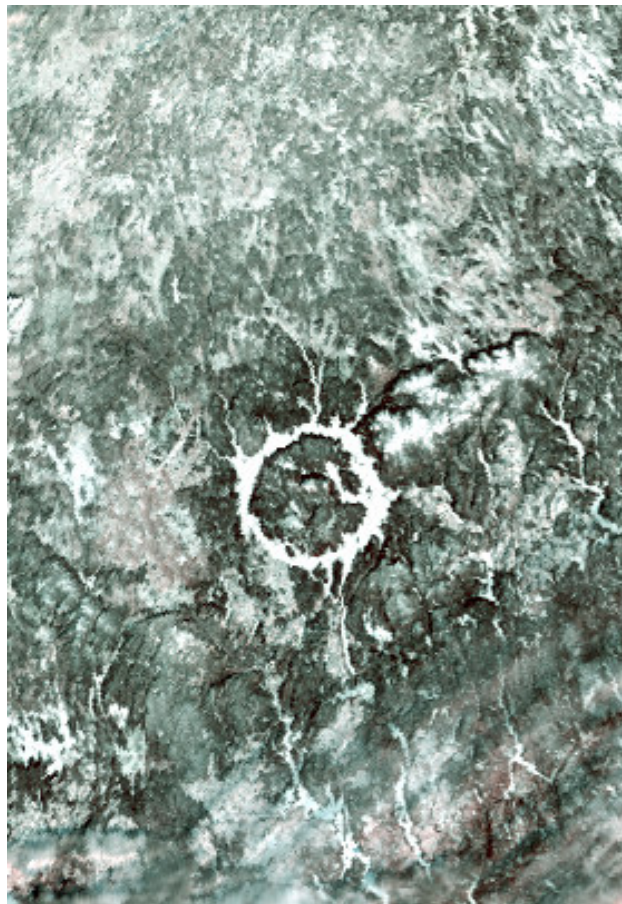


ENVISAT - AATSR

CYCLIC REPORT #66

	START	END
<i>DATE</i>	<i>11 FEB 2008</i>	<i>17 MAR 2008</i>
<i>TIME</i>	<i>21:59:29</i>	<i>21:59:29</i>
<i>ORBIT #</i>	<i>31117</i>	<i>31617</i>



Canada, 25 February 2008 - RGB Composite image of the Manicouagan Reservoir, known as the “eye of Quebec”, this feature is the remnant of an ancient impact crater.

prepared by/préparé par AATSR DPQC and QWG team
 reference/référence
 issue/édition 1
 revision/révision 0
 date of issue/date d'édition 31 March 2008
 status/état
 Document type/type de document Technical Note
 Distribution/distribution

A P P R O V A L

Title <i>titre</i>	AATSR Cyclic Report – Cycle 66	issue 1 <i>issue</i>	revision 0 <i>revision</i>
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author <i>auteur</i>	Siân Procter/Gordon Mack	date <i>date</i>	31 March 2008
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approved by <i>approuvé par</i>		date <i>date</i>	
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C H A N G E L O G

reason for change / <i>raison du changement</i>	issue/ <i>issue</i>	revision/ <i>revision</i>	date/ <i>date</i>
		0	

C H A N G E R E C O R D

Issue: 1 Revision: 0

reason for change/ <i>raison du changement</i>	page(s)/ <i>page(s)</i>	paragraph(s)/ <i>paragraph(s)</i>

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AATSR CYCLIC REPORT # 66

1 INTRODUCTION

The AATSR Cyclic Report is distributed by the AATSR DPQC team to keep the AATSR community informed of any modification regarding instrument performances, the data production chain and the results of calibration and validation campaigns at the end of each Envisat cycle, which consists of 501 complete orbits over the course of 35 days.

