# AATSR Level 1b (ATS_TOA_1P) Product Quality Readme Information

This file presents the Product Quality Readme (PQR) information for the AATSR Level 1b (ATS_TOA_1P) products.

All PQRs are retained for reference in this file, even those pertaining to historically available datasets only, hence there is an explicit statement in each PQR noting whether it is still applicable to the most recent AATSR dataset.

## The Third AATSR Reprocessing Dataset (IPF 6.05)

Users are strongly recommended to use the most recent AATSR dataset: Third Reprocessing data products were generated in 2013, and information on the updates and improvements expected was published in the User Note for the Third AATSR Reprocessing. Users can identify third reprocessing products using the following information:

- The IPF software version contained within the main product header of third reprocessing products is "AATS/6.05".
- The Processing Stage Flag contained within the product name and main product header has been incremented to U, for example: ATS_TOA_1P**U**UPA20120308_005911_000065273112_00246_52415_6357.N1.

## Index of PQRs for IPF 6.05

An index of the PQRs applicable to the third reprocessing dataset (IPF 6.05) is given in Table 1. Full details of these PQRs are available in the PQRs for IPF 6.05 section below.

**Table 1 AATSR PQRs applicable to IPF 6.05**

| PQR Reference | PQR Title |
|---|---|
| ENVI-GSOP-EOGD-QD-04-0065 | Exception values and corresponding confidence flags in the visible and 1.6 micron channels at night |
| ENVI-GSOP-EOGD-QD-04-0066 | Calibration of visible channels during and immediately after outgassing |
| ENVI-GSOP-EOGD-QD-14-0122 | 12 µm brightness temperature discrepancy |
| ENVI-GSOP-EOGD-QD-14-0123 | Instrument pixel co-ordinates regridding x/y offset |

## Index of historical PQRs

An index of the historical PQRs is given in Table 2. The relationship between historical data and these PQRs can be deduced by inspecting the AATSR IPF Change Log. Full details of these PQRs are available in the Historical PQRs section below.

**Table 2 Historical AATSR PQRs**

| PQR Reference | PQR Title |
|---|---|
| ENVI-GSOP-EOGD-QD-04-0063 | Sub-optimal geolocation and view colocation |
| ENVI-GSOP-EOGD-QD-04-0064 | Availability of VC1 files and calibration of visible channel data |
| ENVI-GSOP-EOGD-QD-14-0119 | Visible channel calibration drift correction |
| ENVI-GSOP-EOGD-QD-14-0129 | Incorrect 1.6 µm non-linearity correction applied |
| ENVI-GSOP-EOGD-QD-14-0120 | 1.6 µm calibration anomaly |

| PQR Reference | PQR Title |
|---|---|
| ENVI-GSOP-EOGD-QD-14-0121 | Banding problem in consolidated data (errors loading 12 µm gross cloud tests LUT) |
| ENVI-GSOP-EOGD-QD-14-0124 | Child product first MDS/ADS record displacement |

## References

Table 3 lists a set of AATSR references that users may find useful when using AATSR data.

**Table 3 AATSR References**

| Item | Available from |
|---|---|
| Envisat and AATSR Product Specifications | https://earth.esa.int/support-docs/productspecs/index.htm |
| AATSR Product Handbook and related Technical Notes | http://envisat.esa.int/handbooks/ |
| Additional information on AATSR | https://earth.esa.int/web/sppa/mission-performance/esa-missions/envisat/aatsr/sensor-description |
| AATSR IPF Change Log | https://earth.esa.int/web/guest/-/aatsr-ipf-change-log |
| Other referenced documents | ESA library |

