

Product Quality Disclaimer

Field:	Contents:	Filled by:
Product Quality Disclaimer Number	ENVI-GSOP-EOGD-QD-05-0082	SPPA Manager
Affected Data Sets	All ASAR Alternating Polarisation (AP) Level-1 products processed with PF-ASAR version lower than 4.02	SPPA Engineer
Disclaimer Title	Degraded geolocation accuracy.	SPPA Engineer
Product Specification References	The specifications for ASAR Level 1 products can be found in Section 2.6.2 of the Product Handbook: http://envisat.esa.int/dataproducts/asar/CNTR2-6-2.htm#eph.asar.prodalg.levb.prod	SPPA Engineer
Description	<p>There is a shift in the zero-Doppler azimuth times annotated in the AP Level-1 products (this applies to the product zero-Doppler times and does not apply to other external times, such as the state vectors azimuth times). Similarly, the geolocation information annotated in the ASAR AP Level-1 products (latitude/longitude coordinates in the SPH and in the geolocation grid) is offset w.r.t. the true product location.</p> <p>Therefore, product geolocation performed both using the annotated SPH or LADS coordinates and using the zero-Doppler azimuth time tags results in a product mis-location.</p> <p>The absolute location error varies depending on the location of the product within the acquired AP segment. The closest is the product to the start of the AP acquisition, the smallest is the resulting error. Roughly, for an AP product located 16 seconds after the start of the AP acquisition, the location error will be about 115 m.</p> <p>The error can be fully characterised and can therefore be corrected by the user on AP Level-1 products (except APG products) but only when geolocation is performed using the zero-Doppler time tags. This is because it is currently not possible to correct the annotated geolocation information, only the zero-Doppler product time tags can be corrected.</p> <p>The problem is solved for products processed with PF-ASAR version 4.02 or higher.</p> <p>The following steps describe how to correct the product zero-Doppler time annotations and the information required to do so.</p> <p><u>Summary of required information:</u></p> <p>1) Level-0 start time from the name of the Level-0 product used for the processing. - The Level-0 file name is annotated in the product SPH Data Set Descriptors section, and identified with the data set descriptor name "LEVEL 0 PRODUCT". See http://earth.esa.int/pub/ESA_DOC/ENVISAT/ASAR/AS</p>	SPPA Engineer

	<p>AR_productspecs_issue4A.pdf , section 8.4.1.8 for a more detailed description.</p> <ul style="list-style-type: none"> - The Level-0 file name can also be read using EnviView, selecting “View as HTML” and then viewing the SPH. - The start time of the Level-0 product used for the processing can be extracted for the Level-0 file name (up to the seconds accuracy). The location of the product start time within the file name is shown in red in the following example, which corresponds to a product acquired on 2005-01-08 at 07:26:51 UTC: ASA_APH_0CNPDK20050108_072651_000000482033_00364_14947_0191.N1 <p>2) Pulse Repetition Interval (PRI) code</p> <ul style="list-style-type: none"> - The PRI code shall be read from the AP Level-1 MPP, field 35 <p>3) Level-1 Sensing start time</p> <ul style="list-style-type: none"> - The AP Level-1 product Sensing Start time shall be read from the MPH, field10 (tag “SENSING_START”). <p><u>Time correction calculation</u></p> <ol style="list-style-type: none"> 1) $PRI = (PRI \text{ code}) / (\text{Sampling Frequency}) [\text{sec}]$ Sampling Frequency = 19.2076799E6 Hz 2) $Time_sub_cycle = M * PRI [\text{sec}]$ (see “M” values per beam in table below) 3) $Time_difference = \text{Sensing start time} - (\text{L0 start time} + 0.5 \text{ sec}) [\text{sec}]$ 4) $Number_sub_cycles_skipped = \text{Time_difference} / \text{Time_sub_cycle}$ 5) $Time_correction = \text{Number_sub_cycles_skipped} * 2 * PRI$ <i>Note: Number of sub-cycles shall be rounded to integer +/- 0.5</i> <table border="1"> <thead> <tr> <th>Beam</th> <th>M</th> </tr> </thead> <tbody> <tr> <td>IS1</td> <td>1550</td> </tr> <tr> <td>IS2</td> <td>1566</td> </tr> <tr> <td>IS3</td> <td>2054</td> </tr> <tr> <td>IS4</td> <td>1742</td> </tr> <tr> <td>IS5</td> <td>2214</td> </tr> <tr> <td>IS6</td> <td>1902</td> </tr> <tr> <td>IS7</td> <td>2374</td> </tr> </tbody> </table> <p><u>Time correction:</u></p> <ol style="list-style-type: none"> 1) The zero-Doppler times annotated in the product shall be corrected as: annotated time + Time_correction 	Beam	M	IS1	1550	IS2	1566	IS3	2054	IS4	1742	IS5	2214	IS6	1902	IS7	2374	
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Approver		SPPA Manager																