

Format for Intercomparison Products

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Table of Contents

1	Introduction	4
1.1	Purpose and Scope	4
1.2	Reference Documents	4
2	Naming Convention	5
2.1	File Name Fields.....	5
2.1.1	productidentifier Sub-Fields	6
2.2	Examples	6
3	Product Format	7

1 INTRODUCTION

1.1 Purpose and Scope

This technical note contains a proposed format and naming convention for netCDF correction coefficient inter-calibration products.

The format and naming convention are based on the draft GSICS specifications and EUMETSAT conventions.

1.2 Reference Documents

[1] Hewison, T., HIRS-IASI Inter-calibration, EUM/MET/REP/08/0253, v1 Draft

[2] Hewison, T., Theoretical Basis for Meteosat SEVIRI-IASI Inter-Calibration Algorithm for GSICS, internal document

[3] Hewison, T., Draft NetCDF format for GSICS Correction Coefficients, Internal e-mail, 02/06/09

[4] Miu, P, EUMETSAT Archive NetCDF File Naming Convention to support GSICS, internal presentation

[5] Miu, P. EUMETSAT Archive NetCDF Format Proposal, EUM/OPS/TEN/07/3317, v3 Draft

[6] Elliott, S., Miu,P, WMO Filenames Table 1 Area Designators, internal e-mail, 03/06/09

2 NAMING CONVENTION

The GSICS netCDF file naming convention is based on the WMO Global Telecommunication System (GTS) filename convention as detailed in the Manual on the Global Telecommunication System (WMO No. 386). Details of the GSICS convention (currently in draft) can be found at:

<https://cs.star.nesdis.noaa.gov/twiki/bin/view/GSICS/NetcdfFileNames>

2.1 File Name Fields

The file name is comprised from the following fields:

```
pflag_productidentifier_oflag_originator_yyyyMMddhhmmss[_freeformat].type[.compression]
```

Field	Description
pflag	Always set to "W" for WMO Product Identifier.
productidentifier	Only the static part of the WMO productidentifier is used e.g. <location_indication>,<data_designator>,<free_description>. See 2.1.1 for details of these sub-fields.
oflag	Always set to C indicating that the subsequent originator field is to be decoded as an international 4 letter location indicator as defined by WMO No 9, Volume C1, Catalogue of Meteorological Bulletins.
originator	EUMS = EARS, JASON or MTP EUMG = MSG EUMP = EPS NOTE: In [6] it is suggested that the originator designation shall identify the programme of the instrument that benefits from the correction coefficients. It is not clear how this will function if the product is a result of an inter-comparison carried out between EUMETSAT and non-EUMETSAT instruments.
yyyyMMddhhmmss	Nominal date and time of the Archive product

freeformat	For the EPS NetCDF product, an optional free format field may be added to indicate start orbit number and level processing information
type	Set to “.nc”
compression	Extension to be added when needed (i.e. Z, zip, gz, bzip2).

2.1.1 productidentifier Sub-Fields

The productidentifier field comprises the following sub-fields:

location_indication	This is the countryCode(ISO 3166) for the organisation-productionCentre) and is set to “xx-EUMETSAT-Darmstadt”.
data_designator	Set to a product identifier defined in the Common Table C-13 of the WMO Manual on Codes. One is defined for each EUMETSAT Archive NetCDF Data Set.
free_description	Not used

2.2 Examples

These are examples taken from existing EUMETSAT netCDF products that follow this naming convention:

MFG Radiance NetCDF Product

`W_xx-EUMETSAT-Darmstadt,VIS+IR_IMAGERY,MET7+MTP15_C_EUMS_20090506183000.nc`

MSG Radiance NetCDF Product

`W_xx-EUMETSAT-Darmstadt,VIS+IR_IMAGERY,MSG2+MSG15_C_EUMS_20090506213011.nc`

EPS IASI Spectral NetCDF Product

`W_xx-EUMETSAT-Darmstadt,HYPERSPECT+SOUNDING,MetOpA+IASI1C_C_EUMS_20090506221449_13215_eps_o_11.nc`

3 PRODUCT FORMAT

Product format template in CDL notation based on [3] but extended:

1. to allow for a product to contain multiple inter-comparisons of the same input data but with differing sets of selection criteria – this allows the representation of a time series of results and/or different data validity ranges,
2. to indicate geographical filtering criteria with a simple box filter.

