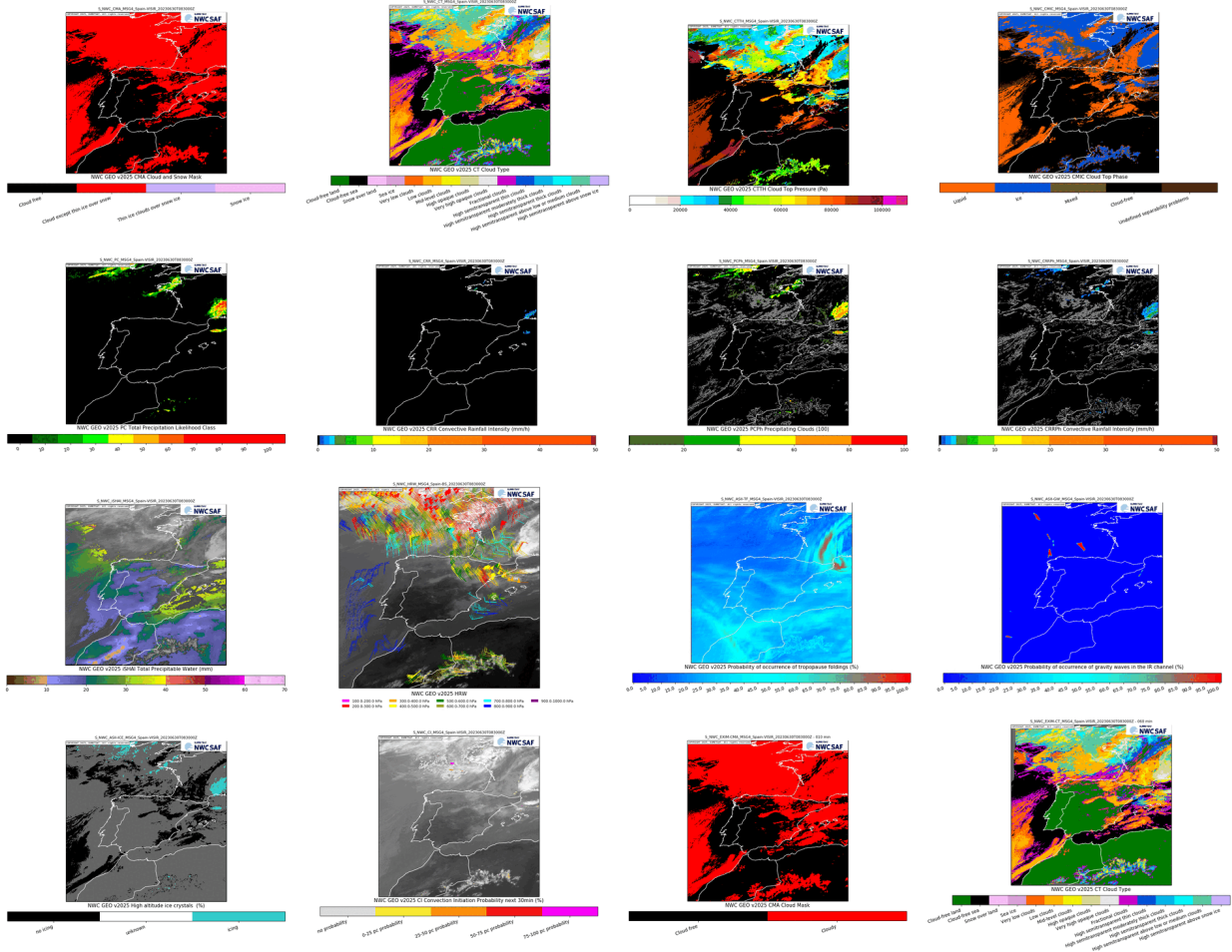


Figure 10: NWC/GEO products for MSG4-RSS, slot 20230630T083000Z

16. Uninstall MSG dataset

```
rm -f $SAFNWC/import/NWP_data/*
rm -f $SAFNWC/import/Sat_data/*
rm -f $SAFNWC/import/Sdi_data/*
rm -f $SAFNWC/export/*/*

rm -rf $SAFNWC/import/Sat_data_archive
rm -rf $SAFNWC/export_archive

rm -f $SAFNWC/logs/*
rm -f $SAFNWC/tmp/*
```

6 MSG/FSD (MSG1 RSS) TEST DATASET

6.1 REPROCESSING OPERATIONS

Note that it is assumed that the configuration has not been modified by the user (Default configuration as provided in the delivery is to be used).

1. Login as safnwc user (the account used to install and operate the NWC/GEO application)
2. Confirm that the NWC/GEO has been properly configured for Reprocessing MSG data in FSD format.

```
MSG Rapid Scan Service...FSD...Reprocessing.....(+009.5 deg)
```

If this is not the case, please change the satellite configuration of the NWC/GEO following the procedure described in section 3.3 of the SW User Manual NWC/CDOP3/GEO/AEMET/SW/UM

3. Clean the environment

```
rm -f $SAFNWC/import/NWP_data/*
rm -f $SAFNWC/import/Sat_data/*
rm -f $SAFNWC/import/Sdi_data/*
rm -f $SAFNWC/export/*/*

rm -rf $SAFNWC/import/Sat_data_archive
rm -rf $SAFNWC/export_archive

rm -f $SAFNWC/logs/*
rm -f $SAFNWC/tmp/*
```

4. The NWC/GEO dataset is available as a compressed tar file (.tgz) and it can be downloaded from the NWCSAF Help Desk. Change to the \$SAFNWC directory, decompress the dataset file, and copy all satellite products in \$SAFNWC/import/Sat_data directory:

```
cd $SAFNWC
tar xvzf <source>/NWC-CDOP4-GEO-AEMET-SW-DATA-MSGRSS-FSD_DATASET_v2025.tgz
cd $SAFNWC/import/Sat_data_archive/
ln * ../Sat_data
```

5. Change the safnwc.cfr to modify the processing region. The key *REG_CONF* will be safnwc_MSGN.cfg

6. Start the NWC/GEO using the default configuration

```
SAFNWCTM
```

The following output is received in the terminal

Please note that the remapping process (Step 1) will take several minutes.

```
=====
Satellite Application Facility
on support to
Nowcasting and Very Short-Range Forecasting

NWC/MSG v<vers>
```

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=====

Step 1: Remapping NWP data for the NWC/GEO
This step can take several minutes ...
Check the progress in \$SAFNWC/logs/safnwctm_yyyy-mm-ddThh:mm:ssZ.log
AllMappingNWP safnwc.cfs ...

Step 2: Initiating the NWC/GEO Task-Manager Cycle
nohup: appending output to `nohup.out`

Task Manager for the NWC/GEO has been started successfully

7. Set the NWC/GEO printtty terminal

```
tm log printtty `tty`
```

8. The execution of the PGEs will start automatically (reprocessing) in some seconds. The following messages are received

```
<date>: New Satellite file found:  
>$SAFNWC/import/Sat_data/S_NWC_SATELLITE_MSG1_global-NR_2015-08-26T12:00:00Z.nc<  
  
<date>: New Satellite file found: >$SAFNWC/import/Sat_data/  
S_NWC_SATELLITE_MSG1_global-NR_2015-08-26T12:05:00Z.nc <  
  
<date>: New Satellite file found: >$SAFNWC/import/Sat_data/  
S_NWC_SATELLITE_MSG1_global-NR_2015-08-26T12:10:00Z.nc <  
  
...
```

This indicates that new slots have been detected and the processing of the slots has been commanded

9. Check that the following messages are received

```
PGE CRR, Slot 2015-08-26T12:00:00Z, Region MSG-N (01): Has concluded with status=exit 0  
PGE CMA, Slot 2015-08-26T12:00:00Z, Region MSG-N (01): Has concluded with status=exit 0  
PGE ASII-TF, Slot 2015-08-26T12:00:00Z, Region MSG-N (01): Has concluded with status=exit 0  
PGE CT, Slot 2015-08-26T12:00:00Z, Region MSG-N (01): Has concluded with status=exit 0  
PGE PC, Slot 2015-08-26T12:00:00Z, Region MSG-N (01): Has concluded with status=exit 0  
[...]  
PGE CI, Slot 2015-08-26T12:00:00Z, Region MSG-N (01): Has concluded with status=exit 0  
All PGEs for Slot 2015-08-26T12:00:00Z, Region MSG-N (01) have concluded  
All PGEs for Slot 2015-08-26T12:00:00Z, have concluded  
  
[...]  
All PGEs for Slot 2015-08-26T12:05:00Z, Region global(01) have concluded  
All PGEs for Slot 2015-08-26T12:05:00Z have concluded  
  
[...]  
  
[...]  
All PGEs for Slot 2015-08-26T12:30:00Z, Region MSG-N (01) have concluded  
All PGEs for Slot 2015-08-26T12:30:00Z have concluded
```

These messages indicate the execution of all different PGEs. Note that all PGEs terminate successfully (status=exit 0) except GEO-EXIM for first slot. This is because this PGE requires wind data as input, which is not available in the first slot.

Wait for the finalization of all 7 slots before going to next steps. Please note that the execution of all PGEs takes some time. The user can check the processors queued for processing executing the command “tm schedule” at any time

10. Check the result of the processing

```
tm status
```

The following output is obtained

```
=====
DD MM YYYY      NWC/GEO Task-Manager Status   hh:mm:ss
=====

Begginig Time: DD MMM YYYY hh:mm:ss
Elapsed Time:      000d 01:02:25
Task Manager Status:
  REAL_TIME Mode: OFF
  Active Mode:     ON

Number of tasks in Schedule / in execution:    0/ 0 (Max: 4)

Region Priority / PGE:  CMA CT CTTH CMIC PC CRR PCPh CRRPh iSHAI HRW EXIM ASII ASII-TF ASII-GW RDT-CW CI PLAX L1SD
-----
MSG-N          01:      XXX XX XXXX XXXX XX XXX XXXX XXXXXX XXXXX XXX XXXX ---- XXXXXXXX XXXXXXXX XXXXXXX XX ----

Number of PGE executed/successfully/Total RunTime/Mean RunTime
-----
CMA:           7         7           35  5
CT:            7         7           8  1
CTTH:         7         7          30  4
CMIC:         7         7          51  7
PC:           7         7           7  1
CRR:          7         7          14  2
PCPh:        7         7          16  2
CRRPh:       7         7          13  1
iSHAI:       7         7         141 20
HRW:         7         7         257 36
EXIM:        7         5          51 10
ASII-TF:     7         7          22  3
ASII-GW:     7         7         112 16
ASII-ICE:    7         7           7  1
RDT-CW:     7         7          30  4
CI:          7         7          37  5
PLAX:        0         0           0  0
L1SD:        0         0           0  0
-----
Total:       119        117          908 129

Number of Slots completely processed : 7
```

Note that PLAX and L1SD PGEs are not activated in the default configuration.

11. Terminates the execution of the NWC/GEO

```
tm quit
```

12. Check the generation of all different PGEs in \$SAFNWC/export/<PGE_id>

```
ls -lR $SAFNWC/export/* | more
```

Following files have been produced

```
$SAFNWC/export/ASII:  
S_NWC_ASII-GW_MSG1_global-MSG-N_20150826T120000Z.nc  
S_NWC_ASII-GW_MSG1_global-MSG-N_20150826T120500Z.nc  
S_NWC_ASII-GW_MSG1_global-MSG-N_20150826T121000Z.nc  
S_NWC_ASII-GW_MSG1_global-MSG-N_20150826T121500Z.nc  
S_NWC_ASII-GW_MSG1_global-MSG-N_20150826T122000Z.nc  
S_NWC_ASII-GW_MSG1_global-MSG-N_20150826T122500Z.nc  
S_NWC_ASII-GW_MSG1_global-MSG-N_20150826T123000Z.nc  
S_NWC_ASII-TF_MSG1_global-MSG-N_20150826T120000Z.nc  
S_NWC_ASII-TF_MSG1_global-MSG-N_20150826T120500Z.nc  
S_NWC_ASII-TF_MSG1_global-MSG-N_20150826T121000Z.nc  
S_NWC_ASII-TF_MSG1_global-MSG-N_20150826T121500Z.nc  
S_NWC_ASII-TF_MSG1_global-MSG-N_20150826T122000Z.nc  
S_NWC_ASII-TF_MSG1_global-MSG-N_20150826T122500Z.nc  
S_NWC_ASII-TF_MSG1_global-MSG-N_20150826T123000Z.nc  
  
$SAFNWC/export/AUX:  
  
$SAFNWC/export/CI:  
S_NWC_CI_MSG1_global-MSG-N_20150826T120000Z.nc  
S_NWC_CI_MSG1_global-MSG-N_20150826T120500Z.nc  
S_NWC_CI_MSG1_global-MSG-N_20150826T121000Z.nc  
S_NWC_CI_MSG1_global-MSG-N_20150826T121500Z.nc  
S_NWC_CI_MSG1_global-MSG-N_20150826T122000Z.nc  
S_NWC_CI_MSG1_global-MSG-N_20150826T122500Z.nc  
S_NWC_CI_MSG1_global-MSG-N_20150826T123000Z.nc  
  
$SAFNWC/export/CMA:  
S_NWC_CMA_MSG1_global-MSG-N_20150826T120000Z.nc  
S_NWC_CMA_MSG1_global-MSG-N_20150826T120500Z.nc  
S_NWC_CMA_MSG1_global-MSG-N_20150826T121000Z.nc  
S_NWC_CMA_MSG1_global-MSG-N_20150826T121500Z.nc  
S_NWC_CMA_MSG1_global-MSG-N_20150826T122000Z.nc  
S_NWC_CMA_MSG1_global-MSG-N_20150826T122500Z.nc  
S_NWC_CMA_MSG1_global-MSG-N_20150826T123000Z.nc  
  
$SAFNWC/export/CMIC:  
S_NWC_CMIC_MSG1_global-MSG-N_20150826T120000Z.nc  
S_NWC_CMIC_MSG1_global-MSG-N_20150826T120500Z.nc  
S_NWC_CMIC_MSG1_global-MSG-N_20150826T121000Z.nc  
S_NWC_CMIC_MSG1_global-MSG-N_20150826T121500Z.nc  
S_NWC_CMIC_MSG1_global-MSG-N_20150826T122000Z.nc  
S_NWC_CMIC_MSG1_global-MSG-N_20150826T122500Z.nc  
S_NWC_CMIC_MSG1_global-MSG-N_20150826T123000Z.nc  
  
$SAFNWC/export/CRR:  
[...]  
  
$SAFNWC/export/CT:  
[...]  
[...]
```

13. Use `standard` `netCDF` `tools`

14. to visualize and or compare generated products with reference products included in
\$SAFNWC/export_archive

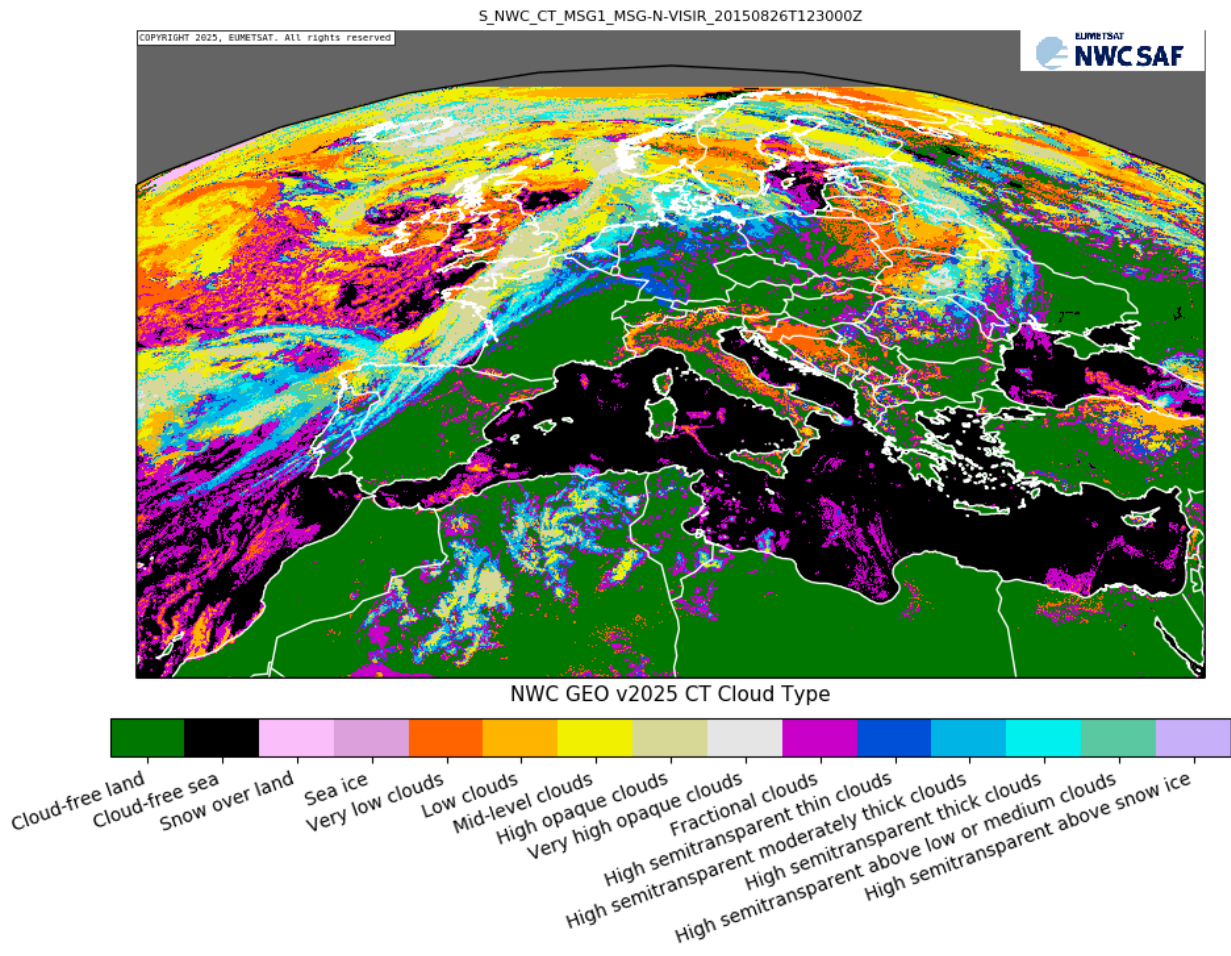


Figure 11: NWC/GEO Cloud Type product for MSG1/RSS in FSD format, slot 20150826T123000Z

