



RAL ATSR PLS Report to 20th ATSR Core Group Meeting

Covering the period 1st July 2000 until 30th September 2000

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1. PROGRESS SUMMARY

It has been an extremely busy period with notable progress in a number of areas, namely:-

- Preparation of Mid 96 - Mid 97 consolidated ABT data is nearing completion.
- A number of talks and posters were prepared for the Gothenburg Meeting.
- Convergence of the Merchant and RAL coefficients sets.
- CD-ROM produced in limited numbers for Gothenburg meeting.
- SISTeR instrument deployed on validation campaign.
- Improved user interface to X band tools.
- WWW interface added to S band tools.

2. INSTRUMENT STATUS

2.1 ATSR-2 STATUS

ATSR-2 continues to work well, with no apparent lifetime threatening issues, if anything the scan mirror continues to work better with time.

3. REPORTS ON INDIVIDUAL WORK PACKAGES

3.1 WP 1000 SCIENCE EXPLOITATION

3.1.1 WP 1100 Scientific Planning and Project Management

Regular meetings have been held of the ATSR PLS Project team to progress all aspects of the ATSR Post Lunch Support Programme.

3.1.2 WP 1200 Scientific Support

The coefficient set for the CD ROM was selected and data from July to September 1999 processed and prepared for the CD. Due to time constraints a production run of CD's could not be done in time for Gothenburg, however a limited number of CD's were prepared and distributed at Gothenburg.

During Peter Turner's visit to RAL we collaborated with him and now have the CLAVR cloud scheme available and running at RAL for comparisons with SADIST. Initial comparisons have been run that have highlighted some improvements that can be made to the SADIST Cloud Clearing. However there is still a problem with the night time version of the CLAVR scheme so more comparisons need to be run once this is problem has been addressed. All the comparisons to date have been performed with day-time data. SADIST seems to be doing a better job over Oceans, but CLAVR is not surprisingly better over land. One immediate conclusion is that an extension of the gross cloud test to operate over land will yield a quick improvement in the quality of the land cloud flagging.

Work has also continued on the cloud intercomparisons and some data tools have been written that were required to handle the comparisons and inspect the cloud flagging results. A Paper on the work so far was presented at the ERS/Envisat Symposium. Further work is planned on this.

The Project Team has supported the Gothenburg Meeting with a number of talks and posters.

3.1.3 WP 1300 Underpinning Physics

Work continues on the ongoing items listed in Table 2 of the attached summary. The progress on these activities remains good and will be reported to future ACG meeting. The major activity has been the work on getting agreement between the current sets of coefficients from Edinburgh and RAL. The careful work on the RTM and coefficients has now resulted in a convergence of the Merchant and RAL coefficients sets.

A verbal summary of this work will be given at the ACG.

3.1.4 WP 1400 Management Interfaces

The Project Scientist has maintained regular management level contact with ESA counterparts at ESA-HQ, ESTEC, ESRIN and ESOC.

3.1.5 WP 1500 Promotion

Ninety schoolchildren from three local secondary schools visited the RAL Space Science and Technology Department for an "Exploring Space" day. An integral part of this was a hands on demonstration of infra-Red imaging with a follow up talk and worksheet on the AATSR instrument and data.

There has been much preparation for the ERS/Envisat Symposium in Gothenburg including the production of a series of posters and the production of an ASST CD-ROM.

The latest news page of the ATSR WWW site was updated throughout the period informing users of the on going status of the instrument. Maintenance of the existing ATSR WWW pages continues, and some new material continues to be added. A log is available for the quarter on ATSR WWW and ABF access, it will be tabled at the forthcoming Core Group meeting.

The ATSR web site has been updated throughout this period to show images of forest fires both in Greece and the USA as well as Tropical Cyclone Saomai. Additionally, the latter has been submitted to the BNSC publication Space UK to be published soon. Images of the B-15 iceberg cluster have also been placed on the ATSR and the University of Wisconsin web sites. A movie has also been added to the web site, that showed the progress of the iceberg over the last six months. One of the more recent images is to be submitted to the Met. Office publication 'Weather'.

The ATSR web-site is being expanded to include contributions from users of ATSR data, promoting their use of the data. This will be a focal point for the ATSR project and will be available to all to promote greater use of the data.

3.2 WP 2000 IN-FLIGHT OPERATIONS

3.2.1 WP 2100 System Management

The software, hardware, and data links necessary to support the ATSR- 2 instrument has been maintained throughout the period.

3.2.2 WP 2200 Instrument Operations

ATSR-2

The instrument has continued to run nominally throughout the reporting period.

