**Anchor Product/Prime Correction Product ( Name of Product TBD)**

**Review ( Manik Bali )**

I have been tracking the Prime product since it was initially submitted to the GPPA on 2 Sept 2015. Both me and Masaya have reviewed the product. While Masaya reviewed the Filenaming and Metadata conventions, the documents (ATBD and Verification report) of the product when it was submitted, I made a running review as the production of the product began and it started being put on the collaboration server. In this way the two reviews ensured that every aspect of the product review is covered at the submission phase. In summary, I looked into the following aspects.

1. Variables in the data file.
2. Tracking the RAC production of the product.
3. Suggesting enhancements to this product. It is envisaged that the most recently implemented (inclusion of the ability to compute IASI-A – IASI-B difference) can help the product garner more users in the community.

Each of the issues that I had raised in the production of the product were handled efficiently by the producers and issues and bugs reported were promptly addressed. The product is currently produced on a daily basis and can be plotted on the plotting tool.

***Plotting the product***

The product can also be plotted over the standard scene temperature by using simple idl scripts. Annual bias variations of all the channels for the product have been plotted for review purpose using idl scripts and are consistent with that seen on the plotting tool and the producer ( Tim Hewison) in the EP-17.

Tim Hewison has provided another idl script to the reviewer ( and GCC ) that can help extract the IASI-A – IASI-B delta differences. These differences gives users vital information on the differences between reference instruments.

***Recommendation:*** *Product be accepted in the demo phase contingent upon the resolution of action GRWG.2016.3e.1 and a mutually acceptable view on the 123 documents.*

**Please find below the evidence of each of the heads of my review.**

# Variables in the data file.

**Prime Product**



|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|

|  |
| --- |
| **Manik Bali - NOAA Affiliate <manik.bali@noaa.gov>** |

 | May 22https://mail.google.com/mail/u/0/images/cleardot.gif |  | **https://mail.google.com/mail/u/0/images/cleardot.gif****https://mail.google.com/mail/u/0/images/cleardot.gif** |
|

|  |
| --- |
| to Tim, Masayahttps://mail.google.com/mail/u/0/images/cleardot.gif |

 |

Hi Tim,

 My original intent to look into the product was to develop a better understanding of the product. It would help me convince more members to review and use this product.

Since you have implemented made corrections based on the feedback I provided so in effect we can treat it as a GPAT review. Technically I am not a NOAA -GPAT reviewer however unless you have any objections it would help if someone deligates a review to me for the demo phase.

With two reviews we would be in a better shape now.

Rgds

Manik

On Fri, May 13, 2016 at 11:09 AM, Tim Hewison <Tim.Hewison@eumetsat.int> wrote:

Hi Manik,

Thanks for spotting these problems.

1.       Thanks to this, I found a bug in the processing related to handling gaps in the RAC files from which the Prime Correction is calculated. I reprocessed the original RAC files and the problem has resolved. The large number of records with fill values at the end of the files are now solved.

2.       There were some dates where some variables are NaNs – this corresponds to the start of the Metop-B record. Although it should not cause problems to the users, I have activated a clause in the code to require a minimum overlap period of 7 days to prevent this. I will test this over the long weekend.

3.       This file is used just like the regular RACs. The only extra information on other references and their relative weights are provided for information only to ensure traceability.

Regards,

Tim

**From:** Manik Bali - NOAA Affiliate [mailto:manik.bali@noaa.gov]
**Sent:** Friday, April 22, 2016 6:27 AM
**To:** Tim Hewison; Masaya Takahashi
**Subject:** Prime Product

Hi Tim,

I am  having a look at your Prime product as a user and have some questions. These might have been answered somewhere but it would take time for me to dig them out.

1. I see some nanf in the data sets. Please clarify.

2. The weight has some un-populated fields

3.  How do I use this data file.

The figure 1 in the ATBD [here](https://gsics.nesdis.noaa.gov/pub/Development/AtbdCentral/ATBD_for_EUMETSAT_Demonstration_Prime_GSICS_Corrections_for_Meteosat-SEVIRI.docx) says that the user gets correction coefficients of SEVIRI compared with the blend of IASI-A and IASI-B. Is that correct?

What else is provided that can be usefull to the user. Do you also provide the delta difference of IASI-A and IASI-B.

A product providing multiple variables can always have a broader user base.

Let me know.