This document is available online at: <http://earth.esa.int/pcs/envisat/aatsr/reports/cyclic/>

1.1 *Acronyms and Abbreviations*

AATSR	Advanced Along Track Scanning Radiometer
APC	Antenna Pointing Controller
CR	Cyclic Report
DDS	Data Dissemination System
DMOP	Detailed Mission Operation Plan
DMS	Data Management System
DPQC	Data Product Quality Control
EN-UNA-YYYY/#	Envisat Unavailability (plus year and number)
ESOC	European Space Operation Centre
HSM	High Speed Multiplexer
IECF	Instrument Engineering and Calibration Facilities
IPF	Instrument Processing Facilities
LUT	Look Up Table
MPS	Mission Planning Schedule
NRT	Near Real Time
OCM	Orbit Control Manoeuvre
OBDH	On-board Data Handling
PDS	Payload Data Segment
PMC	Payload Management Computer
RAL	Rutherford Appleton Laboratory
SPR	Software Problem Reporting
SW	Software
VISCAL	Visible Calibration

The AATSR list of acronyms and abbreviations is in the following site:
<http://envisat.esa.int/dataproducts/aatsr/CNTR5.htm#eph.aatsr.glossary>

2 SUMMARY

Cyclic Report: 66
Cycle Start: 11 Feb 2008, 21:59:29 Orbit #: 31117
Cycle End: 17 Mar 2008, 21:59:29 Orbit #: 31617

The main activities during the cycle have been as follows:

- **L0 Processor and IPF Version:**
L0 Processor – no change (5.22)
Level 1b & Level 2 processor – no change (6.01)
- **Visible channel calibration:**
The visible calibration data supplied as an aux file (ATS_VC1_AX) continued to be regularly updated throughout the cycle.
- **OCM**
The planned OCM was conducted on 12th February 2008. AATSR was unavailable between 23:45:04, 11th February and 09:10:21, 12th February.
- **YSM Anomaly**
Due to a bright object in the FOV of SST3, a switch down to YSM occurred at 09:33:46 on 13th March 2008 (orbit 31553). The AOCS returned to SYSM mode at 19:28:40 on 13th March 2008 (orbit 31559). A post anomaly check was conducted on AATSR data received during the anomaly and data quality is nominal.
- **Kiruna NRT dissemination problems**
Problems with the Kiruna archiving facility led to reduced availability of NRT data on 27 Feb and 12-14 March. The backlog of data was recovered.
- **ATV Launch**
Due to the launch of the ATV, ARTEMIS availability for ENVISAT was reduced from the 6th of March. A back-up data acquisition scenario based on the use of Svalbard and Kiruna polar acquisition stations is operational. The return to nominal data acquisition should take place upon docking of the ATV with the ISS, with ARTEMIS returned to normal service on the 8th of April 2008. See next bullet point.

- **ESRIN “missing packets” processing problem:**

Since switching to the new acquisition scenario, orbits acquired at Svalbard and processed at ESRIN appear to display missing packets at the end of the orbit. This is a recurrence of a previously known problem.

- **Updated BURF Software**

The BUFR software was updated to v1.29 at ESRIN on 27 Feb 08 (from orbit 31345) and at Kiruna on 28 Feb 08 (from orbit 31352).

- **New LSM AUX File**

A new LSM auxiliary file was implemented on February 18th:

AUX_LSM_AXVIEC20080218_104630_20020101_000000_20200101_000000

Note: this AUX file is not used for the processing AATSR data.

3 SOFTWARE & AUX FILE VERSION CONFIGURATION

3.1 Software Version

AATSR IPF for Level 1 and Level 2: Version 6.01

3.2 Auxiliary Files

AATSR processing uses the following auxiliary files:

- Browse Product Lookup Data (ATS_BRW_AX)
- L1b Characterisation Data (ATS_CH1_AX)
- Cloud Lookup Table Data (ATS_CL1_AX)
- General Calibration Data (ATS_GC1_AX)
- AATSR Instrument Data (ATS_INS_AX)
- Visible Calibration Coefficients Data (ATS_VC1_AX)
- L1b Processing Configuration Data (ATS_PC1_AX)
- L2 Processing Configuration Data (ATS_PC2_AX)
- SST Retrieval Coefficients Data (ATS_SST_AX)
- LST Land Surface Temperature Coefficients Data (ATS_LST_AX)

The latest filename for each auxiliary file in use in the PDS is as follows:

Product name
ATS_BRW_AXVIEC20020123_072338_20020101_000000_20200101_000000
ATS_CH1_AXVIEC20021114_113144_20020301_000000_20200101_000000
ATS_CL1_AXNIEC20070223_102348_20010308_120446_20120801_235959
ATS_GC1_AXVIEC20041214_154941_20020301_000000_20200101_000000
ATS_INS_AXVIEC20030731_092706_20020301_000000_20200101_000000
See below for VC1 files
ATS_LST_AXVIEC20040311_095537_20020301_000001_20200101_000000
ATS_PC1_AXVIEC20040812_063722_20020301_000000_20200101_000000
ATS_PC2_AXVIEC20020123_074151_20020101_000000_20200101_000000
ATS_SST_AXVIEC20051205_102103_20020101_000000_20200101_000000

Table 3-1 Latest auxiliary files currently in use by the PDS

3.2.1 STATUS OF DAILY VISIBLE CALIBRATION FILES

3.2.1.1 VC1 File Availability

The daily reflectance channel calibration files were available for all dates, except for the following:

- 12th February 2008,
- 28th February – 2nd March 2008,
- 14th March 2008,
- 16th March 2008.

The orbital VC1 files continued to be generated from the available L0 data.

3.2.2 STATUS OF OTHER AUXILIARY FILES

A new LSM auxiliary file was implemented on February 18th:

AUX_LSM_AXVIEC20080218_104630_20020101_000000_20200101_000000

This AUX file is not used by AATSR

4 PDS STATUS

4.1 Instrument Unavailability

AATSR data were unavailable due to instrument unavailability at the following times:

UTC Start	UTC Stop	Reason	Reference	Planned
11-Feb-2008 23:45:04	12-Feb-2008 09:10:21	Unavailable due to OCM	EN-UNA-2008/0033	Yes

Table 4-1 Instrument unavailability during cycle 66

4.2 L0 Data Acquisition and L1b Processing Status

Week		Orbit		Availability (s)			Availability (%)		
#	Dates	Start	Stop	Inst Unav	L0 gaps	L1 gaps	Instrument	L0	L1
1	February 11, 2008	31117	31217	33936	0	0	94.39%	94.39%	94.39%
2	February 18, 2008	31217	31317	0	6104	0	100.00%	98.99%	98.99%
3	February 25, 2008	31317	31417	0	0	0	100.00%	100.00%	100.00%
4	March 03, 2008	31417	31517	0	5973	0	100.00%	99.01%	99.01%
5	March 10, 2008	31517	31617	0	0	0	100.00%	100.00%	100.00%

Table 4-2 Instrument and data unavailability weekly summary for cycle 66

The instrument was available for 98.88% of the time during the cycle.

The L0 data were available for 98.48% of the time during the cycle.

The L1b data were available for 98.48% of the time during the cycle.

The following L0 data was missing from this cycle:

NB Missing L0 data are automatically also missing at L1b; there were no additional missing L1b data during this cycle.

UTC Start	UTC Stop	Duration (s)	Orbit Start	Orbit End
21/02/2008 04:19	21/02/2008 04:21	97	31249	31249
21/02/2008 04:21	21/02/2008 05:54	5586	31249	31250
21/02/2008 05:54	21/02/2008 06:01	421	31250	31250
04/03/2008 23:36	04/03/2008 23:39	166	31432	31432
04/03/2008 23:39	05/03/2008 01:16	5807	31432	31433

Table 4-3 AT5_NL__OP missing data during cycle 66

4.2.1 ORBITS AFFECTED BY POOR DATA QUALITY

The information reported in Section 4.2 does not consider the quality of data, only whether or not it is available.

During this cycle, the following orbits contained frames suffering from bad/missing telemetry:

- 31239 (20th February 2008)
- 31323 (26th February 2008)
- 31324 (26th February 2008)
- 31341 (27th February 2008)
- 31360 (28th February 2008)
- 31444 (5th March 2008)
- 31462-31464, 31475 (7th March 2008)*
- 31476-31478, 31489,31490 (8th March 2008)*
- 31491-31493, 31503, 31504 (9th March 2008)*
- 31505, 31507, 31518 (10th March 2008)*
- 31519-31533 (11th March 2008)*
- 31534-31536, 31546, 31547 (12th March 2008)*
- 31548-31550, (13th March 2008)*
- 31553,31554 (13th March 2008)[†]
- 31577, 31578, 31589, 31590 (15th March 2008)*
- 31604 (16th March 2008)*
- 31605-31607 (17th March 2008)*

* These orbits show the missing packets behaviour displayed in some orbits acquired at Svalbard and processed at ESRIN.