## PQRs for IPF 6.05

| Field: | Contents: |
|---|---|
| PQR Title | Exception values and corresponding confidence flags in the visible and 1.6 micron channels at night |
| PQR Reference | ENVI-GSOP-EOGD-QD-04-0065 |
| Affected Data Sets | All data |
| Description | At the Envisat Calibration Review held in September 2002, it was reported that at night, noise in the visible and short-wave infra-red (1.6 micron) channels cannot be distinguished from pixel exception values, and can therefore be masked into the confidence flags. This is not strictly an error in the AATSR processing scheme, but rather an unexpected result of adopting the ATSR-2 processing scheme for AATSR (ATSR-2 visible channel data were not available at night).<br><br>The AATSR pixel exception values are small negative numbers (ranging from -1 to -8). At night, the noise in the visible channels can mimic these exception values, so that the interpretation of negative visible channel reflectances is ambiguous. Also, because the confidence flags are derived from the union of the exception values across all channels, this can cause the confidence flags to be wrongly set. Note that the latter effect affects any user who is using the confidence flags to filter the data, regardless of whether they are interested in the visible channels or not.<br><br>Note that the individual pixel exception values are always valid for the thermal infra-red channels, and can be used to identify and filter invalid data in these channels.<br><br>**Data from 3rd reprocessing:** This PQR is still applicable, as no change has been implemented to address this behaviour. Users should bear this in mind when using the confidence flags. |
| Prepared by | IDEAS AATSR QC Team |
| Originator | P. Goryl |
| Approver | P. Lecomte |

| Field: | Contents: |
|---|---|
| PQR Title | Calibration of visible channels during and immediately after outgassing |
| PQR Reference | ENVI-GSOP-EOGD-QD-04-0066 |
| Affected Data Sets | All data acquired during and immediately after periods of outgassing |
| Description | The dates of AATSR outgassing periods can be found at https://earth.esa.int/web/sppa/mission-performance/esa-missions/envisat/aatsr/mission-highlights#Housekeeping_activities.<br><br>During outgassing periods, ATS_VC1_AX files cannot be generated (the 1.6 μm channel data is absent when the infrared FPA is warm). Consequently, visible channel data acquired and processed during outgassing periods will be processed with a non-optimal VC1 file (see PQR ENVI-GSOP-EOGD-QD-04-0064: Availability of VC1 files and calibration of visible channel data for information on the generation of VC1 files).<br><br>The supply of VC1 files at a frequency greater than once per day is recommended during periods of outgassing and for approximately three weeks afterwards, owing to the effect of returning condensation build-up. However, before 01 February 2007, the system was not designed to provide files at a greater frequency than once per day. Consequently, visible channel data acquired and processed for 3 weeks after an outgassing would also have been calibrated with sub-optimal VC1 files (i.e. the calibration accuracy is not maintained beyond one orbit, on account of the drift in the signal caused by the returning condensation build-up).<br><br>For data acquired after 01 February 2007, VC1 files were available with greater frequency so the calibration accuracy after an outgassing showed improved performance.<br><br>**Data from 3rd reprocessing:** This PQR is still applicable, although a complete set of VC1 files was regenerated for use in the 3rd reprocessing. The calibration accuracy of the reprocessed dataset following an outgassing now shows further improved performance. |
| Prepared by | IDEAS AATSR QC Team |
| Originator | P. Goryl |
| Approver | P. Lecomte |

| Field: | Contents: |
|---|---|
| PQR Title | 12 µm brightness temperature discrepancy |
| PQR Reference | ENVI-GSOP-EOGD-QD-14-0122 (issue date: 12 May 2014) |
| Affected Data Sets | All data |
| Description | Throughout Envisat operations, the Envisat and ERS-2 satellites followed identical ground tracks, separated by half an hour. As a result, Envisat/AATSR and ERS-2/ATSR-2 measurements of identical scenes are available at local times of approximately 10:00 and 10:30 respectively, morning and evening. Various comparisons of the Brightness Temperatures revealed a systematic discrepancy between AATSR and ATSR-2 BTs in the 12 µm channel. Examination of independent validation results indicates that the cause of the unexplained offset is an issue with AATSR, not ATSR-2.<br><br>An Anomaly Review Board was convened in order to investigate further this discrepancy, with a view to identifying both the possible cause and a resolution. A final report was issued by the ARB (IDEAS-VEG-OQC-REP-1274); some key information is repeated here:<br><br>The ARB found that the discrepancy was temperature dependent, varying from +0.4 K for cold scenes to -0.2 K for hot scenes.<br><br>The ARB has made recommendations to account for this discrepancy in future reprocessing of AATSR data. In the meantime, guidance for users has been produced, explaining how to take account of the discrepancy (IDEAS-VEG-OQC-MEM-1391, available from here).<br><br>**Data from 3rd reprocessing:** This PQR is still applicable; users should take account of this discrepancy by following the guidance in the above-mentioned TN. |
| Prepared by | IDEAS+ AATSR QC Team |
| Approver | P. Goryl |

