

The EUMETSAT
Network of
Satellite Application
Facilities



NWC SAF

Support to Nowcasting and
Very Short Range Forecasting

SMHI

SAFNWC/PPS v2014

PPS New output format



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Why changed format?

- Follow CF-convention
- Similar to GEO v2015
- General improvements

DOF!

Reference

- Document: "Data output format for the SAFNWC/PPS" [DOF]
- You find it on the SAFNWC helpdesk
- In this presentation: See the pink boxes
- Please use DOF for for more information!

Important changes from PPS v2012

- New names (filenames, datasets, attributes...)
- Changed class coding
 - cloud mask, cloud type, CPP phase
- New units
 - hPa -> Pa, μm -> m, etc.
- The flags

File format

- Products: netCDF and hdf5
- We recommend netCDF for v2014
- v2016: Products will be using netCDF

- Intermediate files: hdf5
- Images: png

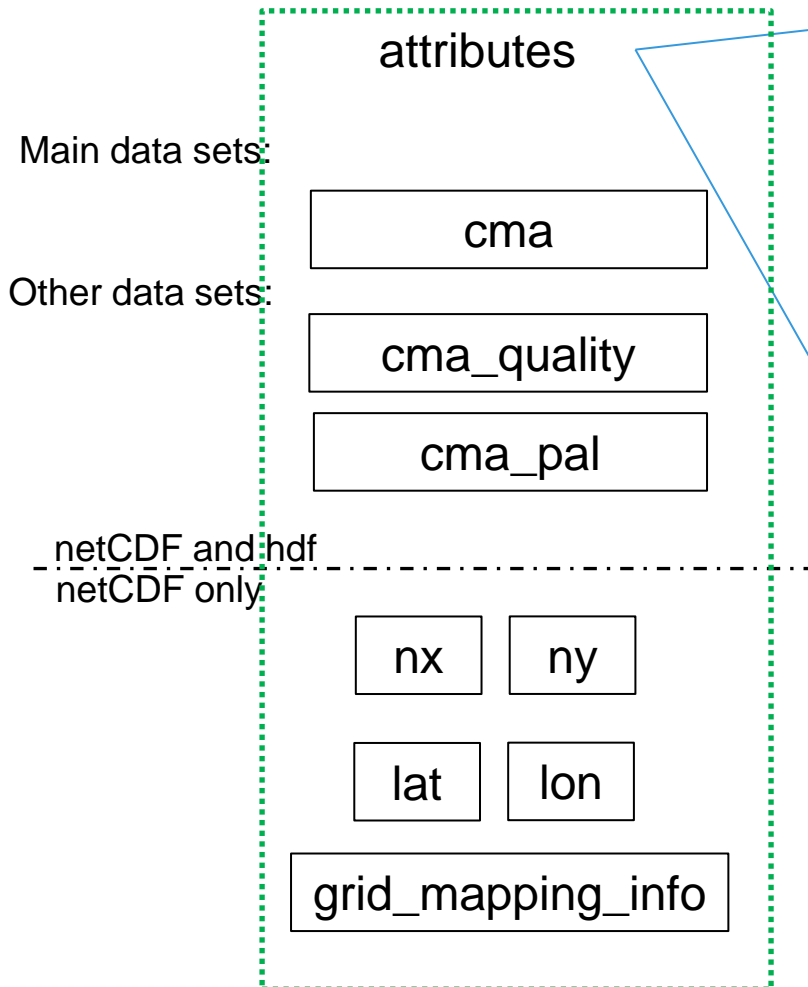
File names

The file name format is:

**S_NWC_CMA_metopb_10929_20141026
T2227326Z_20141026T2227599Z.nc**

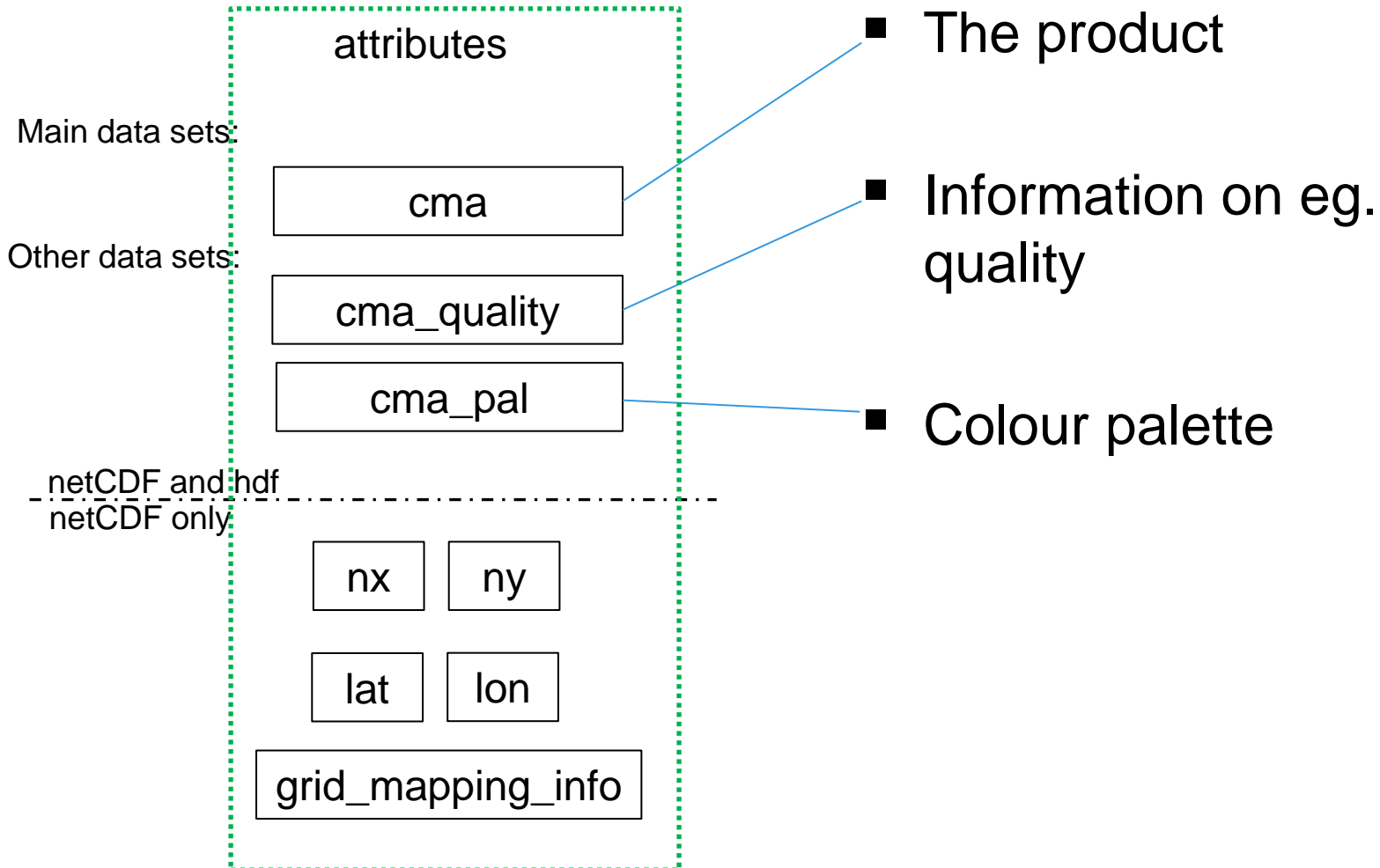
- Products: CMA, CT, CTTH, CPP, PC
- Satellite
- Orbit number
- Start time, down to 10th of second
- End time, down to 10th of second
- (Region id)
- Extension: .nc, .h5, (.png)