10th July

There was a payload switchdown which was caused by a macrocommand error which arose when some RA commands were in a queue when the RA was off.

11th July

Nominal mode operation with working auto gain/offset loops was achieved by 19:14 hrs

8th August

ATSR-2 Software caused OBDH formats not to be generated and so the instrument shutdown at 11:48hrs. Memory dump was "all incorrect" according to DLS. SEU. Recovery initiated from power down.

9th August

Nominal operation but with "stuck" gain offset loops. Diagnostics revealed that the latest version of ATN54 had not been used. The situation was stable but the data was probably poor.

10th August

Powered off/on using the latest version of ATN54. No problems, nominal operation with working gain auto/offset loops.

17th August

Ran two strips of Forest Fire Mode over regions where ground temperature saturation is occurring in 10.7/12 micron channels. Operated well, and had desired effect, but on exit from 1024 scan strip the auto-gain offset software operated as if it had not properly inhibited during the Forest Fire Mode, i.e. it set very incorrect gains and offsets at its next adjustment and then had to recover from being well away from the required values. ER-NC-RAL-AT-2066 raised. This problem may also apply to the AATSR instrument. The NCR is still open awaiting further data analysis.

27th September

AOCS S/W patching 5:05 hrs to 12:38 hrs, during which time yaw steering was disabled and hence it would be incorrect to use the routine geolocation algorithm for ATSR-2 products.

The VISCAL data is available from:

http://www.atsr.rl.ac.uk/html/calibration_table.html

Support from ESOC for ATSR-2 continues to be excellent.

3.2.3 WP 2300 Monitoring

ATSR-2: Detailed daily monitoring has been maintained in case the scan anomaly recurs.

1st August

Single scan mirror drive power spike with jitter.

3.2.4 WP 2400 Troubleshooting and Diagnostics

No Action has been required during this quarter.

3.2.5 WP 2500 On-board Software and High-level Documents

No work required during this quarter.

3.2.6 WP 2600 ATSR-2 X-band EDS development and Maintenance

The user interface to the X-Band engineering data system was improved to allow more efficient and user-friendly re-scaling and hardcopy generation. The improved system was used to good effect to support investigation of the ATSR NCR related to the wallplate temperature excursion of May 30th this year when ERS-2 turned 90 degrees in yaw.

3.2.7 WP 2700 Maintenance of the S-Band EDS-1/2

The S-band engineering data system has been given a WWW interface to allow the operations manager and instrument scientists to view the daily S-band telemetry plots from their Web browser. In addition, the daily plots are now being converted to PDF files to allow convenient archiving to CD-ROM and subsequent easy viewing. In principle this allows the Project to eliminate further paper archiving.

3.3 WP 3000 CALIBRATION AND VALIDATION

3.3.1 WP 3100 Calibration and Validation Planning

The SISTER instrument is currently taking part in the CalCOFI campaign.

3.3.2 WP 3200 Infrared Calibration and Validation

Analysis of all of the SISTeR validation campaigns is nearing completion.

SISTeR instrumentation

The SISTeR instrument has been set up and calibrated in the laboratory prior to being shipped to USA for the CalCOFI validation campaign.

3.3.3 WP 3300 Visible Calibration and Validation

Work on the long term monitoring of the visible channel calibration and the intercomparisons with other sensors continues.

The paper on the calibration of the AATSR instrument has been completed. Copies will be available at the Core Group meeting.

3.4 WP 4000 ALGORITHMS

3.4.1 WP 4100 Algorithm Management

No work required during this quarter.

3.4.2 WP 4200 Algorithm Development

Reported under Science support, as the current work relates to improvements in the algorithm coefficients and a review of the cloud algorithm and its performance.

3.4.3 WP 4300 Algorithm Maintenance

Other than those reported above, no significant maintenance activities have been required during this reporting period.

3.5 WP 5000 DATA PROCESSING SOFTWARE

A software design document has been prepared for the ABT consolidation software, CoCo. The document has been prepared primarily to aid future maintenance. The format of the new ABT products has been documented and will be made available on the ATSR web pages in PDF format.

3.5.1 WP 5100 Software Requirements

There has been no work in this reporting period.

3.5.2 WP5200 Software Maintenance (SADIST-2 V300)

There has been no work in this reporting period.

3.6 WP6000 DATA HANDLING

3.6.1 WP6100 Data Management

The State Vector information from ESRIN continues to be received successfully, including simulated year 2000 state vectors which were archived at RAL.

3.6.2 WP6200 Archive Improvements & Population.

All available orbits of ATSR-2 raw data to date have been received and catalogued by RAL.

