



S3 Product Notice – OLCI

Mission	S3A & S3B	
Sensor	OLCI	
Product	<ul style="list-style-type: none"> • OL_1_EFR in NRT and NTC • OL_1_ERR in NRT and NTC 	
Product Notice ID	S3.PN-OLCI-L1.04	EUM/OPS-SEN3/DOC/18/1042899
Issue/Rev Date	12/12/2018	
Version	1.0	
Preparation	This Product Notice was prepared by the S3 Mission Performance Centre and by ESA and EUMETSAT experts	
Approval	Joint ESA-EUM Mission Management	

Summary

This Product Notice addresses both Sentinel-3A and -3B Ocean and Land Colour Imager (OLCI-A and OLCI-B) Level-1B processing baselines deployed on 12/12/2018. It is applicable to Near Real Time (NRT) and Non-Time Critical (NTC) timeliness.

The Notice describes the current Level-1B status, the processing baseline, the product quality and known limitations for both OLCI-A and OLCI-B.

The main change to the previous release of this product notice is related to the public release of Sentinel-3B OLCI Level-1B products.



Processing Baselines

	S3A	S3B
Processing Baseline	<ul style="list-style-type: none"> Processing Baseline: 2.42 	<ul style="list-style-type: none"> Processing Baseline: 1.14
IPFs version	<ul style="list-style-type: none"> OL_1 IPF version: 06.08 	<ul style="list-style-type: none"> OL_1 IPF version: 06.08
	<ul style="list-style-type: none"> PUG version: 03.35 	<ul style="list-style-type: none"> PUG version: 03.35

Current Operational Processing Baselines

IPF	IPF / PB Version	Into operation since
S3A OL1	06.08 / 2.42	<p>Land Centres:</p> <p>NRT mode: 12/12/2018 11:16 UTC NTC mode: 12/12/2018 11:16 UTC</p> <p>Marine Centre:</p> <p>NRT mode: 12/12/2018 11:16 UTC NTC mode: 12/12/2018 11:16 UTC</p>
S3B OL1	06.08 / 1.14	<p>Land Centres:</p> <p>NRT mode: 12/12/2018 10:37 mm UTC NTC mode: 12/12/2018 10:37 mm UTC</p> <p>Marine Centre:</p> <p>NRT mode: 12/12/2018 10:37 UTC NTC mode: 12/12/2018 10:37 UTC</p>
PUG	03.35	



Status of the Processing Baselines

S3A

The current processing baseline for Sentinel-3A OLCI Level-1B products is v2.42. The baseline was deployed in the processing centres on 12/12/2018 at the Land and Marine Centres. The status of the baseline is as follows:

The major changes from the last processing baseline 2.29 are the following:

- Update of the Dark Correction Tables to minimize Periodic Noise impact

The quality status of this baseline products is as follows:

Geometric Calibration

- OLCI geolocation accuracy meets the mission requirements in terms of global RMS value (0.5 pixel according to [S3 MRTD, 2011](#)) with a performance around 0.3 pixel. Validation of the updated Geometric Calibration, using Landsat ground control points on Non Time Critical data since 14 March 2018 shows the following geolocation accuracy per camera:

Camera Module	Georeferencing Biases (pixels)	
	Across Track	Along Track
1	-0.08	-0.09
2	-0.09	-0.09
3	-0.08	-0.06
4	-0.07	-0.17
5	-0.06	-0.08

It must be noted that the Along-Track bias of camera 3 is degraded with respect to other cameras performance due to an apparent small drift that was not fully captured by the last geometric calibration.



Spectral Calibration

- OLCI spectral model accuracy meets the mission requirements ([S3 MRTD, 2011](#)). The model uses in-flight data from spectral calibrations. The calibrations bring small changes to the central wavelengths compared to OLCI pre-launch characterizations and a more significant change to channel Oa1 (400 nm) with up to 0.4nm difference. Consistently with the solar spectrum variability, the most significant change is in in-band irradiance of channel Oa1 (up to around 1.5%) with the same impact on radiometry. OLCI spectral response information and datasets are provided in a separate note ([S3 OLCI-A SRF, 2016](#)).

Radiometric Calibration

- Radiometric validation results demonstrate that OLCI absolute radiometric calibration is comparable with its heritage instrument, MERIS, and that OLCI has a positive bias of about 2 to 3 percent throughout all bands, with the exception of band Oa21 (1020nm) at about 6 percent, OLCI being too bright. Actions are in place to achieve OLCI radiometric compliancy (2% absolute accuracy below 900 nm, 5% above 900 nm, [S3 MRTD](#)).
- The OLCI Radiometric Model is based on the entire set of in-flight radiometric calibrations. It includes radiometric gain coefficients at a reference date and a long-term evolution model. The set of radiometric gain coefficients used to derive both the Reference Gains and the Evolution Model have been computed using up-to-date geometric and spectral calibration and instrument settings and most of all an upgraded diffuser BRDF model based on in-flight data and diffuser ageing (browning) correction. The Radiometric Model is continuously monitored against new Radiometric Calibration acquisitions.

