

Release notes for SAFNWC/PPS version 2010-patch1

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0) About this release

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This is patch n:o 1 for version 2010 of the SAFNWC/PPS software package. It contains two sub-packages packed in the following two tar-balls (versioning of the individual packages are CVS-release tags):

- AHAMAP-pps-2010-patches_r2
- ACPG-pps-2010-patches_r4

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1) Summary of main changes since version 2010

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- Better adaptation for GAC-processing and other CMSAF needs. See below in this section.
- Better prepared for GRIB2. A few bugs were detected and fixed. It is now also possible to read files with both GRIB and GRIB2 fields in the same file.
- Correcting an error in reprojection; causing half a pixel deviation in the remapping.
- Collecting reprojection functions in an ahamap library.
- Somewhat easier to adapt settings to different environments; useful if proj or numpy are not located in standard places.

The CMSAF changes are mainly:

(all processing, both gac and not-gac:)

- In cloudmask, mountain-schemes:
 - Additional caution test for very cold surfaces added for avoiding ridiculous results over Greenland and Antarctica: Stop single temperature difference tests if tsurf < 230 K
- In cloudmask: Stop processing a pixel if both channel 3 and 4 is missing. Before it stopped if channel 3 was missing. This gives product data in areas where it was missing before.

(GAC only:)

- added options for noaa-19 and metop-02
- new way of calculating azimuth differences

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-Changes to GAC interface with respect to handling of scanlines.

(LAC only:)

-new way calculating solar azimuth

(Configurable GAC/not-GAC:) (See also section 6).)

-For texture calculations in cloudmask and cloudtype, kernel size made configurable: 5 used for not-gac (as before), 3 used for gac

-a special threshold offset file for GAC; the old one for not-gac

-The USE_T37T12_MOUNTAIN_TEST will turn ON/OFF the test brightCloudTest in case of being all of: day, land, mountain and channel 3b is existing.

Having the test on gives better performance in high and flat terrain, like Antarctica (and therefore best suits the CMSAF-needs). Having the test off gives better performance in high and rough terrain, like the Alps and the Scandinavian mountains (and therefore best suits the needs of European nowcasting users). But it is not totally related to GAC-processing.

2) Why you should care!

If you do global processing of GAC-data (like CMSAF), this patch is needed.

If you start processing GRIB2 data this patch is needed.

For other users: this patch could be useful if you have problems installing on your environment (with proj- or numpy-paths), as adapting to different environments has been made easier. There are also some smaller bugs corrected.

3) Unpacking, building and installing the AHAMAP package - quick guide

Go to a place where you want to keep the source code, unpack first v2010 and then apply the patch:

```
> tar xvfz ahamap-r1_61.tgz
> cd ahamap-r1_61
> patch -p1 < /path/to/ahamap-pps-2010-patches_r2.patch
```

Build and install the AHAMAP package:

Ex. (configure command in one line):

```
> ./configure --prefix=/local_disk/opt/AHAMAP/v2010-patch1
--with-proj=/opt/PROJ4/current/include,/opt/PROJ4/current/lib --with-python=yes
--with-aapp=/localdisk/opt/AAPP/6_12
--with-numpy=/usr/lib64/python2.5/site-packages/numpy/core/include/numpy
> make
> make check
> make install
```

It is recommended that you use AAPP of version 6.6 or later. Earlier it has been recommended to configure without AAPP, but now it is recommended to use AAPP. It is a necessity if you want PPS to run on global Metop!

4) Unpacking, building and installing the ACPG package - quick guide

Go to a place where you want to keep the source code, unpack first

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v2010 and then apply the patch:

```
> tar xvfz acpg-r2_32.tgz
> cd acpg-r2_32
> patch -p1 < /path/to/acpg-pps-2010-patches_r4.patch
```

Build and install the ACPG package:

```
Ex. (configure command in one line):
> ./configure --prefix=/local_disk/opt/ACPG/v2010-patch1
--with-proj=/usr/local/include,/usr/local/lib
--with-ahamap=/local_disk/opt/AHAMAP/v2010-patch1
--with-hlhdf=/local_disk/opt/HLHDF/0_79
--with-grib_api=/local_disk/opt/GRIB_API/1_8_0
--with-aapp=/local_disk/opt/AAPP/6_12 --with-rttov=/local_disk/opt/RTTOV9/9_3
--with-numpy=/usr/lib64/python2.5/site-packages/numpy/core/include/numpy
--datadir=/local_disk/data/pps --sysconfdir=/local_disk/data/www --with-gac=no
> make
> make check
> make install
> make install-data
> make install-www
```

For obtaining GAC-configurations set --with-gac=yes.

