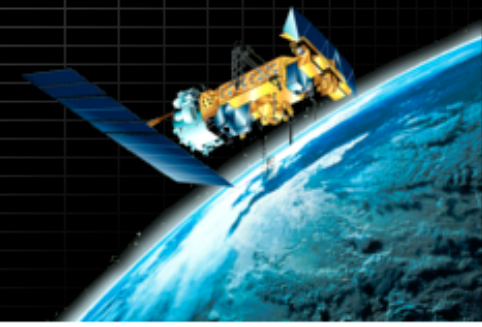


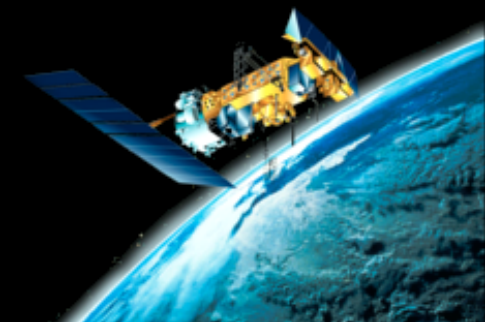
# PPS Operations

Adam Dybbroe



## Outline

- The PPS reference station
- The new setup at SMHI
- Performance



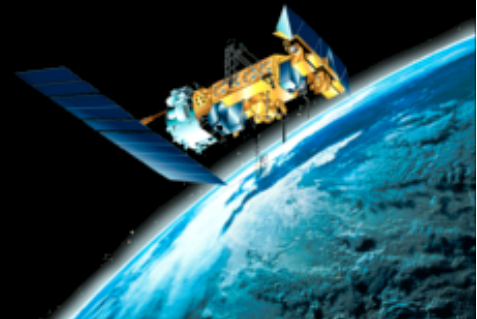
## Direct Readout station - Norrköping

- X/L-band
- 2.4 meter
- SCISYS



## Direct Readout

- ~45 passes per day
- Terra/Aqua, NOAA 19/18/15, Metop-A/B and Suomi NPP
- Smart scheduling (pytroll schedule)



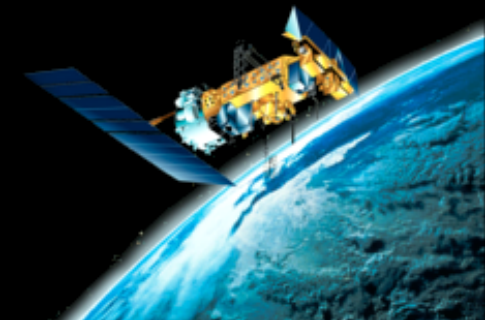
## Direct Readout - data acquisition

- AVHRR:
  - AAPP (7.6)
- VIIRS:
  - RT-STPS 5.1 patch DB6 (streaming mode)
  - CSPP 2.0.1 patch (October 2014)
- MODIS:
  - DRL Modis level-1b SPA version 1.6
  - Destriping algorithm not yet implemented



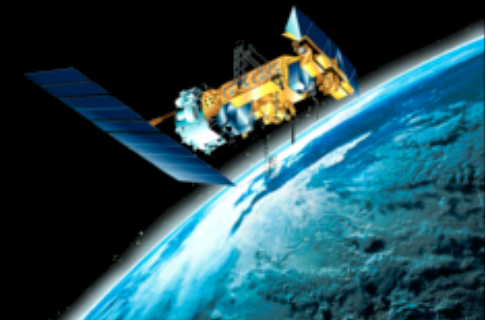
## Data acquisition - navigation

- AVHRR:
  - ANA
  - TLE's updated twice a day
    - ...needs to be improved
- VIIRS:
  - LUT tables attempt updated several times a day
  - Always using latest CSPP



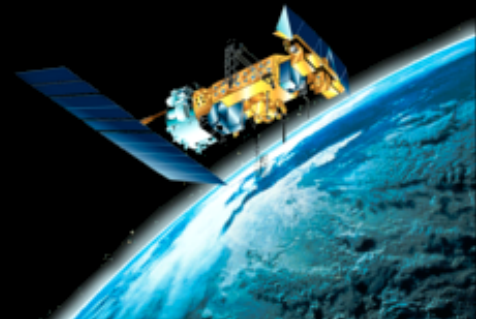
## Processing environment

- Raw data acquisition (*Nimbus*):
  - SCISYS *2met!* running on dedicated Linux server (RHEL 6)
  - RT-STPS



## Processing environment

- lvl-0 to lvl-2 processing (*PPS*)
  - CISCO Blade server
  - CPU: 4x Hex-Core Intel Xeon 2400 MHz
  - RAM: 48 Gb = 6 x 8 Gb DIMM, Speed 1333 MHz
  - 0.5 Tb SAN disk
  - Running PPS, CSPP, AAPP, Modis lvl1b SPA + image composites with **PyTROLL**