| Field: | Contents: |
|---|---|
| PQR Title | Instrument pixel co-ordinates regridding x/y offset |
| PQR Reference | ENVI-GSOP-EOGD-QD-14-0123 (issue date: 12 May 2014) |
| Affected Data Sets | All data |
| Description | Because of the conical scanning geometry of the AATSR instrument, measured AATSR instrument pixels lie on a series of curves defined by the intersection of the scan cone and the surface of the Earth. In order to present the data on a rectangular grid, AATSR Level 1b processing includes a regridding stage in which the measured instrument pixels are relocated by migrating them to a nearby image position. The image pixel positions form a quasi-Cartesian grid centred on the satellite ground track.<br><br>As a result, the image pixels in the full resolution products (ATS_TOA_1P and ATS_NR__2P) are displaced slightly from their measured positions. This displacement does not exceed the 1-km resolution of the instrument in either co-ordinate, and so is not significant for the many applications for which the surface is relatively homogeneous. For example, over the sea the brightness temperatures and sea surface temperature are in general slowly varying on this scale. However, for some applications, in particular studies of land surface temperature in regions where the surface characteristics are highly variable on scales shorter than 1 km, the displacement may be significant.<br><br>Historically, the ATSR product set included ungridded products containing the instrument pixel geolocation, but these are not part of the ESA product set. However, the information is available in the products, and the additional notes below explain how it can be recovered.<br><br>**Data from 3rd reprocessing:** This PQR is still applicable; users should take account of this by following the guidance below. |
| Prepared by | IDEAS+ AATSR QC Team |
| Approver | P. Goryl |

| Field: | Contents: |
|---|---|
| PQR Reference | Additional notes for PQR ENVI-GSOP-EOGD-QD-14-0123 |

The following notes are an extract from the AATSR Technical Note, 'Instrument Pixel Co-ordinates in AATSR Products' by A. R. Birks (November 2006). They explain how the x and y co-ordinates of the instrument pixels can be recovered from the Scan pixel x and y Annotation data Set (ADS). Given these values it is then possible to recover the instrument pixel latitude and longitude by interpolation in the geolocation ADS.

The instrument pixel geolocation must be reconstructed via the scan pixel x and y co-ordinates. However, the procedure is rather involved, while as explained below a crucial piece of information is missing from the Level 1b and Level 2 gridded products, and must be supplied separately. The outline of the procedure is as follows.

**Step 1: Identify the instrument scan and pixel indices from the Scan and Pixel Number ADS for the appropriate (nadir or forward) view.**

To begin with, we define the indexing. Define scan and pixel indices *s, p* for the instrument

pixels measured by AATSR. The scan number *s* is simply the number of the instrument scan (equivalent to the number of the instrument source packet) counting from an origin close to the start of the product. In fact (for a somewhat technical reason that will not be explained here) the first instrument scan contributing to a product is numbered *s* = 32.

The absolute pixel number *p* is the number of the pixel in the measured scan; AATSR measures 2000 pixels per scan. In fact not all of these pixels are telemetered to the ground (because many of them fall inside the instrument housing), but only those corresponding to the nadir and forward views (and to the black body and VISCAL pixels). However, the Scan and Pixel Number ADS contains the absolute pixel number *p* of the instrument pixels corresponding to the regridded image pixels.

Let us also define indices *i*, *j* for the image pixels, where *i* is the along-track index (essentially the number of the product record, counting from zero) and *j* (0 to 511) is the index of the pixel in the record. Now because the Scan and Pixel Number ADS are sampled once per granule, the first record of the ADS corresponds to MDS record 0, the second to MDS record 32, and so on.

Consider a given image pixel *i*, *j*. Calculate the granule index *ig* = integer part of [*i*/32], and *i'* = *i* – 32**ig*, and find record *ig* of the relevant ADS (counting from 0). If *i* is an exact multiple of 32 (so *i'* = 0) then ADS record *ig* contains the scan and pixel numbers for the pixels in row *i*. In the notation used by EnviView

(1) *s* = instr_scan_num[*j*]
(2) *p* = pix_num[*j*]

Otherwise

(3) *s* = instr_scan_num[*j*] + *i'*
(4) *p* = pix_num[*j*]

Of course use the ADS appropriate to the view. If you are working with a nadir view pixel, use the Scan and Pixel Number Nadir View ADS, or for a forward view pixel use the Scan and Pixel Number Forward View ADS.