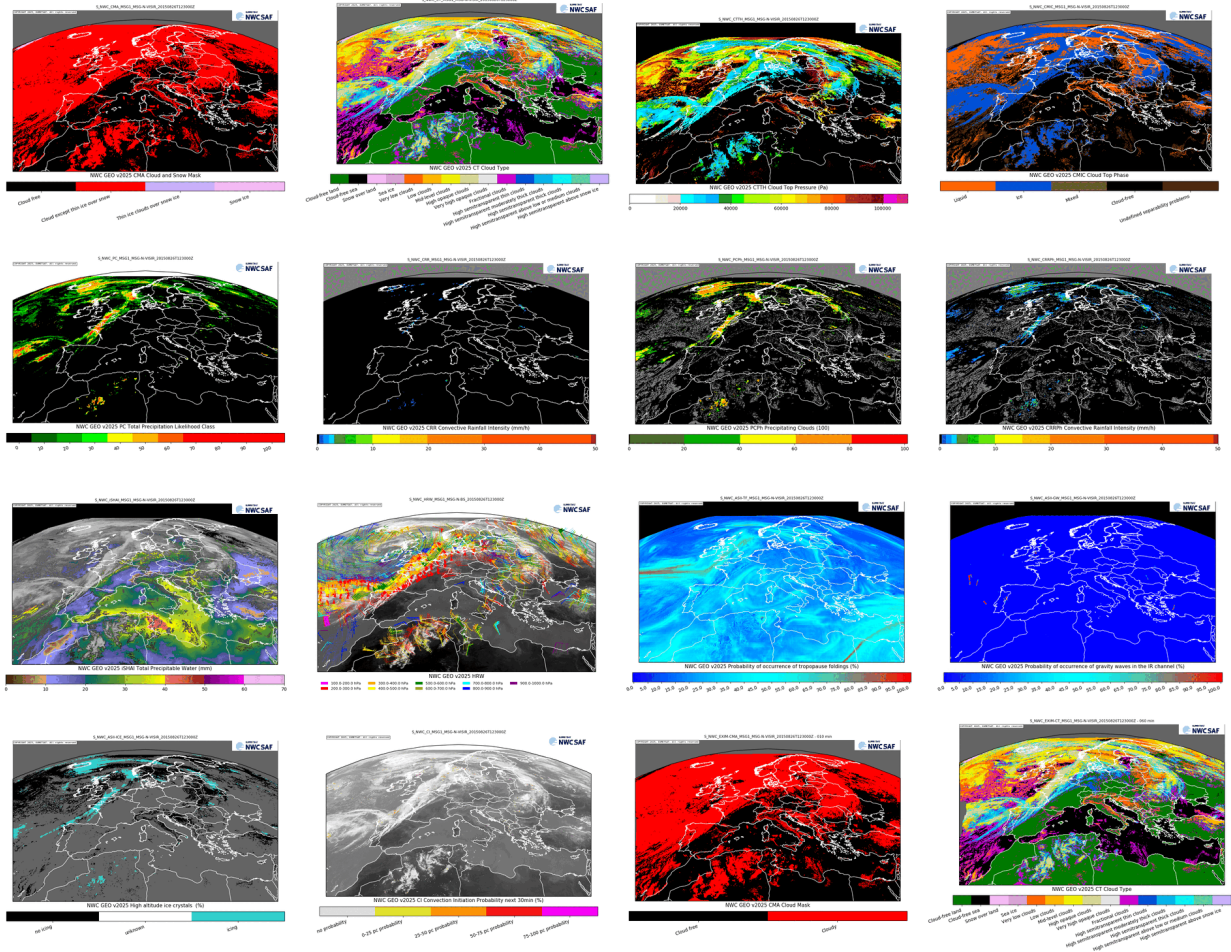


Figure 12: : NWC/GEO products for MSG1-RSS in FSD format, slot 20150826T123000Z

7 GOES-R/ABI L1B (GOES-16) TEST DATASET

7.1 REAL TIME OPERATIONS

Note that the triggering mechanism to execute a GOES-R slot in Real time is based on current system time. Therefore, the testing of GOES-R processing in Real time would require the modification of the platform time to match test data, or the reception of real time data

Therefore, only reprocessing of GOES-R data is tested in next section

7.2 REPROCESSING OPERATIONS

Note that it is assumed that the configuration has not been modified by the user (Default configuration as provided in the delivery is to be used)

15. Login as safnwc user (the account used to install and operate the NWC/GEO application)

16. Confirm that the NWC/GEO has been properly configured for Reprocessing GOES16 data in HSD format.

```
GOES16....M6.....GOESR..Reprocessing.....(-075.0 deg)
```

If this is not the case, please change the satellite configuration of the NWC/GEO following the procedure described in section 3.3 of the SW User Manual NWC/CDOP3/GEO/AEMET/SW/UM

17. Clean the environment

```
rm -f $SAFNWC/import/NWP_data/*
rm -f $SAFNWC/import/Sat_data/*
rm -f $SAFNWC/export/*/*

rm -rf $SAFNWC/import/Sat_data_archive
rm -rf $SAFNWC/export_archive

rm -f $SAFNWC/logs/*
rm -rf $SAFNWC/tmp/*
```

18. The NWC/GEO dataset is available as a compressed tar file (.tgz) and it can be downloaded from the NWCSAF Help Desk. Change to the \$SAFNWC directory and decompress the dataset file, and copy all satellite products in \$SAFNW/import/Sat_data directory:

```
cd $SAFNWC
tar xvzf <source>/NWC-CDOP4-GEO-AEMET-SW-DATA-GOES16_DATASET_v2025.tgz
cd $SAFNWC/import/Sat_data_archive/
ln * ../Sat_data
```

19. Start the NWC/GEO using the default configuration

```
SAFNWCTM
```

The following output is received in the terminal

Please note that the remapping process (Step 1) will take several minutes.

```
=====
Satellite Application Facility
on support to
Nowcasting and Very Short-Range Forecasting

NWC/GEO v<vers>
```

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=====

Step 1: Remapping NWP data for the NWC/GEO
This step can take several minutes ...
Check the progress in \$SAFNWC/logs/safnwctm_yyyy-mm-ddThh:mm:ssZ.log
AllMappingNWP safnwc.cfs ...

Step 2: Initiating the NWC/GEO Task-Manager Cycle
nohup: appending output to `nohup.out`

Task Manager for the NWC/GEO has been started successfully

20. Set the NWC/GEO printtty terminal

```
tm log printtty `tty`
```

21. The execution of the PGEs will start in some seconds, after the following messages are received

```
New Satellite file found: >$SAFNWC/import/Sat_data/OR_ABI-L1b-RadF-  
M6C16_G16_s20191141700228_e20191141709547_c20191141709597.nc<  
  
New Satellite file found: >$SAFNWC/import/Sat_data/OR_ABI-L1b-RadF-  
M6C16_G16_s20191141710228_e20191141719547_c20191141719599.nc<  
  
New Satellite file found: >$SAFNWC/import/Sat_data/OR_ABI-L1b-RadF-  
M6C16_G16_s20191141720228_e20191141729547_c20191141730002.nc<  
  
...
```

This indicates that new slots have been detected and the processing of the slots has been commanded

22. Check that the following messages are received

```
PGE CRR, Slot 20190424T170023Z, Region goes16 (01): Has concluded with status=exit 0  
PGE CMA, Slot 20190424T170023Z, Region goes16 (01): Has concluded with status=exit 0  
PGE CRR, Slot 20190424T171023Z, Region goes16 (01): Has concluded with status=exit 0  
PGE CT, Slot 20190424T170023Z, Region goes16 (01): Has concluded with status=exit 0  
...  
  
All PGEs for Slot 20190424T170023Z, Region goes16 (01) have concluded  
All PGEs for Slot 20190424T170023Z have concluded  
  
[...]  
All PGEs for Slot 20190424T171023Z, Region goes16 (01) have concluded  
All PGEs for Slot 20190424T171023Z have concluded  
  
[...]  
  
[...]  
All PGEs for Slot 20190424T175023Z, Region goes16 (01) have concluded  
All PGEs for Slot 20190424T175023Z have concluded
```

These messages indicate the execution of all different PGEs. Note that all PGEs terminate successfully (status=exit 0) except GEO-EXIM for first slot. This is because this PGE requires wind data as input, which is not available in the first slot.

Wait for the finalization of all 6 slots before going to next steps. Please note that the execution of all PGEs takes some time. The user can check the processors queued for processing executing the command “tm schedule” at any time

23. Check the result of the processing

```
tm status
```

The following output is obtained

```
=====
DD MM YYYY      NWC/GEO Task-Manager Status   hh:mm:ss
=====

Beginning Time: DD MMM YYYY hh:mm:ss
Elapsed Time:      000d 00:19:03
Task Manager Status:
  REAL_TIME Mode: OFF
  Active Mode:     ON

Number of tasks in Schedule / in execution:    0/ 0 (Max: 4)

Region Priority / PGE:  CMA CT CTTH CMIC PC CRR PCPh CRRPh iSHAI HRW EXIM ASII-TF ASII-GW ASII-ICE RDT-CW CI PLAX L1SD
-----
goes16      01:   XXX XX XXXX XXXX XX XXX XXXX XXXXX XXXXX XXX XXXX XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX XX ---- ----
-----

Number of PGE executed/successfully/Total RunTime/Mean RunTime
-----
CMA:          6          6          77  12
CT:           6          6          16   2
CTTH:        6          6          39   6
CMIC:        6          6         101  16
PC:          6          6           8   1
CRR:         6          6          46   7
PCPh:        6          6          19   3
CRRPh:       6          6          18   3
iSHAI:       6          6         220  36
HRW:         6          6         195  32
EXIM:        6          5          71  14
ASII-TF:     6          6          46   7
ASII-GW:     6          6         373  62
ASII-ICE:    6          6           8   1
RDT-CW:      6          6          44   7
CI:          6          6          43   7
PLAX:        0          0           0   0
L1SD:        0          0           0   0
-----
Total:       96         95         1324 220

Number of Slots completely processed : 6
```

(Note that the generation of PLAX and L1SD is not activated in the default configuration)

24. Terminates the execution of the NWC/GEO

```
tm quit
```

25. Check the generation of all different PGEs in \$SAFNWC/export/<PGE_id>

```
ls -lR $SAFNWC/export/* | more
```

Following files have been produced

```
$SAFNWC/export/ASII:  
-rw-rw-r--. 1 saf_MTG saf_MTG 4511878 mar 17 14:26 S_NWC_ASII-GW_GOES16_goes16-NR_20190424T170023Z.nc  
-rw-rw-r--. 1 saf_MTG saf_MTG 4517762 mar 17 14:28 S_NWC_ASII-GW_GOES16_goes16-NR_20190424T171023Z.nc  
...  
-rw-rw-r--. 1 saf_MTG saf_MTG 4809349 mar 17 14:26 S_NWC_ASII-ICE_GOES16_goes16-NR_20190424T170023Z.nc  
-rw-rw-r--. 1 saf_MTG saf_MTG 4808906 mar 17 14:27 S_NWC_ASII-ICE_GOES16_goes16-NR_20190424T171023Z.nc  
...  
-rw-rw-r--. 1 saf_MTG saf_MTG 5493255 mar 17 14:25 S_NWC_ASII-TF_GOES16_goes16-NR_20190424T170023Z.nc  
-rw-rw-r--. 1 saf_MTG saf_MTG 5496336 mar 17 14:26 S_NWC_ASII-TF_GOES16_goes16-NR_20190424T171023Z.nc  
...  
  
$SAFNWC/export/AUX:  
  
$SAFNWC/export/CI:  
-rw-rw-r--. 1 saf_MTG saf_MTG 4769753 mar 17 14:26 S_NWC_CI_GOES16_goes16-NR_20190424T170023Z.nc  
-rw-rw-r--. 1 saf_MTG saf_MTG 4778531 mar 17 14:27 S_NWC_CI_GOES16_goes16-NR_20190424T171023Z.nc  
...  
  
$SAFNWC/export/CMA:  
-rw-rw-r--. 1 saf_MTG saf_MTG 5365831 mar 17 14:25 S_NWC_CMA_GOES16_goes16-NR_20190424T170023Z.nc  
-rw-rw-r--. 1 saf_MTG saf_MTG 5366898 mar 17 14:25 S_NWC_CMA_GOES16_goes16-NR_20190424T171023Z.nc  
...  
  
$SAFNWC/export/CMIC:  
-rw-rw-r--. 1 saf_MTG saf_MTG 7995664 mar 17 14:26 S_NWC_CMIC_GOES16_goes16-NR_20190424T170023Z.nc  
-rw-rw-r--. 1 saf_MTG saf_MTG 8000122 mar 17 14:26 S_NWC_CMIC_GOES16_goes16-NR_20190424T171023Z.nc  
...  
...
```

26. Use standard netCDF tools to visualize and/or compare generated products with reference products included in \$SAFNWC/export_archive

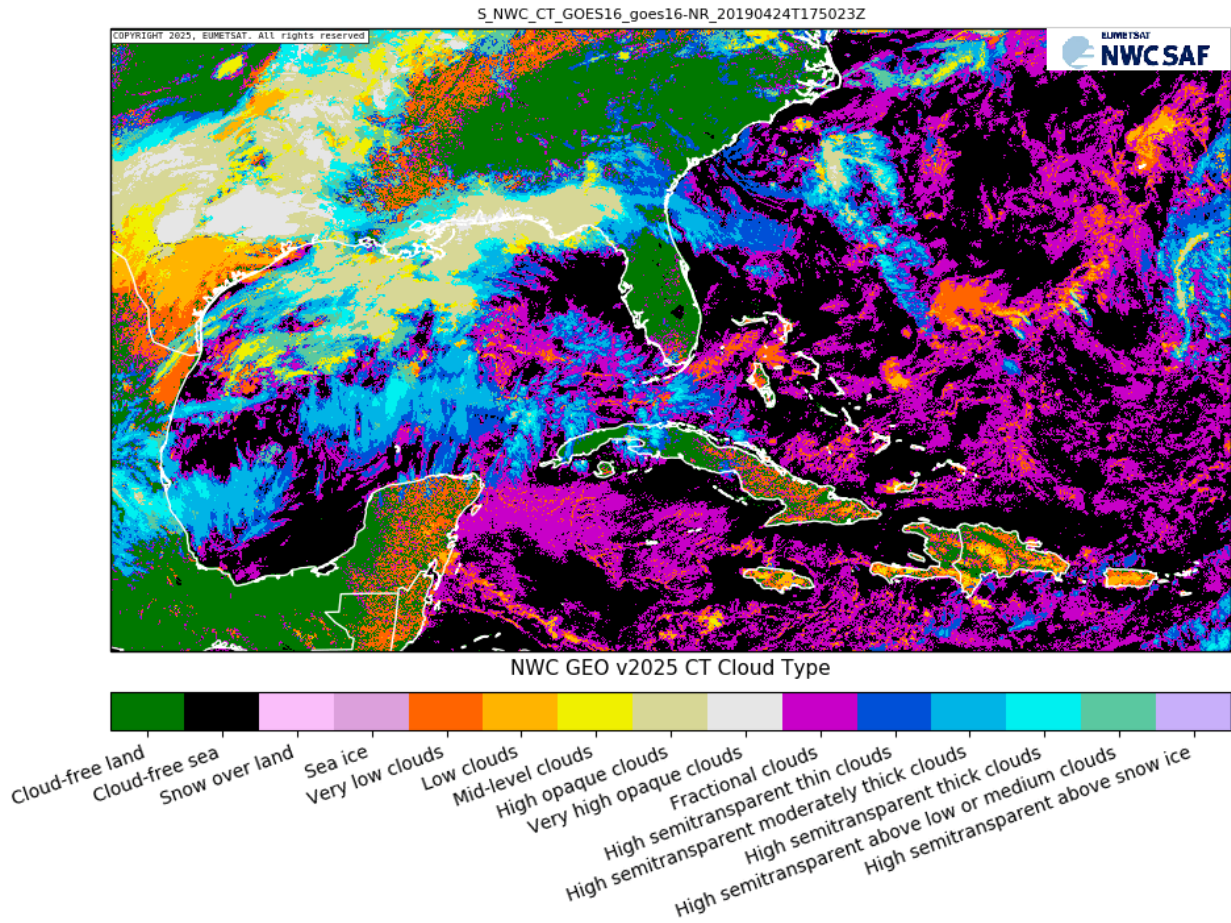


Figure 13: NWC/GEO Cloud Type product for GOES16, slot 20190424T175023Z

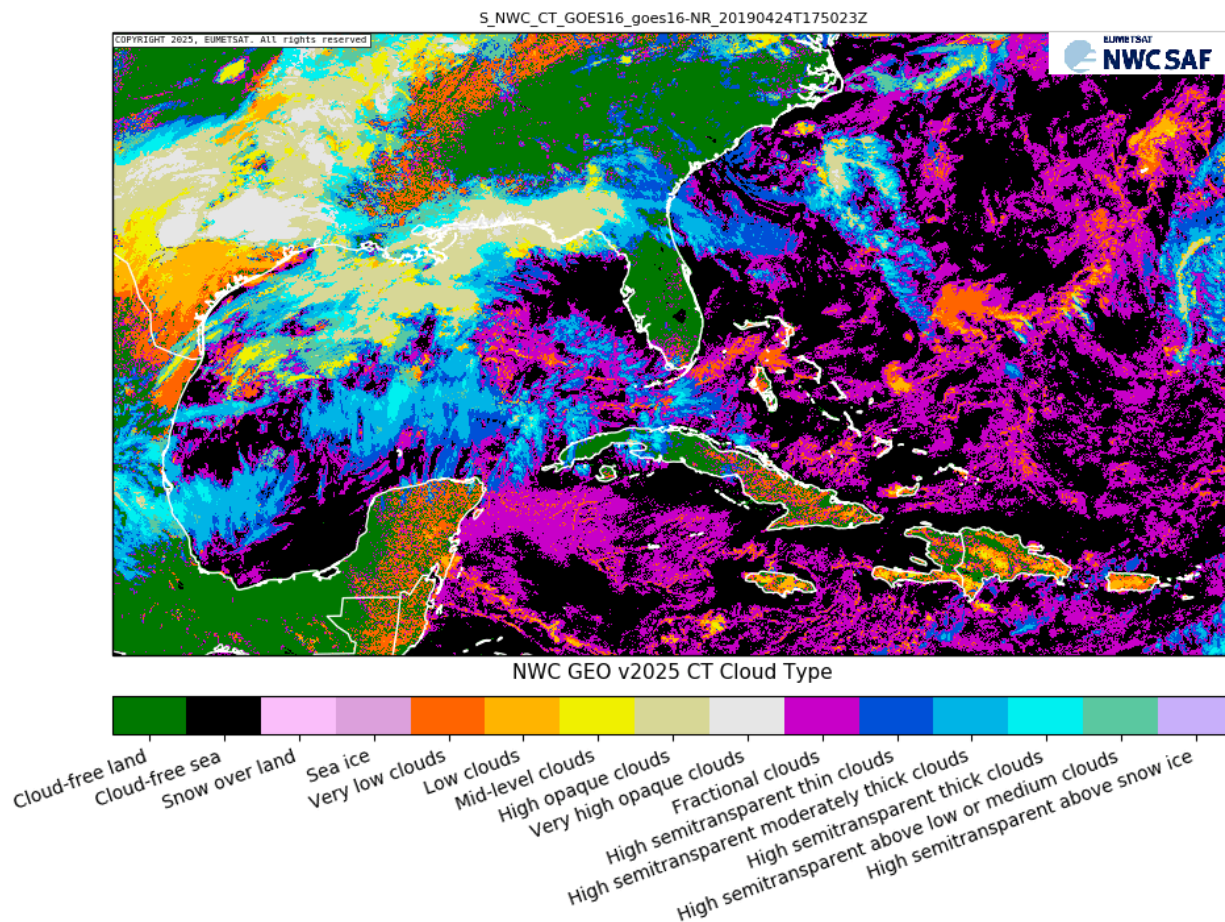


Figure 14: NWC/GEO products for GOES16, slot 20190424T175023Z

27. Uninstall GOES16 dataset

```
rm -f $SAFNWC/import/NWP_data/*
rm -f $SAFNWC/import/Sat_data/*
rm -f $SAFNWC/export/*/*

rm -rf $SAFNWC/import/Sat_data_archive
rm -rf $SAFNWC/export_archive

rm -f $SAFNWC/logs/*
rm -rf $SAFNWC/tmp/*
```

8 GOES-R/ABI L1B (GOES-17) TEST DATASET

8.1 REAL TIME OPERATIONS

Note that the triggering mechanism to execute a GOES-R slot in Real time is based on current system time. Therefore, the testing of GOES-R processing in Real time would require the modification of the platform time to match test data, or the reception of real time data

Therefore, only reprocessing of GOES-R data is tested in next section

8.2 REPROCESSING OPERATIONS

Note that it is assumed that the configuration has not been modified by the user (Default configuration as provided in the delivery is to be used)

1. Login as safnwc user (the account used to install and operate the NWC/GEO application)
2. Confirm that the NWC/GEO has been properly configured for Reprocessing GOES17 data in HSD format.

```
GOES17....M6.....GOESR..Reprocessing.....(-137.0 deg)
```

If this is not the case, please change the satellite configuration of the NWC/GEO following the procedure described in section 3.3 of the SW User Manual NWC/CDOP3/GEO/AEMET/SW/UM

3. Clean the environment

```
rm -f $SAFNWC/import/NWP_data/*
rm -f $SAFNWC/import/Sat_data/*
rm -f $SAFNWC/export/*/*

rm -rf $SAFNWC/import/Sat_data_archive
rm -rf $SAFNWC/export_archive

rm -f $SAFNWC/logs/*
rm -rf $SAFNWC/tmp/*
```

4. The NWC/GEO dataset is available as a compressed tar file (.tgz) and it can be downloaded from the NWCSAF Help Desk. Change to the \$SAFNWC directory and decompress the dataset file, and copy all satellite products in \$SAFNW/import/Sat_data directory:

```
cd $SAFNWC
tar xvzf <source>/NWC-CDOP4-GEO-AEMET-SW-DATA-GOES17_DATASET_v2025.tgz
cd $SAFNWC/import/Sat_data_archive/
ln * ../Sat_data
```

5. Start the NWC/GEO using the default configuration

```
SAFNWCTM
```

The following output is received in the terminal

Please note that the remapping process (Step 1) will take several minutes.

```
=====
Satellite Application Facility
on support to
Nowcasting and Very Short-Range Forecasting

NWC/GEO v<vers>
```

DAY MONTH YEAR

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Visit our web site for information and support at
http://www.nwcsaf.org
=====

Step 1: Remapping NWP data for the NWC/GEO
This step can take several minutes ...
Check the progress in \$SAFNWC/logs/safnwctm_yyyy-mm-ddThh:mm:ssZ.log
AllMappingNWP safnwc.cfs ...

