

# ENVISAT ASAR MONTHLY REPORT

SEPTEMBER 2011



## PUBLIC SUMMARY

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## **1 EXECUTIVE SUMMARY**

This document summarizes the instrument and product quality status as derived from data acquired during September 2011.

There was one TRM failure and no ASAR unavailabilities during the reporting period.

The list of unavailability periods is provided in Chapter 2 together with details of any data disclaimers issued during the reporting period. Chapter 3 provides information on the background regional mission (BRM) planning. Details on the Doppler Centroid evolution are provided in chapter 4. Radiometric stability is measured by means of ASAR transponders. Detailed results are provided in chapter 5. An updated list of auxiliary data files is provided in chapters 6 and 7.

## 2 INSTRUMENT STATUS

There was one transmit receive module failures in September 2011.

The following Antenna Transmit/Receive Modules (TRMs) have failed since launch:

- TRM-01 to 04 in tile C1: H & V polarisation transmit failed since May 2002
- TRM-01 to 04 in tile D2: H & V polarisation transmit and receive failed since 18th February 2003
- TRM-14 in tile B2: H polarisation transmit failed since 12th April 2004
- TRM-15 in tile A1: failed to transmit in V polarisation since 17th May 2004
- TRM-06 in tile A1: failed to transmit in V polarisation since 17th November 2004
- TRM-12 in tile C4: failed to transmit in H polarisation since 16th January 2005
- TRM-02 in tile D3: failed to transmit in V polarisation since 20th November 2005
- TRM-03 in tile A3: failed to transmit in H polarisation since 28th January 2007
- TRM-01-02-03-04 in tile B3: failed to transmit and receive in H & V polarisation since 2nd February 2007
- TRM-02 in tile B1: failed to transmit in H polarisation since 6th May 2007.
- TRM-08 in tile E4: failed to transmit in H polarisation since 20th July 2008
- TRM-05 in tile E4: failed to transmit in V polarisation since 22nd October 2008.
- TRM-10 in tile E4: failed to transmit in H polarisation since 1st January 2009.
- TRM-04 in tile D4: failed to transmit in V polarisation since 5th January 2009.
- TRM-07 in tile D2: failed to transmit in H polarisation since 7th July 2009.
- TRM-01 in tile A2: failed to transmit in H polarisation since 15th September 2009.
- TRM-05 in tile D2: failed to transmit in H polarisation since 6th October 2009.
- TRM-16 in tile E4: failed to transmit in V polarisation since 8th December 2009.
- TRM-8 in tile B4: failed to transmit in H polarisation since 26<sup>th</sup> June 2010.
- TRM-15 in tile C2: failed to transmit in H polarisation since 16<sup>th</sup> October 2010.
- TRM-14 in tile D2: failed to transmit in V polarisation since 10<sup>th</sup> March 2011.
- TRM-9 in tile B1: failed to transmit in H polarisation since 26<sup>th</sup> April 2011.
- TRM-12 in tile A1: failed to transmit in H polarisation since 19<sup>th</sup> May 2011.
- TRM-04 in tile B1: failed to transmit in H polarisation since 6th June 2011.
- TRM-08 in tile B3: failed to transmit in V polarisation since 13<sup>th</sup> September 2011.

Please note that single TRM transmit failures have a minimal impact on the instrument performance and on the antenna pattern shape. The impact of multiple TRM failures is mitigated by the generation of new antenna patterns.

## 2.1 *Instrument Unavailability*

The new events with respect to the previous report are given in the table below. Please note that the full unavailability list is available in Appendix A.

Unavailability report reference	Start	Stop

## 2.2 *Data Disclaimer*

A data quality disclaimer is issued each time that ASAR data of degraded quality is acquired between specific time intervals.

Details on the available disclaimers are provided online at <http://earth.eo.esa.int/pcs/envisat/asar/disclaimer>. Please note that the full disclaimer list is also available in Appendix B.

### 3 LOW RATE BACKGROUND REGIONAL MISSION

The current Low Rate BRM definition is provided below:

Mode	Where	Swath	Polarisation
Wave	Over the sea (~15 sec from the coast line), including the Mediterranean Sea.	IS2	VV
Wave	Wave Mode Swath 4 - VV polarisation was acquired along the full orbit#49153 on 24th July 2011.	IS4	VV
Wave	From orbit#49154 the nominal Wave Mode Swath 2 - VV polarisation was resumed.	IS2	VV

Mode	Where	Polarization
Global Monitoring	Up to -65 deg from January to March Up to -55 deg from July to October	<b>HH:</b> over land, ice and sea-ice including the following areas: - Europe - Antarctica extended - Cyclone zones added - Arctic - Greenland and Greenland Sea - Labrador Sea and North of Canada - Kara Sea - Baffin Bay - <i>Gulf of Mexico &amp; Caribbean Sea</i> <b>VV:</b> None. All GM acquisitions in HH

Further details of the background mission can be found in reference 'ASAR Low Bit Rate Background Mission Planning Strategy', ESA, ENVI-CLVL-EOPG-TN-06-0008, Issue 1, May 2006 and from the ASAR Background Region Mission web site at <http://earth.esa.int/object/index.cfm?fobjectid=4045>.

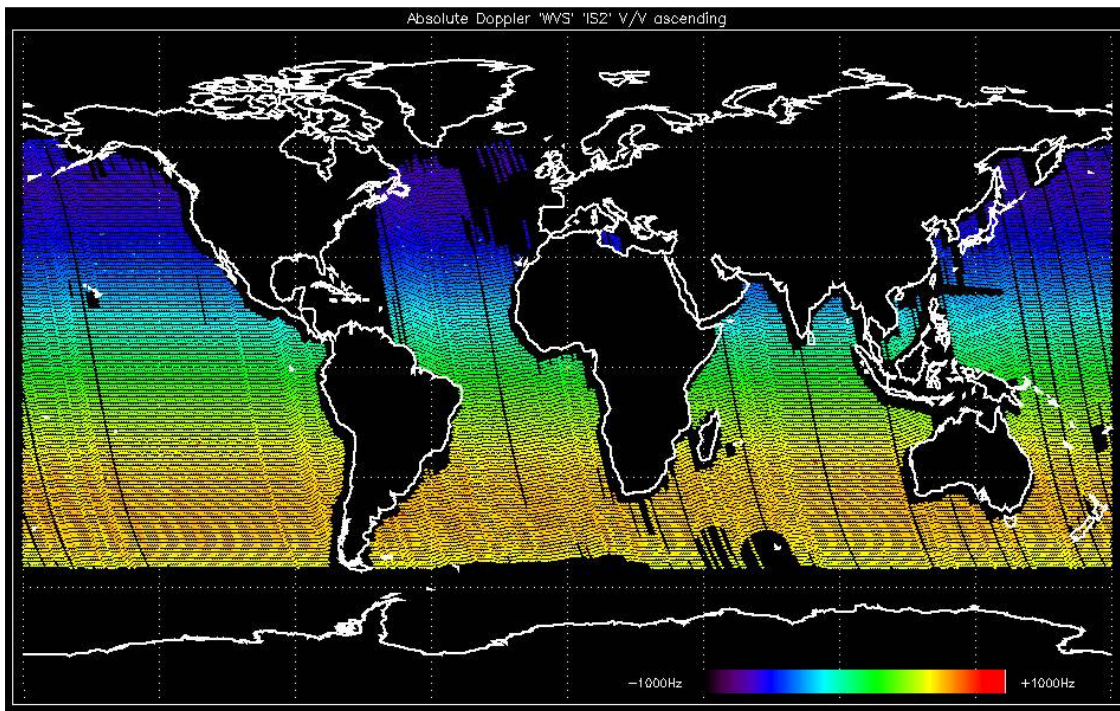
The Gulf of Mexico and Caribbean Sea acquisitions have been planned from 15<sup>th</sup> July 2010, in addition, GM data has been acquired over Madagascar and Indonesia since 11th February 2010.

## 4 DOPPLER MONITORING

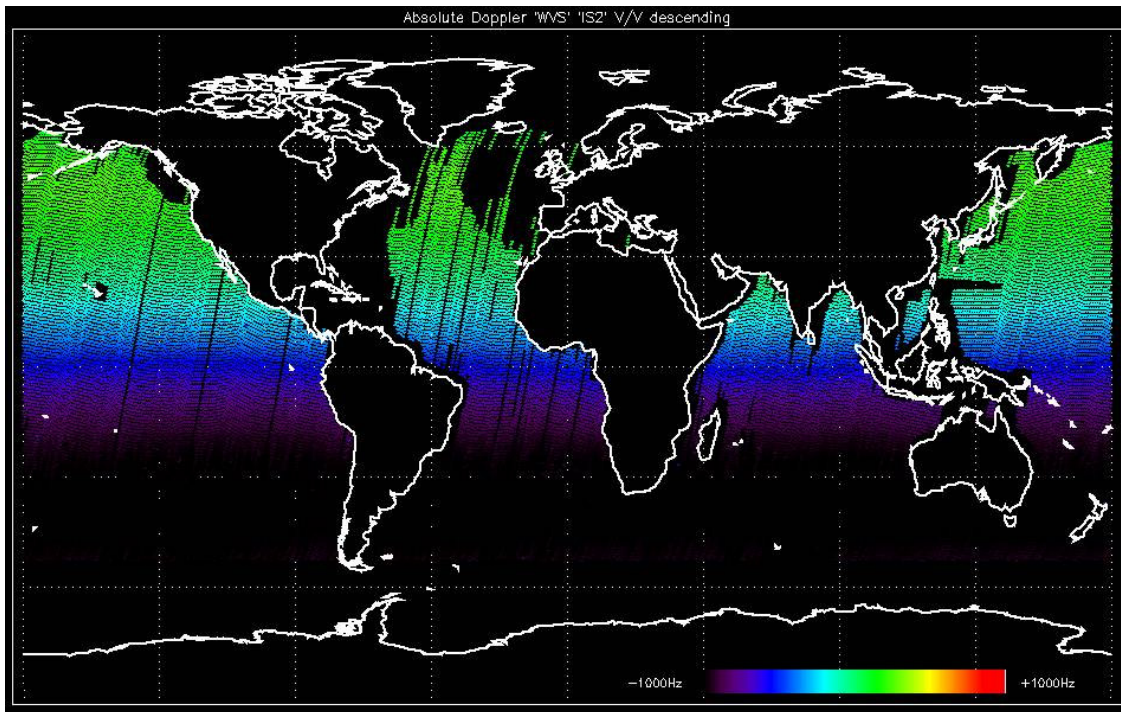
The Envisat Orbit Control Manoeuvres (OCM) can affect the platform attitude stability even hours after the burst with a direct impact on the Doppler centroid frequency evolution. An updated list of the OCM can be found at <http://nng.esoc.esa.de/envisat/ENVmano.html>.

The plots of the Figure 4.1 and Figure 4.2 show the evolution of the Doppler centroid over the world for the 30 days prior to the end of the reporting period. No anomaly on the Doppler centroid distribution is noticed.

### 4.1 *Absolute WV-IS2 Doppler Centroid Evolution*



(a) absolute Doppler in ascending passes

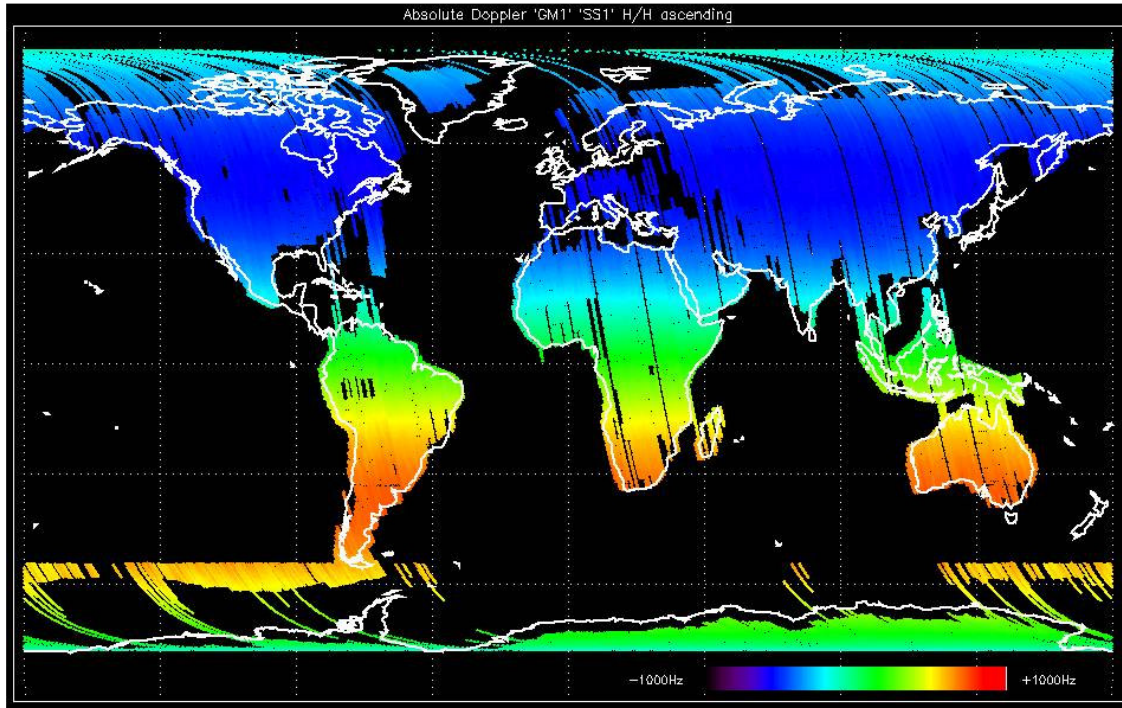


(b) absolute Doppler in descending passes

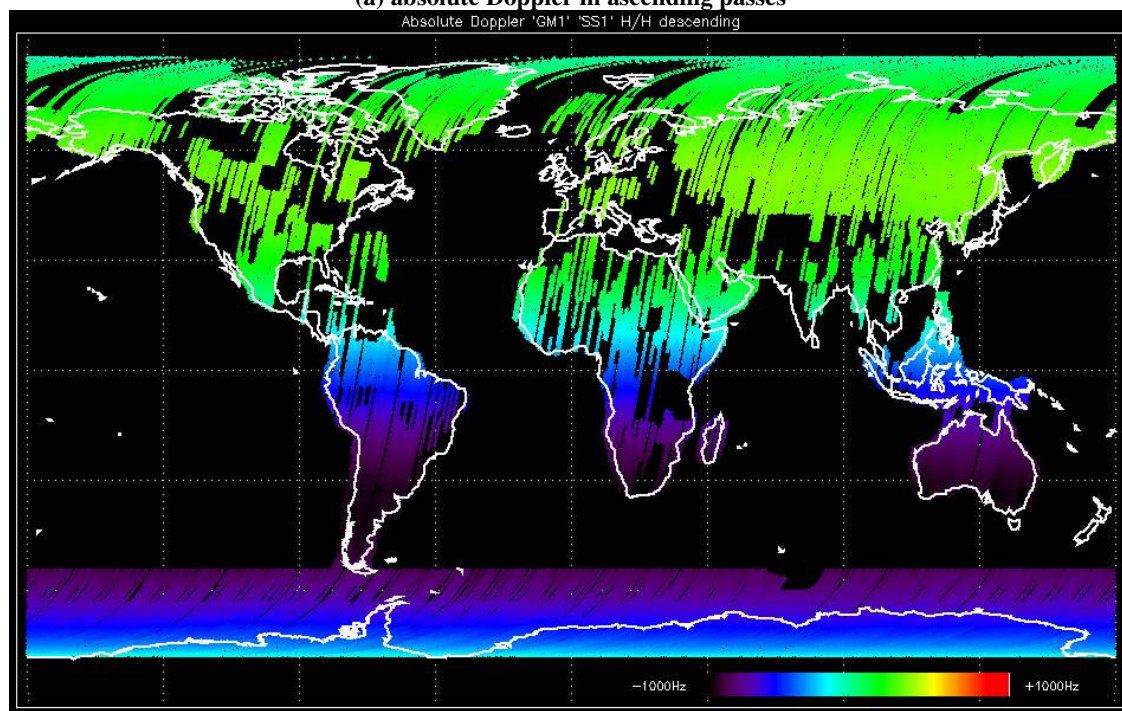
Figure 4.1: Absolute Wave mode Doppler evolution over the world



## 4.2 Absolute GM SS1 Doppler Centroid Evolution



(a) absolute Doppler in ascending passes



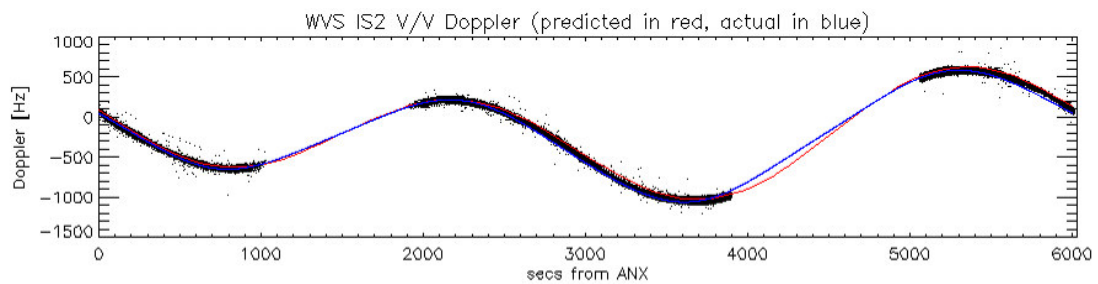
(b) absolute Doppler in descending passes

Figure 4.2: Absolute GM mode Doppler evolution over the world

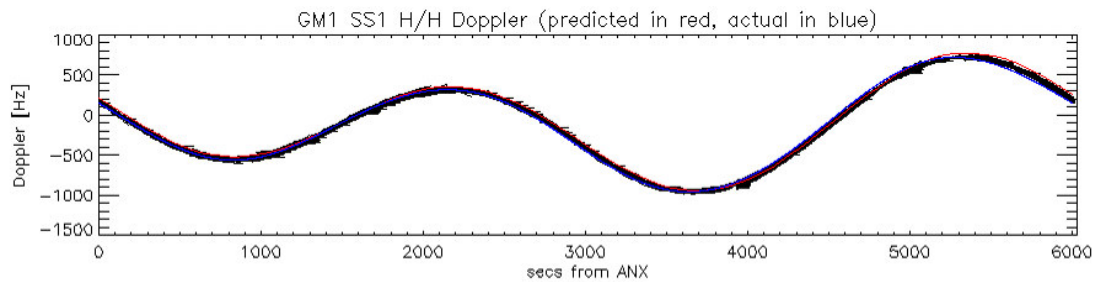
### 4.3 Absolute Doppler Centroid Evolution vs ANX

Figure 4.3(a) shows the wave mode Doppler evolution (IS2, VV) against the elapsed seconds from the ascending node (ANX) for data acquired during the current month. Theoretical Doppler is in red while the blue curve stands for Doppler evolution model obtained by Fourier series decomposition. Figure 4.3(b) shows a similar plot derived from global monitoring data.

The plots show a better agreement of Doppler values between predicted and actual Doppler. This is because the predicted Doppler curves have been corrected for ENVISAT 2010+ mission extension and are now incorporated in the software.



(a) Wave mode Doppler

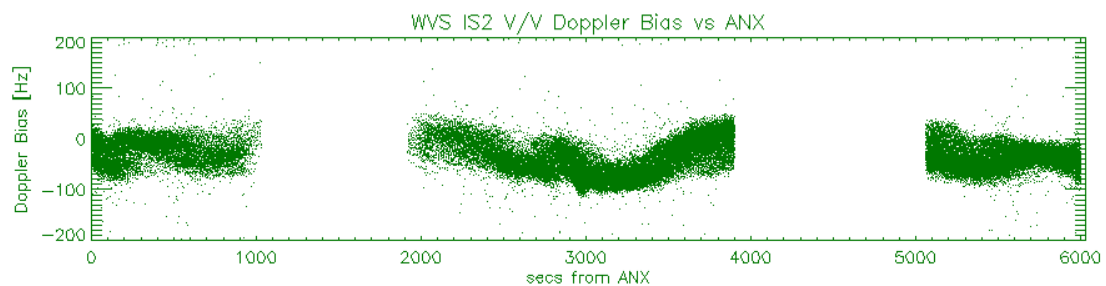


(b) GM1 Doppler

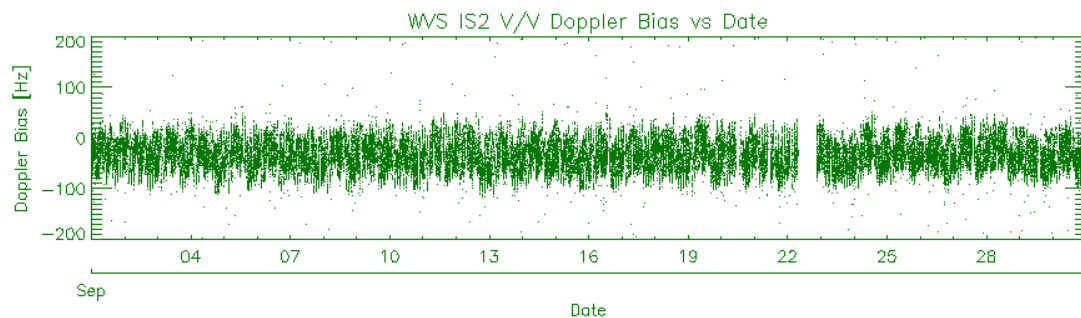
Figure 4.3: Absolute Doppler Centroid evolution wrt elapsed seconds since ANX

## 4.4 Residual Doppler Centroid Evolution vs. ANX and Time of Day

Figure 4.4 shows the wave mode residual Doppler evolution (IS2, VV) against the elapsed seconds from the ascending node (ANX) (a) and versus the time of the day (UTC time) (b) for data acquired during the current month. Figure 4.5 shows the same information but for data acquired in GM1 mode.

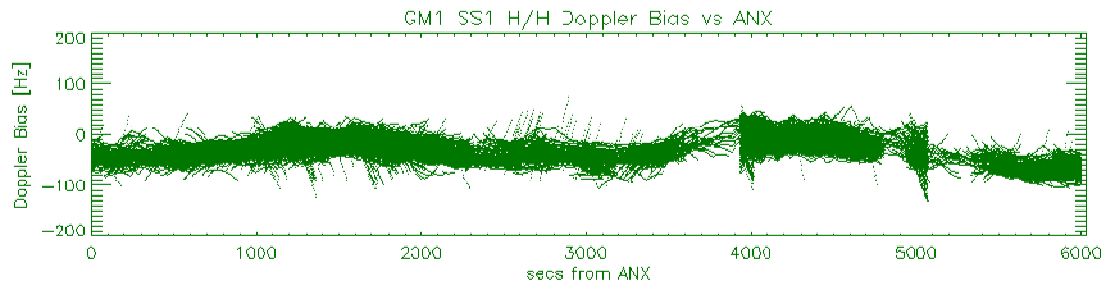


(a) residual Doppler evolution vs elapsed seconds since ANX

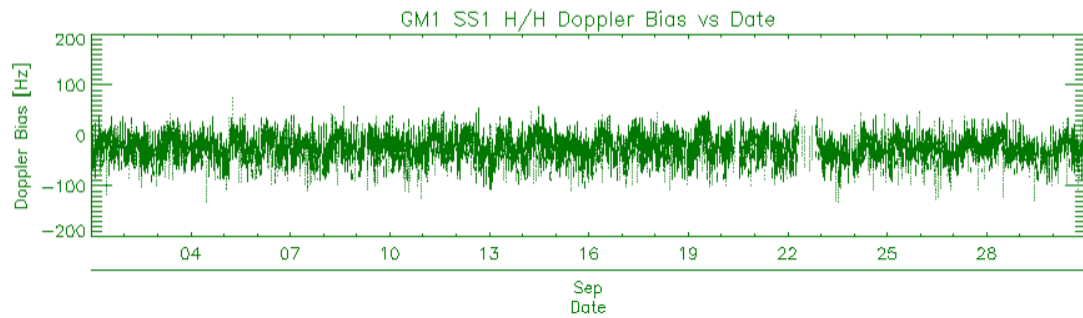


(b) residual Doppler evolution versus time of day

**Figure 4.4: Residual Doppler centroid evolution for WVS data**



**(a) Doppler evolution versus elapsed seconds since ANX**



**(b) residual Doppler evolution versus time of day**

**Figure 4.5: Residual Doppler centroid evolution for GM1 data**

## 5 IMAGE QUALITY AND RADIOMETRIC ANALYSIS

The analysis of the ASAR transponders is used to characterise ASAR products in terms of:

- ✓ spatial resolution,
- ✓ Impulse Response Function (IRF) parameters (ISLR, PSLR, SSLR) and
- ✓ Absolute calibration factor.

The analysis is performed for all the modes, beams and polarisations.

Table 5.1 shows the relative Radar Cross Section (RCS)<sup>1</sup> per mode, beam and set of transponders. The values provided per sub-swath correspond to the mean absolute calibration error. Values provided per all swaths correspond to the mean error value and the corresponding standard deviation. All values are in dB.

In this reporting period, an improvement was made to the database for IMM, APM and WSM products by removing anomalous measurements where the default and not the true value of ISLR was used. As a result the IRF results and product counts for these product types are not in continuation with the previous report.

Product type	Relative RCS [dB]							
	All Swaths	IS1	IS2	IS3	IS4	IS5	IS6	IS7
<b>IMP</b>	-0.23±0.59	-0.15	-0.23	-0.56	-0.43	-0.02	-0.05	-0.24
<b>IMG</b>	-0.18±0.63	-0.35	-0.25	-0.46	-0.43	0.16	0.08	-0.05
<b>IMS</b>	-0.19±0.59	-0.32	-0.10	-0.56	-0.41	-0.04	0.06	-0.11
<b>IMM</b>	-0.18±1.35							
<b>APP</b>	-0.14±0.52	-0.63	-0.23	-0.13	-0.22	-0.03	0.25	-0.14
<b>APG</b>	-0.13±0.58	-0.61	-0.23	-0.05	-0.28	-0.14	0.36	-0.11
<b>APS</b>	-0.17±0.56	-0.48	-0.33	-0.09	-0.45	-0.15	0.22	-0.08
<b>APM</b>	-0.30±0.82							
<b>WSM</b>	0.78±1.32							

**Table 5.1: ASAR Image Relative Radar Cross-Sections per mode and beam.**

<sup>1</sup>The relative RCS is defined as the difference between the nominal RCS and the measured RCS.

Table 5.2 gives the relative RCS for the full resolutions products as a function of the polarization. All values are in dB.