[†] These orbits affected by significant regions of missing data.

4.3 *L0 and L1b Backlog Processing Status*

No data has been retrieved via backlog processing during this cycle.

5 DATA QUALITY CONTROL

5.1 *Monitoring of Instrument Parameters*

5.1.1 JITTER

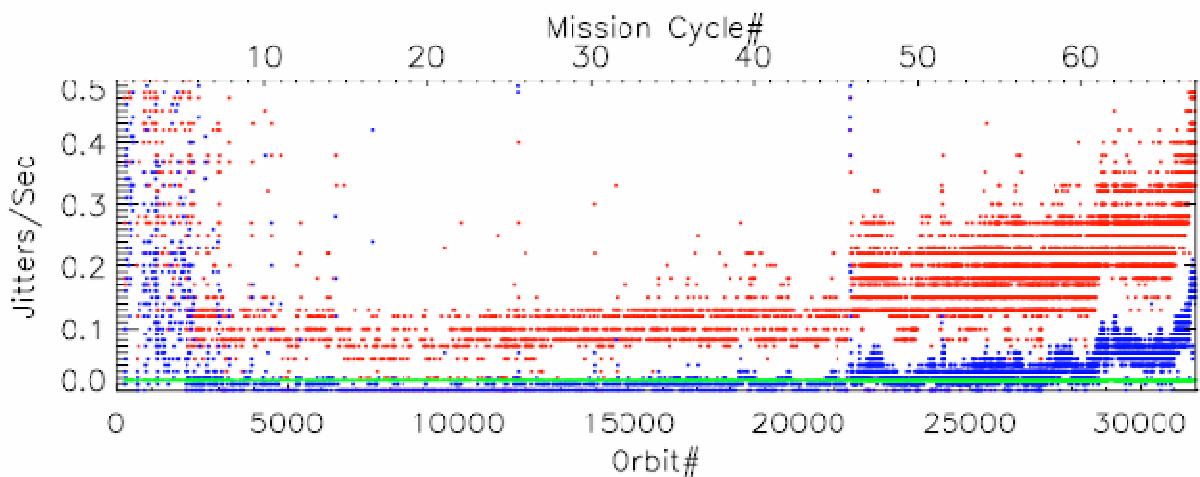


Figure 5-1 Jitter trend from mission start

The plot shows the jitter-trend since the start of the mission, against both orbit-number and cycle-number. The mean jitter-rate (per-orbit) is shown in blue and the maximum rate per orbit in red. The green horizontal line shows the nominal mean jitter-level achieved for much of the mission.

The jitter plot shows continuing deterioration with respect to previous cycles. There is no significant deterioration in image quality associated with these jitter levels, but this is continually monitored.

5.1.2 SENSOR TEMPERATURE

While in measurement mode, all sensors maintained their nominal orbital and seasonal ranges in this cycle.

5.1.3 VISCAL

"Daily" VC1 files were delivered for most days except:

- 12th of February
- 14th of March
- 16th of March

In addition, the following set of "orbit-by-orbit" VC1 files was delivered:

<http://aatsr2.ag.rl.ac.uk/data2/aatsr2/EDS-X/CyclePlots/VC1-66.txt>

5.1.4 NE Δ T

The information for this section is not available, and will be published in the next cyclic report (#67).

5.2 *User Rejections*

There were no user rejections during this cycle.

5.3 *Software Problem Reporting*

This section describes the open SPRs, their potential impact on the data quality, and SPRs that have been closed.

5.3.1 EXISTING SPRS THAT ARE STILL OPEN

The following SPRs are still open:

Inconsistent values in AST Confidence word, 17 and 50km cells

NA-PR-07-02946

The AST confidence word may be incorrectly set for records where the nadir or dual view SST retrieval was invalid, indicating that the 3.7 micron channel was used (although this has no meaning in this instance). Although the wrongly set flags may be ignored as far as the 17km cell is concerned, they present a problem since they may propagate into the confidence word for the 50km cell. The problem does not occur for daytime (descending) arcs where the retrievals are valid for both views.

5.3.2 NEW SPRS SINCE THE LAST CYCLIC REPORT

No SPRs have been opened since the last Cyclic Report.

