



# GAMBLE Six Monthly Progress Report

## Third Period: 1 Feb 2003 – 31 July 2003

### EVRI-CT-2001-20009

SECTION 1 (only Section 1 required)

**October 2003**

Project Home Page: <http://www.altimetric.net>

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**Distribution (Public Document):**

1. A. Edwards (EESD programme, EC) - 2 Hard Copies
2. All Gamble Partners, by email
3. GAMBLE Steering Group (by email)
4. To be posted on GAMBLE web site (<http://www.altimetric.net>)

Approved by:..... Dr P.D. Cotton .....(Project Manager, SOS)

Approved by:.....(Quality control, SOS)

Date: .....

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## 1.1 Objectives of the reporting period

The tasks scheduled for months 13-18 of the project involved the work packages 2-8 and 10-11.

The primary objectives for this period were:

- To produce the final reports for Work Packages 2, 3, and 4 (the themes of Sea Surface Height, Sea State and Orbit/Tracking)
- To complete a mid-term review of project progress and report (WP6)
- To hold a workshop for offshore operators to identify their priorities for improved data provision, and produce a report (WP5).
- To start work on the work packages to recommend programmes of research to make best use of altimeter data (WP7), and the best combinations of satellites and instrumentation to satisfy users requirements (WP8).
- To achieve Milestone 1 (delivery of the recommended programme of research).
- To maintain an effective communication with the GAMBLE team and the larger European altimeter community, through the project web-site.

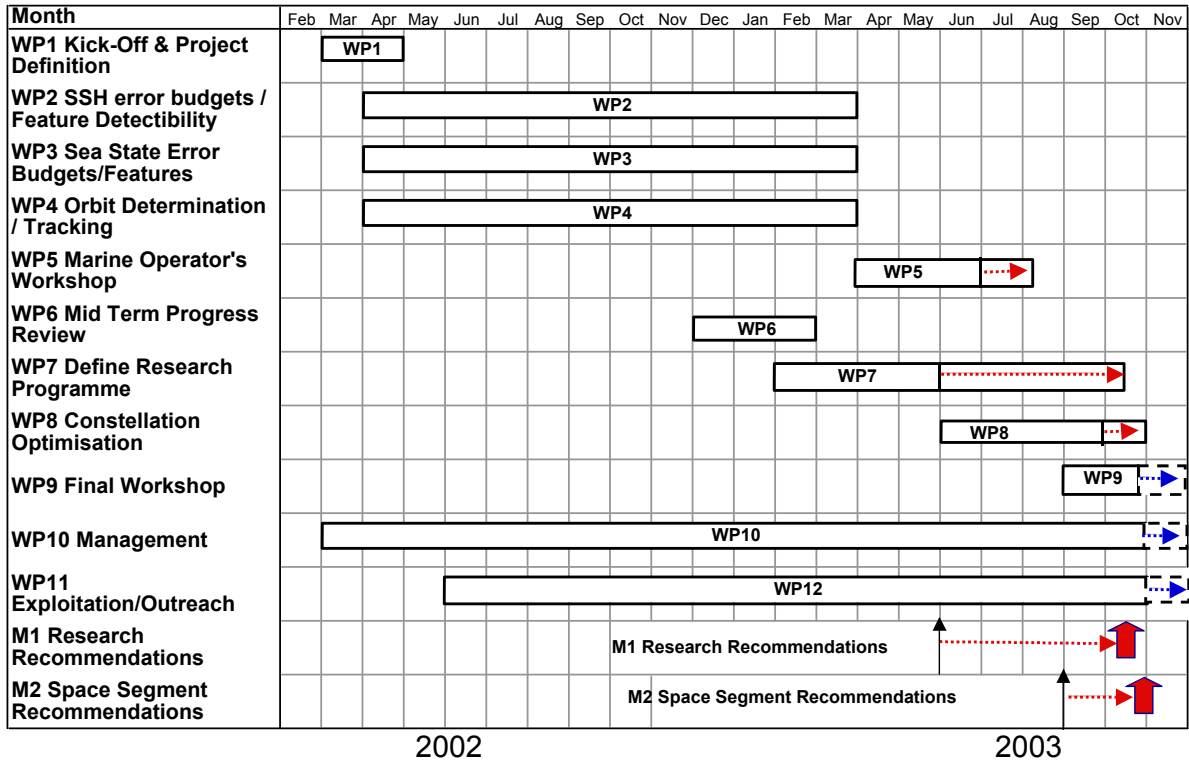
## 1.2 Scientific and Technical Progress Overview