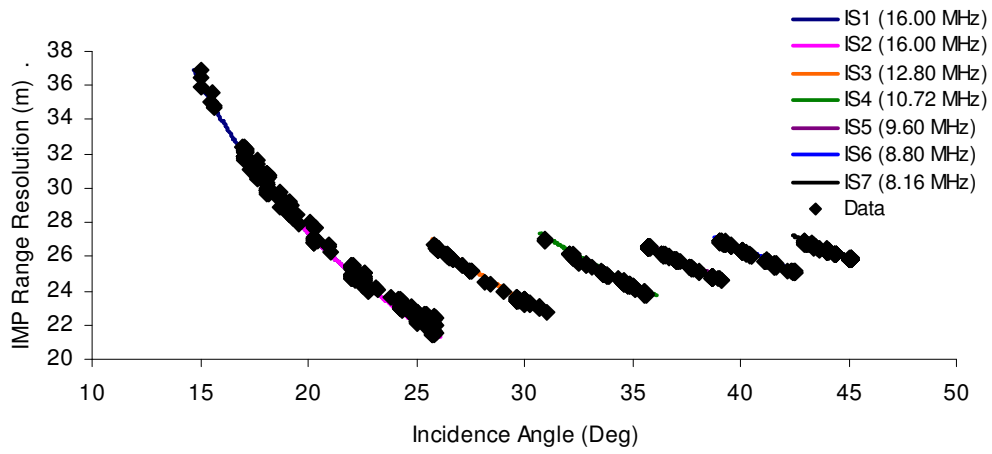
Product type	Relative RCS [dB]			
	VV	HH	VH	HV
IMP	-0.09±0.51	-0.42±0.63		
APP	0.00±0.34	-0.18±0.57	-0.12±0.48	-0.07±0.53

**Table 5.2: ASAR Image Relative Radar Cross-Sections per mode and polarisation**

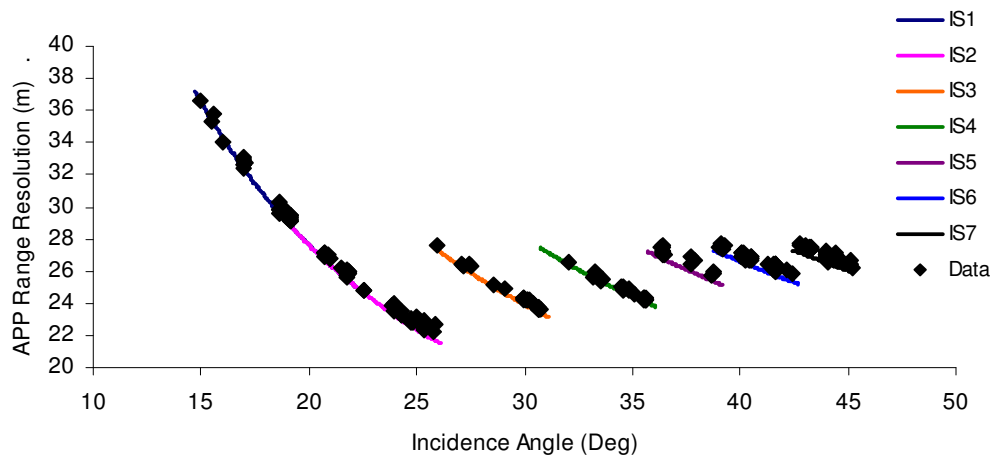
The Table 5.3 shows the IRF parameters measured per different product types.

Product Type	Azimuth Res (m)	Range Res (m)	ISLR (dB)	PSLR (dB)	SSLR (dB)	No of Results
IMP	22.12±0.48	(figure 5.1a)	-13.48±0.52	-16.68±0.97	-22.72±1.73	648
IMG	22.35±0.48	21.6 – 35.8	-13.56±0.51	-16.86±0.98	-23.44±1.67	643
IMS	4.77±0.03 5.56±0.06	9.43±0.05	-14.44±0.29	-18.99±0.42	-28.38±0.61	641
IMM	146.79±3.59	132.90±5.89	-7.73±4.30	-16.19±1.88	-16.63±4.54	455
APP	27.54±0.81	(figure 5.1b)	-12.88±0.54	-19.12±0.93	-27.16±1.49	191
APG	27.58±0.76	22.6 – 36.4	-12.95±0.55	-19.19±0.91	-27.69±1.27	186
APS	4.28±1.81	8.39±0.07	4.10±2.44	-1.90±1.35	-16.44±4.36	188
APM	143.16±4.14	131.51±6.07	-9.37±4.56	-15.97±1.78	-17.91±4.52	80
WSM	114.72±5.77	124.56±9.19	-8.2±5.10	-12.54±2.15	-14.32±4.24	236

**Table 5.3: ASAR IRF parameters per product type**

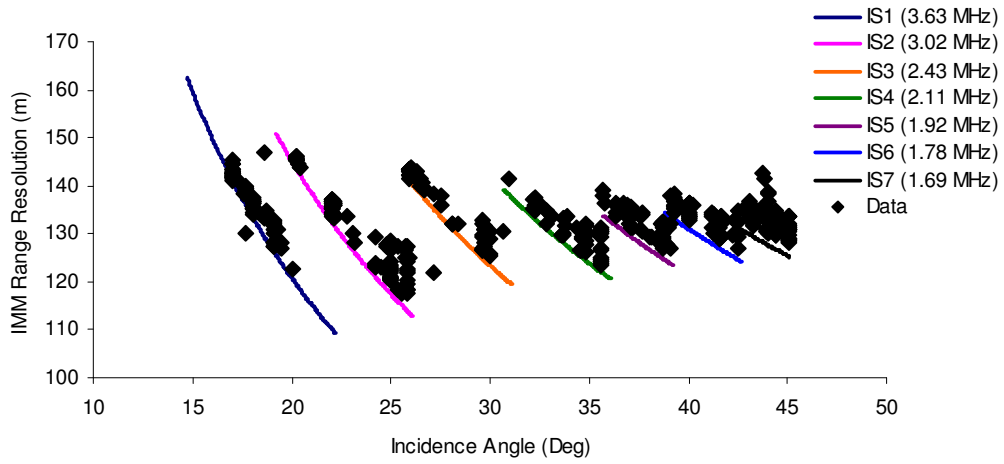


(a) IMP products

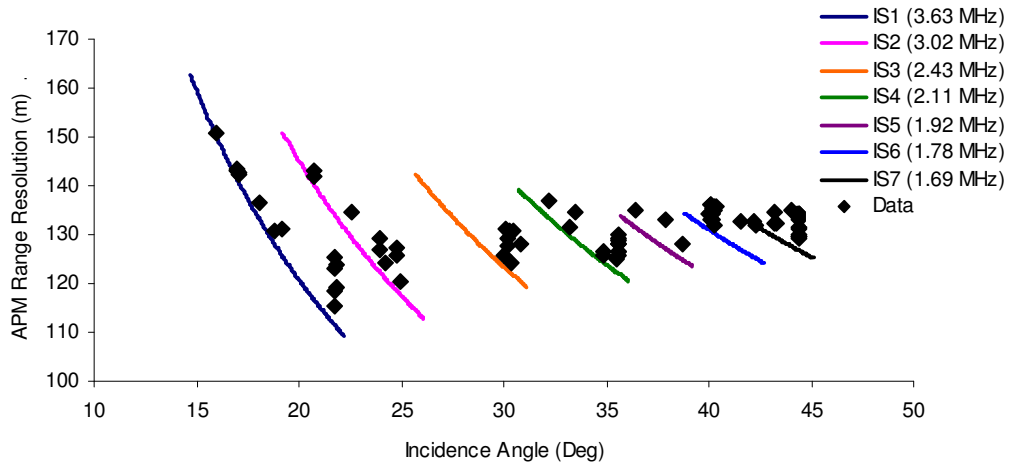


(b) APP products

Figure 5.1: Range resolution as a function of the incidence angle for the IMP and APP products

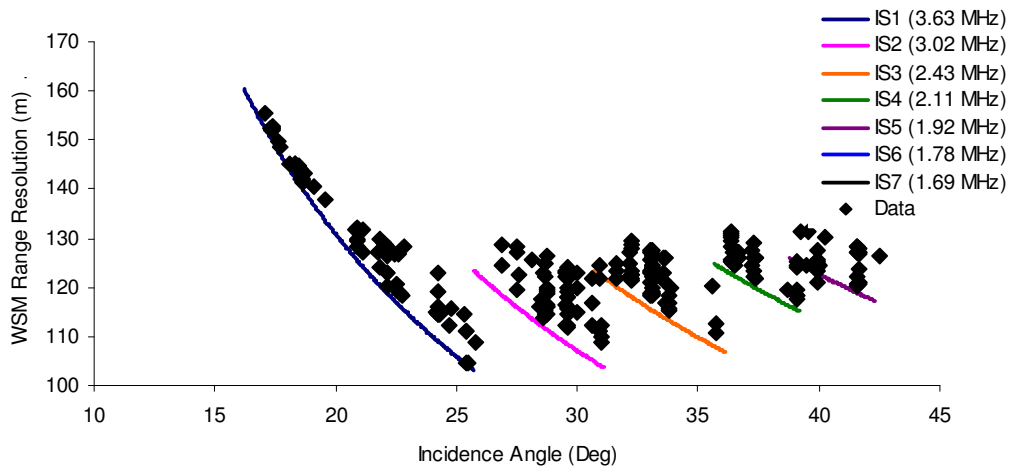


(a) IMM products



(b) APM products





(c) WSM products.

**Figure 5.2:** Range resolution as a function of the incidence angle for the medium resolution products.

Table 5.4 gives measured equivalent number of looks and radiometric resolutions for IMP/IMG, IMS, APP/APG, APS and WSM products.

Product Type	Equ. Num Looks	Rad Res (dB)
<b>IMP/IMG</b>	3.95	1.77
<b>IMS</b>	0.96	3.05
<b>APS</b>	0.93	3.09

**Table 5.4(a):** ASAR measured equivalent number of looks and radiometric resolution

<b>APP/APG</b>	<b>IS1</b>	<b>IS2</b>	<b>IS3</b>	<b>IS4</b>	<b>IS5</b>	<b>IS6</b>	<b>IS7</b>
<b>Equ. Num Looks</b>	1.76	1.73	2.25	2.66	3.30	3.78	3.73
<b>Rad Res (dB)</b>	2.44	2.45	2.22	2.08	1.91	1.80	1.81

**Table 5.4(b):** ASAR measured equivalent number of looks and radiometric resolution

<b>WSM</b>	<b>SS1</b>	<b>SS2</b>	<b>SS3</b>	<b>SS4</b>	<b>SS5</b>
<b>Equ. Num Looks</b>	13.19	13.21	13.84	13.77	13.38
<b>Rad Res (dB)</b>	1.05	1.05	1.03	1.03	1.04

**Table 5.4(c):** ASAR measured equivalent number of looks and radiometric resolution

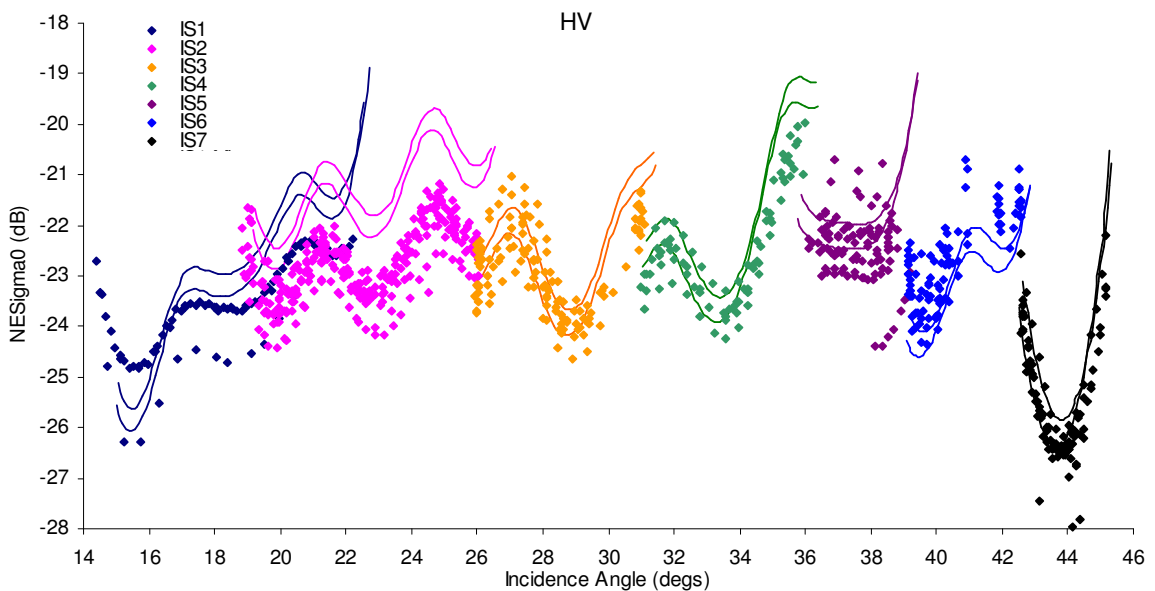
<b>APM</b>	<b>IS1</b>	<b>IS2</b>	<b>IS3</b>	<b>IS4</b>	<b>IS5</b>	<b>IS6</b>	<b>IS7</b>
<b>Equ. Num Looks</b>	43.99	52.46	65.68	75.66	83.21	90.16	95.93
<b>Rad Res (dB)</b>	0.60	0.56	0.50	0.47	0.45	0.43	0.42

**Table 5.4(d):** ASAR measured equivalent number of looks and radiometric resolution

IMM	IS1	IS2	IS3	IS4	IS5	IS6	IS7
<b>Equ. Num Looks</b>	35.68	42.20	52.56	60.78	65.76	72.67	75.77
<b>Rad Res (dB)</b>	0.67	0.62	0.56	0.52	0.50	0.48	0.47

**Table 5.4(e): ASAR measured equivalent number of looks and radiometric resolution**

The noise equivalent radar cross-section (NESigma0) has been estimated using AP and IM products of low radar cross-section ocean region, as shown in Figures 5.3 & 5.4 (for pre and post Envisat orbit change in October 2010). For the post orbit change data a slight offset can be seen between the predicted and the measured NESigma0 values (this is particularly evident for IS3). The cause of this offset is currently being investigated. Apart from this offset the post orbit change measurements match the predicted values in a similar way to the pre orbit change data. All measurements are close to or lower than predicted NESigma0 values.



**Figure 5.3(a). NESigma0 measurements for AP HV polarisation (pre October 2010 orbit change).**

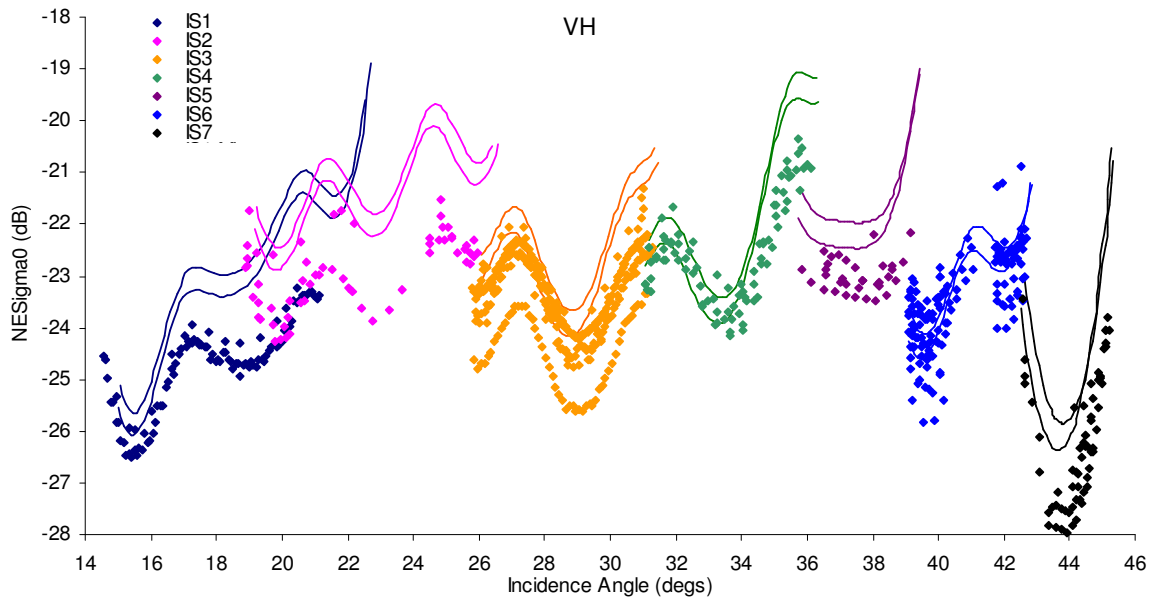


Figure 5.3(b). NESigma0 measurements for AP VH polarisation (pre October 2010 orbit change).

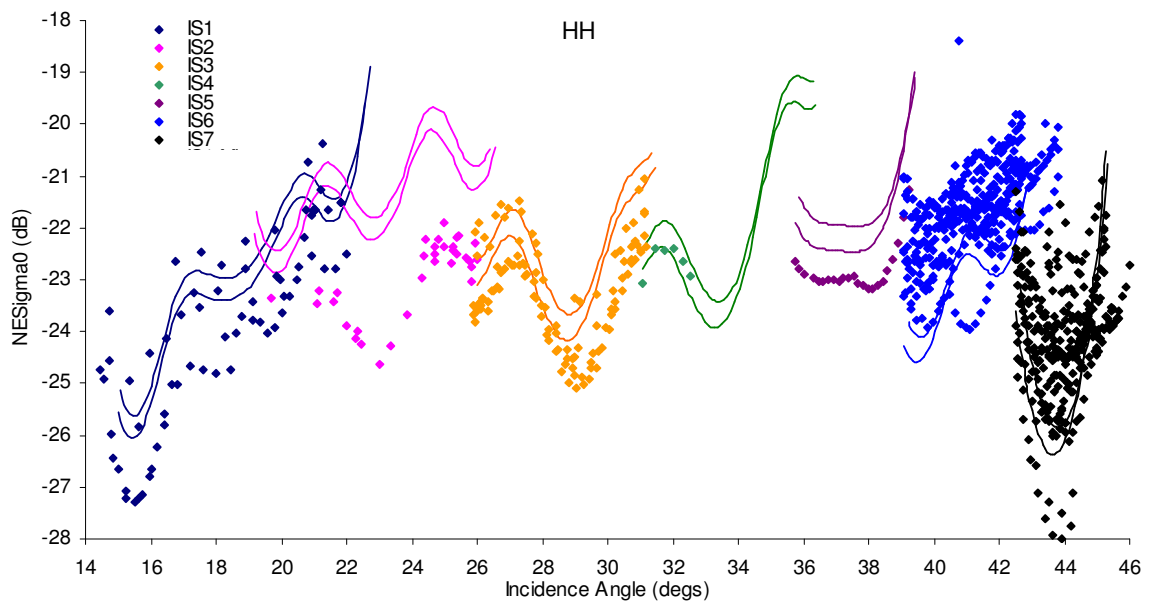


Figure 5.3(c). NESigma0 measurements for IM/AP HH polarisation (pre October 2010 orbit change).

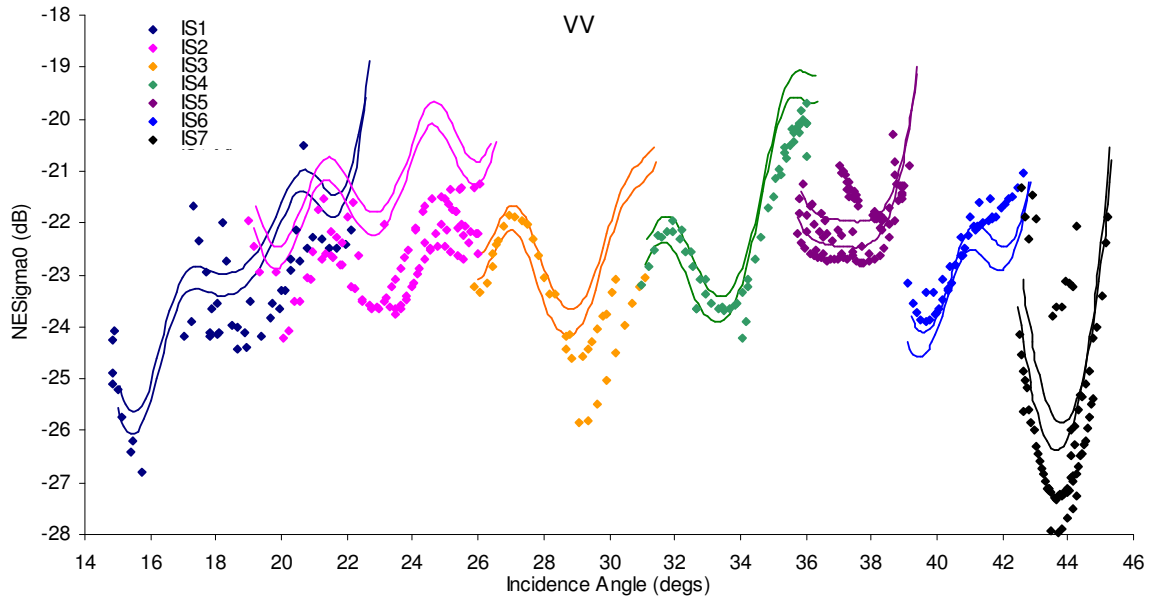


Figure 5.3(d). NESigma0 measurements for IM/AP VV polarisation (pre October 2010 orbit change).

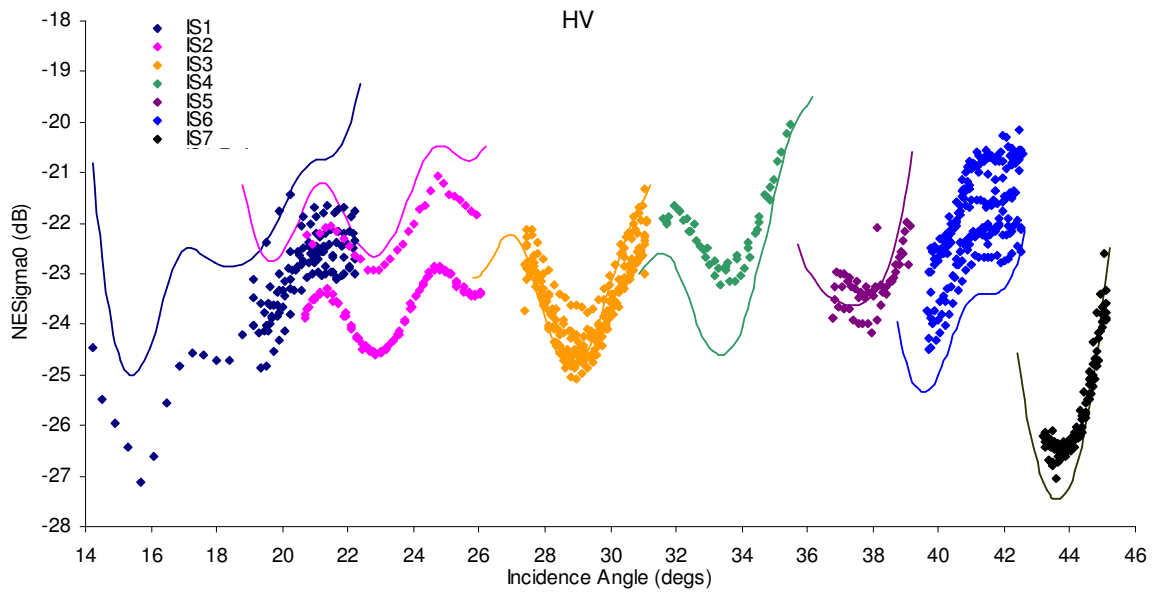


Figure 5.4(a). NESigma0 measurements for AP HV polarisation (post October 2010 orbit change).

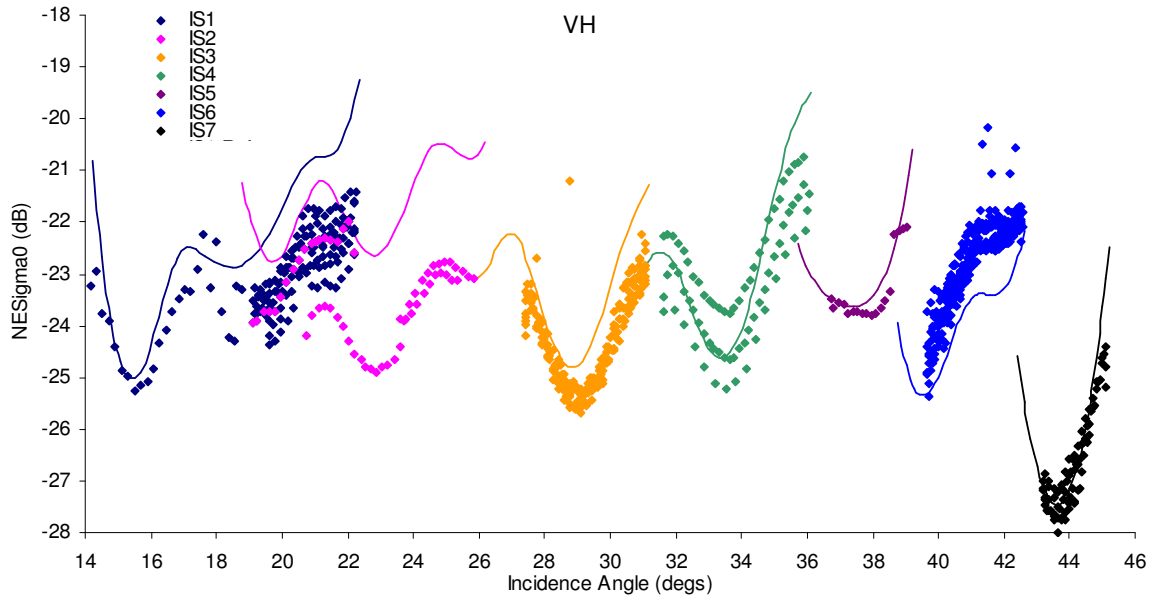


Figure 5.4(b). NESigma0 measurements for AP VH polarisation (post October 2010 orbit change).

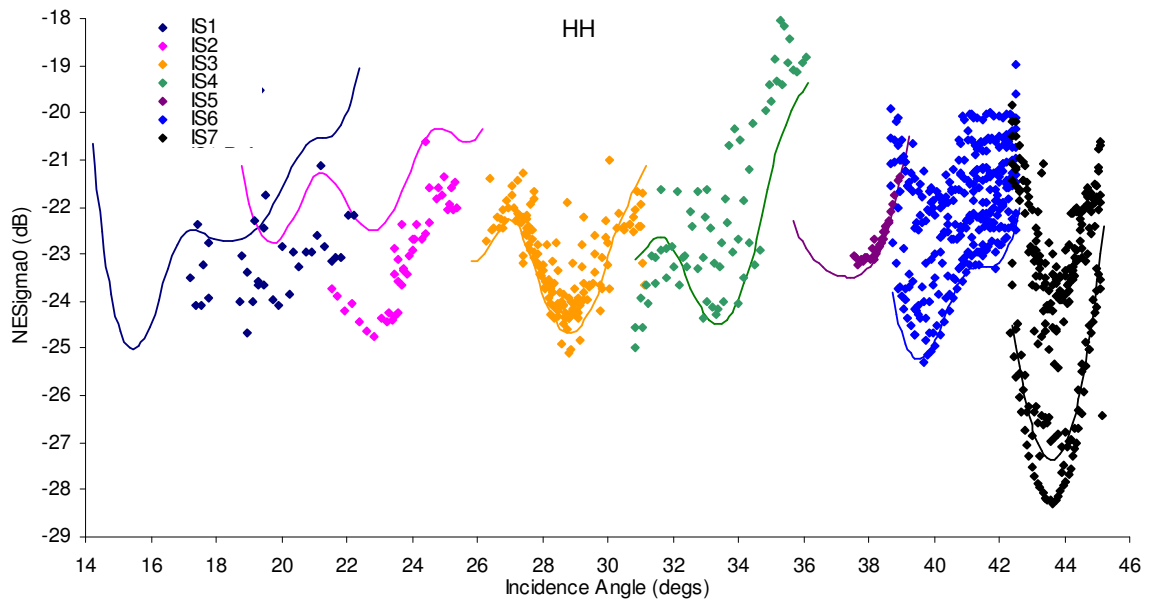


Figure 5.4(c). NESigma0 measurements for IM/AP HH polarisation (post October 2010 orbit change).

