

ARGOS JOINT TARIFF AGREEMENT TWENTY-FOURTH MEETING

Chennai, India, 25-27 October 2004

FINAL REPORT

NOTE

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GENERAL SUMMARY OF THE WORK OF THE SESSION

1. ORGANIZATION OF THE MEETING

1.1. OPENING OF THE MEETING

1.1.1 The twenty-fourth meeting on the Argos Joint Tariff Agreement was opened at 0900 on Monday, 25 October 2004, in the conference room of the MGM Beach Resort in Chennai, India, by its Chair, Mr Derek Painting. Mr Painting welcomed participants to the meeting, and expressed his thanks to the host, Dr K. Premkumar and the National Institute of Ocean Technology (NIOT) for providing excellent support and thoughtful arrangements.

1.1.2 The list of participants in the meeting is given in Annex I.

1.2. ADOPTION OF THE AGENDA

1.2.1 The Meeting adopted its agenda, which is given in Annex II.

1.3. WORKING ARRANGEMENTS

1.3.1 The Meeting agreed on its working hours and other arrangements for the conduct of the session. The documentation was introduced by the Secretariats.

2. REPORT OF THE CHAIR OF THE JTA

2.1 The Meeting noted with interest the report of the Chair on his actions during the intersessional period. As anticipated at the twenty-third meeting, the Chair spent significant effort on a new JTA tariff scheme, following the guidelines agreed in Angra dos Reis. Specific actions included:

(i) A short meeting with CLS in May attended by D Meldrum, C Vassal, C Ortega with telephone contact with S Auer and R Bassett to progress ideas on JTA revision.

(ii) Attending the OPSCOM meeting in June in Monterey. At this meeting the main results of the 23rd JTA session were reported and especially progress on the drafting of a revised JTA. Also, as requested by participants at the last session, CLS presented an analysis of Argos costs attributed to JTA activity.

(iii) Following the OPSCOM meeting a considerable exchange of ideas for a revised JTA were circulated but it proved not possible to obtain a complete consensus in the working group. This meant, unfortunately, that users and participants of the 24th session did not have sufficient time to study any working group proposals.

2.2 The Chair further observed that intensive discussions on the proposed tariff structure had continued up to the opening of the JTA session and that advantage had been taken of the expert opinion of participants to the DBCP meeting. Consequently he was confident that the Meeting would reach a satisfactory solution.

2.3 In conclusion, the Chair suggested that the aims of the meeting should at least be;

(i) to agree the structure of a new tariff that met the agreed principles and included the principal elements of a new five year plan.

- (ii) to implement the new terms and conditions as soon as possible, and in any case, not later than 1st January 2006.
- (iii) as necessary to agree a transitional agreement for 2005, during which time the new tariff mechanism would be tested and users fully informed in good time before the next JTA session.

2.4 The Meeting thanked the Chair for his report and for his intersessional work on behalf of JTA participants.

3. REPORT ON THE 2004 GLOBAL AGREEMENT

3.1 Mr Christian Ortega of CLS/Service Argos reported on the status of the 2004 Global Agreement. He noted that a final total of 1421.95 PTT (Platform Transmitter Terminal) years had eventually been signed under the agreement for preferential tariff arrangements, made up as follows:

Countries	PTT-year
AUSTRALIA	42.00
AUSTRIA	3.00
BRAZIL	5.00
CANADA	70.00
CHINA	6.25
DENMARK	11.50
FINLAND	1.20
FRANCE	84.00
GERMANY	56.00
ICELAND	0.00
INDIA	18.00
ITALY	13.00
KOREA	7.00
NETHERLANDS	6.60
NEW ZEALAND	9.30
NORWAY	16.00
SOUTH AFRICA	28.80
SPAIN	5.80
SWEDEN	3.50
UND ARAB EMTS	8.00
UNITED KINGDOM	51.00
UNITED STATES	975.00
OTHERS	1.00
TOTAL	1421.95

Mr Ortega noted that this total number contracted was higher than the estimated number recorded at the JTA-XXIII meeting, 1385.93 PTT-years.

3.2 Regarding the “bonus scheme” adopted at its seventeenth session (paragraph 5.5 of the final report), the Meeting recalled that, at its twenty-first session, it had agreed that:

- a) *Where the number of platform-years contracted by the country continues to equal or exceed the estimate confirmed and recorded at the JTA-XVII meeting, the contracted number will be increased by 82% for the purpose of calculating any excess use.*
- b) *For countries not meeting the requirement in (a) above, but having benefited from a 35% bonus during the year preceding immediately that of these present Terms and Conditions, and whose number of platform-years contracted equals or exceeds the number signed under the preceding Terms and Conditions, the contracted number will be increased by 82% for the purpose of calculating any excess use.*
- c) *For countries not meeting the requirements in (a) and (b) above, but whose number of platform-years contracted equals or exceeds the number signed under the preceding Terms and Conditions, the contracted number will be increased by 35% for the purpose of calculating any excess.” (paragraph 32 of the summary report).*

On that basis, the “bonus situation” appeared to be as given in the table below:

Countries	Agreed at JTA XVII PTT-Yrs	Signed for 2002 PIT-Yrs	Signed for 2003 PTT-Yrs	Signed for 2004 PTT-Yrs	Bonus for 2004	
					82%	35%
AUSTRALIA	53.00	42.00	42.00	42.00	Yes	
AUSTRIA		2.00	3.40	3.00		
BRAZIL	12.00	10.00	6.00	5.00		
CANADA	64.00	64.00	64.00	70.00	Yes	
CHINA	1.50	15.50	11.66	6.25	Yes	
DENMARK	11.00	10.07	11.50	11.50	Yes	
FINLAND	1.45	1.51	3.40	1.20		
FRANCE	80.50	80.50	81.50	84.00	Yes	
GERMANY	43.20	56.00	56.00	56.00	Yes	
ICELAND	7.00	1.50	1.50	0.00		
INDIA	10.00	10.00	15.00	18.00	Yes	
ITALY	12.00	13.00	13.00	13.00	Yes	
KOREA	5.00	4.50	4.70	7.00	Yes	
NETHERLANDS	15.47	6.50	6.60	6.60	Yes	
NEW ZEALAND	9.30	9.30	9.30	9.30	Yes	
NORWAY	21.50	19.00	19.00	16.00		
SOUTH AFRICA	38.00	28.70	28.80	28.80	Yes	
SPAIN	1.25	2.60	2.82	5.80	Yes	
SWEDEN	2.50	2.00	2.00	3.50	Yes	
UND ARAB EMTS	3.50	6.00	6.00	8.00	Yes	
UNITED KINGDOM	50.00	57.00	57.00	51.00	Yes	
UNITED STATES	655.00	695.00	790.00	975.00	Yes	
OTHERS	3.00	2.00	2.00	1.00		
TOTAL	1100.17	1138.68	1237.18	1421.95		

Detailed information on the 2004 Global Agreement is given in Annex III.

4. REPORT ON THE DEVELOPMENT OF CLS/SERVICE ARGOS

4.1 The reports on 2003-2004 operations and on system improvements and development projects had already been presented to the preceding DBCP session, where most of the meeting attendees were present. The full reports are attached as *Annexes IV and V*, respectively, and updated appropriately.

5. REVIEW OF USER'S REQUIREMENTS

5.1 The Meeting noted with interest a report from the Chair of the DBCP on the main results of the twentieth session of the Panel (including the technical workshop), which had taken place in Chennai from 18 to 22 October 2004. These included in particular the following specific recommendation to the JTA:

- (i) *The Panel agreed the need to include the multi-satellite service as part of the basic service in order to improve the quantity and timeliness of observations, particularly in data sparse regions. The panel also noted with considerable concern the possible action by NOAA NESDIS to discontinue the DCS mission on NOAA-12 and NOAA-14, since data relayed through these satellites are of considerable value as part of the multi-satellite service. In particular, this move would run counter to efforts by other NOAA offices, such as OCO, to improve the situation in data sparse areas. The panel therefore requested the Chair to seek support from the JTA to keep NOAA-12 and NOAA-14 in operation, and to include the multi-satellite service within the basic service under the Joint Tariff Agreement.*
- (ii) *The Panel was informed of the possibility of overcoming the 'blind orbit' problem by downloading stored Argos data at the Svalbard ground station being established for the NPOESS and METOP missions. The Chair of DBCP was requested to seek support from the JTA to implement this service at the earliest opportunity in order to improve arrival times of stored data at the processing centres. This would greatly improve the situation in critical areas such as the S Atlantic, Southern Ocean and S Pacific, which are severely affected by the blind orbit problem and are poorly served by LUTs.*
- (iii) *The Panel noted that some progress had been made with the request to process data from the Brazilian DCS within the Argos system. There was also the possibility of using Brazilian LUTs to obtain standard Argos data that would improve observational data coverage for the ISABP, amongst others (agenda item 2.2). The Panel therefore requested its Chair to recommend to the JTA to investigate the possibility of obtaining Argos data from these LUTs, as well as from the Brazilian DCS.*
- (iv) *Concerning Argo communication through Argos, it was reported that costs could be doubled simply through transmissions spanning UTC midnight. The Panel requested its Chair to recommend to the JTA that the new tariff structure be designed to circumvent this problem in the future.*
- (v) *The Panel noted the intention of E-SURFMAR to include communication costs within its budget after 1 January 2006. This would include Argos processing costs currently the responsibility of individual ROCs. The Panel therefore requested its Chair to raise the issue at the forthcoming JTA session in order to include this possibility within the future Joint Tariff Agreement.*
- (vi) *Regarding the financial arrangement, for the Support of the JTA Chair, the Panel had approved a budget of USD 15,000 for 2005, and asked the JTA for reimburse this from JTA income, as had been the practice in previous years.*

5.2 The actions or considerations taken by the JTA in response to these recommendations are as follows:

- (i) *Continuous DCS mission on NOAA 12 and 14:* The Meeting supported the recommendation, and requested NESDIS to take necessary measures on this issue. Further information on this issue is given in paragraph 5.4 below;
- (ii) *Blind Orbit Support:* The NOAA/NESDIS report to the twenty-third meeting indicated that NOAA/SOCC had taken steps to enhance the facilities at Barrow, Alaska where the necessary equipment exists to download the "blind orbits." However, a report at the OPSCOM 38 in June 2004 indicated that software upgrading would be necessary to enable simultaneous reception of HRPT and STIP data at Barrow. The earliest date when funding may be available for this upgrade is October 2006. In the meantime, the Meeting noted the ongoing tests conducted by NOAA/NESDIS, and recognized with appreciation that NOAA/NESDIS would carry on testing its equipment in place at Svalbard with stored data from the two operational satellites. Further information on this issue is given in paragraph 5.5 below;
- (iii) *The status of the proposal for connecting Argos to the Brazilian satellites:* The Meeting noted that, referring the information from OPSCOM 38, the INPE/MCT was planning to create an organization or to assign services to an existing organization to process, to store and to disseminate the acquired data to the users in a similar fashion to CLS Argos. Further regarding LUT provision, the Meeting asked to CLS to investigate the possibility of obtaining Argos data from Brazilian LUTs.
- (iv) *The costs relating transmissions spanning UTC midnight:* The Meeting noted that this was an issue in the New Joint Tariff Agreement, and it decided to discuss this issue under item 6 below, together with the revised Five Year Plan on the Joint Tariff Agreement (FYP).
- (v) *The future Joint Tariff Agreement regarding the participation of E-SURFMAR:* this issue was discussed under item 6 together with revised FYP.
- (vi) *The financial support for JTA Chair:* The Meeting approved the request for support of the JTA Chair from JTA income, as in previous years.

5.3 With regard to the specific user requirements raised at JTA-XXIII, the Meeting noted the following actions or considerations:

- (i) *GTS subsystem to relay data from other sources:* During the recent intersessional period Argos had developed the capability to acquire, decode, and convert to GTS messages/bulletins data being telemetered via Iridium from both Argo test floats and from innovative moored buoys (called PICO) being developed at NOAA/PMEL.
- (ii) *Employment of BUFR encoder:* The data compression was under development, with implementation scheduled for end 2004 - beginning 2005, together with some modifications to the BUFR processing.
- (iii) *The ongoing implementation of the streamlined System Use Agreement (SUA) approval process:* No proposal was made on this issue.

5.4 The NOAA/NESDIS representative, Mr Chris O'Connors, noted that NESDIS planned to launch NOAA-N in February 2005 in response to failures on NOAA-16. NESDIS is maintaining 5 satellites in various modes of operation and is concerned there will not be enough resources to continue support of the constellation. In addition NESDIS is implementing a new processing system, which was not designed to support pre NOAA K, L, and M satellites. These two issues

have led to a decision meeting to take place in November 2004. The NESDIS Argos DCS Program Manager will represent the interests of the users at that meeting. At a minimum the Argos Program Manager would like to see both satellites maintain their HRPT broadcast operations and stored data contacts from NOAA-12. Due to the orbital drift of NOAA-14 and the need to reduce contacts on pre K, L, and M satellites it is not likely that stored data contacts will be maintained on NOAA-14. The Argos DCS Program Manager will report the results of the meeting to the DBCP and JTA. NESDIS also reported the NOAA-N' Satellite that was damaged at the contractor facility will be refurbished for launch. NOAA-N' will carry the Argos-3 Instrument allowing for 2-way communications.

5.5 The NOAA/NESDIS representative further reported on the ongoing efforts in NESDIS to overcome the 'blind orbit' problem by downloading stored Argos data at the Svalbard ground station. HRPT data are currently being captured at Point Barrow Alaska. Due to technical limitations only one stream of data may be collected per satellite pass. The US National weather Service has priority for AVHRR Imagery in the HRPT data stream. An upgrade to the hardware was proposed for 2005 but funding was not allocated. It is likely that blind orbit support will not be available at Barrow prior to the Salvard Ground station becoming operational. In early 2005 NESDIS is planning testing of the equipment at Salvard with stored data from the two operational satellites. The Argos DCS Program Manager will pursue this option on behalf of the DBCP and JTA.

5.6 The meeting noted with interest the presentation by Dr Sidney Thurston, the representative of NOAA Office of Climate Observation (OCO), about the OCO activities, plans, and its Argos system usage. The OCO supports oceanic and marine meteorology projects designed to contribute to the implementation of a global climate observing system, that helps to develop a deeper understanding of sea level, ocean carbon, heat, salinity, and air-sea exchange parameters. NOAA/OCO programmes currently cover 48% of global coverage goals anticipated by 2010, including the enhancement of the subsystems of tide gauges, Argo profilers, drifting buoys, moored buoys, XBTs, ocean reference stations, and ocean carbon measurements. Dr. Thurston also noted that the NOAA/OCO sponsored projects are predominately U.S. contributions to global networks coordinated through International science and implementation panels, and managed in cooperation with the Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology (JCOMM). In particular, Dr. Thurston informed that the OCO cooperate with JCOMM as well as with other countries such as Japan, to extend global coverage into the Indian Ocean, with the data policy of free and open access.

6. REVIEW OF THE STRUCTURE OF THE TARIFF AGREEMENT AND RELATED MATTERS

6.1 In line with its longstanding request, the Meeting was presented by Mr C. Vassal with details of the finalized Argos operating costs for 2003 as well as of the amortization and promotion and marketing items for the same year. These are given in Annex VI. The Meeting acknowledged the information given, and noted the final 2003 figures of 5.828 M€ for personnel-related expenses, 4.552 M€ for other expenses, and 0.712 M€ for amortization, for a total of 11.092 M€. It further noted with appreciation the detailed breakdown of such costs for 2003, as well as the evolution of these figures over previous years, presented for comparison. The remarkable increase of the portion of annual income from Non JTA activity since 1996 (from 2.90 M€ to 5.66 M€) was noted during the presentation.

6.2 With regard to the specific action items identified by JTA-XXIII, the Meeting noted:

- (i) *The operation of the basic principles adopted by JTA-XVIII (see the summary report of JTA-XVIII, paragraph 20) and modified by subsequent meetings, as well as the operation of the five-year plan (FYP) adopted by JTA-XIX to address the Argos operating deficit and accumulated debt (see the final report of JTA-XXII, section 6 and*

Annex VII): Discussion on this item is recorded after paragraph 6.3, in conjunction with the revised FYP.

- (ii) *The phasing out of the unused ID charges*: The Meeting noted that 11 131 ID numbers out of 22 340 were 28 bit, hence the recovery of 20 bit ID numbers was crucial as they are the roots used to build the 28 bit ID's. As a consequence, the Meeting agreed that it should continue charging for unused IDs. Additionally the definition of the 'Unused ID' was clarified, to state that, if a data transmission has not occurred for more than 24 months, then an ID becomes 'Unused'.
- (iii) *The likely effects of factoring the other charges levied by CLS on ROCs into the standard PTT charge*: Discussion on this item is recorded after paragraph 6.3, in conjunction with the revised FYP.
- (iv) *The possibility of changing PTT certification requirements to force better management and use of the available bandwidth*: Consideration was still being given to this issue. A recommendation was made in the thirty-seventh OPSCOM meeting, that CLS provides a recommended transmit frequency together with the SUA approval by taking advantage of new simulation tools available at CLS.

PROPOSAL FOR NEW JOINT TARIFF AGREEMENT

6.3 The meeting recalled the principles it had established at its previous session regarding the new tariff structure, as follows:

- (i) The benefits of JTA participation should be shared equally amongst all participants (Users).
- (ii) The revenue collected from Users should meet the costs of providing the service.
- (iii) Developments required by Users should be funded by Users.
- (iv) Costs of developments not of benefit (or of marginal benefit) and not driven by User requirements should not fall on Users.
- (v) There should be a clear division between a basic (funded) service and other (e.g. value added) services.
- (vi) The Tariff structure should be simplified to reduce the number of service categories.
- (vii) System developments should be fully sponsored and those affecting Users agreed in advance.

6.4 In addition, the meeting had agreed that such aims and principles would entail a number of constraints and consequences:

- (i) A clear statement of the cost of User participation should be made annually, with an annual (budget) forecast including the impact of developments.
- (ii) The Tariff should be designed to meet the identified costs and an allowance made for agreed development share and contingencies.
- (iii) The base line for 2005 participation was suggested as the actual costs of the JTA for 2004.
- (iv) The transition to the new tariff agreement in 2005 should be as seamless as possible.

6.5 With that in mind, the Meeting was presented with a proposed new FYP. It was pointed out that the entries in the plan were tentative and remained to be tested. The proposal was on the following basis:

- (i) the tariff should be simple, i.e. include only a monthly charge per active PTT and a PTT-day rate, a single service category and a simple invoicing upon consumption;
- (ii) it should be comprehensive and flexible, i.e. users would select the most appropriate service only upon technical criteria notwithstanding any financial considerations; multi-satellite service, location service plus / APL and dual processing would be included in the single service category;
- (iii) it should be cost-efficient, i.e. the invoices would be based on actual use, without any of the supplementary costs that used to be levied, such as surcharge for more than 6 locations or 10 data collections, administrative fee, etc.; however, additional services such as databank, automatic distribution service, processing modifications, etc. would be kept outside the basic service and charged when required as per to-day;
- (iv) it should be globally consistent, that is within JTA guidelines, and provide an incentive for new users

6.6 The cost would be calculated according to the following formula:

$$\text{PTT cost per month} = A + B * \text{number of day units}$$

- where:
- **A** represents the monthly charge per active PTT (an active PTT is one that transmits at least once during a given calendar month)
 - **B** represents the PTT-day rate
 - For some PTTs categories, namely animals and floats, the day is divided into 4 time slots (0~6; 6~12; 12~18; 18~24). Any PTT transmission collected into a given time slot produces a 0.25 day unit.

In addition, to allow for various platform types to be taken into account, the PTT-day rate was computed as:

$$B = B_1 + B_2$$

- where:
- B_1 takes into account the volume of data transmitted (e.g. floats), and
 - B_2 takes into account the workload given to deal with the platform (e.g. animal tracking)

The coefficient A was proposed as a value of 15 euros, for 2005 Agreement. B_1 and B_2 were proposed for each different category, as following;

Category	B₁ (Data Volume)	B₂ (Workload)	Total B (B₁+B₂)
Full time Drifter	3	3	6
Fixed Station	1.5	1.5	3
Large data Volumes (Floats)	6	3	9
Animals	3	6	9

6.7 In addition, it was proposed to develop a scheme that would provide a discount to programmes using a large number of platforms, at the condition that those programmes be funded

and managed by a unique organization. The idea was to fix the value of the PTT-day rate B to 5 for a programme using more than 300 equivalent PTT-years, to 4 for more than 600 and to 3 for more than 900. The meeting agreed in principle to that proposal, on the understanding that those figures were only tentative ones and might be refined as necessary.

6.8 The meeting was presented with a table showing a comparison between the present tariff and the proposed new tariff structure.

	Old Tariff						New Tariff			
	A	B	days units	No bonus	35%	82%	A	B	Time slots	New Tariff
Full-time PTT	7.6	10.55	30.0	324	242	182	15	6	all day	195
Full Time full discount	7.6	10.55	30.0	324	242	182	15	3	all day	105
Fixed Stations	7.6	5.28	30.0	166	125	95	15	3	all day	105
Animals	7.6	10.55	13.3	113	86	66	15	9	05 day	75
Floats	7.6	10.55	4.4	54	42	33	15	9	0.5 day	35

The meeting recognized that the figures derived from the new tariff were very close to the previous ones under the best possible conditions (82% bonus) and probably even better since they included the multi-satellite service and other features (see paragraph 6.5 above) and were no longer supplemented with administrative fees.

6.9 The Meeting was then presented with an additional proposal that would allow for the establishment of Responsible Organization (RO), which represents an agreed set of Argos User programs for the purposes of their collective participation in the JTA. The functions of an RO include

- (i) preparing consolidated estimates of Argos usage for the annual JTA budget planning and negotiation of tariff Terms and Conditions;
- (ii) representing the collective interests of the User programs in respect of the Argos service provision and forward planning

A RO would provide local support for Argos applications, and facilitate the interface between CLS Argos and the User programs for which the RO is responsible, including

- (i) responsibility for organizing the payment of CLS Argos invoices for its Users
- (ii) providing support to members of the RO's User group

The meeting considered that the proposal was wise and could accommodate groups of countries such as E-SURFMAR, as well as large individual programmes as necessary or convenient.

6.10 Finally, CLS explained they were proposing to invoice the participants in the JTA upon consumption and no longer upon advanced commitment as at the present time. The invoicing would occur every 2 months. The full proposal is reproduced in Annex VII, including a new Five-Year Plan that attempted to illustrate how the proposed new scheme might operate in future.

6.11 The meeting agreed that the plan provided a satisfactory approach to the future evolution of the tariff, and in particular was satisfied with the proposal for 2005 (See paragraph 7).

6.12 Some concern was expressed over the total cost attributed to the JTA. As a consequence, CLS were requested to study possible savings and implications of these savings to the JTA, and to report on their findings to the next JTA session.

6.13 In addition, CLS was requested to investigate the advantages of including science programmes such as the Japanese Argos programme in the JTA.

6.14 After a thorough discussion of the above items, the Meeting finally agreed in principle on the overall proposal, on the understanding that the various figures presented would be tested during the coming year and might be adjusted as necessary to take into account any particular case that might appear. In addition, it requested CLS to prepare an appropriate draft document for presentation at the next OPSCOM, and to have a final version of the plan including any required contract document ready by 15 June 2005 for distribution to all concerned.

PERIODIC REPORTING BY CLS/SERVICE ARGOS

6.15 The Meeting recognized the value to participants of the regular reporting procedures implemented in 1999. It therefore agreed that this reporting should continue in 2005, to include:

- (i) **On 15 February each year:** the actual JTA activity for the previous year (in PTT-years); the final participation in the agreement for the current year (numbers committed on 15 January); a brief commentary by the Chair;
- (ii) **On 15 July each year:** a projection of activity for the current year, based on actual activity during the period 1 January to 30 June; a brief commentary by the Chair.

The Meeting thanked CLS/Argos for making available some details of the JTA and non-JTA activity in terms of active IDs and revenue, and requested that this information be included regularly in the future in its report to each JTA meeting.

7. TERMS AND CONDITIONS OF THE 2005 GLOBAL AGREEMENT

7.1 The Meeting recognized, although the general principles of revised FYP were agreed by the participants, a transition period was required so that the new tariff mechanism be fully explained to the users and be ready to be implemented. As a consequence, some ROCs and Programmes agreed to join a pilot programme for the New Tariff Scheme (See paragraph 7.5 and Annex IX), in order to gain experience in the application of the agreed new principles (See paragraph 6). The committed participants to the pilot programme are shown in the table below. Others may elect to participate provided they confirm their intention by 15 December 2004.

7.2 The Meeting then agreed that the 2005 Terms and Conditions for the rest of the ROCs would generally follow the previous agreement, with some minor amendments.

7.3 On the basis of information available and of statements made by the representatives of participating countries, the numbers of PTT-years likely to be purchased by each country in 2004 were estimated as follows:

COUNTRIES	PTT-year	Pilot Programme (equivalent PTT-year)
AUSTRALIA ?	42.00	80.50
AUSTRIA	1.00	
BRAZIL ?	5.00	
CANADA ?	80.00	
CHINA ?	3.00	
DENMARK	9.20	
FINLAND	1.32	
FRANCE		
GERMANY	53.00	
ICELAND	0.00	

INDIA		20.00
ITALY	13.00	
KOREA (REPUBLIC OF)	8.30	
MALAYSIA	0.00	
NETHERLANDS		6.00
NEW ZEALAND		9.30
NORWAY	16.00	
PAKISTAN	0.00	
PORTUGAL	0.00	
SOUTH AFRICA		28.80
SPAIN	10.00	
SWEDEN	2.20	
THAILAND	0.00	
TUNISIA	0.00	
UNITED ARAB EMIRATES	13.00	
UNITED KINGDOM	51.00	
USA ?		1000.00
OTHERS	0.50	
TOTAL	328.52	1124.60

[When the name of a country is followed by a question mark, this means that the figure is hypothetical.]

7.4 The principles agreed upon at the twenty-third meeting, as well as those established under agenda items 5 and 6 above, were used to agree on the Terms and Conditions for the 2005 Agreement for all participants except those in the pilot programme. Eventually, and also taking into account a few editorial amendments, the following modifications were introduced into the 2005 Terms and Conditions, as compared to those for 2004:

- (i) 2004 is replaced by 2005, 366 days by 365 days, respectively;
- (ii) Under “**DEFINITIONS**”, the “Global Agreement” will change into “Agreement”;
- (iii) Under “**BILLING AND PAYMENT**”, the following text was taken out from 2004 agreement; “. The indicated amount must include the additional 2,287 Euros required per Agreement for general and administrative costs. This latter cost will be waived if the number of platform-years initially agreed to is three or less”
- (iv) Under “**GENERAL CONDITIONS OF AGREEMENT**”, the following text was taken out from 2004 agreement; “The terms of this Agreement are based on a planned minimum purchase of 1,187 platform-years by all participants in the Global Agreement for the year 2003”

The Terms and Conditions for the Agreement for 2005 are given in *Annex VIII*.