In the period since February 2003, WP2, WP3, WP4 and WP6 have been completed, with the submissions of the final reports (D3, 5 and 6b) and the mid-term review (D8). These reports are all available on the project website, and have been submitted to the EC as required,

WP5 (Operators' Workshop) was started and is now completed. A workshop was held to discuss the requirements for altimeter data from Offshore Operators, at the Norwegian National Petroleum Directorate in Stavanger on May 19<sup>th</sup>. We are grateful to Chris Shaw of Shell, and chair of the International Oil and Gas Producers' MetOcean Committee, for his support in organizing this workshop (Chris Shaw is also a member of the Gamble Steering Group). A final WP5 report was submitted in early August.

Activities on WP7 (recommending a programme of research) and WP8 (constellation optimization) have started. For the former, a draft document has been written and circulated for comment and further contributions. Under WP8 CLS have completed the additional activity to provide a report on the contribution of the tandem JASON-1 TOPEX/Poseidon mission to meso-scale sea level variability studies.

### 1.2.1 Updated GANNT Chart (as of 1/08/03)



Notes:

- Black boxes indicate timetable according to Project Definition V2 (issued Jan 2003)
- Changes in blue (WP9,10,11) indicate changes previously requested at mid term review, now formally approved
- Changes in red indicate further changes requested (approved in September 2003).

## 1.2.2 Manpower Contributed to Date (months).

### Main partners

	<i>Effort to 31/07/03</i>	<i>Planned to 31/07/03</i>	<i>Committed (for whole project)</i>	<i>Remainder (01/08/03 onwards)</i>
CO1 - SOS	6.4	6.5	9.25	2.85
CR2 - CNES	2.0	2.0	3.0	1.0
CR3 - DUT	4.5	4.0	6.5	2.0
CR4 - ISDGM	3.75	3.75	4.75	1.0
<b>Sub Total</b>	<b>16.65</b>	<b>16.25</b>	<b>23.5</b>	<b>6.85</b>

Figures for “planned” effort are initially given as written in the description of work, where affected by the delay of WP6 into year 2 revised figures are given in brackets

### Other partners

	<i>Effort to 31/07/03</i>	<i>Planned to 31/07/03</i>	<i>Committed (for whole project)</i>	<i>Remainder (01/08/03 onwards)</i>
MB5 - SOC	2.5	3.75	6.0	3.5
MB6 - CLS	2.5	4.0*	5.5*	3
MB8 - UNEW	1.5	1.5	2.0	0.5
MB9 - ALCA	0.75	0.75	1.75	1.0
MB10 - CETP	0.6	0.75	2.0	1.4
MB11 - SHOM	0.50	0.5	1.25	0.75
MB12 - UJF	0.75	0.5	1.25	0.5
MB13 - LEGOS	0.25	0.25	1.25	1.0
MB14 - POL	0.05	0.25	0.75	0.70
MB15 - SSTL	0.5	0.25	1.0	0.5
MB16 - UVSQ (see MB10)	-	-	-	-
MB17 - LEGI (see MB12)	-	-	-	-
MB18 - INPG	0.0	0.0	0.0	0.0
MB19 - MPI	1.0	1.0	1.0	0.0
MB20 - ESSC	0.0	0.0	0.0	0.0
MB21 - NERSC	0.0	0.5	0.75	0.75
<b>subtotal</b>	<b>10.9</b>	<b>14.0</b>	<b>24.5</b>	<b>13.6</b>
<b>TOTAL EFFORT TO DATE</b>	<b>27.55</b>	<b>30.25</b>	<b>48.0</b>	<b>20.45</b>

Figures in red are estimates, pending receipt of costs statements from members. \*The effort required from CLS has been increased by 1.5 months to take account of the extra sub-contract for the tandem JASON/TOPEX report.