5.3.3 CLOSED SPRS

No SPRs have been closed since the last Cyclic Report.

6 CALIBRATION/VALIDATION ACTIVITIES & RESULTS

6.1 Calibration

No additional calibration results were reported during this cycle.

6.2 Validation

A monthly mean global dual-view SST plot for Cycle 66 composed from ATS_AR_2P 10' data is shown below in Figure 6-1. The monthly mean contains day time and night time data.

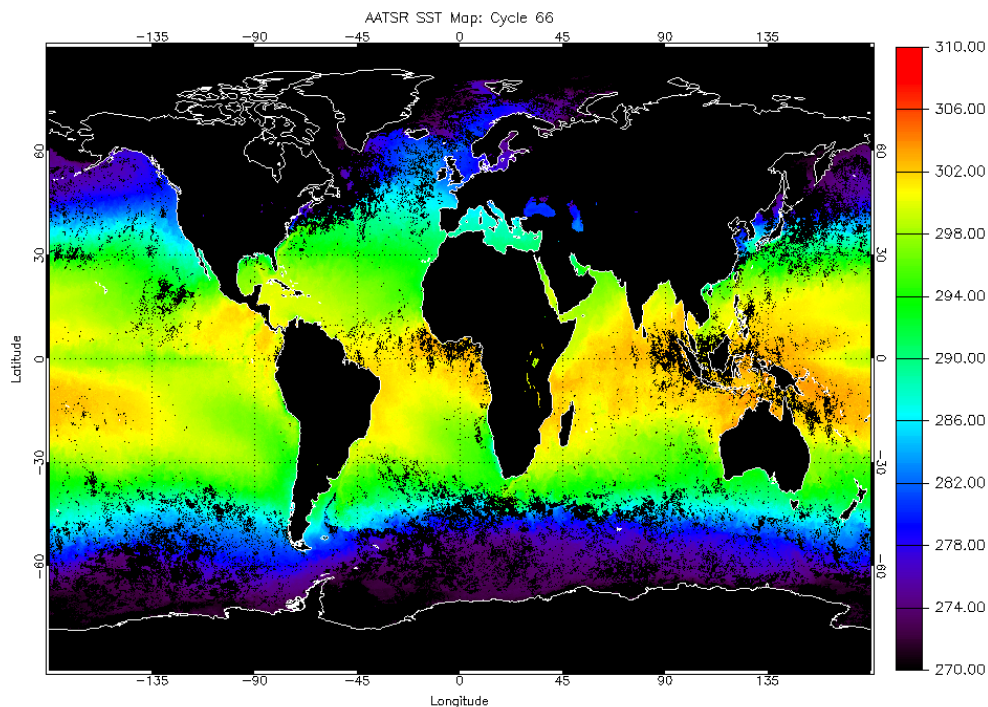


Figure 6-1: Monthly Global Average dual-view SST for Cycle 66.

The Met Office has validated the AATSR dual-view SST data using the global network of in situ buoy SST data, the results for Cycle 66 being shown in Figure 6-2. The updated SST coefficients released in December 2005 were used in the AATSR SST retrievals.

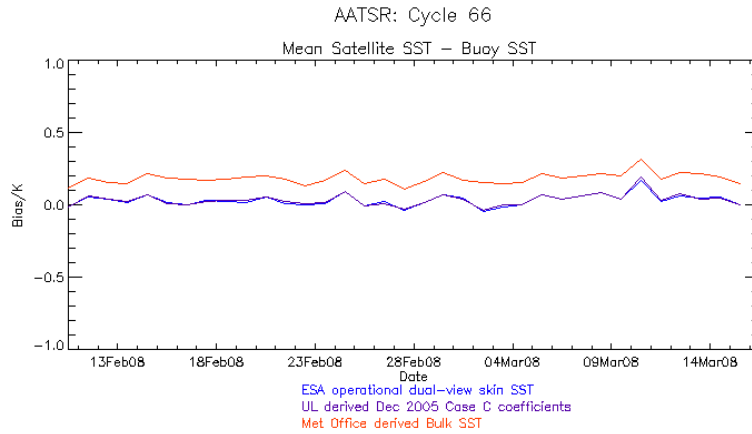


Figure 6-2: Comparison of daily mean difference between 10' AATSR SST values and in situ buoy SST for Cycle 66. Data provided by the Met Office.