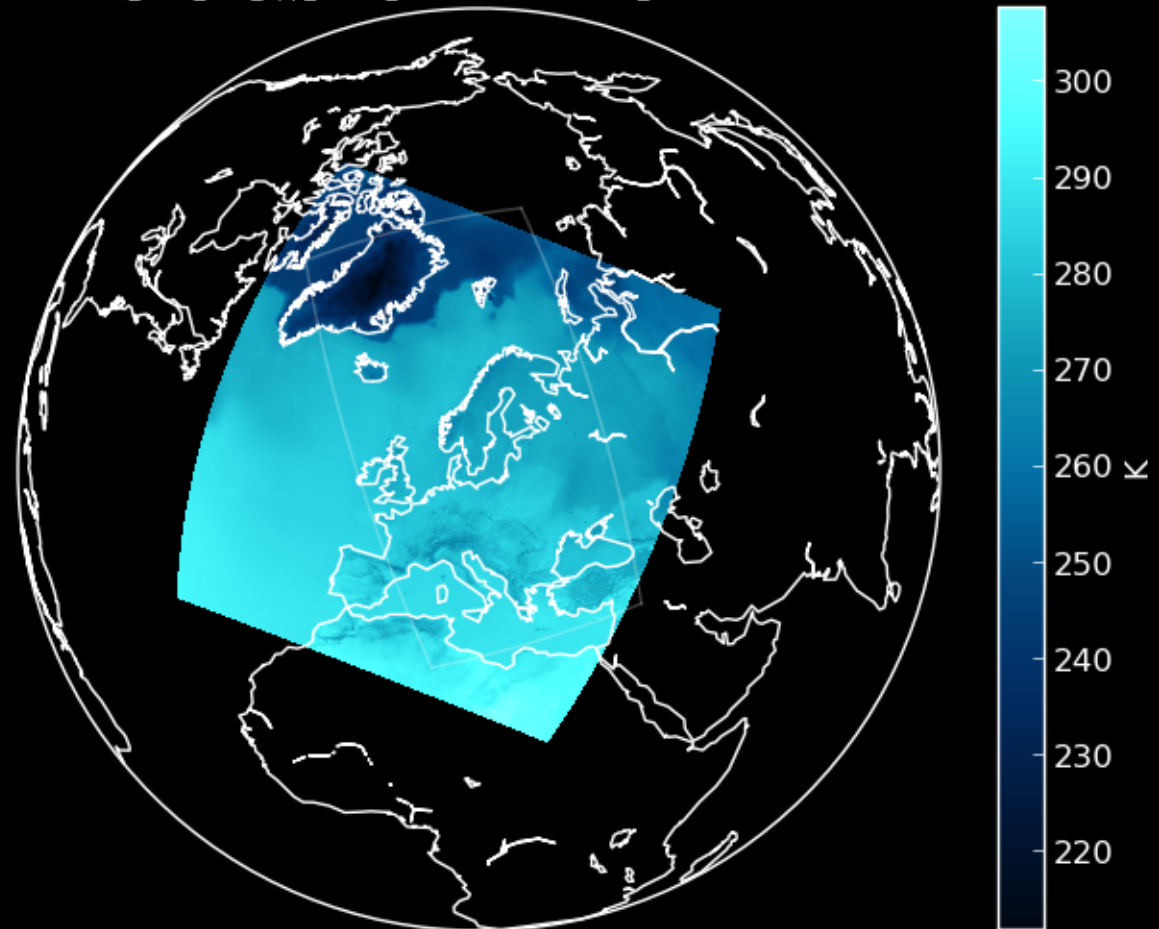




# PPS Processing environment

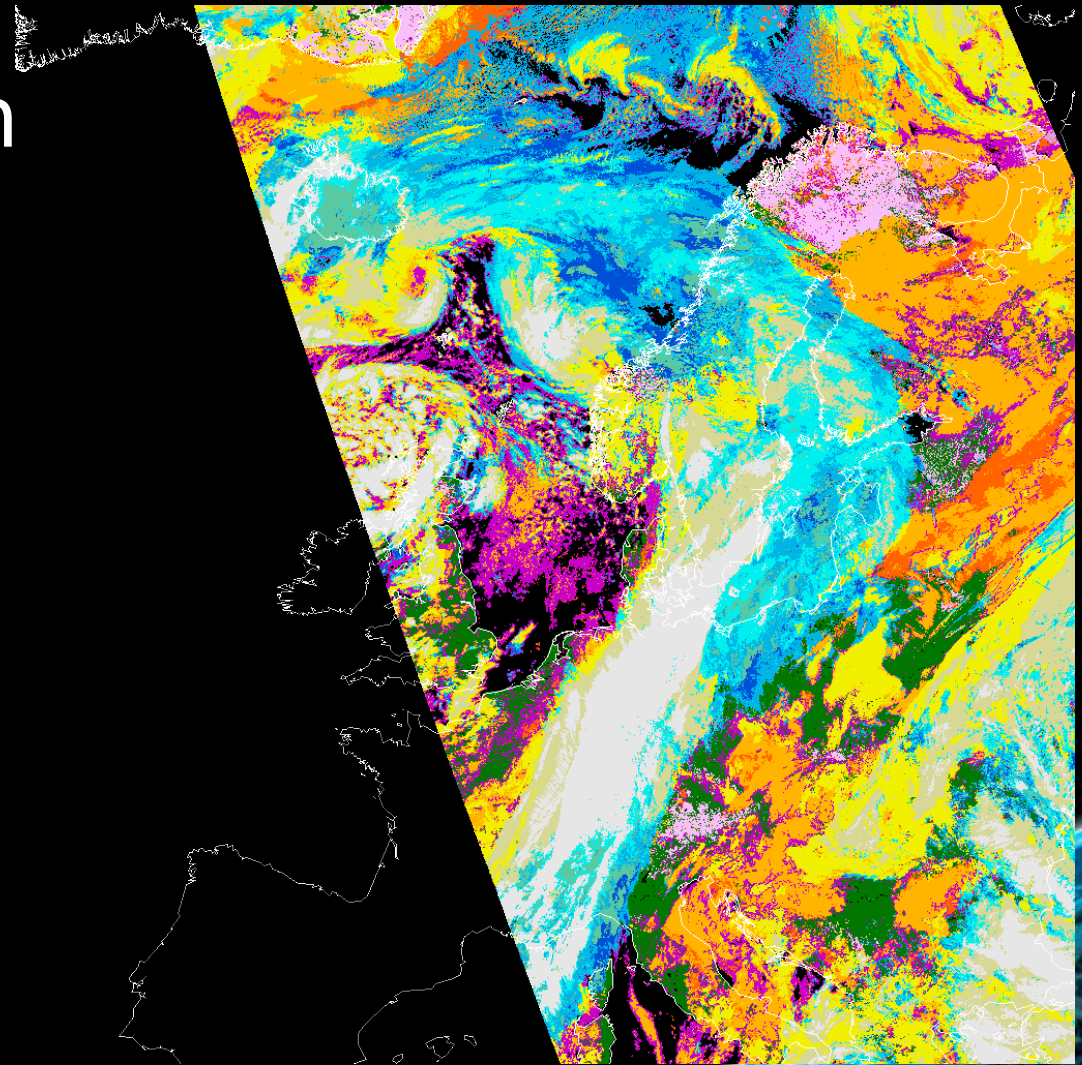
- Hirlam C11

t\_land. NWP: 'C11\_201502220000+012H00M',  
swath: 'S\_NWC\_viirs\_npp\_17210\_20150222T1132303Z\_20150222T1148069Z.h5'