**Step 2: Use the indices *s* and *p* found in Step 1 to determine the x and y co-ordinates of the instrument pixel from the Scan Pixel x and y ADS.**

Each record of this Annotation Data Set corresponds to one instrument source packet, or instrument scan, and contains the scan number *s* in the record instr_scan_num at the start of the record. (Throughout we are using the names defined by EnviView for the product fields, but note that although EnviView numbers records from 1, here we are numbering them from 0.) However, the ADS does not contain every scan, but is sampled once per 32 scans.

Each record of the ADS contains 99 pairs of x-y co-ordinates in 2 arrays tie_pix_x and tie_pix_y of 99 elements each. Essentially (with a slight modification) these represent the co-ordinates of every 10th pixel in the nadir and forward views, arranged according to their relative pixel indices. When the earth view pixels are unpacked from the source packet, they are separated into two sets of buffer arrays, one for each view, and these arrays are indexed by relative indices *pn*, *pf* for the nadir and forward views respectively. There are 575 elements in the nadir view array and 391 in the forward view array, so *pn* runs from 0 to 574 and *pf* runs from 0 to 390. (In fact the AATSR source packet contains only 555 nadir view pixels and 371 forward view pixels, but the arrays were declared slightly oversize in case of changes in the pixel map.)

The x-y co-ordinates are supplied for every 10th pixel in the scan; that is, for the pixels *pn* = 0, 10, 20, … 570, 574 in the nadir view (note the short interval at the end) and pixels *pf* = 0, 10, 20, … 390 in the forward view. This is (58 + 1 + 40 = 99) pixels in all. Co-ordinates of intermediate pixels must be calculated by interpolation. The above set of indices is actually available in the specific product header, in the fields xy_tie_points_pixel_num[0:98]. What the product does not show is the relationship between the relative pixel indices *pn*, *pf*, and the absolute pixel number *p* calculated at Step 1. This is the missing piece of information mentioned.

The relationship is:

(5) Nadir view pixels: *p* = *pn* + first_nadir_pixel_number (*pn* = 0, 574)
(6) Forward view pixels: *p* = *pf* + first_forward_pixel_number (*pf* = 0, 390)

The parameters first_nadir_pixel_number and first_forward_pix-el_number are given in the Level 1b Characterisation File ATS_CH1_AX; their values are:

(7) first_nadir_pixel_number = 213
(8) first_forward_pixel_number = 1305

So, *s* and *p* were calculated in Step 1. Given *s*, then if *s0* is the scan number of the first ADS record, the tie scan corresponding to, or preceding, scan *s* is expected to be at record numbered by *sg* = integer part of[(*s* – *s0*)/32] and should have:

(9) instr_scan_num = 32**sg* + *s0*.

This should be checked, because it might not be true if there are data gaps, in which case one might have to search for the correct ADS record.

Having identified the correct instrument scan, calculate the relative index from the above equations. For example, if the pixel in question is from the nadir view, calculate

(10) *pn* = *p* - first_nadir_pixel_number

then find the x and y co-ordinates by linear interpolation between the adjacent tie pixels. Thus if *pn0* = integer part of *pn*/10,

(11) pixel_x = (1 – *w*)*tie_pix_x[*pn0*] + *w**tie_pix_x[*pn0* + 1]

where *w* = (*pn*/10 – *pn0*), and similarly for tie_pix_y.

If *s* corresponds to a tie scan (i.e. if the ADS record has instr_scan_num = *s*) these are the required x, y coordinates of the pixel. If not, repeat the interpolation for ADS record *sg* + 1 and then interpolate linearly with respect to scan number between the scan pixel co-ordinates.

**Step 3: Interpolate latitude and longitude to the x-y co-ordinate *s* just found.**

How to interpolate the Geolocation ADS to the position of a pixel is described in a note that is actually appended to the AATSR FAQ document on the ENVISAT website, http://envisat.esa.int/handbooks/. It was written with the interpolation to image pixel co-ordinates in mind, but the generalisation to arbitrary co-ordinates should be evident.