### 1.3 Milestones and Deliverables

The table below provides details (activities completed since Feb 2003 are highlighted in red):

Deliverable No.	Deliverable Title	Due Date (Month)	Status	Delivered Date
1	Project Definition (V1) Project Definition (V2)	2	✓ ✓	01/05/02 10/01/03
2	Interim Report on SSH	5	✓	31/07/02
3	Final Report on SSH	14	✓	15/04/03
Additional Report	The contribution of the JASON-1 TOPEX/Poseidon mission to meso-scale sea level studies		✓	23/06/03
4	Interim Sea State Report	5	✓	31/07/02
5	Final Sea State Report	14	✓	10/04/03
6a	Interim Orbits and tracking Report	9	✓	28/11/02
6b	Final Orbits and tracking Report	14	✓	10/04/03
7	Report on Marine Operator's Requirements	16	✓	(06/08/03)
8	Report on Error Budgets and Potential Solutions	12	✓	13/03/03
9 / <i>M1</i>	Framework for Recommended Research Programme	16		
10 / <i>M2</i>	Orbit Recommendations	18		
11 / <i>M2</i>	Satellite and payload specification recommendations	18		
12	Final Workshop report	20		
13	Interim Management Report	6	✓	31/07/02
14	Interim Management Report	12	✓	18/03/03
15	Mid term Report	12	✓	18/03/03
16	Interim Management Report	18	✓	This document
17	Draft Final Report	19		
18	Final Report	21		
19	Website and exploitation report	21		

## 1.4 Deviations from the Work Plan

According to the latest version of the Project Definition, the final report for Work Package 5 was due to be delivered in June 2003 (month 16). A draft report WP5 was issued early July, the final report was completed the first week in August (a 2 month delay).

Input from the WP5 report was required for WP7 (Research Recommendations). This, together with pressures of work at Southampton Oceanography Centre has delayed progress on this work package. This delay to WP7 does not have any implications of delay on other activities within GAMBLE, the final report from WP7 is only further required as an input to the final project report. To have transferred the work to other partners in GAMBLE would at this stage only have created further delay.

### 1.4.1 Timetable for Remaining Activities

An updated timetable has been proposed (and subsequently approved):

#### **29 Sept – 3 October**

*D Cotton presents GAMBLE to EUMETSAT Meteorological Satellite conference.*

#### **14/15 October 2003**

**WP7/WP8** – Workshop at CNES Toulouse

14<sup>th</sup> October Half day workshop to agree final recommendations in WP7 Report

15<sup>th</sup> October Full Day for WP8 “Constellation Optimisation”.

#### **17 November 2003**

FINAL GAMBLE workshop, Arles France

*Proposed Timetable for outstanding deliverables (see updated GANTT chart Page 4)*

*WP5 – Final Report on Offshore Operators’ Requirements (deliverable D7) was submitted in the first week of August.*

***WP5 ends August 2003***

**WP7** – Final report on Research Recommendations (deliverable D9 and Milestone M1) to be submitted in the week ending 24 October.

***WP7 ends October 2003***

**WP8** – Final reports on Orbit Recommendations (deliverable D10 and Milestone M2), and Satellite and payload recommendations (deliverable D11 and Milestone M2) to be submitted in the week ending 31 October.

***WP8 ends October 2003***

**WP9** – Final workshop 17<sup>th</sup> November. Workshop report to be submitted by 30<sup>th</sup> November.

***WP9 ends November 2003***

**WP10**– Interim management Report (Deliverable D16) submitted in week ending August 15<sup>th</sup>.

Draft Final GAMBLE Report (deliverable D17) to be submitted by 17 November 2003.