# PPS Processing environment

- Processing on AVHRR/VIIRS swath
- Remapping end products to local areas



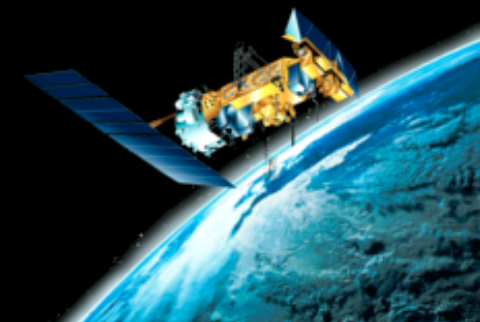
# The PPS Task Manager is no more

- This is an ex *Task Manager*
- This *Task Manager* is no more
- This is a late *Task Manager*
- It is stone dead

RISETIME	SATID	ORBIT	USERID	STATUS
2011/01/25 08:55:55	noaa16	53320	system	FINISHED
2011/01/25 07:14:57	noaa16	53319	system	FINISHED
2011/01/25 06:50:10	noaa15	66038	system	FINISHED
2011/01/25 05:34:22	noaa16	53318	system	REMOVED
2011/01/25 05:09:56	noaa15	66037	system	REMOVED
2011/01/25 04:09:01	noaa19	10122	system	REMOVED
2011/01/25 03:29:56	noaa15	66036	system	REMOVED
2011/01/25 02:27:55	noaa19	10121	system	REMOVED
2011/01/25 00:46:54	noaa19	10120	system	REMOVED
2011/01/24 23:06:40	noaa19	10119	system	FINISHED
2011/01/24 19:04:54	noaa16	53312	system	FINISHED
2011/01/24 17:21:50	noaa16	53311	system	FINISHED
2011/01/24 15:41:59	noaa16	53310	system	FINISHED
2011/01/24 15:24:10	noaa15	66029	system	FINISHED
2011/01/24 14:04:25	noaa16	53309	system	FINISHED
2011/01/24 13:44:06	noaa15	66028	system	FINISHED
2011/01/24 12:34:31	noaa19	10113	system	FINISHED
2011/01/24 12:06:40	noaa15	66027	system	REMOVED
2011/01/24 12:06:40	noaa15	66027	system	REMOVED
2011/01/24 11:05:11	netop02	22131	system	REMOVED



R.I.P.

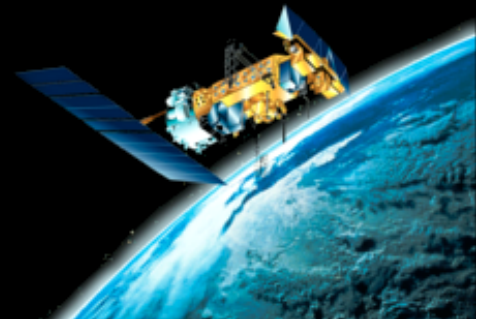


## The new setup at SMHI

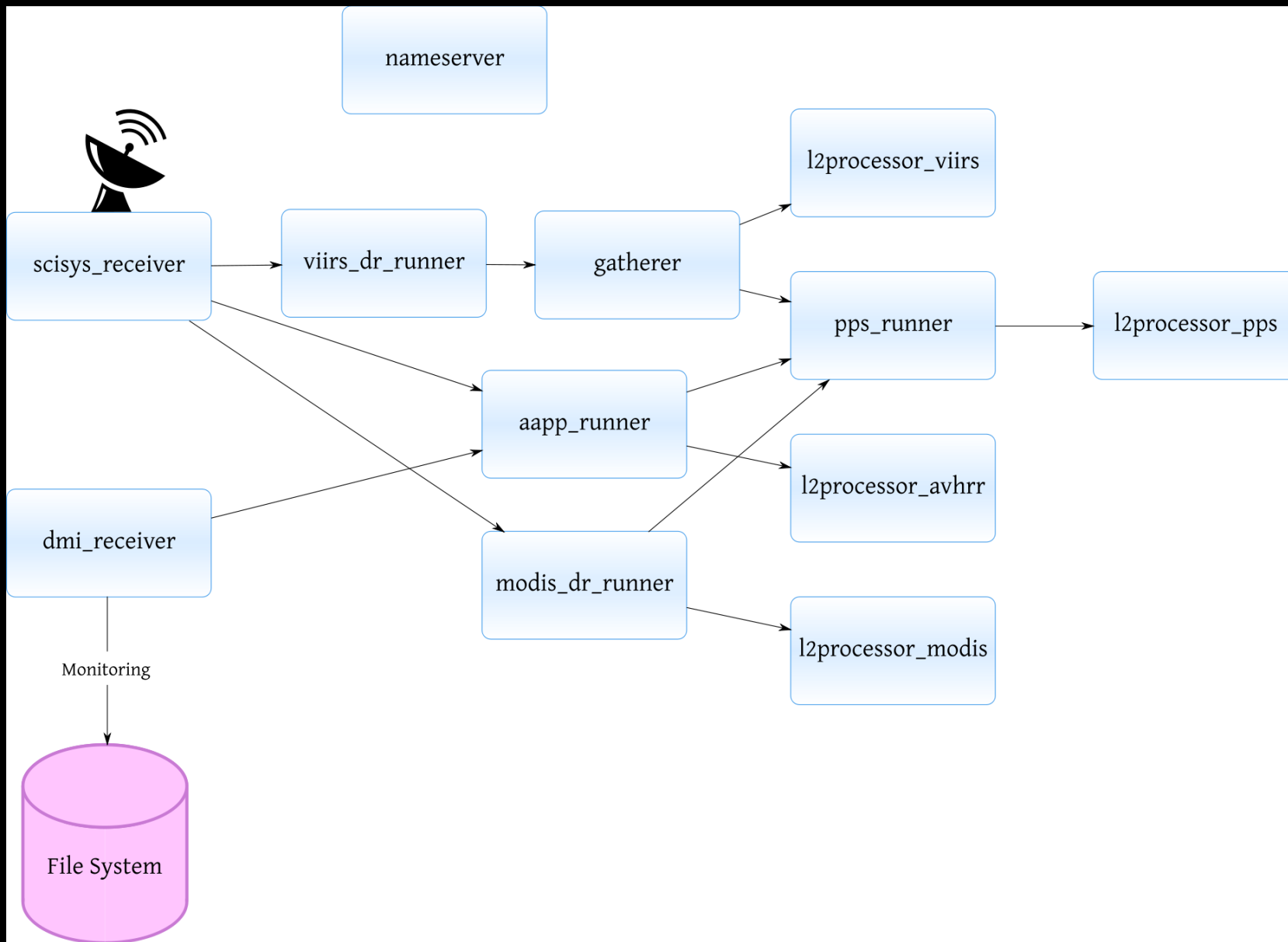
- Using messages to trigger processing
- Pytroll
- Supervisor