ATSR-1 LRDAF tapes continue to arrive with data now received for the period April 1992 to September 1993. This represents a throughput of an average of 1 X Real-Time. This will increase when the second LRDAF transcription is brought on-line which was delayed from the original date of Q1 2000 but is expected to become operational Q4 2000. The LRDAF archive will be replaced by the old ATSR-1 archives.

An update on the current situation will be given at the forthcoming ACG meeting.

3.6.2.1 WP6201 Data Archive Maintenance.

There are still problems with some ATSR-2 raw data tapes which have failed but these are being replaced by ESRIN as required. This is likely to occur more often as the age of the dataset increases.

3.6.3 WP6300 Primary Mission Processing.

ATSR-2 MRF processing is complete to end of July 2000. August 2000 will be completed when the few missing orbits for that month have been supplied by ESA.

The MRF processing has produced 1193 asst products and 1193 abt products.

3.6.3.1 WP6301 Browse Population & Operation.

The ABF system has operated with minimal problems during the reporting period. There is currently no backlog of files.

A log is available for the quarter on ABF use, it will be tabled at the forthcoming Core Group meeting.

3.6.4 WP6400 Full Resolution Data Processing for the NERC Community.

The following table summarises data services provided this quarter. Also shown are data services for previous quarter periods for comparison purposes.

	Received	Completed	Outstanding	Transferred to MRF	Cancelled	Paused	Products Distributed
2000 Q1	15	17	3	1	0	4	22354
2000 Q2	8	9	1	1	0	4	11309
2000 Q3	9	8	2	0	0	4	13820

Additionally, all ATSR-2 data between June 1995 and December 1995 has been reprocessed with the new algorithm generating 2875 asst and 2875 abt products which will be used as part of the forthcoming ATSR ASST CD-ROM.

Additionally, the MRF processing has produced 2867 asst products and 2867 abt products

Shown below are the statistics provided to DOSTAG.

	GBT	GSST	UBT	ASST	GBROWSE	Products Distributed
2000 Q1	14647	7259	21	427	-	22354
2000 Q2	8176	3076	19	19	19	11309
2000 Q3	8891	3725	768	14	252	13650

The DOSTAG figures do not take account of UCOUNTS, accounting for the 170 difference with ACG total.

3.6.5 WP6500 Reprocessing.

All ATSR-2 data between July 1996 and March 1997 has been reprocessed with the most recent algorithm generating 2554 asst and 2554 abt products.

A chart showing the data status will be tabled at the ACG meeting.

ATSR-1 re-processing is still suspended pending a full assessment of the quality of the LRDAF tapes. There has been further dialog with ESA in this subject and RAL is waiting for ESRIN to retranscribe a test data set from 1991 in order to characterise the situation further. This re-processing will now start once the ATSR-2 re-processing has been completed, likely to be sometime in Q2 2001 depending on the number of ad-hoc requests which are received in that period.

3.6.6 WP 6600 Order Handling and Distribution

See reports under above work packages.

The following users have been supplied data during the reporting period

Name	Institute	Country	Requests
Gareth Mottram	KCL	UK	1
Alan Stevens	RAL	UK	1
John Delderfield	RAL	UK	2

The following users have been supplied data during the reporting period

Name	Institute	Country	Requests
Gutenberg Franca	Rio de Janeiro University	Brazil	1
Lois Nguyen	NASA	USA	1
Tim Nightingale	RAL	UK	1
Seymour Laxon	UCL	UK	1

Listed below are institutions that have accessed the ASST FTP site

Institution
ESRIN
Met Office
S.O.C.
NASA, JPL
JRC, Italy
University College London
University of Leicester
Novaf fluid, France (includes research on MAST-INDIA & 'swell' in coastal zones)
Asian Centre of Research in Remote Sensing, Thailand
George Mason University
Dept. of the Army, Czech Republic
Valencian Generalitat (local Government, Valencia)

4. WP 7000 HIGH LEVEL MANAGEMENT

4.1 WP 7100 OVERALL RAL PROJECT MANAGEMENT

Regular progress meetings with the Project Scientist and the EO Data Group Leader have been held to progress work.

5. PLANS FOR THE NEXT QUARTER

The specific milestones for the next quarter are given in Table 3 of the attached progress summary, plus the following list of standing activities:

- Continued operational support for the ATSR-2 instrument.
- Continued ATSR image product service.
- Continued routine ATSR-2 ASST processing.
- Continued routine ABF population and image generation through the Master Request File.
- Continued support for routine ABF operations to users.
- Issue of new CD-ROM