Step 2: Initiating the NWC/GEO Task-Manager Cycle
nohup: appending output to `nohup.out`

Task Manager for the NWC/GEO has been started successfully

6. Set the NWC/GEO printtty terminal

```
tm log printtty `tty`
```

7. The execution of the PGEs will start in some seconds, after the following messages are received

```
New Satellite file found: >$SAFNWC/import/Sat_data/OR_ABI-L1b-RadF-  
M6C16_G17_s20201741000322_e20201741009400_c20201741009438.nc<  
  
New Satellite file found: >$SAFNWC/import/Sat_data/OR_ABI-L1b-RadF-  
M6C16_G17_s20201741010322_e20201741019400_c20201741019450.nc<  
  
New Satellite file found: >$SAFNWC/import/Sat_data/OR_ABI-L1b-RadF-  
M6C16_G17_s20201741020322_e20201741029400_c20201741029440.nc<  
  
...
```

This indicates that new slots have been detected and the processing of the slots has been commanded

8. Check that the following messages are received

```
PGE CRR, Slot 20200622T100032Z, Region goes17 (01): Has concluded with status=exit 0  
PGE ASII-TF, Slot 20200622T100032Z, Region goes17 (01): Has concluded with status=exit 0  
PGE CMA, Slot 20200622T100032Z, Region goes17 (01): Has concluded with status=exit 0  
...  
  
All PGEs for Slot 20200622T100032Z, Region goes17 (01) have concluded  
All PGEs for Slot 20200622T100032Z have concluded  
  
[...]  
All PGEs for Slot 20200622T101032Z, Region goes17 (01) have concluded  
All PGEs for Slot 20200622T101032Z have concluded  
  
[...]  
  
[...]  
All PGEs for Slot 20200622T110032Z, Region goes17 (01) have concluded  
All PGEs for Slot 20200622T110032Z have concluded
```

These messages indicate the execution of all different PGEs. Note that all PGEs terminate successfully (status=exit 0) except GEO-EXIM for first slot. This is because this PGE requires wind data as input, which is not available in the first slot.

Wait for the finalization of all 6 slots before going to next steps. Please note that the execution of all PGEs takes some time. The user can check the processors queued for processing executing the command “tm schedule” at any time

9. Check the result of the processing

```
tm status
```

The following output is obtained

```
=====
DD MM YYYY      NWC/GEO Task-Manager Status   hh:mm:ss
=====

Begginig Time: DD MMM YYYY hh:mm:ss
Elapsed Time:      000d 00:19:03
Task Manager Status:
  REAL_TIME Mode: OFF
  Active Mode:     ON

Number of tasks in Schedule / in execution:    0/ 0 (Max: 4)

Region Priority / PGE:  CMA CT CTTH CMIC PC CRR PCPh CRRPh iSHAI HRW EXIM ASII-TF ASII-GW ASII-ICE RDT-CW CI PLAX L1SD
-----
goes16      01:      XXX XX XXXX XXXX XX XXX XXXX XXXXXX XXXX XXX XXXX XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXX XX ---- ----

Number of PGE executed/successfully/Total RunTime/Mean RunTime
-----
CMA:          7          7          33   4
CT:           7          7          15   2
CTTH:         7          7          48   6
CMIC:         7          7          17   2
PC:           7          7           8   1
CRR:          7          7          19   2
PCPh:         7          7          15   2
CRRPh:        7          7          16   2
iSHAI:        7          7         169  24
HRW:          7          7         338  48
EXIM:         7          6          75  12
ASII-TF:      7          7          32   4
ASII-GW:      7          7         430  61
ASII-ICE:     7          7          11   1
RDT-CW:       7          7          42   6
CI:           7          7          50   7
PLAX:         0          0           0
L1SD:         0          0           0
-----
Total:        112         111         1318 188

Number of Slots completely processed : 7
```

(Note that the generation of PLAX and L1SD is not activated in the default configuration)

10. Terminates the execution of the NWC/GEO

```
tm quit
```

11. Check the generation of all different PGEs in \$SAFNWC/export/<PGE_id>

```
ls -lR $SAFNWC/export/* | more
```

Following files have been produced

```
$SAFNWC/export/ASII:
-rw-rw-r--. 1 saf_MTG saf_MTG 4559633 mar 17 10:09 S_NWC_ASII-GW_GOES17_goes17-NR_20200622T100032Z.nc
-rw-rw-r--. 1 saf_MTG saf_MTG 4563662 mar 17 10:10 S_NWC_ASII-GW_GOES17_goes17-NR_20200622T101032Z.nc
...
-rw-rw-r--. 1 saf_MTG saf_MTG 5004881 mar 17 10:08 S_NWC_ASII-ICE_GOES17_goes17-NR_20200622T100032Z.nc
-rw-rw-r--. 1 saf_MTG saf_MTG 5007768 mar 17 10:09 S_NWC_ASII-ICE_GOES17_goes17-NR_20200622T101032Z.nc
...
-rw-rw-r--. 1 saf_MTG saf_MTG 5564038 mar 17 10:08 S_NWC_ASII-TF_GOES17_goes17-NR_20200622T100032Z.nc
-rw-rw-r--. 1 saf_MTG saf_MTG 5564474 mar 17 10:09 S_NWC_ASII-TF_GOES17_goes17-NR_20200622T101032Z.nc
...

$SAFNWC/export/AUX:

$SAFNWC/export/CI:
-rw-rw-r--. 1 saf_MTG saf_MTG 4982035 mar 17 10:09 S_NWC_CI_GOES17_goes17-NR_20200622T100032Z.nc
-rw-rw-r--. 1 saf_MTG saf_MTG 4993814 mar 17 10:09 S_NWC_CI_GOES17_goes17-NR_20200622T101032Z.nc
...

$SAFNWC/export/CMA:
-rw-rw-r--. 1 saf_MTG saf_MTG 5312360 mar 17 10:08 S_NWC_CMA_GOES17_goes17-NR_20200622T100032Z.nc
-rw-rw-r--. 1 saf_MTG saf_MTG 5314773 mar 17 10:08 S_NWC_CMA_GOES17_goes17-NR_20200622T101032Z.nc
...
...
```

12. Use standard netCDF tools to visualize and/or compare generated products with reference products included in \$SAFNWC/export_archive

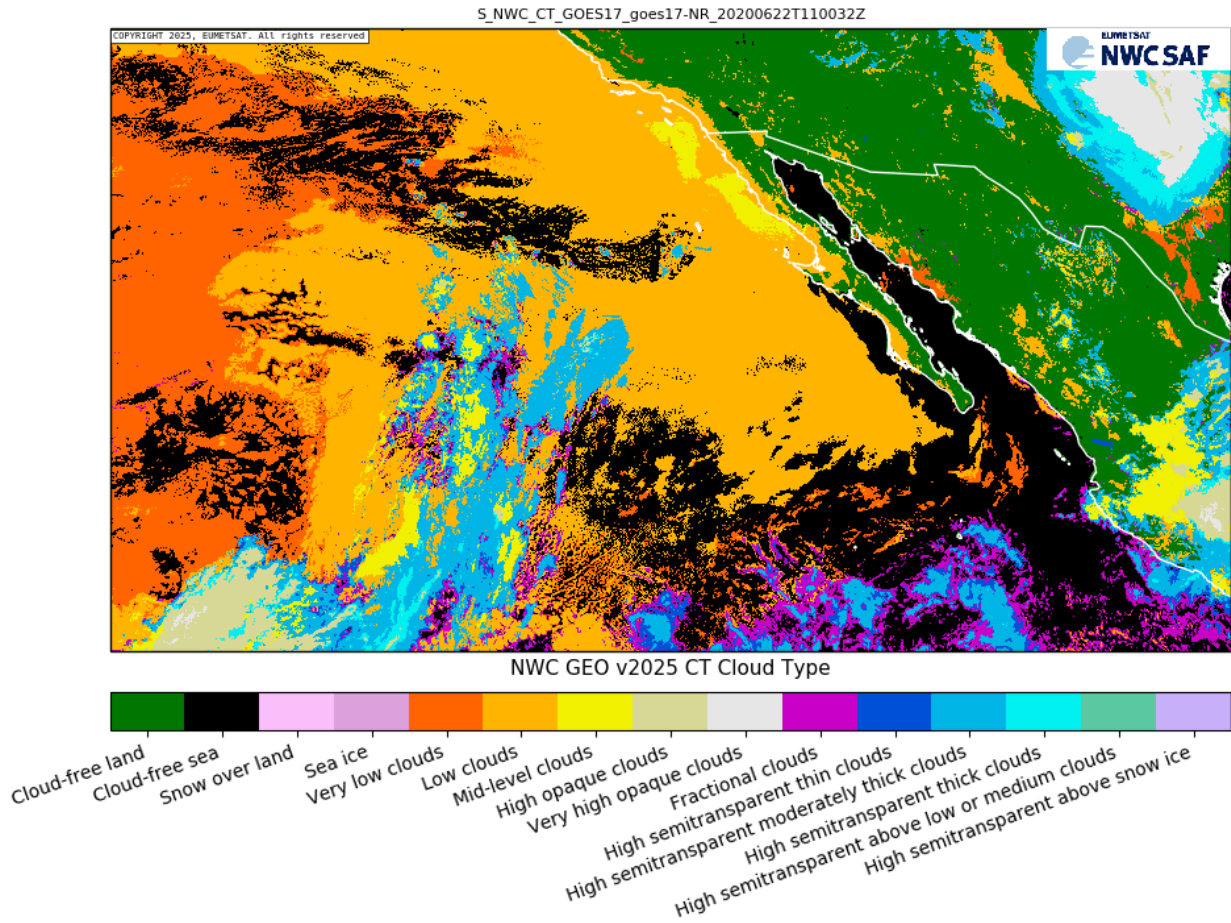


Figure 15: NWC/GEO Cloud Type product for GOES17, slot 20200622T110032Z

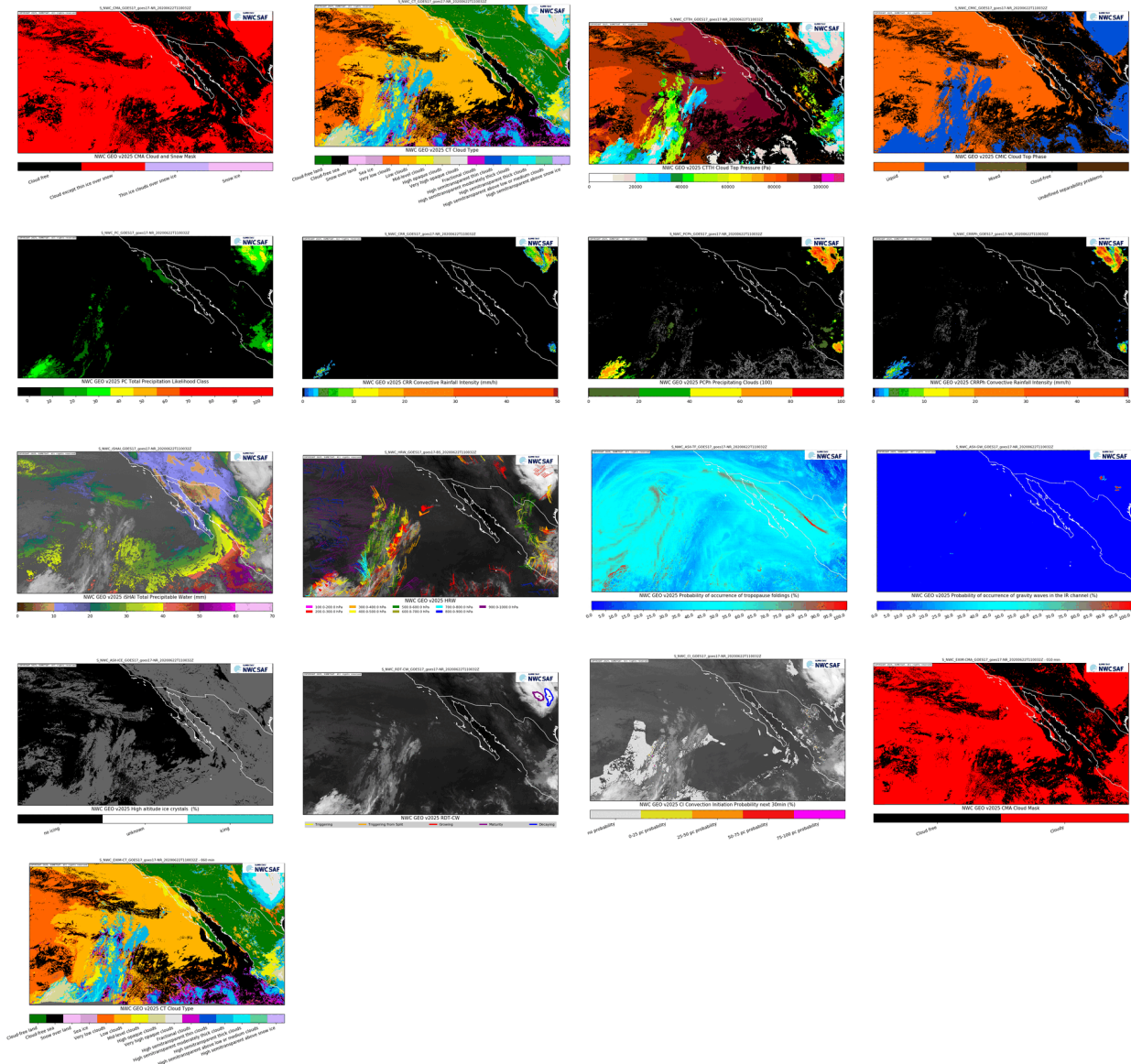



Figure 16: NWC/GEO products for GOES17, slot 20200622T110032Z

13. Uninstall GOES17 dataset

```
rm -f $SAFNWC/import/NWP_data/*
rm -f $SAFNWC/import/Sat_data/*
rm -f $SAFNWC/export/*/*

rm -rf $SAFNWC/import/Sat_data_archive
rm -rf $SAFNWC/export_archive

rm -f $SAFNWC/logs/*
rm -rf $SAFNWC/tmp/*
```

	User Manual for the Test Dataset of the NWC/GEO v2025.1	Code: NWC/CDOP3/MTG/AEMET/SW/UM/DATASET Issue: 1.2.0 Date: 30 June 2025 File: NWC-CDOP3-MTG-AEMET-SW-UM-DATASET_v1.2.0. Page: 57/98
---	--	---

9 GOES-R/ABI L1B (GOES-18) TEST DATASET

9.1 REAL TIME OPERATIONS

Note that the triggering mechanism to execute a GOES-R slot in Real time is based on current system time. Therefore, the testing of GOES-R processing in Real time would require the modification of the platform time to match test data, or the reception of real time data

Therefore, only reprocessing of GOES-R data is tested in next section

9.2 REPROCESSING OPERATIONS

Note that it is assumed that the configuration has not been modified by the user (Default configuration as provided in the delivery is to be used)

1. Login as safnwc user (the account used to install and operate the NWC/GEO application)
2. Confirm that the NWC/GEO has been properly configured for Reprocessing GOES18 data in HSD format.

```
GOES18....M6.....GOESR..Reprocessing.....(-137.0 deg)
```

If this is not the case, please change the satellite configuration of the NWC/GEO following the procedure described in section 3.3 of the SW User Manual NWC/CDOP3/GEO/AEMET/SW/UM

3. Clean the environment

```
rm -f $SAFNWC/import/NWP_data/*
rm -f $SAFNWC/import/Sat_data/*
rm -f $SAFNWC/export/*/*

rm -rf $SAFNWC/import/Sat_data_archive
rm -rf $SAFNWC/export_archive

rm -f $SAFNWC/logs/*
rm -rf $SAFNWC/tmp/*
```

4. The NWC/GEO dataset is available as a compressed tar file (.tgz) and it can be downloaded from the NWCSAF Help Desk. Change to the \$SAFNWC directory and decompress the dataset file, and copy all satellite products in \$SAFNW/import/Sat_data directory:

```
cd $SAFNWC
tar xvzf <source>/NWC-CDOP4-GEO-AEMET-SW-DATA-GOES18_DATASET_v2025.tgz
cd $SAFNWC/import/Sat_data_archive/
ln * ../Sat_data
```

5. Start the NWC/GEO using the default configuration

```
SAFNWCTM
```

The following output is received in the terminal

Please note that the remapping process (Step 1) will take several minutes.

```
=====
Satellite Application Facility
on support to
Nowcasting and Very Short-Range Forecasting

NWC/GEO v<vers>
```

```
DAY MONTH YEAR

Copyright yyyy, EUMETSAT, All Rights Reserved

-----
Visit our web site for information and support at
http://www.nwcsaf.org
=====

Step 1: Remapping NWP data for the NWC/GEO
      This step can take several minutes ...
      Check the progress in $SAFNWC/logs/safnwctm_yyyy-mm-ddThh:mm:ssZ.log
      AllMappingNWP safnwc.cfs ...

Step 2: Initiating the NWC/GEO Task-Manager Cycle
nohup: appending output to `nohup.out'

-----
Task Manager for the NWC/GEO has been started successfully
-----
```

6. Set the NWC/GEO printtty terminal

```
tm log printtty `tty`
```

7. The execution of the PGEs will start in some seconds, after the following messages are received

```
New Satellite file found: >$SAFNWC/import/Sat_data/OR_ABI-L1b-RadF-
M6C16_G18_s20222500400203_e20222500409522_c20222500409591.nc<

New Satellite file found: >$SAFNWC/import/Sat_data/OR_ABI-L1b-RadF-
M6C16_G18_s20222500410203_e20222500419522_c20222500419585.nc<

New Satellite file found: >$SAFNWC/import/Sat_data/OR_ABI-L1b-RadF-
M6C16_G18_s20222500420203_e20222500429522_c20222500429574.nc<

...
```

This indicates that new slots have been detected and the processing of the slots has been commanded

8. Check that the following messages are received

```
PGE CRR, Slot 20220907T040020Z, Region goes18 (01): Has concluded with status=exit 0
PGE ASII-TF, Slot 20220907T040020Z, Region goes18 (01): Has concluded with status=exit 0
PGE CMA, Slot 20220907T040020Z, Region goes18 (01): Has concluded with status=exit 0
...

All PGEs for Slot 20220907T040020Z, Region goes18 (01) have concluded
All PGEs for Slot 20220907T040020Z have concluded

[...]

All PGEs for Slot 20220907T041020Z, Region goes18 (01) have concluded
All PGEs for Slot 20220907T041020Z have concluded

[...]

[...]

All PGEs for Slot 20220907T050020Z, Region goes18 (01) have concluded
All PGEs for Slot 20220907T050020Z have concluded
```

These messages indicate the execution of all different PGEs. Note that all PGEs terminate successfully (status=exit 0) except GEO-EXIM for first slot. This is because this PGE requires wind data as input, which is not available in the first slot.