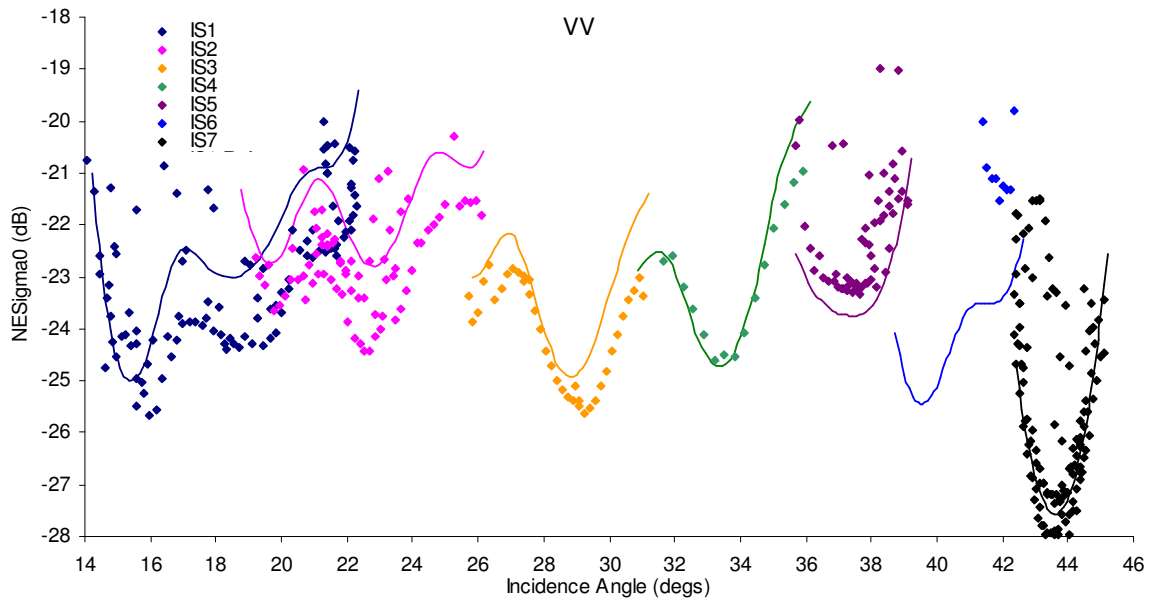


Figure 5.4(d). NESigma0 measurements for IM/AP VV polarisation (post October 2010 orbit change).

The WSM noise equivalent radar cross-section (NESigma0) has also been estimated using low radar cross-section ocean regions, as shown in Figures 5.5 & 5.6 (for pre and post Envisat orbit change in October 2010).

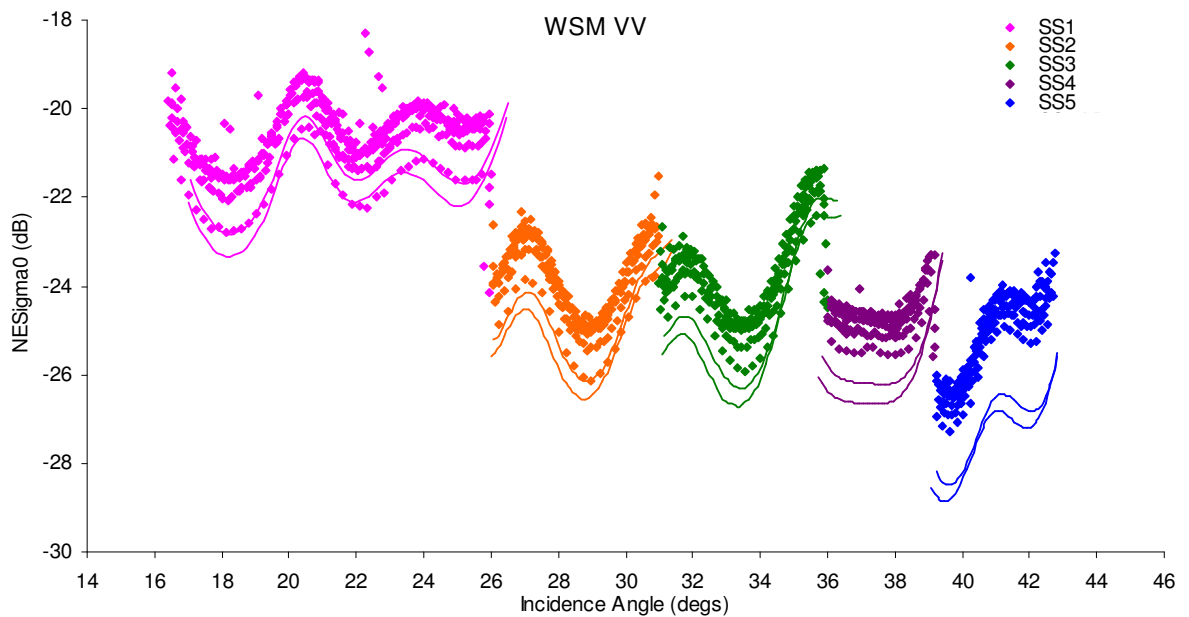


Figure 5.5(a). NESigma0 measurements for WSM VV polarisation (pre October 2010 orbit change).

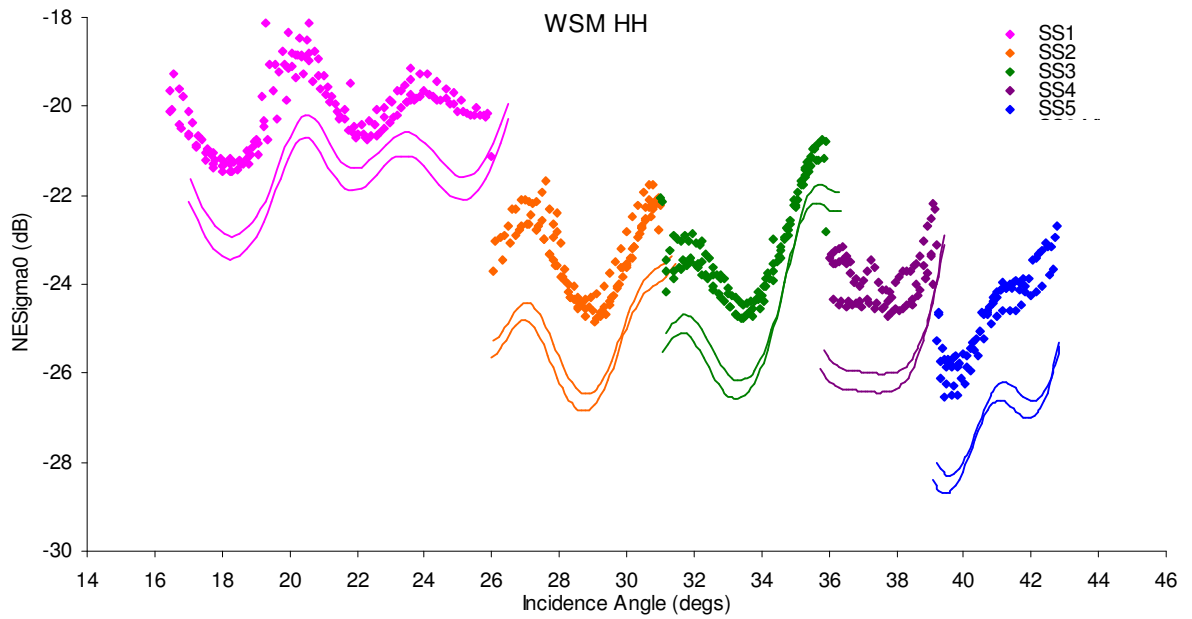


Figure 5.5(b). NESigma0 measurements for WSM HH polarisation (pre October 2010 orbit change).

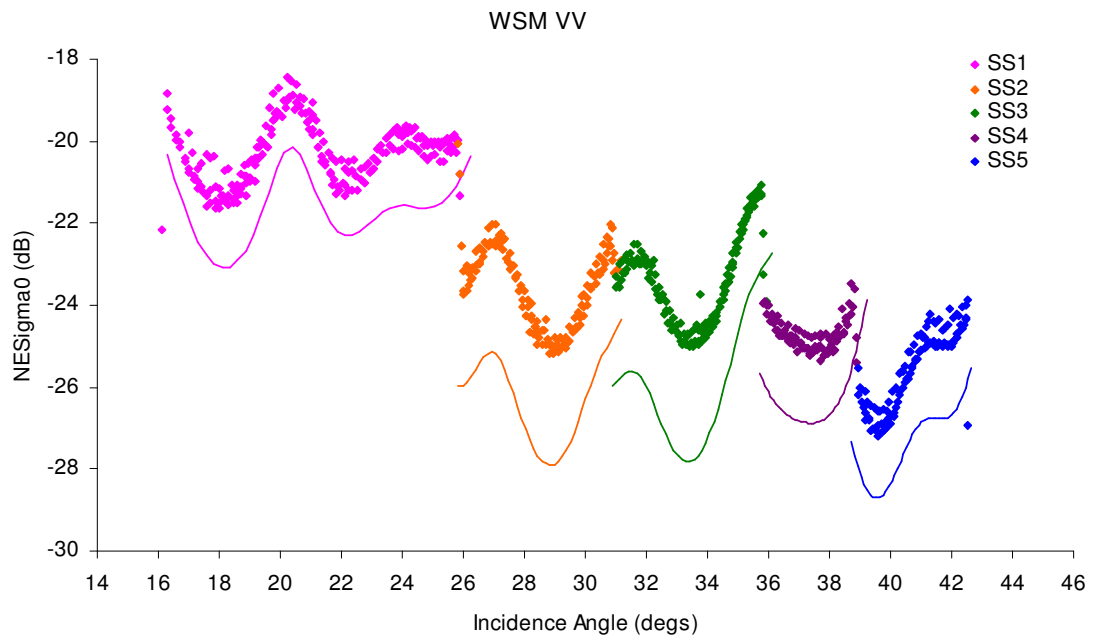
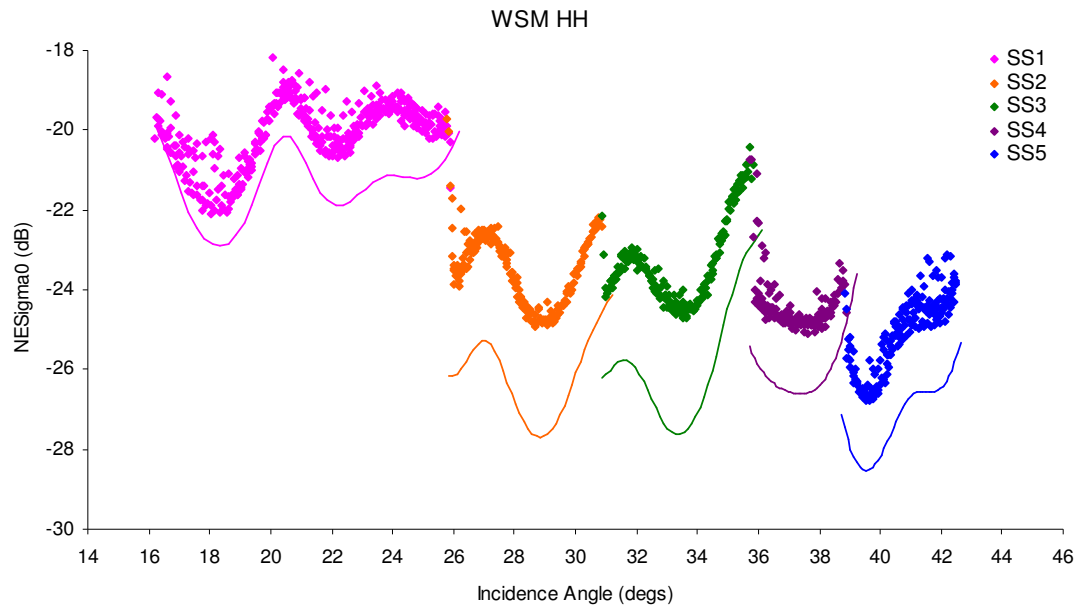


Figure 5.6(a). NESigma0 measurements for WSM VV polarisation (post October 2010 orbit change).



**Figure 5.6(b).** NESigma0 measurements for WSM HH polarisation (post October 2010 orbit change).



## 6 ELEVATION ANTENNA PATTERN MONITORING

### 6.1 Recent Elevation Antenna Pattern Updates

During the reporting period there were no updates to the ASAR elevation antenna patterns. The table below show the most recent updates (since August 2003) for each beam and polarisation.

BEAM	POL	RECENT ELEVATION ANTENNA PATTERN UPDATES																
SS1	HH	27/08/2003		06/04/2004	12/08/2004		13/10/2005	19/12/2005	15/02/2007		07/10/2008	11/03/2009	02/03/2010		08/06/2010		11/11/2010	26/05/2011
SS1	VV	27/08/2003		06/04/2004			13/10/2005	19/12/2005	22/02/2007			11/03/2009	02/03/2010		08/06/2010	08/06/2010		26/05/2011
IS1	HH		09/12/2003							18/12/2007	07/10/2008	11/03/2009	02/03/2010			08/06/2010	11/11/2010	26/05/2011
IS1	VV		09/12/2003	06/04/2004						17/05/2007	07/10/2008	11/03/2009	02/03/2010	15/03/2010				26/05/2011
IS1	HV								23/02/2006	17/07/2006								26/05/2011
IS1	VH								23/02/2006	17/07/2006	17/05/2007							26/05/2011
IS2	HH		09/12/2003	06/04/2004				03/11/2005		17/05/2007		11/03/2009	02/03/2010			08/06/2010		26/05/2011
IS2	VV		09/12/2003	06/04/2004				03/11/2005		17/05/2007		11/03/2009	02/03/2010					26/05/2011
IS2	HV			06/04/2004					23/02/2006	17/07/2006	17/05/2007							26/05/2011
IS2	VH			06/04/2004					23/02/2006	17/07/2006	17/05/2007							26/05/2011
IS3_SS2	HH	27/08/2003	09/12/2003		12/08/2004	27/10/2004	13/10/2005		15/02/2007	17/05/2007	07/10/2008	11/03/2009	02/03/2010		08/06/2010			26/05/2011
IS3_SS2	VV	27/08/2003			12/08/2004		13/10/2005		22/02/2007	17/05/2007	07/10/2008	11/03/2009	02/03/2010		08/06/2010	08/06/2010		26/05/2011
IS3_SS2	HV								23/02/2006	17/07/2006	17/05/2007							26/05/2011
IS3_SS2	VH								23/02/2006	17/07/2006	17/05/2007							26/05/2011
IS4_SS3	HH				12/08/2004		13/10/2005		15/02/2007	17/05/2007	07/10/2008	11/03/2009	02/03/2010		08/06/2010	08/06/2010		26/05/2011
IS4_SS3	VV					27/10/2004	13/10/2005		22/02/2007	17/05/2007		11/03/2009	02/03/2010		08/06/2010	08/06/2010		26/05/2011
IS4_SS3	HV			06/04/2004					23/02/2006	17/07/2006	17/05/2007							26/05/2011
IS4_SS3	VH			06/04/2004					23/02/2006	17/07/2006	17/05/2007							26/05/2011
IS5_SS4	HH	27/08/2003		06/04/2004		27/10/2004	13/10/2005		15/02/2007	18/12/2007	07/10/2008		02/03/2010		08/06/2010	08/06/2010		26/05/2011
IS5_SS4	VV	27/08/2003					13/10/2005		22/02/2007	17/05/2007	07/10/2008		02/03/2010			08/06/2010		26/05/2011
IS5_SS4	HV			06/04/2004					23/02/2006	17/07/2006	17/05/2007							26/05/2011
IS5_SS4	VH			06/04/2004					23/02/2006	17/07/2006	17/05/2007							26/05/2011
IS6_SS5	HH					27/10/2004	13/10/2005		15/02/2007	17/05/2007	07/10/2008	11/03/2009	02/03/2010		08/06/2010	08/06/2010		26/05/2011
IS6_SS5	VV						13/10/2005		22/02/2007	17/05/2007	07/10/2008		02/03/2010		08/06/2010	08/06/2010		26/05/2011
IS6_SS5	HV			06/04/2004					23/02/2006	17/07/2006	17/05/2007							26/05/2011
IS6_SS5	VH			06/04/2004					23/02/2006	17/07/2006	17/05/2007							26/05/2011
IS7	HH									17/05/2007		11/03/2009	02/03/2010			08/06/2010		26/05/2011
IS7	VV									17/05/2007			02/03/2010			08/06/2010		26/05/2011
IS7	HV								23/02/2006	17/07/2006	17/05/2007							26/05/2011
IS7	VH								23/02/2006	17/07/2006	17/05/2007							26/05/2011

### 6.2 History of Elevation Antenna Pattern Updates

The table below summarizes the evolution of the elevation antenna pattern used for processing since August 2002. The files are available on line at [http://earth.eo.esa.int/services/auxiliary\\_data/asar/](http://earth.eo.esa.int/services/auxiliary_data/asar/).

The source information indicates whether the pattern has been derived from data acquired over the Rain Forest (“RF”) or whether it has been derived from antenna synthesis using results from Module Stepping acquisitions (“SYN”).

Please note that pre-launch antenna pattern where used before the first ASA\_XCA\_AX update.

Please note that the table indicates for each beam, in which file the update took place. Any file created after this date will include that update unless a new file is specified for the beam. For instance, the pattern for IS3\_SS2 VV was updated on 27 August 2003. The file created on 9 December 2003 (when the IS1 VV pattern was updated) will include the same pattern for IS3\_SS2 VV as in the file of 27 August 2003, since the table does no indicate any further update for the IS3\_SS2 VV pattern.

ASAR ELEVATION ANTENNA PATTERNS UPDATES IN THE ASAR EXTERNAL CALIBRATION FILE					
Swath & polarization	Source	Update time (file used in operations since 1 day after this date)	File Name	Applicable to data acquired between:	
				Start	Stop
IS1 VV	RF	20020813	ASA_XCA_AXVIEC20020813_080042_20020413_000000_20021231_000000	20020413	20021231
	NA <sup>1</sup>	20021107	ASA_XCA_AXVIEC20021107_144746_20020413_000000_20021231_000000	20020413	20021231
	RF	20021122	ASA_XCA_AXVIEC20021122_130838_20020413_000000_20021231_00000 <sup>2</sup>	20020413	20021231
	RF	20031209	ASA_XCA_AXVIEC20031209_113559_20030211_000000_20041231_000000	20030211	20041231
	RF	20040406	ASA_XCA_AXVIEC20040406_160451_20030211_000000_20041231_000000	20030211	20041231
	RF	20070517	ASA_XCA_AXVIEC20070517_153558_20070204_165113_20071231_000000	20070204	20071231
	RF	20080710	ASA_XCA_AXVIEC20080710_133546_20070204_165113_20081231_000000	20070204	20081231
	RF	20090311	ASA_XCA_AXVIEC20090311_104037_20070204_165113_20080731_235959	20070204	20080731
	RF	20090311	ASA_XCA_AXVIEC20090311_104501_20080801_000000_20091231_235959	20080801	20091231
	RF <sup>3</sup>	20100302	ASA_XCA_AXVIEC20100302_155508_20090501_000000_20101231_235959	20090501	20101231

<sup>1</sup> A corrupted IS1 VV pattern was included into the ASA\_XCA\_IP file updated of 11 Nov. 2002

<sup>2</sup> The corrupted IS1 VV pattern in the operational ASA\_XCA\_IP file was corrected on 22 Nov. 2002. Please note that the IS1 VV pattern in ASA\_XCA\_AXVIEC20021122\_130838\_20020413\_000000\_20021231\_000000 is the same as in ASA\_XCA\_AXVIEC20020813\_080042\_20020413\_000000\_20021231\_000000

<sup>3</sup> A corrupted IS1 VV pattern was included in the update of 3<sup>rd</sup> March 2010

	RF <sup>4</sup>	20100315	ASA_XCA_AXVIEC20100315_123052_20090501_000000_20110101_000000	20090501	20101231
	RF	20110526	ASA_XCA_AXVIEC20110526_075734_20101027_215740_20141231_000000	20101027	20141231
IS1 HH	RF	20021107	ASA_XCA_AXVIEC20021107_144746_20020413_000000_20021231_000000	20020413	20021231
	RF	20031209	ASA_XCA_AXVIEC20031209_113559_20030211_000000_20041231_000000	20030211	20041231
	RF	20071218	ASA_XCA_AXVIEC20071218_082742_20070204_165113_20081231_000000	20070204	20081231
	RF	20080710	ASA_XCA_AXVIEC20080710_133546_20070204_165113_20081231_000000	20070204	20081231
	RF	20090311	ASA_XCA_AXVIEC20090311_104037_20070204_165113_20080731_235959	20070204	20080731
	RF	20090311	ASA_XCA_AXVIEC20090311_104501_20080801_000000_20091231_235959	20080801	20091231
	RF	20100302	ASA_XCA_AXVIEC20100302_155508_20090501_000000_20101231_235959	20090501	20101231
	RF	20100315	ASA_XCA_AXVIEC20100315_123052_20090501_000000_20110101_000000	20090501	20101231
	RF	20100608	ASA_XCA_AXVIEC20100608_123419_20100317_120410_20110101_000000	20100317	20110101
	RF	20101111	ASA_XCA_AXVIEC20101111_113830_20100601_000000_20141231_000000	20100601	20141231
	RF	20110526	ASA_XCA_AXVIEC20110526_075734_20101027_215740_20141231_000000	20101027	20141231
IS1 HV	RF	20021217	ASA_XCA_AXVIEC20021217_150852_20020413_000000_20031231_000000	20020413	20031231
	RF	20060223	ASA_XCA_AXVIEC20060223_133247_20050101_000000_20050914_000000	20050101	20050914
	RF	20060717	ASA_XCA_AXVIEC20060717_154125_20050916_195733_20061231_000000	20050916	20061231
	RF	20110526	ASA_XCA_AXVIEC20110526_075734_20101027_215740_20141231_000000	20101027	20141231

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<sup>4</sup> The correction to IS1 VV was issued in the XCA file issued on 15<sup>th</sup> March 2010, all other patterns remain the same.

IS1 VH	RF	20021217	<a href="#">ASA_XCA_AXVIEC20021217_150852_20020413_000000_20031231_000000</a>	20020413	20031231
	RF	20031209	<a href="#">ASA_XCA_AXVIEC20031209_113559_20030211_000000_20041231_000000</a>	20030211	20041231
	RF	20040406	<a href="#">ASA_XCA_AXVIEC20040406_160451_20030211_000000_20041231_000000</a>	20030211	20041231
	RF	20060223	<a href="#">ASA_XCA_AXVIEC20060223_133247_20050101_000000_20050914_000000</a>	20050101	20050914
	RF	20060717	<a href="#">ASA_XCA_AXVIEC20060717_154125_20050916_195733_20061231_000000</a>	20050916	20061231
	RF	20070517	<a href="#">ASA_XCA_AXVIEC20070517_153558_20070204_165113_20071231_000000</a>	20070204	20071231
	RF	20110526	<a href="#">ASA_XCA_AXVIEC20110526_075734_20101027_215740_20141231_000000</a>	20101027	20141231
IS2 VV	RF	20020813	<a href="#">ASA_XCA_AXVIEC20020813_080042_20020413_000000_20021231_000000</a>	20020413	20021231
	RF	20031209	<a href="#">ASA_XCA_AXVIEC20031209_113559_20030211_000000_20041231_000000</a>	20030211	20041231
	RF	20040406	<a href="#">ASA_XCA_AXVIEC20040406_160451_20030211_000000_20041231_000000</a>	20030211	20041231
	RF	20051103	<a href="#">ASA_XCA_AXVIEC20051103_160021_20050101_000000_20050914_080040</a>	20050101	20050914
	RF	20070517	<a href="#">ASA_XCA_AXVIEC20070517_153558_20070204_165113_20071231_000000</a>	20070204	20071231
	RF	20090311	<a href="#">ASA_XCA_AXVIEC20090311_104037_20070204_165113_20080731_235959</a>	20070204	20080731
RF	20090311	<a href="#">ASA_XCA_AXVIEC20090311_104501_20080801_000000_20091231_235959</a>	20080801	20091231	
RF	20100302	<a href="#">ASA_XCA_AXVIEC20100302_155508_20090501_000000_20101231_235959</a>	20090501	20101231	
RF	20100315	<a href="#">ASA_XCA_AXVIEC20100315_123052_20090501_000000_20110101_000000</a>	20090501	20101231	
RF	20110526	<a href="#">ASA_XCA_AXVIEC20110526_075734_20101027_215740_20141231_000000</a>	20101027	20141231	
IS2 HH	RF	20021107	<a href="#">ASA_XCA_AXVIEC20021107_144746_20020413_000000_20021231_000000</a>	20020413	20021231
	RF	20040406	<a href="#">ASA_XCA_AXVIEC20040406_160451_20030211_000000_20041231_000000</a>	20030211	20041231

	RF	20051103	ASA_XCA_AXVIEC20051103_160021_20050101_000000_20050914_080040	20050101	20050914
	RF	20070517	ASA_XCA_AXVIEC20070517_153558_20070204_165113_20071231_000000	20070204	20071231
	RF	20090311	ASA_XCA_AXVIEC20090311_104037_20070204_165113_20080731_235959	20070204	20080731
	RF	20090311	ASA_XCA_AXVIEC20090311_104501_20080801_000000_20091231_235959	20080801	20091231
	RF	20100302	ASA_XCA_AXVIEC20100302_155508_20090501_000000_20101231_235959	20090501	20101231
	RF	20100315	ASA_XCA_AXVIEC20100315_123052_20090501_000000_20110101_000000	20090501	20101231
	RF	20100608	ASA_XCA_AXVIEC20100608_123419_20100317_120410_20110101_000000	20100317	20110101
	RF	20110526	ASA_XCA_AXVIEC20110526_075734_20101027_215740_20141231_000000	20101027	20141231
IS2 HV	RF	20021217	ASA_XCA_AXVIEC20021217_150852_20020413_000000_20031231_000000	20020413	20031231
	RF	20040406	ASA_XCA_AXVIEC20040406_160451_20030211_000000_20041231_000000	20030211	20041231
	RF	20060223	ASA_XCA_AXVIEC20060223_133247_20050101_000000_20050914_000000	20050101	20050914
	RF	20060717	ASA_XCA_AXVIEC20060717_154125_20050916_195733_20061231_000000	20050916	20061231
	RF	20070517	ASA_XCA_AXVIEC20070517_153558_20070204_165113_20071231_000000	20070204	20071231
	RF	20110526	ASA_XCA_AXVIEC20110526_075734_20101027_215740_20141231_000000	20101027	20141231
IS2 VH	RF	20021217	ASA_XCA_AXVIEC20021217_150852_20020413_000000_20031231_000000	20020413	20031231
	RF	20040406	ASA_XCA_AXVIEC20040406_160451_20030211_000000_20041231_000000	20030211	20041231
	RF	20060223	ASA_XCA_AXVIEC20060223_133247_20050101_000000_20050914_000000	20050101	20050914
	RF	20060717	ASA_XCA_AXVIEC20060717_154125_20050916_195733_20061231_000000	20050916	20061231
	RF	20070517	ASA_XCA_AXVIEC20070517_153558_20070204_165113_20071231_000000	20070204	20071231