7.5 The Terms and Conditions affecting the pilot programme are given in *Annex IX*.

8. FUTURE PLANS AND PROGRAMMES

8.1 Written and oral reports on future plans and programmes for the use of the Argos System in 2004 were presented to the meeting by Canada, China, Finland, France, India, the Netherlands, New Zealand, Republic of Korea, South Africa, Sweden, United Kingdom and USA. Following normal practice, these reports, as well as those received before 15 November 2004, are given in *Annex X*.

9. ELECTION OF THE CHAIR

9.1 Under this item, the Meeting firstly agreed that its practice for a number of years of electing an "independent" Chair, and of funding his/her work on behalf of JTA participants through the JTA, had proven very successful, and should therefore be continued for the coming year (see paragraph 5.1 (vi) and 5.2 (vi).)

9.2 The outgoing Chair, Mr Derek Painting announced his retirement from the Argos JTA activities. Mr Painting had served as Chair of JTA meeting since 1998, and had been playing a fundamental role in letting the Meeting go forward. The meeting paid a special tribute to Mr Painting for his wise direction and longstanding contribution.

9.3 The Meeting elected Mr Yves Tréglos as its new Chair. Mr Tréglos accepted the nomination, but indicated that he would be unable to take up his duty until the beginning of the next session. Therefore the Meeting requested the outgoing Chair to act as interim Chair for the intersessional period. Mr Painting agreed this request and was advised that the duties would include liaising between JTA participants and CLS, representing the JTA at the forthcoming OPSCOM meeting and undertaking such tasks as reasonably requested by JTA participants. In this regard, the WMO representative was requested to arrange administrative support as necessary.

10. DATE AND PLACE OF THE NEXT MEETING

10.1 In line with the agreement of the preceding nineteenth session of the Data Buoy Co-operation Panel, the Meeting accepted the kind offer of South Africa that the twenty-fifth meeting on the Argos Joint Tariff Agreement will take place in Cape Town, South Africa, from 24-26 October 2005, hosted by the South African Weather Service. It will thus follow immediately after the twenty-first session of the DBCP.

10.2 It was foreshadowed that the 2006 JTA meeting might take place in USA, as usual following the DBCP session.

11. CLOSURE OF THE MEETING

11.1 In closing the meeting, the Chair expressed his considerable gratitude to Mr K Premkumar and his team from the National Data Buoy Programme at NIOT. In the opinion of all participants, the meeting had never before enjoyed such congenial surroundings, nor such outstanding organization and comprehensive support. The Chair also thanked the secretariat representatives for having produced, in a very short time, an excellent record of the complex discussions that had taken place.

11.2 For his part, Mr Premkumar warmly thanked the Chair and participants for their kind remarks, and drew attention to the key role of his colleagues from NIOT in assuring the success of the meeting. Finally, he wished that the spirit of international cooperation that had been fostered during the meeting would lead to closer links between NIOT and other institutes in pursuit of their common goals.

11.3 The meeting then applauded the outgoing Chair, Mr Derek Painting, for his unsurpassed length of service to the JTA, the seminal contributions that he had made to its work, and his skill, incisiveness and fairness in chairing sometimes difficult meetings. The meeting, in wishing him a happy retirement, hoped that nonetheless he would continue to be associated with the work of the JTA in some capacity.

11.4 The twenty-fourth meeting on the Argos Joint Tariff Agreement closed at 12.30 hours on Wednesday, 27 October 2004.

ANNEX I

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ANNEX II

AGENDA

- 1. ORGANIZATION OF THE MEETING**
 - 1.1 OPENING OF THE MEETING
 - 1.2 ADOPTION OF THE AGENDA
 - 1.3 WORKING ARRANGEMENTS
- 2. REPORT OF THE CHAIRMAN OF THE JTA**
- 3. REPORT ON THE 2004 GLOBAL AGREEMENT**
- 4. REPORT ON THE DEVELOPMENT OF CLS/SERVICE ARGOS**
- 5. REVIEW OF USER'S REQUIREMENTS**
- 6. REVIEW OF THE STRUCTURE OF THE TARIFF AGREEMENT AND RELATED MATTERS**
- 7. TERMS AND CONDITIONS OF THE 2005 GLOBAL AGREEMENT**
- 8. FUTURE PLANS AND PROGRAMMES**
- 9. ELECTION OF THE CHAIRMAN**
- 10. DATE AND PLACE OF THE NEXT MEETING**
- 11. CLOSURE OF THE MEETING**

ANNEX III

REPORT ON THE 2004 AGREEMENT

1. Contracted participation for 2004

Countries	PTT-year
AUSTRALIA	42.00
AUSTRIA	3.00
BRAZIL	5.00
CANADA	70.00
CHINA	6.25
DENMARK	11.50
FINLAND	1.20
FRANCE	84.00
GERMANY	56.00
ICELAND	0.00
INDIA	18.00
ITALY	13.00
KOREA	7.00
NETHERLANDS	6.60
NEW ZEALAND	9.30
NORWAY	16.00
SOUTH AFRICA	28.80
SPAIN	5.80
SWEDEN	3.50
TAIWAN	1.00
UND ARAB EMTS	8.00
UNITED KINGDOM	51.00
UNITED STATES	975.00
TOTAL	1421.95

Table 1 - The numbers contracted by each country for year 2004

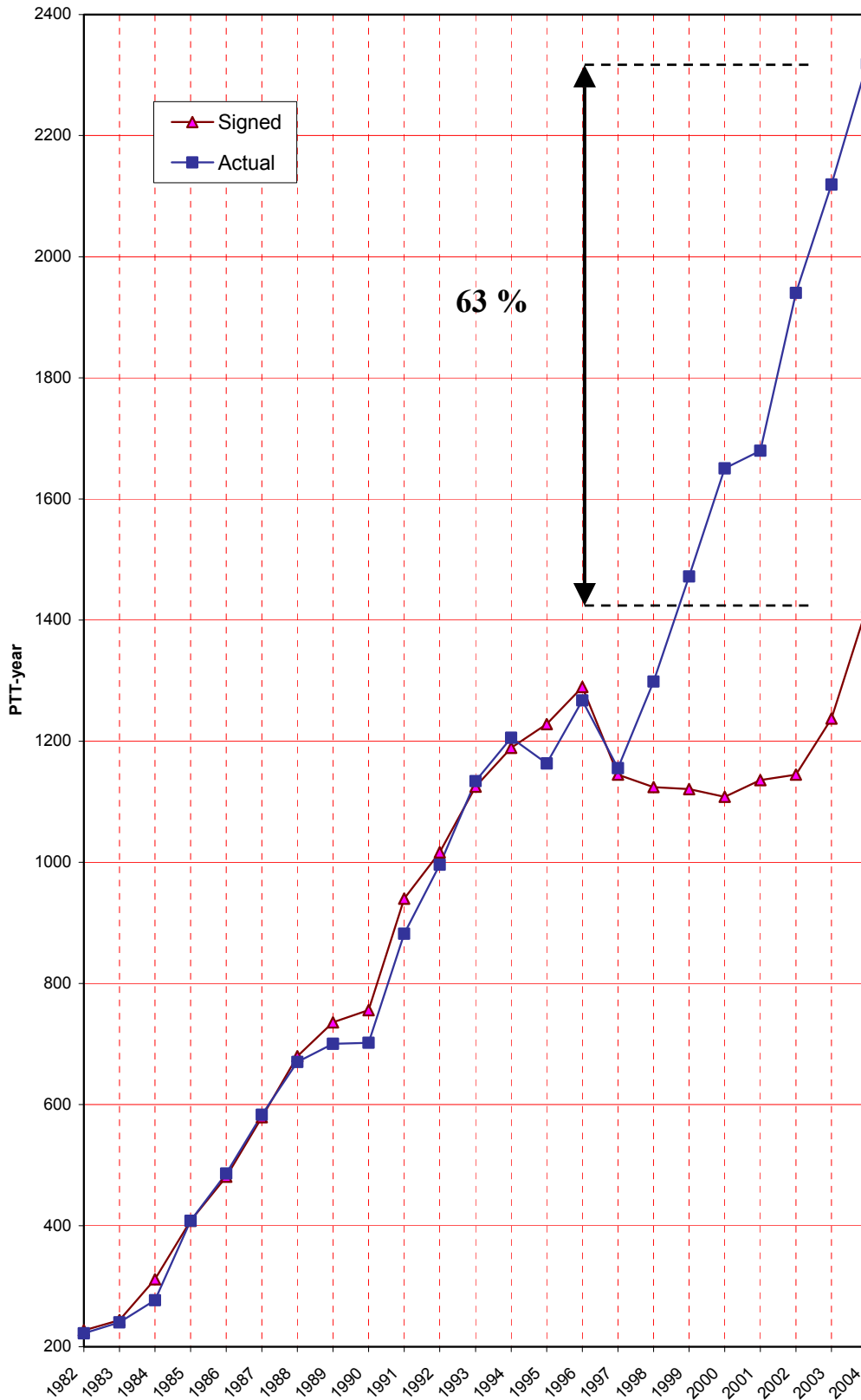
The total number contracted is higher than the estimated number recorded at the JTA-XXIII meeting, 1385.93 PTT-years.

2. Projected 2004 consumption based on actual use at end july

Countries	PTT-Year
AUSTRALIA	87.18
AUSTRIA	1.87
BRAZIL	10.38
CANADA	153.02
CHINA	17.37
DENMARK	11.39
FINLAND	1.69
FRANCE	92.64
GERMANY	50.58
ICELAND	0.00
INDIA	13.68
ITALY	14.97
KOREA	10.89
NETHERLANDS	2.37
NEW ZEALAND	11.01
NORWAY	15.53
SOUTH AFRICA	36.81
SPAIN	3.85
SWEDEN	1.07
TAIWAN	0.14
UND ARAB EMTS	10.35
UNITED KINGDOM	100.78
UNITED STATES	1671.06
TOTAL	2318.63

Table 2 - The projected consumption for 2004

This is an extrapolation based on the actual consumptions till July 2004.



Curve 2.1: PTT-years contracted and consumption since 1982

The global consumption keeps growing. The average level of bonus used is still high, 63% (71 % last year) despite the fair increase of the contracted number.

3. Evolution of the agreement for the “bonus years” (1998-2003)

3.1 Principles of the bonus

▪ JTA XVII (La Réunion, October 1997)

Agreement reached at the seventeenth JTA meeting (La Réunion, October 1997, paragraph 5.5 of the final report):

« the basic principles for the 1998 and 1999 JTAs at least should be:

(i) that each ROC had essentially a fixed amount of money to pay to Argos for 1998, the total of which would most likely cover Argos operating costs for that year, based on an unchanged cost per PTT year,

(ii) that for this amount each ROC would be allowed a certain percentage increase (bonus) in PTT year usage in 1998, nominally 35%, without further charge or penalty,

(iii) that this increase could be compounded over two years, provided the sum guaranteed to be paid to Argos did not decrease in 1999 from that guaranteed at JTA-XVII,

(iv) that if the PTT years finally agreed on 15 January 1998 and/or 1999 by each ROC amounted to less than the PTT/years confirmed and recorded at the present meeting by the ROC, then the bonus would no longer apply to that country.

▪ JTA XIX (Wellington, November 1999)

The JTA - XIX meeting:

a) reconfirmed the decision that the total bonus should continue to apply for those countries with signed PTT-years in 2000 at least equal to the base figure in the JTA-XVII bid.

b) As an exception for 2000 only, for those ROCs that had not been able to take advantage of the bonus since its inception in 1998, it was decided to allow a bonus of 35% over the signed figure in 2000, should this figure exceed the figure in the 1999 agreement.

▪ JTA XX (Victoria, October 2000)

The bonus policy was reconfirmed and expanded as below:

The meeting agreed to:

continue the bonus system in 2001, with a continuing upper bonus limit of 82% to apply to those countries whose contracted number equal or exceeds the JTA-XVII bid,
make the bonus available also to those countries whose signed PTT-years in 2001 is at least as great as those confirmed at this meeting and also those signed in 2000, initially at the 35% level.

▪ JTA XXI (Perth, October 2001)

The bonus policy was reconfirmed and the related conditions formulated as below:

a) *Where the number of platform-years contracted by the country continues to equal or exceed the estimate confirmed and recorded at the JTA-XVII meeting, the contracted number will be increased by 82% for the purpose of calculating any excess use.*

b) *For countries not meeting the requirement in (a) above, but having benefited from a 35% bonus during the year preceding immediately that of these present Terms and Conditions, and whose number of platform-years contracted equals or exceeds the number signed under the preceding Terms and Conditions, the contracted number will be increased by 82% for the purpose of calculating any excess use.*

c) For countries not meeting the requirements in (a) and (b) above, but whose number of platform-years contracted equals or exceeds the number signed under the preceding Terms and Conditions, the contracted number will be increased by 35% for the purpose of calculating any excess.

▪ **JTA XXII (Trois Ilets, La Martinique, October 2002)**

The bonus policy, as expressed above, was reconfirmed. The rule on the excess use was amended in the "Terms and Conditions" as follows:

"Each participating country will be charged for excess use over and above the contracted number of PTT-years (inflated by the above bonus as appropriate):

a) at the tariff defined under "USER CHARGES PER PLATFORM-YEAR" divided by 1.35 (one point thirty five), if the participating country benefits of a 82% bonus during the year;

b) at the tariff defined under "USER CHARGES PER PLATFORM-YEAR", in all other cases."

3.2 Application of the bonus

3.2.1 Situation of Agreements per country

According to basic principles in § 3.1 the "bonus situation", is given in the table below:

Countries	Agreed at JTA XVII PTT-Yrs	Signed for 2002 PIT-Yrs	Signed for 2003 PTT-Yrs	Signed for 2004 PTT-Yrs	Bonus for 2004	
					82%	35%
AUSTRALIA	53.00	42.00	42.00	42.00	Yes	
AUSTRIA		2.00	3.40	3.00		
BRAZIL	12.00	10.00	6.00	5.00		
CANADA	64.00	64.00	64.00	70.00	Yes	
CHINA	1.50	15.50	11.66	6.25	Yes	
DENMARK	11.00	10.07	11.50	11.50	Yes	
FINLAND	1.45	1.51	3.40	1.20		
FRANCE	80.50	80.50	81.50	84.00	Yes	
GERMANY	43.20	56.00	56.00	56.00	Yes	
ICELAND	7.00	1.50	1.50	0.00		
INDIA	10.00	10.00	15.00	18.00	Yes	
ITALY	12.00	13.00	13.00	13.00	Yes	
KOREA	5.00	4.50	4.70	7.00	Yes	
NETHERLANDS	15.47	6.50	6.60	6.60	Yes	
NEW ZEALAND	9.30	9.30	9.30	9.30	Yes	
NORWAY	21.50	19.00	19.00	16.00		
SOUTH AFRICA	38.00	28.70	28.80	28.80	Yes	
SPAIN	1.25	2.60	2.82	5.80	Yes	
SWEDEN	2.50	2.00	2.00	3.50	Yes	
TAIWAN	3.00	2.00	2.00	1.00		
UND ARAB EMTS	3.50	6.00	6.00	8.00	Yes	
UNITED KINGDOM	50.00	57.00	57.00	51.00	Yes	
UNITED STATES	655.00	695.00	790.00	975.00	Yes	
TOTAL	1100.17	1138.68	1237.18	1421.95		

Table 3.2.1: Bonus situation. For 2004, 17 countries out of 22 were entitled to bonus.

3.2.2 Consumed versus contracted PTT-Yrs by country

- In 2003, the total PTT-year consumption was 71 % (882 PTT-years) higher than the total signed, 1237.18 PTT-years.
- The July projection for 2004 is 63 % (896.6 PTT-years) higher than the total signed, 1421.95 PTT-years.
- In July 2004, the projected consumptions of 12 countries (among 17 entitled to bonus) exceed their signed amount.

Countries	Year 2003				Year 2004			
	Signed PTT.Years 2003	Bonus 2003	Actual PTT.Years 2003	Delta %	Signed PTT.Years 2004	Bonus 2004	Projected PTT.Years July 2004	Delta %
AUSTRALIA	42.0	yes	68.6	63%	42.00	yes	87.2	108%
AUSTRIA	3.4	yes	2.2	-36%	3.00	no	1.9	-38%
BRAZIL	6.0	no	9.7	61%	5.00	no	10.4	108%
CANADA	64.0	no	135.0	111%	70.00	yes	153.0	119%
CHINA	11.7	yes	21.9	87%	6.25	yes	17.4	178%
DENMARK	11.5	yes	15.3	33%	11.50	yes	11.4	-1%
FINLAND	3.4	yes	2.5	-26%	1.20	no	1.7	41%
FRANCE	81.5	yes	84.4	4%	84.00	yes	92.5	10%
GERMANY	56.0	yes	52.0	-7%	56.00	yes	50.6	-10%
ICELAND	1.5	yes	0.0		0.00	no	0.0	
INDIA	15.0	yes	13.8	-8%	18.00	yes	13.7	-24%
ITALY	13.0	yes	22.1	70%	13.00	yes	15.0	15%
KOREA	4.7	yes	7.7	64%	7.00	yes	10.9	56%
NETHERLANDS	6.6	yes	5.1	-23%	6.60	yes	2.4	-64%
NEW ZEALAND	9.3	yes	11.9	28%	9.30	yes	11.0	18%
NORWAY	19.0	yes	17.2	-9%	16.00	no	15.5	-3%
SOUTH AFRICA	28.8	yes	32.2	12%	28.80	yes	36.8	28%
SPAIN	2.8	yes	6.5	129%	5.80	yes	3.9	-34%
SWEDEN	2.0	yes	1.8	-9%	3.50	yes	1.1	-69%
TAIWAN	2.0	yes	1.3	-35%	1.00	no	0.1	-86%
UND ARAB EMTS UNITED KINGDOM	6.0	yes	6.9	15%	8.00	yes	10.4	29%
UNITED STATES	57.0	yes	95.7	68%	51.00	yes	100.8	98%
TOTAL	1237.18		2119.21	71%	1421.95		2318.5	63%

Table 3.2.2: Bonus situation. For 2004, 17 countries out of 22 were entitled to bonus.

The diagram below, displays the difference between actual consumption and contracted number, in percentage of the contracted number, for years 2002, 2003 and 2004. For 2004, the July projection is used.

This reflects the level of bonus used by each country entitled to it, all along these years.

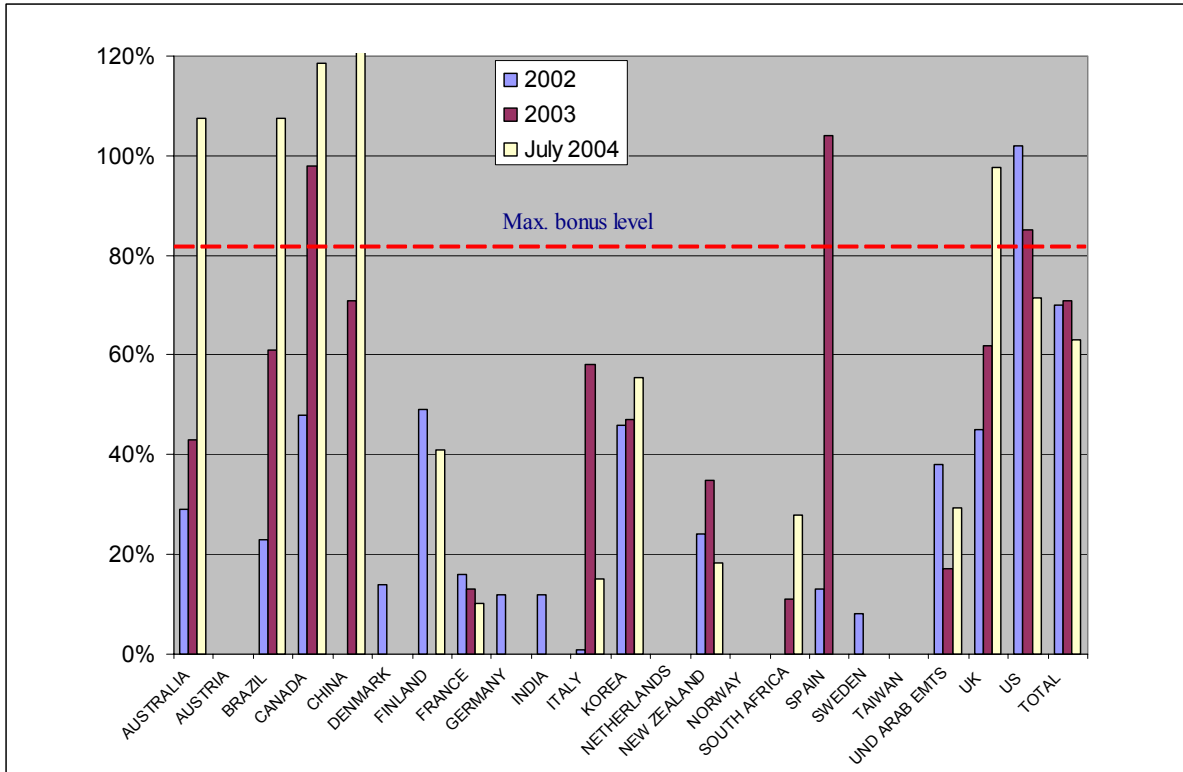
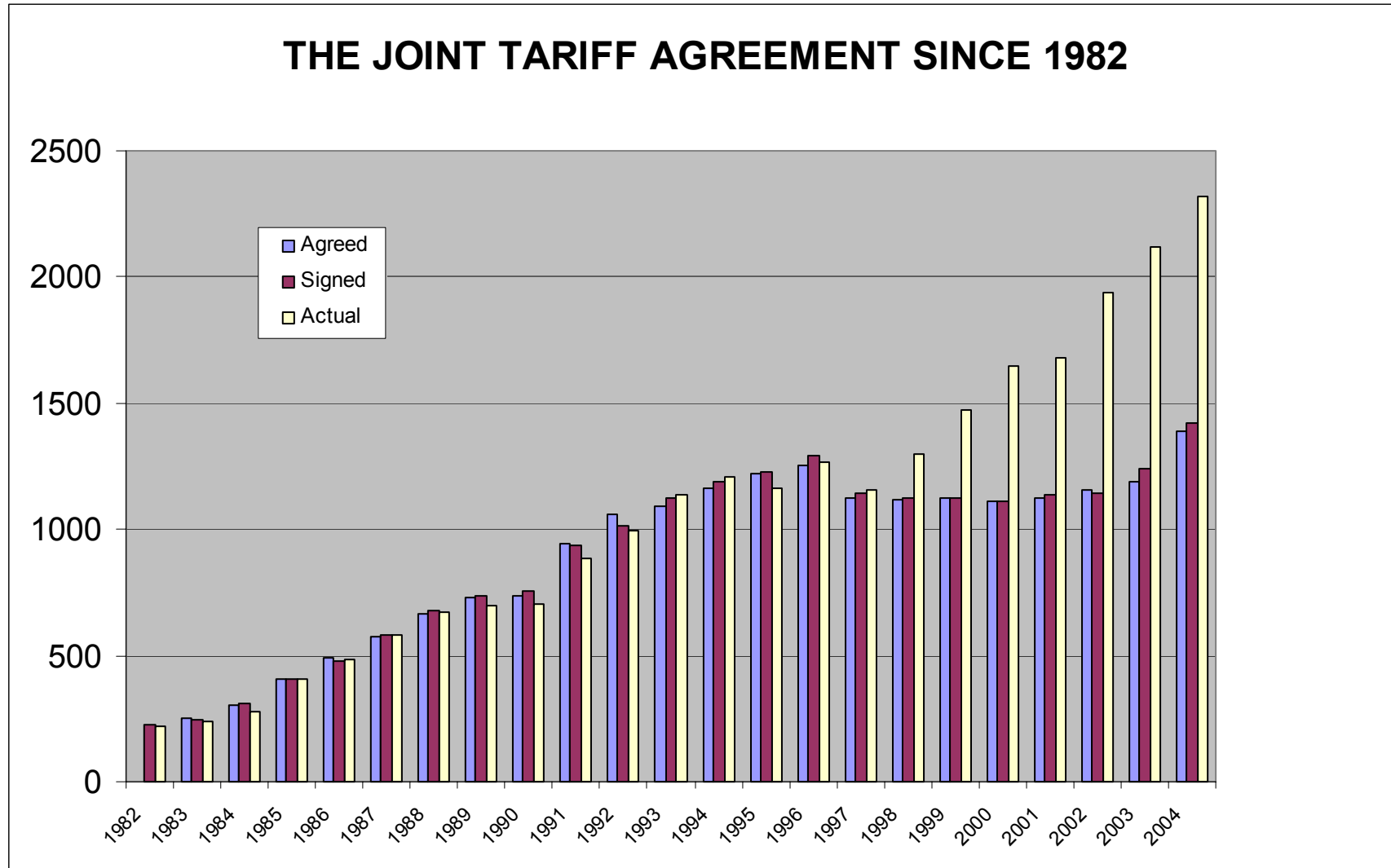


Diagram 3.2.3: Bonus situation. from 2002 to 2004.