Wait for the finalization of all 7 slots before going to next steps. Please note that the execution of all PGEs takes some time. The user can check the processors queued for processing executing the command “tm schedule” at any time

9. Check the result of the processing

```
tm status
```

The following output is obtained

```
=====
DD MM YYYY      NWC/GEO Task-Manager Status   hh:mm:ss
=====

Begginig Time: DD MMM YYYY hh:mm:ss
Elapsed Time:      000d 00:19:03
Task Manager Status:
  REAL_TIME Mode: OFF
  Active Mode:     ON

Number of tasks in Schedule / in execution:    0/ 0 (Max: 4)

Region Priority / PGE:  CMA CT CTTH CMIC PC CRR PCPh CRRPh iSHAI HRW EXIM ASII-TF ASII-GW ASII-ICE RDT-CW CI PLAX L1SD
-----
goes16      01:      XXX XX XXXX XXXX XX XXX XXXX XXXXXX XXXX XXX XXXX XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXX XX ---- ----

Number of PGE executed/successfully/Total RunTime/Mean RunTime
-----
CMA:          7          7          62   8
CT:           7          7          12   1
CTTH:         7          7          52   7
CMIC:         7          7          15   2
PC:           7          7          18   2
CRR:          7          7          55   7
PCPh:         7          7          16   2
CRRPh:        7          7          17   2
iSHAI:        7          7          129  18
HRW:          7          7          235  33
EXIM:         7          6          76   12
ASII-TF:      7          7          48   6
ASII-GW:      7          7          416  59
ASII-ICE:     7          7           8   1
RDT-CW:       7          7          58   8
CI:           7          7          63   9
PLAX:         0          0           0
L1SD:         0          0           0
-----
Total:        112         111         1280 182

Number of Slots completely processed : 7
```

(Note that the generation of PLAX and L1SD is not activated in the default configuration)

10. Terminates the execution of the NWC/GEO

```
tm quit
```

11. Check the generation of all different PGEs in \$SAFNWC/export/<PGE_id>

```
ls -lR $SAFNWC/export/* | more
```

Following files have been produced

```
$SAFNWC/export/ASII:
-rw-rw-r--. 1 saf_MTG saf_MTG 4603202 mar 26 17:03 S_NWC_ASII-GW_GOES18_goes18-NR_20220907T040020Z.nc
-rw-rw-r--. 1 saf_MTG saf_MTG 4605908 mar 26 17:04 S_NWC_ASII-GW_GOES18_goes18-NR_20220907T041020Z.nc
...
-rw-rw-r--. 1 saf_MTG saf_MTG 4916620 mar 26 17:02 S_NWC_ASII-ICE_GOES18_goes18-NR_20220907T040020Z.nc
-rw-rw-r--. 1 saf_MTG saf_MTG 4917207 mar 26 17:03 S_NWC_ASII-ICE_GOES18_goes18-NR_20220907T041020Z.nc
...
-rw-rw-r--. 1 saf_MTG saf_MTG 5598614 mar 26 17:02 S_NWC_ASII-TF_GOES18_goes18-NR_20220907T040020Z.nc
-rw-rw-r--. 1 saf_MTG saf_MTG 5598434 mar 26 17:03 S_NWC_ASII-TF_GOES18_goes18-NR_20220907T041020Z.nc
...

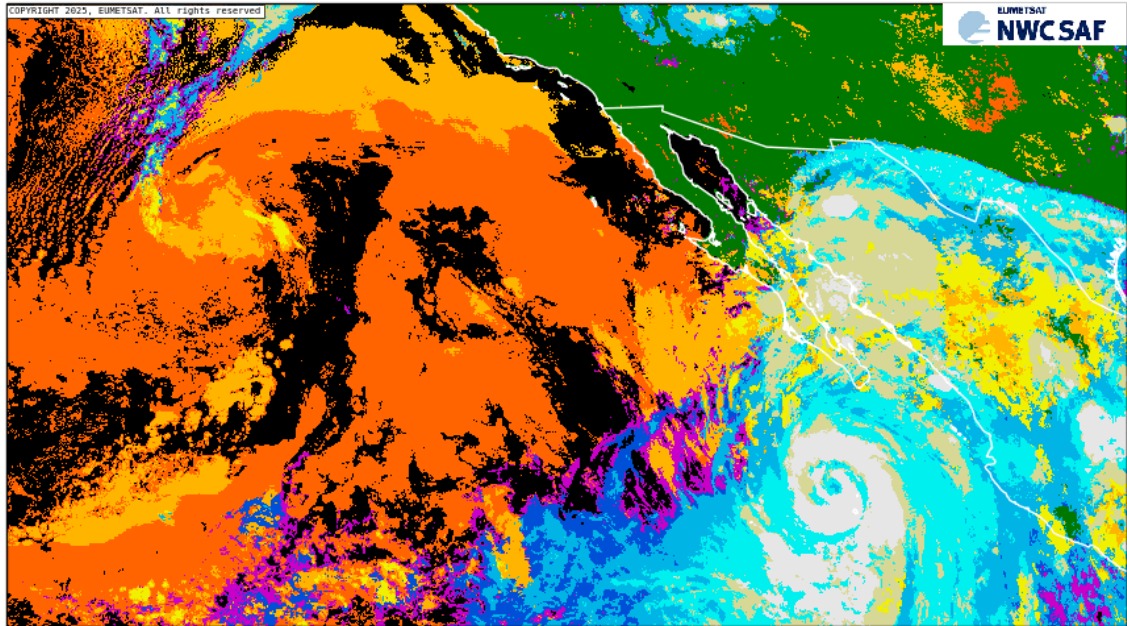
$SAFNWC/export/AUX:

$SAFNWC/export/CI:
-rw-rw-r--. 1 saf_MTG saf_MTG 5005450 mar 26 17:03 S_NWC_CI_GOES18_goes18-NR_20220907T040020Z.nc
-rw-rw-r--. 1 saf_MTG saf_MTG 5013729 mar 26 17:03 S_NWC_CI_GOES18_goes18-NR_20220907T041020Z.nc
...

$SAFNWC/export/CMA:
-rw-rw-r--. 1 saf_MTG saf_MTG 5170494 mar 26 17:02 S_NWC_CMA_GOES18_goes18-NR_20220907T040020Z.nc
-rw-rw-r--. 1 saf_MTG saf_MTG 5170180 mar 26 17:02 S_NWC_CMA_GOES18_goes18-NR_20220907T041020Z.nc
...
...
```

12. Use standard netCDF tools to visualize and/or compare generated products with reference products included in \$SAFNWC/export_archive

S_NWC_CT_GOES18_goes18-NR_20220907T045020Z



NWC GEO v2025 CT Cloud Type

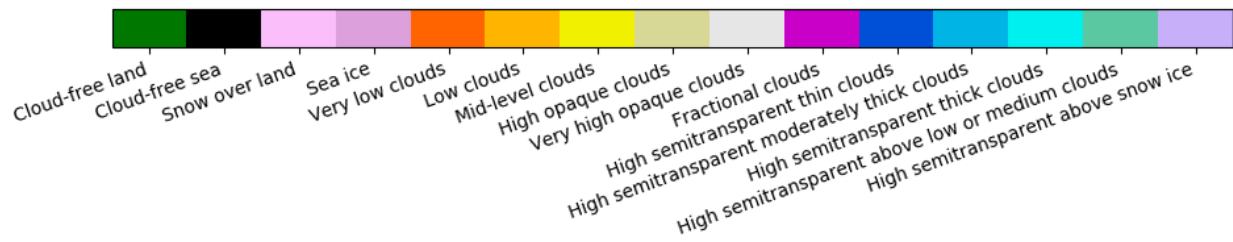


Figure 17: NWC/GEO Cloud Type product for GOES18, slot 20220907T045020Z

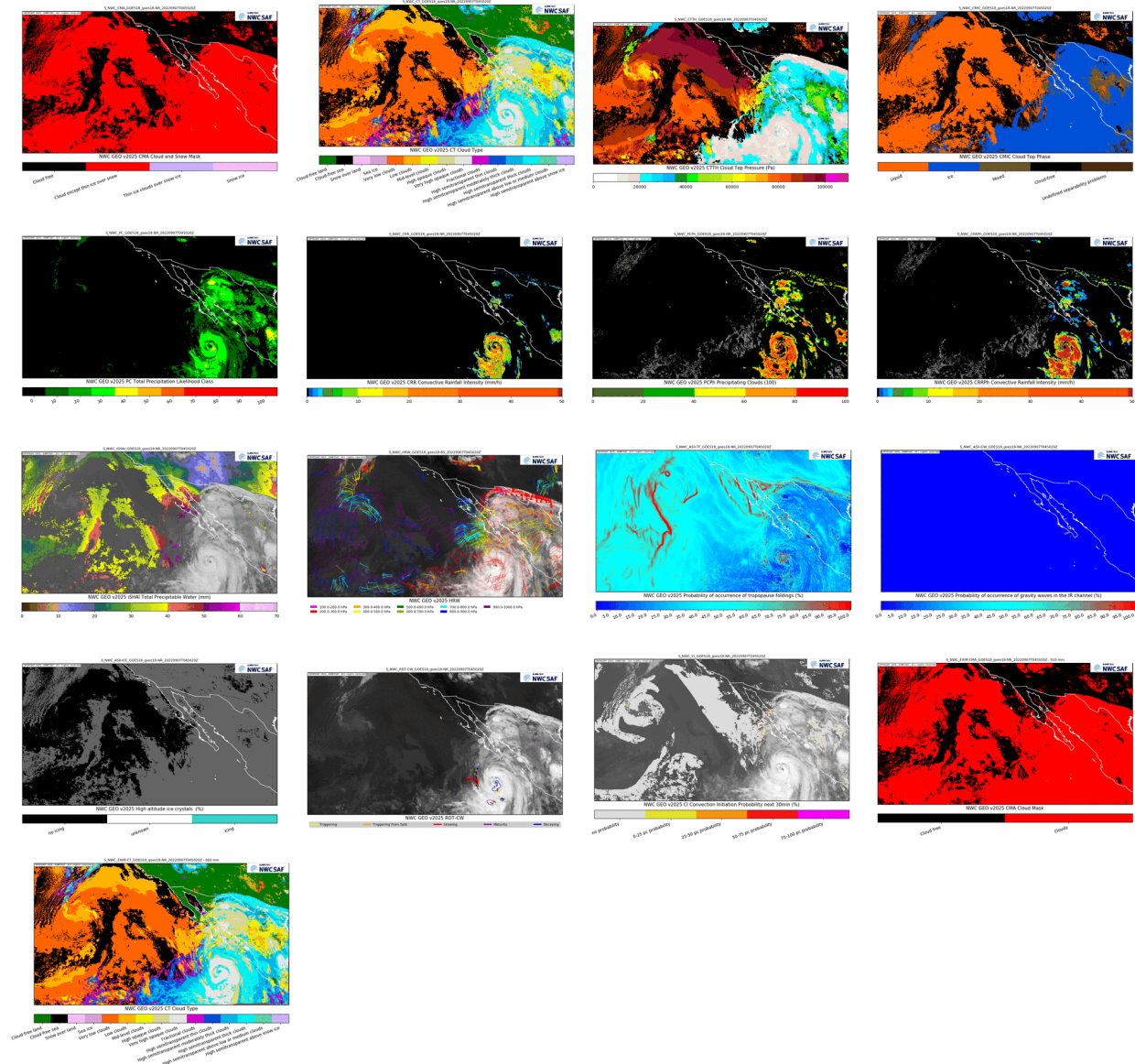



Figure 18: NWC/GEO products for GOES18, slot 20220907T050020Z

13. Uninstall GOES18 dataset

```
rm -f $SAFNWC/import/NWP_data/*
rm -f $SAFNWC/import/Sat_data/*
rm -f $SAFNWC/export/*/*

rm -rf $SAFNWC/import/Sat_data_archive
rm -rf $SAFNWC/export_archive

rm -f $SAFNWC/logs/*
rm -rf $SAFNWC/tmp/*
```

	User Manual for the Test Dataset of the NWC/GEO v2025.1	Code: NWC/CDOP3/MTG/AEMET/SW/UM/DATASET Issue: 1.2.0 Date: 30 June 2025 File: NWC-CDOP3-MTG-AEMET-SW-UM-DATASET_v1.2.0. Page: 64/98
---	--	---

10 GOES-R/ABI L1B (GOES-19) TEST DATASET

10.1 REAL TIME OPERATIONS

Note that the triggering mechanism to execute a GOES-R slot in Real time is based on current system time. Therefore, the testing of GOES-R processing in Real time would require the modification of the platform time to match test data, or the reception of real time data

Therefore, only reprocessing of GOES-R data is tested in next section

10.2 REPROCESSING OPERATIONS

Note that it is assumed that the configuration has not been modified by the user (Default configuration as provided in the delivery is to be used)

1. Login as safnwc user (the account used to install and operate the NWC/GEO application)
2. Confirm that the NWC/GEO has been properly configured for Reprocessing GOES19 data in HSD format.

```
GOES19....M6.....GOESR..Reprocessing.....(-075.0 deg)
```

If this is not the case, please change the satellite configuration of the NWC/GEO following the procedure described in section 3.3 of the SW User Manual NWC/CDOP3/GEO/AEMET/SW/UM

3. Clean the environment

```
rm -f $SAFNWC/import/NWP_data/*
rm -f $SAFNWC/import/Sat_data/*
rm -f $SAFNWC/export/*/*

rm -rf $SAFNWC/import/Sat_data_archive
rm -rf $SAFNWC/export_archive

rm -f $SAFNWC/logs/*
rm -rf $SAFNWC/tmp/*
```

4. The NWC/GEO dataset is available as a compressed tar file (.tgz) and it can be downloaded from the NWCSAF Help Desk. Change to the \$SAFNWC directory and decompress the dataset file, and copy all satellite products in \$SAFNWC/import/Sat_data directory:

```
cd $SAFNWC
tar xvzf <source>/NWC-CDOP4-GEO-AEMET-SW-DATA-GOES19_DATASET_v2025.1.tgz
cd $SAFNWC/import/Sat_data_archive/
ln * ../Sat_data
```

5. Start the NWC/GEO using the default configuration

```
SAFNWCTM
```

The following output is received in the terminal

Please note that the remapping process (Step 1) will take several minutes.

```
=====
Satellite Application Facility
on support to
Nowcasting and Very Short-Range Forecasting

NWC/GEO v<vers>
```

```

DAY MONTH YEAR

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-----
Visit our web site for information and support at
http://www.nwcsaf.org
=====

Step 1: Remapping NWP data for the NWC/GEO
        This step can take several minutes ...
        Check the progress in $SAFNWC/logs/safnwctm_yyyy-mm-ddThh:mm:ssZ.log
        AllMappingNWP safnwc.cfs ...

Step 2: Initiating the NWC/GEO Task-Manager Cycle
nohup: appending output to `nohup.out'

-----
Task Manager for the NWC/GEO has been started successfully
-----

```

6. Set the NWC/GEO printtty terminal

```
tm log printtty `tty`
```

7. The execution of the PGEs will start in some seconds, after the following messages are received

```

New Satellite file found: >$SAFNWC/import/Sat_data/OR_ABI-L1b-RadF-
M6C16_G19_s20251741100213_e20251741109534_c20251741109586.nc<

New Satellite file found: >$SAFNWC/import/Sat_data/OR_ABI-L1b-RadF-
M6C16_G19_s20251741110213_e20251741119534_c20251741119588.nc<

New Satellite file found: >$SAFNWC/import/Sat_data/OR_ABI-L1b-RadF-
M6C16_G19_s20251741120213_e20251741129533_c20251741129579.nc<

...

```

This indicates that new slots have been detected and the processing of the slots has been commanded

8. Check that the following messages are received

```

PGE CRR, Slot 20250623T110021Z, Region goes19 (01): Has concluded with status=exit 0
PGE ASII-TF, Slot 20250623T110021Z, Region goes19 (01): Has concluded with status=exit 0
PGE CMA, Slot 20250623T110021Z, Region goes19 (01): Has concluded with status=exit 0
...

All PGEs for Slot 20250623T110021Z, Region goes19 (01) have concluded
All PGEs for Slot 20250623T110021Z have concluded

[...]

All PGEs for Slot 20250623T11021Z, Region goes19 (01) have concluded
All PGEs for Slot 20250623T11021Z have concluded

[...]

[...]

All PGEs for Slot 20250623T115021Z, Region goes19 (01) have concluded
All PGEs for Slot 20250623T115021Z have concluded

```

These messages indicate the execution of all different PGEs. Note that all PGEs terminate successfully (status=exit 0) except GEO-EXIM for first slot. This is because this PGE requires wind data as input, which is not available in the first slot.