Pytroll: <http://pytroll.org/>

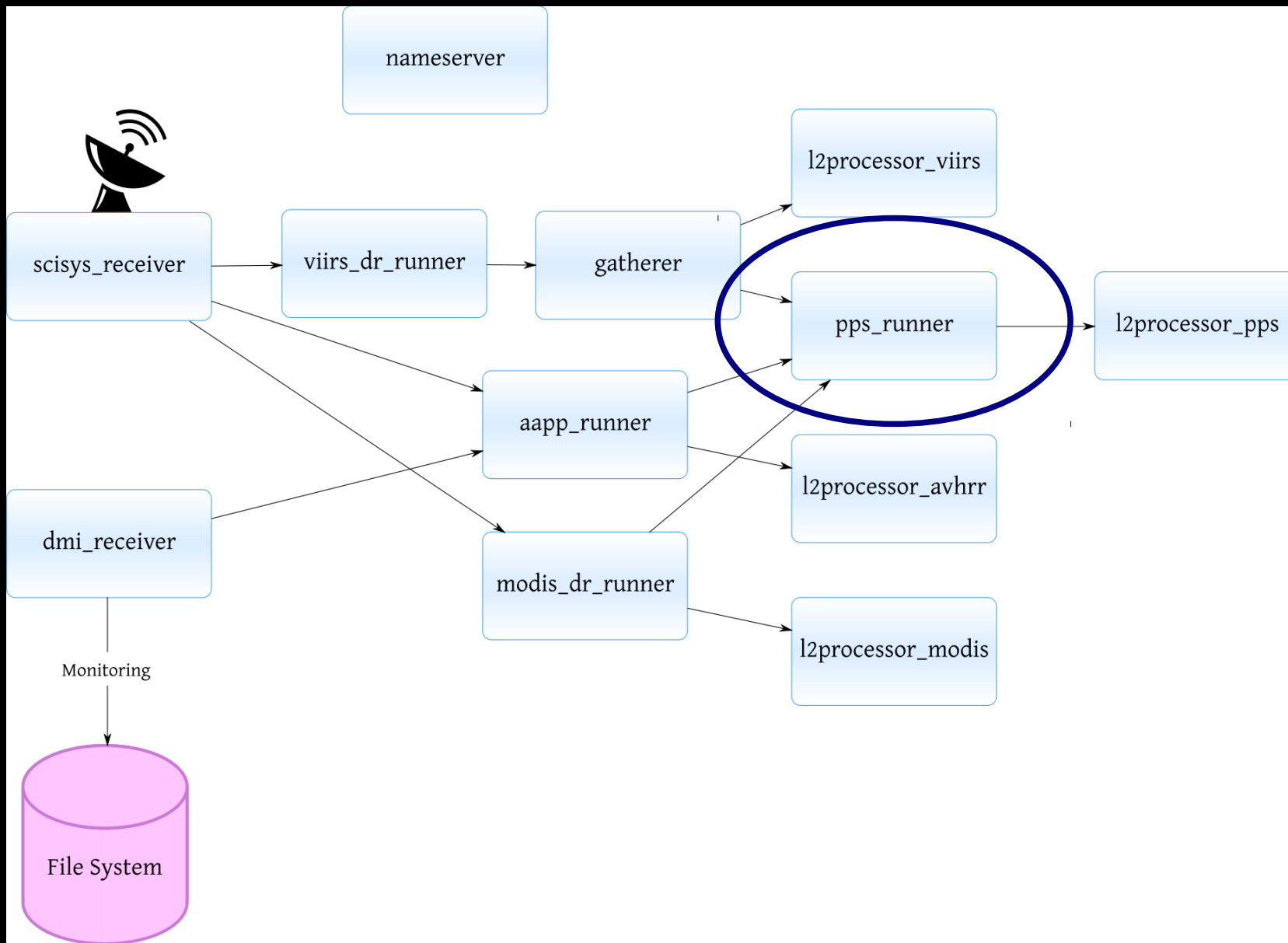
Supervisor: <http://supervisord.org/>



# The SMHI setup



# The SMHI setup



# The SMHI setup

## Supervisor status

Page refreshed at Tue Feb 24 08:34:03 2015

REFRESH

RESTART ALL

STOP ALL

State	Description	Name	Action
running	pid 32416, uptime 4 days, 2:04:45	<a href="#">aapp_runner</a>	<a href="#">Restart</a> <a href="#">Stop</a> <a href="#">Clear Log</a> <a href="#">Tail -f</a>
running	pid 2868, uptime 11 days, 22:22:04	<a href="#">crashmailbatch</a>	<a href="#">Restart</a> <a href="#">Stop</a> <a href="#">Clear Log</a> <a href="#">Tail -f</a>
running	pid 2870, uptime 11 days, 22:22:04	<a href="#">dmi_receiver</a>	<a href="#">Restart</a> <a href="#">Stop</a> <a href="#">Clear Log</a> <a href="#">Tail -f</a>
running	pid 2869, uptime 11 days, 22:22:04	<a href="#">fatalmailbatch</a>	<a href="#">Restart</a> <a href="#">Stop</a> <a href="#">Clear Log</a> <a href="#">Tail -f</a>
running	pid 2881, uptime 11 days, 22:22:04	<a href="#">gatherer</a>	<a href="#">Restart</a> <a href="#">Stop</a> <a href="#">Clear Log</a> <a href="#">Tail -f</a>
running	pid 29207, uptime 19:10:26	<a href="#">l2processor_avhrr</a>	<a href="#">Restart</a> <a href="#">Stop</a> <a href="#">Clear Log</a> <a href="#">Tail -f</a>
running	pid 29256, uptime 19:10:10	<a href="#">l2processor_modis</a>	<a href="#">Restart</a> <a href="#">Stop</a> <a href="#">Clear Log</a> <a href="#">Tail -f</a>
running	pid 29296, uptime 19:09:57	<a href="#">l2processor_pps</a>	<a href="#">Restart</a> <a href="#">Stop</a> <a href="#">Clear Log</a> <a href="#">Tail -f</a>
running	pid 29338, uptime 19:09:45	<a href="#">l2processor_viirs</a>	<a href="#">Restart</a> <a href="#">Stop</a> <a href="#">Clear Log</a> <a href="#">Tail -f</a>
running	pid 2875, uptime 11 days, 22:22:04	<a href="#">modis_dr_runner</a>	<a href="#">Restart</a> <a href="#">Stop</a> <a href="#">Clear Log</a> <a href="#">Tail -f</a>
running	pid 2872, uptime 11 days, 22:22:04	<a href="#">nameserver</a>	<a href="#">Restart</a> <a href="#">Stop</a> <a href="#">Clear Log</a> <a href="#">Tail -f</a>
running	pid 7092, uptime 11 days, 20:51:23	<a href="#">pps_runner</a>	<a href="#">Restart</a> <a href="#">Stop</a> <a href="#">Clear Log</a> <a href="#">Tail -f</a>
running	pid 2871, uptime 11 days, 22:22:04	<a href="#">scisys_receiver</a>	<a href="#">Restart</a> <a href="#">Stop</a> <a href="#">Clear Log</a> <a href="#">Tail -f</a>
running	pid 26750, uptime 4 days, 2:47:16	<a href="#">viirs_dr_runner</a>	<a href="#">Restart</a> <a href="#">Stop</a> <a href="#">Clear Log</a> <a href="#">Tail -f</a>