During cycle 66, there were 2136 night time match-ups, with a mean (UL derived dual-view skin SST minus buoy SST) of -0.016 K, standard deviation 0.27 K, and a mean (dual-view bulk SST minus buoy SST) of +0.130 K, standard deviation 0.25 K. A total of 1956 daytime match-ups were found, with a mean (UL derived dual-view skin SST minus buoy SST) of +0.081 K, standard deviation 0.29 K, and a mean (dual-view bulk SST minus buoy SST) of +0.235 K, standard deviation 0.29 K. As these data are comparisons of a single point buoy measurement against a much larger spatially averaged value they are not a true indicator of AATSR's accuracy and are used to show consistency of data quality between cycles.

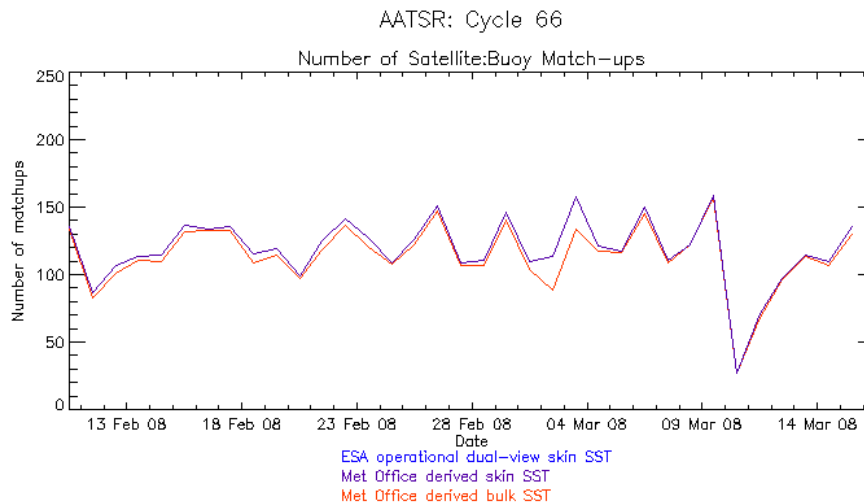


Figure 6-3: Plot of daily number of match-ups between 10' AATSR SST values and in situ buoy SST for Cycle 66. Data provided by the Met Office.

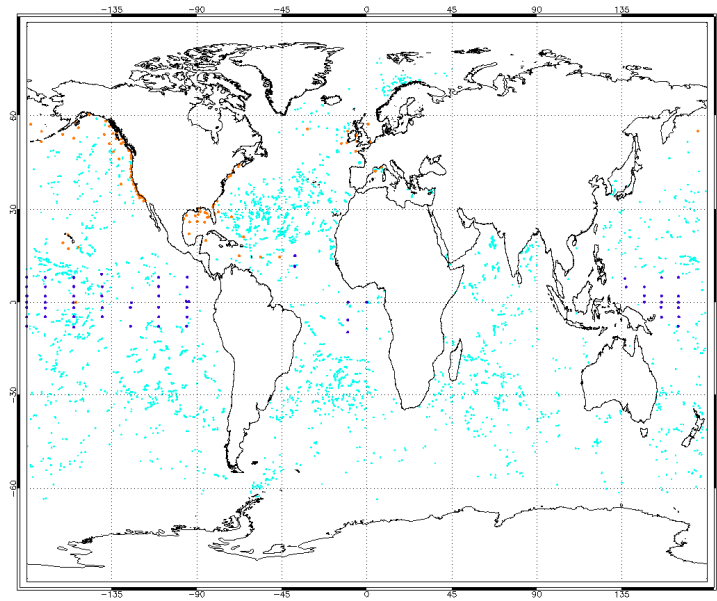


Figure 6-4: Map showing global distribution of match-ups between 10' AATSR SST values and in situ buoy SST for Cycle 66. The red dots indicate a match-ups to a moored buoy; the cyan dots indicate a match-up to a drifting buoy. Data provided by the Met Office.

A complete update on the status of the instrument validation can be found in Section 1.6.2 of Cyclic Report 28.

7 DISCLAIMERS

No new disclaimers have been issued during this cycle.