Wait for the finalization of all 7 slots before going to next steps. Please note that the execution of all PGEs takes some time. The user can check the processors queued for processing executing the command “tm schedule” at any time

9. Check the result of the processing

```
tm status
```

The following output is obtained

```
=====
DD MM YYYY      NWC/GEO Task-Manager Status   hh:mm:ss
=====

Begginig Time: DD MMM YYYY hh:mm:ss
Elapsed Time:      000d 00:10:43
Task Manager Status:
  REAL_TIME Mode: OFF
  Active Mode:     ON

Number of tasks in Schedule / in execution:    0/ 0 (Max: 4)

Region Priority / PGE:  CMA CT CTTH CMIC PC CRR PCPh CRRPh iSHAI HRW EXIM ASII-TF ASII-GW ASII-ICE RDT-CW CI PLAX L1SD
-----
goes16      01:      XXX XX XXXX XXXX XX XXX XXXX XXXXXX XXXX XXX XXXX XXXXXXXX XXXXXXXX XXXXXXXX XXXXXXXX XX ---- ----

Number of PGE executed/successfully/Total RunTime/Mean RunTime
-----
CMA:          6          6          47   7
CT:           6          6           6   1
CTTH:         6          6          38   6
CMIC:         6          6          16   2
PC:           6          6           7   1
CRR:          6          6          21   3
PCPh:         6          6           7   1
CRRPh:        6          6           8   1
iSHAI:        6          6          151  25
HRW:          6          6          162  27
EXIM:         6          5           41   8
ASII-TF:      6          6           21   3
ASII-GW:      6          6          310  51
ASII-ICE:    6          6           7   1
RDT-CW:       6          6          37   6
CI:           6          6          34   5
PLAX:         0          0           0
L1SD:         0          0           0
-----
Total:        102        101          913 152

Number of Slots completely processed : 6
```

(Note that the generation of PLAX and L1SD is not activated in the default configuration)

10. Terminates the execution of the NWC/GEO

```
tm quit
```

11. Check the generation of all different PGEs in \$SAFNWC/export/<PGE_id>

```
ls -lR $SAFNWC/export/* | more
```

Following files have been produced

```
$SAFNWC/export/ASII:
-rw-rw-r--. 1 saf_MTG saf_MTG 4486983 jul  2 09:44 S_NWC_ASII-GW_GOES19_goes19-NR_20250623T110021Z.nc
-rw-rw-r--. 1 saf_MTG saf_MTG 4484083 jul  2 09:45 S_NWC_ASII-GW_GOES19_goes19-NR_20250623T111021Z.nc
...
-rw-rw-r--. 1 saf_MTG saf_MTG 4791078 jul  2 09:44 S_NWC_ASII-ICE_GOES19_goes19-NR_20250623T110021Z.nc
-rw-rw-r--. 1 saf_MTG saf_MTG 4778389 jul  2 09:44 S_NWC_ASII-ICE_GOES19_goes19-NR_20250623T111021Z.nc
...
-rw-rw-r--. 1 saf_MTG saf_MTG 5459340 jul  2 09:43 S_NWC_ASII-TF_GOES19_goes19-NR_20250623T110021Z.nc
-rw-rw-r--. 1 saf_MTG saf_MTG 5461186 jul  2 09:44 S_NWC_ASII-TF_GOES19_goes19-NR_20250623T111021Z.nc
...

$SAFNWC/export/AUX:

$SAFNWC/export/CI:
-rw-rw-r--. 1 saf_MTG saf_MTG 4916255 jul  2 09:44 S_NWC_CI_GOES19_goes19-NR_20250623T110021Z.nc
-rw-rw-r--. 1 saf_MTG saf_MTG 4900938 jul  2 09:44 S_NWC_CI_GOES19_goes19-NR_20250623T111021Z.nc
...

$SAFNWC/export/CMA:
-rw-rw-r--. 1 saf_MTG saf_MTG 5227988 jul  2 09:43 S_NWC_CMA_GOES19_goes19-NR_20250623T110021Z.nc
-rw-rw-r--. 1 saf_MTG saf_MTG 5216717 jul  2 09:44 S_NWC_CMA_GOES19_goes19-NR_20250623T111021Z.nc
...
...
```

12. Use standard netCDF tools to visualize and/or compare generated products with reference products included in \$SAFNWC/export_archive

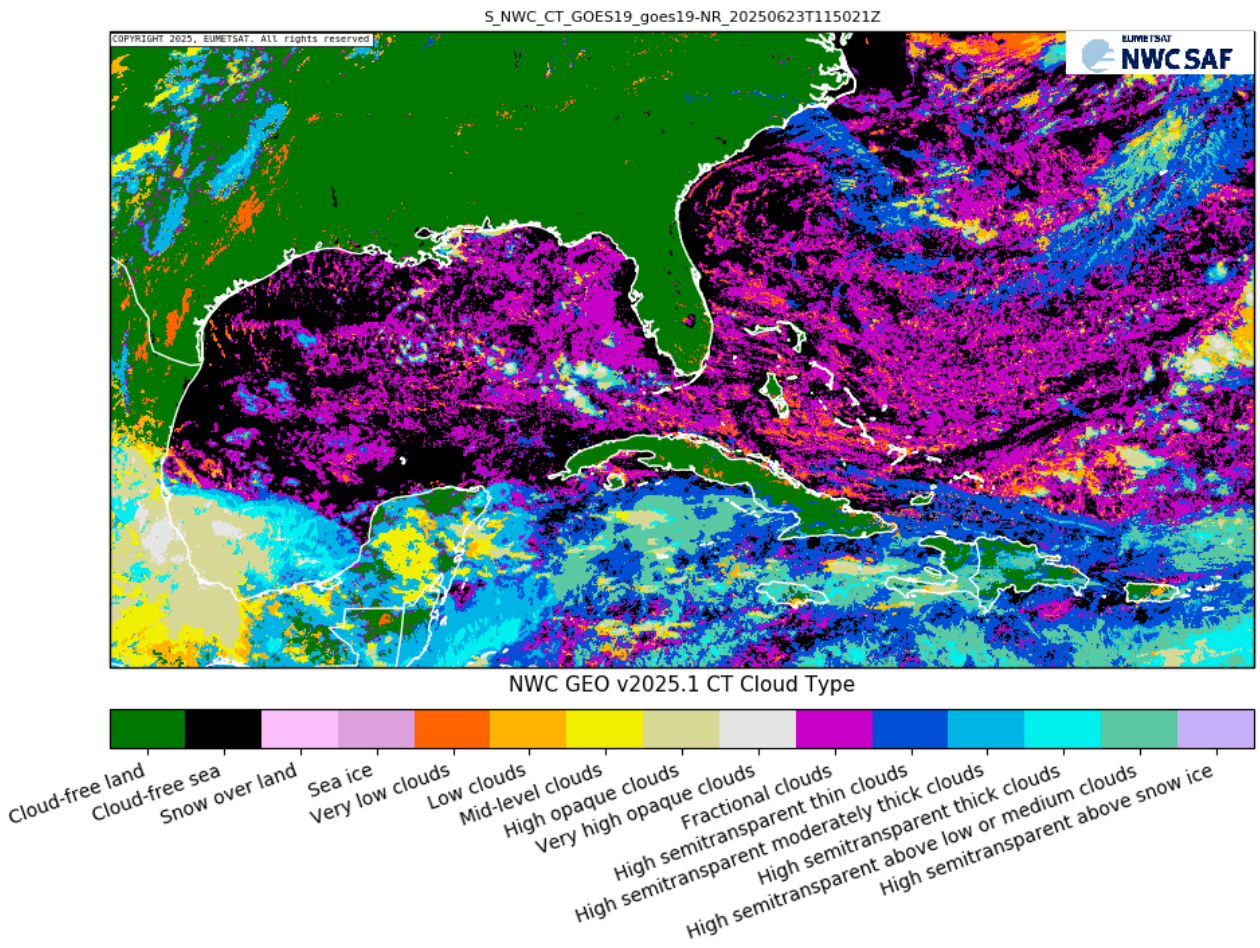


Figure 19: NWC/GEO Cloud Type product for GOES19, slot 20250623T115021Z

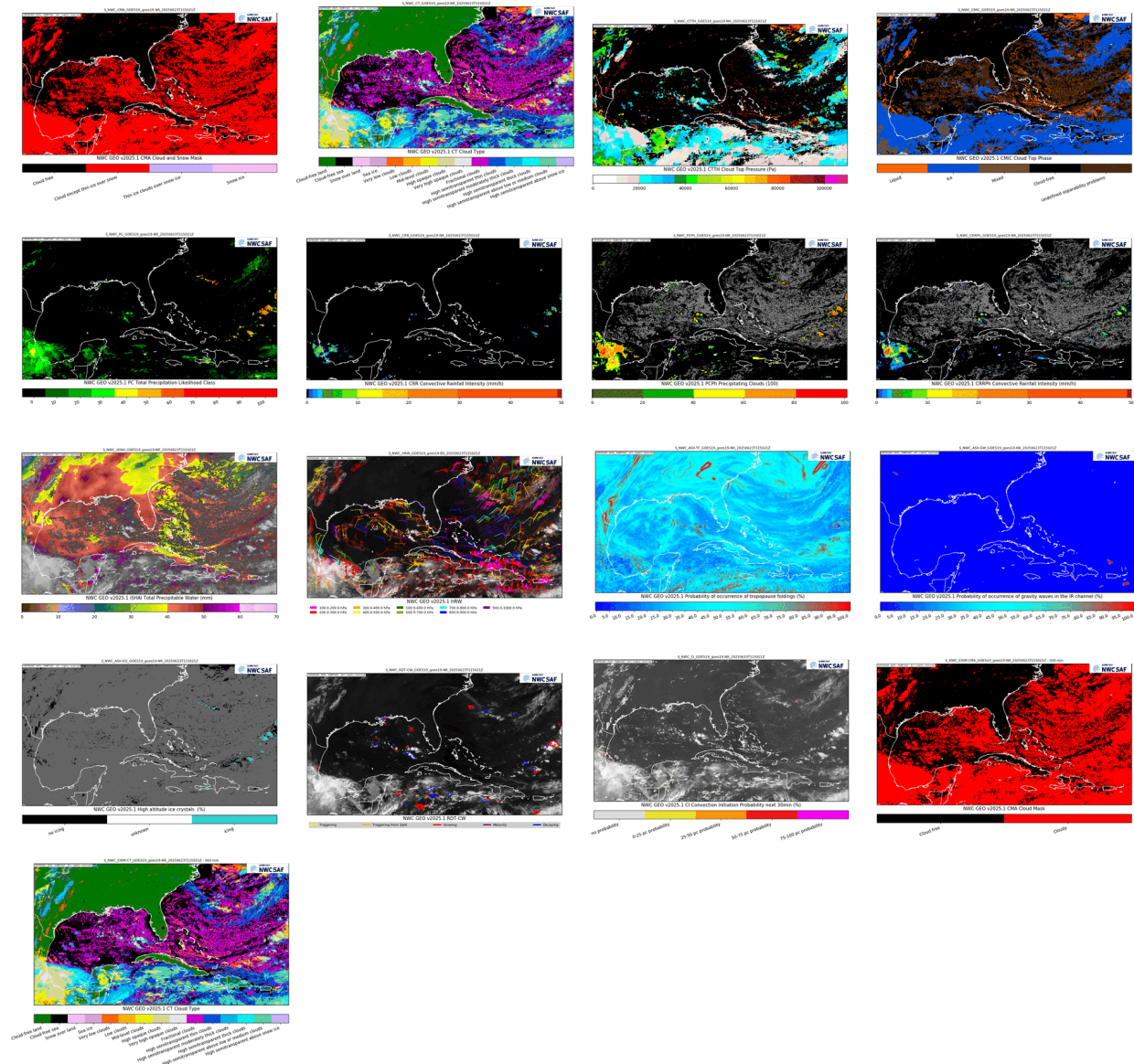


Figure 20: NWC/GEO products for GOES19, slot 20250623T115021Z

13. Uninstall GOES19 dataset

```
rm -f $SAFNWC/import/NWP_data/*
rm -f $SAFNWC/import/Sat_data/*
rm -f $SAFNWC/export/*/*

rm -rf $SAFNWC/import/Sat_data_archive
rm -rf $SAFNWC/export_archive

rm -f $SAFNWC/logs/*
rm -rf $SAFNWC/tmp/*
```



User Manual for the Test Dataset of the
NWC/GEO v2025.1

Code: NWC/CDOP3/MTG/AEMET/SW/UM/DATASET

Issue: 1.2.0 **Date:** 30 June 2025

File: NWC-CDOP3-MTG-AEMET-SW-UM-DATASET_v1.2.0.

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11 HIMAWARI/HSD (HIMA-08) TEST DATASET

11.1 REAL TIME OPERATIONS

Note that it is assumed that the configuration has not been modified by the user (Default configuration as provided in the delivery is to be used)

1. Login as safnwc user (the account used to install and operate the NWC/GEO application)
2. Confirm that the NWC/GEO has been properly configured for Reprocessing Himawari-08 data in HSD format.

```
Himawari-08.....HSD....Near Real Time.....(+140.7 deg)
```

If this is not the case, please change the satellite configuration of the NWC/GEO following the procedure described in section 3.3 of the SW User Manual NWC/CDOP3/GEO/AEMET/SW/UM

3. Clean the environment

```
rm -f $SAFNWC/import/NWP_data/*
rm -f $SAFNWC/import/Sat_data/*
rm -f $SAFNWC/import/Sdi_data/*
rm -f $SAFNWC/export/*/*

rm -rf $SAFNWC/import/Sat_data_archive
rm -rf $SAFNWC/export_archive

rm -f $SAFNWC/logs/*
rm -rf $SAFNWC/tmp/*
```

4. The NWC/GEO dataset is available as a compressed tar file (.tgz) and it can be downloaded from the NWCSAF Help Desk. Change to the \$SAFNWC directory and decompress the dataset file:

```
cd $SAFNWC
tar xvzf <source>/NWC-CDOP4-GEO-AEMET-SW-DATA-HIMA08-HSD_DATASET_v2025.tgz
```

5. Start the NWC/GEO using the default configuration

```
SAFNWCTM
```

The following output is received in the terminal

Please note that the remapping process (Step 1) will take several minutes.

```
=====
Satellite Application Facility
on support to
Nowcasting and Very Short-Range Forecasting

NWC/GEO v<vers>
```

```
DAY MONTH YEAR
```

```
Copyright yyyy, EUMETSAT, All Rights Reserved
```

```
-----  
Visit our web site for information and support at  
http://www.nwcsaf.org  
=====
```

```
Step 1: Remapping NWP data for the NWC/GEO  
This step can take several minutes ...  
Check the progress in $SAFNWC/logs/safnwctm_yyyy-mm-ddThh:mm:ssZ.log  
AllMappingNWP safnwc.cfs ...
```

```
Step 2: Initiating the NWC/GEO Task-Manager Cycle  
nohup: appending output to `nohup.out'
```

```
-----  
Task Manager for the NWC/GEO has been started successfully  
-----
```

6. Set the NWC/GEO printtty terminal

```
tm log printtty `tty`
```

7. Simulate the reception of a satellite slot

```
cd $SAFNWC/import/Sat_data_archive/  
ln *20180628_2340* ../Sat_data
```

and check the ingestion of the HSD files:

```
tail -f $SAFNWC/tmp/SAT/nwcsdi_YYYYMMDDThhZ.log
```

Where YYYYMMDDThh is the *current system* date and hour.

Exit “tail -f” command typing CTRL-C

8. Check the automatic execution of slots. This takes some time, until all HSD files required to process the region have been ingested
The following lines appear in the terminal.

```
New SATC file found:  
$SAFNWC/import/Sdi_data/S_NWC_SATC_HIMA08_HIMA-N_NR_20180628T234000Z.txt<
```

This indicates that a new slot has been received and the processing of the slot has been commanded

9. Check the successful execution of the PGEs. The following lines appear in the terminal

```
PGE CMA, Slot 20180628T234000Z, Region HIMA-N (01): Has concluded with status=exit 0  
PGE CRR, Slot 20180628T234000Z, Region HIMA-N (01): Has concluded with status=exit 0  
...
```

```
...
...
All PGEs for Slot 20180628T234000Z, Region HIMA-N (01) have concluded
All PGEs for Slot 20180628T234000Z have concluded
```

These messages indicate the execution of all different PGEs. Note that all PGES terminate successfully (status=exit 0) except GEO-EXIM for first slot. This is because this PGE requires wind data as input, which is not available in the first slot.

10. Repeat steps 7, 8 and 9 for slots **20180628_2350** and **20180629_0000**

Wait for the finalization of the processing of a slot (see step 9) before simulating the reception of a new one.