# Supervisor status

Page refreshed at Tue Feb 24 08:34:03 2015

REFRESH

RESTART ALL

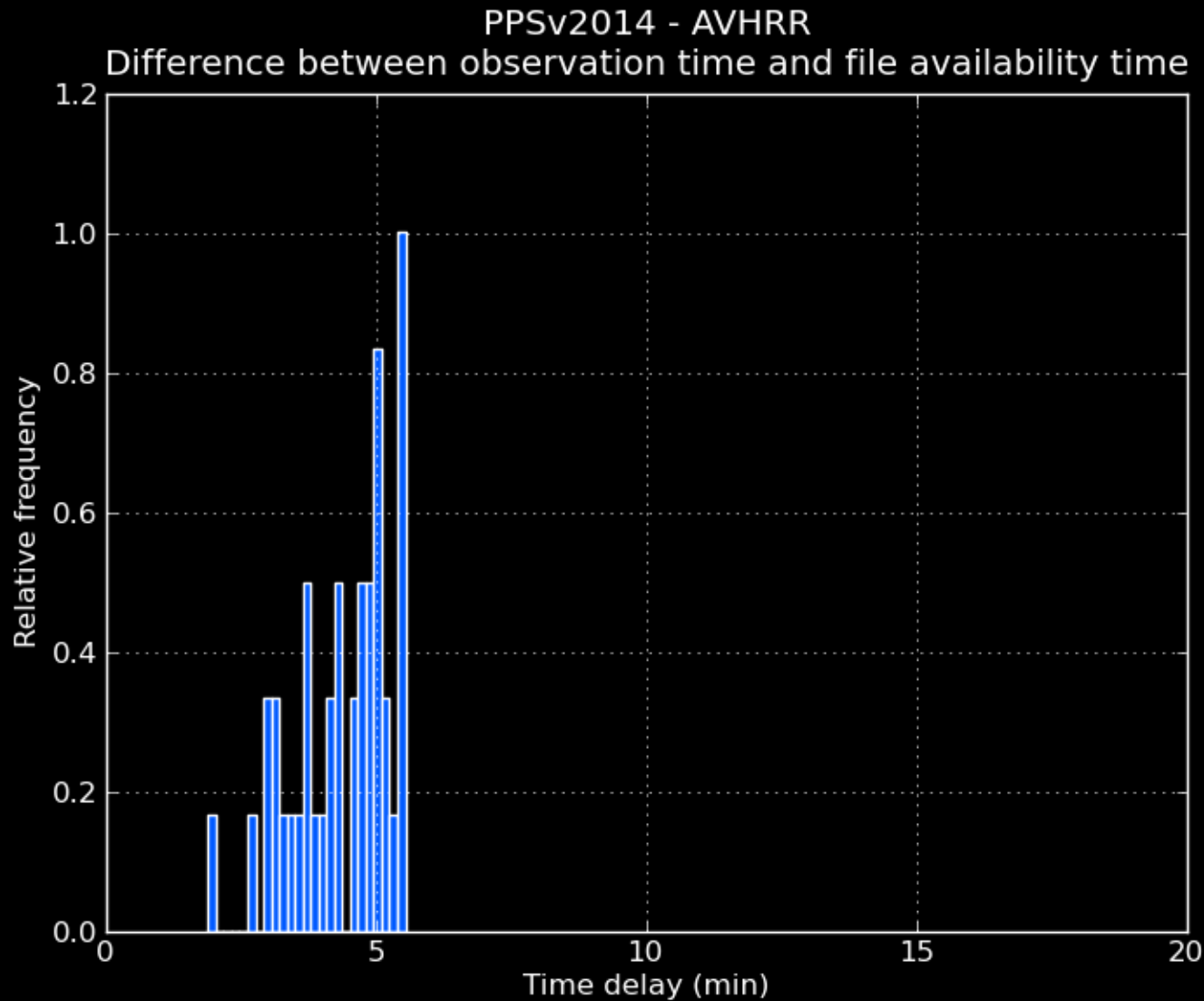
STOP ALL

State	Description	Name	Action
running	pid 32416, uptime 4 days, 2:04:45	<a href="#">aapp_runner</a>	<a href="#">Restart</a> <a href="#">Stop</a> <a href="#">Clear Log</a> <a href="#">Tail -f</a>
running	pid 2868, uptime 11 days, 22:22:04	<a href="#">crashmailbatch</a>	<a href="#">Restart</a> <a href="#">Stop</a> <a href="#">Clear Log</a> <a href="#">Tail -f</a>
running	pid 2870, uptime 11 days, 22:22:04	<a href="#">dmi_receiver</a>	<a href="#">Restart</a> <a href="#">Stop</a> <a href="#">Clear Log</a> <a href="#">Tail -f</a>
running	pid 2869, uptime 11 days, 22:22:04	<a href="#">fatalmailbatch</a>	<a href="#">Restart</a> <a href="#">Stop</a> <a href="#">Clear Log</a> <a href="#">Tail -f</a>
running	pid 2881, uptime 11 days, 22:22:04	<a href="#">gatherer</a>	<a href="#">Restart</a> <a href="#">Stop</a> <a href="#">Clear Log</a> <a href="#">Tail -f</a>
running	pid 29207, uptime 19:10:26	<a href="#">l2processor_avhrr</a>	<a href="#">Restart</a> <a href="#">Stop</a> <a href="#">Clear Log</a> <a href="#">Tail -f</a>
running	pid 29256, uptime 19:10:10	<a href="#">l2processor_modis</a>	<a href="#">Restart</a> <a href="#">Stop</a> <a href="#">Clear Log</a> <a href="#">Tail -f</a>
running	pid 29296, uptime 19:09:57	<a href="#">l2processor_pps</a>	<a href="#">Restart</a> <a href="#">Stop</a> <a href="#">Clear Log</a> <a href="#">Tail -f</a>
running	pid 29338, uptime 19:09:45	<a href="#">l2processor_viirs</a>	<a href="#">Restart</a> <a href="#">Stop</a> <a href="#">Clear Log</a> <a href="#">Tail -f</a>
running	pid 2875, uptime 11 days, 22:22:04	<a href="#">modis_dr_runner</a>	<a href="#">Restart</a> <a href="#">Stop</a> <a href="#">Clear Log</a> <a href="#">Tail -f</a>
running	pid 2872, uptime 11 days, 22:22:04	<a href="#">nameserver</a>	<a href="#">Restart</a> <a href="#">Stop</a> <a href="#">Clear Log</a> <a href="#">Tail -f</a>
running	pid 7092, uptime 11 days, 20:51:23	<a href="#">pps_runner</a>	<a href="#">Restart</a> <a href="#">Stop</a> <a href="#">Clear Log</a> <a href="#">Tail -f</a>
running	pid 2871, uptime 11 days, 22:22:04	<a href="#">scisys_receiver</a>	<a href="#">Restart</a> <a href="#">Stop</a> <a href="#">Clear Log</a> <a href="#">Tail -f</a>
running	pid 26750, uptime 4 days, 2:47:16	<a href="#">viirs_dr_runner</a>	<a href="#">Restart</a> <a href="#">Stop</a> <a href="#">Clear Log</a> <a href="#">Tail -f</a>