4. The joint tariff agreement from 1982 to 2004

Diagram 4.1 Overview



THE JOINT TARIFF AGREEMENT FROM 1982 TO 2004

	1982		1983		1984		1985		1986		1987	
	SIG.	ACT.	SIG.	ACT.	SIG.	ACT.	SIG.	ACT.	SIG.	ACT.	SIG.	ACT.
AUSTRALIA	11,0	11,0	9,0	7,8	17,0	8,7	15,0	15,0	22,0	22,6	30,0	27,0
AUSTRIA												
BRASIL												
BURKINA FASO				9,8	1,5	0,9	1,5	1,2	1,5	1,4	2,0	2,3
CANADA	10,0	10,0	10,0		12,0	15,0	32,0	34,8	40,0	27,0	31,0	40,4
CHINA											6,0	3,5
DENMARK			1,0	3,0	3,0	4,8	6,0	5,9	6,0	6,4	6,0	6,8
FIJI												
FINLAND												
FRANCE	25,0	25,0	35,0	24,0	45,5	33,5	44,0	39,0	55,0	51,9	56,0	45,5
GERMANY	21,0	21,0	20,0	29,4	20,0	22,0	20,0	30,9	24,0	32,7	28,0	51,0
ICELAND											1,0	0,5
INDIA												
ITALY											1,0	0,7
KOREA												
MALAYSIA												
NETHERLANDS			1,0	0,9	1,0	0,9	2,0	1,5	2,0	0,8	3,0	1,8
NEW ZEALAND					2,0	0,1	2,0	1,4	3,0	5,5	3,0	3,6
NORWAY	10,0	10,0	20,0	18,3	17,5	19,5	19,5	15,3	28,0	20,2	21,0	26,0
PAKISTAN												
PORTUGAL	0,0	1,0	1,0	1,4							0,5	0,0
SAUDI ARABIA							5,0	1,5			1,0	1,8
SOUTH AFRICA	11,0	12,0	14,0	8,8	16,0	14,3	19,0	15,0	16,0	7,8	10,0	3,1
SPAIN												
SWEDEN												
OTHER												
THAILAND												
TUNISIA												
UND ARAB EMTS												
UNITED KINGDOM	7,0				11,0	8,2	9,0	4,6	8,5	10,8	14,5	14,2
USA	132,0	132,0	133,0	137,0	165,0	149,0	234,0	242,0	275,0	299,0	365,0	355,0
TOTAL	227,00	222,00	244,00	240,40	311,50	276,90	409,00	408,10	481,00	486,10	579,00	583,20

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Annex III

	1988		1989		1990		1991		1992		1993	
	SIG.	ACT.	SIG.	ACT.	SIG.	ACT.	SIG.	ACT.	SIG.	ACT.	SIG.	ACT.
AUSTRALIA	25,0	19,1	19,0	13,9	28,7	21,3	28,4	23,1	37,0	29,8	33,0	34,4
AUSTRIA												
BRASIL					2,0	1,2	2,0	1,3	5,0	2,2	12,0	10,1
BURKINA FASO	2,0	3,5	3,5	5,5	5,0	5,2	6,5	5,3	6,5	5,8	7,5	10,9
CANADA	44,0	43,5	49,0	38,3	34,0	39,6	85,0	83,0	104,0	97,7	90,0	96,7
CHINA	7,0	4,4	5,0	3,2	5,0	5,9	6,5	5,0	5,0	3,2	3,5	3,8
DENMARK	7,0	7,3	10,0	11,6	10,0	9,8	3,0	2,8	2,8	2,3	3,5	4,9
FIJI									4,0	3,3	1,8	1,6
FINLAND									3,6	2,3	0,9	1,8
FRANCE	58,0	43,8	66,6	59,7	64,2	59,2	73,8	58,5	71,6	59,1	115,0	93,0
GERMANY	38,0	44,2	35,0	49,9	31,0	37,5	50,0	45,3	73,0	70,2	56,0	66,8
ICELAND	1,0	0,5	1,0	0,5	1,0	0,4	1,0	0,6	1,0	0,3	1,0	0,4
INDIA							8,0	1,6	8,0	5,0	8,0	2,6
ITALY	2,0	0,4	2,0	1,2	2,0	0,2	4,2	7,0	14,4	14,0	24,3	22,9
KOREA									2,3	2,1	2,3	3,2
MALAYSIA												
NETHERLANDS	4,0	3,3	3,0	2,6	7,0	4,2	8,0	4,6	4,5	1,8	5,0	7,1
NEW ZEALAND	4,0	5,1	5,5	5,0	3,8	5,5	6,5	6,2	7,0	6,5	7,0	7,2
NORWAY	18,0	15,8	25,0	24,7	31,0	22,0	32,0	24,0	26,0	31,6	42,0	42,4
PAKISTAN									0,7	0,5	1,7	1,0
PORTUGAL	2,0	0,6	2,0	2,0	1,0	1,0	1,0		1,0	0,0	5,0	4,1
SAUDI ARABIA	1,0	0,4			1,3	0,0	0,0		0,0	0,0	0,0	0,0
SOUTH AFRICA	16,0	2,8	7,0	1,3	13,0	8,2	14,0	7,5	13,0	7,8	13,0	11,7
SPAIN					0,0	0,0	0,0		0,0	0,0	1,7	0,0
SWEDEN							3,0	2,1	1,0	1,2	2,0	1,4
OTHER												
THAILAND												
TUNISIA												
UND ARAB EMTS												
UNITED KINGDOM	13,0	15,5	22,0	21,0	21,0	21,0	22,0	19,2	25,0	49,2	46,0	45,3
USA	438,0	460,0	480,0	460,0	495,0	460,0	585,0	585,0	600,0	600,0	643,0	661,0
TOTAL	680,00	670,20	735,60	700,40	756,00	702,20	939,90	882,10	1016,40	995,90	1125,20	1134,30

- 27 -
Annex III

	1994		1995		1996		1997		1998		1999	
	SIG.	ACT.	SIG.	ACT.	SIG.	ACT.	SIG.	ACT.	SIG.	ACT.	SIG.	ACT.
AUSTRALIA	44,5	42,4	50,0	41,5	56,4	50,0	56,5	47,0	53,0	45,5	53,0	47,9
AUSTRIA												
BRASIL	14,0	10,7	13,0	11,0	13,0	9,4	14,0	9,7	12,0	11,7	16,0	14,1
BURKINA FASO	7,5	12,8	13,0	11,6	14,0	11,9	14,0	12,3	13,0	11,8	10,8	9,2
CANADA	80,0	91,2	85,0	90,1	80,0	75,1	64,0	67,1	64,0	72,1	67,0	73,8
CHINA	3,0	4,0	3,0	2,9	3,0	3,0	1,5	1,5	1,5	1,1	3,0	2,4
DENMARK	6,5	5,2	6,2	5,6	10,0	8,1	11,8	8,6	12,4	12,3	11,0	13,8
FIJI	0,5	0,9	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
FINLAND	1,0	2,3	0,9	0,9	4,0	7,2	1,6	4,2	2,2	3,4	1,6	2,2
FRANCE	93,6	82,3	81,5	47,0	65,4	64,0	82,8	79,2	81,0	91,4	81,0	87,4
GERMANY	70,0	71,8	62,0	55,2	40,0	42,9	43,0	37,2	43,2	33,3	38,8	38,3
ICELAND	2,0	3,3	3,0	2,2	6,0	4,5	7,0	5,7	7,5	6,2	8,5	14,1
INDIA	8,0	6,1	8,0	6,8	8,0	8,0	10,0	6,2	10,0	8,2	10,0	10,9
ITALY	22,1	20,2	24,9	25,3	17,5	15,6	12,8	12,9	13,5	13,2	13,5	12,7
KOREA	2,7	4,9	5,5	3,4	7,5	4,2	6,5	9,2	4,0	6,1	5,0	6,6
MALAYSIA	1,4	0,3	0,8	0,0	0,8	0,0	0,0	0,0	0,0	0,0	0,0	0,0
NETHERLANDS	7,5	5,0	11,5	5,3	18,4	12,3	14,0	7,0	15,5	12,4	11,0	8,8
NEW ZEALAND	7,6	7,5	8,5	9,1	11,1	11,4	9,8	10,2	9,3	8,8	9,3	12,2
NORWAY	32,5	31,4	31,0	24,0	27,0	26,1	28,5	26,8	21,5	16,3	21,5	21,1
PAKISTAN	1,7	1,6	1,8	0,8	1,8	0,6	1,6	0,2	1,6	0,6	1,6	0,6
PORTUGAL	5,0	2,5	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
SAUDI ARABIA	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
SOUTH AFRICA	15,0	12,3	22,0	23,1	25,0	26,5	34,0	30,0	38,0	55,2	38,0	42,3
SPAIN	1,7	0,4	1,5	1,2	2,8	3,6	1,5	1,6	3,6	4,7	1,9	2,3
SWEDEN	2,0	1,3	1,0	1,0	2,0	1,8	3,0	2,2	3,0	4,9	3,0	5,3
OTHER	8,5	3,1	2,0	2,3	2,0	0,8	3,0	0,6	3,0	1,8	3,0	7,4
THAILAND			9,5	1,6	2,5	4,4	0,0	0,0	0,0	0,0	0,0	0,0
TUNISIA	2,0	2,1	2,0	2,6	2,0	2,9	3,0	3,2	3,0	3,5	3,0	3,1
UND ARAB EMTS			2,5	1,8	2,5	2,2	3,0	3,0	3,5	4,8	4,5	4,2
UNITED KINGDOM	64,0	48,1	63,0	66,0	61,8	87,0	42,9	55,7	50,0	61,1	50,0	70,5
USA	685,0	732,0	715,0	721,0	805,0	784,0	675,0	714,0	655,0	808,0	655,0	961,0
TOTAL	1189,30	1205,70	1228,10	1163,30	1289,50	1267,52	1144,80	1155,30	1124,30	1298,40	1121,00	1471,92

	2000		2001		2002		2003		2004	
	SIG.	ACT.	SIG.	ACT.	SIG.	ACT.	SIG.	ACT.	SIG.	ACT. July
AUSTRALIA	40,5	40,3	42,0	45,1	42,0	54,1	42,0	68,6	42,0	87,2
AUSTRIA					2,0	1,5	3,4	2,2	3,0	1,9
BRASIL	12,0	10,7	12,0	9,5	10,0	12,3	6,0	9,7	5,0	10,4
BURKINA FASO	10,8	8,9	10,0	8,1	6,0	4,7	0,0	0,0	0,0	0,0
CANADA	67,0	68,1	64,0	69,7	64,0	94,7	64,0	135,0	70,0	153,0
CHINA	2,4	4,4	12,5	5,8	15,5	15,0	11,7	21,9	6,3	17,4
DENMARK	8,1	11,8	11,5	11,3	10,1	11,5	11,5	15,3	11,5	11,4
FIJI	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
FINLAND	2,4	2,8	2,0	2,4	1,5	2,3	3,4	2,5	1,2	1,7
FRANCE	82,0	72,7	82,0	93,8	80,5	93,6	81,5	84,4	84,0	92,6
GERMANY	51,8	41,5	42,8	51,9	56,0	62,5	56,0	52,0	56,0	50,6
ICELAND	4,5	4,1	4,5	1,7	1,5	0,4	1,5	0,0	0,0	0,0
INDIA	10,0	11,6	10,0	11,0	10,0	11,2	15,0	13,8	18,0	13,7
ITALY	11,0	10,0	11,0	11,3	13,0	13,2	13,0	22,1	13,0	15,0
KOREA	3,0	3,5	2,5	2,4	4,5	6,6	4,7	7,7	7,0	10,9
MALAYSIA	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
NETHERLANDS	13,7	10,7	7,3	8,0	6,5	5,7	6,6	5,1	6,6	2,4
NEW ZEALAND	9,3	10,4	9,3	8,9	9,3	11,5	9,3	11,9	9,3	11,0
NORWAY	18,5	20,8	21,5	16,5	19,0	13,5	19,0	17,2	16,0	15,5
PAKISTAN	1,6	0,5	1,6	1,0	0,0	0,0	0,0	0,0	0,0	0,0
PORTUGAL	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
SAUDI ARABIA	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
SOUTH AFRICA	38,0	36,2	38,0	35,5	28,7	28,6	28,8	32,2	28,8	36,8
SPAIN	4,9	3,9	1,7	2,0	2,6	3,0	2,8	6,5	5,8	3,9
SWEDEN	3,0	3,1	2,5	3,5	2,0	2,2	2,0	1,8	3,5	1,1
OTHER	1,0	0,8	3,0	0,8	2,0	0,0	2,0	1,3	1,0	0,1
THAILAND	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0	0,0
TUNISIA	3,0	3,3	3,0	3,1	0,0	0,0	0,0	0,0	0,0	0,0
UND ARAB EMTS	5,0	5,3	6,0	8,2	6,0	8,3	6,0	6,9	8,0	10,4
UNITED KINGDOM	50,0	77,2	50,0	77,5	57,0	82,6	57,0	95,7	51,0	100,8
USA	655,0	1188,0	685,0	1191,0	695,0	1401,8	790,0	1505,5	975,0	1671,1
TOTAL	1108,32	1650,38	1135,65	1679,67	1144,68	1940,38	1237,18	2119,21	1421,95	2318,63

ANNEX IV

REPORT ON 2003-2004 OPERATIONS

1. Space segment

ADEOS-2, successfully launched on December 14th, was lost on October 25th 2003 due a power-supply failure. ADEOS-2 was the satellite carrying and Argos two-way instrument. Next satellite with two-way capability is METOP-1 scheduled for end of 2005.

The Argos constellation includes 6 satellites which are used as follows:

1.1 Basic service satellites

From May 5th to October 25th 2003 the basic service included three satellites, NOAA-15, NOAA-16 and ADEOS-2 (MIDORI-2). To improve the satellite distribution further to the loss of MIDORI-2, NOAA-17 replaced NOAA-15 in December 2003.

The basic service has been provided since then by NOAA-16 and NOAA-17.

1.2 Other satellites

NOAA-15 (K), NOAA-14 (J) and NOAA-12 (D) are used as secondary satellites. Global and Regional datasets they collect are delivered according to the “multi-satellite” service characteristics.

NOAA-11 (H) has been providing global datasets, which were also delivered through the “multi-satellite” service, until June 6th 2004. It was then decommissioned by NOAA. NOAA-11 was no longer delivering real-time data through the HRPT downlink since October 2001.

From	July 02	May 03	July 03	October 03	Dec 03	June 04	July 04
Satellite status							
Commissioning	NOAA-17	ADEOS-2					
Basic service	NOAA-16 NOAA-15	NOAA-16 NOAA-15	NOAA-16 NOAA-15 ADEOS-2	NOAA-16 NOAA-15	NOAA-17 NOAA-16	NOAA-17 NOAA-16	NOAA-17 NOAA-16
Multi-satellite service (additional satellites)	NOAA-14 NOAA-12 NOAA-17 NOAA-11	NOAA-14 NOAA-12 NOAA-17 NOAA-11	NOAA-14 NOAA-12 NOAA-17 NOAA-11	NOAA-14 NOAA-12 NOAA-17 NOAA-11	NOAA-15 NOAA-14 NOAA-12 NOAA-11	NOAA-15 NOAA-14 NOAA-12 NOAA-11	NOAA-15 NOAA-14 NOAA-12
Lost				ADEOS-2			

Table above displays satellites in service since July 2002.

Figure 1 shows the satellite orbit plans in July 2003.

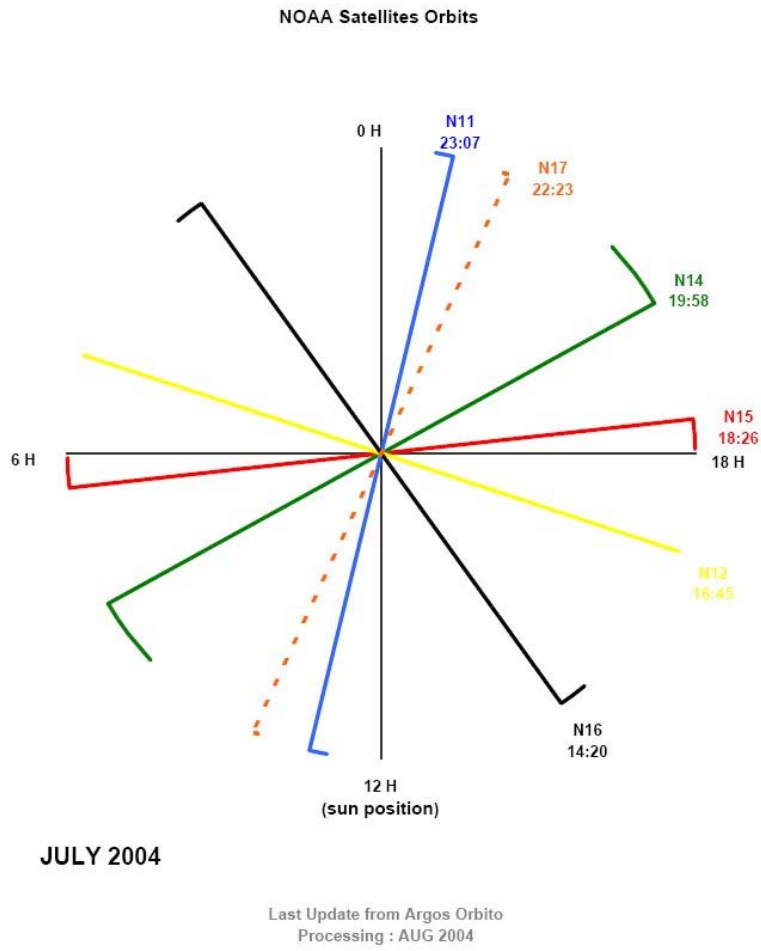
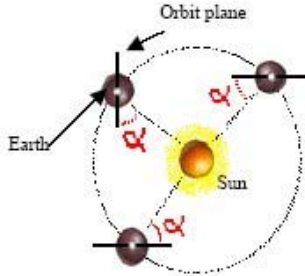


Figure 1

ABOUT ORBIT PLANES

Plane and drift of a Sun-synchronous orbit

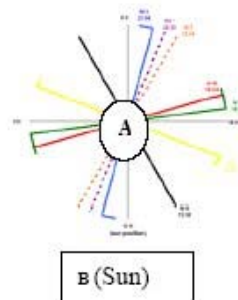


The angle (α) between the orbit plane of the satellite and the direction of solar illumination is constant if the satellite completes an orbital revolution of 360 degrees in 365.242 days (i.e., 0.9856° per day). In this case, the satellite will always be at the same angle to the Sun. The drift of the orbit is the difference between the 0.9856° per day rate of revolution and the satellite's real period. This depends, among other things, on its altitude and on the precision with which it is initially inserted into orbit.

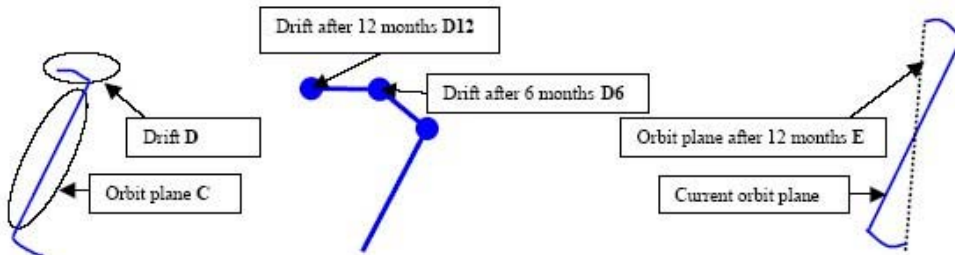
More recent satellites (NOAA17 and NOAA16) exhibit no drift, or very little, because they were positioned so precisely.

Explanation of the diagram - 4-Space segment orbit planes

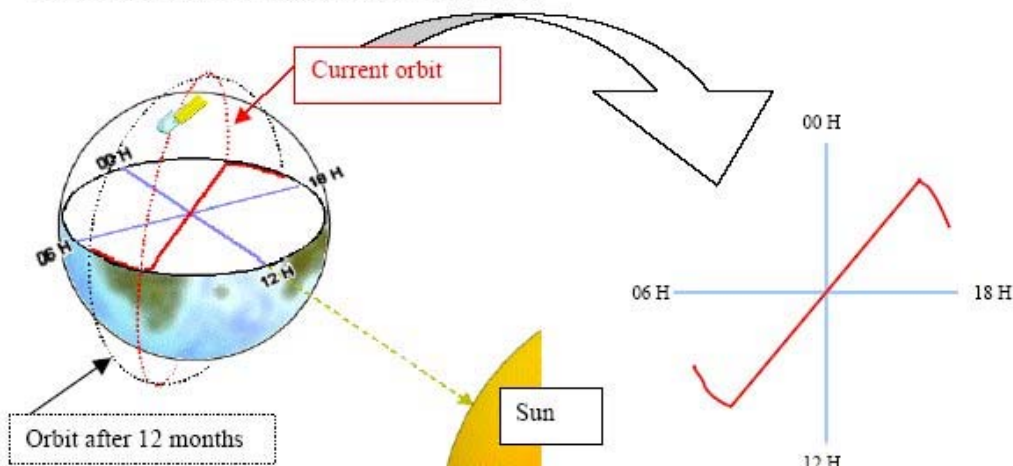
The diagram shows a "bird's eye" view of the Earth. The orbit planes intersect at the North Pole (A). The axes are expressed in solar hours, that is, in terms of the position with respect to the Sun: for example, 12 o'clock is facing the Sun (B).



The orbit plane is represented by a line segment (C). The drift (D) corresponds to the position of the edges of the orbit plane after six months (D6) or 12 months (D12), which allows us to determine the future orbit plane (E).



The diagram is a 2-D projection of an orbit



2. Ground receiving stations

2.2 Global stations

- The two global stations able to acquire the STIP telemetry are still the Fairbanks and Wallops Island stations.
- The Lannion global station, which could also acquire the STIP telemetry in some conditions, is no more used since the year 2000. Despite all our efforts to convince NOAA, it seems to be difficult to restart the STIP downloads over Lannion. A solution with the antenna located in Barrow was suggested. However, no action or test has been performed up to now.
- The two global stations of Fairbanks and Wallops deliver the STIP telemetry from the satellites NOAA-11, NOAA-12, NOAA-14, NOAA-15, NOAA-16 and NOAA-17.
- As regards NOAA-12, only two orbits per day are delivered by NOAA/NESDIS. It is just enough to collect the minimum amount of data from the orbitography Argos beacons required for the processing of the Argos location.
- The STIP telemetry from NOAA-11 – the only type of telemetry available for this satellite – is delivered by group of three or four orbits. Since the end of 2003, it is the same for NOAA-14.

Figure 2 shows the global data set (STIP) arrival times at the Toulouse and Largo processing centers. Ideally, one data set should be received every 100 minutes.

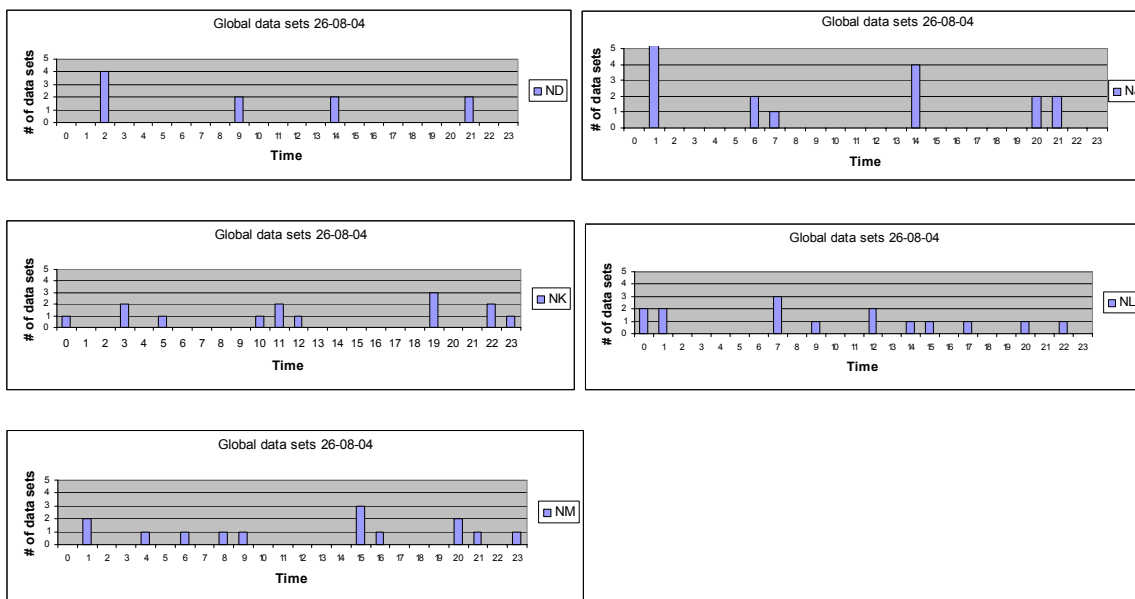


Figure 2

2.3 Regional stations

CLS and Service Argos Inc. pursued their efforts in 2003 to increase the number of receiving stations able to provide TIP data sets from the NOAA satellites. Seven new stations joined the Argos network during the year. They are in Antarctica (Chile, Meteo Chile), Athens (Greece, CLS), Fiji (Fiji, FMS), Punta Arena (Chile), Ryad (Saudi Arabia, CACST), Søndre (Greenland, DMI) and Tromsoë (Norway, NMI).

There are currently 41 stations delivering real time (TIP) data sets to CLS and Service Argos Inc. Most of them process data from NOAA-16, NOAA-17, NOAA-15, NOAA-14 and NOAA-12, so we are able to maintain good throughput times for delivery of results.

For the end of year 2004, we have some projects for antennas located in Indonesia, China, Guam...