Wait for the finalization of all 3 slots before going to next steps

11. Check the result of the processing

```
tm status
```

The following output is obtained

```
=====
DD MM YYYY      NWC/GEO Task-Manager Status   hh:mm:ss
=====

Beginning Time: DD MMM YYYY hh:mm:ss
Elapsed Time:      000d 00:22:56
Task Manager Status:
  REAL_TIME Mode: OFF
  Active Mode:     ON

Number of tasks in Schedule / in execution:    0/ 0 (Max: 2)

Region Priority / PGE:  CMA CT CTTH CMIC PC CRR PCPh CRRPh iSHAI HRW EXIM ASII-TF ASII-GW ASII-ICE RDT-CW CI PLAX L1SD
-----
HIMA-N          01:    XXX XX XXXX XXXX XX XXX XXXX XXXXX XXXXX XXX XXXX XXXXXXX XXXXXXX XXXXXXX XXXXXXX XX ---- ----
-----

Number of PGE executed/successfully/Total RunTime/Mean RunTime
-----
CMA:              3          3          18   6
CT:               3          3           5   1
CTTH:            3          3          17   5
CMIC:            3          3          35  11
PC:              3          3           3   1
CRR:             3          3          10   3
PCPh:            3          3           6   2
CRRPh:          3          3           5   1
iSHAI:           3          3         137  45
HRW:             3          3         117  39
EXIM:            3          2          26  13
ASII-TF:         3          3          10   3
ASII-GW:         3          3         189  63
ASII-ICE:        3          3           3   1
RDT-CW:          3          3          21   7
CI:              3          3          16   5
PLAX:            0          0           0
L1SD:            0          0           0
-----
Total:           48          47         618 206
```

```
Number of Slots completely processed : 3
```

(Note that PLAX & LISD PGEs are not activated in the default configuration)

12. Terminates the execution of the NWC/GEO

```
tm quit
```

13. Check the generation of all different PGEs in \$SAFNWC/export/<PGE_id>

```
ls -lR $SAFNWC/export/* | more
```

Following files have been produced

```
$SAFNWC/export/ASII:
-rw-rw-r--. 1 saf_MTG saf_MTG 5353250 mar 17 15:18 S_NWC_ASII-GW_HIMA08_HIMA-N-NR_20180628T234000Z.nc
-rw-rw-r--. 1 saf_MTG saf_MTG 5356720 mar 17 15:19 S_NWC_ASII-GW_HIMA08_HIMA-N-NR_20180628T235000Z.nc
-rw-rw-r--. 1 saf_MTG saf_MTG 5358473 mar 17 15:21 S_NWC_ASII-GW_HIMA08_HIMA-N-NR_20180629T000000Z.nc
-rw-rw-r--. 1 saf_MTG saf_MTG 5740537 mar 17 15:17 S_NWC_ASII-ICE_HIMA08_HIMA-N-NR_20180628T234000Z.nc
-rw-rw-r--. 1 saf_MTG saf_MTG 5738856 mar 17 15:19 S_NWC_ASII-ICE_HIMA08_HIMA-N-NR_20180628T235000Z.nc
-rw-rw-r--. 1 saf_MTG saf_MTG 5743722 mar 17 15:21 S_NWC_ASII-ICE_HIMA08_HIMA-N-NR_20180629T000000Z.nc
-rw-rw-r--. 1 saf_MTG saf_MTG 6206973 mar 17 15:17 S_NWC_ASII-TF_HIMA08_HIMA-N-NR_20180628T234000Z.nc
-rw-rw-r--. 1 saf_MTG saf_MTG 6212457 mar 17 15:18 S_NWC_ASII-TF_HIMA08_HIMA-N-NR_20180628T235000Z.nc
-rw-rw-r--. 1 saf_MTG saf_MTG 6217614 mar 17 15:20 S_NWC_ASII-TF_HIMA08_HIMA-N-NR_20180629T000000Z.nc

$SAFNWC/export/AUX:

$SAFNWC/export/CI:
-rw-rw-r--. 1 saf_MTG saf_MTG 5681276 mar 17 15:18 S_NWC_CI_HIMA08_HIMA-N-NR_20180628T234000Z.nc
-rw-rw-r--. 1 saf_MTG saf_MTG 5707380 mar 17 15:20 S_NWC_CI_HIMA08_HIMA-N-NR_20180628T235000Z.nc
-rw-rw-r--. 1 saf_MTG saf_MTG 5754723 mar 17 15:22 S_NWC_CI_HIMA08_HIMA-N-NR_20180629T000000Z.nc

$SAFNWC/export/CMA:
-rw-rw-r--. 1 saf_MTG saf_MTG 5920340 mar 17 15:17 S_NWC_CMA_HIMA08_HIMA-N-NR_20180628T234000Z.nc
-rw-rw-r--. 1 saf_MTG saf_MTG 5922717 mar 17 15:19 S_NWC_CMA_HIMA08_HIMA-N-NR_20180628T235000Z.nc
-rw-rw-r--. 1 saf_MTG saf_MTG 6118538 mar 17 15:20 S_NWC_CMA_HIMA08_HIMA-N-NR_20180629T000000Z.nc

...
...
```

14. Use standard netCDF tools to visualize and/or compare generated products with reference products included in \$SAFNWC/export_archive

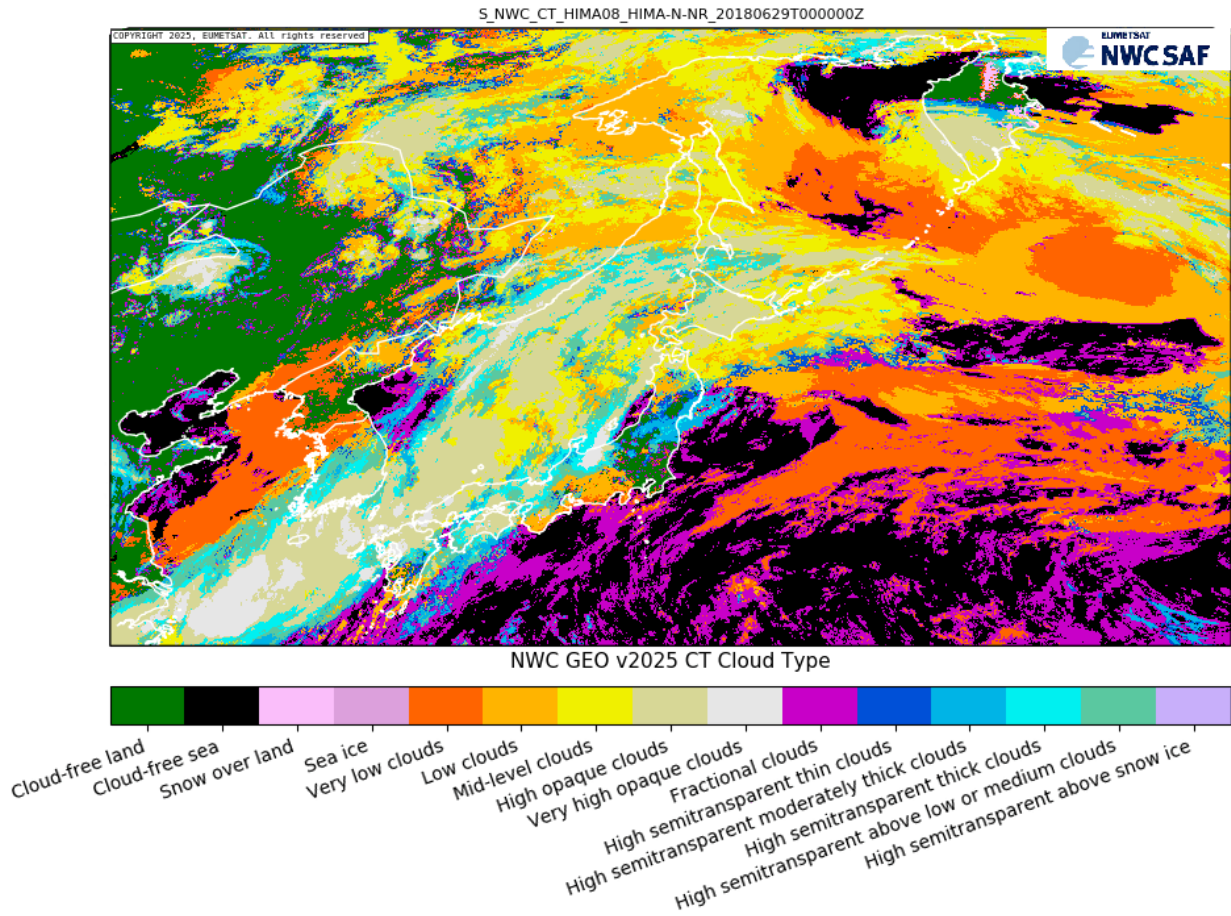


Figure 21: NWC/GEO Cloud Type product for HIMA08, slot 20180629T000000Z

11.2 REPROCESSING OPERATIONS

Execute the same procedure than that presented for Himawari/HSD in Real Time (see section 11.1), but with the following changes

- Step 2: Configure the system for Himawari-8 Reprocessing operation.

- Himawari-08.....HSD....Reprocessing.....(+140.7 deg)

- Step 4: After the installation of the TDS, copy all satellite data in the \$SAFNWC/import/Sat_data directory (for reprocessing)

```
cd $SAFNWC
tar xvzf <source>/NWC-CDOP4-GEO-AEMET-SW-DATA-HIMA08-HSD_DATASET_v2025.tgz
cd $SAFNWC/import/Sat_data_archive/
ln * ../Sat_data
```

- Skip steps 7 & 10. Files already copied for reprocessing, instead of simulating the reception of files in Real time).
- In step 10, simply wait for the finalization of the automatic processing of all slots

```
All PGEs for Slot 20180629T000000Z have concluded
```

12 HIMAWARI/EHH (HIMA-08) TEST DATASET

12.1 REAL TIME OPERATIONS

Note that it is assumed that the configuration has not been modified by the user (Default configuration as provided in the delivery is to be used)

1. Login as safnwc user (the account used to install and operate the NWC/GEO application)
2. Confirm that the NWC/GEO has been properly configured for Reprocessing of Himawari-08 data in EHH format.

```
Himawari-08.....EHH....Near Real Time.....(+140.7 deg)
```

If this is not the case, please change the satellite configuration of the NWC/GEO following the procedure described in section 3.3 of the SW User Manual NWC/CDOP3/GEO/AEMET/SW/UM

3. Clean the environment

```
rm -f $SAFNWC/import/NWP_data/*
rm -f $SAFNWC/import/Sat_data/*
rm -f $SAFNWC/import/Sdi_data/*
rm -f $SAFNWC/export/*/*

rm -rf $SAFNWC/import/Sat_data_archive
rm -rf $SAFNWC/export_archive

rm -f $SAFNWC/logs/*
rm -rf $SAFNWC/tmp/*
```

4. The NWC/GEO dataset is available as a compressed tar file (.tgz) and it can be downloaded from the NWCSAF Help Desk. Change to the \$SAFNWC directory and decompress the dataset file:

```
cd $SAFNWC
tar xvzf <source>/NWC-CDOP4-GEO-AEMET-SW-DATA-HIMA08-EHH_DATASET_v2025.tgz
```

5. Start the NWC/GEO using the default configuration

```
SAFNWCTM
```

The following output is received in the terminal

Please note that the remapping process (Step 1) will take several minutes.

```
=====
Satellite Application Facility
on support to
Nowcasting and Very Short-Range Forecasting

NWC/GEO v<vers>
```

```
DAY MONTH YEAR

Copyright yyyy, EUMETSAT, All Rights Reserved

-----
Visit our web site for information and support at
http://www.nwcsaf.org
=====

Step 1: Remapping NWP data for the NWC/GEO
This step can take several minutes ...
Check the progress in $SAFNWC/logs/safnwctm_yyyy-mm-ddThh:mm:ssZ.log
AllMappingNWP safnwc.cfs ...

Step 2: Initiating the NWC/GEO Task-Manager Cycle
nohup: appending output to `nohup.out'
-----
Task Manager for the NWC/GEO has been started successfully
-----
```

6. Set the NWC/GEO printtty terminal

```
tm log printtty `tty`
```

7. Simulate the reception of a satellite slot

```
cd $SAFNWC/import/Sat_data_archive/
ln *202005270400* ../Sat_data
```

and check the ingestion of the HSD files:

```
tail -f $SAFNWC/tmp/SAT/nwcsdi_YYYYMMDDThhZ.log
```

Where YYYYMMDDThh is the *current system* date and hour.

Exit “tail -f” command typing CTRL-C

8. Check the automatic execution of slots. This takes some time, until all HSD required to process the region have been ingested
The following lines appear in the terminal.

```
New SATC file found:
>../import/Sdi_data/S_NWC_SATC_HIMA08_HIMA-N_NR_20200527T040000Z.txt<
```

9. Check the successful execution of the PGEs. The following lines appear in the terminal

```
PGE CMA, Slot 20200527T040000Z, HIMA-N (01): Has concluded with status=exit 0
PGE CRR, Slot 20200527T040000Z, HIMA-N (01): Has concluded with status=exit 0
PGE CT, Slot 20200527T040000Z, HIMA-N (01): Has concluded with status=exit 0
PGE CTTH, 20200527T040000Z, HIMA-N (01): Has concluded with status=exit 0
...
All PGEs for Slot 20200527T040000Z, Region HIMA-N (01) have concluded
All PGEs for Slot 20200527T040000Z have concluded
```

These messages indicate the execution of all different PGEs. Note that all PGEs terminate successfully (status=exit 0) except GEO-EXIM. This is because this PGE requires wind data as input, which is not available in the first slot.

10. Repeat steps 7, 8 and 9 for slots **202005270410**, **202005270420** and **202005270430**

Wait for the finalization of the processing of a slot (see step 9) before simulating the reception of a new one.

Wait for the finalization of all 4 slots before going to next steps

11. Check the result of the processing

```
tm status
```

The following output is obtained

```
=====
DD MM YYYY      NWC/GEO Task-Manager Status   hh:mm:ss
=====

Beginning Time: DD MMM YYYY hh:mm:ss
Elapsed Time:      000d 00:mm:ss
Task Manager Status:
  REAL_TIME Mode:  OFF
  Active Mode:     ON

Number of tasks in Schedule / in execution:    0/ 0 (Max: 2)

Region Priority / PGE:  CMA CT CTTH CMIC PC CRR PCPh CRRPh iSHAI HRW EXIM ASII-TF ASII-GW ASII-ICE RDT-CW CI PLAX L1SD
-----
HIMA-N          01:    XXX XX XXXX XXXX XX XXX XXXX XXXXX XXXXX XXX XXXX XXXXXXXX XXXXXXXX XXXXXXXX XXXXXX XX ---- ----
-----

Number of PGE executed/successfully/Total RunTime/Mean RunTime
-----
CMA:             4         4           25   6
CT:              4         4           10   2
CTTH:           4         4           32   8
CMIC:           4         4           78  19
PC:             4         4            5   1
CRR:            4         4           15   3
PCPh:           4         4           10   2
CRRPh:          4         4            8   2
iSHAI:          4         4           60  15
HRW:            4         4          221  55
EXIM:           4         3           46  15
ASII-TF:        4         4           17   4
ASII-GW:        4         4          212  53
ASII-ICE:       4         4            4   1
RDT-CW:         4         4           42  10
CI:             4         4           45  11
PLAX:           0         0            0
L1SD:           0         0            0
-----
Total:           64         63          830 207

Number of Slots completely processed : 4
```

(Note that PLAX & L1SD PGEs are not activated in the default configuration)

12. Terminates the execution of the NWC/GEO

```
tm quit
```

13. Check the generation of all different PGEs in \$SAFNWC/export/<PGE_id>

```
ls -lR $SAFNWC/export/* | more
```

Following files have been produced

```
/home/saf_MTG/NWCSAF_GEO/export/ASII:
-rw-rw-r--. 1 saf_MTG saf_MTG 5481412 mar 27 15:47 S_NWC_ASII-GW_HIMA08_HIMA-N-NR_20200527T040000Z.nc
-rw-rw-r--. 1 saf_MTG saf_MTG 5487291 mar 27 15:51 S_NWC_ASII-GW_HIMA08_HIMA-N-NR_20200527T041000Z.nc
-rw-rw-r--. 1 saf_MTG saf_MTG 5498291 mar 27 15:53 S_NWC_ASII-GW_HIMA08_HIMA-N-NR_20200527T042000Z.nc
-rw-rw-r--. 1 saf_MTG saf_MTG 5497001 mar 27 15:55 S_NWC_ASII-GW_HIMA08_HIMA-N-NR_20200527T043000Z.nc
-rw-rw-r--. 1 saf_MTG saf_MTG 5891565 mar 27 15:47 S_NWC_ASII-ICE_HIMA08_HIMA-N-NR_20200527T040000Z.nc
-rw-rw-r--. 1 saf_MTG saf_MTG 5895066 mar 27 15:51 S_NWC_ASII-ICE_HIMA08_HIMA-N-NR_20200527T041000Z.nc
-rw-rw-r--. 1 saf_MTG saf_MTG 5895402 mar 27 15:53 S_NWC_ASII-ICE_HIMA08_HIMA-N-NR_20200527T042000Z.nc
-rw-rw-r--. 1 saf_MTG saf_MTG 5897075 mar 27 15:55 S_NWC_ASII-ICE_HIMA08_HIMA-N-NR_20200527T043000Z.nc
-rw-rw-r--. 1 saf_MTG saf_MTG 6286162 mar 27 15:46 S_NWC_ASII-TF_HIMA08_HIMA-N-NR_20200527T040000Z.nc
-rw-rw-r--. 1 saf_MTG saf_MTG 6288055 mar 27 15:50 S_NWC_ASII-TF_HIMA08_HIMA-N-NR_20200527T041000Z.nc
-rw-rw-r--. 1 saf_MTG saf_MTG 6289116 mar 27 15:52 S_NWC_ASII-TF_HIMA08_HIMA-N-NR_20200527T042000Z.nc
-rw-rw-r--. 1 saf_MTG saf_MTG 6290260 mar 27 15:54 S_NWC_ASII-TF_HIMA08_HIMA-N-NR_20200527T043000Z.nc

/home/saf_MTG/NWCSAF_GEO/export/AUX:

/home/saf_MTG/NWCSAF_GEO/export/CI:
-rw-rw-r--. 1 saf_MTG saf_MTG 5699174 mar 27 15:47 S_NWC_CI_HIMA08_HIMA-N-NR_20200527T040000Z.nc
-rw-rw-r--. 1 saf_MTG saf_MTG 5723630 mar 27 15:51 S_NWC_CI_HIMA08_HIMA-N-NR_20200527T041000Z.nc
-rw-rw-r--. 1 saf_MTG saf_MTG 5730387 mar 27 15:53 S_NWC_CI_HIMA08_HIMA-N-NR_20200527T042000Z.nc
-rw-rw-r--. 1 saf_MTG saf_MTG 5724557 mar 27 15:56 S_NWC_CI_HIMA08_HIMA-N-NR_20200527T043000Z.nc

/home/saf_MTG/NWCSAF_GEO/export/CMA:
-rw-rw-r--. 1 saf_MTG saf_MTG 5942860 mar 27 15:46 S_NWC_CMA_HIMA08_HIMA-N-NR_20200527T040000Z.nc
-rw-rw-r--. 1 saf_MTG saf_MTG 5941954 mar 27 15:50 S_NWC_CMA_HIMA08_HIMA-N-NR_20200527T041000Z.nc
-rw-rw-r--. 1 saf_MTG saf_MTG 6027695 mar 27 15:52 S_NWC_CMA_HIMA08_HIMA-N-NR_20200527T042000Z.nc
-rw-rw-r--. 1 saf_MTG saf_MTG 6028964 mar 27 15:54 S_NWC_CMA_HIMA08_HIMA-N-NR_20200527T043000Z.nc
...
...
```

14. Use standard netCDF tools to visualize and/or compare generated products with reference products included in \$SAFNWC/export_archive

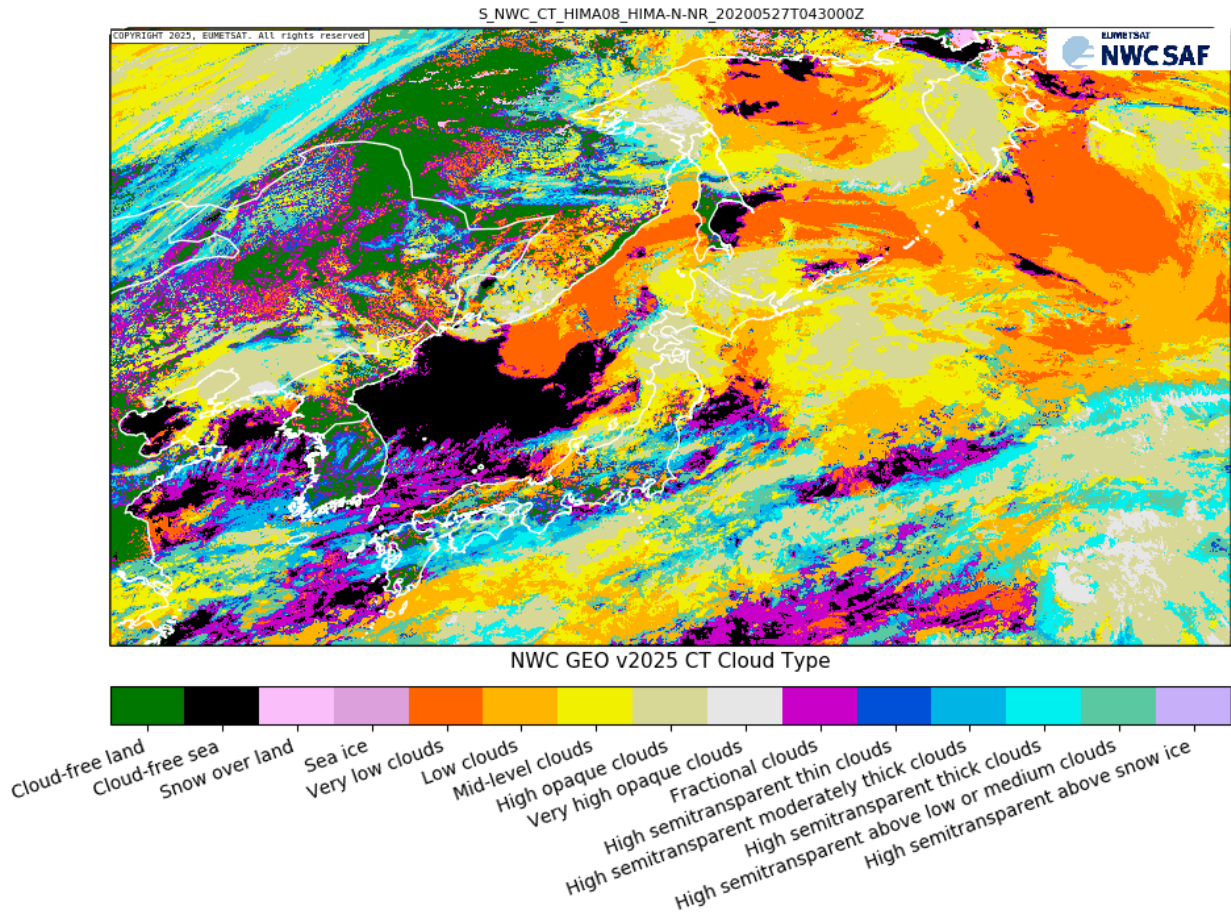


Figure 23: NWC/GEO Cloud Type product for HIMA08, slot 20200527T043000Z, region HIMA-N