Information structure, one file

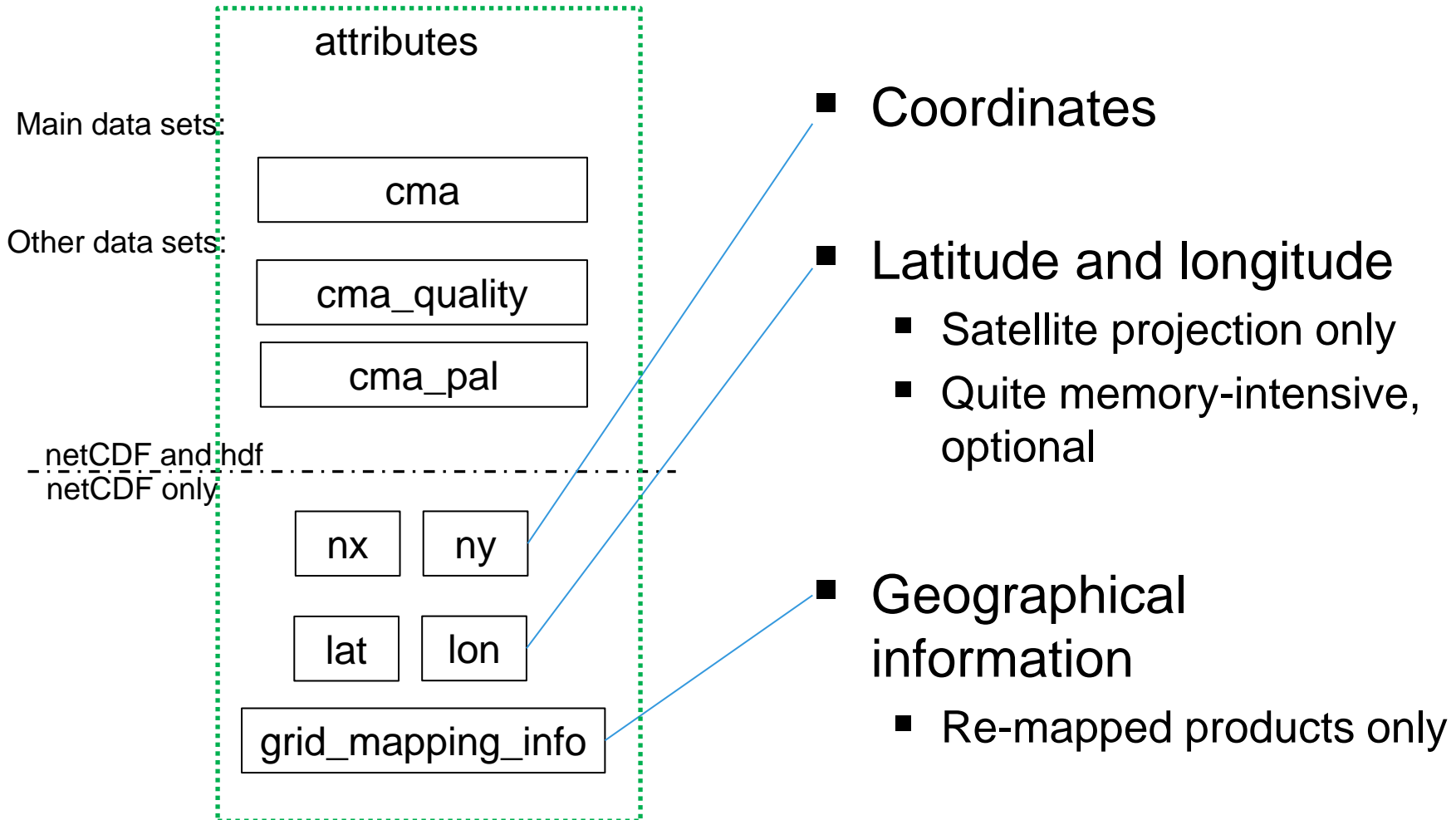


Attribute name	Content, eg.
title	NWC PPS Cloud Mask Product
platform	MetopB
orbit_number	Level 2
region_id	satproj
date_created	2014-10-26T22:42: 01Z
Conventions	CF-1.6
etc.	