List of regional receiving stations

S Band antennas					
Antennas	Sigle	Country	Operator	Possible satellites	
1	Buenos Aires *	BA	Argentina	INTA	N12, N14, N15, N16, N17
2	Casey	CA	Australia (Antarctica)	BOM	N12, N14, N15, N16,
3	Cayenne	CY	France (Guyana)	IRD	N12, N14, N15, N16, N17
4	Darwin	DA	Australia	BOM	N12, N14, N15, N16, N17
5	Gilmore	GC	USA	NOAA/NESDIS	N12, N14, N15, N16, N17
6	Halifax	HF	Canada	Can. Coast Guard	N12, N14, N15, N16, N17
7	Hatoyama	HA	Japan	NASDA/EOC	N12, N14, N15, N16,
8	Hawaï	HW	USA	NOAA/NWS	N12, , N15, N16, N17
9	Ile de la Réunion	RN	France (Reunion Island)	Météo France	N12, N14, , N16,
10	Ile de la Réunion	RE	France (Reunion Island)	IRD	N12, N14, N15, N16, N17
11	Lannion	WE	France	Météo France	, , N15, N16, N17
12	Las Palmas	LP	Canaries Island	Univ. Las Palmas	N12, N14, N15, N16
13	Melbourne	ME	Australia	BOM	N12, N14, N15, N16, N17
14	Miami	MI	USA	NOAA/AOML	N12, N14, N15, N16, N17
15	Noumea	NO	France (New Caledonia)	IRD	N12, N14, , N16,
16	Oslo	OS	Norway	NMI	N12, N14, N15, N16, N17
17	Perth	PE	Australia	BOM	N12, N14, N15, N16, N17
18	Punta Arenas	PA	Chile	meteo Chile	N12, N14, N15, ,
19	Santiago	CH	Chile	meteo Chile	N12, N14, N15, ,
20	Singapore	SG	Singapore	SMM	N12, N14, N15, N16, N17
21	Tromsø	ST	Norway	KSAT	N12, N14, N15, N16, N17
22	Wallops	WI	USA	NOAA/NESDIS	N12, N14, N15, N16, N17
23	Wellington	NZ	New-Zeland	Met Office	, N14, N15, N16, N17
24	Athènes	AT	Greece	NCMR	N12, N14, N15, N16, N17
25	Aussaguel	AU	France	CLS	N12, N14, N15, N16, N17
26	Bitung	BI	Indonesia	PT CLS	N12, N14, N15, N16, N17
27	Cape Town	SA	South Africa	CLS/SAWB	N12, N14, N15, N16, N17
28	Helsinki	HL	Finland	CLS	N12, N14, N15, N16, N17
29	Largo	LA	USA	SAI	N12, N14, N15, N16, N17
30	Las Palmas	CN	Canaries Island	CLS	N12, N14, N15, N16, N17
31	Lima	PR	Peru	CLS perù	N12, N14, N15, N16, N17
32	Toulouse	RV	France	CLS	N12, N14, N15, N16, N17
33	Murmansk	RU	Russia	Complex System	N12, N14, N15, N16,
34	Petropavlosk	PT	Russia	Rybradiov	N12, N14, N15, N16, N17
35	Tokyo	JM	Japan	Jamstec	N12, N14, N15, N16, N17
36	Antartica	AC	Chile	Meteo Chile	N12, N14, N15, ,
37	Edmonton	ED	Canada	Envir. Canada	N12, N14, , N16, N17
38	Fidji	FI	Fidji	FMS	, N14, N15, ,
39	Monterey	MO	USA	NESDIS/NWS	N12, , N15, N16, N17
40	Riyadh	RY	AU	KACST	N12, N14, N15, N16, N17
41	Sondre	GR	Greenland	DMI	N12, N14, N15, N16, N17

* the only station to locate the satellites when they are situated at a 20° site angle

	Antennas under agreement
	CLS and subsidiaries antennas
	Customer antennas under CLS maintenance contract
	Antennas without written agreement ("Best effort")

Figure 3

ARGOS receiving station network

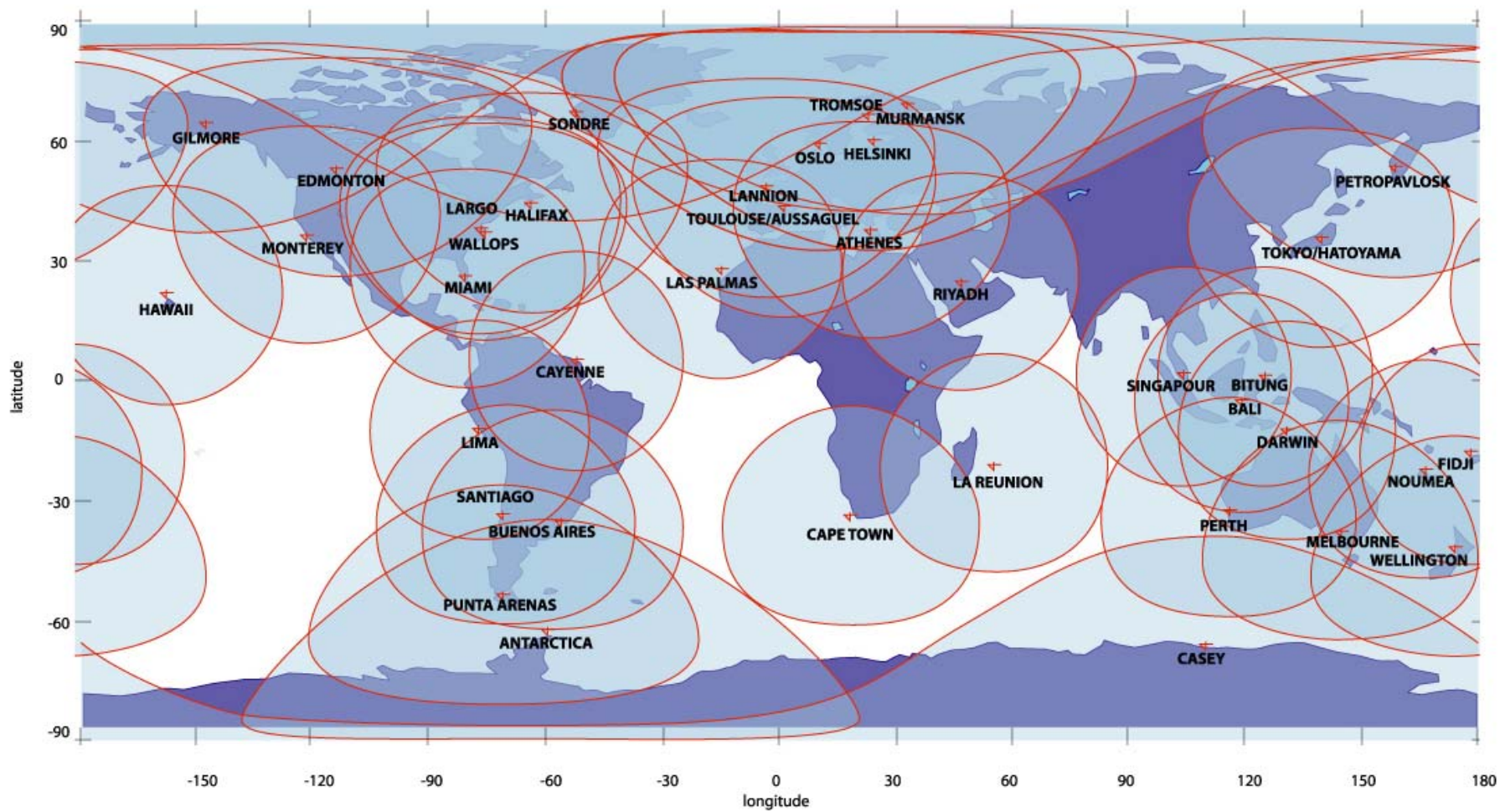


Figure 4

3. Processing centers

Each of the five Argos processing centers—in Toulouse, Largo, Melbourne, Tokyo, and Lima—operated without a major hitch in 2003.

The two global processing centers in Toulouse and Largo continue to process data sets from all receiving stations, handling over 650 data sets per day (see Figure 6). The regional processing centers in Melbourne, Tokyo, and Lima only process data sets from stations covering their region. Supplementary data providing global coverage are supplied by the Toulouse center or by the Largo center if necessary.

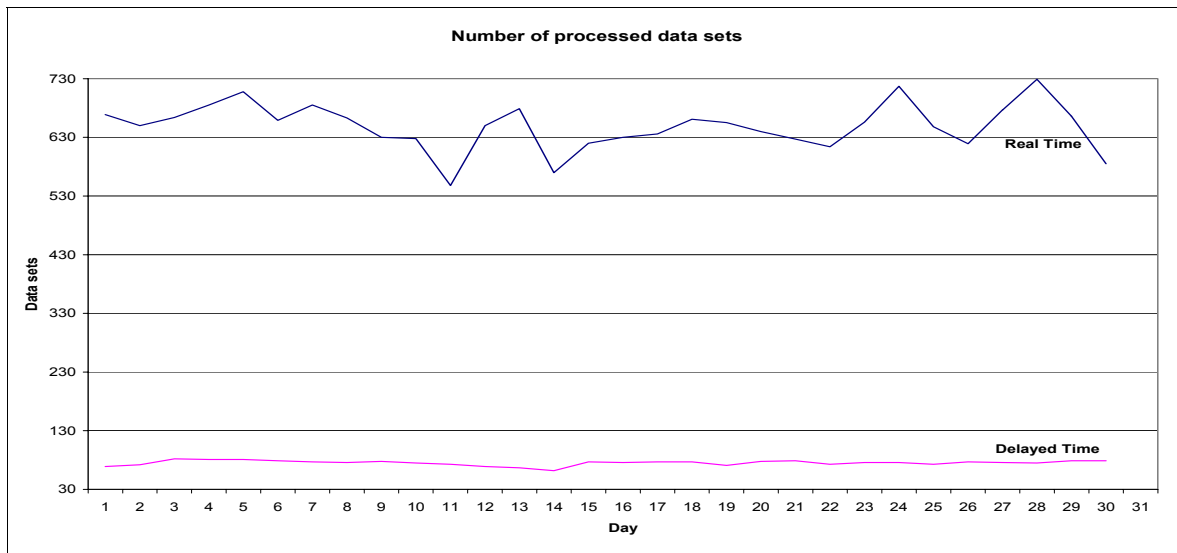


Figure 6

The number of Argos platforms operating continues to increase. In April 2004, more than 6000 platforms were seen on average per day (figure 7). However, each of the two global centers processed data from 12000 individual platforms during this month.

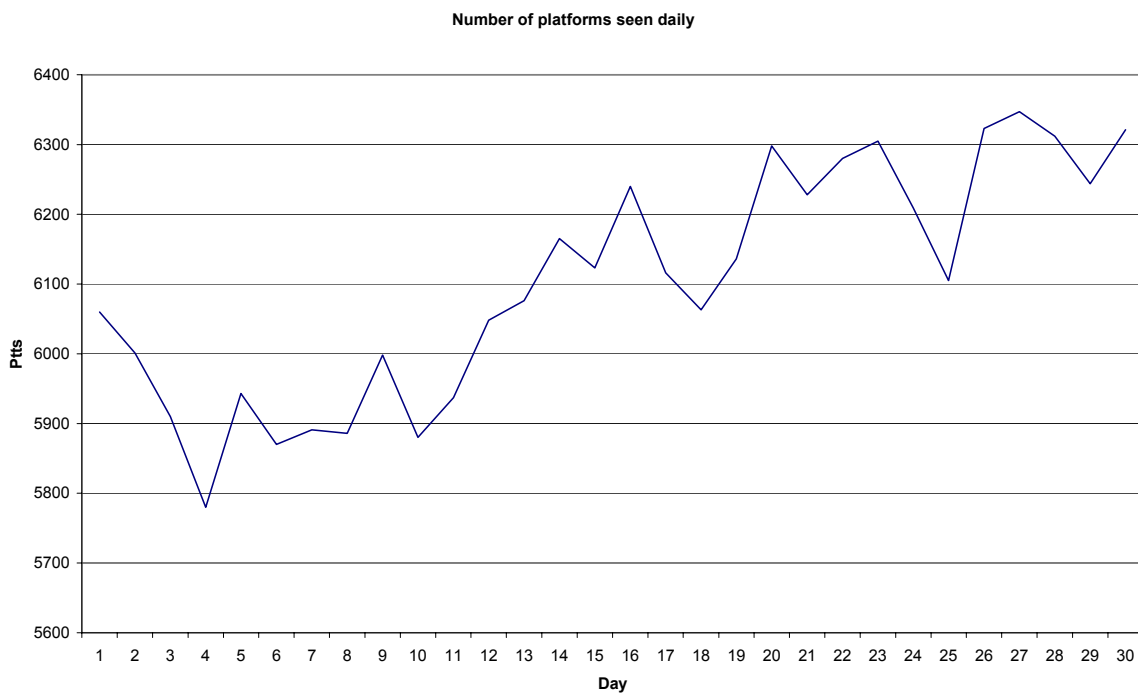
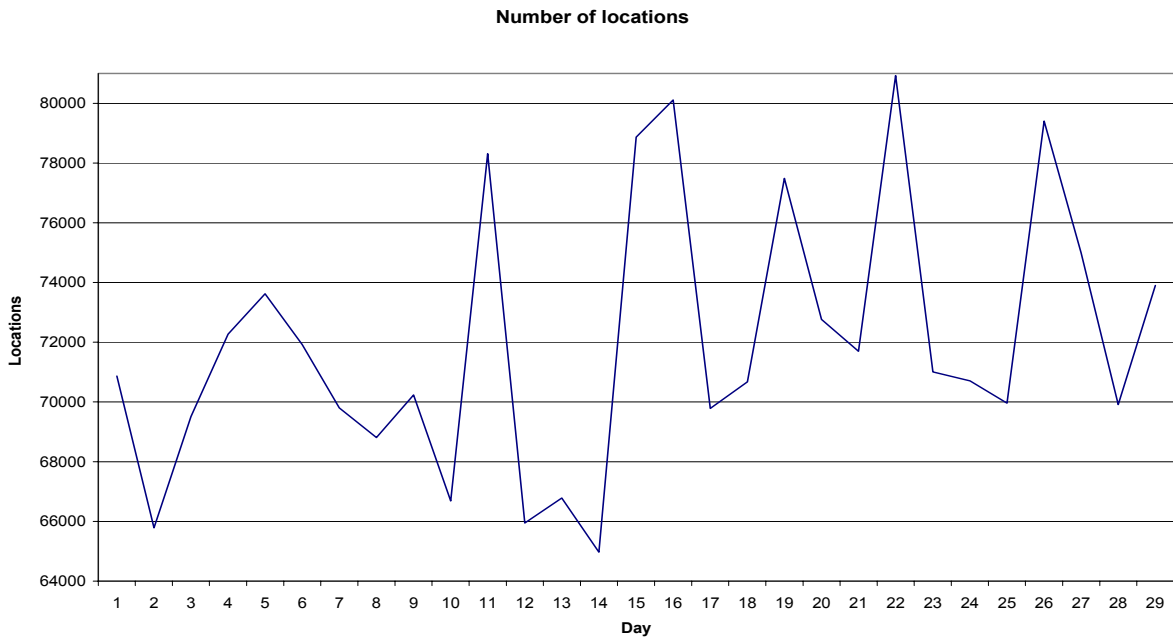


Figure 7

Figures 8 and 9 below show the number of locations and messages computed every day by the Largo and Toulouse centers.



Figur

e 8

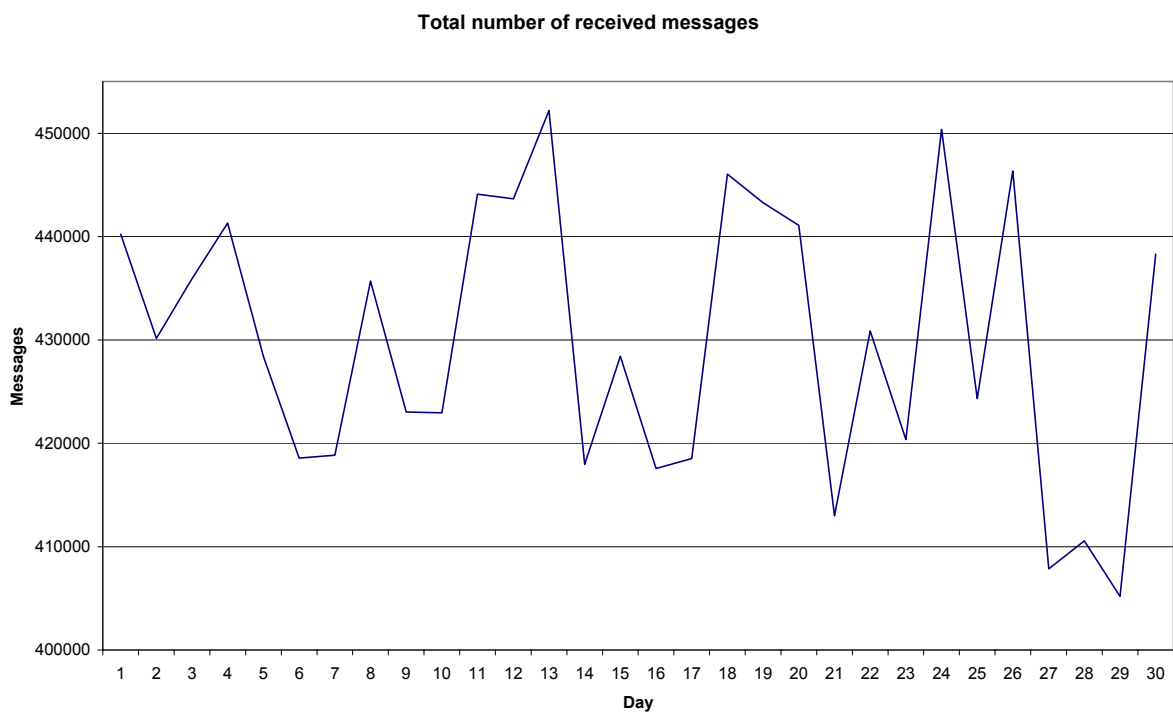


Figure 9

4. Communication links

The Internet is the main communication link used to distribute processed data to users and to retrieve data sets from receiving stations. The Toulouse center has now a double access (2 Mbits + 2 Mbits) which improve the reliability of our communication facilities. The same has been done at the Largo center in 2003.

The X25 protocol has been stopped at Service Argos Inc but continues to be used by the Toulouse center to send data to a few users (less than 20) concerned by security reasons.

5. Throughput time for delivery results

CLS throughput times for delivery of results should be calculated in terms of the time taken to reach end users.

For each message received by the satellite, we compute the data turnaround time/data availability which is the time elapsed between the recording of the message on board the satellite and processing of the same message by the global processing center.

Table 10 shows the throughput time for stored data result delivery from NOAA-17, NOAA-16 and NOAA-15.

Satellite Delivery	NOAA-15, NOAA-16 & NOAA-17
1 h	24 %
2 h	59 %
3 h	81 %
4 h	85 %
5 h	95 %
> 5 h	100 %

Table 10: Stored data availability for satellites NOAA-15, NOAA-16 and NOAA-17

59% of the data are available within two hours while 81% of the data are available within three hours.

Table 11 below shows the throughput time for stored data result delivery from NOAA-11 and NOAA-14, two back-up satellites.

Satellite Delivery	NOAA-11 & NOAA-14
1 h	06 %
2 h	26 %
3 h	48 %
4 h	59 %
5 h	63 %
> 5 h	100 %

Table 11: Stored data availability for satellites NOAA-11 and NOAA-14

48% of the data are available within three hours as opposed to 81% for the satellites NOAA-17, NOAA-16 and NOAA-15. This delay is due to the NOAA data set delivery times.

Table 12 shows the throughput time for real-time result delivery from NOAA-17, NOAA-16, NOAA-15, NOAA-14 and NOAA-12 and acquired by the 33 HRPT receiving stations.

The throughput time for delivery of results for real-time data includes three main delays:

- the satellite pass duration, because we have to wait for the end of the pass to transfer and process the data set;
- the time taken to transfer the data set to the global processing centers. Most transfers go over the Internet. The transfer rate is getting better and better.
- the time taken to process the data set by the global processing centers, which is not significant (less than 30 seconds).

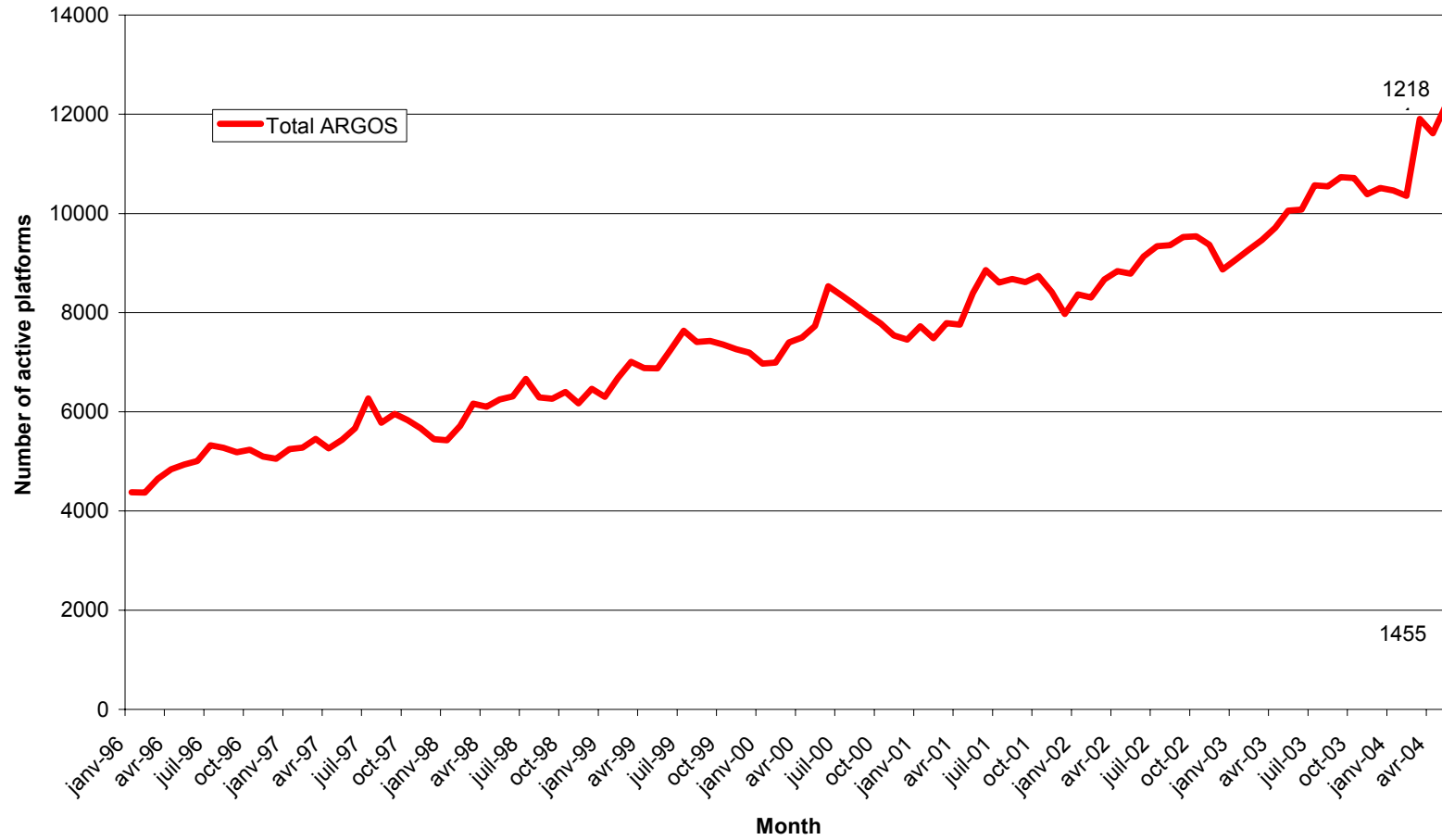
Satellite Delivery	NOAA-12, NOAA-14 NOAA-15, NOAA-16 & NOAA 17
10°	41 %
15°	70 %
20°	86 %
30°	96 %
45°	98 %
60°	99 %
>60°	100 %

Table 12: Real-time data availability

96 % of these real-time data are available within 30 minutes.

Note that about 3/4 of the Argos data are now available in near real time.

MONTHLY ACTIVE PLATFORMS PER USE



Active platform evolution since 1996

An active platform is a platform received at least once in the month

ANNEX V

SYSTEM IMPROVEMENTS

1. Hardware and software configuration

1.1. Hardware Configuration

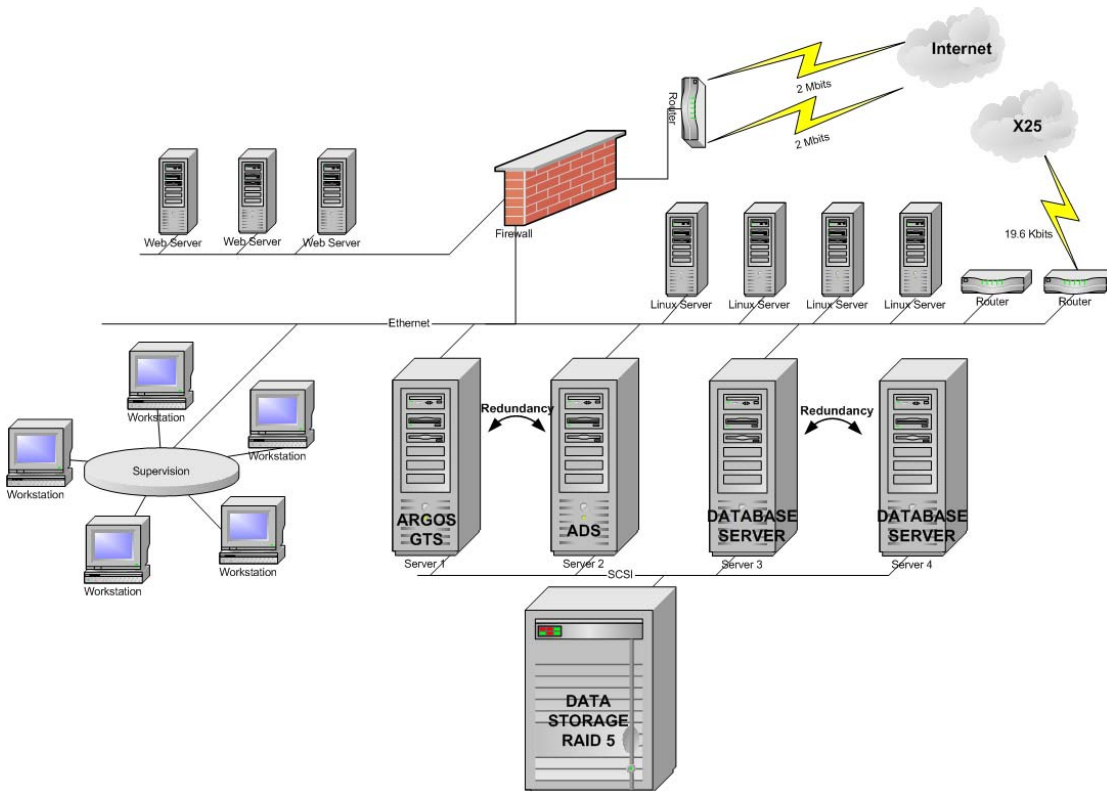
2003 has been dedicated to the preparation of the Argos 2001 phase 2 installation :

- Four new Linux processors have been implemented to the existing configuration,
- More space disk has been added to the data storage facility,
- New fax server has been implemented.

Several conclusive tests have been performed in 2003 to improve the level of redundancy between both global processing centers.

The CLS local area network, based on Ethernet, has been upgraded, especially the network switches. Our local network is now at 100 Mbit for half part and 1 Gbit for the other part.

Our computer architecture is the following one :



2. Projects

2.1 Argos 2001

The purpose of the Argos 2001 project is to upgrade the entire Argos processing system. This ambitious project is vital for the long-term continuity of the Argos system and to better serve users. This project is scheduled in three phases :

Phase I : Development and implementation of a new user interface allowing users to access data and view and update technical files via a web server. The System Use Agreements database will also be implemented during this phase. Data will be stored and managed by a database management system designed to be responsive to users needs. Our objective is to give users more versatility if they require it. Consequently we will be expected to offer them quick and efficient support.