	RF	20110526	ASA_XCA_AXVIEC20110526_075734_20101027_215740_20141231_000000	20101027	20141231
IS3_SS2 VV	RF	20020813	ASA_XCA_AXVIEC20020813_080042_20020413_000000_20021231_000000	20020413	20021231
	RF	20021018	ASA_XCA_AXVIEC20021018_121708_20020413_000000_20021231_000000	20020413	20021231
	RF	20030801	ASA_XCA_AXVIEC20030801_133024_20030428_000000_20031231_000000	20030428	20031231
	RF	20030801	ASA_XCA_AXVIEC20030801_134802_20020413_000000_20030211_000000	20020413	20030211
	RF	20030827	ASA_XCA_AXVIEC20030827_140210_20030211_000000_20031231_000000	20030211	20031231
	RF	20040812	ASA_XCA_AXVIEC20040812_170224_20040412_000000_20041231_000000	20040412	20041231
	RF	20051013	ASA_XCA_AXVIEC20051013_152245_20050101_000000_20050914_080040	20050101	20050914
	RF	20051013	ASA_XCA_AXVIEC20051013_152531_20050916_195733_20061231_000000	20050916	20061231
	RF	20070222	ASA_XCA_AXVIEC20070222_185842_20070204_165113_20071231_000000	20070204	20071231
	RF	20070517	ASA_XCA_AXVIEC20070517_153558_20070204_165113_20071231_000000	20070204	20071231
	RF	20080710	ASA_XCA_AXVIEC20080710_133546_20070204_165113_20081231_000000	20070204	20081231
		RF	20090311	ASA_XCA_AXVIEC20090311_104037_20070204_165113_20080731_235959	20070204
	RF	20090311	ASA_XCA_AXVIEC20090311_104501_20080801_000000_20091231_235959	20080801	20091231
	RF	20100302	ASA_XCA_AXVIEC20100302_155508_20090501_000000_20101231_235959	20090501	20101231
	RF	20100315	ASA_XCA_AXVIEC20100315_123052_20090501_000000_20110101_000000	20090501	20101231
	RF	20100608	ASA_XCA_AXVIEC20100608_122638_20100311_094400_20100317_120409	20100311	20100317
	RF	20100608	ASA_XCA_AXVIEC20100608_123419_20100317_120410_20110101_000000	20100317	20110101
	RF	20110526	ASA_XCA_AXVIEC20110526_075734_20101027_215740_20141231_000000	20101027	20141231

IS3_SS2 HH	RF	20021107	<a href="#">ASA_XCA_AXVIEC20021107_144746_20020413_000000_20021231_000000</a>	20020413	20021231
	RF	20030801	<a href="#">ASA_XCA_AXVIEC20030801_133024_20030428_000000_20031231_000000</a>	20030428	20031231
	RF	20030801	<a href="#">ASA_XCA_AXVIEC20030801_134802_20020413_000000_20030211_000000</a>	20020413	20030211
	RF	20030827	<a href="#">ASA_XCA_AXVIEC20030827_140210_20030211_000000_20031231_000000</a>	20030211	20031231
	RF	20031209	<a href="#">ASA_XCA_AXVIEC20031209_113559_20030211_000000_20041231_000000</a>	20030211	20041231
	RF	20040812	<a href="#">ASA_XCA_AXVIEC20040812_170224_20040412_000000_20041231_000000</a>	20040412	20041231
	RF	20041027	<a href="#">ASA_XCA_AXVIEC20041027_164238_20040412_000000_20051231_000000</a>	20040412	20051231
	RF	20051013	<a href="#">ASA_XCA_AXVIEC20051013_152531_20050916_195733_20061231_000000</a>	20050916	20061231
	RF	20070215	<a href="#">ASA_XCA_AXVIEC20070215_184638_20070204_165113_20071231_000000</a>	20070204	20071231
	RF	20070517	<a href="#">ASA_XCA_AXVIEC20070517_153558_20070204_165113_20071231_000000</a>	20070204	20071231
	RF	20080710	<a href="#">ASA_XCA_AXVIEC20080710_133546_20070204_165113_20081231_000000</a>	20070204	20081231
	RF	20090311	<a href="#">ASA_XCA_AXVIEC20090311_104037_20070204_165113_20080731_235959</a>	20070204	20080731
	RF	20090311	<a href="#">ASA_XCA_AXVIEC20090311_104501_20080801_000000_20091231_235959</a>	20080801	20091231
	RF	20100302	<a href="#">ASA_XCA_AXVIEC20100302_155508_20090501_000000_20101231_235959</a>	20090501	20101231
	RF	20100315	<a href="#">ASA_XCA_AXVIEC20100315_123052_20090501_000000_20110101_000000</a>	20090501	20101231
	RF	20100608	<a href="#">ASA_XCA_AXVIEC20100608_122638_20100311_094400_20100317_120409</a>	20100311	20100317
RF	20110526	<a href="#">ASA_XCA_AXVIEC20110526_075734_20101027_215740_20141231_000000</a>	20101027	20141231	
IS3 HV	SYN.	20021217	<a href="#">ASA_XCA_AXVIEC20021217_150852_20020413_000000_20031231_000000</a>	20020413	20031231
	RF	20060223	<a href="#">ASA_XCA_AXVIEC20060223_133247_20050101_000000_20050914_000000</a>	20050101	20050914

	RF	20060717	ASA_XCA_AXVIEC20060717_154125_20050916_195733_20061231_000000	20050916	20061231
	RF	20070517	ASA_XCA_AXVIEC20070517_153558_20070204_165113_20071231_000000	20070204	20071231
	RF	20110526	ASA_XCA_AXVIEC20110526_075734_20101027_215740_20141231_000000	20101027	20141231
IS3 VH	RF	20021217	ASA_XCA_AXVIEC20021217_150852_20020413_000000_20031231_000000	20020413	20031231
	RF	20060223	ASA_XCA_AXVIEC20060223_133247_20050101_000000_20050914_000000	20050101	20050914
	RF	20060717	ASA_XCA_AXVIEC20060717_154125_20050916_195733_20061231_000000	20050916	20061231
	RF	20070517	ASA_XCA_AXVIEC20070517_153558_20070204_165113_20071231_000000	20070204	20071231
	RF	20110526	ASA_XCA_AXVIEC20110526_075734_20101027_215740_20141231_000000	20101027	20141231
IS4_SS3 VV	RF	20020813	ASA_XCA_AXVIEC20020813_080042_20020413_000000_20021231_000000	20020413	20021231
	RF	20021018	ASA_XCA_AXVIEC20021018_121708_20020413_000000_20021231_000000	20020413	20021231
	RF	20041027	ASA_XCA_AXVIEC20041027_164238_20040412_000000_20051231_000000	20040412	20051231
	RF	20051013	ASA_XCA_AXVIEC20051013_152245_20050101_000000_20050914_080040	20050101	20050914
	RF	20051013	ASA_XCA_AXVIEC20051013_152531_20050916_195733_20061231_000000	20050916	20061231
	RF	20070222	ASA_XCA_AXVIEC20070222_185842_20070204_165113_20071231_000000	20070204	20071231
	RF	20070517	ASA_XCA_AXVIEC20070517_153558_20070204_165113_20071231_000000	20070204	20071231
	RF	20090311	ASA_XCA_AXVIEC20090311_104037_20070204_165113_20080731_235959	20070204	20080731
	RF	20090311	ASA_XCA_AXVIEC20090311_104501_20080801_000000_20091231_235959	20080801	20091231
	RF	20100302	ASA_XCA_AXVIEC20100302_155508_20090501_000000_20101231_235959	20090501	20101231
	RF	20100315	ASA_XCA_AXVIEC20100315_123052_20090501_000000_20110101_000000	20090501	20101231



	RF	20100608	ASA_XCA_AXVIEC20100608_122638_20100311_094400_20100317_120409	20100311	20100317
	RF	20100608	ASA_XCA_AXVIEC20100608_123419_20100317_120410_20110101_000000	20100317	20110101
	RF	20110526	ASA_XCA_AXVIEC20110526_075734_20101027_215740_20141231_000000	20101027	20141231
IS4_SS3 HH	RF	20021107	ASA_XCA_AXVIEC20021107_144746_20020413_000000_20021231_000000	20020413	20021231
	RF	20040812	ASA_XCA_AXVIEC20040812_170224_20040412_000000_20041231_000000	20040412	20041231
	RF	20051013	ASA_XCA_AXVIEC20051013_152245_20050101_000000_20050914_080040	20050101	20050914
	RF	20051013	ASA_XCA_AXVIEC20051013_152531_20050916_195733_20061231_000000	20050916	20061231
	RF	20070215	ASA_XCA_AXVIEC20070215_184638_20070204_165113_20071231_000000	20070204	20071231
	RF	20070517	ASA_XCA_AXVIEC20070517_153558_20070204_165113_20071231_000000	20070204	20071231
	RF	20090311	ASA_XCA_AXVIEC20090311_104037_20070204_165113_20080731_235959	20070204	20080731
	RF	20090311	ASA_XCA_AXVIEC20090311_104501_20080801_000000_20091231_235959	20080801	20091231
	RF	20100302	ASA_XCA_AXVIEC20100302_155508_20090501_000000_20101231_235959	20090501	20101231
	RF	20100315	ASA_XCA_AXVIEC20100315_123052_20090501_000000_20110101_000000	20090501	20101231
	RF	20100608	ASA_XCA_AXVIEC20100608_123419_20100317_120410_20110101_000000	20100317	20110101
	RF	20110526	ASA_XCA_AXVIEC20110526_075734_20101027_215740_20141231_000000	20101027	20141231
IS4 HV	RF	20021217	ASA_XCA_AXVIEC20021217_150852_20020413_000000_20031231_000000	20020413	20031231
	RF	20040406	ASA_XCA_AXVIEC20040406_160451_20030211_000000_20041231_000000	20030211	20041231
	RF	20060223	ASA_XCA_AXVIEC20060223_133247_20050101_000000_20050914_000000	20050101	20050914
	RF	20060717	ASA_XCA_AXVIEC20060717_154125_20050916_195733_20061231_000000	20050916	20061231

	RF	20070517	ASA_XCA_AXVIEC20070517_153558_20070204_165113_20071231_000000	20070204	20071231
	RF	20110526	ASA_XCA_AXVIEC20110526_075734_20101027_215740_20141231_000000	20101027	20141231
IS4 VH	RF	20021217	ASA_XCA_AXVIEC20021217_150852_20020413_000000_20031231_000000	20020413	20031231
	RF	20040406	ASA_XCA_AXVIEC20040406_160451_20030211_000000_20041231_000000	20030211	20041231
	RF	20060223	ASA_XCA_AXVIEC20060223_133247_20050101_000000_20050914_000000	20050101	20050914
	RF	20060717	ASA_XCA_AXVIEC20060717_154125_20050916_195733_20061231_000000	20050916	20061231
	RF	20070517	ASA_XCA_AXVIEC20070517_153558_20070204_165113_20071231_000000	20070204	20071231
	RF	20110526	ASA_XCA_AXVIEC20110526_075734_20101027_215740_20141231_000000	20101027	20141231
IS5_SS4 VV	RF	20020813	ASA_XCA_AXVIEC20020813_080042_20020413_000000_20021231_000000	20020413	20021231
	RF	20021018	ASA_XCA_AXVIEC20021018_121708_20020413_000000_20021231_000000	20020413	20021231
	RF	20051013	ASA_XCA_AXVIEC20051013_152245_20050101_000000_20050914_080040	20050101	20050914
	RF	20070222	ASA_XCA_AXVIEC20070222_185842_20070204_165113_20071231_000000	20070204	20071231
	RF	20070517	ASA_XCA_AXVIEC20070517_153558_20070204_165113_20071231_000000	20070204	20071231
	RF	20080710	ASA_XCA_AXVIEC20080710_133546_20070204_165113_20081231_000000	20070204	20081231
	RF	20100302	ASA_XCA_AXVIEC20100302_155508_20090501_000000_20101231_235959	20090501	20101231
	RF	20100315	ASA_XCA_AXVIEC20100315_123052_20090501_000000_20110101_000000	20090501	20101231
	RF	20100608	ASA_XCA_AXVIEC20100608_123419_20100317_120410_20110101_000000	20100317	20110101
	RF	20110526	ASA_XCA_AXVIEC20110526_075734_20101027_215740_20141231_000000	20101027	20141231
IS5_SS4 HH	RF	20021107	ASA_XCA_AXVIEC20021107_144746_20020413_000000_20021231_000000	20020413	20021231

	RF	20040406	<a href="#">ASA_XCA_AXVIEC20040406_160451_20030211_000000_20041231_000000</a>	20030211	20041231
	RF	20041027	<a href="#">ASA_XCA_AXVIEC20041027_164238_20040412_000000_20051231_000000</a>	20040412	20051231
	RF	20051013	<a href="#">ASA_XCA_AXVIEC20051013_152531_20050916_195733_20061231_000000</a>	20050916	20061231
	RF	20070215	<a href="#">ASA_XCA_AXVIEC20070215_184638_20070204_165113_20071231_000000</a>	20070204	20071231
	RF	20071218	<a href="#">ASA_XCA_AXVIEC20071218_082742_20070204_165113_20081231_000000</a>	20070204	20081231
	RF	20080710	<a href="#">ASA_XCA_AXVIEC20080710_133546_20070204_165113_20081231_000000</a>	20070204	20081231
	RF	20100302	<a href="#">ASA_XCA_AXVIEC20100302_155508_20090501_000000_20101231_235959</a>	20090501	20101231
	RF	20100315	<a href="#">ASA_XCA_AXVIEC20100315_123052_20090501_000000_20110101_000000</a>	20090501	20101231
	RF	20100608	<a href="#">ASA_XCA_AXVIEC20100608_122638_20100311_094400_20100317_120409</a>	20100311	20100317
	RF	20100608	<a href="#">ASA_XCA_AXVIEC20100608_123419_20100317_120410_20110101_000000</a>	20100317	20110101
	RF	20110526	<a href="#">ASA_XCA_AXVIEC20110526_075734_20101027_215740_20141231_000000</a>	20101027	20141231
IS5 HV	RF	20021217	<a href="#">ASA_XCA_AXVIEC20021217_150852_20020413_000000_20031231_000000</a>	20020413	20031231
	RF	20040406	<a href="#">ASA_XCA_AXVIEC20040406_160451_20030211_000000_20041231_000000</a>	20030211	20041231
	RF	20060223	<a href="#">ASA_XCA_AXVIEC20060223_133247_20050101_000000_20050914_000000</a>	20050101	20050914
	RF	20060717	<a href="#">ASA_XCA_AXVIEC20060717_154125_20050916_195733_20061231_000000</a>	20050916	20061231
	RF	20110526	<a href="#">ASA_XCA_AXVIEC20110526_075734_20101027_215740_20141231_000000</a>	20101027	20141231
IS5 VH	RF	20021217	<a href="#">ASA_XCA_AXVIEC20021217_150852_20020413_000000_20031231_000000</a>	20020413	20031231
	RF	20040406	<a href="#">ASA_XCA_AXVIEC20040406_160451_20030211_000000_20041231_000000</a>	20030211	20041231
	RF	20060223	<a href="#">ASA_XCA_AXVIEC20060223_133247_20050101_000000_20050914_000000</a>	20050101	20050914

	RF	20110526	<a href="#">ASA_XCA_AXVIEC20110526_075734_20101027_215740_20141231_000000</a>	20101027	20141231
IS6_SS5 VV	RF	20020813	<a href="#">ASA_XCA_AXVIEC20020813_080042_20020413_000000_20021231_000000</a>	20020413	20021231
	RF	20021018	<a href="#">ASA_XCA_AXVIEC20021018_121708_20020413_000000_20021231_000000</a>	20020413	20021231
	RF	20030801	<a href="#">ASA_XCA_AXVIEC20030801_133024_20030428_000000_20031231_000000</a>	20030428	20031231
	RF	20030801	<a href="#">ASA_XCA_AXVIEC20030801_134802_20020413_000000_20030211_000000</a>	20020413	20030211
	RF	20030827	<a href="#">ASA_XCA_AXVIEC20030827_140210_20030211_000000_20031231_000000</a>	20030211	20031231
	RF	20051013	<a href="#">ASA_XCA_AXVIEC20051013_152245_20050101_000000_20050914_080040</a>	20050101	20050914
	RF	20070222	<a href="#">ASA_XCA_AXVIEC20070222_185842_20070204_165113_20071231_000000</a>	20070204	20071231
	RF	20070517	<a href="#">ASA_XCA_AXVIEC20070517_153558_20070204_165113_20071231_000000</a>	20070204	20071231
	RF	20080710	<a href="#">ASA_XCA_AXVIEC20080710_133546_20070204_165113_20081231_000000</a>	20070204	20081231
	RF	20100302	<a href="#">ASA_XCA_AXVIEC20100302_155508_20090501_000000_20101231_235959</a>	20090501	20101231
	RF	20100315	<a href="#">ASA_XCA_AXVIEC20100315_123052_20090501_000000_20110101_000000</a>	20090501	20101231
	RF	20100608	<a href="#">ASA_XCA_AXVIEC20100608_122638_20100311_094400_20100317_120409</a>	20100311	20100317
	RF	20100608	<a href="#">ASA_XCA_AXVIEC20100608_123419_20100317_120410_20110101_000000</a>	20100317	20110101
	RF	20110526	<a href="#">ASA_XCA_AXVIEC20110526_075734_20101027_215740_20141231_000000</a>	20101027	20141231
	IS6_SS5 HH	RF	20021107	<a href="#">ASA_XCA_AXVIEC20021107_144746_20020413_000000_20021231_000000</a>	20020413
RF		20030801	<a href="#">ASA_XCA_AXVIEC20030801_133024_20030428_000000_20031231_000000</a>	20030428	20031231
RF		20030801	<a href="#">ASA_XCA_AXVIEC20030801_134802_20020413_000000_20030211_000000</a>	20020413	20030211
RF		20030827	<a href="#">ASA_XCA_AXVIEC20030827_140210_20030211_000000_20031231_000000</a>	20030211	20031231

	RF	20041027	ASA_XCA_AXVIEC20041027_164238_20040412_000000_20051231_000000	20040412	20051231
	RF	20051013	ASA_XCA_AXVIEC20051013_152245_20050101_000000_20050914_080040	20050101	20050914
	RF	20051013	ASA_XCA_AXVIEC20051013_152531_20050916_195733_20061231_000000	20050916	20061231
	RF	20070215	ASA_XCA_AXVIEC20070215_184638_20070204_165113_20071231_000000	20070204	20071231
	RF	20070517	ASA_XCA_AXVIEC20070517_153558_20070204_165113_20071231_000000	20070204	20071231
	RF	20080710	ASA_XCA_AXVIEC20080710_133546_20070204_165113_20081231_000000	20070204	20081231
	RF	20090311	ASA_XCA_AXVIEC20090311_104037_20070204_165113_20080731_235959	20070204	20080731
	RF	20090311	ASA_XCA_AXVIEC20090311_104501_20080801_000000_20091231_235959	20080801	20091231
	RF	20100608	ASA_XCA_AXVIEC20100608_122638_20100311_094400_20100317_120409	20100311	20100317
	RF	20100608	ASA_XCA_AXVIEC20100608_123419_20100317_120410_20110101_000000	20100317	20110101
	RF	20110526	ASA_XCA_AXVIEC20110526_075734_20101027_215740_20141231_000000	20101027	20141231
IS6 HV	SYN.	20021217	ASA_XCA_AXVIEC20021217_150852_20020413_000000_20031231_000000	20020413	20031231
	RF	20040406	ASA_XCA_AXVIEC20040406_160451_20030211_000000_20041231_000000	20030211	20041231
	RF	20060223	ASA_XCA_AXVIEC20060223_133247_20050101_000000_20050914_000000	20050101	20050914
	RF	20060717	ASA_XCA_AXVIEC20060717_154125_20050916_195733_20061231_000000	20050916	20061231
	RF	20070517	ASA_XCA_AXVIEC20070517_153558_20070204_165113_20071231_000000	20070204	20071231
	RF	20110526	ASA_XCA_AXVIEC20110526_075734_20101027_215740_20141231_000000	20101027	20141231
IS6 VH	RF	20021217	ASA_XCA_AXVIEC20021217_150852_20020413_000000_20031231_000000	20020413	20031231
	RF	20040406	ASA_XCA_AXVIEC20040406_160451_20030211_000000_20041231_000000	20030211	20041231

	RF	20060223	<a href="#">ASA_XCA_AXVIEC20060223_133247_20050101_000000_20050914_000000</a>	20050101	20050914
	RF	20060717	<a href="#">ASA_XCA_AXVIEC20060717_154125_20050916_195733_20061231_000000</a>	20050916	20061231
	RF	20070517	<a href="#">ASA_XCA_AXVIEC20070517_153558_20070204_165113_20071231_000000</a>	20070204	20071231
	RF	20110526	<a href="#">ASA_XCA_AXVIEC20110526_075734_20101027_215740_20141231_000000</a>	20101027	20141231
IS7 VV	RF	20020813	<a href="#">ASA_XCA_AXVIEC20020813_080042_20020413_000000_20021231_000000</a>	20020413	20021231
	RF	20070517	<a href="#">ASA_XCA_AXVIEC20070517_153558_20070204_165113_20071231_000000</a>	20070204	20071231
	RF	20100302	<a href="#">ASA_XCA_AXVIEC20100302_155508_20090501_000000_20101231_235959</a>	20090501	20101231
	RF	20100315	<a href="#">ASA_XCA_AXVIEC20100315_123052_20090501_000000_20110101_000000</a>	20090501	20101231
	RF	20100608	<a href="#">ASA_XCA_AXVIEC20100608_123419_20100317_120410_20110101_000000</a>	20100317	20110101
	RF	20110526	<a href="#">ASA_XCA_AXVIEC20110526_075734_20101027_215740_20141231_000000</a>	20101027	20141231
IS7 HH	RF	20021107	<a href="#">ASA_XCA_AXVIEC20021107_144746_20020413_000000_20021231_000000</a>	20020413	20021231
	RF	20070517	<a href="#">ASA_XCA_AXVIEC20070517_153558_20070204_165113_20071231_000000</a>	20070204	20071231
	RF	20090311	<a href="#">ASA_XCA_AXVIEC20090311_104037_20070204_165113_20080731_235959</a>	20070204	20080731
	RF	20090311	<a href="#">ASA_XCA_AXVIEC20090311_104501_20080801_000000_20091231_235959</a>	20080801	20091231
	RF	20100302	<a href="#">ASA_XCA_AXVIEC20100302_155508_20090501_000000_20101231_235959</a>	20090501	20101231
	RF	20100315	<a href="#">ASA_XCA_AXVIEC20100315_123052_20090501_000000_20110101_000000</a>	20090501	20101231
	RF	20100608	<a href="#">ASA_XCA_AXVIEC20100608_123419_20100317_120410_20110101_000000</a>	20100317	20110101
	RF	20110526	<a href="#">ASA_XCA_AXVIEC20110526_075734_20101027_215740_20141231_000000</a>	20101027	20141231
IS7 HV	RF	20021217	<a href="#">ASA_XCA_AXVIEC20021217_150852_20020413_000000_20031231_000000</a>	20020413	20031231

	RF	20060223	ASA_XCA_AXVIEC20060223_133247_20050101_000000_20050914_000000	20050101	20050914
	RF	20060717	ASA_XCA_AXVIEC20060717_154125_20050916_195733_20061231_000000	20050916	20061231
	RF	20070517	ASA_XCA_AXVIEC20070517_153558_20070204_165113_20071231_000000	20070204	20071231
	RF	20110526	ASA_XCA_AXVIEC20110526_075734_20101027_215740_20141231_000000	20101027	20141231
IS7 VH	RF	20021217	ASA_XCA_AXVIEC20021217_150852_20020413_000000_20031231_000000	20020413	20031231
	RF	20060223	ASA_XCA_AXVIEC20060223_133247_20050101_000000_20050914_000000	20050101	20050914
	RF	20060717	ASA_XCA_AXVIEC20060717_154125_20050916_195733_20061231_000000	20050916	20061231
	RF	20070517	ASA_XCA_AXVIEC20070517_153558_20070204_165113_20071231_000000	20070204	20071231
	RF	20110526	ASA_XCA_AXVIEC20110526_075734_20101027_215740_20141231_000000	20101027	20141231
SS1 VV	RF	20020813	ASA_XCA_AXVIEC20020813_080042_20020413_000000_20021231_000000	20020413	20021231
	RF	20021018	ASA_XCA_AXVIEC20021018_121708_20020413_000000_20021231_000000	20020413	20021231
	RF	20030801	ASA_XCA_AXVIEC20030801_133024_20030428_000000_20031231_000000	20030428	20031231
	RF	20030801	ASA_XCA_AXVIEC20030801_134802_20020413_000000_20030211_000000	20020413	20030211
	RF	20030827	ASA_XCA_AXVIEC20030827_140210_20030211_000000_20031231_000000	20030211	20031231
	RF	20040406	ASA_XCA_AXVIEC20040406_160451_20030211_000000_20041231_000000	20030211	20041231
	RF	20051013	ASA_XCA_AXVIEC20051013_152245_20050101_000000_20050914_080040	20050101	20050914
	RF	20051013	ASA_XCA_AXVIEC20051013_152531_20050916_195733_20061231_000000	20050916	20061231
	RF	20051219	ASA_XCA_AXVIEC20051219_162245_20050916_195733_20061231_000000	20050916	20061231
	RF	20070222	ASA_XCA_AXVIEC20070222_185842_20070204_165113_20071231_000000	20070204	20071231

	RF	20090311	ASA_XCA_AXVIEC20090311_104037_20070204_165113_20080731_235959	20070204	20080731
	RF	20090311	ASA_XCA_AXVIEC20090311_104501_20080801_000000_20091231_235959	20080801	20091231
	RF	20100302	ASA_XCA_AXVIEC20100302_155508_20090501_000000_20101231_235959	20090501	20101231
	RF	20100315	ASA_XCA_AXVIEC20100315_123052_20090501_000000_20110101_000000	20090501	20101231
	RF	20100608	ASA_XCA_AXVIEC20100608_122638_20100311_094400_20100317_120409	20100311	20100317
	RF	20100608	ASA_XCA_AXVIEC20100608_123419_20100317_120410_20110101_000000	20100317	20110101
	RF	20110526	ASA_XCA_AXVIEC20110526_075734_20101027_215740_20141231_000000	20101027	20141231
SS1 HH	RF	20021107	ASA_XCA_AXVIEC20021107_144746_20020413_000000_20021231_000000	20020413	20021231
	RF	20030801	ASA_XCA_AXVIEC20030801_133024_20030428_000000_20031231_000000	20030428	20031231
	RF	20030801	ASA_XCA_AXVIEC20030801_134802_20020413_000000_20030211_000000	20020413	20030211
	RF	20030827	ASA_XCA_AXVIEC20030827_140210_20030211_000000_20031231_000000	20030211	20031231
	RF	20040406	ASA_XCA_AXVIEC20040406_160451_20030211_000000_20041231_000000	20030211	20041231
	RF	20040812	ASA_XCA_AXVIEC20040812_170224_20040412_000000_20041231_000000	20040412	20041231
	RF	20051013	ASA_XCA_AXVIEC20051013_152245_20050101_000000_20050914_080040	20050101	20050914
	RF	20051013	ASA_XCA_AXVIEC20051013_152531_20050916_195733_20061231_000000	20050916	20061231
	RF	20051219	ASA_XCA_AXVIEC20051219_162245_20050916_195733_20061231_000000	20050916	20061231
	RF	20070215	ASA_XCA_AXVIEC20070215_184638_20070204_165113_20071231_000000	20070204	20071231
	RF	20080710	ASA_XCA_AXVIEC20080710_133546_20070204_165113_20081231_000000	20070204	20081231
	RF	20090311	ASA_XCA_AXVIEC20090311_104037_20070204_165113_20080731_235959	20070204	20080731



	RF	20090311	<a href="#">ASA_XCA_AXVIEC20090311_104501_20080801_000000_20091231_235959</a>	20080801	20091231
	RF	20100302	<a href="#">ASA_XCA_AXVIEC20100302_155508_20090501_000000_20101231_235959</a>	20090501	20101231
	RF	20100315	<a href="#">ASA_XCA_AXVIEC20100315_123052_20090501_000000_20110101_000000</a>	20090501	20101231
	RF	20100608	<a href="#">ASA_XCA_AXVIEC20100608_122638_20100311_094400_20100317_120409</a>	20100311	20100317
	RF	20101111	<a href="#">ASA_XCA_AXVIEC20101111_113830_20100601_000000_20141231_00000</a>	20100601	20141231
	RF	20110526	<a href="#">ASA_XCA_AXVIEC20110526_075734_20101027_215740_20141231_000000</a>	20101027	20141231

## 7 AUXILIARY FILES UPDATE

### 7.1 *Operational Auxiliary Data Files*

The ASAR auxiliary data files contain information on calibration and instrument parameters. The auxiliary files used at the end of the reporting period for the operational processing of ASAR data in the ENVISAT Ground Segment, are listed below. The three dates in the auxiliary file name are the creation date, start acquisition date and end acquisition date respectively. During the reported period no new auxiliary files were disseminated.