# Performance - AVHRR

Cloud Mask

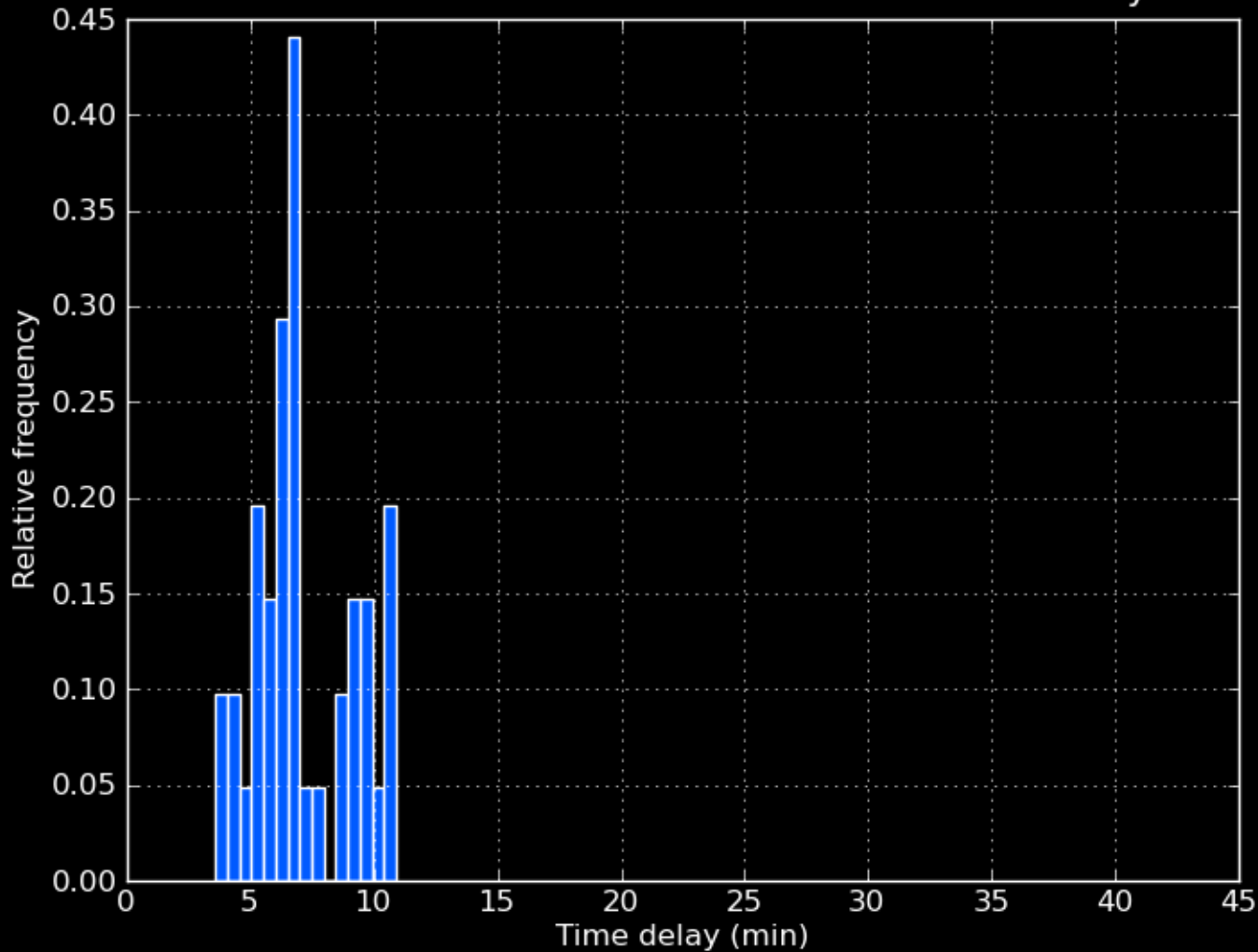


# Performance - AVHRR

PPSv2014 - AVHRR

CPP

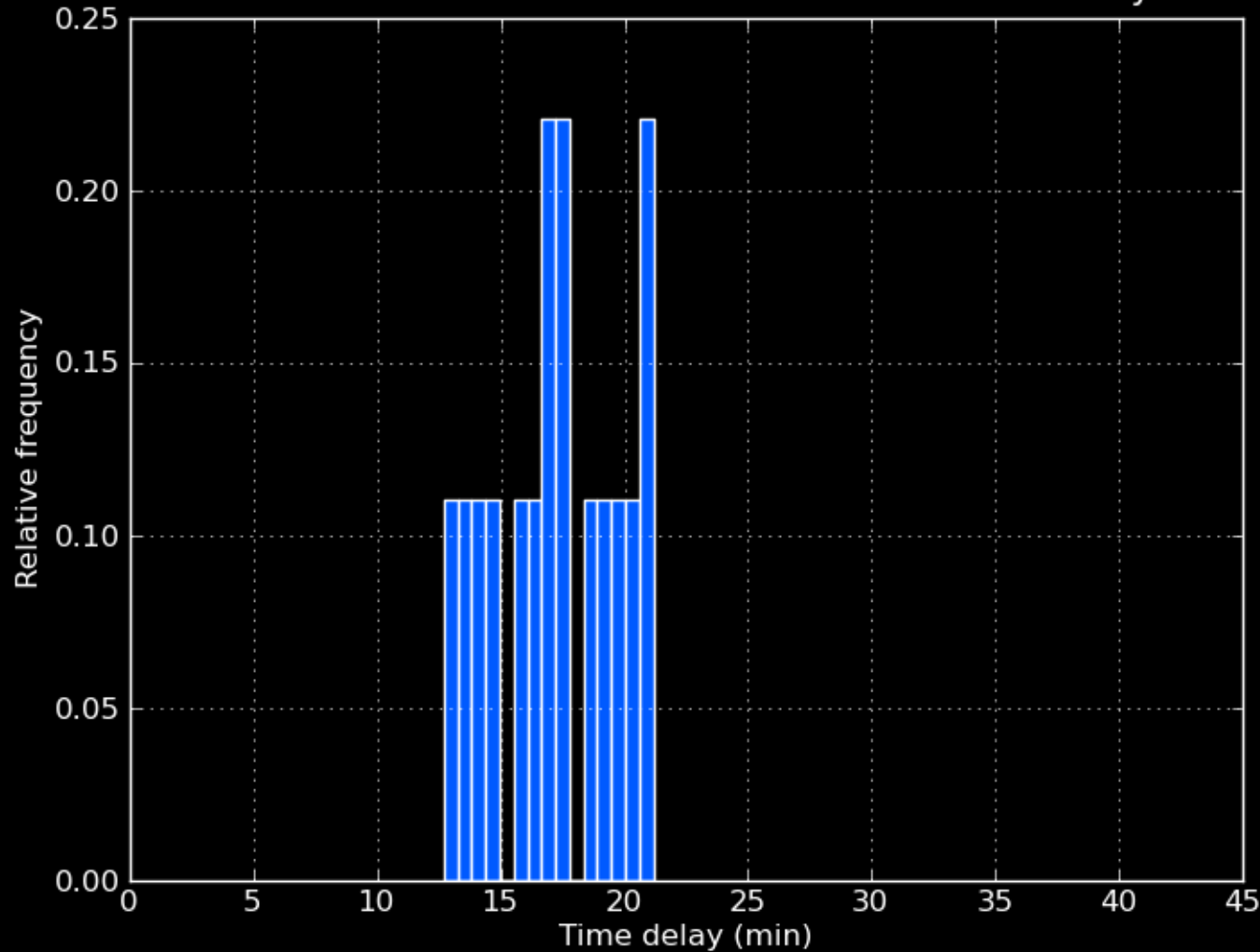
Difference between observation time and file availability time