Phase II : Improvement and development of value-added services.

Phase III : Redesign of the Argos processing system.

Current status:

Phase I:

Development began end 1998 and is finished.

The user management application is operational.

The User Office application is operational since end of 2000.

The problems of performance in the new data distribution system have been solved. The opening of the website to the users has been made in May 2003.

Phase II:

Requirement specifications were reviewed and approved in January 2002.

Software specifications have been finished in July 2002.

The development have been commence in December 2002.

The development has been completed in may 2004.

This phase will be put in operation during last quarter of 2004

Phase III:

Requirement specifications were reviewed in July 2003.

The development has been started end of 2003.

The Software Specification Review of phase IIIA took place in May 2004.

The phase IIIA will be finished in February 2005.

The phase IIIB will be finished in October 2005

2.2 Argos 3 Ground Segment (SSA3 Project)

In March 2003 CLS/Argos started a new and major project for Argos named: SSA3 (Argos 3 ground segment). This project is aiming to take into account all the changes in the current Argos ground segment brought by the third generation of Argos instruments. The sub-systems of the Argos 3 ground segment development shall be completed and validated for the first METOP satellite launch (last quarter of 2005).

This project is being implemented in parallel with the Argos 2001 Phase III project.

The Project covers the following developments:

- Software evolution of the Argos processing Center (APC). It includes all sub-systems where the arrival of the Argos 3 has an impact.
- Datatio beacon
- A new network of master beacons (High data rate platforms)
- Test equipment for PTT/PMT type acceptance.

Datation beacon

A new generation of the datation beacon has been specified to meet the new requirements of the Argos 3 instrument. The Factory Acceptance Test is scheduled for middle of June 2004.

Master Beacon

The Master Beacon, compliant with Argos 3 instrument, has been accepted by CNES in March 2004. The MB installation in Svalbard is scheduled for September 2004.

Test equipment for PTT/PMT

The test equipment purpose is to ensure that any new PTT/PMT series will be in compliance with the Argos general specification (and first of all, will not disturb the Argos equipment functioning). At the present time, the development is in the design phase and the integration test of specific hardware as the Vector Signal Analyser provided by CNES. The test equipment is scheduled to take its acceptance tests in April 2005.

3. Review of Users Requirements

3.1 Data Buoy Cooperation Panel requirements

3.1.1 GTS subsystem to relay data from other sources

***Requirement:** The study regarding the use of the GTS sub-system to relay data from satellite systems without GTS data processing capability demonstrated that the impact of meeting that requirement would be very small. The meeting (JTA-XXII) agreed that its chairman would carry the requirement to the OPSCOM in view of that enhancement becoming part of the Argos development programme.*

At the JTA 23, CLS/Argos reported that, "All the tools needed to put this capability in place are ready, so it can be set up in one week's time. This will be done upon request. For the time being no such need was received."

During the recent intersessional period Argos has developed the capability to acquire, decode, and convert to GTS messages/bulletins data being telemetered via Iridium from both Argo test floats and from innovative moored buoys called PICO being developed at NOAA/PMEL.

3.1.2 Reactivating Lannion Station.

***Requirement:** The meeting (JTA-XXII) recognized that the requirement had potentially large financial implications. On the other hand, reactivating the Lannion station would benefit much more than the DBCP and JTA communities. The meeting therefore instructed its chairman to convey the requirement first in a letter addressed to the co-chairs of the OPSCOM and then at the next meeting of the OPSCOM, in June 2003*

Reception and data processing of Stored Tiros Information Processing (STIP) were terminated at Lannion in 2000. DBCP was stressing and demonstrating in the last couple of years that this had adverse effects on the timeliness of the buoy data distributed on GTS, particularly due to the "blind" orbits.

Prior to DBCP-19, NOAA/NESDIS had reviewed the DBCP and JTA participant concerns, coordinated similar requirements from other users and evaluated the cost/benefits of the Lannion, France, and Barrow, Alaska sites. A consolidated requirement for POES "blind" orbit data was presented to NESDIS management for decision and was approved for implementation at the Barrow site.

The Argos report to JTA 23 indicated that NOAA/SOCC was taking steps to enhance the facilities at Barrow, Alaska where the necessary equipment exists to download the "blind orbits." However, a report at the OPSCOM 38 in June, 2004 indicated, that software upgrading would be necessary to enable simultaneous reception of HRPT and STIP data at Barrow. The earliest date when funding may be available for this upgrade is October 2006.

In the meantime NOAA is interested in testing its equipment in place at Svalbard for risk reduction for the NPOESS mission. NOAA is considering downloading blind orbits for one or both of the operational satellites to accomplish this test. Testing may begin in early 2005.

3.1.3 Connecting Argos to Brazilian Satellites

Requirement: *Establish a formal cooperative agreement with Brazil, which OpsCom would do, and to explore the possibilities of implementing a dedicated Brazilian ground station.*

Brazilian DCS Report

Information from OPSCOM 38:

Related to the data exchange between CNES and INPE the status is the following:

- CNES/CLS is receiving raw data transmitted from INPE.
- The formalization procedure is under INPE/MCT analysis. INPE plans to create an organization or to assign services to an existing organization to process, to store and to disseminate the acquired data to the users in a similar fashion as CLS Argos. A definitive position was not obtained yet.

3.1.4 BUFR Encoder

Requirement: *Under Agenda Item 8.2 of DBCP 19 the panel agreed that it would be desirable to employ data compression to achieve significant reduction in message length. It therefore requested the Chairman to bring a recommendation to the Argos JTA to enhance the current GTS BUFR encoder to include data compression.*

The data compression is being developed. The implementation is scheduled for end Y2004 - beginning Y2005, together with some modifications to the BUFR processing.

3.1.5 Various GTS sub-system Enhancements.

TAO Salinity computation

A new algorithm has been developed for the GTS sub-system to accommodate the new TAO mooring data formats and assemble salinity and temperature observations for a given level, prior to the QC step. Implementation is scheduled for this September.

Campbell weather station

A software modification will be completed this September to accommodate the Campbell AWS special data format. This was a request from the IRD, France.

Duplicates

In some circumstances, the Argos GTS time tagging process generated duplicated observations. This impacted some BUOY and TESAC bulletins. A routine has been developed to suppress these duplicates. It will be implemented this September.

ARGO, APEX 28-bit format

Within this new format, some Salinity-Temperature-Depth data samples of a given level are split over two Argos messages. A routine has been developed to reassemble these data before the processing and the QC of the profiles. Each APEX message includes a header containing the message number. Prior processing individual messages, the routine picks-up the 40 last bits of the previous message and concatenates them with this message data.

These 40 bits contain the data missing to complete the S-T-D sample. This routine can be used for any data format presenting same characteristics.

The implementation of this routine is scheduled for end Y2004 – beginning Y2005.

ARGO – AOML redundancy

All the US ARGO profiles are processed by Service Argos Inc, for GTS dissemination, with the dedicated software developed by AOML. It has been decided, with AOML, agreement, to implement this software and a dedicated computer at CLS to provide redundancy and increase the overall reliability of the operation. This software may also be used, when needed, to process some formats the GTS sub-system is not addressing currently.

This implementation will be completed at the end of this year.

ARGO – Speeding-up the data distribution

Currently, the GTS-sub-system waits for a pre-set duration (typically 18 hours) before starting to process the messages of a given float. The GTS dissemination is hence delayed by approximately the same time.

The new routine picks up the total number of data samples transmitted coded in the first message and sums up the number of data samples received. As soon as all the data samples are received, the profile starts being processed.

In case a message is missing, the profile is calculated, using all messages available, after the pre-set duration is met. The implementation of this routine is scheduled for this September.

ARGO – Meta data dissemination to Ifremer or others

Coriolis (at Ifremer) has asked to receive all the ARGO data sets processed by CLS GTS-subsystem directly on an Ftp site. These include list of float locations, T/S profile data (including rejected ones), and float technological meta-data which are encoded in the Argos messages. An extraction of the GTS data in ASCII format was developed. The implementation of the “ASCII” data Ftp delivery is scheduled for this September. However, development for technological meta-data was delayed and is planned for early 2005. Netcdf coding is also envisioned.

3.2. Access to third satellite - Data collected by ADEOS-II satellite

Requirement: Free access to the ADEOS-II satellite

Data collected by the Argos DCS on board ADEOS-II (MIDORI-II) has been provided free of charge to all users as part of the basic Argos service from May 5th to October 25th 2003.

Within the new JTA tariff frame, it is proposed to provide data collected by all satellites available within the basic service.

3.5 METOP antennas

In order to develop a new Metop HRPT real-time network, to improve the delivery times for the Argos data to the users, and to meet users requirements, an action item 37-5 was decided during the OPSCOM 37 meeting (les Saintes-Maries-de-la-Mer, France 06/2003) to assess the areas of the world where real-time data requirements and thus regional HRPT station coverage are most critical.

At the OPSCOM 38, in Monterey, USA, Christophe Vassal presented the chart below and the target foot prints of a minimum of 11 METOP Receiving antennas to optimize real time data acquisition for Argos transmitters.

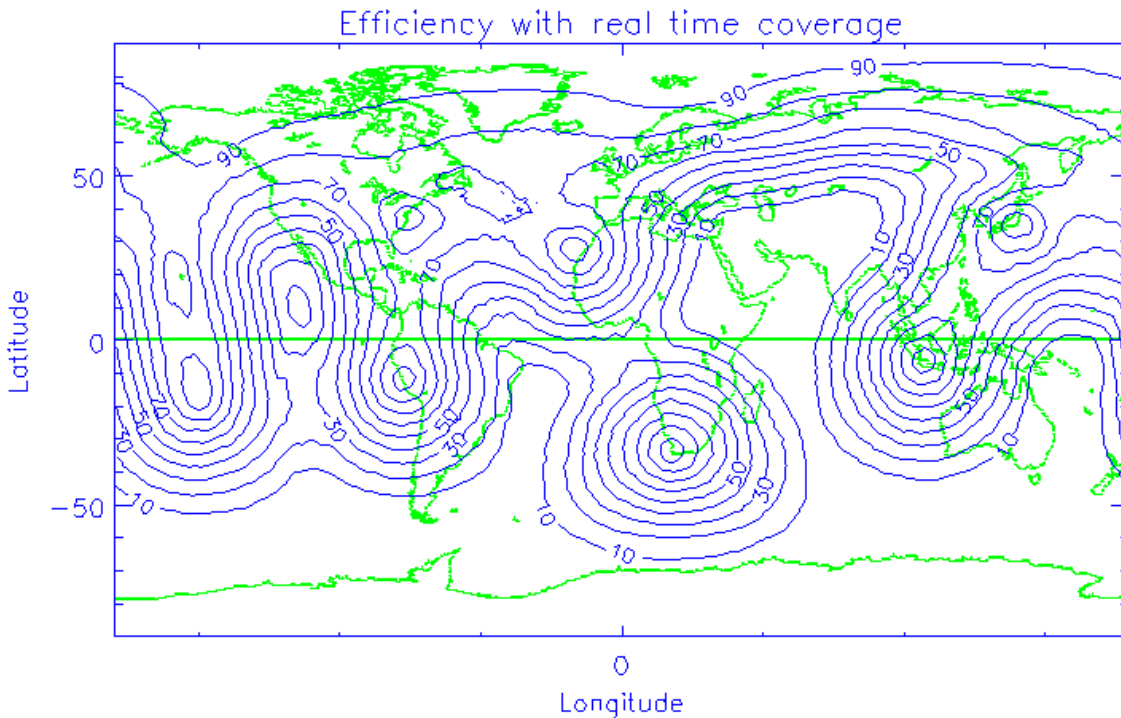


Fig. 4, coverage of Argos transmitters as a result of the initial network of Metop

Those foot prints should ideally be centered at:

- Wallops Island CDA VA
- Gilmore Creek CDA in Fairbanks AK
- Anchorage AK
- Honolulu Hawaii
- Tahiti
- Lima
- Canaries Islands
- Tokyo
- Jakarta
- Capetown
- Svalbard.

NOAA plans to upgrade its two CDA sites (Wallops Island and Fairbanks AK) to accommodate real time IJPS data. Decisions on the NOAA/NWS Honolulu and Anchorage sites are pending.

We hope that the BOM in Australia is going to update its network of 5 receiving antennas to maximize the real time coverage in the area.

3.6 Falklands LUT

Work is still undergoing to connect the Falklands LUT to the Argos network.

News received last year from Mark Salkovskis, UKMO, dated August 20, 2003:

*“The UK Met Office are installing a new direct 64K comms line from the Falklands to our new HQ in Exeter this may be the opportunity to FTP raw TIP data directly from the o
We will need details of your FTP site logins etc will be required.
I will be travelling to the Falklands Sept 11th and hope to get the LUT working once again. The new comms line will be available from the week of the 11th Sept.
Assuming that we can jump all of the hoops and work through the red tape and get permission to get through our firewall at the Met Office it is unlikely that real data will flow from the Falklands to you before Jan 2004 which is my next scheduled visit to the Falklands...”*

David Meldrum (UK) was able to determine that a 64k comms link is now in place but software has still to be written to FTP the TIP data through the local firewall.

Louis Vermaak (SA) will shortly write an official letter to the Met Office to remind them of their undertakings and to request an action plan.

3.7 Issues arising from the Argos Operations Committee

No special issues to address

ANNEX VI

REVIEW OF THE STRUCTURE OF THE TARIFF AGREEMENT AND RELATED MATTERS

1. Funding Agreements

1.1 Principles of the Bonus

See Section 1. Report on the 2004 Agreement, paragraph 3.1

1.2 Recommendations from the Operations Committee

38th Operations Committee (June 2004)

G-1-1. Report on JTA Meeting (see exhibit # 21)

D. Painting informed the meeting on the results of the twenty-third meeting on the JTA (exhibit XX). Following the action proposed by OPSCOM 37 the JTA meeting had elaborated some guidelines for a future structure and established a small working group tasked with preparing a firm proposal to be considered by the twenty-fourth meeting on the JTA (to be held October 2004).

Bill Woodward presented an initial draft of the JTA Proposal as a result of work between CNES/CLS, JTA Chairman, and DBCP Chairman. The new structure is proposed to include a monthly fee for active platforms (seen at least once in a month) and a fee for the PTT day unit. Simulations on actual 2003 data have been performed to illustrate the effect of this potential new structure and a Five Year Plan was presented showing how the new structure could seamlessly enable a transition from the previous five year plan. The next steps include completion of the simulations and drafting of a proposed solution(s) by the JTA working group no later than September 14th 2004 for the October 2004 JTA meeting

G-1-5. Financial status of Agent (see exhibit # 26)

Christophe Vassal of CLS reviewed the Argos financial status. The proposal to separate the JTA basic cost obligations from the total effective basic cost of Argos adopted by the JTA-21 meeting is maintained for the purpose of calculating the annual 2003 Argos basic costs.

The 2003 Argos basic costs for the purpose of calculating the JTA share will be capped at the actual 2000 figure of M€ 9.49 to be then increased by the annual inflation rate of 2001, 2002 and 2003 successively.

The 2003 JTA structure shows:

A calculated Argos basic cost of M€ 10.13

A ratio JTA active PTTs/total active PTTs at 58.3% capped at 53.5% according to FYP.

Taking this into account, the 2003 JTA contemplates an excess of M€0.63 and the JTA cumulated loss is now M€ 0.39 at the end of 2003.

The FYP contemplates a full reimbursement of the JTA loss in 2004 that is the last year of the FYP.

In conclusion, the Five Year Plan is working perfectly to help put the JTA back on track. In 2003, non JTA income barely offset non JTA operating expense share.

Consequently, the non JTA accumulated loss at the end of 2003 is calculated at M€ 9.93.

2. Five Year Operating Plan

2.1 JTA Guidance

JTA XIX

JTA XIX had decided on a five-year plan (2000-2004), firstly to eliminate the annual operating deficit, and secondly to effectively remove the accumulated losses. The essential features of this plan were:

- (i) *An annual inflation of 2% would be allowed in Argos operating costs;*
- (ii) *The JTA share of these operating costs would decrease from the existing 60%, initially by 2% in 2000, and then in increments of 1.5%, to reach 52% in 2004;*
- (iii) *The Monthly Active Platform Fee would be phased in over the period, beginning at FRF 10 per active platform in 2000 to reach FRF 50 in 2004;*
- (iv) *The basic price per PTT-year would also be increased by FRF 200 per year, beginning in 2000, to reach FRF 27,000 in 2004;*
- (v) *The unused ID charge would be phased out over the period, subject to annual review;*
- (vi) *Free access to the third satellite would be provided immediately for animal trackers, within limitations on number of locations; the situation with regard to access to the third satellite would be reviewed at the next meeting, with a view to its eventual introduction for all users.*

JTA XX

“.....the meeting was pleased to note that the actual and projected figures for annual and accumulate losses were generally in line with those projected at JTA XIX and reproduced in Annex VII of the Final Report of that meeting. At the same time it recognized that many uncertainties remained regarding the ongoing implementation of the plan, covering issues such as the JTA share of Argos operating and development costs, future PTT-year commitments and other incomes for CLS. The meeting therefore agreed that it was not yet in a position to consider revising the plan, nor was there any immediate compelling reason to do so. It was therefore agreed that the basic JTA structure should continue as detailed in the plan given in Annex VII....”

JTA XXI

“...the meeting reviewed carefully a report on the operation of the Five-Year Plan (FYP)for Argos financing adopted at JTA XIX. It recognized that Argos operating costs in 1999 and 2000 had increased by more than predicted in the plan, but noticed with appreciation that the OpsCom had agreed at its 2001 meeting to essentially de-couple the JTA share of these costs from the actual figure, as from 2001. On this basis, the annual Argos operating costs, for the purpose of calculating the JTA share, would be capped at the actual 2000 figure of FF 62.28M, to be then increased by the annual official inflation rate, estimated for the plan as averaging 2%. It was agreed that this operating cost would also from now on include all additional costs (present and future) not yet accounted for, such as the cost of financing an independent JTA chairman.

On the basis of this new computation for the Argos operating costs, the meeting agreed that the basic FYP principles should remain unchanged for a further year, to be reviewed again at the 2002 meeting....”

JTA XXII

“...the meeting recognized that the plan was giving a reasonable approximation of the reality – at least so far as it was executed in a good spirit of cooperation – and decided that its basic principles should remain unchanged for a further year, to be reviewed again at the 2003 meeting. “

JTA XXIII

“...The meeting reviewed carefully a report on the operation of the Five-Year Plan (FYP) for Argos financing adopted at JTA-XIX. It was pleased to note that the plan was very much on track to achieve its primary objective of eliminating the JTA share of the accumulated Argos debt by the end of 2004, and

that current projections showed a potential surplus at that time. The meeting agreed that such a surplus was undesirable, and that the FYP should finish as close as possible to a zero balance. In this context, it recognized that there was thus some potential for introducing a reduced tariff and other user charges into the 2004 agreement. To this end, the meeting reviewed a number of simulations, prepared by CLS, of the effect on the plan of various scenarios, including removal of the administration fee and supplementary charges (6.2(iv) above) as well as different reductions in the standard PTT charge. The meeting agreed that it was very important, wherever possible, to reduce the standard PTT charge as much as possible, as this would encourage and assist the deployment of more platforms. In this respect, the meeting received with appreciation the offer of the USA to increase their bid to the extent needed to achieve a 5% reduction in the standard PTT charge. After considerable discussion, the meeting agreed to reduce the standard PTT charge to 3850 € (approximately a 5% reduction over 2003), but at the same time retain the administration and supplementary charges until the end of the FYP. Such a reduction would also have the effect of reducing the projected surplus under the plan at the end of 2004 to the desired small value. The revised plan, including the standard tariff reduction for 2004, is shown in Annex VII... ”.

2.2 Five Year Plan Projection

The five year plan projection is presented below: (July 2004)

In euro		1998	1999	2000	2001	2002	2003	2004 (31/07/04)	2005
Total costs									
FYP		8.54	8.72	8.89	9.07	9.25	9.44	9.62	9.82
Inflation		2%	2%	2%	2.14%	2.44%	2%	2%	2%
Actual and agreed for the future		8.54	8.96	9.49	9.68	9.93	10.13	10.33	10.48
JTA Share									
FYP "no more than"		60%	60%	58%	56.50%	55.00%	53.50%	52.00%	52.00%
Actual and agreed for the future		60.00%	59.50%	57.50%	56.50%	55.00%	53.50%	52.00%	52.00%
JTA costs (M€)									
FYP		5.13	5.23	5.15	5.12	5.09	5.05	5.00	5.11
Actual and agreed for the future		5.13	5.33	5.46	5.47	5.46	5.42	5.37	5.45
Non inflated income (constant number)									
FYP		4.79	4.80	4.80	4.80	4.80	4.80	4.80	4.80
PTTs in Excess						0.68			
Actual and agreed for the future		4.79	4.76	4.78	5.11	5.58	5.52	5.34	6.19
Subscription			1 121	1 108	1 136	1 145	1 237	1 422	1 270
Number active PTT									
FYP				4 000	4 500	5 000	5 500	6 000	6 000
Actual and forecast				4 448	4 571	5 085	5 666	6 000	5 720
€/active PTT/month				1.52	3.05	4.57	6.10	7.62	7.62
Active PTT fixed fee (M€)				0.07	0.16	0.27	0.40	0.55	0.55
Actual and agreed for the future				0.08	0.17	0.28	0.41	0.55	0.52
Adjustment PTT years fee (€/year)									
FYP				30.49	60.98	91.47	121.96	152.45	152.45
Actual and agreed for the future				30.49	60.98	91.47	91.47	91.47	91.47
Adjustment (M€)									
FYP				0.03	0.07	0.10	0.14	0.19	0.19
Actual and agreed for the future				0.03	0.07	0.10	0.11	0.13	0.12
Annual loss									
FYP		0.26	0.43	0.25	0.09	-0.09	-0.30	-0.54	-0.44
Actual and agreed for the future		0.26	0.57	0.57	0.13	-0.50	-0.63	-0.65	-1.38
Accumulated loss (M€)									
FYP		0.26	0.69	0.93	1.02	0.93	0.63	0.09	-0.35
Actual and agreed for the future		0.26	0.83	1.40	1.52	1.02	0.39	-0.26	-1.64

3. Financial Statement

3.1 Annual Expenses (in kEuros) for Year 2003

	Personnel	Costs	Amortiz-ation	Total
-				
Management	625	298		923
Operational costs				
<u>Quality</u>	162	20	1	183
<u>Studies & development</u>	1 627	125	260	2 011
<u>Processing center</u>	1 089	174	294	1 556
<u>Client support/customer service</u>	486	0		486
Sub-total	3 365	319	554	4 238
-				
Marketing costs				
<u>Promotion Communication</u>	815	1 683	39	2 537
<u>Travels, hosting</u>		396		396
Sub-total	815	2 079	39	2 933
-				
Administrative costs				
<u>Administration, finance, audit</u>	915	473	18	1 406
<u>Costs for presence</u>	108	688	101	897
Sub-total	1 023	1 161	119	2 303
Taxes, bad debts provision & financial costs		696		696
TOTAL	5 828	4 552	712	11 092

Table 3.1: Detail on 2003 Expenses in k€

3.2 Details of Amortization Items

	Amortization	Description
Operational costs		
<u>Quality</u>	1	
<u>Studies & development</u>	260	<i>GTS, SSA3, Argos 2001</i>
<u>Processing center</u>	294	<i>Maintenance processing center (hardware and software)</i>
Sub-total	554	
Marketing costs		
<u>Promotion</u>	5	<i>Exhibit, International meetings, User Conference Costs</i>
<u>Communication</u>	34	<i>Exhibit, documentation Costs</i>
Sub-total	39	
Administrative costs		
<u>Administration, finance, audit</u>	18	<i>Accounting system, Argos registered mark</i>
<u>Costs for presence</u>	101	<i>Office furniture, safety, general equipment</i>
Sub-total	119	
TOTAL	712	

Table 3.2: Detail of Amortization Items in k€

3.3 Annual Incomes (in millions of Euros)

Incomes (MF)	2002	2003
JTA	5.96	6.04
Non JTA	5.53	5.66
Total	11.49	11.70

Table 3.3: JTA and non JTA 2002, 2003 Incomes

3.4 Details of JTA and non JTA Incomes and Expenses (in million Euros)

	2002	2003	
INCOMES			
JTA CLS	2.12	2.21	
JTA SAI	3.84	3.83	
	5.96	6.04	+1.34%
Non JTA CLS	5.11	5.10	
Non JTA SAI	0.42	0.56	
	5.53	5.66	
Total Basic Argos Incomes	11.49	11.70	+ 1.8%
EXPENSES			
Total Basic Argos Expenses	10.58	11.09	+ 4.8%

Table 3.4: Detail of JTA and non JTA Incomes and Expenses

3.5 JTA Annual Balance (in millions of Euros)

	2002	2003
JTA Operating Costs	5.46	5.42
JTA Income	5.96	6.04
Difference	0.50	0.62
Accumulated Difference	-1.02	-0.4

Table 3.5: Annual Balance

* The remaining difference from 2001 was -1.52 M€.

The 2003 annual Argos basic costs, for the purpose of calculating the JTA share, is capped at the actual 2000 figure (M€ 9.49) to be then increased by the annual inflation rates for 2001, 2002 and 2003 successively. The percentage of JTA active PTTs versus the total number of active PTTs is also capped at 53.5% according to FY plan.

4. Other Issues Relating to Argos Funding

4.1 Management of ID numbers

Unused ID Numbers and 28 bit IDs

JTA XXIII meeting (2003)

- (i) *“..The phasing out of the unused ID charges: The meeting agreed not to take any action on this issue until the end of the FYP, and to consider it again at JTA-XXIV”*

In August 2004 there were 22 340 ID numbers allocated to JTA applications out of which some 50% - 11 131 IDs - were 28 bit. It is to be recalled that the recovery of 20 bit ID numbers is crucial as they are the roots used to build the 28 bit ID's. As a consequence, we strongly encourage the unused ID charge to continue.

4.2 Free Access to Third Satellite

CLS, according to the new tariff structure – see separate document proposes to provide the data collected by all satellites of the constellation within the basic service.

4.3 Incentive for frequency spreading

JTA XXII

The meeting was reminded that: Parag. 6(iv) “....an (OPSCOM) action item was opened to address the issue of assigning frequencies in the SUA application process.”

Report from OPSCOM 37:

L. Mesnier of CLS reviewed the five year evolution of the use of the Argos-1 and Argos-2 bandwidth. It was noted that still over 35% of active platforms are clustered in the central part of the Argos 1 frequency band (401,650 Khz +/- 2 Khz). CLS/SAI continued promotional activities to educate users and ask manufacturers to voluntarily utilize all of the available bandwidth. The OPSCOM recognized the need to more encourage ARGOS beacon manufacturers to utilize the entire Argos frequency band since now four Argos 2 instruments are now in flight.