netcdf file: example.nc {

dimensions:

```
number_of_channels = 19; // number of channels used for instrument under test
number_of_characters_in_channel_name = 5; // channel name used for labelling plots
number_of_selections = 1; // number of different selection criteria sets used
```

variables:

```
integer selection_set_ID(number_of_selections) ;
    :long_name = "Unique reference ID selection criteria set" ;
    :standard_name = "selection set ID" ;
```

```
float latitude_select_start(number_of_selections) ;
    :long_name = "Latitude, positive north" ;
    :units = "degrees_north" ;
    :standard_name = "latitude" ;
    :valid_min = -90.0; // float
    :valid_max = 90.0; // float
```

```
float longitude_select_start(number_of_selections) ;
    :long_name = "Longitude, positive East" ;
    :units = "degrees_east" ;
    :standard_name = "longitude" ;
    :valid_min = 0.0; // float
    :valid_max = 360.0; // float
```

```
float latitude_select_end(number_of_selections) ;
    :long_name = "Latitude, positive north" ;
    :units = "degrees_north" ;
    :standard_name = "latitude" ;
    :valid_min = -90.0; // float
    :valid_max = 90.0; // float
```

```
float longitude_select_end(number_of_selections) ;
    :long_name = "Longitude, positive East" ;
    :units = "degrees_east" ;
    :standard_name = "longitude" ;
    :valid_min = 0.0; // float
    :valid_max = 360.0; // float
```

```
char channel_name(number_of_channels, number_of_characters_in_channel_name);
    :standard_name = "gsics_channel_name";
    :long_name = "Channel Name";
```

```
float wavelength(number_of_channels);
  :standard_name = "radiation_wavelength";
  :long_name = "Wavelength of Channel Centre";
  :units = "m";
  :valid_min = 3.0E-6f; // float
  :valid_max = 1.5E-5f; // float

float wavenumber(number_of_channels);
  :standard_name = "gsics_radiation_wavenumber";
  :long_name = "Wavenumber of Channel Centre";
  :units = "cm-1";
  :valid_min = 3.0E3f; // float
  :valid_max = 5.0E2f; // float

float offset(number_of_selections, number_of_channels);
  :standard_name = "gsics_offset";
  :long_name = "Regression Offset";
  :units = "mW m-2 sr-1(cm-1)-1";
  :valid_min = -200.0f; // float
  :valid_max = 200.0f; // float

float offset_se(number_of_selections, number_of_channels);
  :standard_name = "gsics_offset standard_error";
  :long_name = "Standard Error of Regression Offset";
  :units = "mW m-2 sr-1(cm-1)-1";
  :valid_min = -200.0f; // float
  :valid_max = 200.0f; // float

float slope(number_of_selections, number_of_channels);
  :standard_name = "gsics_slope";
  :long_name = "Regression Slope";
  :units = "1";
  :valid_min = -2.0f; // float
  :valid_max = 2.0f; // float

float slope_se(number_of_selections, number_of_channels);
  :standard_name = "gsics_slope standard_error";
  :long_name = "Standard Error of Regression Slope";
  :units = "1";
  :valid_min = -2.0f; // float
  :valid_max = 2.0f; // float

float covar(number_of_selections, number_of_channels);
  :standard_name = "covariance_of_gsics_offset_and_slope";
  :long_name = "Regression Coefficients Covariance";
  :units = "mW m-2 sr-1(cm-1)-1";
  :valid_min = -200.0f; // float
  :valid_max = 200.0f; // float

float tb_std(number_of_selections, number_of_channels);
  :standard_name = "gsics_standard_radiance";
  :long_name = "Brightness Temperature of Standard Scene";
  :units = "K";
  :valid_min = 230.0f; // float
```



```
:valid_max = 290.0f; // float

float tb_bias(number_of_selections, number_of_channels);
:standard_name = "gsics_standard_bias";
:long_name = "Brightness Temperature Bias for Standard Scene";
:units = "K";
:valid_min = -10.0f; // float
:valid_max = 10.0f; // float

float tb_bias_se(number_of_selections, number_of_channels);
:standard_name = "gsics_standard_bias standard_error";
:long_name = "Standard Error of Brightness Temperature Bias for Standard Scene";
:units = "K";
:valid_min = -10.0f; // float
:valid_max = 10.0f; // float

:Conventions = "CF-1.4";

:Metadata_Conventions = "Unidata Dataset Discovery v1.0";

:title = "GSICS Correction Coefficients";

:summary = "Inter-Calibration Results as regression coefficients and biases for
reference scenes";

:keywords = "GSICS inter-calibration";

:creator_url = "http://www.eumetsat.int";

:creator_email = "archive@eumetsat.int";

:institution = "EUMETSAT";

:history = ""; // details of history of product

:references = ""; // reference documents

:format_author = "EUMETSAT"; //

:format_version = "Draft 1.0"; // current format version

:comment = "";

:instrument_under_test = "HIRS"; //

:inter_calibration_reference = "IASI";

:source = ""; // input product references

:time_coverage_start = "2009-06-22T12:00:00Z";

:time_coverage_end = "2009-06-23T12:00:00Z";

:inter_calibration_valid_time = "2009-06-22T12:00:00Z";
```

```
:filename = "example.nc";  
}
```