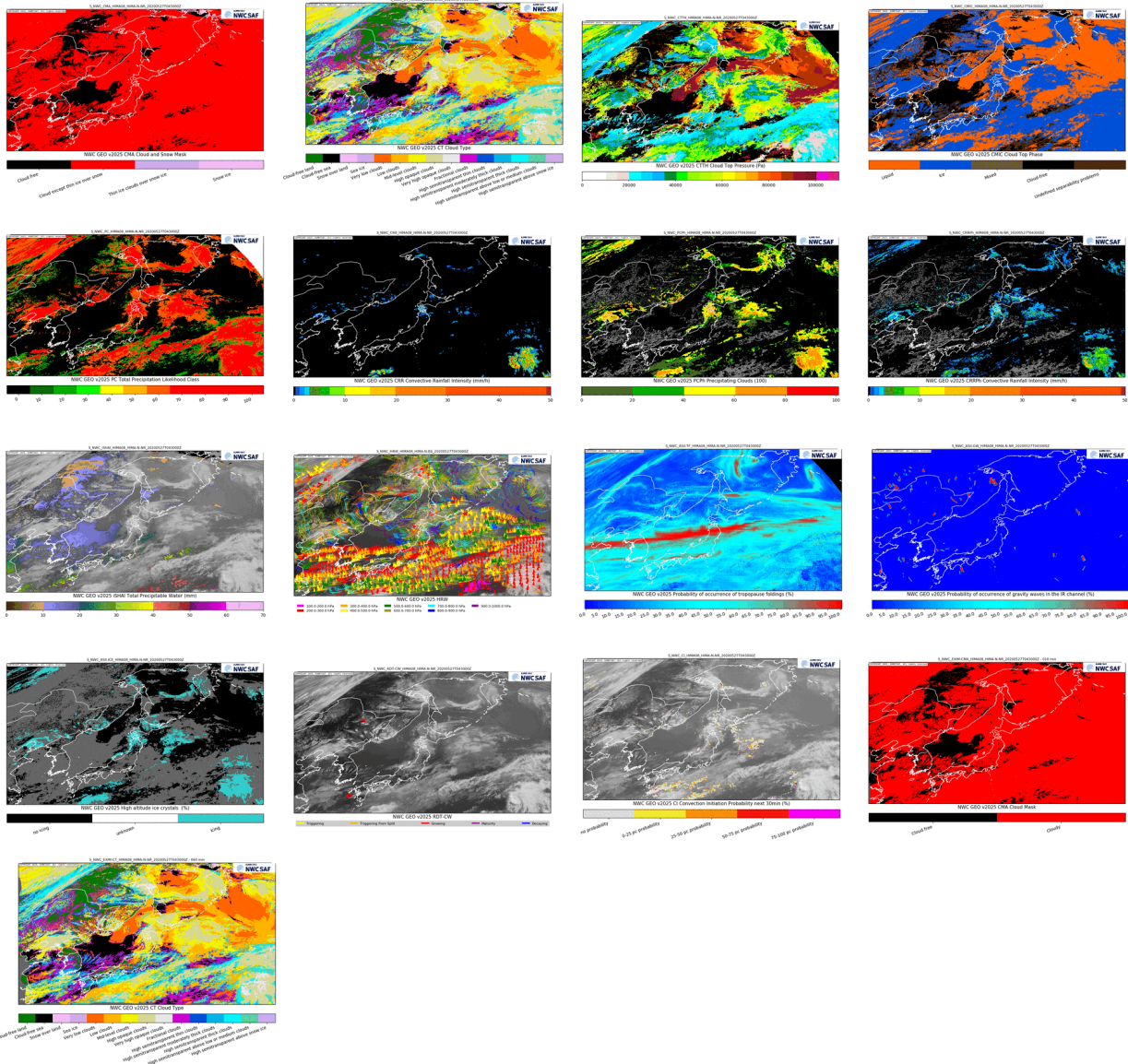


Figure 24: NWC/GEO products for HIMA08, slot 20200527T043000Z, region HIMA-N

15. Uninstall HIMA-EHH dataset

```
rm -f $SAFNWC/import/NWP_data/*
rm -f $SAFNWC/import/Sat_data/*
rm -f $SAFNWC/import/Sdi_data/*
rm -f $SAFNWC/export/*/*

rm -rf $SAFNWC/import/Sat_data_archive
rm -rf $SAFNWC/export_archive

rm -f $SAFNWC/logs/*
rm -rf $SAFNWC/tmp/*
```

12.2 REPROCESSING MODE

Execute the same procedure than that presented for Himawari/EHH in Real Time (see section 12.1), but with the following changes

- Step 2: Configure the system for Himawari-8 Reprocessing operation.

- Himawari-08.....EHH....Reprocessing.....(+140.7 deg)

- Step 4: After the installation of the TDS, copy all satellite data in the \$SAFNWC/import/Sat_data directory (for reprocessing)

```
cd $SAFNWC
tar xvzf <source>/NWC-CDOP4-GEO-AEMET-SW-DATA-HIMA08-EHH_DATASET_v2025.tgz
cd $SAFNWC/import/Sat_data_archive/
ln * ../Sat_data
```

- Skip steps 7 & 10. Files already copied for reprocessing, instead of simulating the reception of files in Real time).
- In step 10, simply wait for the finalization of the automatic processing of all slots

```
All PGEs for Slot 20200527T043000Z have concluded
```

- Note that the default configuration for HIMA08/EHH in Reprocessing mode configure all PGES in HIMA-N region, and Cloud products in HIMA-S region

13 HIMAWARI/HSD (HIMA-09) TEST DATASET

13.1 REAL TIME OPERATIONS

Note that it is assumed that the configuration has not been modified by the user (Default configuration as provided in the delivery is to be used)

1. Login as safnwc user (the account used to install and operate the NWC/GEO application)
2. Confirm that the NWC/GEO has been properly configured for Reprocessing Himawari-09 data in HSD format.

```
Himawari-09.....HSD....Near Real Time.....(+140.7 deg)
```

If this is not the case, please change the satellite configuration of the NWC/GEO following the procedure described in section 3.3 of the SW User Manual NWC/CDOP3/GEO/AEMET/SW/UM

3. Clean the environment

```
rm -f $SAFNWC/import/NWP_data/*
rm -f $SAFNWC/import/Sat_data/*
rm -f $SAFNWC/import/Sdi_data/*
rm -f $SAFNWC/export/*/*

rm -rf $SAFNWC/import/Sat_data_archive
rm -rf $SAFNWC/export_archive

rm -f $SAFNWC/logs/*
rm -rf $SAFNWC/tmp/*
```

4. The NWC/GEO dataset is available as a compressed tar file (.tgz) and it can be downloaded from the NWCSAF Help Desk. Change to the \$SAFNWC directory and decompress the dataset file:

```
cd $SAFNWC
tar xvzf <source>/NWC-CDOP4-GEO-AEMET-SW-DATA-HIMA09-HSD_DATASET_v2025.tgz
```

5. Start the NWC/GEO using the default configuration

```
SAFNWCTM
```

The following output is received in the terminal

Please note that the remapping process (Step 1) will take several minutes.

```
=====
Satellite Application Facility
on support to
Nowcasting and Very Short-Range Forecasting

NWC/GEO v<vers>
```

DAY MONTH YEAR

Copyright yyyy, EUMETSAT, All Rights Reserved

Visit our web site for information and support at
http://www.nwcsaf.org
=====

Step 1: Remapping NWP data for the NWC/GEO
This step can take several minutes ...
Check the progress in \$SAFNWC/logs/safnwctm_yyyy-mm-ddThh:mm:ssZ.log
AllMappingNWP safnwc.cfs ...

Step 2: Initiating the NWC/GEO Task-Manager Cycle
nohup: appending output to `nohup.out`

Task Manager for the NWC/GEO has been started successfully

6. Set the NWC/GEO printtty terminal

```
tm log printtty `tty`
```

7. Simulate the reception of a satellite slot

```
cd $SAFNWC/import/Sat_data_archive/  
ln *20180213_2300* ../Sat_data
```

and check the ingestion of the HSD files:

```
tail -f $SAFNWC/tmp/SAT/nwcsdi_YYYYMMDDThhZ.log
```

Where YYYYMMDDThh is the *current system* date and hour.

Exit “tail -f” command typing CTRL-C

8. Check the automatic execution of slots. This takes some time, until all HSD files required to process the region have been ingested
The following lines appear in the terminal.

```
New SATC file found:  
$SAFNWC/import/Sdi_data/S_NWC_SATC_HIMA09_HIMA-N_NR_20180223T230000Z.txt<
```

This indicates that a new slot has been received and the processing of the slot has been commanded

9. Check the successful execution of the PGEs. The following lines appear in the terminal

```
PGE CMA, Slot 20180223T230000Z, Region HIMA-N (01): Has concluded with status=exit 0  
PGE CRR, Slot 20180223T230000Z, Region HIMA-N (01): Has concluded with status=exit 0  
...
```

```
...
...
All PGEs for Slot 20180223T230000Z, Region HIMA-N (01) have concluded
All PGEs for Slot 20180223T230000Z have concluded
```

These messages indicate the execution of all different PGEs. Note that all PGES terminate successfully (status=exit 0) except GEO-EXIM for first slot. This is because this PGE requires wind data as input, which is not available in the first slot.

10. Repeat steps 7, 8 and 9 for slots **20180123_2310** , **_2320** , **...** , **_2350**

Wait for the finalization of the processing of a slot (see step 9) before simulating the reception of a new one.

Wait for the finalization of all 6 slots before going to next steps

11. Check the result of the processing

```
tm status
```

The following output is obtained

```
=====
DD MM YYYY      NWC/GEO Task-Manager Status   hh:mm:ss
=====

Beginning Time: DD MMM YYYY hh:mm:ss
Elapsed Time:      000d 00:22:56
Task Manager Status:
  REAL_TIME Mode: OFF
  Active Mode:     ON

Number of tasks in Schedule / in execution:    0/ 0 (Max: 4)

Region Priority / PGE:  CMA CT CTTH CMIC PC CRR PCPh CRRPh iSHAI HRW EXIM ASII-TF ASII-GW ASII-ICE RDT-CW CI PLAX L1SD
-----
HIMA-N          01:   XXX XX XXXX XXXX XX XXX XXXX XXXXXX XXXXX XXX XXXX XXXXXXXX XXXXXXXX XXXXXXXX XXXXX XX ---- ----
-----

Number of PGE executed/successfully/Total RunTime/Mean RunTime
-----
CMA:             6         6           44   7
CT:              6         6           16   2
CTTH:           6         6           39   6
CMIC:           6         6           47   7
PC:             6         6            7   1
CRR:            6         6           28   4
PCPh:          6         6           18   3
CRRPh:         6         6           15   2
iSHAI:         6         6          178  29
HRW:           6         6          230  38
EXIM:          6         5           66  13
ASII-TF:       6         6           28   4
ASII-GW:       6         6          304  50
ASII-ICE:      6         6            8   1
RDT-CW:        6         6           76  12
CI:            6         6           67  11
PLAX:          0         0            0
L1SD:          0         0            0
-----
Total:          96         95          1171 195
```

```
Number of Slots completely processed : 6
```

(Note that PLAX & LISD PGEs are not activated in the default configuration)

12. Terminates the execution of the NWC/GEO

```
tm quit
```

13. Check the generation of all different PGEs in \$SAFNWC/export/<PGE_id>

```
ls -lR $SAFNWC/export/* | more
```

Following files have been produced

```
$SAFNWC/export/ASII:
-rw-rw-r--. 1 saf_MTG saf_MTG 5422028 mar 19 11:49 S_NWC_ASII-GW_HIMA09_HIMA-N-NR_20180213T230000Z.nc
-rw-rw-r--. 1 saf_MTG saf_MTG 5418895 mar 19 11:51 S_NWC_ASII-GW_HIMA09_HIMA-N-NR_20180213T231000Z.nc
...
-rw-rw-r--. 1 saf_MTG saf_MTG 5730451 mar 19 11:49 S_NWC_ASII-ICE_HIMA09_HIMA-N-NR_20180213T230000Z.nc
-rw-rw-r--. 1 saf_MTG saf_MTG 5758120 mar 19 11:50 S_NWC_ASII-ICE_HIMA09_HIMA-N-NR_20180213T231000Z.nc
...
-rw-rw-r--. 1 saf_MTG saf_MTG 6086073 mar 19 11:48 S_NWC_ASII-TF_HIMA09_HIMA-N-NR_20180213T230000Z.nc
-rw-rw-r--. 1 saf_MTG saf_MTG 6090374 mar 19 11:50 S_NWC_ASII-TF_HIMA09_HIMA-N-NR_20180213T231000Z.nc
...

$SAFNWC/export/AUX:

$SAFNWC/export/CI:
-rw-rw-r--. 1 saf_MTG saf_MTG 5594596 mar 19 11:49 S_NWC_CI_HIMA09_HIMA-N-NR_20180213T230000Z.nc
-rw-rw-r--. 1 saf_MTG saf_MTG 5600033 mar 19 11:51 S_NWC_CI_HIMA09_HIMA-N-NR_20180213T231000Z.nc
...

$SAFNWC/export/CMA:
-rw-rw-r--. 1 saf_MTG saf_MTG 6164674 mar 19 11:49 S_NWC_CMA_HIMA09_HIMA-N-NR_20180213T230000Z.nc
-rw-rw-r--. 1 saf_MTG saf_MTG 6180771 mar 19 11:50 S_NWC_CMA_HIMA09_HIMA-N-NR_20180213T231000Z.nc
...
...
```

14. Use standard netCDF tools to visualize and/or compare generated products with reference products included in \$SAFNWC/export_archive