Nevertheless, it seems that the assignment of frequency channels is not optimal to better use the Argos 2 band and the meeting decided not to take any coercive decision as long as the situation continues to improve.

This statement was confirmed at the OPSCOM 38

4.4 Factoring additional charges

Changes proposed are detailed in the new JTA Tariff structure. See separate document.

4.5 Downlink tariff policy

The proposed Downlink Tariff Policy was presented at JTA XXIII

4.6 New Tariff Structure

The new tariff structure proposed is described in a separated document. It will be presented and discussed at the meeting for a tentative implementation next year.

5. Development Projects of the Argos System

These projects are presented in three categories:

5.1. Projects Completed:

Automatic Distribution System
New computers in Service Argos Inc.
Japanese Regional center (step 1)
New ID number strategy
Back up line of the French center
New GTS subsystem (step 1 and 2)
Connection of US center to Hawaii S Band station
Connection to the BOM telemetry from Perth
Improvement of location process
Argos GPS project
US center disks change
French processing center upgrade
US processing center data distribution over Internet
Australia real time distribution on GTS chain in Toulouse
Upgrade of the Australian center hardware
Third satellite real time data processing from Lannion and Australian antennas
US processing center upgrade
French processing center connected to Internet
Software migration on Alpha computers
Increased on-line data access (10 days)
Argos 2 (K,L, M) adaptation (Capacity, sensitivity, receiving stations, test....)
ID numbers administration
Requested by JTA (DBCP)
Reunion island real time distribution onto GTS chain in Toulouse
South Africa real time distribution onto GTS chain in Toulouse
Increase the size of Argos data base.
On-line access to GTS Technical file.
Access to Argos data using CD ROMS
Data flow control facilities
On-line and up to date Argos documentation
Japanese distribution center upgrade
Multi satellite real time data processing from Landover antenna
Extension of ID number processing capability
Direct distribution of buoy data to Meteo France in La Reunion
Data processing of JAMSTEC TRITON moored buoys
Specific algorithms for new Argos XBT devices
Argos 2001 project (Argos processing chain renewal) step1
On-line access to Argos technical files

BUFR code development

5.2. Projects Being Developed (or to begin in 2003)

ADEOS II/Argos processing chain project
Argos 2001 project (Argos processing chain renewal) step 2
On-line access to ADS technical files
GTS distribution of sub-surface floats
GTS Subsystem Quality control
Improved delivery times (open action item)

5.3. Projects under study

Error detection/correction codes
Requested by JTA (DBCP)
Data sharing facilities
Access to both GPCs.

ANNEX VII

JTA New Tariff Policy

SUMMARY AND PURPOSE OF THE DOCUMENT

This document describes the new JTA tariff structure proposed by CLS after discussions with some members of the Working Group.

WORKING GROUP

Steve Auer, NOAA, US ROC,
Robert Basset, NOAA, Argos Program Manager
David Meldrum, SAMS, DBCP chairman, UK ROC,
Derek Painting, JTA Chairman
Christophe Vassal, CLS Chief Executive Officer
Ken Jarrott, Australian ROC, BOM

CONTENTS

1. JTA New Tariff overview
2. Addressing JTA Guidelines: Principles
3. Proposed New Tariff structure
4. Comparing Current and New Tariffs
5. The New Five Year Plan
6. Implementation

ANNEX:

JTA Guidelines and Constraints,
Argos cost calculations
List of Services provided

1. JTA NEW TARIFF OVERVIEW

The new tariff structure proposed is SIMPLE, COMPREHENSIVE and FLEXIBLE, COST-EFFICIENT and GLOBALLY CONSISTENT. In addition, a fair amount of time has been spent so that the transition be as seamless as possible. This constraint has driven in most cases a cost reduction for all.

Simple

JTA rules and management are simplified; they can be easily explained and understood by all.

- Simple accounting: a monthly charge per Active PTT and a PTT.day rate
- Simple invoicing upon consumption
- Just one Service category: location and data collection, all processing facilities included
- ROC task is simplified: direct invoice to users, easier budget planning, simple rules...

Comprehensive and flexible

One service category means all-in one service for all applications, users select most appropriate service only upon technical criteria (no financial implication):

- Doppler location, GPS or both, user decides according to his needs and technical constraints,
- All processing, online access and databank capabilities available for all applications – i.e. email, Ftp, telnet, GTS, data web access. User can decide whether he retrieves the data from his LUT, from Argos centers or both.
- Multisatellite service, Location service Plus / ALP (access to diagnostic tools), dual processing, are included in the basic service.

Cost-efficient

Significant cost reductions for most users, especially for applications transmitting frequently such as drifters, moored buoys...:

- "Pay what you use": invoices are based on actual use,
- No more surcharge for more than 6 locations/ more than 10 data collections
- No more administrative fees (still, charges may be applied when the administrative work load is high and the consumption low)
- No more 70% advanced payment
- Additional services such databank, Automatic Distribution Service (ADS), processing modifications...are kept outside the basic service, and charged only when required, as per today.

Globally Consistent

- Consistent with JTA guidelines. JTA pays for JTA related costs only as determined by new accounting procedures
- All countries pay same price, no more variations due to variable bonus
- Incentive for new users: easy rules, transparent system
- ROC task is simplified: direct invoice to users, easier budget planning, simple rules...

2. ADDRESSING JTA GUIDELINES: PRINCIPLES

The principles retained for the plan are:

JTA users pay for JTA expenses only

A methodology to calculate cost to be attributed to the JTA has been completed and the results were presented at the Opscom meeting, Monterey - June 2004. This actual cost is used to build the proposed new 5 Year plan (5YP). In 2003, JTA revenue and costs are well matched, and are both close to 6 M€.

Base line for 2005 tariff structure definition:

Because 2004 Argos costs to be attributed to the JTA are not known today, a forecasted cost is proposed for 2004.

Principles proposed for the new 5YP:

1. Argos tariffs are calculated on a capped Argos cost of 6.4 M€, based on the 2004 forecasted cost.
2. If JTA income is lower than the Argos costs:
 - a. this creates a debt in the plan,
 - b. if the income is lower than the capped Argos cost this allow for an increase in the price for following years.
3. If JTA income is higher than actual Argos costs , the extra income is used to:
 - a. Decrease the debt (if any)
 - b. Decrease the Argos service prices for JTA users

Invoicing

- It is proposed to invoice upon consumption and not upon advanced commitment as it is done today.
The adjustment mechanism used to balance revenue and costs, which is likely to impact user prices, is to be worked out through the 5Y plan and is to be reviewed at the JTA meetings.
- Who will be invoiced, the ROC or the end user?
Some 70% of the JTA programs are already receiving direct invoices from CLS or SAI invoices. The basic service charges will be added to these invoices.
- Invoicing frequency: one invoice every two months.

The new RO concept

To take into account regional programs or group of users, it was decided to introduce the new concept of the RO. The RO is the Representative of an Organisation or a Group of users or a group of countries. It has the same role as the ROC (Representative Of Country), see below.

Role of the ROCs or the ROs

The ROCs (or ROs) provide country (or group of users or countries) forecasts for next year. The forecasts will be seen as planning numbers, initial bids, rather than commitments. Mechanism to take into account under or over consumption, globally, is worked out through the 5Y plan.

ROC (RO) continues to be the key contact point for the User on invoicing matters, country or group internal policy. The ROC (RO) decides on who is part of the Agreement and in particular whether a User is entitled to join the Agreement.

The ROC (RO) will also, as per today, provide the local support for Argos applications.

Division between basic and added value

It is suggested to include multi-satellite and Location +/-Auxiliary location within the basic service. Other added-value services such as products (databank), ADS, telnet will be invoiced outside of the basic service charges.

3. DETAIL OF PROPOSED NEW TARIFF STRUCTURE

What will be charged?

- Argos basic service includes multisatellite and Auxiliary Location /Service Plus, administrative fees
- Databank, ADS and other added-value services charged separately from the basic service
- Services categories:
 - One service only: Location and/or Data collection
 - Where this causes particular problems for a particular country or user group, we will explore mechanisms to reduce the impact of the new tariff.

Cost Calculation, Accounting units, Time slots:

The cost will be calculated according to the following formula:

PTT cost per month = A + B number of day units*

- where:
- **A** represents the monthly charge per active PTT (an active PTT is one that transmits at least once during a given calendar month)
 - **B** represents the PTT-day rate.
 - For some PTTs categories, namely animals and floats, the day is divided into 4 time slots (0 - 6; 6 - 12; 12 - 18; 18 - 24). Any PTT transmission collected into a given time slot produces a 0.25 day unit.

In addition, to allow for various platform types to be taken into account, the PTT-day rate was computed as:

$$B = B_1 + B_2$$

- where:
- B_1 takes into account the volume of data transmitted (e.g. floats), and
 - B_2 takes into account the workload given to deal with the platform (e.g. animal tracking)

The coefficient **A** is proposed as a value of 15 euros, for 2005 Agreement. B_1 and B_2 are proposed for each different category, as following;

Category	B ₁ (Data Volume)	B ₂ (Workload)	Total B (B ₁ +B ₂)
Full time PTT	3	3	6
Fixed Station	1.5	1.5	3
Large data Volumes (Floats)	6	3	9
Animals	3	6	9

Quantity Discount for large programmes on “B” coefficient

It is proposed to provide a discount to programmes using a large number of platforms, at the condition that those programmes be funded and managed by a unique organization.

The quantity discount is based upon the number of equivalent Platforms-year (a platform-year is a platform transmitting 30 days units per month in full-time, 12 months per year). The table below provides the tentative discount table:

PTT-years	B (€)
300	5
600	4
900	3

4. COMPARING CURRENT AND NEW TARIFFS,

The table 1 below compares Old and New prices, per month, for different category of platforms and of bonus used:

	Old Tariff						New Tariff			
	A	B	days units	No bonus	35%	82%	A	B	Time slots	New Tariff
Full-time PTT	7.6	10.55	30.0	324	242	182	15	6	all day	195
Full Time full discount	7.6	10.55	30.0	324	242	182	15	3	all day	105
Fixed Stations	7.6	5.28	30.0	166	125	95	15	3	all day	105
Animals	7.6	10.55	13.3	113	86	66	15	9	05 day	75
Floats	7.6	10.55	4.4	54	42	33	15	9	0.5 day	35

Table 1: price comparison per category of platform and services

Days units: number of basic day units, one unit is counted anytime a platform is seen by the satellite(s) in the day.

Animals: the “old tariff” calculation is based on animals in Limited Used Service. On average they transmit 13.3 days per month. By applying the LUS, this number falls down to 10 days per month

Time slots: Animals and floats will benefit from the time slots (see § 3 above). It is assumed that, on average, this will halve their “day unit” consumption. This is what is taken into account in the “New tariff calculation”.

The formula applied is:

PTT cost per month = **A** + **B** number of day units

From table 1, it can be seen, that all categories will take benefit from the new tariff structure, and more especially the platforms in countries which do not enjoy full bonus. As a matter of fact, the new prices are very close to the full bonus prices.

Table 3 below shows the same comparison but multi-satellite charges have been added to the "old price" – multi-satellite service is integrated in the basic service in the new structure:

	Old Tariff						New Tariff			
	A	B	days units	No bonus	35%	82%	A	B	Time slots	New Tariff
Full-time PTT	7.6	10.55	30.0	356	266	199	15	6	all day	195
Full Time full discount	7.6	10.55	30.0	356	265	199	15	3	all day	105
Fixed Stations	7.6	5.28	30.0	182	137	103	15	3	all day	105
Animals	7.6	10.55	13.3	113	86	66	15	9	05 day	75
Floats	7.6	10.55	4.4	59	45	36	15	9	0.5 day	35

Table 3: Price comparison taking into account multisatellite service

It can be seen that Full-time PTTs, Fixed stations and Floats are enjoying the full bonus rebate. It has little impact on animals which were already granted multi-satellite (and Location Service Plus/ALP) added-value service(s) free of charge.

These numbers do not reflect a major advantage of the new tariff structure, namely the "upon consumption" invoicing which replaces the up-front commitment which penalizes small countries and/or wildlife application.

The comparison should also take into account the administrative fees, and the more than 6 locations and more than 10 data collection surcharges which may significantly increase the "Old Tariff" costs.

5. THE NEW FIVE YEAR PLAN

Presentation of the new 5YP and explanations

	2005	2006	2007	2008	2009
JTA Costs (M€)					
cost increase %	2.0%	2.0%	2.0%	2.0%	2.0%
Previous 5YP					
Actual & Forecast	6.53	6.66	6.79	6.93	7.07
Agreed 5YP JTA Cost	6.00	6.40	6.40	6.40	6.40

JTA Income					
Activity: Actual and Forecast					
Growth %	5%	5%	5%	5%	5%
Active Ptf's (Total)	6464	6788	7127	7483	7858
PTT-yrs (Total)	2531	2657	2790	2930	3076
Active PTTs (w/o large program)	4762	5001	5251	5513	5789
PTT-yrs (Standard)	1029	1080	1134	1191	1250
PTT-yrs (floats w/o large pgm)	40	42	44	46	48
PTT-yrs (Animals)	465	488	512	538	565
Active PTTs (large pgm)	1702	1787	1876	1970	2069
PTT-yrs (large pgm)	998	1048	1100	1155	1213
Basic Service Income					
Monthly fee (A coefficient, in €)	15	15	15	15	15
Standard Daily fee (B coefficient, in €)	6	6	6	6	6
Month unit income (M€)	0.86	0.90	0.95	0.99	1.04
Day unit income (M€)	3.91	4.10	4.31	4.53	4.75
Total Large pgm (actual M€)	1.40	1.47	1.54	1.62	1.70
Total basic service (M€)	6.17	6.47	6.80	7.14	7.49

Year Balance	-0.36	-0.18	0.01	0.21	0.43
Carried forward from previous year	0.50	0.14	-0.05	-0.04	0.17
Cumulated Balance	0.14	-0.05	-0.04	0.17	0.60

JTA costs

Actual & Forecast: Actual and forecast costs based on a 2% increase. This is very much related to the global science costs and the income related to non JTA science applications.

Agreed 5YP JTA costs: capped JTA costs for the purpose of calculating the JTA tariffs.

JTA income

Growth: same growth percentage is applied to all categories, both on the Active PTTs and the PTT-yrs.

Income is distributed by standard platforms (full-time, B = 6€), Floats and Animals (time slots applied, B=9 €) and one large program benefiting from the full discount (B= 3€).

Total large program: includes both the **Month unit** and **Day unit** incomes.

Year balance: Total basic service Income – Actual (or Forecasted) Argos costs

It can be noticed that the year balance starts being positive from 2007 and the cumulated balance at the end of the plan is positive by 0.6 M€. This allows for price reduction or higher Argos charges – which will be needed to take into account the integration of the Japanese Group of Users (JGU) in the JTA.

6. IMPLEMENTATION

This new tariff structure will be implemented for the countries that have decided to join the pilot phase. There will be a certain number of practical actions to undertake:

- communicate with all users on the new structure,
 - add all the missing users in the invoicing database, check and confirm the references,
 - adapt the current Argos purchase order and get a copy signed by all users,
 - apply the new invoicing method to all programs and perform associated end-to-end tests.
- Etc...

APPENDIX

JTA GUIDELINES AND CONSTRAINTS

Tariff guidelines and guidelines as provided by the JTA XXIII are recalled below:

Guidelines

As noted under agenda item 6, the meeting agreed that the end of the FYP in 2004 provided the ideal stimulus to undertake a thorough review and revision of the JTA, in order in particular to simplify it and reduce the number and complexity of user categories, while at the same time preserving its basic principles. Such a revised tariff structure would then be applicable from 2005 onwards. As the first step in this process, the meeting agreed the following basic aims and principles for the JTA:

- (i) The benefits of JTA participation should be shared equally amongst all participants (Users).
- (ii) The revenue collected from Users should meet the costs of providing the service.
- (iii) Developments required by Users should be funded by Users.
- (iv) Costs of developments not of benefit (or of marginal benefit) and not driven by User requirements should not fall on Users.
- (v) There should be a clear division between a basic (funded) service and other (e.g. value added) services.
- (vi) The Tariff structure should be simplified to reduce the number of service categories.
- (vii) System developments should be fully sponsored and those affecting Users agreed in advance.

Constraints

In addition, the meeting agreed that such aims and principles would entail a number of constraints and consequences:

- (i) A clear statement of the cost of User participation should be made annually, with an annual (budget) forecast including the impact of developments.
- (ii) The Tariff should be designed to meet the identified costs and an allowance made for agreed development share and contingencies.
- (iii) The base line for 2005 participation was suggested as the actual costs of the JTA for 2004.
- (iv) The transition to the new tariff agreement in 2005 should be as seamless as possible."

Item (iii) below is not realistic. The base line will take into account the actual JTA costs for Y2003, as 2004's are not available.

ARGOS COSTS

The table below recalls the basic Argos costs: actual, used before and during the previous 5YP.

Costs/Incomes	2003	2004*
Total Argos basic costs	11.09	11.70
Ratio Active PTTs JTA/ non JTA	58%	55%
(1) Actual costs as calculated before 5YP (applying the ratio above)	6.45	6.48
(2) Costs as capped in the 5YP	5.42	5.37
(3) Actual cost to be attributed to JTA	6.07	6.40
Argos JTA Income	6.04	6.46

* Estimated numbers

Ratio of Active PTTs JTA/non JTA: this ratio has been used over the past years to assess the JTA share of Argos costs.

Actual cost before 5YP: Application of the ratio to the Argos costs

Costs as capped in the 5YP: from year 2001, it was decided to cap the JTA share of the Argos costs at the actual 2000 cost figure plus inflation.

Actual JTA cost: JTA cost resulting from the new method of calculation

Actual JTA income: the JTA total income as presented in the 5YP (for Y2004 estimated in October).

As a conclusion on the 5YP:

- The new method to determine the cost to be attributed to the JTA and the method used before show pretty consistent results.
- The five year plan (2000 – 2004) has worked perfectly to help put the JTA back on track.

LIST OF SERVICES PROVIDED

Within Basic Service

- Location and Data collection
- Multi satellite service
- Location Service Plus/ Auxiliary Location
- Dual-processing (disappeared in 2004)

No more invoicing for:

- administrative fees
- excess use
- more than 6 location/ 10 data collection

Added-value Services (charged outside the Basic Service)

- Unused Ids,
- Products: Databank, processing modifications, retro-processing
- Telnet
- Automatic Distribution Service (ADS)
- Alarms on transmission (SMM), location (MBM), on data threshold (new – Argos 2001 step 2)
- Platform Monitoring (performance follow-up with warnings/alerts) (new – Argos 2001 step 2)

Could be added

- Set-up fees
- Specific non standard Useroffice assistance, such as Platform detailed diagnostic
- 24/7 assistance (access to operators day and night)

ANNEX VIII

TERMS AND CONDITIONS OF THE GLOBAL AGREEMENT FOR 2005

These Terms and Conditions outline costs to and services to be provided by Collecte Localisation Satellites (1) hereafter referred to as "CLS" and the

(2) *

jointly providing support to their own authorized users for the location and data processing associated with test and implementation of remote platforms communicating with Argos-capable satellites.

Each authorized user under this Agreement adheres to the procedures and conditions of the Argos system. In this regard, System Use Agreements should be submitted as soon as a programme is planned. Data distribution will be accomplished under the policies established by the ARGOS Operations Committee.

TIME PERIOD OF COVERAGE

These Terms and Conditions are valid for the time period beginning on **January 1 and ending on December 31, 2005**

DEFINITIONS

"Platform-year" is defined as 365 days of operation of an acceptable Platform Transmitter Terminal (PTT).

"Consultation of files" or "Access to the data" is defined as direct user access to the disk files either by telephone, telex or other public data networks.

The "Agreement" included all those participating countries which agree to the Terms and Conditions contained here in and which sign a similar Agreement with CLS prior to **March 1, 2005**.

- (1) Collecte Localisation Satellites is the affiliate of CNES, in charge of operating the Argos system.
- (2) Quote the country and its own organization in charge of the Agreement with regard to CLS. Hereafter defined by "ROC", i.e. a unique Representative Organization for a country or a group of countries.

SERVICES PROVIDED BY CLS

CLS will perform the following categories of services associated with PTT's of the authorized users:

- (1) Location determination or both location determination and data collection for PTT's with a repetition period equal to or less than 120 seconds, application of calibration curves to the data when appropriate, access to the data and distribution of the data according to the paragraph below entitled "Distribution of processed data" and archiving for three months;
 - (1a) Same as (1) but subject to the limitation under LIMITED USE SERVICE;
- (2) Data collection for PTT's with a repetition period equal to or greater than 200 seconds, application of calibration curves to the data when appropriate, access to the data and the distribution of the data according to the paragraph below entitled "Distribution of processed data" and archiving for three months;
- (3) Same service as (1) except the location and the data are not made available to the users unless they require the data and follow the conditions for back-up services;
- (4) Same service as (2) except the data are not made available to the users unless they require the data and follow the conditions for back-up service.

USER CHARGES PER PLATFORM YEAR

Charges for authorized users under this Agreement are given in the Table entitled:

Summary of services and tariffs to users under the Global Agreement

Processing by CLS	Category	Repetition Period	Location computed	Data collection and sensor processing	On line data access	Data archiving	Tariff
Standard	1	≤ 120 sec	YES	YES	YES	YES	X
	2	≥ 200 sec	NO	YES	YES	YES	X/2
Limited Use Service	1a	≤ 120 sec	YES	YES	YES	YES	*
Back Up	3	≤ 120 sec	YES	YES	NO	YES	2X/5
	4	⇒ 200 sec	NO	YES	NO	YES	X/5
Inactive Status	5		NO	NO	NO	NO	0

* Users will be charged the standard data collection and location rate for actual PTT.days used up to a maximum of ten per month

CLS agrees to charge those authorized users a rate of **X = 3,850 Euro** per platform-year for services defined in category (1), a rate as defined below under conditions for limited use service (paragraph 3) for services defined in category (1a), and a rate of **X/2** for services in category (2).

It is agreed that CLS will record the number of platform-days and will send quarterly reports to the ROC which contain the number of platform-days accumulated up to the time of the reports.

These charges will remain the same for the time period of coverage stated above. It is possible that these costs may vary from year to year. Therefore, the ROC and CLS will discuss and conclude Agreements

concerning fees to be charged to users prior to establishing the Terms and Conditions for the Agreement valid for the following year.

CONDITIONS FOR LIMITED USE SERVICE

This service is intended for those users whose programmes operate effectively using a reduced number of data transmission. Platforms under this service category are supposed to use a randomly initiated duty cycle.

The following conditions must be met to qualify:

- (1) Standard location or standard location and data processing (services) only apply;
- (2) Platform can transmit no more than twenty-four (24) hours in any and all seventy-two (72) hours periods;
- (3) Users will be charged the standard data collection and location rate for actual PTT.days used up to a maximum of ten per month;
- (4) All platforms in a single programme must meet these conditions;
- (5) Separate programme applications must be submitted.

CONDITIONS FOR BACK-UP SERVICE

- (1) For PTTs covered by the "back-up service" the data are stored in a special data bank for 6 months, but will not be distributed to the user. All PTT's of this type will be counted at **2X/5** (category 3) or **X/5** (category 4) of the corresponding tariff under the Global Agreement;
- (2) Each user can require CLS to grant access to the active computer files during a specified period. CLS will perform the required file modifications. During the specified period, the PTT's will be counted at the standard tariff (category 1 or 2) in the Global Agreement from the first of the month in progress. Each operation involving a file modification will be charged directly to the user as indicated under "Limitations on PTT's", paragraph 1;
- (3) Upon request, CLS will provide printouts and/or floppy disks and/or CDs including the data from PTT's in the back-up mode for a specified period up to six months before the receipt of the order. For the specified period the PTTs will be counted at the standard tariff (category 1 or 2) in the Global Agreement;
- (4) CLS will begin required services only after receipt of a detailed letter or e-mail specifying the service and the period required and the programme involved.

CONDITIONS FOR INACTIVE STATUS

This status is intended for those platforms that continue to transmit but for which the location or data collection are of no further use to the user or the community. The following conditions must be met to qualify:

- (1) Inactive Status will apply if, and only if, Inactive Status is declared by the signatory of the System Use Agreement for platforms which continue to transmit beyond the programme termination. In that case, further charges will no longer be levied;
- (2) The platforms must have operated in category (1), (1a) or(2) for a minimum of 2 months;

- (3) Data or location information cannot be retrieved nor can the platform revert to any category of service;
- (4) It is intended that Location and/or data collection may not be computed using a Local User Terminal or other direct readout facility.

ACTIVE PLATFORM FEE

- (1) A monthly fee of **7.62 Euro** is applied to each active platform (those transmitting at least once per month).
- (2) The yearly total is estimated in January, based on the active platform quantities from the previous year.
- (3) An adjustment is made at the end of the year using actual figures.

DESIGNATED ROC

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ROC PARTICIPATION

For the period beginning 1 January 2005, the ROC will purchase for authorized users the guaranteed minimum of * **platform-years** in advance for 12 months service. On December 31, 2005, the final count of platform-years and fractions thereof which were actually used will be determined. The final cost adjustment over **the * platform-years** amount (if required) will be determined at the tariff defined above under "USER CHARGES PER PLATFORM-YEAR".

LIMITATIONS ON PTT'S

For those PTT's under these Terms and Conditions, there are certain limitations which are itemized below:

- (1) The modification of platform characteristics (number of sensors, calibration curves, etc.) will require a charge defined in the annual price list issued by CLS, as attached to this Agreement. This charge and any additional financial cost resulting from these limitations will be paid by the users directly to CLS. Platform modifications within the GTS processing subsystem are not charged. In order to enter, delete or modify a platform, a one-week period may be necessary. After entering a new platform, a minimum of one calendar month is required to change the processing category of that platform. However, two months are required to enter inactive status;
- (2) As an average per individual Agreement and per category of service for the platforms covered under these Terms and Conditions, there will be no more than six (6) locations for two (2) satellites processing and nine (9) locations for three (3) satellite processing derived for repetition periods up to and including 120 seconds or no more than ten (10) data acquisitions for two (2) satellite processing and fifteen (15) data acquisitions for three (3) satellite processing for a platform-day, allowed without financial cost. If the service results in exceeding these limits, the cost will then be 1/25 of the tariff rate for each processing category multiplied by the number of processed platform-years for the programme number(s) concerned in each

category. Funds for unused PTT-years under this agreement will be applied to offset these supplemental charges.