New files are shown in bold italics, retired files are shown in italics.

#### **Processor configuration file (CON)**

##### **Current versions**

***ASA\_CON\_AXVIEC20110526\_075001\_20101027\_215740\_20141231\_000000***  
***ASA\_CON\_AXVIEC20101222\_141422\_20100317\_120410\_20141231\_000000***  
***ASA\_CON\_AXVIEC20100608\_124939\_20100311\_094400\_20100317\_120409***  
***ASA\_CON\_AXVIEC20091217\_101713\_20070204\_165113\_20101231\_000000***  
***ASA\_CON\_AXVIEC20080604\_143203\_20050916\_195733\_20070204\_165113***  
***ASA\_CON\_AXVIEC20080610\_122458\_20030601\_000000\_20050916\_195733***  
***ASA\_CON\_AXVIEC20080604\_143539\_20021017\_130000\_20030601\_000000***

##### **Previous versions**

*ASA\_CON\_AXVIEC20100608\_125449\_20100317\_120410\_20101231\_000000*  
*ASA\_CON\_AXVIEC20081215\_141339\_20070204\_165113\_20091231\_000000*  
*ASA\_CON\_AXVIEC20080710\_132557\_20070204\_165113\_20081231\_000000*  
*ASA\_CON\_AXVIEC20071218\_084201\_20070204\_165113\_20081231\_000000*  
*ASA\_CON\_AXVIEC20080610\_122458\_20030601\_000000\_20050916\_195733*  
*ASA\_CON\_AXVIEC20070215\_183645\_20050916\_195733\_20070204\_165113*  
*ASA\_CON\_AXVIEC20070202\_163902\_20030601\_000000\_20050916\_195733*  
*ASA\_CON\_AXVIEC20060614\_160050\_20021017\_130000\_20030601\_000000*  
*ASA\_CON\_AXVIEC20070410\_140202\_20070204\_165113\_20071231\_000000*  
*ASA\_CON\_AXVIEC20070313\_165336\_20070314\_043800\_20070314\_045200*  
*ASA\_CON\_AXVIEC20070320\_170948\_20070321\_003000\_20070321\_050000*  
*ASA\_CON\_AXVIEC20070326\_152930\_20070327\_000000\_20070328\_000000*  
*ASA\_CON\_AXVIEC20070328\_163753\_20070329\_000000\_20070330\_120000*  
*ASA\_CON\_AXVIEC20070212\_170541\_20070213\_214400\_20070213\_214900*  
*ASA\_CON\_AXVIEC20070215\_184018\_20070204\_165113\_20071231\_000000*  
*ASA\_CON\_AXVIEC20070222\_190441\_20070204\_165113\_20071231\_000000*  
*ASA\_CON\_AXVIEC20061107\_090002\_20050916\_195733\_20071231\_000000*  
*ASA\_CON\_AXVIEC20051013\_151540\_20050916\_195733\_20061231\_000000*  
*ASA\_CON\_AXVIEC20050324\_172815\_20030601\_000000\_20051231\_000000*

#### **External calibration file (XCA)**

There is a two day gap in file coverage between 14th and 16th September 2005; data is unavailable during this period due to antenna maintenance.

### **Current versions**

[ASA\\_XCA\\_AXVIEC20110526\\_075734\\_20101027\\_215740\\_20141231\\_000000](#)  
[ASA\\_XCA\\_AXVIEC20101111\\_113830\\_20100601\\_000000\\_20141231\\_000000](#)  
[ASA\\_XCA\\_AXVIEC20100608\\_123419\\_20100317\\_120410\\_20110101\\_000000](#)  
[ASA\\_XCA\\_AXVIEC20100608\\_122638\\_20100311\\_094400\\_20100317\\_120409](#)  
[ASA\\_XCA\\_AXVIEC20100315\\_123052\\_20090501\\_000000\\_20110101\\_000000](#)  
[ASA\\_XCA\\_AXVIEC20091217\\_114112\\_20080801\\_000000\\_20101231\\_235959](#)  
[ASA\\_XCA\\_AXVIEC20090311\\_104037\\_20070204\\_165113\\_20080731\\_235959](#)  
[ASA\\_XCA\\_AXVIEC20070215\\_184408\\_20050916\\_195733\\_20070204\\_165113](#)  
[ASA\\_XCA\\_AXVIEC20070130\\_111710\\_20050101\\_000000\\_20050914\\_000000](#)  
[ASA\\_XCA\\_AXVIEC20070130\\_111449\\_20040412\\_000000\\_20050101\\_000000](#)  
[ASA\\_XCA\\_AXVIEC20070130\\_111245\\_20030804\\_000000\\_20040412\\_000000](#)  
[ASA\\_XCA\\_AXVIEC20070130\\_111029\\_20030601\\_000000\\_20030804\\_000000](#)  
[ASA\\_XCA\\_AXVIEC20070130\\_110635\\_20030211\\_000000\\_20030601\\_000000](#)  
[ASA\\_XCA\\_AXVIEC20070130\\_105508\\_20020413\\_000000\\_20030211\\_000000](#)

### **Previous versions**

[ASA\\_XCA\\_AXVIEC20100302\\_155508\\_20090501\\_000000\\_20101231\\_235959](#)  
[ASA\\_XCA\\_AXVIEC20090311\\_104501\\_20080801\\_000000\\_20091231\\_235959](#)  
[ASA\\_XCA\\_AXVIEC20081215\\_141741\\_20070204\\_165113\\_20091231\\_000000](#)  
[ASA\\_XCA\\_AXVIEC20080710\\_133546\\_20070204\\_165113\\_20081231\\_000000](#)  
[ASA\\_XCA\\_AXVIEC20071218\\_082742\\_20070204\\_165113\\_20081231\\_000000](#)  
[ASA\\_XCA\\_AXVIEC20070517\\_153558\\_20070204\\_165113\\_20071231\\_000000](#)  
[ASA\\_XCA\\_AXVIEC20070222\\_185842\\_20070204\\_165113\\_20071231\\_000000](#)  
[ASA\\_XCA\\_AXVIEC20070215\\_184408\\_20050916\\_195733\\_20070204\\_165113](#)  
[ASA\\_XCA\\_AXVIEC20070215\\_184638\\_20070204\\_165113\\_20071231\\_000000](#)  
[ASA\\_XCA\\_AXVIEC20061221\\_143253\\_20050916\\_195733\\_20071231\\_000000](#)  
[ASA\\_XCA\\_AXVIEC20060717\\_154125\\_20050916\\_195733\\_20061231\\_000000](#)  
[ASA\\_XCA\\_AXVIEC20060620\\_132802\\_20030211\\_000000\\_20030601\\_000000](#)  
[ASA\\_XCA\\_AXVIEC20060620\\_133409\\_20030601\\_000000\\_20030804\\_000000](#)  
[ASA\\_XCA\\_AXVIEC20060620\\_133829\\_20030804\\_000000\\_20040412\\_000000](#)  
[ASA\\_XCA\\_AXVIEC20060620\\_145317\\_20020413\\_000000\\_20030211\\_000000](#)  
[ASA\\_XCA\\_AXVIEC20060223\\_133247\\_20050101\\_000000\\_20050914\\_000000](#)  
[ASA\\_XCA\\_AXVIEC20051013\\_151933\\_20040412\\_000000\\_20050101\\_000000](#)

### **Instrument auxiliary file (INS)**

#### **Current versions**

[ASA\\_INS\\_AXVIEC20110124\\_114858\\_20101228\\_112000\\_20141231\\_235959](#)  
[ASA\\_INS\\_AXVIEC20101222\\_143805\\_20101022\\_000000\\_20141231\\_235959](#)  
[ASA\\_INS\\_AXVIEC20091217\\_114637\\_20090428\\_100000\\_20101231\\_235959](#)  
[ASA\\_INS\\_AXVIEC20090525\\_115408\\_20070307\\_060000\\_20090428\\_095959](#)  
[ASA\\_INS\\_AXVIEC20071218\\_083603\\_20070307\\_060000\\_20081231\\_000000](#)  
[ASA\\_INS\\_AXVIEC20070227\\_105626\\_20070228\\_060000\\_20071231\\_000000](#)  
[ASA\\_INS\\_AXVIEC20061220\\_105425\\_20030211\\_000000\\_20071231\\_000000](#)  
[ASA\\_INS\\_AXVIEC20031209\\_113259\\_20021030\\_110000\\_20030211\\_000000](#)

#### **Previous versions**

ASA\_INS\_AXVIEC20101028\_095209\_20101022\_000000\_20101231\_235959  
ASA\_INS\_AXVIEC20101018\_101437\_20101022\_000000\_20101231\_235959  
ASA\_INS\_AXVIEC20090525\_114808\_20090428\_100000\_20091231\_235959  
ASA\_INS\_AXVIEC20081215\_140905\_20070307\_060000\_20091231\_000000  
ASA\_INS\_AXVIEC20070306\_164819\_20070307\_060000\_20071231\_000000  
ASA\_INS\_XXVIEC20070223\_140724\_20070226\_000000\_20071231\_000000  
ASA\_INS\_AXVIEC20051219\_161945\_20030211\_000000\_20061231\_000000  
ASA\_INS\_AXVIEC20031209\_113259\_20021030\_110000\_20030211\_000000  
ASA\_INS\_AXVIEC20031212\_105841\_20021017\_162400\_20021030\_110000  
ASA\_INS\_AXVIEC20031212\_122530\_20020815\_131000\_20021017\_162400

## **External characterization file (XCH)**

### **Current version**

**[ASA\\_XCH\\_AXVIEC20101222\\_143057\\_20020301\\_000000\\_20141231\\_000000](#)**

### **Previous versions**

ASA\_XCH\_AXVIEC20091217\_113006\_20020301\_000000\_20101231\_000000  
ASA\_XCH\_AXVIEC20081215\_143642\_20020301\_000000\_20091231\_000000  
ASA\_XCH\_AXVIEC20051219\_162547\_20020301\_000000\_20081231\_000000  
ASA\_XCH\_AXVIEC20051219\_162547\_20020301\_000000\_20081231\_000000  
ASA\_XCH\_AXVIEC20041215\_180350\_20020301\_000000\_20051231\_000000  
ASA\_XCH\_AXVIEC20031209\_112947\_20020301\_000000\_20041231\_000000  
ASA\_XCH\_AXVIEC20021217\_151302\_20020301\_000000\_20031231\_000000  
ASA\_XCH\_AXVIEC20021030\_125700\_20020301\_000000\_20021231\_000000  
ASA\_XCH\_AXVIEC20021018\_121101\_20020301\_000000\_20021231\_000000  
ASA\_XCH\_AXVIEC20020308\_113032\_20020301\_000000\_20021231\_000000

These files as well as the previous versions of them can be downloaded from:

[http://earth.eo.esa.int/services/auxiliary\\_data/asar/](http://earth.eo.esa.int/services/auxiliary_data/asar/).

## **7.2 *Recent Auxiliary File Updates and Description of Changes***

Details of auxiliary file updates are listed below (most recent changes at the end) and those from the current period are boxed:

**[ASA\\_XCA\\_AXVIEC20041129\\_173057\\_20020413\\_000000\\_20030211\\_000000](#)**

- ✓ Absolute calibration constant values updated for data acquired during this period. Major changes affect AP IS5 and IS7 products.
- ✓ Other parameters are the same as previous XCA file covering this time period (file created on 20030801).

**[ASA\\_XCA\\_AXVIEC20041028\\_154000\\_20030804\\_000000\\_20040412\\_000000](#)**

- ✓ The SS2-VV elevation antenna pattern used for data acquired after 12 April 2004 is also applied now to data acquired after 4 August 2004.

- ✓ New calibration constant (K) for WV IS2 VV after the DSS change in May 2003. Due to the drift observed in the WV K after May2003, the new value is valid since 1 June 2003 till 12 April 2004. The K value for WV IS2 VV for this period is 51571.6
- ✓ Updated elevation antenna pattern for SS3 VV. Valid since 4 Aug 2003.

**ASA\_CON\_AXVIEC20041027\_165251\_20021017\_130000\_20051231\_000000**

- ✓ File consistent with updated format in PF-ASAR v4.0 (additional parameters in spare fields included and parameters for the new WSS product included).
- ✓ Normalization for WSM products changed to Reference Energy.
- ✓ Updated reference energy values for WSM products (values in dB):
- ✓ HH (from SS1 to SS5): 1.08, 6.96, 7.5, 7.95, 9.13
- ✓ VV (from SS1 to SS5): 1.11, 6.9, 7.5, 7.95, 9.1

**ASA\_XCA\_AXVIEC20041027\_164238\_20040412\_000000\_20051231\_000000**

- ✓ Updated calibration constant (K) for WV IS2 VV to follow an observed drift. The new K is valid since 12 April 2004. with a value of 50222.9
- ✓ Updated elevation antenna patterns for: SS2 HH, SS4 HH, SS5 HH. They are valid since 12 April 2004.
- ✓ Updated elevation antenna pattern for SS3 VV. Valid since 4 Aug 2003 (this is the same pattern as in file valid from 4-Aug-04 to 12-Apr-04).

**ASA\_XCA\_AXVIEC20041027\_163611\_20030601\_000000\_20030804\_000000**

- ✓ New calibration constant (K) for WV IS2 after the DSS change in May 2003. Due to the drift observed in the WV K after May2003. The new K is valid since 1 June 2003 till 12 April 2004 with a value of 51571.6

**ASA\_XCA\_AXVIEC20041027\_162907\_20030211\_000000\_20030601\_000000**

- ✓ Created to use a different K for WV (IS2 VV) before and after May 2003.
- ✓ No changes with respect to the previous XCA file covering this time period.

**ASA\_XCA\_AXVIEC20040812\_170224\_20040412\_000000\_20041231\_000000**

- ✓ Update of elevation antenna pattern for: SS1\_HH, SS2\_IS3\_HH, SS3\_IS4\_HH and SS2\_IS3\_VV.

**ASA\_INS\_AXVIEC20040521\_160843\_20030211\_000000\_20041231\_000000**

- ✓ GM ISG increased by 1 for all sub-swaths

**ASA\_CON\_AXVIEC20040407\_173947\_20021017\_130000\_20041231\_000000**

- ✓ Increased GM SS3 HH gain (by decreasing 0.5 dB the Eq. Energy for GM SS3 HH)

**ASA\_XCA\_AXVIEC20040406\_160451\_20030211\_000000\_20041231\_000000**

- ✓ Updated elevation patterns for: SS1 HH-VV, IS1 VV-VH, IS2 HH-VV-HV-VH, IS4 HV-VH, IS5 HH-HV-VH, IS6 HV-VH

**ASA\_XCA\_AXVIEC20040326\_190217\_20030211\_000000\_20041231\_000000**

- ✓ Inserted calibration constant for GMM products: 73.4 dB for HH and 74.0 dB for VV.

**ASA\_CON\_AXVIEC20040322\_164757\_20021017\_130000\_20041231\_000000**

- ✓ Same as last update (20040308): Updated AP Eq. Energy values (different per each polarization).
- ✓ Changed AP normalization method from reference energy to equivalent energy.
- ✓ Enable DAR for GM.

**ASA\_CON\_AXVIEC20040308\_103426\_20021017\_130000\_20041231\_000000**

- ✓ Updated AP Eq. Energy values (different per each polarization).
- ✓ Changed AP normalization method from reference energy to equivalent energy.
- ✓ Enable DAR for GM.

**ASA\_INS\_AXVIEC20031212\_122530\_20020815\_131000\_20021017\_162400**

- ✓ SWST bias updated.

**ASA\_CON\_AXVIEC20031212\_122409\_20021017\_130000\_20041231\_000000**

- ✓ End validity date extended till 31-12-2004

**ASA\_INS\_AXVIEC20031212\_105841\_20021017\_162400\_20021030\_110000**

- ✓ SWST bias updated

**ASA\_CON\_AXVIEC20031212\_105603\_20021017\_130000\_20031231\_000000**

- ✓ Dates adjusted to previous ASA\_CON\_AX version from 09-09-03.

**ASA\_XCA\_AXVIEC20031209\_113559\_20030211\_000000\_20041231\_000000**

- ✓ End validity time extended until 31 December 2004.
- ✓ Elevation antenna patterns updated for: IS1 VV, IS1 HH, IS1 VH, IS2 VV and SS2\_IS3 HH.

**ASA\_INS\_AXVIEC20031209\_113421\_20030211\_000000\_20041231\_000000**

- ✓ SWST Bias updated.
- ✓ End validity time extended until 31 December 2004.

**ASA\_INS\_AXVIEC20031209\_113259\_20021030\_110000\_20030211\_000000**

- ✓ SWST Bias updated

**ASA\_XCH\_AXVIEC20031209\_112947\_20020301\_000000\_20041231\_000000**

- ✓ End validity time extended until 31 December 2004

**ASA\_CON\_AXVIEC20031209\_112721\_20020301\_000000\_20041231\_000000**

- ✓ End validity time extended until 12 December 2004

**ASA\_CON\_AXVIEC20041215\_175442\_20030601\_000000\_20051231\_000000**

- ✓ Image mode (IM) Reference Energy updated for data acquired after the DSS redundancy change in May 2003. IM Reference Energy before the DSS redundancy change can be found in the ASA\_CON\_AXVIEC20041215\_180008\_20021017\_130000\_20030601\_000000 file. End validity time extended to 31-DEC-2005.

**ASA\_CON\_AXVIEC20041215\_180008\_20021017\_130000\_20030601\_000000**

✓ File created to have different reference energy values before/after the DSS change after May 2003.

**ASA\_XCH\_AXVIEC20041215\_180350\_20020301\_000000\_20051231\_000000**

✓ End validity time extended to 31-DEC-2005.

**ASA\_INS\_AXVIEC20041215\_180208\_20030211\_000000\_20051231\_000000**

✓ End validity time extended to 31-DEC-2005.

**ASA\_CON\_AXVIEC20050324\_172815\_20030601\_000000\_20051231\_000000**

✓ WSS processing gain values set.

**ASA\_XCA\_AXXIEC20050803\_151858\_20020413\_000000\_20030211\_000000**

✓ Inserted calibration constant values for ASA\_WSS\_1P product HH & VV (=80.28 dB)

**ASA\_XCA\_AXXIEC20050803\_150715\_20030211\_000000\_20030601\_000000**

✓ Inserted calibration constant values for ASA\_WSS\_1P product HH & VV (=80.28 dB)

**ASA\_XCA\_AXXIEC20050803\_151318\_20030601\_000000\_20030804\_000000**

✓ Inserted calibration constant values for ASA\_WSS\_1P product HH & VV (=80.28 dB)

**ASA\_XCA\_AXXIEC20050803\_151945\_20030804\_000000\_20040412\_000000**

✓ Inserted calibration constant values for ASA\_WSS\_1P product HH & VV (=80.28 dB)

**ASA\_XCA\_AXXIEC20050803\_152145\_20040412\_000000\_20051231\_000000**

✓ Inserted calibration constant values for ASA\_WSS\_1P product HH & VV (=80.28 dB)

**ASA\_CON\_AXVIEC20051013\_151540\_20050916\_195733\_20061231\_000000**

✓ Update after the antenna maintenance, refinement operation performed on 16 Sep.2005. Eq.Energy updated for WS HH SS1,SS5 and GM HH SS1 Change in Eq. Energy for: WS HH SS1: from 1.08 dB to 1.15 dB, WS HH SS3: from 9.13 dB to 9.20 dB, GM HH SS1: from 16.43 dB to 16.73 dB

**ASA\_XCA\_AXVIEC20051013\_151933\_20040412\_000000\_20050101\_000000**

✓ Same content as:ASA\_XCA\_AXVIEC20050803\_152145\_20040412\_000000\_20051231\_000000 but split due to changes in the antenna patterns from Jan05

**ASA\_XCA\_AXVIEC20051013\_152245\_20050101\_000000\_20050914\_080040**

✓ Changes in the ScanSAR elevation antenna patterns. New patterns valid from Jan 2005 till 14 Sep.2005. Updated elevation patters: IS3\_SS2 VV, IS4\_SS3 HH &VV, IS5\_SS4 VV, IS6\_SS5 HH & VV, SS1 HH & VV

**ASA\_XCA\_AXVIEC20051013\_152531\_20050916\_195733\_20061231\_000000**

✓ Updated ScanSAR elevation antenna patterns since antenna maintenance refinement on 16 Sep.05. K for WS HH & VV updated as well. Updated elevation patters: IS3\_SS2 HH &VV, IS4\_SS3 HH & VV, IS5\_SS4 HH, IS6\_SS5 HH, SS1 HH & VV. Updated K: WSM HH K: 6309573.44, WSM VV K: 7413102.41

**ASA\_XCA\_AXVIEC20051103\_160021\_20050101\_000000\_20050914\_080040**

✓ Updated of elevation antenna patterns for: IS2 HH and IS2 VV before the antenna maintenance. New patterns valid from Jan 2005 till 14 Sep.2005. Updated elevation patters: IS2 HH & VV

**ASA\_XCA\_AXVIEC20051219\_162245\_20050916\_195733\_20061231\_000000**

✓ User description: Elevation antenna patterns for SS1 HH & VV updated

**ASA\_INS\_AXVIEC20051219\_161945\_20030211\_000000\_20061231\_000000**

✓ User description: End validity date extended till December 2006

**ASA\_XCH\_AXVIEC20051219\_162547\_20020301\_000000\_20081231\_000000**

✓ User description: End validity date extended till December 2008

**ASA\_XCA\_AXVIEC20060223\_133247\_20050101\_000000\_20050914\_000000**

✓ User description: elevation antenna pattern update for beams IS1 to IS7 and polarisation HV and VH

**ASA\_CON\_AXVIEC20060614\_160050\_20021017\_130000\_20030601\_000000**

✓ User description: Processing gain for WSS products updated. Set to same value as for products acquired after 2003-06-01.

**ASA\_XCA\_AXVIEC20060620\_132802\_20030211\_000000\_20030601\_000000**

✓ User description: Update of the reference document in the MPH

**ASA\_XCA\_AXVIEC20060620\_133409\_20030601\_000000\_20030804\_000000**

✓ User description: Update of the reference document in the MPH

**ASA\_XCA\_AXVIEC20060620\_133829\_20030804\_000000\_20040412\_000000**

✓ User description: Update of the reference document in the MPH

**ASA\_XCA\_AXVIEC20060620\_145317\_20020413\_000000\_20030211\_000000**

✓ User description: Update of the reference document in the MPH

**ASA\_XCA\_AXVIEC20060717\_154125\_20050916\_195733\_20061231\_000000**

✓ User description: The following ASAR antenna patterns have been updated: IS1 HV & VH,IS2 HV & VH,IS3 HV & VH,IS4 HV & VH,IS5 HV,IS6 HV & VH,IS7 HV & VH

**ASA\_CON\_AXVIEC20061107\_090002\_20050916\_195733\_20071231\_000000**

✓ User description: Update of the reference chirp energy value for Image Mode, beam IS2, polarisation VV

**ASA\_XCA\_AXVIEC20061221\_143253\_20050916\_195733\_20071231\_000000**

✓ User description: Update of the calibration constant for the following ASAR products: IMM, APM, APP, APS, APG, IMP, IMG, IMS



**ASA\_INS\_AXVIEC20061220\_105425\_20030211\_000000\_20071231\_000000**

✓ User description: End validity date extended to 31 December 2007

**ASA\_XCA\_AXVIEC20070130\_105508\_20020413\_000000\_20030211\_000000**

✓ User description: Update of the calibration constant for the following ASAR products: IMM, APM, APP, APS, APG, IMP, IMG, IMS

**ASA\_XCA\_AXVIEC20070130\_110635\_20030211\_000000\_20030601\_000000**

✓ User description: Update of the calibration constant for the following ASAR products: IMM, APM, APP, APS, APG, IMP, IMG, IMS

**ASA\_XCA\_AXVIEC20070130\_111245\_20030804\_000000\_20040412\_000000**

✓ User description: Update of the calibration constant for the following ASAR products: IMM, APM, APP, APS, APG, IMP, IMG, IMS

**ASA\_XCA\_AXVIEC20070130\_111029\_20030601\_000000\_20030804\_000000**

✓ User description: Update of the calibration constant for the following ASAR products: IMM, APM, APP, APS, APG, IMP, IMG, IMS

**ASA\_XCA\_AXVIEC20070130\_111449\_20040412\_000000\_20050101\_000000**

✓ User description: Update of the calibration constant for the following ASAR products: IMM, APM, APP, APS, APG, IMP, IMG, IMS

**ASA\_XCA\_AXVIEC20070130\_111710\_20050101\_000000\_20050914\_000000**

✓ User description: Update of the calibration constant for the following ASAR products: IMM, APM, APP, APS, APG, IMP, IMG, IMS

**ASA\_CON\_AXVIEC20070202\_163902\_20030601\_000000\_20050916\_195733**

✓ User description: Update of the end validity date

**ASA\_CON\_AXVIEC20070212\_170541\_20070213\_214400\_20070213\_214900**

✓ User description: Update of the end validity date. User description: Enable Doppler Grid ADS creation for ASA\_WSM\_1P products(Validity covers a single segment over Antarctica)

**ASA\_CON\_AXVIEC20070215\_183645\_20050916\_195733\_20070204\_165113**

✓ User description: Update of the end validity date

**ASA\_CON\_AXVIEC20070215\_184018\_20070204\_165113\_20071231\_000000**

✓ User description: Update of the reference chirp energy values for IM and WSM products

**ASA\_XCA\_AXVIEC20070215\_184408\_20050916\_195733\_20070204\_165113**

✓ User description: Update of the end validity date

**ASA\_XCA\_AXVIEC20070215\_184638\_20070204\_165113\_20071231\_000000**

✓ User description: Update of the Antenna elevation pattern gain for HH polarisation for the swaths SS1, IS3/SS2, IS4/SS3, IS5/SS4, IS6/SS5

**ASA\_XCA\_AXVIEC20070222\_185842\_20070204\_165113\_20071231\_000000**

- ✓ User description: For VV polarisation the following antenna elevation pattern have been updated: SS1,IS3\_SS2,IS4\_SS3,IS5\_SS4,IS6\_SS5

**ASA\_CON\_AXVIEC20070222\_190441\_20070204\_165113\_20071231\_000000**

- ✓ User description: Update of the reference chirp energy values for WS products, polarisation VV, swaths SS4,SS5

**ASA\_INS\_AXVIEC20070223\_140724\_20070226\_000000\_20071231\_000000**

- ✓ User description: Update of the M value from 277 to 194 for AP mode, swath IS5 for the AP IS5 test over critical ANX range, planned from 26th Feb 2007 to 17th Mar 2007

**ASA\_INS\_AXVIEC20070227\_105626\_20070228\_060000\_20071231\_000000**

- ✓ User description: Number of pulses per burst for all AP swaths (but IS1) reduced to 194 (same as IS1). Expected to solve/improve the on-board anomalies related to AP usage. CTI-s (CTI\_AIx) will be updated from same start validity date

**ASA\_INS\_AXVIEC20070306\_164819\_20070307\_060000\_20071231\_000000**

- ✓ User description: Update of the number of pulses per burst for all AP swaths IS1=194, IS2=196, IS3=257, IS4=218, IS5=194, IS6=238, IS7=297.