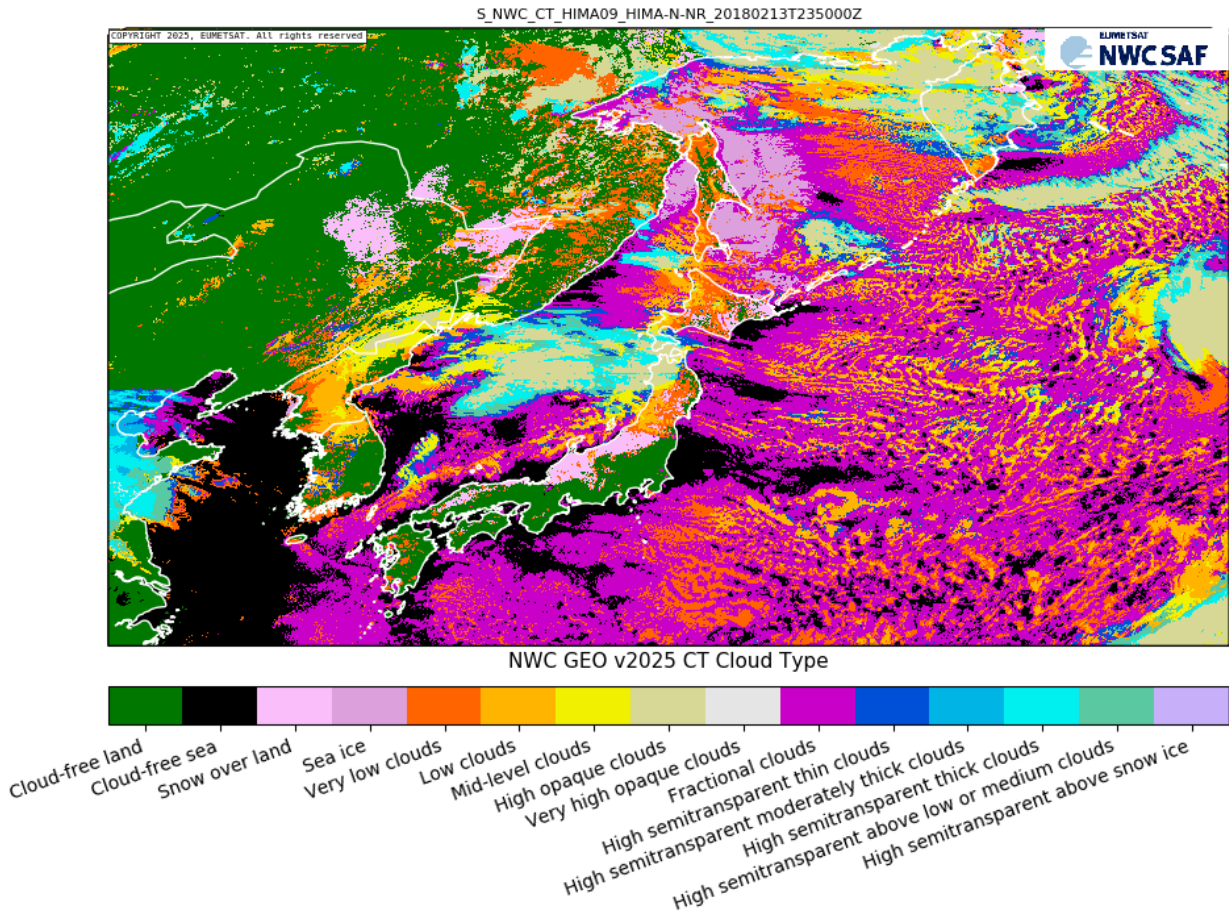


Figure 25: NWC/GEO Cloud Type product for HIMA08, slot 20180213T235000Z

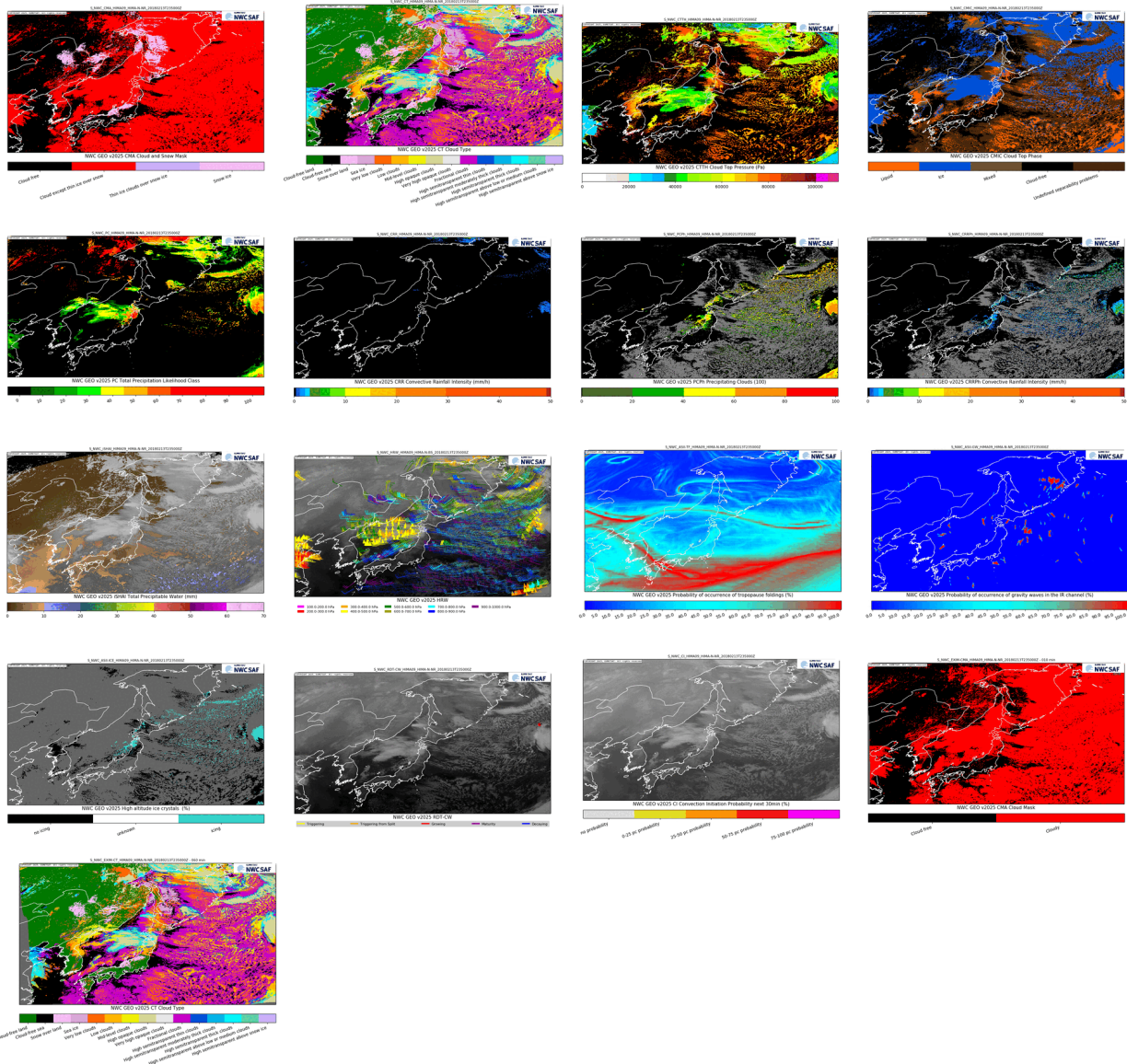


Figure 26: NWC/GEO products for HIMA08, slot 20180213T235000Z

15. Uninstall the HIMA08-HSD dataset

```
rm -f $SAFNWC/import/NWP_data/*
rm -f $SAFNWC/import/Sat_data/*
rm -f $SAFNWC/import/Sdi_data/*
rm -f $SAFNWC/export/*/*

rm -rf $SAFNWC/import/Sat_data_archive
rm -rf $SAFNWC/export_archive

rm -f $SAFNWC/logs/*
rm -rf $SAFNWC/tmp/*
```

13.2 REPROCESSING OPERATIONS

Execute the same procedure than that presented for Himawari/HSD in Real Time (see section 11.1), but with the following changes

- Step 2: Configure the system for Himawari-8 Reprocessing operation.

```
Himawari-08.....HSD....Reprocessing.....(+140.7 deg)
```

- Step 4: After the installation of the TDS, copy all satellite data in the \$SAFNWC/import/Sat_data directory (for reprocessing)

```
cd $SAFNWC
tar xvzf <source>/NWC-CDOP4-GEO-AEMET-SW-DATA-HIMA08-HSD_DATASET_v2025.tgz
cd $SAFNWC/import/Sat_data_archive/
ln * ../Sat_data
```

- Skip steps 7 & 10. Files already copied for reprocessing, instead of simulating the reception of files in Real time).
- In step 10, simply wait for the finalization of the automatic processing of all slots

```
All PGEs for Slot 20180629T000000Z have concluded
```

14 HIMAWARI/EHH (HIMA-09) TEST DATASET

14.1 REAL TIME OPERATIONS

Note that it is assumed that the configuration has not been modified by the user (Default configuration as provided in the delivery is to be used)

1. Login as safnwc user (the account used to install and operate the NWC/GEO application)
2. Confirm that the NWC/GEO has been properly configured for Near-real time processing of Himawari-09 data in HSD format.

```
Himawari-09.....EHH....Near Real Time.....(+140.7 deg)
```

If this is not the case, please change the satellite configuration of the NWC/GEO following the procedure described in section 3.3 of the SW User Manual NWC/CDOP3/GEO/AEMET/SW/UM

Important note: NWC/GEO v2025 has been updated to manage the improved radiometric resolution in HIMA HRIT IR4 bands. Because the TDS uses old HIMA/EHH files with old radiometric resolution, the NWC/GEO needs to be modified;

To revert this modification and configure the NWC/GEO to manage HRIT files with improved radiometric resolution, execute

```
cd $SAFNWC/import/Aux_data/SAT/
cp HIMA09-IR4_14b.lut HIMA09-IR4.lut
```

3. Clean the environment

```
rm -f $SAFNWC/import/NWP_data/*
```

```
rm -f $SAFNWC/import/Sat_data/*
rm -f $SAFNWC/import/Sdi_data/*
rm -f $SAFNWC/export/*/*

rm -rf $SAFNWC/import/Sat_data_archive
rm -rf $SAFNWC/export_archive

rm -f $SAFNWC/logs/*
rm -f $SAFNWC/tmp/*
```

4. The NWC/GEO dataset is available as a compressed tar file (.tgz) and it can be downloaded from the NWCSAF Help Desk. Change to the \$SAFNWC directory and decompress the dataset file:

```
cd $SAFNWC
tar xvzf <source>/NWC-CDOP4-GEO-AEMET-SW-DATA-HIMA09-EHH_DATASET_v2025.tgz
```

5. Start the NWC/GEO using the default configuration

```
SAFNWCTM
```

The following output is received in the terminal

Please note that the remapping process (Step 1) will take several minutes.

```
=====

      Satellite Application Facility
      on support to
      Nowcasting and Very Short-Range Forecasting

      NWC/MSG v<vers>

      DAY MONTH YEAR

      Copyright yyyy, EUMETSAT, All Rights Reserved

-----
      Visit our web site for information and support at
      http://www.nwcsaf.org
-----

Step 1: Remapping NWP data for the NWC/GEO
      This step can take several minutes ...
      Check the progress in $SAFNWC/logs/safnwctm_yyyymmddThhmmssZ.log
      AllMappingNWP safnwc.cfs ...

Step 2: Initiating the NWC/GEO Task-Manager Cycle
nohup: appending output to `nohup.out'

-----
Task Manager for the NWC/GEO has been started successfully
-----
```

6. Set the NWC/GEO printty terminal

```
tm log printtty `tty`
```

7. Simulate the reception of a satellite slot

Number of PGE executed/successfully/Total RunTime/Mean RunTime

CMA:	8	8	30	3
CT:	8	8	17	2
CTTH:	8	8	45	5
CMIC:	8	8	16	2
PC:	4	4	7	1
CRR:	4	4	14	3
PCPh:	4	4	12	3
CRRPh:	4	4	10	2
iSHAI:	4	4	79	19
HRW:	4	4	108	27
EXIM:	4	2	31	15
ASII-TF:	4	4	19	4
ASII-GW:	4	4	216	54
ASII-ICE:	4	4	6	1
RDT-CW:	4	4	53	13
CI:	4	4	55	13
PLAX:	0	0	0	
L1SD:	0	0	0	

Total: 80 78 718 179

Number of Slots completely processed : 4

Notes:

- All PGEs are executed in HIMA-N region, 4 slots.
- Cloud PGEs are also executed in HIMA-S region, so the number of executions of this PGEs are 8.
- EXIM is only executed when HRW data are available (slots 12:20 and 12:30)

13. Terminates the execution of the NWC/GEO

```
tm quit
```

14. Check the generation of all different PGEs in \$SAFNWC/export/<PGE_id>

```
ls -lR $SAFNWC/export/* | more
```

Following files have been produced

```
$SAFNWC/export/ASII:
S_NWC_ASII-GW_HIMA09_HIMA-N-NR_20240328T120000Z.nc
S_NWC_ASII-GW_HIMA09_HIMA-N-NR_20240328T121000Z.nc
S_NWC_ASII-GW_HIMA09_HIMA-N-NR_20240328T122000Z.nc
S_NWC_ASII-GW_HIMA09_HIMA-N-NR_20240328T123000Z.nc
S_NWC_ASII-TF_HIMA09_HIMA-N-NR_20240328T120000Z.nc
S_NWC_ASII-TF_HIMA09_HIMA-N-NR_20240328T121000Z.nc
S_NWC_ASII-TF_HIMA09_HIMA-N-NR_20240328T122000Z.nc
S_NWC_ASII-TF_HIMA09_HIMA-N-NR_20240328T123000Z.nc

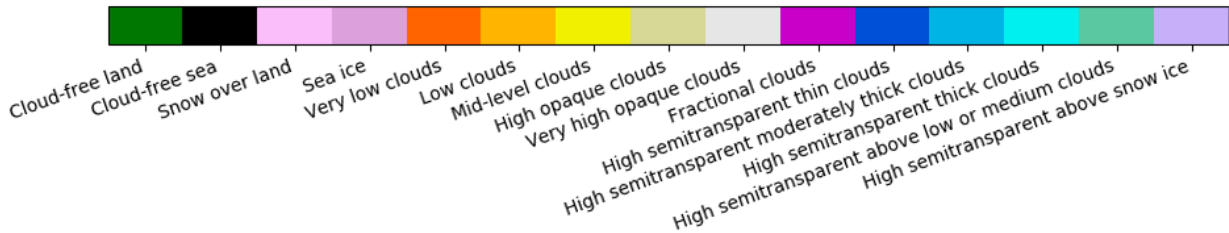
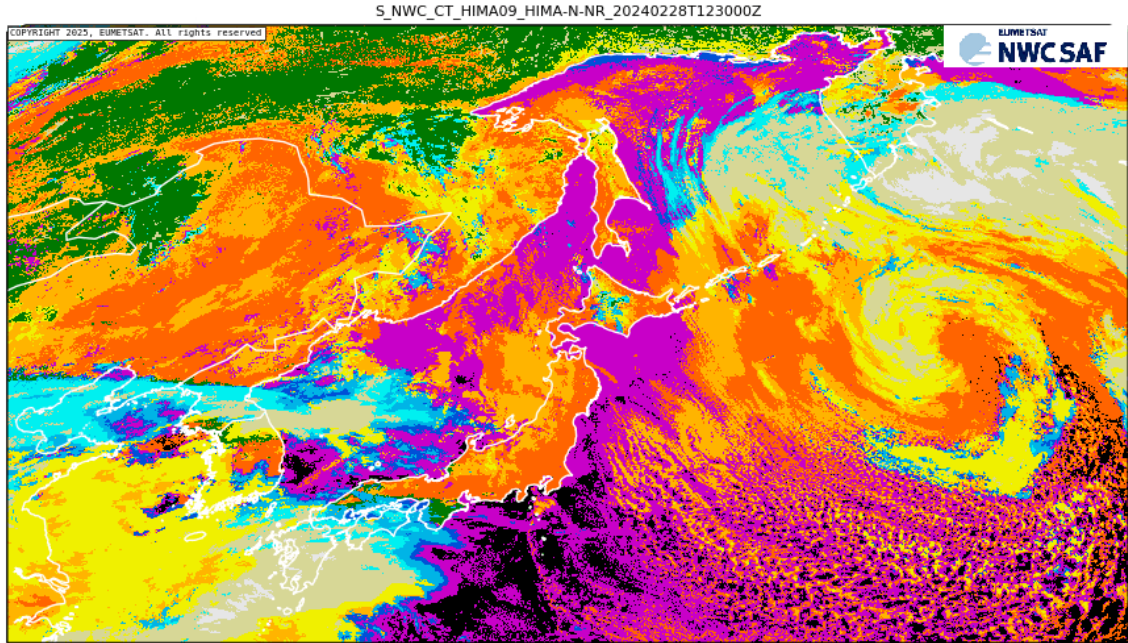
$SAFNWC/export/AUX:

$SAFNWC/export/CI:
S_NWC_CI_HIMA09_HIMA-N-NR_20240328T120000Z.nc
S_NWC_CI_HIMA09_HIMA-N-NR_20240328T121000Z.nc
S_NWC_CI_HIMA09_HIMA-N-NR_20240328T122000Z.nc
S_NWC_CI_HIMA09_HIMA-N-NR_20240328T123000Z.nc

$SAFNWC/export/CMA:
S_NWC_CMA_HIMA09_HIMA-N-NR_20240328T120000Z.nc
S_NWC_CMA_HIMA09_HIMA-N-NR_20240328T121000Z.nc
S_NWC_CMA_HIMA09_HIMA-N-NR_20240328T122000Z.nc
S_NWC_CMA_HIMA09_HIMA-N-NR_20240328T123000Z.nc

...
...
```

15. Use standard netCDF
16. tools to visualize and/or compare generated products with reference products included in
 \$SAFNWC/export_archive



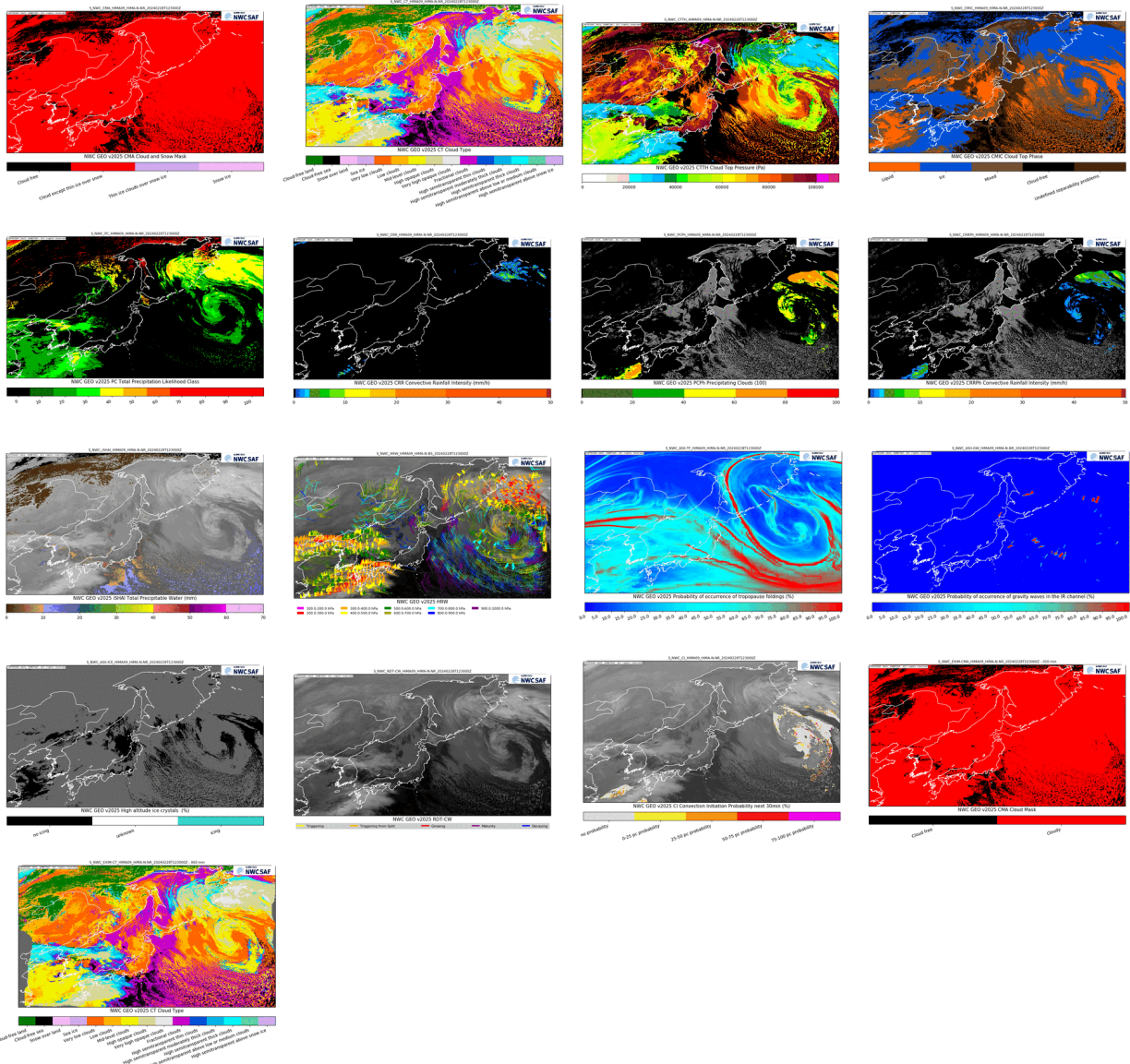


Figure 27: NWC/GEO products for HIMA09, slot 20240228T123000Z

17. Uninstall HIMA09-EHH dataset

```
rm -f $SAFNWC/import/NWP_data/*
rm -f $SAFNWC/import/Sat_data/*
rm -f $SAFNWC/import/Sdi_data/*
rm -f $SAFNWC/export/*/*

rm -rf $SAFNWC/import/Sat_data_archive
rm -rf $SAFNWC/export_archive

rm -f $SAFNWC/logs/*
rm -f $SAFNWC/tmp/*
```

14.2 REPROCESSING OPERATIONS

Execute the same procedure than that presented for Himawari/EHH in Real Time (see section **Error! Reference source not found.**), but with the following changes

- Step 2: Configure the system for Himawari-8 Reprocessing operation.

- Himawari-09.....EHH....Reprocessing.....(+140.7 deg)

- Step 4: After the installation of the TDS, copy all satellite data in the \$SAFNWC/import/Sat_data directory (for reprocessing)

```
cd $SAFNWC
tar xvzf <source>/NWC-CDOP4-GEO-AEMET-SW-DATA-HIMA09-EHH_DATASET_v2025.tgz
cd $SAFNWC/import/Sat_data_archive/
ln * ../Sat_data
```

- Skip steps 7 & 10. Files already copied for reprocessing, instead of simulating the reception of files in Real time).
- In step 10, simply wait for the finalization of the automatic processing of all slots

```
All PGEs for Slot 20240228T123000Z have concluded
```

- Note that the default configuration for HIMA09/EHH in Reprocessing mode configure all PGES in HIMA-N region, and Cloud products in HIMA-S region