DISTRIBUTION OF PROCESSED DATA

- (1) These Terms and Conditions do not cover the costs of special off-line arrangements made to provide the processed data back to the users. These must be made by the user directly with CLS;
- (2) However, it is understood that CLS will continue to provide data from PTTs via the World Weather Watch Global Telecommunication System (WWW/GTS) of the World Meteorological Organization (WMO) according to procedures established by WMO.

PERIOD OF SYSTEM USE

When a location and/or data collection platform is initially received into the system in a 24-hour period, starting at 00.00 UTC, CLS will begin to accumulate the number of platform-days.

BILLING AND PAYMENT

- (1) CLS will send a preliminary bill for * **(at least 70% of the total amount) in Euro**, in advance to the ROC, with the agreement to be signed. The number of active platforms charged by programme will be attached to the bill.

Final adjustment will be made after December 31, 2005, CLS will send a second bill to the **ROC for * Euro** with additional charges if necessary.

These bills should be sent to:

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.....
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- (2) Payment by the ROC will be sent to:

CLS
8/10, rue Hermès - Parc Technologique du Canal
31526 RAMONVILLE Cedex
FRANCE
Account number : 30004 00762 00020666305 63
Bank : **BNP PARIBAS**

- (3) Payment by USA ROC will be sent to:

Service Argos, Inc.
1801 McCormick Drive, Suite 10
Largo, Maryland 20774
USA

- (4) Services which are charged directly to users as in paragraph (1) under "LIMITATIONS ON PTT's" and paragraph (1) under "DISTRIBUTION OF PROCESSED DATA" above require a purchase order

directly between the individual user and CLS, as noted in paragraph (2) under "GENERAL CONDITIONS OF AGREEMENT" below.

GENERAL CONDITIONS OF AGREEMENT

(1) The designated ROC agrees to provide the initial list of users included in the Agreement and will update this list as appropriate.

(2) For services not provided within this Agreement, individual users under this Agreement must negotiate directly with CLS. Payments associated with these negotiations must be settled on receipt of the invoice. If these conditions are not met, CLS may stop the distribution of the user's processed data. Nevertheless, active platforms received by the system will be counted in the platform-year total. Should this situation occur, CLS will immediately notify the ROC.

(3) Authorized users are defined as those implementing PTTs which are government funded. However, other users of agencies or organizations which are considered "non-profit" may be authorized. PTTs funded partly or entirely by private companies or organizations cannot be included in the conditions of this Agreement, even if data are supplied free of charge to national or international organizations.

If these rules are not followed, CLS may stop the distribution of this user's data. Should this situation occur, CLS will immediately notify the ROC. Nevertheless, active PTTs received by the system will be counted in the platform-year total and data stored.

(4) All authorized users must sign a purchase order for each programme, either for the current year or for the duration of the programme, in order to clearly specify the services they request, whether these services are provided under this Agreement or not.

(5) Each ROC must finalize their commitment by **January 15, 2005**. Each ROC is responsible to assure that the signed Agreement for the amount committed on **January 15, 2005** is received by CLS before **March 1, 2005**. On and after this date, CLS will not take into account other Agreements and will invoice according to the above conditions.

(6) As an incentive to encourage expansion of individual programmes, a bonus scheme will operate as follows:

- a) Where the number of platform-years contracted by the country continues to equal or exceed the estimate confirmed and recorded at the **JTA-XVII** meeting, the contracted number will be increased by 82% for the purpose of calculating any excess use.
- b) For countries not meeting the requirement in (a) above, but having benefited of a 35% bonus during the year preceding immediately that of these present Terms and Conditions, and whose number of platform-years contracted equals or exceeds the number signed under the preceding Terms and Conditions, the contracted number will be increased by 82% for the purpose of calculating any excess use.
- c) For countries not meeting the requirements in (a) and (b) above, but whose number of platform-years contracted equals or exceeds the number signed under the preceding Terms and Conditions, the contracted number will be increased by 35% for the purpose of calculating any excess.

ROCs are responsible for the allocation of the bonus within their country, but shall not transfer PTT-years between themselves to take advantage of this allowance.

(7) Each participating country will be charged for excess use over and above the contracted number of PTT-years (inflated by the above bonus as appropriate):

- a) at the tariff defined under "USER CHARGES PER PLATFORM-YEAR" divided by 1.35 (one point thirty five), if the participating country benefits of 82% bonus during the year;
- b) at the tariff defined under "USER CHARGES PER PLATFORM-YEAR" in all other cases.

These charges will be applied to the second invoice sent at the end of the year.

- (8) VAT will be charged to EU Members in accordance with EU rules.

NORMAL TARIFFS CHARGED BY CLS

As an indication of additional costs for services not covered by this Agreement, the normal tariffs charged will be provided by CLS to the ROC.

Signed by the designated ROC

(Date)

Signed by CLS

(Date)

ANNEX IX

Terms and Conditions of the Agreement for 2005 – Pilot Programme for the New Tariff Scheme –

OBJECTIVE:

To gain experience in the application of the agreed new tariff principles to be introduced generally in 2006.

COUNTRIES TO PARTICIPATE:

These Terms and Conditions outline costs to and services to be provided by Collecte Localisation Satellites (1) hereafter referred to as "CLS" and the countries listed below, but not be limited to:

France
India
The Netherlands
New Zealand
South Africa
USA

Countries will have to indicate their participation in the Pilot Programme not later than 15 December 2004.

TIME PERIOD OF COVERAGE:

These Terms and Conditions are valid for the time period beginning on **January 1 and ending on December 31, 2005**.

DEFINITIONS

"Platform-year" is defined as 365 days of operation of an acceptable Platform Transmitter Terminal (PTT).

"Consultation of files" or "Access to the data" is defined as direct user access to the disk files either by telephone, telex or other public data networks.

"RO" is the Responsible Organization representing an agreed set of Argos User programs for the purposes of their collective participation in the JTA.

The "Agreement" included all those participating countries which agree to the Terms and Conditions contained here in and which sign a similar Agreement with CLS prior to **March 1, 2005**.

- (1) Collecte Localisation Satellites is the affiliate of CNES, in charge of operating the Argos system.
- (2) Quote the country and its own organization in charge of the Agreement with regard to CLS. Hereafter defined by "ROC / RO / Programme Manager", i.e. a unique Representative Organization for a country, a group of countries, or a single Programme.

SERVICES PROVIDED BY CLS

CLS will perform the following categories of services associated with PTT's of the authorized users:

- (1) Location determination or both location determination and data collection for PTT's with a repetition period equal to or less than 120 seconds, application of calibration curves to the data when appropriate, access to the data and distribution of the data according to the paragraph below entitled "Distribution of processed data" and archiving for three months;
- (2) Data collection for PTT's with a repetition period equal to or greater than 200 seconds, application of calibration curves to the data when appropriate, access to the data and the distribution of the data according to the paragraph below entitled "Distribution of processed data" and archiving for three months;
- (3) Multi-Satellite Service
- (4) Location service plus / auxiliary location
- (5) Dual Processing

USER CHARGES PER PLATFORM YEAR

Charges for authorized users under this Agreement are in accordance with the payment on consumption.

The new PTT-Year price for a given PTT is:

$$\text{PTT Year Price (YP)} = A * (\text{total monthly units}) + B * (\text{total PTT-day units})$$

A : Monthly Unit based on the active PTTs. One month unit is counted every time the PTT transmits at least once in the month. (A = **15Euros**)

B : A PTT Day Unit. One Day Unit is counted every time the PTT transmits at least once in the day.

Day units: 4 time slots (0 - 6, 6 -12, 12 -18, 18 -24)

PTT transmission collected in a given time slot, produces 0.25 day units

Transmission one full day = 1 day unit

Category	B ₁ (Data Volume)	B ₂ (Workload)	Total B (B ₁ +B ₂)
Full time Drifter	3	3	6
Fixed Station	1.5	1.5	3
Large data Volumes (ARGO Floats)	6	3	9
Animals	3	6	9

DISCOUNT SCHEME FOR PROGRAMMES USING A LARGE NUMBER OF PLATFORMS

Number of platforms	PTT-day unit (B)
300	5
600	4
900	3

COMPARISON OF COSTS, OLD VERSUS NEW TARIFF SCHEME

	Old Tariff						New Tariff			
	A	B	days units	No bonus	35%	82%	A	B	Time slots	New Tariff
Full-time PTT	7.6	10.55	30.0	324	242	182	15	6	all day	195
Full Time full discount	7.6	10.55	30.0	324	242	182	15	3	all day	105
Fixed Stations	7.6	5.28	30.0	166	125	95	15	3	all day	105
Animals	7.6	10.55	7.3	85	65	50	15	9	2	48
Floats	7.6	10.55	4.4	54	42	33	15	9	2	35

Note:

1. The Monthly Fee is calculated in accordance : $A + B * \# \text{ day units}$
2. The above assumes floats to transmit in 2 time slots only.

DESIGNATED ROC / RO / PROGRAMME MANAGER

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DISTRIBUTION OF PROCESSED DATA

- (1) These Terms and Conditions do not cover the costs of special off-line arrangements made to provide the processed data back to the users. These must be made by the user directly with CLS;
- (2) However, it is understood that CLS will continue to provide data from PTTs via the World Weather Watch Global Telecommunication System (WWW/GTS) of the World Meteorological Organization (WMO) according to procedures established by WMO.

BILLING AND PAYMENT

CLS will send invoices on a two monthly basis based on consumption to the ROC / RO.

These bills should be sent to:

.....

- (2) Payment by the ROC / RO / Programme Manager will be sent to:

CLS
8/10, rue Hermès - Parc Technologique du Canal
31526 RAMONVILLE Cedex
FRANCE
Account number : 30004 00762 00020666305 63
Bank : **BNP PARIBAS**

- (3) Payment by USA ROC / RO / Programme Manager will be sent to:

Service Argos, Inc.
1801 McCormick Drive, Suite 10
Largo, Maryland 20774
USA

GENERAL CONDITIONS OF AGREEMENT

- (1) The designated ROC / RO agrees to provide the initial list of users included in the Agreement and will update this list as appropriate.
- (2) For services not provided within this Agreement, individual users under this Agreement must negotiate directly with CLS. Payments associated with these negotiations must be settled on receipt of the invoice. If these conditions are not met, CLS may stop the distribution of the user's processed data. Nevertheless, active platforms received by the system will be counted in the platform-year total. Should this situation occur, CLS will immediately notify the ROC.
- (3) Authorized users are defined as those implementing PTTs which are government funded. However, other users of agencies or organizations which are considered "non-profit" may be authorized. PTTs funded partly or entirely by private companies or organizations cannot be included in the conditions of this Agreement, even if data are supplied free of charge to national or international organizations.

If these rules are not followed, CLS may stop the distribution of this user's data. Should this situation occur, CLS will immediately notify the ROC / RO. Nevertheless, active PTTs received by the system will be counted in the platform-year total and data stored.

- (4) All authorized users must sign a purchase order for each programme, either for the current year or for the duration of the programme, in order to clearly specify the services they request, whether these services are provided under this Agreement or not.
- (5) VAT will be charged to EU Members in accordance with EU rules.

NORMAL TARIFFS CHARGED BY CLS

As an indication of additional costs for services not covered by this Agreement, the normal tariffs charged will be provided by CLS to the ROC / RO.

Signed by the designated ROC / RO
or Programme Manager

(Date)

Signed by CLS

(Date)

ANNEX X

National report on current and planned programmes

The Following national reports were received by the Secretariat:

Canada
China
Finland
France
India
Netherlands (the)
New Zealand
Republic of Korea
South Africa
Sweden
United Kingdom
USA

Country: Canada

Year: 2004

A. Agency or programme: Institute of Ocean Sciences of Fisheries and Oceans Canada

Purpose of programme: 2442 ARGO floats to track ocean currents(Freeland)

Numbers and types of platforms: (a) Deployed current year: 84

(b) Planned next year: 85

Estimated number of PTT-years: (a) Current year:9.0 Equi

(b) Next year: 9.7

Purpose of programme: 704 Mooring tracking(Juhasz)

Numbers and types of platforms: (a) Deployed current year: 17

(b) Planned next year: 17

Estimated number of PTT-years: (a) Current year: 0.5

(b) Next year: 0.41

Purpose of programme: 496 Tracking moorings for chemical sampling(Wong)

Numbers and types of platforms: (a) Deployed current year: 0

(b) Planned next year: 1

Estimated number of PTT-years: (a) Current year: 0

(b) Next year: .04 Equi

Purpose of programme: 411, 30411, 9411 Witness buoy for moorings(Thomson)

Numbers and types of platforms: (a) Deployed current year: 0

(b) Planned next year: 1

Estimated number of PTT-years: (a) Current year: 0 Equi

(b) Next year: 0.1Equi

B. Agency or programme: Bedford Institute of Oceanography (Anderson)

Purpose of programme: 00076 Environment Monitoring: Ice research and salmon aquaculture

Numbers and types of platforms: (a) Deployed current year: 25 (data and location)
(b) Planned next year: 25 (data and location)

Estimated number of PTT-years: (a) Current year: 2.3
(b) Next year: 1.7

C. Agency or programme: Institut Maurice-Lamontagne

Purpose of programme: 00788 DPO Marine Mammal Research
09788 Marine Mammal Research LUS

Numbers and types of platforms: (a) Deployed current year: 28 (limited use)
(b) Planned next year: 164 (limited use)

Estimated number of PTT-years: (a) Current year: 13
(b) Next year: 11.1

D. Agency or programme: Freshwater Institute

Purpose of programme: 01142 Beluga Telemetry

Numbers and types of platforms: (a) Deployed current year: 4
(b) Planned next year:

Estimated number of PTT-years: (a) Current year: 0.1
(b) Next year: 1.9

E. Agency or programme: Environment Canada (Cook)

Purpose of programme:	00323 Pacific PAPA	6.4
	00626 Pacific C-NOMAD	
	00627 International Arctic Buoy Program	
	00693 Atlantic Buoy Program	1
	00633 Ice Floe Drift	6.5
	09633 Ice Floe Drif (Sub-program)	

Program 323	Pacific Region	16 b/u service
Program 627/693	Prairie Region	2 b/u 3 standard service
Program 633	Ice Branch	1 b/u and 15 standard service

Numbers and types of platforms: (a) Deployed current year: 25
(b) Planned next year: 26

Estimated number of PTT-years: (a) Current year: 20
(b) Next year: 13.9

F. Agency or programme: University of Saskatchewan

Purpose of programme: 00762 Polar Bears in NWT
08762 Caribou in NWT
09762 Polar Bears in NWT (Sub-Program)

Numbers and types of platforms: (a) Deployed current year: 8; no new collars.
(b) Planned next year: .0

Estimated number of PTT-years: (a) Current year: 0
(b) Next year: 0.0

G. Agency or programme: NFLD/Department of Forest Resource & Agr

Purpose of programme: 00561 Labrador DND Wildlife Studies
09561 Newfoundland Black Bear studies

Numbers and types of platforms: (a) Deployed current year: 7
(b) Planned next year: 7

Estimated number of PTT-years: (a) Current year: 2.8
(b) Next year: 2.5

H. Agency or programme: Parks Canada / Kluane National Park & Reserve

Programme Number: 01015

Purpose of programme: Grizzly Bear Monitoring

Numbers and types of platforms: (a) deployed current year: 1
(b) planned next year: 1

Estimated number of PTT-years: (a) current year: 0
(b) next year: .10

I. Agency or programme: National Defence Headquarters

Purpose of programme: 0959 Radio-Tracking of Migratory Caribou Herds
2497 Woodland Caribou Tracking
2593 Osprey/Bald Eagle Tracking

Numbers and types of platforms: (a) Deployed current year: 39

(b) Planned next year:

Estimated number of PTT-years: (a) Current year: 11.4

(b) Next year: 5 (est.)

J. Agency or programme: Government of Northwest Territories

Purpose of programme: 01572 Blue Nose Caribou Herd Ranger User - LUS
09572 Blue Nose Caribou Herd Ranger User - NON LUS
11572 NW Victoria Island - LUS
21572 Banks Island - LUS
2445 Grizzly Bear tracking

Numbers and types of platforms: (a) Deployed current year: 42, 30 collars on grizzly bears for 6 months, barren land caribou studies to continue

(b) Planned next year:

Estimated number of PTT-years: (a) Current year: 15

(b) Next year: 13 (est.)

K. Agency or programme: Government of Northwest Territories (Gunn)

Purpose of programme: 00606 Satellite Telemetry of Bathurst caribou
09606 Satellite Telemetry of Nahanni caribou
30606 Satellite Telemetry of Victoria Island Caribou
31606 Satellite Tracking of Bathurst Caribou 3.3.

Program 30606 Victoria Island Caribou

Numbers and types of platforms: (a) Deployed current year: 3

(b) Planned next year: .6

Program 9606 Nahanni caribou

Numbers and types of platforms: (a) Deployed current year: 16 PTT's

(b) Planned next year: 16

Program 00606 Bathurst caribou

Numbers and types of platforms: a) Deployed current year: 19
b) Planned next year:
Estimated number of PTT-years: a) Current year: 5.6
b) Next year: 5 (est.)

L. Agency or programme: Environment Canada

Purpose of programme: 01375 Seasonal Movements of Osprey Nesting

Numbers and types of platforms: a) Deployed current year: 1
b) Planned next year: 0
Estimated number of PTT~years: a) Current year: .8
b) Next year: 0

M. Agency or programme: GNWT - Resource & Wildlife Div.

Purpose of programme: 01709 NWT Wolf/Wolverine Studies

Numbers and types of platforms: a) Deployed current year: 0
b) Planned next year: 0 Unless small wolverine collar is developed.
Estimated number of PTT years: a) Current year: 0.0
b) Next year: .0

N. Agency or programme: Canadian Wildlife Service, Iqaluit(Mallory) Project 2443

Purpose of programme:

Numbers and types of platforms: (a) deployed current year:
(b) planned next year:
Estimated number of PTT-years: (a) current year: .44
(b) next year: .16

O. Agency or programme: Defense Research Establishment Atlantic

Purpose of programme: (2176) Environmental Research

Numbers and types of platforms: a) Deployed current year: 1
b) Planned next year: 0

Estimated number of PTT-years: a) Current year: 0.1. Equi
b) Next year: 0.0 Equi

P. Agency or programme: GNWT / Resources & wildlife

Purpose of programme: 01816 Keewatin wildlife Monitoring Program

Numbers and types of platforms: a) Deployed current year: 20
b) Planned next year:

Estimated number of PTT-years: a) Current year: 7.6
b) Next year: 4.0 (est.)

Q. Agency or programme: University of Alberta, Canada Wildlife Service

Purpose of programme: 00947 Habitat Use by Polar Bears in Western Hudson Bay
08947 Habitat Use by Polar Bears in Western Hudson Bay
09947 Habitat Use by Polar Bears in Western Hudson Bay

Numbers and types of platforms: a) Deployed current year: 0
b) Planned next year: 0

Estimated number of PTT-years: a) Current year: 0
b) Next year: 0

R. Agency or programme: Government of Yukon

Purpose of programme:

This project will document seasonal range use and migration patterns of the Porcupine Caribou Herd (*Rangifer tarandus granti*), numbering 123,000 animals. Annual herd movements cover an area of approximately 250,000 square kilometers, making frequent conventional radio telemetry locations expensive. With financial support of co-operating agencies, we've maintained satellite collars on the herd since October 1997. Location data have helped us document seasonal ranges used, timing of migration, and helped us determine the geographical areas we need to travel to in order to conduct our fieldwork. We maintain a web site that shows the locations of the satellite collared caribou and provides some background information on the herd and its management. The data is also serves as an educational tool for internet based school programs.

Programme Number: 1207

Numbers and types of platforms: (a) deployed current year(2003): 11
(b) planned next year(2004):

Estimated number of PTT-years: (a) current year: 2.4
(b) next year: 2.0

Programme Number: 9207

Purpose of programme: Porcupine Caribou Backup

Numbers and types of platforms: (a) deployed current year(2003): 3 (backup) location)
(b) planned next year(2004): location)

Estimated number of PTT-years: (a) current year: 0.2
(b) next year: 0

Programme Number: 21207

Purpose of programme: Yukon North Slope Muskox

Numbers and types of platforms: (a) deployed current year(2003): 9 (standard location)
(b) planned next year(2004): 9 (standard location)

Estimated number of PTT-years: (a) current year: .8
(b) next year: .5

S. Agency or programme: Renewable Resources, Northwest Territories(Auriat) Project 2841

Purpose of programme: Movement of Dall's sheep in the northwest Territories

Numbers and types of platforms: (a) deployed current year:
(b) planned next year:

Estimated number of PTT-years: (a) current year: .2
(b) next year: 2.0

T. Agency or programme: Department of National Defence

Purpose of programme: 02019 Self Locating Datum Marker Buoy. Location of personnel in open water after a shipping disaster. The beacon allows rescue craft to focus their search patterns into specific areas by emulating the drift patterns of either a person floating in the water or a four-man life raft.

Numbers and types of platforms: a) Deployed current year: 45 (if needed), standard service
b) Planned next year: 45 (if needed), standard service

Estimated number of PTT-years: a) Current year: 0.5 Equi
b) Next year: 0.54

U. Agency or programme: Government of Nunavut, Canada

Purpose of programme: 02080 Survival of Dolphin-Union Caribou

Numbers and types of platforms: a) Deployed current year: 15
b) Planned next year:

Estimated number of PTT-years: a) Current year: 4.4
b) Next year: 2.0 (est.)

V. Agency or programme: DFO Canadian Coast Guard

Purpose of programme: 01387 SAR DMB Development

Numbers and types of platforms: a) Deployed current year: 30
b) Planned next year:

Estimated number.of PTT-years: a) Current year: 0
b) Next year: .5

W. Agency or programme: Environment Canada

Purpose of programme: 02027 Great Black-backed gulls on the Great Lakes.

Numbers and types of platforms: a) Deployed current year: 2
b) Planned next year: 0

Estimated number of PTT-years: a) Current year: 1.0
b) Next year: 0

X. Agency or programme: Canadian Wildlife Service of Environment Canada

Purpose of programme: (2334)Eider Duck tracking.

Numbers and types of platforms: a) Deployed current year: 10
b) Planned next year: 0

Estimated number of PTT-years: a) Current year: 4.0
b)Next year: .0

Y. Agency or programme: 02589 Fish and Wildlife Branch of the Yukon

Purpose of programme: (new program) Moose tracking

Numbers and types of platforms: a) Deployed current year: 10

b) Planned next year: 5

Estimated number of PTT-years: a) Current year: 1.3 Equi

b) Next year: 1.6 Equi

Z. Agency or programme: Alberta Fish and Wildlife Service (Bergman)

Purpose of programme: (2599) Grizzly bear management .32.

Purpose of programme: (12599) Wolf management .54.

Numbers and types of platforms: a) Deployed current year: 11

b) Planned next year:

Estimated number of PTT-years: a) Current year: 1.2 Equi

b) Next year: .86 Equi

AA. Agency or programme: Ontario Ministry of Natural Resources

Purpose of programme: (2587) Kag Lake caribou tracking.

Numbers and types of platforms: a) Deployed current year: 2

b) Planned next year: 2

Estimated number of PTT-years: a) Current year: ..2

b) Next year: 0.504

AB. Agency or programme: British Columbia Ministry of the Environment, Lands and Parks

Purpose of programme: (1743) Peregrine Falcon tracking.

Numbers and types of platforms: a) Deployed current year: 4

b) Planned next year: 0

Estimated number of PTT-years: a) Current year: .1

b) Next year: 0

AC. Agency or programme: Axys Environmental Systems Program # 1724

Purpose of programme: Oceanographic Observations

Numbers and types of platforms: (a) deployed current year: 0 Buoys

(b) planned next year: 0 buoys

Estimated number of PTT-years: (a) current year: 0

(b) next year: 0

AD. Agency or programme: UBC Behaviour@Sea Project 2727

Purpose of programme: Marine mammal tracking

Numbers and types of platforms: (a) deployed current year: 12 (including the 6 from 2003)

(b) planned next year: 0 (program is completed)

Estimated number of PTT-years: (a) current year: 0.49

(b) next year: 0

AE. Agency or programme: Dalhousie University (Davis) Project 2533

Purpose of programme: Tracking Stationary Buoys

Numbers and types of platforms: (a) deployed current year: 1

(b) planned next year: 1

Estimated number of PTT-years: (a) current year: 0.1

(b) next year: .15

AF. Agency or programme: University of Alberta(Derocher and Mark Edwards)) Project 2846

Purpose of programme: Tracking Polar and Grizzly Bears in Northern Canada

Numbers and types of platforms: (a) deployed current year: 2

(b) planned next year:

Estimated number of PTT-years: (a) current year: 1.2

(b) next year: 15.6

AG. Agency or programme: Environment Canada(Holroyd) Project 2900

Purpose of programme: Tracking large falcons from Alberta

Numbers and types of platforms: (a) deployed current year: 0

(b) planned next year: 2

Estimated number of PTT-years: (a) current year: 0

(b) next year: .5

AH. Agency or programme: University of Alberta(Derocher and Mark Edwards)) Project 2846

Purpose of programme: Tracking Polar and Grizzly Bears in Northern Canada

Numbers and types of platforms: (a) deployed current year: 2

(b) planned next year:

Estimated number of PTT-years: (a) current year: 1.2

(b) next year: 15.6

AI. Agency or programme: Bird Studies Canada(Laing) Project 2670

Purpose of programme: Tracking bald eagles in Southern Ontario

Numbers and types of platforms: (a) deployed current year: 3

(b) planned next year: 4

Estimated number of PTT-years: (a) current year: .25

(b) next year: .32

AJ. Agency or programme: Environment Canada(Dickson) Project 1706, 9706

Purpose of programme: Movement of sea ducks in Northern Canada

Numbers and types of platforms: (a) deployed current year:

(b) planned next year:

Estimated number of PTT-years: (a) current year: 3.0

(b) next year: 1.7

AK. Agency or programme: Renewable Resources, Northwest Territories(Lartner) Project 2814

Purpose of programme: Movement of Trout Lake Caribou

Numbers and types of platforms: (a) deployed current year:

(b) planned next year:

Estimated number of PTT-years: (a) current year: 1.4

(b) next year: 2.7

Country: P. R. China

Year: 2004

A. Agency or programme: Chinese Academy of Sciences

Purpose of programme: Study on Circulation in the Yellow Sea (Program No. 2720)

Numbers and types of platforms: (a) deployed current year: -
(b) planned next year: -

Estimated number of PTT-years: (a) current year: 2
(b) next year: -

B. Agency or programme: Institute of Ocean Technology State Oceanic Administration

Purpose of programme: Marine Environment Observation (Program No. 2466)

Numbers and types of platforms: (a) deployed current year: 2
(b) planned next year: 2

Estimated number of PTT-years: (a) current year: 0.5
(b) next year: 0.5

C. Agency or programme: The Second Institute of Oceanography, SOA

Purpose of programme: China's ARGO Project (Program No. 2528)

Numbers and types of platforms: (a) deployed current year: 19
(b) planned next year: 27

Estimated number of PTT-years: (a) current year: 3.25
(b) next year: 2.5

D. Agency or programme: Institute of Ocean Technology, State Oceanic Administration

Purpose of programme: Polar Observation (Program No. 2607)

Numbers and types of platforms: (a) deployed current year: 1
(b) planned next year: -

Estimated number of PTT-years: (a) current year: 0.5
(b) next year: -

Country: Finland

Year: 2004/2005

A. Agency : FINNISH INSTITUTE OF MARINE RESEARCH

Purpose of programme: Air sea interaction (Program 815)

Numbers and types of platforms: (a) deployed current year: -, drifting-buoy
(b) planned next year: 3 , drifting-buoy

Estimated number of PTT-years: (a) current year: -
(b) next year: 0,5

Purpose of programme: Wave studies (Program 1626)

Numbers and types of platforms: (a) deployed current year: 2, moored buoy
(b) planned next year: 2, moored buoy

Estimated number of PTT-years: (a) current year: 0,7
(b) next year: 0,8

B. Agency: FINNISH MUSEUM OF NATURAL HISTORY

Purpose of programme: Migration of Finnish ospreys (Program 2419)

Numbers and types of platforms: (a) deployed current year: 3, animal tracker
(b) planned next year: 1, animal tracker

Estimated number of PTT - years: (a) current year: 0,3
(b) next year: 0,01

C. Agency: FRIENDS OF THE LESSER WHITE-FRONTED GOOSE

Purpose of programme: Anser erythropus Finland (Program 2733)

Numbers and types of platforms: (a) deployed current year: 3, animal tracker
(b) planned next year: 1, animal tracker

Estimated number of PTT - years: (a) current year: 0,1
(b) next year: 0,01

Country: France

Year: 2004

A. Météo-France

Estimated PTT-years in 2005 : **27**

Purpose of programme :

Météo-France has been operating drifting and moored buoys for many years as for operational aims as in the frame of oceanographic campaigns. Observations are collected and sent in real time on the GTS (Global Telecommunication System of WMO).

