Summary of NWCSAF/PPS PAR User Survey

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User Survey - Engineering

- PPS v1.1 (with adaptations for noaa-18) is running on SUN & Linux platforms at user sites while some users have PPS v1.0 running on IBM/AIX & Linux. Users run a variety (in terms of flavours and versions) of O.S, compilers & third party software

- 80% of users use PPS in real-time mode

- AHAMAP+ACPG components are used by all users while only 40% of users make use of the PPS Task Manager. Those who do make use of the GUI appreciate the possibility of checking module status, current jobs, log, statistics using the same interface.

- Integration with NOAA data works seamlessly while slight adaptations are required for NWP fields

- User experience with HDF5 as output data format have so far been fine but there are problems with backward compatibility with use of newer versions of HDF5

User Survey - Documentation & User Support

- **Software & scientific documentation related to the PPS package & products are sufficient & easy to understand but information about the third party installations can be improved.**

- **Experiences with help desk are good and helpdesk tool (mailbox, download of documentation & software, search functionality etc) is useful**

- **User interaction with NWCSAF works well and response is quick**

- **A suggestion is for NWCSAF to establish an Algorithm Forum where users and developers are presenting ideas, results, new approaches etc.**

Suggestions for improvements in PPS version 2.0

- **Installation & debugging rather difficult due to the third party software. Better solved in the NWCSAF/MSG-package**

- **A user had trouble defining regions in PPS1.0 since this changed remarkably from the previous version to PPS 1.0.**

- **A user who runs PPS on IBM/AIX requests flag-controlled switch-off of VIS channels to allow to run PPS in an IR-only mode. This is a request for climate applications in order to create results similar to the ISCCP data set.**

User Survey - PGE parts
overview of usage

A total of 6 user survey forms was submittet

PGE	Generated	used	Use planned
PGE01 Cloud mask	100%	66%	17%
PGE02 Cloud Type	100%	100%	
PGE03 CTT/H	100%	100%	
PGE04 Precipitating Clouds	73%	66%	17%

PGE01 – Cloud mask

Applications:

- Road condition model (DMI)

- OSISAF masking of cloudy areas for SST and flux products (DMI)

- Browser presentation for forecasters (DMI)

- Generation of daily/monthly means of the cloud mask (CMSAF)

PGE01

Application assessment

Meets requirements	
yes	67%
no	0%
Not applicable	33%

Synthesis of results and comments:
There has been some few cases where low clouds are seen as cloud free areas and low thin clouds have been seen as transparent clouds. (DMI)

PGE01

Improvements suggested by users

- Cloud mask and semi-transparent clouds are difficult to handle. (DMI)

- OSISAF: Better ice/cloud separation (DMI)

- Large differences in cloud mask over land and sea (CMSAF)

- Too many partially cloudy pixels with no further indication about the cloud type (CMSAF)

- Problems still exist in low sun angles, and sometimes in situations with thin High clouds (Swedish Air Force)

PGE02 – Cloud type

Applications:

- weather analysis by forecasters (BGIO)
- Generation of daily/monthly means of the cloud mask (CMSAF)
- OSISAF flux module (DMI)
- Nowcasting, snow mapping (DWD)
- Mesoscale analysis of cloud cover and cloud base (SMHI)
- The CT image for Nowcasting, and for MESAN (the automatic analysis) (Swedish Air Force)

- *Planned: Snow cover and snow depth analysis (DMI)*

PGE02

Application assessment

Meets requirements	
yes	66%
no	17%
Partly (category intoduced by user)	17%

Reason for only partly met requirement:
Systematically low cloudcover ~ 10 >. Especially during winter and low sun elevation (SMHI, application mesoscale analysis)

Reason for not meeting requirement:
I wonder about the completely independent retrieval of cloud type and cloud-top parameters. However, there was no time to investigate e.g. systematic differences and problematic cases. (CMSAF)

PGE02

Comments by users:

- Superior to our old SCANDIA scheme (SMHI)

- The quality seems to be fine. Most problematic is fractional cloud cover where there is not indication of cloud type (DMI)

- The quality has improved very much compared to the former cloud classification, SCANDIA. It is a sophisticated analysis which do very well. Still there sometimes are problems during low satellite and sun angles , spec winter (Swedish Air Force)

PGE02

Improvements suggested by users

• avoid misclassifications of clouds over mountaineous areas as snow.(DWD)

• clearer definition of "fractional clouds" (Air Force)

• 83% of users would like to see a separation between
  stratiform and cumuliform clouds

• 50% of users would regard an improved cloud phase
  flag based on microphysics as useful

PGE03 – Cloud top temperature and height

Applications:

- weather analysis by forecasters, Nowcasting

- Generation of daily/monthly means of the cloud mask (CMSAF)

- Road condition model, NWP model (DMI)

- Nowcasting, severe weather case studies (DWD)

- Mesoscal cloud top analysis

PGE03

Application assessment

Meets requirements	
yes	50%
no	17%
Partly (category intoduced by user)	17%

Reason for only partly met requirement:
•It is not always safe, but together with other observation data it is useful and could be very useful if some of these known problems will be solved (Swedish Air Force)

•Looking promising compared to old scheme (SMHI, application mesoscale analysis)

Reason for not meeting requirement:
Cloud type and cloud-top height parameters are derived independently and are not always consistent (CMSAF)

PGE03

Comments by users:

- This application seems to be of good quality (DMI)

- Product Looking promising compared to our old scheme (SMHI, application mesoscale Analysis)

- Good quality. Some problems in welll known situations (low sun/sat angles) and also with thin high clouds. Cold winter situations has been improved with the higher vertical resolution in HIRLAM, but still problems sometimes.

PGE03

Improvements suggested by users

- The results of the semitransparency correction are subject to high fluctuations in quality. Most scenes can be characterised by a lack of valid data in areas covered by high clouds (DWD)

- Thin clouds, Higher resolution (more intervals) especially for the lower clouds (Swedish Air Force)

PGE04 – Precipitating Clouds

Applications:

• weather analysis by forecasters (BGIO)

• Road condition model, NWP (HIRLAM) (DMI)

• case studies (DWD)

• Nowcasting using the image (Swedish Air Force)

PGE04

Application assessment

Meets requirements	
yes	50%
no	17%
Not applicable	17%

Reason for not meeting requirement:
The quality is not good enough (DMI) (applies to use without AMSU)

PGE04

Comments by users:

• Good quality generally. The product is very useful over the sea where radar does not reach. Some problems when snow from SC (Snow Cover) (Swed. Air Force)

*Comment applying to use **without AMSU**, since configuration was reported not to be changed this means night algorithm with only IR channels used:*

• The quality is very poor. There is a big day/night variation and heavy precipitation is underestimated. Until now only information of no or light precipitation are used (DMI)

PGE04

Improvements suggested by users

• More tuning of the application (DMI, no AMSU mode)

• If possible to solve the light snow cases and there are also sometimes problems with sleet (Swedish Air Force)