## Historical PQRs

| Field: | Contents: |
|---|---|
| PQR Title | Sub-optimal geolocation and view colocation |
| PQR Reference | ENVI-GSOP-EOGD-QD-04-0063 |
| Affected Data Sets | All data processed before 3rd reprocessing (with the worst-affected data being processed before 14 November 2002) |
| Description | The geolocation of the data and the colocation of the forward and nadir views was sub-optimal in all data processed (not acquired) before 14 November 2002 when a new auxiliary Characterisation Data File (ATS_CH1_AX) was introduced. This file contained revised misalignment parameters that improved the nadir and forward view alignment in the across-track direction (previously discrepant by up to 5 pixels).<br><br>Subsequent assessment showed offsets in the absolute nadir geolocation of 1 pixel both across track and along track. The updated CH1 file used in the 3rd reprocessing has removed this discrepancy. The forward view was found to be offset from the nadir view by 1 pixel across track and 2 pixels along track. The updated CH1 file used in the 3rd reprocessing has improved this situation, with a -1 pixel offset in the along track still remaining.<br><br>Work continues to achieve further improvements to both the geolocation and the colocation.<br><br>**Data from 3rd reprocessing:** This PQR is not applicable: absolute nadir geolocation is now to within a pixel, and colocation has been substantially improved. |
| Prepared by | IDEAS AATSR QC Team |
| Originator | P. Goryl |
| Approver | P. Lecomte |

| Field: | Contents: |
|---|---|
| PQR Title | Availability of VC1 files and calibration of visible channel data |
| PQR Reference | ENVI-GSOP-EOGD-QD-04-0064 |
| Affected Data Sets | All data processed before 3rd reprocessing (with the worst-affected data being processed before January 2003). |
| Description | The calibration for the AATSR visible channel data is applied using visible channel calibration auxiliary files (ATS_VC1_AX) provided by the Flight Operations Support team.<br><br>There were several changes to the generation and use of these VC1 files in the operational processing of AATSR data:<br><br>• Before October 2002: a single file generated on 31 July 2002 was used. This means that the calibration of data processed before this date will not account for calibration drifts.<br><br>• October 2002 – January 2003: the daily system for producing VC1 files was being introduced but was not yet stable, meaning that the frequency of the update of the calibration could range from once per day to once per week (fortunately the radiometric response of the visible channels only decreased by approx. 0.5% per week so the impact on measured reflectances should have been small).<br><br>• January 2003 – 01 February 2007: a VC1 file was provided on a daily basis.<br><br>• After 01 February 2007: VC1 files were generated on a more frequent basis, resulting in the production of around 10 VC1 files per day.<br><br>To establish the date of the calibration that has been applied to the data, users should examine the Data Set Descriptors in the Specific Product Header of their products. All auxiliary files used to generate each product are listed, and their generation date and validity range can be deduced from their filename.<br><br>Users should also refer to the following PQRs as these are also related to the calibration of visible channel data:<br><br>• ENVI-GSOP-EOGD-QD-04-0066: Calibration of visible channels during and immediately after outgassing<br><br>• ENVI-GSOP-EOGD-QD-14-0119: Visible channel calibration drift correction<br><br>**Data from 3rd reprocessing:** This PQR is not applicable, because as complete a set of VC1 files as possible was generated from the full archive of AATSR data for use in the 3rd reprocessing. These were generated for each orbit, where possible, and the files were given a 24-hour validity range, centred on the time of the viscal peak from which they were created. (Any gaps in the coverage from this approach were then filled with extended range files.) Hence the visible calibration has been optimised for these data. |
| Prepared by | IDEAS AATSR QC Team |
| Originator | P. Goryl |
| Approver | P. Lecomte |

| Field: | Contents: |
|---|---|
| PQR Title | Visible channel calibration drift correction |
| PQR Reference | ENVI-GSOP-EOGD-QD-14-0119 (issue date: 12 May 2014) |
| Affected Data Sets | All data processed before 18 December 2006 |
| Description | Analysis of the long term stability of AATSR visible channel calibration has shown that the drift does not follow a linear trend. Corrections for the calibration drift were introduced throughout the operational lifetime:<br>• 29 November 2005: Exponential Drift Correction (PO-TN-RAL-AT-0542)<br>• 18 December 2006: Thin Film Drift Correction (PO-TN-RAL-AT-0552)<br>Further analysis showed that a simple parametric model could not adequately account for all variations in the measured drift. A look-up table of the smoothed average of the drift measurements was generated for use in the third reprocessing.<br>For data processed before the use of this LUT, guidance on what corrections may be needed and how to apply them is available from: http://www.aatsrops.rl.ac.uk/PERFCAL/OtherInfo/<br>**Data from 3rd reprocessing:** This PQR is not applicable, as the table of measured drift was applied to the set of VC1 files used in the 3rd reprocessing. |
| Prepared by | IDEAS+ AATSR QC Team |
| Approver | P. Goryl |