Rgds

Manik

# Tracking the RAC production of the product.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|

|  |
| --- |
| **Tim Hewison** |

 | Attachments8:49 AM (5 hours ago)https://mail.google.com/mail/u/0/images/cleardot.gif |  | **https://mail.google.com/mail/u/0/images/cleardot.gif****https://mail.google.com/mail/u/0/images/cleardot.gif** |
|

|  |
| --- |
| to me, Masaya, Dohyeong, Lawrence, Peterhttps://mail.google.com/mail/u/0/images/cleardot.gif |

 |

Hi Manik,

Good question, and it’s not so easy to do from the product itself.

Although you can visualise the difference between MSGx-IASIA and MSGx-IASIB using the plotting tool as brightness temperature differences (by overplotting the results for the same channel), it cannot generate quantitative results. It would need an enhancement of the plotting tool to calculate the TB difference from the delta\_offset, delta\_slope coefficients.

Attached is the IDL code I use to do the calculation and plot the time series of the difference. It probably has lots of hidden dependencies, but is based on input structures read in from the different netCDF files while calculating the Prime product. See the routines in the annex of the ATBD for more details.

One more thing: I would generally not recommend plotting time series of the biases averaged over a whole year as you did – the biases usually change slowly with time, but can change abruptly when we do a decontamination. Better is to plot the full time series and summarise in a table if needed.

Cheers,

Tim

**From:** Manik Bali - NOAA Affiliate [mailto:manik.bali@noaa.gov]
**Sent:** Tuesday, November 08, 2016 9:39 PM
**To:** Tim Hewison
**Cc:** Masaya Takahashi; Dohyeong Kim; Lawrence E Flynn - NOAA Federal; Peter Miu
**Subject:** Re: Fwd: GPPA Submission for Meteosat-IASI Prime GSICS Corrections to enter Demo Phase

Hi Tim,

I can confirm that the product is created and updated daily. Please see the prime product plots for MSG2 and MSG3. Here I have plotted the standard scene difference. These are consistent with the earlier ones I showed at the EP-17.

However I also wanted to plot the new delta ( IAS-A - IASI-B ) over the MSG channels,  that you have recently added.

Let me know how do do that .

Rgds

Manik

On Tue, Nov 8, 2016 at 7:35 AM, Tim Hewison <Tim.Hewison@eumetsat.int> wrote:

Dear Manik and all,

Please disregard the previous email. There was an error in the attachment (thanks to Masaya for spotting). Attached is the corrected version.

Thanks to Masaya for his very review useful feedback – spotting that I had somehow missed a figure from the report. I have now added this rather unexciting figure, (in the attached version) so hopefully now it all makes sense.

I look forward to your confirmation that these actions satisfy the requested prerequisites for the product to enter demonstration mode.

Best regards,Tim

# Suggesting enhancements to this product

**From:** Tim Hewison
**Sent:** Friday, October 21, 2016 11:49 AM
**To:** 'Manik Bali - NOAA Affiliate'
**Cc:** Masaya Takahashi; Dohyeong Kim; Lawrence E Flynn - NOAA Federal; Peter Miu
**Subject:** RE: Fwd: GPPA Submission for Meteosat-IASI Prime GSICS Corrections to enter Demo Phase

Hi Manik,

Following the feedback you provided at the EUMETSAT conference, I have followed your recommendation to include the coefficients of the delta correction in our candidate Prime GSICS Corrections for the IR channels of Meteosat/SEVIRI.

You can find the new (sub-)version of the products already on our server:

<http://gsics.eumetsat.int/thredds/catalog/msg1-seviri-prime-demo-rac/catalog.html>

<http://gsics.eumetsat.int/thredds/catalog/msg2-seviri-prime-demo-rac/catalog.html>

<http://gsics.eumetsat.int/thredds/catalog/msg3-seviri-prime-demo-rac/catalog.html>

The coefficients of the Delta Correction are given in the same format as the GSICS Correction itself, with the additional dimension for the number of reference instruments – the first being the Anchor (so the delta corrections are undefined):

delta\_offset(date,ref,chan)

delta\_slope(date,ref,chan)

delta\_offset\_se(date,ref,chan)

delta\_slope\_se(date,ref,chan)

delta\_covariance(date,ref,chan)

I have updated the ATBD and uploaded it to the GSICS Wiki:

<http://gsics.atmos.umd.edu/pub/Development/AtbdCentral/ATBD_for_EUMETSAT_Demonstration_Prime_GSICS_Corrections_for_Meteosat-SEVIRI.docx>

I have also drafted a preliminary scientific validation report, which uses the product to analyse the differences between IASI-A and –B. I hope this addresses the needs for a validation report for the product to enter demonstration mode. I don’t think a more “operational” validation report is appropriate at this stage in the product’s development.

I look forward to your confirmation that these actions satisfy the requested prerequisites for the product to enter demonstration mode.

Best regards,

Tim