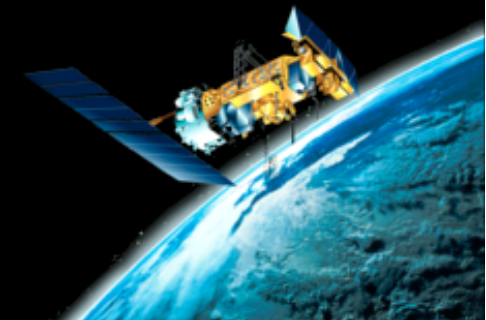
# Performance - VIIRS

PPSv2014 - VIIRS

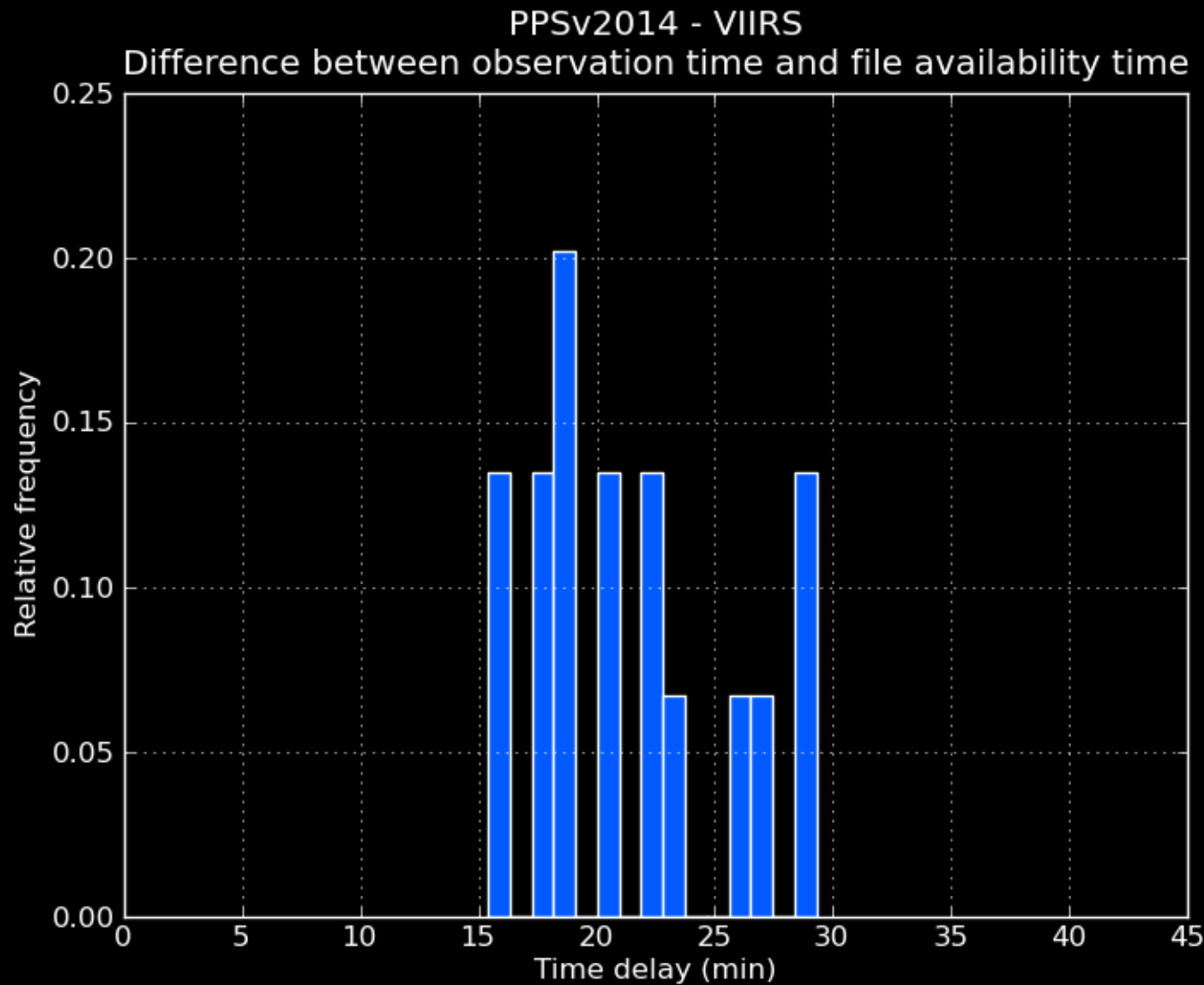
Difference between observation time and file availability time



Cloud Mask

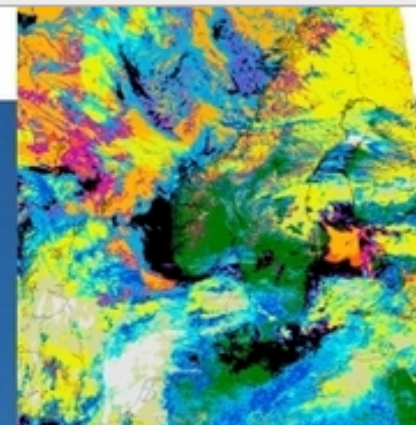


# Performance - VIIRS



CPP





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## About...

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[Consortium](#)



# SMHI

The EUMETSAT  
Network of  
Satellite Application  
Facilities



**T**HE SMHI REMOTE SENSING RESEARCH GROUP is involved in the **Nowcasting Satellite Application Facilities (NWC SAF)** initiated by EUMETSAT. The **NWC SAF** derive and develop products for nowcasting and very short range forecasting.

The general objective of the **NWC SAF** is to provide operational services to ensure the optimum use of meteorological data in nowcasting and very short range forecasting. At **SMHI** we are responsible for the development and maintenance of the Polar Platform System package (the **PPS**-package) to process the products from data gathered from **NOAA** and **Metop** satellites.