| Field: | Contents: |
|---|---|
| PQR Title | Incorrect 1.6 µm non-linearity correction applied |
| PQR Reference | ENVI-GSOP-EOGD-QD-14-0129 (issue date: 12 May 2014) |
| Affected Data Sets | All data processed before 14 December 2004 |
| Description | Comparisons of AATSR and ATSR-2 data suggested that the non-linearity correction had not been applied in the calibration of the 1.6 micron channel of AATSR.<br><br>This means that for values > 20%, the TOA reflectances in the L1b product are low (see Fig. 1 below).<br><br>This was traced to an inconsistency in the scaling used between the auxiliary files ATS_INS_AX and ATS_GC1_AX (see additional notes below for details).<br><br>The solution was to modify the ATS_GC1_AX file. The new file became active within the PDS on 14 December 2004. All data processed after this date will have the correct 1.6 µm non-linearity correction applied. However, users should also consult the following PQR:<br><br>• ENVI-GSOP-EOGD-QD-14-0120: 1.6 µm calibration anomaly<br><br>Users can retrospectively correct data processed before 14 December 2004 using the method described in PO-TN-RAL-AT-0540 “Applying the 1.6µm Nonlinearity Correction to AATSR GBT product”.<br><br>Alternatively, information is also available in Section 5 Methodology at:<br>http://www.aatsrops.rl.ac.uk/PERFCAL/OtherInfo/<br><br>**Data from 3rd reprocessing:** This PQR is not applicable, because the corrected GC1 file was used in this reprocessing. |
| Prepared by | IDEAS+ AATSR QC Team |
| Approver | P. Goryl |

| Field: | Contents: |
|---|---|
| PQR Reference | Additional notes for PQR ENVI-GSOP-EOGD-QD-14-0129 |
| The argument of the 1.6-micron channel non-linearity correction table in the General Calibration Data File ATS_GC1_AX is (C/g), where C is the raw channel count, and g is the gain of the 1.6 micron channel. Therefore the tabular argument must depend on the units in which the gain g is expressed.<br><br>In the non-linearity correction table, the tabular argument was scaled on the assumption that the telemetry conversion factor applied to the 1.6 micron channel gain would be the same as that for ATSR-2. That is to say, it was assumed that a conversion from the raw binary gain value to engineering units would be applied as in ATSR-2 processing. However, for AATSR no conversion is defined for the channel gain in the Instrument Data File ATS_INS_AX.<br><br>Consequently the processor was using the unconverted value of the gain g to scale the raw count. This had the effect that for most realistic values of reflectance, the scaled count (C/g) fell in the lowest tabular interval of the non-linearity correction table. The non-linearity correction then reduces to multiplication by a constant factor, which is the same for both | |

scene and VISCAL pixels. It will therefore cancel when the ratio of the pixel and VISCAL counts is taken, and the net result is identical to the application of a linear calibration.

The situation could be corrected by changing either the ATS_INS_AX or ATS_GC1_AX file to be consistent with the other. The decision was eventually taken to rescale the data in the GC1 file by a factor 50/4096 to bring them into line with the scaling in the INS file.