S3B

The current processing baseline for Sentinel-3B OLCI Level-1B products is v1.14. The baseline was deployed in the processing centres on 12/12/2018 at the Land and Marine Centres. The status of the baseline is as follows:

The quality status of this baseline products is as follows:

- Geometric calibration
 - OLCI-B geolocation accuracy has been tested on reprocessed data and has been found within the requirements in both the along-track and across-track directions for all cameras.
 - A negative trend is however still present in along-track biases and may yield to non-compliance in the mid-term (around end of February 2019 at the current worst drift rate of 0.1 pixel/month – camera 2 – but it seems that drift is slowing down). Regular monitoring will continue so that appropriate actions can be triggered.



- Spectral calibration information
 - The OLCI-B spectral model is based on the pre-launch spectral characterisation. Spectral calibration acquisitions carried out so far have shown a very close agreement to the pre-launch characterization with small changes to the central wavelengths of max. 0.25 nm. Moreover the calibrations show an excellent consistency across the spectral range and also with time. OLCI spectral response information and datasets are provided in a separate note ([S3 OLCI-B SRF, 2018](#)).
- Radiometric calibration information
 - OLCI-B radiometric calibration uses data derived from a recent in-flight calibration with the nominal diffuser (05/11/2018). Radiometric gain coefficients have been computed using up-to-date geometric and spectral calibration and instrument settings. Initial radiometric validation using indirect methods shows that OLCI-B provides measurements within the mission requirements of < 2% for the spectral range < 900nm (S3 MRTD, 2011). OLCI-B radiometry is comparable to MERIS and by about 1%, about 2% lower than OLCI-A (OLCI-A has a bright bias). Similarly to OLCI-A the 1020nm band is subject to a bright bias of about 4%. These early results show an excellent performance but full radiometric assessment is however continuing.

Known product quality limitations

Common to S3A and S3B

Radiometric Calibration

- Vertical striping at the first 100 pixels at camera interfaces can be observed in bands O19 and O20. The effect is known as periodic noise. A correction for this noise is under investigation.
- Single anomalous pixels, in particular in the region of the South Atlantic Anomaly, may occur due to prompt particle events.

Straylight

- Verification of the OLCI straylight correction performance is ongoing.

Flags

- Accuracy of OLCI L1B product flags is under assessment. No issue has been identified so far.

Per-pixel uncertainty estimates

- Uncertainty estimates for OLCI radiances for all bands are not yet available in the products.



S3A

- Nothing specific to S3A

S3B

Geometric accuracy

- A slight degradation of the geolocation accuracy is observed at the very edge of camera 1 towards West



Products Availability

- Copernicus Open Access Hub (<https://scihub.copernicus.eu/>), NRT and NTC
- Copernicus Online Data Access (<https://codam.eumetsat.int/>), NRT and NTC
- EUMETCast (<https://eoportal.eumetsat.int/>), NRT
- EUMETSAT Data Centre (<https://eoportal.eumetsat.int/>), NRT and NTC

Product	EUMETCast	ODA*	CODA**	EUMETSAT Data Centre
L1 RR	NRT	NRT, NTC	NRT, NTC	NRT, NTC
L1 FR	NRT	NRT, NTC	NRT, NTC	NRT, NTC

* ODA is available only for Copernicus Services and S3VT users

** CODA is the pilot service Copernicus Online Data Access and is available to all users

Any other useful information

- None

User Support

- Questions about OLCI products can be asked to the Sentinel-3 User Support desk at:
 - eosupport@copernicus.esa.int
 - ops@eumetsat.int



References

- Sentinel-3 Mission Requirements Traceability Document (MRTD), C. Donlon, EOP-SM/2184/CD-cd, 2011. <https://sentinel.esa.int/documents/247904/1848151/Sentinel-3-Mission-Requirements-Traceability>
- Sentinel-3 OLCI-A spectral response functions (SRF), Sentinel 3 CalVal Team, S3-TN-ESA-OL-660, 2016: <https://sentinels.copernicus.eu/documents/247904/2700436/Sentinel-3-OLCI-A-spectral-response-functions>
- Sentinel-3 OLCI-B spectral response functions from pre-flight characterisation, Sentinel 3 CalVal Team, <https://sentinels.copernicus.eu/documents/247904/2700436/Sentinel-3-OLCI-B-spectral-response-functions>
- Product Data Format Specification – OLCI Level 1 Instrument Products, Ref: S3IPF.PDS.004.1, Issue: 2.2, Date: 09/10/2017
 - <https://sentinel.esa.int/web/sentinel/user-guides/sentinel-3-olci/document-library>
 - <https://www.eumetsat.int/website/home/Data/TechnicalDocuments/index.html>

Static ADFs updated

S3A

- S3A_OL_1_CAL_AX_20181105T213730_20991231T235959_20181122T120000_____MPC_O_AL_019.SEN3

S3B

- S3B_OL_1_CAL_AX_20181105T000000_20991231T235959_20181122T120000_____MPC_O_AL_005.SEN3

End of the Product Notice