Please be aware that in earlier versions of PPS you would configure the use of AAPP like this: '--with-aapp=/local_disk/opt/AAPP/6_12/AAPP' Now the trailing 'AAPP' should be omitted!

Installation of course provides you have the necessary 3rd-party software installed. See the software users manual!

You need hdf5 version 1.8.1, or later.
You need hl-hdf version 0.79, or later

While running the configure command, the files source_me and .profile_pps are build, from the content of the configure command.

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5) Unpacking, building and installing the PPS Task Manager - quick guide

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See release note of version 2010; there are no changes.

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6) Changes in configuration

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For general issues about configuration, see release note of version 2010 or the Software User Manual. Here is described only what differs since before.

Settings for GAC-/not-GAC-processing

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Configuring for best GAC-processing:

While running configure, set --with-gac=yes (or simply --with-gac)
In cfg/pps_config_common.cfg set USE_T37T12_MOUNTAIN_TEST to yes.

Configuring for best not-GAC-processing: (hrpt or global metop)

While running configure, set --with-gac=no (or omit --with-gac)
In cfg/pps_config_common.cfg set USE_T37T12_MOUNTAIN_TEST to no.

The --with-gac=yes option will set three environment variables set in .profile_pps/source_me:

SM_THROFFSETS_NAME=threshold_offset_gac.cfg

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SM_CLOUDTYPE_OFFSETS_NAME=threshold_offset_gac.cfg
SM_KERNEL_SIZE=3

With --with-gac=no option you will get:

SM_THROFFSETS_NAME=threshold_offset.cfg
SM_CLOUDTYPE_OFFSETS_NAME=threshold_offset.cfg
SM_KERNEL_SIZE=5

The USE_T37T12_MOUNTAIN_TEST will turn on/off the test brightCloudTest in case of being all of: day, land, mountain and channel 3b is existing. Having the test on gives better performance in high and flat terrain, like Antarctica (and therefore best suits the CMSAF-needs). Having the test off gives better performance in high and rough terrain, like the Alps and the Scandinavian mountains (and therefore best suits the needs of European nowcasting users).

Settings for NWP-parameter coding

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A new configuration file cfg/grib_type_of_level.cfg has been added. This file contains translations from PPS internal codes for GRIB type of level (GRIB codes), to a text representation independent of GRIB or GRIB2. This conversion is used for all field retrievals in PPS when configured to use GRIB_API, after any other conversions defined in e.g. cfg/emos2gribapi_translation_table.cfg and cfg/ecmwf_translation_table.cfg are applied. This also means cfg/ecmwf_translation_table.cfg should be formulated in GRIB codes, not GRIB2 codes. The file cfg/grib_type_of_level.cfg should generally not need editing.

Changes in configuration

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The *.cfg files can be changed in between pps-runs, and are applied immediately. If you manually change the environment variables mentioned here, please note that kernel size can only be 3 or 5, and the combination of kernel size and threshold offset tables has to be as described above.

7) Bug corrections and improvements to PPS Task Manager since PPS version 2010

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No changes. Version 2010 is still valid.

8) Bug corrections and improvements to AHAMAP since PPS version 2010

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See change history in a separate document available on Helpdesk: SW packages&patches - the PPS-document page.

See the also summary above (section 1), or consult the list of SPRs/SMRs at the NWCSAF Help Desk.

9) Bug corrections and improvements to ACPG since PPS version 2010

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See change history in a separate document available on Helpdesk: SW packages&patches - the PPS-document page.

See the also summary above (section 1), or consult the list of SPRs/SMRs at the NWCSAF Help Desk.

10) Documentation

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Updated documents since version 2010:

release_note_2010_patch1.txt

There are some updates the the SUM, ICD1 and ATBD1.
To be found on the NWCSAF Help Desk.
For the other documents the v2010-versions are still valid.

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11) Third Party Software

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When GRIB API is built with JasPer support, the JasPer library must be available as a shared library. If you build JasPer from source, add --enable-shared to the JasPer configure command. This is only relevant when ACPG is built with GRIB API and not EMOS.

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12) Known open issues

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We have no GRIB2 files available yet containing the ECMWF extended model levels; therefore we can not guarantee that processing on such files will work. If needed, a patch will be released after files have been made available.

For other open issues and disclaimers see release_note_2010.