**ASA\_CON\_AXVIEC20070313\_165336\_20070314\_043800\_20070314\_045200**

- ✓ User description: Enable Doppler Grid ADS creation for ASA\_WSM\_1P products (validity covers 2 segments over Antarctica).

**ASA\_CON\_AXVIEC20070320\_170948\_20070321\_003000\_20070321\_050000**

- ✓ User description: Enable WSM Doppler grid for few orbits at PDHS-E.

**ASA\_CON\_AXVIEC20070326\_152930\_20070327\_000000\_20070328\_000000**

- ✓ User description: WSM Doppler grid enabled both at PDHS-K and PDHS-E on 27 march 2007 (24 hours in total).

**ASA\_CON\_AXVIEC20070328\_163753\_20070329\_000000\_20070330\_120000**

- ✓ User description: WSM Doppler grid added at PDHS-E and PDHS-K for 1.5 days.

**ASA\_CON\_AXVIEC20070410\_140202\_20070204\_165113\_20071231\_000000**

- ✓ User description: WSM Doppler grid enabled for the period covered by the latest operational CON file (Feb07-Dec07). Equivalent Energy values updated for IM and WS.

**ASA\_XCA\_AXVIEC20070517\_153558\_20070204\_165113\_20071231\_000000**

- ✓ User description: The following antenna elevation patterns have been updated using data acquired over Amazon RF: IS1[VV, VH], IS2[HH, VV, HV, VH], IS3[HH, VV, HV, VH], IS4[HH, VV, HV, VH], IS5[VV], IS6[HH, VV, HV, VH], IS7[HH, VV, HV, VH].

**ASA\_CON\_AXVIEC20071218\_084201\_20070204\_165113\_20081231\_000000**

- ✓ User description: Extension of the end validity date to 31 December 2008. Update of the reference document to PO-RS-MDA-GS-2009\_08\_4B

**ASA\_INS\_AXVIEC20071218\_083603\_20070307\_060000\_20081231\_000000**

- ✓ User description: Extension of the end validity date to 31 December 2008. Update of the reference document to PO-RS-MDA-GS-2009\_08\_4B.

**ASA\_XCA\_AXVIEC20071218\_082742\_20070204\_165113\_20081231\_000000**

- ✓ User description: The following antenna elevation patterns have been updated using data acquired over Amazon RF: IS1 [HH], IS5 [HH]. Extension of the end validity date to 31 December 2008. Update of the reference document to PO-RS-MDA-GS-2009\_08\_4B.

**ASA\_CON\_AXVIEC20080604\_143203\_20050916\_195733\_20070204\_165113**

- ✓ User description: Enabled “Doppler Centroid Grid ADS” for ASAR WSM products.

**ASA\_CON\_AXVIEC20080604\_143539\_20021017\_130000\_20030601\_000000**

- ✓ User description: Enabled “Doppler Centroid Grid ADS” for ASAR WSM products.

**ASA\_CON\_AXVIEC20080610\_122458\_20030601\_000000\_20050916\_195733**

- ✓ User description: Enabled “Doppler Centroid Grid ADS” for ASAR WSM products.

**ASA\_XCA\_AXVIEC20080710\_133546\_20070204\_165113\_20081231\_000000**

- ✓ User description: The following elevation antenna patterns have been updated: SS1[HH], IS1[HH], IS1[VV], IS3\_SS2[HH], IS3\_SS2[VV], IS4\_SS3[HH], IS5\_SS4[HH], IS5\_SS4[VV], IS6\_SS5[HH], IS6\_SS5[VV].

**ASA\_CON\_AXVIEC20080710\_132557\_20070204\_165113\_20081231\_000000**

- ✓ User description: Updated reference chirp energy values for WSM products, HH and VV polarisations.

**ASA\_INS\_AXVIEC20081215\_140905\_20070307\_060000\_20091231\_000000**

- ✓ User description: Extension of the end validity date up to 31-DEC-2009

**ASA\_CON\_AXVIEC20081215\_141339\_20070204\_165113\_20091231\_000000**

- ✓ User description: Extension of the end validity date up to 31-DEC-2009

**ASA\_XCA\_AXVIEC20081215\_141741\_20070204\_165113\_20091231\_000000**

- ✓ User description: Extension of the end validity date up to 31-DEC-2009

**ASA\_XCH\_AXVIEC20081215\_143642\_20020301\_000000\_20091231\_000000**

- ✓ User description: Extension of the end validity date up to 31-DEC-2009

**ASA\_XCA\_AXVIEC20090311\_104037\_20070204\_165113\_20080731\_235959**

- ✓ User description: Modified end validity time. Replaced 31-DEC-2009 with 31-JUL-2008.

**ASA\_XCA\_AXVIEC20090311\_104501\_20080801\_000000\_20091231\_235959**

- ✓ User description: The following elevation antenna patterns have been updated: SS1[HH&VV], IS1[HH&VV], IS2[HH&VV], IS3[HH&VV], IS4[HH&VV], IS6[HH], IS7[HH]

**ASA\_INS\_AXVIEC20090525\_115408\_20070307\_060000\_20090428\_095959**

- ✓ User description: Update of the end validity date due to ASAR Patch #9.

**ASA\_INS\_AXVIEC20090525\_114808\_20090428\_100000\_20091231\_235959**

- ✓ User description: Update of the M value from 194 to 277 for AP mode, swath IS5. Updated start validity date.

**ASA\_XCH\_AXVIEC20091217\_113006\_20020301\_000000\_20101231\_000000**

- ✓ User description: Extension of the end validity date up to 31-DEC-2010

**ASA\_XCA\_AXVIEC20091217\_114112\_20080801\_000000\_20101231\_235959**

- ✓ User description: Extension of the end validity date up to 31-DEC-2010

**ASA\_INS\_AXVIEC20091217\_114637\_20090428\_100000\_20101231\_235959**

- ✓ User description: Extension of the end validity date up to 31-DEC-2010

**ASA\_CON\_AXVIEC20091217\_101713\_20070204\_165113\_20101231\_000000**

- ✓ User description: Extension of the end validity date up to 31-DEC-2010

**ASA\_XCA\_AXVIEC20100302\_155508\_20090501\_000000\_20101231\_235959**

- ✓ User description: ASAR antenna maintenance

**ASA\_XCA\_AXVIEC20100315\_123052\_20090501\_000000\_20110101\_000000**

- ✓ User description: ASAR antenna maintenance (with corrected IS1 VV antenna pattern)

**ASA\_CON\_AXVIEC20100608\_124939\_20100311\_094400\_20100317\_120409**

- ✓ User description: Updated reference chirp energy values for SS1[VV],SS5[VV]

**ASA\_CON\_AXVIEC20100608\_125449\_20100317\_120410\_20101231\_000000**

- ✓ User description: Updated reference chirp energy values for SS1[VV]

**ASA\_XCA\_AXVIEC20100608\_122638\_20100311\_094400\_20100317\_120409**

- ✓ User description: The following elevation antenna patterns have been updated: IS3[VV&HH],IS4[VV],IS5[HH],IS6[HH&VV],SS1[VV&HH]

**ASA\_XCA\_AXVIEC20100608\_123419\_20100317\_120410\_20110101\_000000**

- ✓ User description: The following elevation antenna patterns have been updated: IS1[HH],IS2[HH],IS3[VV],IS4[HH&VV],IS5[HH&VV],IS6[HH&VV],IS7[HH&VV], SS1[VV]

**ASA\_INS\_AXVIEC20101018\_101437\_20101022\_000000\_20101231\_235959**

- ✓ User description: ADF for Envisat 2010+ as requested by SAR Team (update to transmit pulse phase coefficients and length).

**ASA\_INS\_AXVIEC20101028\_095209\_20101022\_000000\_20101231\_235959**

- ✓ User description: ASA\_INS updated after Envisat Manoeuvre to fix the WS processing failure (M values updated for wide swath mode).

**ASA\_XCA\_AXVIEC20101111\_113830\_20100601\_000000\_20141231\_000000**

- ✓ User description: Updated antenna elevation pattern for swaths IS1 HH and SS1 HH with validity from 1st June 2010.

**ASA\_CON\_AXVIEC20101222\_141422\_20100317\_120410\_20141231\_000000**

- ✓ User description: to extend the end validity date

**ASA\_INS\_AXVIEC20101222\_143805\_20101022\_000000\_20141231\_235959**

- ✓ User description: to extend the end validity date

**ASA\_XCH\_AXVIEC20101222\_143057\_20020301\_000000\_20141231\_000000**

- ✓ User description: to extend the end validity date

**ASA\_INS\_AXVIEC20110124\_114858\_20101228\_112000\_20141231\_235959**

- ✓ User description: Updated WV M values for IS1, IS3, IS4, IS5, IS6 and IS7

**ASA\_XCA\_AXVIEC20110526\_075734\_20101027\_215740\_20141231\_000000**

- ✓ Updated antenna patterns for swaths IS1 to IS7 [HH, VV, HV, VH] and SS1 [HH, VV] with start validity from 27/10/2010

**ASA\_CON\_AXVIEC20110526\_075001\_20101027\_215740\_20141231\_000000**

- ✓ Updated reference chirp energy level for SS5/IS6 [VV] with start validity from 27/10/2010

## APPENDIX A : INSTRUMENT UNAVAILABILITIES LIST

Unavailability report reference	Start	Stop
EN-UNA-2004/0111	14/04/2004 02:45:00	14/04/2004 13:40:00
EN-UNA-2004/0114	20/04/2004 08:15:46	20/04/2004 08:23:31
EN-UNA-2004/0118	20/04/2004 10:00:54	20/04/2004 11:56:40
EN-UNA-2004/0124	26/04/2004 21:32:03	27/04/2004 09:41:43
EN-UNA-2004/0125	29/04/2004 08:32:08	29/04/2004 10:18:18
EN-UNA-2004/0129	02/05/2004 21:32:47	03/05/2004 09:41:44
EN-UNA-2004/0176	12/07/2004 11:21:46	12/07/2004 18:01:40
EN-UNA-2004/0191	04/08/2004 09:19:00	04/08/2004 09:26:00
EN-UNA-2004/0193	05/08/2004 23:07:33	05/08/2004 23:43:27
EN-UNA-2004/0229	12/09/2004 10:54:47	12/09/2004 11:12:40
EN-UNA-2004/0246	23/09/2004 06:13:17	23/09/2004 09:55:38
EN-UNA-2004/0252	26/09/2004 21:24:58	27/09/2004 11:02:04
EN-UNA-2004/0261	17/10/2004 02:28:31	17/10/2004 07:45:11
EN-UNA-2004/0265	01/11/2004 05:00:40	01/11/2004 05:01:40
EN-UNA-2004/0268	03/11/2004 09:59:30 Orbit = 14004	03/11/2004 10:04:58 Orbit = 14004
EN-UNA-2004/0270	07/11/2004 03:41:28 Orbit=14054	07/11/2004 08:00:03 Orbit=14060
EN-UNA-2004/0276	12/11/2004 21:46:59 Orbit = 14140	12/11/2004 23:43:46 Orbit = 14141
EN-UNA-2004/0281	16/11/2004 02:34:15 Orbit = 14185	16/11/2004 03:16:49 Orbit = 14186
EN-UNA-2004/0290	21/11/2004 19:36:58 Orbit = 14267	21/11/2004 22:19:32 Orbit = 14269
EN-UNA-2004/0299	29/11/2004 00:42:03 Orbit = 14370	29/11/2004 03:09:35 Orbit = 14372
EN-UNA-2004/0307	05/12/2004 15:06:14 Orbit = 14465	05/12/2004 15:35:42 Orbit = 14465
EN-UNA-2004/0309	09/12/2004 00:32:56 Orbit=14513	09/12/2004 00:56:03 Orbit=14514
EN-UNA-2004/0314	27/12/2004 01:50:26 Orbit=14772	27/12/2004 07:10:58 Orbit=14775
EN-UNA-2005/0002	01/01/2005 20:17:59 Orbit=14854	01/01/2005 22:37:38 Orbit=14856
EN-UNA-2005/0005	07/01/2005 03:00:00 Orbit=14936	07/01/2005 13:00:00 Orbit=14936

EN-UNA-2005/0010	07/01/2005 13:00:00 Orbit=14936	07/01/2005 18:20:00 Orbit=14939
EN-UNA-2005/0011	09/01/2005 06:39:29 Orbit=14961	09/01/2005 06:45:03 Orbit=14961
EN-UNA-2005/0020	20/01/2005 16:49:16 Orbit = 15124	20/01/2005 17:05:23 Orbit = 15125
EN-UNA-2005/0032	27/01/2005 19:59:57 Orbit = 15226	27/01/2005 22:52:29 Orbit = 15228
EN-UNA-2005/0039	05/02/2005 06:12:44 Orbit = 15347	05/02/2005 09:46:32 Orbit = 15349
EN-UNA-2005/0009	09/02/2005 08:38:15 Orbit = 15406	10/02/2005 00:17:26 Orbit = 15415
EN-UNA-2005/0054	21/02/2005 14:07:52 Orbit=15581	21/02/2005 15:53:57 Orbit=15582
EN-UNA-2005/0071	10/03/2005 10:38:15 Orbit = 15822	10/03/2005 10:49:45 Orbit = 15822
EN-UNA-2005/0072	10/03/2005 20:02:46 Orbit = 15828	10/03/2005 22:00:18 Orbit = 15829
EN-UNA-2005/0073	12/03/2005 15:51:15 Orbit = 15854	12/03/2005 15:56:28 Orbit = 15854
EN-UNA-2005/0078	17 Mar 2005 01:00:00 Orbit = 15917	17 Mar 2005 13:00:00 Orbit = 15924
EN-UNA-2005/0093	22/03/2005 09:03:10 Orbit = 15993	22/03/2005 09:09:10 Orbit = 15993
EN-UNA-2005/0103	02/04/2005 02:48:28 Orbit = 16147	02/04/2005 06:35:25 Orbit = 16149
EN-UNA-2005/0109	06/04/2005 02:53:21 Orbit = 16204	06/04/2005 06:10:08 Orbit = 16206
EN-UNA-2005/0113	13 /04/ 2005 20:21:40 Orbit = 16315	13 /04/ 2005 20:21:40 Orbit = 16315
EN-UNA-2005/0125	21/04/2005 04:17:47 Orbit = 16419	21/04/2005 04:17:47 Orbit = 16419
EN-UNA-2005/0149	12 /05/ 2005 10:50:00 Orbit = 16724	12 /05/ 2005 10:50:00 Orbit = 16724
EN-UNA-2005/0159	18/05/2005 01:49:01 Orbit = 16804	18/05/2005 01:49:01 Orbit = 16804
EN-UNA-2005/0161	18 /05/ 2005 13:57:30 Orbit = 16812	18 /05/ 2005 13:57:30 Orbit = 16812
EN-UNA-2005/0164	20/05/2005 12:09:50 Orbit = 16839	20/05 2005 12:09:50 Orbit = 16839
EN-UNA-2005/0182	01/06/2005 16:44:17 Orbit = 17014	01/06/2005 16:51:19 Orbit = 17014

EN-UNA-2005/0188	06/06/2005 08:11:25 Orbit = 17080	06/06/2005 09:42:14 Orbit = 17081
EN-UNA-2005/0190	11/06/2005 03:19:14 Orbit = 17149	11/06/2005 06:35:30 Orbit = 17151
EN-UNA-2005/0212	01/07/2005 13:54:40 Orbit = 17442	01/07/2005 16:14:21 Orbit = 17443
EN-UNA-2005/0216	04/07/2005 02:55:43 Orbit = 17478	04/07/2005 06:13:02 Orbit = 17480
EN-UNA-2005/0223	5/07/2005 17:16:39 Orbit = 17501	5/07/2005 17:27:11 Orbit = 17501
EN-UNA-2005/0231	10/07/2005 11:15:25 Orbit = 17569	10/07/2005 11:22:12 Orbit = 17569
EN-UNA-2005/0239	16/07/2005 21:03:12 Orbit = 17661	16/07/2005 21:09:19 Orbit = 17661
EN-UNA-2005/0258	24/07/2005 07:22:41 Orbit = 17767	24/07/2005 07:31:40 Orbit = 17767
EN-UNA-2005/0269	03/08/2005 22:01:30 Orbit = 17919	03/10/2005 22:08:56 Orbit = 17919
EN-UNA-2005/0285	15/08/2005 03:41:02 Orbit = 18080	15/08/2005 07:33:52 Orbit = 18082
EN-UNA-2005/0305	22/08/2005 01:25:33 Orbit = 18178	22/08/2005 08:50:14 Orbit = 18183
EN-UNA-2005/0325	24/08/2005 07:50:16 Orbit = 18211	24/08/2005 07:55:55 Orbit = 18211
EN-UNA-2005/0350	31/08/2005 04:11:27 Orbit = 18309	31/08/2005 07:37:21 Orbit = 18309
EN-UNA-2005/0357	06/09/2005 21:02:54 Orbit = 18405	06/09/2005 21:33:29 Orbit = 18405
EN-UNA-2005/0355	07/09/2005 04:20:00 Orbit = 18409	07/09/2005 13:40:00 Orbit = 18415
EN-UNA-2005/0365	14/09/2005 07:51:31 Orbit = 18511	14/09/2005 12:53:26 Orbit = 18514
EN-UNA-2005/0440	21/10/2005 09:22:00 Orbit = 19042	21/10/2005 09:34:58 Orbit = 19042
EN-UNA-2005/0441	23/10/2005 14:46:45 Orbit = 19074	23/10/2005 14:46:55 Orbit = 19074
EN-UNA-2005/0465	20/11/2005 23:20:25 Orbit = 19480	20/11/2005 23:28:50 Orbit = 19480
EN-UNA-2005/0473	11/12/2005 14:04:37.000 Orbit = 19775	11/12/2005 14:14:52.000 Orbit = 19775
EN-UNA-2005/0477	18/12/2005 03:45:26.000 Orbit = 19869	18/12/2005 07:11:19.000 Orbit = 19871
EN-UNA-2006/0009	9 Jan 2006 07:22:23.000 Orbit = 20186	9 Jan 2006 09:05:12.000 Orbit = 20187
EN-UNA-2006/0022	25 Jan 2006 20:24:55.000 Orbit = 20423	25 Jan 2006 20:31:34.000 Orbit 20423



EN-UNA-2006/0038	07/02/2006 01:34:22.000 Orbit = 20598	07/02/2006 05:19:30.000 Orbit = 20600
EN-UNA-2006/0052	17/02/2006 02:45:18.000 Orbit = 20741	17/02/2006 06:41:47.000 Orbit = 20744
EN-UNA-2006/0060	19/02/2006 15:08:07.273 Orbit = 20777	19/02/2006 15:10:44.706 Orbit = 20778
EN-UNA-2006/0069	22/02/2006 11:00:16.000 Orbit = 20818	22/02/2006 11:21:32.000 Orbit = 20818
EN-UNA-2006/0073	24/02/2006 02:19:08.441 Orbit = 20841	24/02/2006 02:23:14.554 Orbit = 20841
EN-UNA-2006/0084	28/02/2006 07:39:56.000 Orbit = 20902	28/02/2006 07:49:38.000 Orbit = 20902
EN-UNA-2006/0102	20/03/2006 07:03:30.000 Orbit = 21188	20/03/2006 07:20:49.559 Orbit = 21188
EN-UNA-2006/0108	28/03/2006 00:39:22.000 Orbit = 21298	28/03/2006 13:13:20.000 Orbit = 21306
EN-UNA-2006/0120	06/04/2006 02:09:26.446 Orbit = 21428	10/04/2006 17:23:03.000 Orbit = 21495
EN-UNA-2006/0122	12/04/2006 20:14:00.000 Orbit = 21525	12/04/2006 20:19:54.776 Orbit = 21525
EN-UNA-2006/0130	19/04/2006 08:18:12.000 Orbit = 21618	19/04/2006 12:00:36.000 Orbit = 21620
EN-UNA-2006/0136	24/04/2006 07:09:20.000 Orbit = 21525	24/04/2006 07:16:59.000 Orbit = 21689
EN-UNA-2006/0140	25/04/2006 14:55:00.000 Orbit = 21708	25/04/2006 15:02:48.000 Orbit = 21708
EN-UNA-2006/0143	30/04/2006 13:55:00.000 Orbit = 21779	30/04/2006 14:04:03.000 Orbit = 21779
EN-UNA-2006/0151	10/05/2006 19:59:10.000 Orbit = 21926	10/05/2006 20:01:38.000 Orbit = 21926
EN-UNA-2006/0155	11/05/2006 06:33:32.000 Orbit = 21932	11/05/2006 06:41:29.000 Orbit = 21932
EN-UNA-2006/0167	22/05/2006 11:04:00.000 Orbit = 22092	22/05/2006 11:23:16.000 Orbit = 22092
EN-UNA-2006/0171	25/05/2006 07:39:00.000 Orbit = 22133	25/05/2006 07:45:47.000 Orbit = 22133
EN-UNA-2006/0185	03/06/2006 22:31:12.000 Orbit = 22271	04/06/2006 00:37:03.000 Orbit = 22272
EN-UNA-2006/0186	04/06/2006 20:07:16.000 Orbit = 22283	04/06/2006 22:58:54.000 Orbit = 22285
EN-UNA-2006/0188	10/06/2006 20:17:47.000 Orbit = 22369	10/06/2006 22:35:24.000 Orbit = 22371
EN-UNA-2006/0190	13/06/2006 07:14:05.000 Orbit = 22405	13/06/2006 07:18:46.000 Orbit = 22405
EN-UNA-2006/0200	22/06/2006 17:42:40.000 Orbit = 22540	22/06/2006 17:49:40.000 Orbit = 22540

EN-UNA-2006/0204	24/06/2006 07:17:00.000 Orbit = 22562	24/06/2006 07:23:52.000 Orbit = 22562
EN-UNA-2006/0212	01/07/2006 08:09:30.000 Orbit = 22663	01/07/2006 08:16:10.000 Orbit = 22663
EN-UNA-2006/0230	26/07/2006 13:28:00.000 Orbit = 23024	26/07/2006 13:41:43.000 Orbit = 23024
EN-UNA-2006/0235	2/8/2006 13:30:01.335 Orbit = 23124	2/08/2006 13:33:09.238 Orbit = 23124
EN-UNA-2006/0237	4/8/2006 10:21:22.000 Orbit = 23151	4/8/2006 10:30:10.000 Orbit = 23151
EN-UNA-2006/0240	8/8/2006 08:19:23.000 Orbit = 23207	8/8/2006 08:28:56.000 Orbit = 23207
EN-UNA-2006/0248	14/8/2006 15:20:59.000 Orbit = 23297	14/8/2006 15:24:38.000 Orbit = 23297
EN-UNA-2006/0254	21/8/2006 14:47:52.107 Orbit = 23397	21/8/2006 14:55:47.108 Orbit = 23397
EN-UNA-2006/0257	24/8/2006 16:40:50.000 Orbit = 23441	24/8/2006 16:47:19.000 Orbit = 23441
EN-UNA-2006/0261	29/8/2006 09:12:28.052 Orbit = 23508	29/8/2006 12:35:07.052 Orbit = 23508
EN-UNA-2006/0263	03/09/2006 06:20:00.000 Orbit = 23578	03/09/2006 06:28:16.000 Orbit = 23578
EN-UNA-2006/0266	03/09/2006 17:59:17.000 Orbit = 23585	03/09/2006 18:07:40.000 Orbit = 23585
EN-UNA-2006/0280	16/09/2006 14:12:15.000 Orbit = 23769	16/09/2006 16:21:03.000 Orbit = 23770
EN-UNA-2006/0290	23/09/2006 13:53:10.877 Orbit = 23869	23/09/2006 16:00:55.216 Orbit = 23870
EN-UNA-2006/0298	1/10/2006 14:43:21.000 Orbit = 23984	1/10/2006 16:41:12.000 Orbit = 23985
EN-UNA-2006/0299	2/10/2006 14:10:16.000 Orbit = 23998	2/10/2006 14:33:51.000 Orbit = 23998
EN-UNA-2006/0300	3/10/2006 13:38:04.000 Orbit = 24012	3/10/2006 13:57:04.000 Orbit = 24012
EN-UNA-2006/0303	6/10/2006 10:57:34.000 Orbit = 24053	6/10/2006 11:15:30.000 Orbit = 24053
EN-UNA-2006/0307	14/10/2006 13:38:33.000 Orbit = 24169	14/10/2006 13:38:52.000 Orbit = 24169
EN-UNA-2006/0314	17/10/2006 19:53:41.000 Orbit = 24216	17/10/2006 20:00:54.000 Orbit = 24216
EN-UNA-2006/0316	18/10/2006 14:07:37.000 Orbit = 24227	18/10/2006 16:15:23.000 Orbit = 24228
EN-UNA-2006/0322	24/10/2006 09:35:01.000 Orbit = 24310	24/10/2006 09:42:25.000 Orbit = 24310
EN-UNA-2006/0333	02/11/2006 14:30:52.000 Orbit = 24442	02/11/2006 16:48:39.000 Orbit = 24443
EN-UNA-2006/0338	08/11/2006 14:50:09.000	08/11/2006 16:51:03.000

	Orbit = 24528	Orbit = 24529
EN-UNA-2006/0342	15/11/2006 16:10:05.724 Orbit = 24629	15/11/2006 18:05:13.248 Orbit = 24630
EN-UNA-2006/0343	20/11/2006 13:30:36.000 Orbit = 24699	20/11/2006 14:04:27.000 Orbit = 24699
EN-UNA-2006/0345	22/11/2006 06:56:58.000 Orbit = 24723	22/11/2006 07:27:33.000 Orbit = 24724
EN-UNA-2006/0350	24/11/2006 14:49:34.000 Orbit = 24757	24/11/2006 15:09:01.000 Orbit = 24757
EN-UNA-2006/0357	28/11/2006 07:58:29.000 Orbit = 24810	30/11/2006 13:29:00.000 Orbit = 24842
EN-UNA-2006/0360	01/12/2006 12:44:47.000 Orbit = 24856	01/12/2006 13:16:28.000 Orbit = 24856
EN-UNA-2006/0362	02/12/2006 01:46:48.000 Orbit = 24863	02/12/2006 07:38:30.000 Orbit = 24867
EN-UNA-2006/0364	04/12/2006 12:50:04.000 Orbit = 24899	04/12/2006 13:24:50.000 Orbit = 24899
EN-UNA-2006/0369	12/12/2006 14:24:33.000 Orbit = 25014	12/12/2006 14:32:26.000 Orbit = 25014
EN-UNA-2006/0372	12/12/2006 18:02:17.000 Orbit = 25016	16/12/2006 02:58:44.000 Orbit = 25065
EN-UNA-2006/0378	24/12/2006 11:07:30.000 Orbit = 25184	24/12/2006 11:14:05.000 Orbit = 25184
EN-UNA-2006/0383	27/12/2006 14:15:30.000 Orbit = 25229	27/12/2006 17:39:31.000 Orbit = 25231
EN-UNA-2007/0003	03/01/2007 09:08:30.000 Orbit = 25326	03/01/2007 09:14:26.000 Orbit = 25326
EN-UNA-2007/0007	06/01/2007 02:40:22.000 Orbit = 25365	06/01/2007 04:15:17.000 Orbit = 25366
EN-UNA-2007/0015	22/01/2007 23:29:00.000 Orbit = 25606	23/01/2007 12:14:00.000 Orbit = 25614
EN-UNA-2007/0029	02/02/2007 03:29:56.000 Orbit = 25752	02/02/2007 20:06:32.000 Orbit = 25762
EN-UNA-2007/0029	02/02/2007 20:41:46.000 Orbit = 25762	04/02/2007 16:51:13.000 Orbit = 25789
EN-UNA-2007/0038	09/02/2007 16:07:58.000 Orbit = 25860	09/02/2007 16:36:05.000 Orbit = 25860
EN-UNA-2007/0039	10/02/2007 20:17:43.000 Orbit = 25876	10/02/2007 21:31:10.000 Orbit = 25877
EN-UNA-2007/0041	12/02/2007 00:47:33.000 Orbit = 25893	12/02/2007 04:52:37.000 Orbit = 25896
EN-UNA-2007/0053	03/03/2007 11:31:22.000 Orbit = 26172	03/03/2007 12:05:49.000 Orbit = 26172
EN-UNA-2007/0054	03/03/2007 14:28:29.000 Orbit = 26174	03/03/2007 14:59:00.000 Orbit = 26174
EN-UNA-2007/0055	04/03/2007 13:07:07.000 Orbit = 26187	04/03/2007 14:25:55.000 Orbit = 26188