### The **NWC SAF** products

The **NWC SAF** products consist of four cloud and one precipitation product:

- [Cloud Mask \(CM\)](#)
- [Cloud Type \(CT\)](#)
- [Cloud Top Temperature & Height \(CTTH\)](#)
- [Precipitation Clouds \(PC\)](#)
- [Cloud Physical Properties \(CPP\)](#)

### About...

What are we doing?  
Cloud Products

#### Product Demonstration

- Real time monitoring
- EARS-NWC monitoring
- Software
- Validation
- Documentation
- News
- Release history
- Consortium



## Local Reception

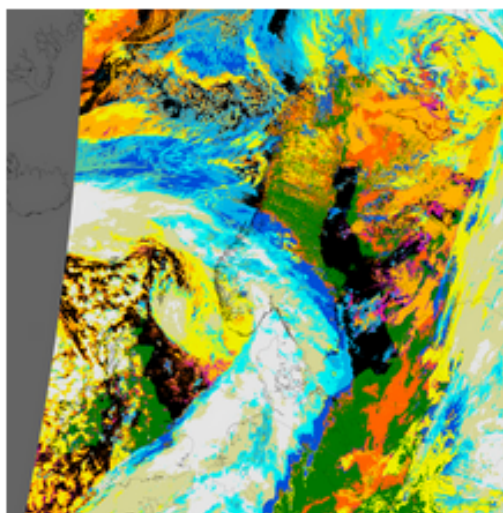
REFERENCE VERSIONS of the four NWCSAF/PPS products are generated on a routine basis. Check the latest cloud nproducts in near real time:

Cloud Type

Northern Europe, 1km/px

npp\_20150223\_0123\_17218

<< Previous Next >>



- |              |                  |
|--------------|------------------|
| Cloud free   | Very thin cirrus |
| Cloud free   | Thin cirrus      |
| Snow         | Thick cirrus     |
| Snow/Ice     | Cirrus above     |
| Very low     | Fractional       |
| Low          | Unclassified     |
| Medium level | Unprocessed      |
| High         |                  |
| Very high    |                  |