Final GAMBLE Report (deliverable D18) to be submitted by 19 December 2003

***Funded Activity on WP10 ends November 2003, Final Report December 2003***

**WP11**– Exploitation and Outreach Report (Deliverable D19) to be submitted by 19 December 2003.

***Funded Activity on WP11 ends November 2003, Final Report December 2003***

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## 1.5 Coordination Between Partners and Co-operation with other projects

### GAMBLE Meetings

One GAMBLE meeting was held in the time period covered by this report, which was the GAMBLE Offshore Operators' Workshop. The meeting was held at the offices of the Norwegian Petroleum Directorate on May 19<sup>th</sup>, 2003, with support from Chris Shaw, chair of the MetOcean Committee of the International Association of Oil and Gas Producers (OGP), and member of GAMBLE Steering Group.

Five representatives of the GAMBLE project team attended (D.Cotton, T Allan – SOS, Y Menard – CNES, F Lefevre -CLS and V Toumazou -MERCATOR – linked to CLS and CNES). Four representatives of the “value adding” metocean information supply sector were invited (M. Calverley – FugroGeos, J. Gunson – UKMO, B.A. Hjollo –DNMI, M White – Nowcasting), and 12 members of OGP attended and contributed to the discussions.

### Coordination with other projects

The importance of establishing co-operative links with other programmes and projects is recognised, and these links have often been used to gain input to GAMBLE. The nature of these links is briefly outlined below:

- *GODAE (Global Ocean Data Assimilation Experiment)*  
Pierre-Yves le Traon of **CLS** is highly involved in GODAE.
- *NASA/NPOESS (National Polar-orbiting Operational Environmental Satellite System)*  
Yves Menard of **CNES** has well established lines of communication with NASA through the TOPEX and JASON programmes and provides a link to the US altimeter satellite community.
- *EUROGOOS*  
Trevor Guymmer of **SOC** is a member of the EUROGOOS Space Panel.
- *European Space Agency*
  - ESTEC - Alcatel is currently conducting a study for ESA for reviewing the user needs in ocean and ice altimetry and for proposing and studying new altimeter concepts. **SOS**, **CNES**, and **CLS**, are contributing to this study
  - ESRIN –**CLS**, **CNES**, **SOC** and **SOS**, are all on the calibration and validation team for the altimeter on the ENVISAT. Most GAMBLE partners will be involved in research programmes using ENVISAT RA-2 data.
- *GMES (EC/ESA)*  
A number of GAMBLE partners (including **CLS** and **SOS**) are involved with ESA GMES programmes. It is expected that GAMBLE partners will be involved in bids for EC funding under GMES.
- *Offshore Operators*  
Representatives of Offshore Operators (Shell, BP, OceanRoutes) are on the GAMBLE Steering Group. Also note the WP5 meeting described above.
- *WMO*  
Johannes Guddall (DNMI and WMO) presented at the WP3 workshop in Venice (Sept. 2002), and will be kept advised of developments within GAMBLE.
- *MaxWave*  
Johannes Guddall (DNMI) and Susanne Lehner (DLR) presented at the WP3 workshop in Venice (Sept. 2002).