EN-UNA-2007/0059	05/03/2007 16:51:22.000 Orbit = 26204	05/03/2007 17:16:25.000 Orbit = 26204
EN-UNA-2007/0064	15/03/2007 06:58:21.000 Orbit = 26341	15/03/2007 07:05:53.000 Orbit = 26341
EN-UNA-2007/0070	17/03/2007 10:51:59.000 Orbit = 26372	17/03/2007 11:00:38.000 Orbit = 26372
EN-UNA-2007/0078	23/03/2007 02:48:45.000 Orbit = 26453	23/03/2007 07:43:17.000 Orbit = 26456
EN-UNA-2007/0090	31/03/2007 21:39:01.000 Orbit = 26579	01/04/2007 01:39:09.000 Orbit = 26581
EN-UNA-2007/0088	02/04/2007 23:50:12.000 Orbit = 26609	03/04/2007 07:08:35.000 Orbit = 26613
EN-UNA-2007/0102	15/04/2007 09:16:02.000 Orbit = 26786	15/04/2007 09:33:26.000 Orbit = 26786
EN-UNA-2007/0112	23/04/2007 01:05:10.000 Orbit = 26896	23/04/2007 04:54:28.000 Orbit = 26898
EN-UNA-2007/0122	11/05/2007 06:19:33.000 Orbit = 27156	11/05/2007 06:41:03.000 Orbit = 27157
EN-UNA-2007/0127	21/05/2007 02:06:58.000 Orbit = 27297	21/05/2007 04:48:56.000 Orbit = 27299
EN-UNA-2007/0134	27/05/2007 00:57:47.000 Orbit = 27382	27/05/2007 01:01:20.000 Orbit = 27382
EN-UNA-2007/0136	27/05/2007 07:13:18.000 Orbit = 27386	27/05/2007 13:55:30.000 Orbit = 27390
EN-UNA-2007/0165	27 Jun 2007 12:30:00.000 Orbit = 27833	27 Jun 2007 12:43:09.000 Orbit = 27833
EN-UNA-2007/0176	10 Jul 2007 16:55:13.000 Orbit = 28022	10 Jul 2007 17:29:05.000 Orbit = 28022
EN-UNA-2007/0178	16 Jul 2007 22:04:59.000 Orbit = 28111	17 Jul 2007 07:10:43.000 Orbit = 28116
EN-UNA-2007/0187	22 Jul 2007 21:05:00.000 Orbit = 28196	22 Jul 2007 21:36:04.000 Orbit = 28196
EN-UNA-2007/0219	24 Sep 2007 21:44:16.000 Orbit = 29112	25 Sep 2007 18:23:08.000 Orbit = 29125
EN-UNA-2007/0223	24 Sep 2007 12:27:00.000 Orbit = 29107	27 Sep 2007 18:43:58.000 Orbit = 29153
EN-UNA-2007/0225	29 Sep 2007 13:30:25.000 Orbit = 29179	29 Sep 2007 16:45:43.000 Orbit = 29181
EN-UNA-2007/0243	31 Oct 2007 05:47:44.000 Orbit = 29632	31 Oct 2007 06:00:00.000 Orbit = 29633
EN-UNA-2007/0254	30 Nov 2007 5:13:30.890 Orbit = 30068	30 Nov 2007 17:32:51.718 Orbit = 30069
EN-UNA-2007/0257	1 Dec 2007 19:08:03.275 Orbit = 30084	1 Dec 2007 22:20:26.017 Orbit = 30086
EN-UNA-2007/0261	3 Dec 2007 21:42:20.000 Orbit = 30114	4 Dec 2007 18:12:14.000 Orbit = 30127
EN-UNA-2007/0270	9 Dec 2007 07:52:41.000	9 Dec 2007 11:32:07.149

	Orbit = 30192	Orbit = 30194
EN-UNA-2007/0266	11 Dec 2007 8:06:00.000 Orbit = 30221	11 Dec 2007 11:36:13.000 Orbit = 30223
EN-UNA-2007/0278	13 Dec 2007 6:22:00.000 Orbit = 30248	13 Dec 2007 15:04:39.000 Orbit = 30254
EN-UNA-2008/0010	16 Jan 2008 16:11:00.000 Orbit = 30741	17 Jan 2008 10:35:21.000 Orbit = 30752
EN-UNA-2008/0011	17 Jan 2008 09:42:13.000 Orbit = 30751	17 Jan 2008 13:03:25.000 Orbit = 30753
EN-UNA-2008/0017	22 Jan 2008 14:11:03.000 Orbit = 30826	22 Jan 2008 14:41:07.000 Orbit = 30826
EN-UNA-2008/0023	28 Jan 2008 16:11:51.540 Orbit = 30913	28 Jan 2008 18:04:35.000 Orbit = 30914
EN-UNA-2008/0024	31 Jan 2008 00:54:40.528 Orbit = 30946	31 Jan 2008 00:55:17.000 Orbit = 30946
EN-UNA-2008/0027	5 Feb 2008 17:00:26.000 Orbit = 31028	5 Feb 2008 19:00:13.000 Orbit = 31029
EN-UNA-2008/0033	11 Feb 2008 23:45:12.000 Orbit = 31118	12 Feb 2008 09:10:21.000 Orbit = 31123
EN-UNA-2008/0045	1 Mar 2008 05:23:34.000 Orbit = 31379	1 Mar 2008 07:33:46.000 Orbit = 31380
EN-UNA-2008/0054	13 Mar 2008 9:33:46.000 Orbit = 31553	13 Mar 2008 19:28:40.000 Orbit = 31559
EN-UNA-2008/0063	15 Apr 2008 01:32:02.556 Orbit = 32020	15 Apr 2008 01:33:36.325 Orbit = 32020
EN-UNA-2008/0070	21 Apr 2008 21:59:00.000 Orbit = 32118	22 Apr 2008 07:22:00.000 Orbit = 32124
EN-UNA-2008/0082	6 May 2008 08:09:32.000 Orbit = 32325	6 May 2008 08:18:11.000 Orbit = 32325
EN-UNA-2008/0090	1 Jun 2008 00:34:17.000 Orbit = 32693	1 Jun 2008 00:39:03.000 Orbit = 32693
EN-UNA-2008/0097	18 Jun 2008 18:26:01.000 Orbit = 32947	18 Jun 2008 18:27:31.000 Orbit = 32947
EN-UNA-2008/0100	23 Jun 2008 08:02:19.000 Orbit = 33012	23 Jun 2008 11:08:49.000 Orbit = 33014
EN-UNA-2008/0104	30 Jun 2008 22:04:59.000 Orbit = 33121	1 Jul 2008 12:03:18.000 Orbit = 33129
EN-UNA-2008/0104	30 Jun 2008 22:04:59.000 Orbit = 33121	1 Jul 2008 12:03:18.000 Orbit = 33129
EN-UNA-2008/0121	19 Jul 2008 18:34:43.214 Orbit = 33390	19 Jul 2008 18:45:48.214 Orbit = 33391
EN-UNA-2008/0124	25 Jul 2008 11:08:00.000 Orbit = 33472	25 Jul 2008 11:35:31.000 Orbit = 33472
EN-UNA-2008/0140	25 Aug 2008 9:31:12.000 Orbit = 33921	25 Aug 2008 19:52:15.000 Orbit = 33921
EN-UNA-2008/0144	8 Sep 2008 21:59:58.000 Orbit = 34123	9 Sep 2008 07:59:53.000

EN-UNA-2008/0153	23 Sep 2008 23:00:25.000 Orbit = 34338	24 Sep 2008 00:53:13.000 Orbit = 34339
EN-UNA-2008/0165	13 Oct 2008 06:11:51.000 Orbit = 34614	13 Oct 2008 09:23:21.000 Orbit = 34616
EN-UNA-2008/0169	18 Oct 2008 15:00:32.000 Orbit = 34691	18 Oct 2008 15:07:53.000
EN-UNA-2008/0177	1 Nov 2008 20:16:08.000 Orbit = 34894	1 Nov 2008 22:31:40.000 Orbit = 34896
EN-UNA-2008/0183	9 Nov 2008 00:57:00.000 Orbit = 34997	9 Nov 2008 00:58:00.000 Orbit = 34997
EN-UNA-2008/0185	11 Nov 2008 01:41:48.000 Orbit = 35027	11 Nov 2008 03:58:47.000 Orbit = 35028
EN-UNA-2008/0186	17 Nov 2008 21:59:55.000 Orbit = 35125	18 Nov 2008 07:08:39.000 Orbit = 35130
EN-UNA-2008/0190	15 Nov 2008 02:51:23.000 Orbit = 35084	15 Nov 2008 07:10:44.000 Orbit = 35087
EN-UNA-2008/0205	03 Dec 2008 06:06:42.000 Orbit = 35344	03 Dec 2008 09:39:06.000 Orbit = 35346
EN-UNA-2008/0213	19 Dec 2008 06:03:21.234 Orbit = 35573	19 Dec 2008 09:18:29.000 Orbit = 35575
EN-UNA-2009/0001	04 Jan 2009 03:09:26.000 Orbit = 35800	04 Jan 2009 03:11:08.000 Orbit = 35800
EN-UNA-2009/0015	26 Jan 2009 23:42:43.000 Orbit = 36128	27 Jan 2009 06:51:17.000 Orbit = 36132
EN-UNA-2009/0037	21 Feb 2009 02:18:37.228 Orbit = 36487	21 Feb 2009 07:11:03.000 Orbit = 36490
EN-UNA-2009/0054	22 Mar 2009 14:02:54.144 Orbit = 36909	22 Mar 2009 14:03:54.324 Orbit = 36909
EN-UNA-2009/0060	6 Apr 2009 23:45:12.000 Orbit = 37130	7 Apr 2009 06:50:00.000 Orbit = 37134
EN-UNA-2009/0062	6 Apr 2009 07:24:41.000 Orbit = 37120	6 Apr 2009 09:10:38.000 Orbit = 37121
EN-UNA-2009/0064	9 Apr 2009 20:18:19.000 Orbit = 37170	9 Apr 2009 20:50:58.000 Orbit = 37171
EN-UNA-2009/0065	11 Apr 2009 19:53:15.535 Orbit = 37199	11 Apr 2009 19:55:01.801 Orbit = 37199
EN-UNA-2009/0066	12 Apr 2009 19:09:50.000 Orbit = 37213	12 Apr 2009 19:20:37.146 Orbit = 37213
EN-UNA-2009/0073	28 Apr 2009 07:20:10.000 Orbit = 37435	28 Apr 2009 12:54:55.000 Orbit = 37438
EN-UNA-2009/0075	28 Apr 2009 15:46:32.000 Orbit = 37440	28 Apr 2009 19:14:19.000 Orbit = 37442
EN-UNA-2009/0076	28 Apr 2009 19:14:19.000 Orbit = 37442	29 Apr 2009 07:06:02.000 Orbit = 37449
EN-UNA-2009/0078	29 Apr 2009 08:51:04.000 Orbit = 37450	29 Apr 2009 10:59:34.000 Orbit = 37451
EN-UNA-2009/0098	14 Jun 2009 13:21:40.000	16 Jun 2009 16:08:53.000

	Orbit = 38111	Orbit = 38141
EN-UNA-2009/0114	20 Jul 2009 22:07:00.000 Orbit = 38632	21 Jul 2009 07:01:40.000 Orbit = 38637
EN-UNA-2009/0124	6 Aug 2009 01:08:05.000 Orbit = 38862	6 Aug 2009 14:45:27.000 Orbit = 38871
EN-UNA-2009/0149	28 Sep 2009 20:18:47.000 Orbit = 39632	29 Sep 2009 07:01:43.000 Orbit = 39639
EN-UNA-2009/0163	10 Oct 2009 02:53:26.000 Orbit = 39794	12 Oct 2009 13:23:22.871 Orbit = 39829
EN-UNA-2009/0188	20 Nov 2009 15:27:18.546 Orbit = 40388	20 Nov 2009 21:21:45.000 Orbit = 40392
EN-UNA-2009/0192	05 Dec 2009 02:37:47.900 Orbit = 40595	5 Dec 2009 08:42:25.000 Orbit = 40599
EN-UNA-2009/0194	7 Dec 2009 22:01:11.000 Orbit = 40636	8 Dec 2009 07:08:26.000 Orbit = 40641
EN-UNA-2009/0196	9 Dec 2009 03:16:25.000 Orbit = 40653	9 Dec 2009 03:18:58.000 Orbit = 40653
EN-UNA-2009/0197	12 Dec 2009 13:36:40.000 Orbit = 40702	12 Dec 2009 13:38:33.000 Orbit = 40702
EN-UNA-2009/0201	26 Dec 2009 08:04:40.000 Orbit = 40899	26 Dec 2009 08:14:53.000 Orbit = 40899
EN-UNA-2010/0003	6 Jan 2010 19:33:48.000 Orbit = 41063	6 Jan 2010 21:41:06.000 Orbit = 41065
EN-UNA-2010/0008	11 Jan 2010 11:34:56.000 Orbit = 41130	11 Jan 2010 19:05:37.000 Orbit = 41135
EN-UNA-2010/0026	24 Jan 2010 00:56:04.000 Orbit = 41310	24 Jan 2010 01:03:11.000 Orbit = 41310
EN-UNA-2010/0055	19 Feb 2010 12:26:44.000 Orbit = 41689	19 Feb 2010 12:27:22.000 Orbit = 41689
EN-UNA-2010/0047	15 Feb 2010 22:00:15.000 Orbit = 41638	16 Feb 2010 07:00:11.000 Orbit = 41643
EN-UNA-2010/0031	4 Feb 2010 00:42:20.000 Orbit = 41467	4 Feb 2010 00:53:11.000 Orbit = 41467
EN-UNA-2010/0068	11 Mar 2010 09:43:40.000 Orbit = 41974	11 Mar 2010 11:52:24.000 Orbit = 41975
EN-UNA-2010/0069	15 Mar 2010 22:04:07.000 Orbit = 42038	15 Mar 2010 22:20:34.000 Orbit = 42039
EN-UNA-2010/0079	17 Apr 2010 14:11:42.776 Orbit = 42506	17 Apr 2010 14:12:32.498 Orbit = 42506
EN-UNA-2010/0084	26 Apr 2010 22:05:00.000 Orbit = 42640	27 Apr 2010 07:02:49.000 Orbit = 42645
EN-UNA-2010/0088	05 May 2010 03:55:39.000 Orbit = 42758	05 May 2010 08:16:04.000 Orbit = 42760
EN-UNA-2010/0093	15 May 2010 23:26:02.000 Orbit = 42912	16 May 2010 02:02:24.000 Orbit = 42914
EN-UNA-2010/0095	22 May 2010 17:15:38.000 Orbit = 43009	22 May 2010 17:19:47.764 Orbit = 43009

EN-UNA-2010/0101	26 May 2010 12:12:12.000 Orbit = 43063	26 May 2010 16:45:02.000 Orbit = 43066
EN-UNA-2010/0108	5 Jul 2010 23:52:47.000 Orbit = 43643	6 Jul 2010 07:00:39.000 Orbit = 43647
EN-UNA-2010/0112	12 Jul 2010 01:26:33.000 Orbit = 43729	12 Jul 2010 01:33:18.000 Orbit = 43730
EN-UNA-2010/0126	16 Aug 2010 23:17:47.000 Orbit = 44243	16 Aug 2010 23:36:25.000 Orbit = 44244
EN-UNA-2010/0148	29 Sep 2010 10:58:47.919 Orbit = 44866	29 Sep 2010 14:38:53.000 Orbit = 44866
EN-UNA-2010/0149	30 Sep 2010 08:45:38.000 Orbit = 44879	30 Sep 2010 08:59:56.000 Orbit = 44879
EN-UNA-2010/0156	17 Oct 2010 19:44:55.000 Orbit = 45129	17 Oct 2010 20:15:28.000 Orbit = 45129
EN-UNA-2010/0165	21 Oct 2010 18:50:00.000 Orbit = 45186	26 Oct 2010 22:35:05.000 Orbit = 45260
EN-UNA-2010/0189	3 Dec 2010 20:17:03.000 Orbit = 45804	3 Dec 2010 20:28:41.000 Orbit = 45804
EN-UNA-2010/0192	6 Dec 2010 23:14:32.000 Orbit = 45849	6 Dec 2010 23:28:20.000 Orbit = 45849
EN-UNA-2010/0193	8 Dec 2010 12:14:31.670 Orbit = 45871	8 Dec 2010 12:24:27.460 Orbit = 45871
EN-UNA-2011/0015	25 Jan 2011 16:04:35.388 Orbit = 46563	25 Jan 2011 19:08:33.000 Orbit = 46565
EN-UNA-2011/0016	28 Jan 2011 08:19:15.000 Orbit = 46601	28 Jan 2011 08:45:55.000 Orbit = 46602
EN-UNA-2011/0018	30 Jan 2011 13:05:45.000 Orbit = 46633	30 Jan 2011 16:05:53.000 Orbit = 46635
EN-UNA-2011/0038	19 Mar 2011 05:20:53.000 Orbit = 47318	19 Mar 2011 05:43:48.000 Orbit = 47318
EN-UNA-2011/0057	3 Apr 2011 15:51:36.000 Orbit = 47540	5 Apr 2011 01:38:34.000 Orbit = 47560
EN-UNA-2011/0071	29 Apr 2011 20:11:18.000 Orbit = 47916	29 Apr 2011 20:19:05.000 Orbit = 47916
EN-UNA-2011/0074	16 May 2011 04:06:39.000 Orbit = 48150	16 May 2011 04:13:23.000 Orbit = 48151
EN-UNA-2011/0102	9 Jul 2011 08:35:56.000 Day of Year = 190	9 Jul 2011 13:24:59.000 Day of Year = 190
EN-UNA-2011/0112	19 Jul 2011 19:06:00.000 Day of Year = 200	19 Jul 2011 19:31:20.000 Day of Year = 200
EN-UNA-2011/0120	17 Aug 2011 16:04:00.000 Day of Year = 229	17 Aug 2011 16:12:22.000 Day of Year = 229
EN-UNA-2011/0122	19 Aug 2011 19:32:55.000 Day of Year = 231	19 Aug 2011 21:37:37.000 Day of Year = 231



## APPENDIX B : DATA DISCLAIMER LIST

Below are given, in date order, ASAR data disclaimer details. Disclaimers from the current reporting period are boxed. The disclaimer list is also available at <http://earth.eo.esa.int/pcs/envisat/asar/disclaimer/>.

- From 10-Jul-2003 20:20 UTC to 11-Jul-2003 16:57 UTC.

Problem description:

Degraded radiometric quality due to an instrument anomaly.

Affected products:

All ASAR products, including level 0 products, acquired during this period.

- From 03-Aug-2003 21:15 UTC to 04-Aug-2003 12:43 UTC.

Problem description:

Degraded radiometric quality due to an instrument anomaly.

Affected products:

All ASAR products, including level 0 products, acquired during this period.

- From 19-Oct-2003 12:50:59 UTC to 20-Oct-2003 15:37:47.000 UTC

Problem description:

Degraded radiometric quality due to an instrument anomaly.

Affected products:

All ASAR products, including level 0 products, acquired during this period.

- From 28-Oct-2003 06:26:28 UTC to 28-Oct-2003 13:10:01 UTC

Problem description:

Data not acquired in Yaw Steering Mode but in Fine Pointing Mode (FPM). Large Doppler frequency values are expected.

Affected products:

All ASAR products, including level 0 products, acquired during this period.

- From 4-Dec-2003 21:5:23 UTC to 4-Dec-2003 22:03:31 UTC

Problem description:

Data not acquired in Yaw Steering Mode but in Fine Pointing Mode (FPM). Large Doppler frequency values are expected.

Affected products:

All ASAR products, including level 0 products, acquired during this period.

- From 11-Dec-2003 01:45:00 UTC to 11-Dec-2003 15:11:15 UTC

Problem description:

Degraded radiometric quality due to an instrument anomaly.

Affected products:

All ASAR products, including level 0 products, acquired during this period.

- From 04-Jan-2004 09:15:00 UTC to 05-Jan-2003 15:25:20 UTC.

Problem description:

Degraded radiometric quality due to an instrument anomaly.

Affected products

All ASAR products, including level 0 products, acquired during this period.

- From 13-Feb-2004 13:38 UTC to 14-Feb-2004 11:06:01 UTC.

Problem description:

Degraded radiometric quality due to an instrument anomaly.

Affected products:

All ASAR products, including level 0 products, acquired during this period.

- From 20-Feb-2004 18:00 UTC to 23-Feb-2004 13:08 UTC.

Problem description:

Degraded radiometric quality due to an instrument anomaly.

Affected products:

All ASAR products, including level 0 products, acquired during this period.

- From 18-Nov-2003 until 22-May-2004 00:00:00 UTC

Problem description:

Degraded ASAR GM products location accuracy.

Affected products:

All ASAR GM level 1 products (ASA\_GM1\_1P), acquired during this period.

Correction:

The location error in ASA\_GM1\_1P products acquired before 22<sup>nd</sup> of May 2004 can be corrected by the user multiplying the line numbers in the Geolocation Grid ADS by 0.97169.

- From 21-Jun-2004 07:56:33 UTC to 22-Jun-2004 11:50:18 UTC

Problem description:

Degraded Attitude Stability. Instrument operating in Yaw Steering Mode (YSM) rather than in Stellar YSM. A positive Doppler bias of about 300 Hz is observed on data acquired during this period.

Affected products:

All ASAR products, including level 0 products, acquired during this period.

- From 04-Aug-2004 02:00 UTC to 04-Aug-2004 09:26:00 UTC.

Problem description:

Degraded radiometric quality due to an instrument anomaly.

Affected products:

All ASAR products, including level 0 products, acquired during this period.

- From 16-Sep-2004 03:36:39UTC to 16-Sep-2004 08:53:15 UTC

Problem Description:

Degraded radiometric quality due to an instrument anomaly.

Affected products:

All ASAR products, including level 0 products

- From 12-Sep-2004 03:46:00 UTC to 12-Sep-2004 12:40:00 UTC

Problem Description:

Degraded radiometric quality due to an instrument anomaly.

Affected products:

All ASAR products, including level 0 products

- From 12-Aug-2004 13:53:54 UTC to 12-Aug-2004 19:09:50 UTC

Problem Description:

Degraded radiometric quality due to an instrument anomaly.

Affected products:

All ASAR products, including level 0 products

- From 14-AUG-2004 07:36:00 UTC to 17-AUG-2004 10:57:45 UTC

Problem Description:

Degraded radiometric quality due to an instrument anomaly.

Affected products:

All ASAR products, including level 0 products

- From 02-NOV-2004 14:17:25 UTC to 03-NOV-2004 10:04:58 UTC

Problem Description:

Degraded radiometric quality due to an instrument anomaly.

Affected products:

All ASAR products, including level 0 products

- From 05-DEC-2004 10:03:48 UTC to 05-DEC-2004 15:35:45 UTC

Problem Description:

Degraded radiometric quality due to an instrument anomaly.

Affected products:

All ASAR products, including level 0 products

- From 13-APR-2002 to 11-FEB-2003

Problem Description:

The absolute calibration factor annotated in all ASAR level 1 products acquired between 13-APR-2002 and 11-FEB-2003 and processed between 01-AUG-2003 and 29-NOV-2004 is not correct. These products with incorrect calibration factor annotated in the Main Processing Parameters ADS can be identified by checking the auxiliary files used for processing. The name of the auxiliary files used in the processing is provided in the product SPH (use “view as HTML” in EnviView to visualise them). Products with incorrect calibration factor have been processed with the following external calibration auxiliary file:

ASA\_XCA\_AXVIEC20030801\_134802\_20020413\_000000\_20030211\_000000

The correct calibration factors for these products are provided in the following auxiliary file:

ASA\_XCA\_AXVIEC20041129\_173057\_20020413\_000000\_20030211\_000000

available on line at: [http://earth.eo.esa.int/services/auxiliary\\_data/asar/](http://earth.eo.esa.int/services/auxiliary_data/asar/)

Affected products:

All ASAR level 1 products.

- From 09-JAN-2005 03:13:21 to 09-JAN-2005 06:45:03 UTC

Problem Description:

Due to an on-board anomaly, data acquired during this period is affected by a change of the antenna radiation pattern. The overall quality of these data is degraded. Radiometric normalisation of level 1 product is clearly corrupted, with significant residual antenna pattern modulation and differences from sub-swath to sub-swath in the ScanSAR cases (WS and GM).

Affected products:

All ASAR products, including level 0 products

- From 25-JAN-2005 to 02-FEB-2005

Problem Description:

Due to a problem on the ESRIN Low Bit Rate acquisition chain, the ASAR Wave and GM data could be of bad quality.

Affected products:

All ASAR Low bit rate products (Wave and GM), including level 0 products acquired at PDHS-E (ESRIN)

- From 22-MAR-2005 00:54:10 to 22-MAR-2005 00:54:10

Problem Description:

Due to an on-board anomaly, data acquired during this period is affected by a change of the antenna radiation pattern. The overall quality of these data is degraded. Radiometric normalisation of level 1 product is clearly corrupted, with significant residual antenna pattern modulation and differences from sub-swath to sub-swath in the ScanSAR cases (WS and GM).

Affected products:

All ASAR products, including level 0 products

- From 12-MAY-2005 07:26:02 to 12-MAY-2005 10:50:00

Problem Description:

Due to an on-board anomaly, data acquired during this period is affected by a change of the antenna radiation pattern. The overall quality of these data is degraded. Radiometric normalisation of level 1 product is clearly corrupted, with significant residual antenna pattern modulation and differences from sub-swath to sub-swath in the ScanSAR cases (WS and GM).

Affected products:

All ASAR products, including level 0 products

- From 18-MAY-2005 10:58:16 to 18-MAY-2005 13:58:00

Problem Description:

Due to an on-board anomaly, data acquired during this period is affected by a change of the antenna radiation pattern. The overall quality of these data is degraded. Radiometric normalisation of level 1 product is clearly corrupted, with significant residual antenna pattern modulation and differences from sub-swath to sub-swath in the ScanSAR cases (WS and GM).