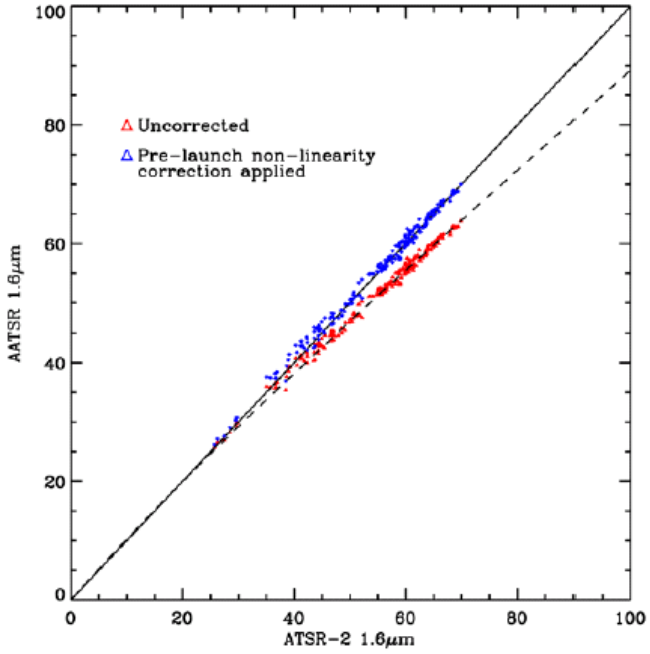


**Figure 1** Comparisons of AATSR 1.6μm TOA reflectances over desert targets vs. ATSR-2 1.6 μm BRDF, shown before (red) and after (blue) applying the non-linearity correction to the AATSR data.

| Field: | Contents: |
|---|---|
| PQR Title | 1.6 µm calibration anomaly |
| PQR Reference | ENVI-GSOP-EOGD-QD-14-0120 (issue date: 12 May 2014) |
| Affected Data Sets | Data between 2002 and 2004 that was processed with IPF v6.01 |
| Description | Comparisons of desert data from IPF versions v6.01 and v5.59 IPF have shown ~5% differences in 1.6 µm reflectances over the period between 2002 and 2004.<br><br>Inspection of the auxiliary files used showed that the v6.01 products had used an updated GC1 file but VC1 files that had been generated before the update of the GC1 file in December 2004 for the 1.6 µm non-linearity correction [see PQR ENVI-GSOP-EOGD-QD-14-0129: Incorrect 1.6 µm non-linearity correction applied]. It transpired that VC1 files for 2002–2004 were never regenerated from GADS from L1b products that had been processed with the updated GC1 file.<br><br>Information on how to correct for this effect is available from: http://www.aatsrops.rl.ac.uk/PERFCAL/OtherInfo/<br><br>**Data from 3rd reprocessing:** This PQR is not applicable, as the complete set of VC1 files used in the 3rd reprocessing were generated from L1b files that had been corrected for the 1.6 µm non-linearity. |
| Prepared by | IDEAS+ AATSR QC Team |
| Approver | P. Goryl |

| Field: | Contents: |
|---|---|
| PQR Title | Banding problem in consolidated data (errors loading 12 µm gross cloud tests LUT) |
| PQR Reference | ENVI-GSOP-EOGD-QD-14-0121 (issue date: 12 May 2014) |
| Affected Data Sets | Consolidated products processed with IPF versions before v5.60 (18 January 2007) |
| Description | A problem with the loading of the "12 micron gross cloud test" LUT from the ATS_CL1_AX auxiliary file by the IPF caused the gross cloud test flag in the forward view to be set almost everywhere in certain latitude bands for consolidated December products for all years. The position of the latitude bands affected depends on the exact build of the processor (i.e. products generated at different processing centres have different characteristics).<br><br>The problem was rectified with the release of IPF V5.60 which was brought into operation on 18 January 2007. All data processed (not acquired) before this date will have been affected.<br><br>**Data from 3rd reprocessing:** This PQR is not applicable, as a later IPF version was used. |
| Prepared by | IDEAS+ AATSR QC Team |
| Approver | P. Goryl |

| Field: | Contents: |
|---|---|
| PQR Title | Child product first MDS/ADS record displacement |
| PQR Reference | ENVI-GSOP-EOGD-QD-14-0124 (issue date: 12 May 2014) |
| Affected Data Sets | All child products from 2006 until July 2008 |
| Description | At an unknown point, a parameter was changed in the software used to generate child products, allowing these to start at an arbitrary row. That is, the first row of the Measurement Data Set (MDS) no longer had to correspond with the beginning of a granule (32 rows) of AATSR data.<br><br>AATSR Auxiliary Data Sets (ADS), apart from the scan pixel x and y ADS and the Summary Quality ADS, are compiled one per granule. Hence, if a child product was allowed to start part way through a granule, then the first geolocation ADS would start at the end of that granule, part way into the child product. This would lead to a perceived geolocation error due to the misalignment between the MDS and the ADS. This can be easily checked for by comparing the times of the first line records of the MDS and an ADS.<br><br>**Data from 3rd reprocessing:** This PQR is not currently applicable, as child products ordered through MERCI are unaffected. (There is a possibility that it could apply in the future with a different ordering system.) |
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