## Participants' information:

N°	Institution/Organisation	Street name & number	Post Code	Town/City	Country	Title	Family Name	First Name	Phone N°	Fax N°	E-Mail
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MB11	Service Hydrographique et Oceanographique de la Marine (SHOM)	14, avenue Edouard Belin	31401	Toulouse	F	Mr	Bahurel	Pierre	+33 5 61 33 29 14	+33 5 61 33 29 16	<a href="mailto:pierre.bahurel@cnes.fr">pierre.bahurel@cnes.fr</a>
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MB13	Laboratoires d'Etudes en Geophysique et Oceanographie Spatiale (LEGOS)	18 avenue Edouard Belin	31401	Toulouse	F	Dr	Le Provost	Christian	+33 5 61 33 29 23	+33 5 61 25 32 05	<a href="mailto:christian.le-provost@cnes.fr">christian.le-provost@cnes.fr</a>
MB14	Proudman Oceanographic Laboratory (POL)	Bidston Observatory, Bidston	CH43 7RA	Birkenhead	UK	Dr	Woodworth	Philip	+44 (0)151 653 8633	+44 (0)151 653 6269	<a href="mailto:plw@pol.ac.uk">plw@pol.ac.uk</a>
MB15	Surrey Satellite Technology Ltd. (SSTL)	Surrey Space Centre	GU2 7XH	Guildford	UK	Dr	Da Silva Curiel	Alex	+44 (0)1483 879278	+44 (0)1483 879503	<a href="mailto:a.da-silva-curiel@sstl.co.uk">a.da-silva-curiel@sstl.co.uk</a>
MB16	Universite Versailles St Quentin (CETP)	10-12 Avenue de l'Europe	78140	Velizy	F	Dr	Hauser	Daniele	+33 1 39 25 48 52	+33 1 39 25 48 72	<a href="mailto:hauser@cetp.ipsl.fr">hauser@cetp.ipsl.fr</a>
MB17	Laboratoire des Ecoulements Geophysiques et Industriels (LEGI)	1025 rue de la Piscine	38041	Grenoble	F	Dr	Verron	Jacques	+33 4 76 82 50 18	+33 4 76 82 52 71	<a href="mailto:jacques.verron@hmg.inpg.fr">jacques.verron@hmg.inpg.fr</a>
MB18	Institut National Polytechnique de Grenoble (INPG)	1025 rue de la Piscine	38041	Grenoble	F	Dr	Verron	Jacques	+33 4 76 82 50 18	+33 4 76 82 52 71	<a href="mailto:jacques.verron@hmg.inpg.fr">jacques.verron@hmg.inpg.fr</a>
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MB 21	Nansen Environmental and Remote Sensing Centre (NERSC)	Edvard Griegsvei 3a	5059	Bergen	NO	Prof.Dr	Johannessen	Johnny	+47 55 297288	+47 55 200050	<a href="mailto:johnny.johannessen@nrs.c.no">johnny.johannessen@nrs.c.no</a>

## **1.6 Difficulties Encountered**

There is a delay from some partners in submitting the cost statements for the third 6 month period (01/02/03-31/07/03).

Apart from the delays resulting in the need to alter the timetable as described above, no other co-ordination difficulties have been encountered

## Publications (cumulative list)

### Peer Reviewed Articles:

Authors / Editors	Date	Title	Event	Type <sup>1</sup>
T.D. Allan and E.R. Ash	16-18 October 2001  Published 15 January 2003	The Gamble Project: A fresh approach to satellite remote sensing of the sea. Phil. Trans. Roy Soc., Mathematical, Physical and Engineering Sciences. Vol 361, No 1802.	“Science and applications of the space environment: New results and interdisciplinary connections”. The Royal Society of London	Presentation and Proceedings
Aouf L., J-M. Lefèvre, and D. Hauser	May 2002	Assimilation of synthetic SWIMSAT directional wave spectra in the wave model WAM,	ISOPE Conference, Tokyo	Presentation and Proceedings

### Non refereed literature:

Authors / Editors	Date	Title	Event	Type
T. D. Allan	3-6 December 2002	The Future Role of Satellite Altimetry	3 <sup>rd</sup> Eurogoos Conference Building the European Capacity in Operational Oceanography Athens, Greece.	Presentation and Proceedings
P.D. Cotton	26 November 2002	GAMBLE – The future role of Satellite altimeters	British Association of Remote Sensing Companies, The Linnean Society	Presentation
Aouf L., J-M. Lefèvre, and D. Hauser	May 2003	Optimization of the assimilation scheme of directional wave spectra in wave model WAM: Application to real ASAR-ENVISAT wave spectra	Abstract submitted to ISOPE Conference, Hawaii	Presentation

<sup>1</sup> Type: Abstract, Newsletter, Oral Presentation, Paper, Poster, Proceedings, Report, Thesis