Affected products:

All ASAR products, including level 0 products

- From 01-JUN-2005 13:29:28 to 01-JUN-2005 16:45:00

Problem Description:

Due to an on-board anomaly, data acquired during this period is affected by a change of the antenna radiation pattern. The overall quality of these data is degraded. Radiometric normalisation of level 1 product is clearly corrupted, with significant residual antenna pattern modulation and differences from sub-swath to sub-swath in the ScanSAR cases (WS and GM).

Affected products:

All ASAR products, including level 0 products

- From 05-JUL-2005 14:16:58 to 05-JUL-2005 17:27:11

Problem Description:

Due to an on-board anomaly, data acquired during this period is affected by a change of the antenna radiation pattern. The overall quality of these data is degraded. Radiometric normalisation of level 1 product is clearly corrupted, with significant residual antenna pattern modulation and differences from sub-swath to sub-swath in the ScanSAR cases (WS and GM).

Affected products:

All ASAR products, including level 0 products

- From 24-JUL-2005 02:22:42 to 24-JUL-2005 07:31:40

Problem Description:

Due to an on-board anomaly, data acquired during this period is affected by a change of the antenna radiation pattern. The overall quality of these data is degraded. Radiometric normalisation of level 1 product is clearly corrupted, with significant residual antenna pattern modulation and differences from sub-swath to sub-swath in the ScanSAR cases (WS and GM).

Affected products:

All ASAR products, including level 0 products

- From 03-AUG-2005 17:09:54 to 03-AUG-2005 22:08:56

Problem Description:

Due to an on-board anomaly, data acquired during this period is affected by a change of the antenna radiation pattern. The overall quality of these data is degraded. Radiometric normalisation of level 1 product is clearly corrupted, with significant residual antenna pattern modulation and differences from sub-swath to sub-swath in the ScanSAR cases (WS and GM).

Affected products:

All ASAR products, including level 0 products

- From 24-AUG-2005 01:09:08 to 03-AUG-2005 07:55:55

Problem Description:

Due to an on-board anomaly, data acquired during this period is affected by a change of the antenna radiation pattern. The overall quality of these data is degraded. Radiometric normalisation of level 1 product is clearly corrupted, with significant residual antenna pattern modulation and differences from sub-swath to sub-swath in the ScanSAR cases (WS and GM).

Affected products:

All ASAR products, including level 0 products

- From 14-SEP-2005 08:00:40 to 16-SEP-2005 19:57:33

Problem Description:

Quality of ASAR Level-1 and Level-2 products is slightly degraded due to a temporal modification of the antenna radiation patterns. Due to an on board anomaly, data acquired during this period is affected by a change of the antenna radiation pattern. The overall quality of these data is degraded. Radiometric normalisation of level 1 products are clearly corrupted, with significant residual antenna pattern modulation and differences from sub-swath to sub-swath in the ScanSAR cases (WS and GM).

Affected products:

All ASAR products, including level 0 products

From 16-SEP-2005 19:57:33 to 14-OCT-2005 00:00:00

Problem Description:

Quality of ASAR Level-1 and Level-2 products acquired between 16-09-2005 19:57:33 UTC and 14-10-2005 00:00:00 is slightly degraded for NRT products while it is nominal products generated on-request after 14-10-2005 00:00:00. Quality of products acquired after 14-10-2005 00:00:00 is nominal.

Affected products:

All ASAR level 1 and level 2 products

- From 21-OCT-2005 07:34:39 to 21-OCT-2005 09:34:58

Problem Description:

Due to an on board anomaly, data acquired during this period is affected by a change of the antenna radiation pattern. The overall quality of these data is degraded. Radiometric normalisation of level 1 products is clearly corrupted, with significant residual antenna pattern modulation and differences from sub-swath to sub-swath in the ScanSAR cases (WS and GM).

Affected products:

All ASAR products, including level 0 products

- From 01-MAR-2002 00:00:00 to 10-FEB-2006 00:00:00

Warning: Degraded geolocation accuracy

Problem Description:

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). Full details on the impact on the product geolocation accuracy and the strategy for correcting products 'a-posteriori' can be found on [http://envisat.esa.int/dataproducts/availability/disclaimers/PQD\\_0082ASA\\_all.pdf](http://envisat.esa.int/dataproducts/availability/disclaimers/PQD_0082ASA_all.pdf).

Affected products:

All ASAR Alternating Polarisation (AP) Level-1 products processed with PF-ASAR version lower than 4.02. The PF-ASAR 4.02 is available at the following centres for which the installation date is reported: PDHSK (02-02-2006), PDHSE (02-02-2006), I-PAC (02-02-2006), LRAC (02-02-2006), UK-PAC (07-02-2006), D-PAC (09-02-2006).

- From 20-NOV-2005 20:15:13 to 20-NOV-2005 23:28:50

Warning: ASAR antenna gain problem

Problem Description:

Due to an on board anomaly, data acquired during this period is affected by a change of the antenna radiation pattern. The overall quality of these data is degraded. Radiometric normalisation of level 1 products is clearly corrupted, with significant residual antenna pattern modulation and differences from sub-swath to sub-swath in the ScanSAR cases (WS and GM).

Affected products:

All ASAR products, including level 0 products

- From 11-DEC-2005 10:53:54 to 11-DEC-2005 14:14:52

Warning: ASAR antenna gain problem

Problem Description:

Due to an on board anomaly, data acquired during this period is affected by a change of the antenna radiation pattern. The overall quality of these data is degraded. Radiometric normalisation of level 1 products is clearly corrupted, with significant residual antenna pattern modulation and differences from sub-swath to sub-swath in the ScanSAR cases (WS and GM).

Affected products:

All ASAR products, including level 0 products

- From 25-JAN-2006 17:10:27 to 25-JAN-2006 20:31:34

Warning: ASAR antenna gain problem

Problem Description:

Due to an on board anomaly, data acquired during this period is affected by a change of the antenna radiation pattern. The overall quality of these data is degraded. Radiometric normalisation of level 1 products is clearly corrupted, with significant residual antenna pattern modulation and differences from sub-swath to sub-swath in the ScanSAR cases (WS and GM).

Affected products:

All ASAR products, including level 0 products

- From 22-FEB-2006 00:43:46 to 22-FEB-2006 11:21:32

Warning: ASAR antenna gain problem

Problem Description:

Due to an on board anomaly, data acquired during this period is affected by a change of the antenna radiation pattern. The overall quality of these data is degraded. Radiometric normalisation of level 1 products is clearly corrupted, with significant residual antenna pattern modulation and differences from sub-swath to sub-swath in the ScanSAR cases (WS and GM).

Affected products:

All ASAR products, including level 0 products

- From 22-FEB-2006 10:12:25 to 22-FEB-2006 15:14:13

Warning: Degraded ASAR Global Monitoring Mode radiometric quality

Problem Description:

Radiometric quality of ASAR Global Monitoring Mode (GMM) data acquired on 22 February from 10:12:25 UTC until 15:14:13 UTC, corresponding to orbits 20818, 20819 and 20820 may be degraded since a test with the ASAR instrument will be performed during this time. Data acquired during this time interval in modes other than GMM is NOT affected. GMM data acquired immediately before and after this period is NOT affected.

Affected products:

ASAR Global Monitoring Mode (GMM) products

- From 28-FEB-2006 02:37:34 to 28-FEB-2006 07:49:38

Warning: ASAR antenna gain problem

Problem Description:

Due to an on board anomaly, data acquired during this period is affected by a change of the antenna radiation pattern. The overall quality of these data is degraded. Radiometric normalisation of level 1 products is clearly corrupted, with significant residual antenna pattern modulation and differences from sub-swath to sub-swath in the ScanSAR cases (WS and GM).

Affected products:

All ASAR products, including level 0 products

- From 20-MAR-2006 02:12:44 to 20-MAR-2006 07:20:50

Warning: ASAR antenna gain problem

Problem Description:

Due to an on board anomaly, data acquired during this period is affected by a change of the antenna radiation pattern. The overall quality of these data is degraded. Radiometric normalisation

of level 1 products is clearly corrupted, with significant residual antenna pattern modulation and differences from sub-swath to sub-swath in the ScanSAR cases (WS and GM).

Affected products:

All ASAR products, including level 0 products

- From 12-APR-2006 19:53:48 to 12-APR-2006 20:19:55

Warning: ASAR antenna gain problem

Problem Description:

Due to an on board anomaly, data acquired during this period is affected by a change of the antenna radiation pattern. The overall quality of these data is degraded. Radiometric normalisation of level 1 products is clearly corrupted, with significant residual antenna pattern modulation and differences from sub-swath to sub-swath in the ScanSAR cases (WS and GM).

Affected products:

All ASAR products, including level 0 products

- From 24-APR-2006 03:47:51 to 24-APR-2006 07:17:00

Warning: ASAR antenna gain problem

Problem Description:

Due to an on board anomaly, data acquired during this period is affected by a change of the antenna radiation pattern. The overall quality of these data is degraded. Radiometric normalisation of level 1 products is clearly corrupted, with significant residual antenna pattern modulation and differences from sub-swath to sub-swath in the ScanSAR cases (WS and GM).

Affected products:

All ASAR products, including level 0 products

- From 25-APR-2006 13:22:31 to 25-APR-2006 15:02:48

Warning: ASAR antenna gain problem

Problem Description:

Due to an on board anomaly, data acquired during this period is affected by a change of the antenna radiation pattern. The overall quality of these data is degraded. Radiometric normalisation of level 1 products is clearly corrupted, with significant residual antenna pattern modulation and differences from sub-swath to sub-swath in the ScanSAR cases (WS and GM).

Affected products:

All ASAR products, including level 0 products

- From 30-APR-2006 10:53:00 to 30-APR-2006 14:04:03

Warning: ASAR antenna gain problem

Problem Description:

Due to an on board anomaly, data acquired during this period is affected by a change of the antenna radiation pattern. The overall quality of these data is degraded. Radiometric normalisation of level 1 products is clearly corrupted, with significant residual antenna pattern modulation and differences from sub-swath to sub-swath in the ScanSAR cases (WS and GM).

Affected products:

All ASAR products, including level 0 products

- From 11-MAY-2006 03:13:20 to 11-MAY-2006 06:41:30

Warning: ASAR antenna gain problem



Problem Description:

Due to an on board anomaly, data acquired during this period is affected by a change of the antenna radiation pattern. The overall quality of these data is degraded. Radiometric normalisation of level 1 products is clearly corrupted, with significant residual antenna pattern modulation and differences from sub-swath to sub-swath in the ScanSAR cases (WS and GM).

Affected products:

All ASAR products, including level 0 products

- From 22-MAY-2006 07:32:43 to 22-MAY-2006 11:23:16

Warning: ASAR antenna gain problem

Problem Description:

Due to an on board anomaly, data acquired during this period is affected by a change of the antenna radiation pattern. The overall quality of these data is degraded. Radiometric normalisation of level 1 products is clearly corrupted, with significant residual antenna pattern modulation and differences from sub-swath to sub-swath in the ScanSAR cases (WS and GM).

Affected products:

All ASAR products, including level 0 products

- From 25-MAY-2006 02:33:46 to 25-MAY-2006 7:45:47

Warning: ASAR antenna gain problem

Problem Description:

Due to an on board anomaly, data acquired during this period is affected by a change of the antenna radiation pattern. The overall quality of these data is degraded. Radiometric normalisation of level 1 products is clearly corrupted, with significant residual antenna pattern modulation and differences from sub-swath to sub-swath in the ScanSAR cases (WS and GM).

Affected products:

All ASAR products, including level 0 products

- From 22-JUN-2006 16:00:00 to 22-JUN-2006 17:49:40

Warning: ASAR antenna gain problem

Problem Description:

Due to an on board anomaly, data acquired during this period is affected by a change of the antenna radiation pattern. The overall quality of these data is degraded. Radiometric normalisation of level 1 products is clearly corrupted, with significant residual antenna pattern modulation and differences from sub-swath to sub-swath in the ScanSAR cases (WS and GM).

Affected products:

All ASAR products, including level 0 products

- From 01-JULY-2006 03:00:00 to 01-JULY-2006 08:16:10

Warning: ASAR antenna gain problem

Problem Description:

Due to an on board anomaly, data acquired during this period is affected by a change of the antenna radiation pattern. The overall quality of these data is degraded. Radiometric normalisation of level 1 products is clearly corrupted, with significant residual antenna pattern modulation and differences from sub-swath to sub-swath in the ScanSAR cases (WS and GM).

Affected products:

All ASAR products, including level 0 products

- From 26-JULY-2006 13:15:00 to 01-JULY-2006 13:41:43

Warning: ASAR antenna gain problem

Problem Description:

Due to an on board anomaly, data acquired during this period is affected by a change of the antenna radiation pattern. The overall quality of these data is degraded. Radiometric normalisation of level 1 products is clearly corrupted, with significant residual antenna pattern modulation and differences from sub-swath to sub-swath in the ScanSAR cases (WS and GM).

Affected products:

All ASAR products, including level 0 products

- From 04-AUG-2006 07:15:00 to 04-AUG-2006 10:30:10

Warning: ASAR antenna gain problem

Problem Description:

Due to an on board anomaly, data acquired during this period is affected by a change of the antenna radiation pattern. The overall quality of these data is degraded. Radiometric normalisation of level 1 products is clearly corrupted, with significant residual antenna pattern modulation and differences from sub-swath to sub-swath in the ScanSAR cases (WS and GM).

Affected products:

All ASAR products, including level 0 products

- From 08-AUG-2006 01:38:00 to 08-AUG-2006 08:28:56

Warning: ASAR antenna gain problem

Problem Description:

Due to an on board anomaly, data acquired during this period is affected by a change of the antenna radiation pattern. The overall quality of these data is degraded. Radiometric normalisation of level 1 products is clearly corrupted, with significant residual antenna pattern modulation and differences from sub-swath to sub-swath in the ScanSAR cases (WS and GM).

Affected products:

All ASAR products, including level 0 products

- From 17-AUG-2006 03:26:46 to 21-AUG-2006 14:56:00

Warning: ASAR antenna gain problem

Problem Description:

Due to an on board anomaly, data acquired during this period is affected by a change of the antenna radiation pattern. The overall quality of these data is degraded. Radiometric normalisation of level 1 products is clearly corrupted, with significant residual antenna pattern modulation and differences from sub-swath to sub-swath in the ScanSAR cases (WS and GM).

Affected products:

All ASAR products, including level 0 products

- From 24-AUG-2006 12:56:47 to 24-AUG-2006 16:47:19

Warning: ASAR antenna gain problem

Problem Description:

Due to an on board anomaly, data acquired during this period is affected by a change of the antenna radiation pattern. The overall quality of these data is degraded. Radiometric normalisation of level 1 products is clearly corrupted, with significant residual antenna pattern modulation and differences from sub-swath to sub-swath in the ScanSAR cases (WS and GM).

Affected products:

All ASAR products, including level 0 products

- From 03-SEP-2006 01:19:40 to 03-SEP-2006 06:28:16

Warning: ASAR antenna gain problem

Problem Description:

Due to an on board anomaly, data acquired during this period is affected by a change of the antenna radiation pattern. The overall quality of these data is degraded. Radiometric normalisation of level 1 products is clearly corrupted, with significant residual antenna pattern modulation and differences from sub-swath to sub-swath in the ScanSAR cases (WS and GM).

Affected products:

All ASAR products, including level 0 products

- From 03-SEP-2006 16:05:12 to 03-SEP-2006 18:07:40

Warning: ASAR antenna gain problem

Problem Description:

Due to an on board anomaly, data acquired during this period is affected by a change of the antenna radiation pattern. The overall quality of these data is degraded. Radiometric normalisation of level 1 products is clearly corrupted, with significant residual antenna pattern modulation and differences from sub-swath to sub-swath in the ScanSAR cases (WS and GM).

Affected products:

All ASAR products, including level 0 products

- From 06-OCT-2006 07:35:40 to 06-OCT-2006 11:15:30

Warning: ASAR antenna gain problem

Problem Description:

Due to an on board anomaly, data acquired during this period is affected by a change of the antenna radiation pattern. The overall quality of these data is degraded. Radiometric normalisation of level 1 products is clearly corrupted, with significant residual antenna pattern modulation and differences from sub-swath to sub-swath in the ScanSAR cases (WS and GM).

Affected products:

All ASAR products, including level 0 products

- From 17-OCT-2006 16:23:20 to 17-OCT-2006 20:00:54

Warning: ASAR antenna gain problem

Problem Description:

Due to an on board anomaly, data acquired during this period is affected by a change of the antenna radiation pattern. The overall quality of these data is degraded. Radiometric normalisation of level 1 products is clearly corrupted, with significant residual antenna pattern modulation and differences from sub-swath to sub-swath in the ScanSAR cases (WS and GM).

Affected products:

All ASAR products, including level 0 products

- From 24-OCT-2006 04:43:30 to 24-OCT-2006 09:42:25

Warning: ASAR antenna gain problem

Problem Description:

Due to an on board anomaly, data acquired during this period is affected by a change of the antenna radiation pattern. The overall quality of these data is degraded. Radiometric normalisation

of level 1 products is clearly corrupted, with significant residual antenna pattern modulation and differences from sub-swath to sub-swath in the ScanSAR cases (WS and GM).

Affected products:

All ASAR products, including level 0 products

- From 24-DEC-2006 07:51:56 to 24-DEC-2006 11:14:05

Warning: ASAR antenna gain problem

Problem Description:

Due to an on board anomaly, data acquired during this period is affected by a change of the antenna radiation pattern. The overall quality of these data is degraded. Radiometric normalisation of level 1 products is clearly corrupted, with significant residual antenna pattern modulation and differences from sub-swath to sub-swath in the ScanSAR cases (WS and GM).

Affected products:

All ASAR products, including level 0 products

- From 03-JAN-2007 07:37:20 to 03-JAN-2006 09:14:26

Warning: ASAR antenna gain problem

Problem Description:

Due to an on board anomaly, data acquired during this period is affected by a change of the antenna radiation pattern. The overall quality of these data is degraded. Radiometric normalisation of level 1 products is clearly corrupted, with significant residual antenna pattern modulation and differences from sub-swath to sub-swath in the ScanSAR cases (WS and GM).

Affected products:

All ASAR products, including level 0 products

- From 04-FEB-2007 16:51:13 to 23-FEB-2007 00:00:00

Warning: ASAR antenna gain problem

Problem Description:

Due to an on board anomaly, data acquired during this period is affected by a change of the antenna radiation pattern. NRT products processed by the following auxiliary data: ASA\_XCA\_AXXIEC20061221\_143253\_20050916\_195733\_20071231\_000000, ASA\_CON\_AXXIEC20061107\_090002\_20050916\_195733\_20071231\_000000, ASA\_CON\_AXVIEC20070215\_184018\_20070204\_165113\_20071231\_000000 has significant residual antenna pattern modulation and differences from sub-swath to sub-swath in the ScanSAR cases (WS and GM). The products are being reprocessed.

Affected products:

All ASAR products, including level 0 products

- From 03-MAR-2007 08:23:44 to 03-MAR-2007 12:05:49

Warning: ASAR antenna gain problem

Problem Description:

Due to an on board anomaly, data acquired during this period is affected by a change of the antenna radiation pattern. The overall quality of these data is degraded. Radiometric normalisation of level 1 products is clearly corrupted, with significant residual antenna pattern modulation and differences from sub-swath to sub-swath in the ScanSAR cases (WS and GM).

Affected products:

All ASAR products, including level 0 products

- From 15-MAR-2007 02:09:10 to 15-MAR-2007 07:05:53

Warning: ASAR antenna gain problem

Problem Description:

Due to an on board anomaly, data acquired during this period is affected by a change of the antenna radiation pattern. The overall quality of these data is degraded. Radiometric normalisation of level 1 products is clearly corrupted, with significant residual antenna pattern modulation and differences from sub-swath to sub-swath in the ScanSAR cases (WS and GM).

Affected products:

All ASAR products, including level 0 products

- From 17-MAR-2007 07:43:40 to 17-MAR-2007 11:00:38

Warning: ASAR antenna gain problem

Problem Description:

Due to an on board anomaly, data acquired during this period is affected by a change of the antenna radiation pattern. The overall quality of these data is degraded. Radiometric normalisation of level 1 products is clearly corrupted, with significant residual antenna pattern modulation and differences from sub-swath to sub-swath in the ScanSAR cases (WS and GM).

Affected products:

All ASAR products, including level 0 products

- From 15-APR-2007 07:32:22 to 15-APR-2007 09:33:26

Warning: ASAR antenna gain problem

Problem Description:

Due to an on board anomaly, data acquired during this period is affected by a change of the antenna radiation pattern. The overall quality of these data is degraded. Radiometric normalisation of level 1 products is clearly corrupted, with significant residual antenna pattern modulation and differences from sub-swath to sub-swath in the ScanSAR cases (WS and GM).

Affected products:

All ASAR products, including level 0 products

During June 2007 one new disclaimer was issued:

- From 27-JUN-2007 10:58:54 to 27-JUN-2007 12:43:10

Warning: ASAR antenna gain problem

Problem Description:

Due to an on board anomaly, data acquired during this period is affected by a change of the antenna radiation pattern. The overall quality of these data is degraded. Radiometric normalisation of level 1 products is clearly corrupted, with significant residual antenna pattern modulation and differences from sub-swath to sub-swath in the ScanSAR cases (WS and GM).

Affected products:

All ASAR products, including level 0 products

- From 22-JUL-2007 20:41:47 to 22-JUL-2007 21:36:04

Warning: ASAR antenna gain problem

Problem Description:

Due to an on board anomaly, data acquired during this period is affected by a change of the antenna radiation pattern. The overall quality of these data is degraded. Radiometric normalisation

of level 1 products is clearly corrupted, with significant residual antenna pattern modulation and differences from sub-swath to sub-swath in the ScanSAR cases (WS and GM).

Affected products:

All ASAR products, including level 0 products

- From 04-DEC-2007 18:06:43 to 06-DEC-2007 00:17:30

Warning: Degraded geolocation accuracy

Problem Description:

ASAR data acquired between orbits 30127 and 30145 show a variable location error in azimuth, ranging up to 12 km. The problem is fully corrected for ASAR data acquired since orbit 30146.

Affected products:

All ASAR products, including level 0 products

- From 01-NOV-2007 00:00:00 to 28-FEB-2007 00:00:00

Warning: Degraded ASAR GM product quality

Problem Description:

Due to archiving problem, the overall quality of ASAR GM products acquired between November 2006 and February 2007, covering the South America and Indonesia areas might be degraded. Processing artifacts as azimuth stripe and subswaths discontinuity are visible. A reprocessing activity is currently on-going. ASAR GM users are invited to check the available quick-looks by Eoli before ordering the products.

Affected products:

All ASAR products, including level 0 products

- From 25-JUL-2008 07:00:00 18:06:43 to 25-JUL-2008 11:40:00

Warning: ASAR antenna gain problem

Problem Description:

Due to an on board anomaly, data acquired during this period is affected by a change of the antenna radiation pattern. The overall quality of these data is degraded. Radiometric normalisation of level 1 products is clearly corrupted, with significant residual antenna pattern modulation and differences from sub-swath to sub-swath in the ScanSAR cases (WS and GM).

Affected products:

All ASAR products, including level 0 products

- From 31-DEC-2008 22:16:43 to 01 JAN-2009 06:39:43

Warning: Degraded geolocation accuracy.

Problem Description:

ASAR data acquired between orbits 35755 and 35759 show a variable location error in azimuth, ranging up to 6.18 km. The problem is fully corrected for ASAR data acquired since orbit 35760.

Affected products:

All ASAR products, including level 0 products.

- From 15-FEB-2009 22:16:43 to 16 FEB-2009 13:09:00

Warning: Envisat Yaw Steering.

Problem Description:

Envisat switched automatically in Yaw Steering Mode (YSM) from 15/02/2009 03:38:34 to 16/02/2009 13:09:00, due to an anomaly which affected Star Tracker 3.

The anomaly was caused by an unexpected bright object, different from the programmed star the star tracker was pointing to. The event was interpreted by the onboard software as two simultaneous target objects in the field of view and generated a suspension command, which in turn triggered the service module to switch to Yaw Steering Mode.

The Yaw Steering Mode implies a slight degradation of the general attitude stability, which does not substantially affect instrument data quality. Products acquired during YSM were therefore archived and distributed nominally.

Affected products:

All ASAR products, including level 0 products.

- From 05-MAR-2009 19:18:01 to 06-MAR-2009 15:10:02

Warning: Envisat Yaw Steering.

Problem Description:

Envisat switched automatically in Yaw Steering Mode (YSM) from 05-MAR-2009 19:18:01 to 06-MAR-2009 15:10:02, due to an anomaly which affected Star Tracker 3.

The anomaly was caused by an unexpected bright object, different from the programmed star the star tracker was pointing to. The event was interpreted by the onboard software as two simultaneous target objects in the field of view and generated a suspension command, which in turn triggered the service module to switch to Yaw Steering Mode.

The Yaw Steering Mode implies a slight degradation of the general attitude stability, which does not substantially affect instrument data quality. Products acquired during YSM were therefore archived and distributed nominally.

Affected products:

All ASAR products, including level 0 products.

- From 12-APR-2009 16:10:50 to 12-APR-2009 19:20:00

Warning: ASAR antenna gain problem.

Problem Description:

Due to an on board anomaly, data acquired during this period is affected by a change of the antenna radiation pattern. The overall quality of these data is degraded. Radiometric normalisation of level 1 products is clearly corrupted, with significant residual antenna pattern modulation and differences from sub-swath to sub-swath in the ScanSAR cases (WS and GM).

Affected products:

All ASAR products, including level 0 products.

- From 26-Dec-09 04:23:35 to 26-Dec-09 08:14:53

Warning: ASAR antenna gain problem.

Problem Description:

Due to an on board anomaly, data acquired during this period is affected by a change of the antenna radiation pattern. The overall quality of these data is degraded. Radiometric normalisation of level 1 products is clearly corrupted, with significant residual antenna pattern modulation and differences from sub-swath to sub-swath in the ScanSAR cases (WS and GM).

Affected products:

All ASAR products, including level 0 products.

- From 11-Jan-2010 11:34:56 to 11-Jan-2010 19:05:37

Warning: Envisat Yaw Steering

Problem Description:

Envisat switched automatically in Yaw Steering Mode (YSM) due to an anomaly. The Yaw Steering Mode implies a slight degradation of the general attitude stability, which does not substantially affect instrument data quality. Products acquired during YSM were therefore archived and distributed nominally.

Affected products:

All ASAR products, including level 0 products.

- From 26-May-2010 12:12:12 to 26-May-2010 16:45:02

Warning: Envisat Yaw Steering

Problem Description:

Envisat switched automatically in Yaw Steering Mode (YSM) due to an anomaly. The Yaw Steering Mode implies a slight degradation of the general attitude stability, which does not substantially affect instrument data quality. Products acquired during YSM were therefore archived and distributed nominally.

Affected products:

All ASAR products, including level 0 products.

- From 26-Oct-2010 to 02-Nov-2010

Warning: Envisat in Yaw Steering Mode due to Orbit Lowering Manoeuvre

Problem Description:

Between 22 October and 02 November 2010 ENVISAT was in Yaw Steering Mode (YSM) due to the planned orbit lowering manoeuvre, to ensure the continuation of the mission for an additional 3 years. A preliminary assessment of the data products of all instruments acquired between 26 October and 01 November has been performed to provide the users with information of the data quality starting from 02 November and is available from this link - <http://envisat.esa.int/earth/www/object/index.cfm?fobjectid=7294>.

A further update was provided on 7<sup>th</sup> December 2010 and can be accessed in the EO news archive at: <http://envisat.esa.int/earth/www/object/index.cfm?fobjectid=7374>.

Affected products:

All ASAR products, including level 0 products.