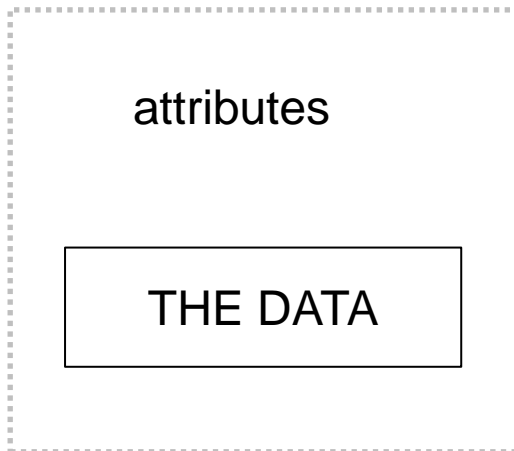
Information structure, one file



Information structure, one file



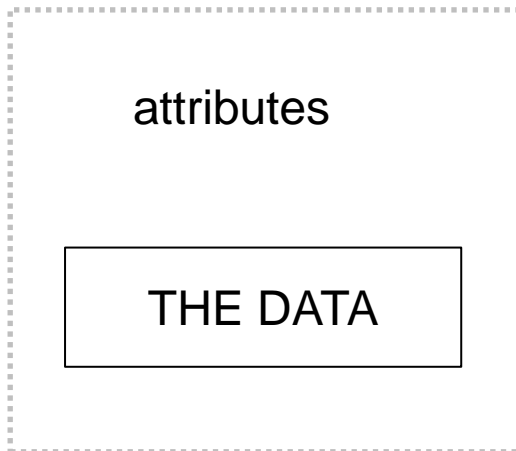
Information structure, one dataset



Attribute name	Content, eg.
standard_name*	air_pressure_at_cloud_top
long_name	SAFNWC PPS CTTH Cloud Top Pressure
valid_range	0, 65534
_FillValue	65535
scale_factor	10.0
add_offset	0.0
units	Pa
etc.	

* standard name is from
CF-convention list

Information structure, one dataset



Attribute name	Content, eg.
standard_name*	-
long_name	SAFNWC PPS CT Cloud Type
valid_range	1,15
_FillValue	255
flag_values	1, 2, 3, 4, 5, ...
flag_meanings	cloud-free_land, cloud-free_sea...
etc.	

* standard name is from
CF-convention list

How to interpret flags (condition flag)

flag_values: 1, 2, 4, 6, 8, 16, 32, 48, 64, 128, 256, 512, 768 ...

flag_masks: 1, 6, 6, 6, 8, 48, 48, 48, 64, 128, 768, 768, 768 ...

flag_meanings: outside swath, night, day, twilight, sunlint, land, sea, coast...

- Bit0: outside swath
- Bit1-2: illumination
 - Value1: night
 - Value2: day
 - Value3: twilight
- Bit3: sunlint
- Bit4-5: land/sea
 - Value1: land
 - Value2: sea
 - Value3: coast
- Bit6: high terrain
- Bit7: rough terrain
- Bit8-9: satellite data
 - Value1: all data available
 - Value2: some usefull missing
 - Value3: mandatory data missing
- Bit10-11: NWP data
 - Values as above
- Bit12-13: PGE input data
 - Values as above
- Bit14-15: auxiliary data
 - Values as above

How to interpret flags (quality flag)

flag_values: 1, 2, 4, 8, 16, 24, 32

flag_masks: 1, 2, 4, 56, 56, 56, 56

flag_meanings: no_data, spare_bit, spare_bit, good, questionable, bad, interpolated_reclassified

- Bit 0: no data
- Bit1-2: *bits not active*
- Bit3-5:
 - Value1: Good
 - Value2: Questionable
 - Value3: Bad
 - Value4: interpolated / reclassified

How to interpret flags (status flag)

flag_masks: 1, 2, 4, 8, 16, 32 ...

flag_meanings: inversion, NWP_low_quality, Sea_ice_map_available...

- Individual definitions for different products
- Always bit-wise interpretation

Cloud Mask

Datasets:

cma

cma_extended

cma_testlist1

cma_testlist2

cma_conditions

cma_quality

cma_status_flag

Cloud Type

Datasets:

ct

ct_conditions

ct_quality

ct_status_flag

Cloud Top Temperature and Hight

Datasets:

ctth_pres

ctth_alti

ctth_tempe

ctth_conditions

ctth_quality

ctth_status_flag

Precipitating Clouds

Datasets:

pc_precip_light

pc_precip_moderate

pc_precip_intense

pc_conditions

pc_quality

pc_status_flag

Cloud Physical Properties

Datasets:

cpp_phase

cpp_lwp

cpp_iwp

cpp_cwp

cpp_reff

cpp_cot

cpp_phase_extended

cpp_dcwp

cpp_dreff

cpp_dcot

cpp_conditions

cpp_quality

cpp_status_flag