Number and type of platforms :

(a) operating current year (2004) :

<i>Prog.</i>	<i>PTT-years</i>	<i>Type of platform</i>
0044	1.5	Drifting buoys (research)
0435	2.5	Shipborne AWS (operational)
9435	27.0	SVP-Baro drifters (research and operational)
0115	4.0	Moored buoys (operational)
1450	2.8	Waverider buoys in French West Indies (operational)

(b) planned next year (2005) :

<i>Prog.</i>	<i>PTT-years</i>	<i>Type of platform</i>
0044	1.0	Drifting buoys (research)
0435	3.0	Shipborne AWS (operational)
9435	16.0	SVP-Baro drifters (research and operational)
0115	5.0	Moored buoys (operational)
1450	2.0	Waverider buoys in French West Indies (operational)

Estimated number of PTT-years :

(a) 2004: 38 for 27 contracted

(b) 2005: 27

B. IFREMER

Estimation globale brute:
Financement Contrat Global IFREMER proposé pour 2005 :

29.5 PTT.an
10 PTT.an

Programme	Numéro	PTT.AN
Pomme	2273	1
Nivmer/Rosame	1009	2.5
Provor	1903	0.5
Coriolis	2412	15
Surci	2812	9
Dorade	2476	1.5
<i>Total</i>		29.5

Program 1616: SURCI (*correspondant : F.Dumas*)

Estimation: 9 PTT-an (localisation, collecte de données)

The SURCI program was launched on 2004. The main goals of this project is the study of the surface (0-200m) circulation of the ocean along the French coasts (mostly along mediterranean sea and bay of Biscay sides). The knowledge of this particular aspect of the circulation is crucial with respect to various questions among which : the dispersion of accidental pollution (due to his buoyancy oil spills are driven to the sea surface) , the understanding of ecosytem (0-200m corresponds to the euphotic layer)

This program follows a 6 years collaboration with the French Hydrographic Service which droves the MODYCOT surveys on the Bay of Biscay from 1997 up to 2002 during when about 50 surface drifters were launched. This drifters were dropped at 3 different locations and at four periods of the year (which are mid-seasons). The data collected represent 1500 cumulated days of measurements all along the year. In spite of this quite large amount, it is still not enough to capture the seasonal variability of the circulation nor the inter-annual one. Moreover some area of the bay of Biscay are poorly sampled. This is why SURCI was launched to resume the collection of that kind of data in order to enhance our knowledge both in time and space. Besides this, we extend the area of interest to the Mediterranean sea where no data were collected.

The program is planned for the next 4 years and correspond to the launch of 30 drifters/year on both sides. The drifters are of the type SC 40 G3 : this ARGOS platform is designed by Serpelesm.

Programme 2273: POMME (*correspondant : B. Le Cann*)

Estimation: 1 PTT-an (localisation service plus, collecte de données, multi-satellites, datation précise)

POMME ("Programme Ocean Multidisciplinaire Meso-Echelle") is a research project aimed at understanding the subduction mechanisms of 11-12C mode water in the northeast Atlantic, how this affects the biological production and the carbon budget of the northeast Atlantic, and at describing the fate of organic matter after subduction. The coupling of mesoscale dynamical and biological processes is one of the major objectives of the project. The POMME project is supported by the national PATOM and PROOF programmes. The research area is located in the intergyre region of the North East Atlantic (38-45N; 010-025W), but is now extended to a larger area (20-50N; 005-045W) as floats drift from their launch positions. In late 2000 and early 2001, 5 4-beacon Marvor floats were deployed, for an expected 5-year duration. 2 Marvors are still operating, and we intend to deploy 3 additional ones in 2005.

Program 1009: NIVMER/ROSAME (correspondants: *Laurent Testut, Philippe Techine*)

Estimation: 2.5 PTT-an (collecte de données)

Le réseau ROSAME (Réseau d'Observation Sub-Antarctique et Antarctique du niveau de la Mer) répond à la demande d'observation des variations du niveau de la mer pour différents programmes scientifiques dont CLIVAR, les missions spatiales T/P, ERS, JASON et ENVISAT, et pour le suivi à long terme de l'évolution du niveau de la mer (GLOSS). Les paramètres mesurés sur chaque site instrumenté sont: le niveau de la mer, la pression atmosphérique, la température de l'eau de mer, la position absolue d'une référence fixée à la station, par rapport au centre de masse de la terre. Le réseau ROSAME comprend quatre sites: Kerguelen, Amsterdam-StPaul, Crozet et Dumont d'Urville. Chaque site est équipé d'une station côtière. Les stations sub-antarctiques Crozet et Amsterdam-St Paul sont doublées de stations mouillées au large sur le rebord du plateau, afin de permettre de relier la mesure absolue faite à la station côtière au signal océanographique du large. Chaque station côtière comprend un puits de tranquillisation protégeant un capteur de pression immergé, et une centrale d'acquisition des mesures du capteur de pression, de la température de l'eau et de la pression atmosphérique. Cette centrale transmet les données via ARGOS. Les mesures de localisation absolues sont réalisées par GPS. Transmission des données en mode quasi réel (sous délai de 15 jours) au Sea Level Fast delivery Center de Hawaï, et dans la banque historique GLOSS de Bidston (UK). Les données sont accessibles via Internet.

Programme 1903: PROVOR (correspondant: *Gérard LOAEC*)

Estimation: 0.5 PTT-an (localisation service plus, collecte de données, 3 satellites)

PROVOR désigne un profileur hydrographique dérivant, dérivé de la technologie mise au point lors du développement du flotteur dérivant de subsurface MARVOR. Cet équipement permet de réaliser automatiquement des profils (C)TD (Conductivité, Température, Immersion) qui sont, après pré-traitement et validation, introduits dans des modèles, dans le cadre d'actions scientifiques ou opérationnelles contribuant à la connaissance de la circulation océanique et de l'évolution du climat. PROVOR est un profileur multicycle (100 à 150 cycles), cyclant typiquement tous les 10 jours entre 0 et 2000m, avec un temps de séjour en surface, donc de transmission ARGOS, de l'ordre de 12 h maximum, en fonctionnement multi-balises éventuellement.

Programme 2412: CORIOLIS (correspondants: *Loic Gourmelen*)

Estimation: 15 PTT-an (localisation plus, collecte de données, 3 satellites, distribution par ADS)

Le projet d'océanographie opérationnelle CORIOLIS correspond à la contribution française à ARGO. Les flotteurs du programme GYROSCOPE, financé par la communauté européenne, sont pris en compte par CORIOLIS.

Programme n° 2476 : DORADE (correspondant: *Marc Taquet*)

Estimation : 1.5 PTT.an

Bouées dérivantes ARGOS 40 G (Serpe-lesm) : 0.5 PPT an

Balises suivi d'animaux (Serpe-lesm) : 1 PPT an

(localisation service plus, collecte de données, multi-satellites, service ADS)

The DORADE program (Dynamique et Organisation des Ressources Agrégées autour des Dispositifs Epipelagiques) aims to study the aggregative behavior of epipelagic fish around floating objects. The biological model retain for this study is the common dolphinfish (*Coryphaena hippurus*). Fish aggregative Devices (FADs) are built and set drifting in the ocean with an Argos SC 40 G buoy in order to follow the FAD. Small Argos devices are also fixed on aggregated dolphinfish to follow their migration pattern at a regional scale.

C. CNES - Centre National d'Etudes Spatiales

Estimated PTT-years in 2004 : 9

- Program 351: measuring water depth in River Niger
data collection only transmitters, backup
- Program 1154: stratospheric balloons
location and data collection transmitters
- Program 159: Spectrophometers are installed onboard stratospheric balloons
- Program 1036 : Argos Topex Poseidon Calval
data collection only- fixed stations
- Program 1068 : Aeroclipper
- Program 891 : Pressurized Balloon
- Program 1945 : Data collection transmitters

D. IPEV - Institut Polaire Français Paul Emile Victor

Estimated PTT-years in 2004 : 3

- Program 203: meteorological measurements in the sub-Antarctic
location transmitters on ships Marion Dufresne, Astrolabe and La Curieuse.
2.5 PTT-years

E. INSU-CNRS

Estimated PTT-years in 2004 : 4.5 PTT-years

- Program 10952 Elephant seals (C. Guinet)

We will use southern elephant seals (*Mirouga leonina*) seals equipped with ARGOS CTD tags developed by the Sea Mammal Research Unit as observational platforms to obtain temperature and conductivity (salinity) profiles with their associated location from the Southern Ocean, Antarctic sea ice zone and major frontal zones).

Databases while simultaneously providing biologists with vital information about the oceanographic characteristics associated with successful foraging in these animals, this innovative method will provide an extremely cost-efficient enhancement to traditional ship-based oceanographic sampling and ARGOS CTD buoys. This new approach should provide oceanographers with high-accuracy vertical temperature/salinity profiles at high resolution from a region with otherwise sparse data sampling, especially during winter months. Data will be incorporated to the Coriolis in situ observation of the global Ocean.

- Program 2237 Boussole (David Antoine)

BOUSSOLE: (Bouées pour l'acquiSition de Série Optiques Long termE) buoys for long term optical serie acquisition.

Based on a subsurface mooring deployed in Mediterranean Sea. Argos is used to protect the mooring.

- Program: 1074 Medoc 92 (J-C Gascard)

40 subsurface VCM floats was deployed 10 2003 in the Nordic seas in order to better understand the circulation in the upper warm layer of North Atlantic water, and the exchanges with the Arctic. This is part of the European ASOF program. Part of the floats will surface and start transmitting their subsurface acoustic data, as well as temperature, immersion and relative vertical velocities measured during their subsurface drift.

- Program 1830 and 10830: CNRS - Centre National de Recherches Scientifiques

stratospheric monitoring

A network of 3 fixed SAOZ spectrometers is monitoring the stratospheric ozone layer (Siberia and Greenland). Argos is used for data collection only.

Balloon-borne version of SAOZ spectrometers are installed onboard stratospheric balloons:

- Program 263 : Program Flostral

Monitoring of ARGO floats in the South Pacific

- Program 1665: CARIOCAS floats

F. LMD: Laboratoire De Météorologie Dynamique

Estimated PTT-years in 2004 : 2

- Program 286: wave dynamics

G. IRD :

Estimated PTT-years in 2004 : 10

- Program 299

Rainfall measurements in French Guyana
10 rainfall gauges planned, back-up mode.
Estimated PTT-years: 1

- Program 936

Hydrometric measurements in French Guyana
Data collection only transmitters
12 limnigraphs, back-up mode will be upgraded to data collection.
Estimated PTT-years: 2

- Program 687 : XBT. SOOP program

12 XBT acquisition systems on board a ships of opportunity network (global)
Data collection and GTS transmission.
20 Platforms declared.
This program is dependant on NOAA's probes allocation
Estimated PTT-years: 2

- Program 448 : Matem sis Vanuatu

volcanoes activity monitoring
Data-collection-only, back-up , 4 platforms declared
Estimated PTT-year: 1

- Program 570 : US OBHI

Hydrology monitoring in Western Africa (HYCOS AOC)
Unknown number of platforms. Data collection only.
Estimated PTT-years: 1.5

- Program 2381 : Acousthon (finished)

Tuna biomass estimation through acoustic detection
Data collection. 1 platform
Estimated PTT-year: 0

- Program 2577 : Phoques ARGOS

seals in Iroise sea
Data collection. 8 platforms in 2002. 2 platforms in 2003. Programme 2004 not yet funded.
Estimated PTT-year: 1

- Program 4300 : ODYSSEE (ending in 2003)

Pacific transect (sailboard)
Data collection. 1 platforms
Estimated PTT-year: 0

New Programs :

1 meteorological station in Sao Tome
Data collection. 1 platform planned
Estimated PTT-year: 0.5

Birds and Tuna schools tracking in the Indian Ocean
Tuna : estimation 4platforms
Birds : estimation 9 platforms
Estimated PTT-year: 0.5

Argo floats in the Indian Ocean (VASCO-CIRENE)
Estimation of platforms : 10 floats deployed in 2004 ?
Estimated PTT-year: 0.5

H. SHOM

Estimated PTT-years in 2004 : 15

- Program 720 : 4 air deployable CMOD drifting buoys

Estimated PTT-years: 0.5 PTT-year

- Programs 9170, 30170 : Location and data collection for Lagrangian multicyle type MARVOR floats.

7 floats for POMME and ARCANE experiments
Estimated PTT-years: 1 PTT-year

- Program 1171: MODYCOT and BAB experiments

45 Drifting buoys
Estimated PTT-years: 13 PTTs-year

- Program 31170: POMME experiment in Atlantic

Location and data collection of 5 PROVOR
Estimated PTT-years: 0.5 PTT-year

TOTAL ESTIMATED PTT-YEARS FOR FRANCE IN 2004 = 80.5 PTTs-year

Country: The Netherlands

Year: 2004

A. Agency or programme: Royal Netherlands Meteorological Institute (KNMI)

Purpose of programme: Drifting Buoy Programme, contribution to EGOS (0436)

Numbers and types of platforms: (a) deployed current year: 2 SVP-B drifters
(b) planned next year: 3 SVP-B drifters

Estimated number of PTT-years: (a) current year: 2.6
(b) next year: 2.6 (contribution to E-SURFMAR)

B. Agency or programme: Institute for Marine and Atmospheric Research (IMAU)

Purpose of programme: Land ice change and sea level change monitoring (1238)

As a contribution to the European Project on Ice Coring in Antarctica (EPICA) IMAU has installed at one time a maximum of eight Automatic Weather Stations (AWS) in Dronning Maud Land, Antarctica. Four are currently operational. These AWSs were installed on a transect ranging from the coast to the plateau Amundsenisen, along the Swedish research stations Wasa and Svea. An additional three station were installed on Greenland in August. The goal of this project is to extend the knowledge of the climatological conditions of this particular part of Antarctica and to obtain a better understanding of the surface energy and mass balance of the Antarctic ice sheet. Therefore surface and subsurface (bore holes up to 100 meters) temperatures, relative humidity, wind speed and direction, snow height, air pressure, short and long wave incoming and outgoing radiation is measured. Together with GPS positioning the data are transmitted as two hour averaged values through the ARGOS system. See for more information

http://www.phys.uu.nl/~wwwimau/research/ice_climate/aws/aws_antarctica.html

Numbers and types of platforms: (a) deployed current year: --
(b) planned next year: 4 Telonics PTTs

Estimated number of PTT-years: (a) current year: 2.6
(b) next year: 2.6

C. Agency or programme ALTERRA, Dept. of Aquatic Ecology

Purpose of programme: Seals feeding I (1877)

The harbour seal population in the Dutch Wadden Sea has increased exponentially over the past 10 years. Mainly because of the difficulty of obtaining information, very little is known about the diet of these animals, let alone the potential effect this population growth has on the (commercial) fish stocks. This project, which is commissioned by the Ministry of Agriculture, Nature Management and Fisheries of the Netherlands, is designed to obtain data on possible feeding locations of the seals and on the fish species present in these seas.

To achieve this, 8 harbour seals were equipped with satellite tags in 2004 to determine their location and data on diving. Concurrently, fish will be sampled in the areas

where seals are located and assumed to feed (based on the diving data). This will yield a first insight in possible dietary preference, and mostly in preferred feeding locations. In addition to this, several ways directed the diet of the seals will be explored.

Number and types of platforms: (a) deployed current year: 10 Telonics ST-16 PTTs
(b) planned next year: 10 Telonics ST-16 PTTs

Estimated number of PTT-years: (a) current year: 0.5
(b) next year: 0.8

D Agency or programme: Royal Netherlands Academy of Arts and Science (NIOO),
Netherlands Institute of Ecology

Purpose of programme: Fluxes of Carbon and Nitrogen in Antarctic Terrestrial
Ecosystems FATE (2768)

Study of the relative importance of the various sources of carbon and nitrogen, the extent of the decomposition process, the rate of transport of matter into and through the terrestrial ecosystem and the water use efficiency. Argos will be used to transmit status information of the equipment.

Numbers and types of platforms: (a) deployed current year: 1 SEIMAC tx
(b) planned next year: 1 SEIMAC tx

Estimated number of PTT-years: (a) current year: 0.8
(b) next year: 0.0

E Agency or programme: Royal Netherlands Meteorological Institute, Scientific
Department

Dutch Argo (2936)

Purpose of programme: Contribution to the ARGO programme.

Numbers and types of platforms: (a) deployed current year: 3 SEIMAC tx
(b) planned next year: 3 SEIMAC tx

Estimated number of PTT-years: (a) current year: 0.05
(b) next year: 0.08

Special comments (if any):

Country: New Zealand

Year: 2004

A. Agency : Meteorological Service of New Zealand Ltd (MSNZ)

Purpose of programme: **Real-time Drifting Buoy data for weather forecasting**

Number and types of platforms: (a) deployed current year: 4 drifters
(b) planned next year: 5 drifters

Estimated number of PTT-years (a) current year: 7.5 PTT years
(b) next year: 7 PTT years

B. Agency : Department of Conservation

Purpose of programme: **New Zealand Sea Lion tracking**

Number and types of platforms: (a) deployed current year: 10 animal PTTs
(b) planned next year: 16 animal PTTs

Estimated number of PTT-years (a) current year: 1.0 PTT years
(b) next year: 1.0 PTT years

C. Agency: Department of Conservation

Purpose of programme: **Albatross Tracking**

Number and types of platforms: (a) deployed current year: 3 bird PTTs
(b) planned next year: Nil

Estimated number of PTT years- (a) current year: 0.85 PTT years
(b) next year: 0.1 PTT years

D. Agency: NIWA Christchurch

Purpose of programme: **Foraging habits of Buller's Mollymawks**

Number and types of platforms: (a) deployed current year: 16 bird PTTs
(b) planned next year: 12 bird PTTs

Estimated number of PTT-years (a) current year: 0.2 PTT years
(b) next year: 1.0 PTT years

E. Agency: NIWA Christchurch

Purpose of programme: **Eel Tracking with pop-up tags**

Number and types of platforms: (a) deployed current year: Nil
(b) planned next year: ? tags

Estimated number of PTT-years (a) current year: Nil PTT years
(b) next year: ? PTT years

F. Agency: Massey University

Purpose of programme: **NZ Falcon Tracking Programme**

Number and types of platforms: (a) deployed current year: 1 bird PTT
(b) planned next year: 2 bird PTTs

Estimated number of PTT-years (a) current year: 0.3 PTT years
(b) next year: 0.6 PTT years

G. Agency: NIWA Wellington

Purpose of programme: **Ocean Fronts Drifter Buoys**

Number and types of platforms: (a) deployed current year: 3 buoys
(b) planned next year: ? buoys

Estimated number of PTT-years (a) current year: 0.1 PTT years
(b) next year: 0.1 PTT years

H. Agency: Kelly Tarlton's Underwater World

Purpose of programme: **Turtle Tracking**

Number and types of platforms: (a) deployed current year: 4 turtles
(b) planned next year: 1 turtle

Estimated number of PTT-years (a) current year: 0.66 PTT years
(b) next year: 0.16 PTT years

Country: Republic of KOREA

Year: 2004

A. Agency or programme: 2397(METRI/KMA)

Purpose of programme: To implement Argo project of METRI in KMA

Numbers and types of platforms

Number of Platform : (a) deployed current year: 30

(b) planned next year: 45

Type of Platform : Sub-surface drifting float

Number of Platform : (a) deployed current year: 3

(b) planned next year: 3

Type of Platform : Surface drifting float

Estimated number of PTT-years: (a) current year: 3.2

(b) next year: 3.3

B. Agency or programme: 2096(KORDI)

Purpose of programme: Argo-KORDI and East Sea Circulation

Numbers and types of platforms

Number of Platform : (a) deployed current year: 51

(b) planned next year: 66

Type of Platform : Sub-surface drifting float

Estimated number of PTT-years: (a) current year: 1.5

(b) next year: 3.0

C. Agency or programme: 1002(KORDI)

Purpose of programme: To measure coastal currents and circulation in the Yellow and East China Seas

Numbers and types of platforms

Number of Platform : (a) deployed current year: 8

(b) planned next year: 6

Type of Platform : Surface drifting buoy

Estimated number of PTT-years: (a) current year: 1.3

(b) next year: 1.0

D. Agency or programme: 2559(KORDI)

Purpose of programme: To measure winds and pressures in the south JEJU island

Numbers and types of platforms

Number of Platform : (a) deployed current year: 3

(b) planned next year: 4

Type of Platform : Surface drifting buoy

Estimated number of PTT-years: (a) current year: 0.75

(b) next year: 1.0

Special comments (if any):

Country: SOUTH AFRICA

Year: 2004

A. Agency or programme: South African Weather Service – Program 243

Purpose of programme: Deployment of drifters to provide real-time data for operational Weather Forecasting

Numbers and types of platforms: (a) deployed current year: A total of 52
38 SVPB and 14 SVP drifters
6 Indian Ocean, 47 South Atlantic

(b) planned next year: A total of 54
45 SVPB and 9 SVP drifters

Estimated number of PTT-years: (a) current year: 24.8

(b) next year: 24.8

B. Agency or programme: Scripps Institute Oceanography/Benefit Program - 2065

Purpose of the programme: Deployment of drifters in coastal water off Namibia and Angola. Research program, directed at the circulation of Surface water in the Benguela system and its relevance to fisheries

Numbers and types of platforms: (a) deployed current year: 9 SVP drifters

(b) planned next year: 6 SVP drifters

Estimated number of PTT years (a) current year: 1.0 years

(b) next year: 1.0 years

C. Agency or programme: Marine and Coastal Management - Program 1237

Purpose of the programme: Tracking seals, dolphins

Number and types of platforms: (a) deployed current year : 20 transmitters

(b) planned next year: 15 transmitters

Estimated number of PTT years (a) current year : 2 years

(b) next year: 2 years

D Agency or programme: Marine and Coastal Management - Program 1323

Purpose of the programme: Tracking seabirds

Number and types of platforms: (a) deployed current year: 6 transmitters

(b) planned next year: 8 transmitters

Estimated number of PTT years (a) current year : 0,5 years

(c) next year: 1,0 years

Special comments (if any):

Country: Sweden

Year: 2004-2005

A. Agency or programme: 1870 (Susanne Åkesson, Lund University)

Purpose of programme: Tracking migration of sea turtles

Numbers and types of platforms: (a) deployed current year: 3

(b) planned next year: 3

Estimated number of PTT-years: (a) current year: 0,15

(b) next year: about 0.4

B. Agency or programme: 2398 (Susanne Åkesson, Lund University)

Purpose of programme: Tracking migration of albatrosses

Numbers and types of platforms: (a) deployed current year: 2

(b) planned next year: 2

Estimated number of PTT-years: (a) current year: 0,1

(b) next year: about 0.3

C. Agency or programme: 1204 (Thomas Alerstam, Lund University)

Purpose of programme: Studies of bird migration and orientation

Numbers and types of platforms: (a) deployed current year: 8

(b) planned next year: 8

Estimated number of PTT-years: (a) current year: 1,5

(b) next year: about 1,5

Special comments (if any):

Country: United Kingdom

Year: 2004

<i>Organisation</i>	Purpose of programme	Platforms deployed in 2004	Platforms planned for 2005	Estimated PTT-yr usage for 2005
British Antarctic Survey	Seabird tracking	2 Microwave 30g	26 Microwave 30g	0.8
	Krill transport	10 drifters	0	
	Ice shelf studies	3 fixed stations	3 fixed stations	1.5
	Sea mammal and penguin tracking	35 Kiwisat/Telonics 3 SMRU	34 Kiwisat/Telonics 3 SMRU	4.8
Centre for Environment Fisheries and Aquaculture	Oceanographic research	6 drifters	6 drifters	3.0
Falklands Conservation	Penguin tracking	10 tags	10 tags	0.7
Met Office	Moored buoy network	9 + 2 shared with Météo France	8 + 2 shared with Météo France	10
	Drifting buoy network	23 SVP-B drifters 1 SVP-BW drifter	32 SVP-B/BW drifters	32
	Argo float programme	68 Argo floats	100 Argo floats	12
	AWS		1 Minos AWS	1
Natural Research	Golden eagle tracking	4	6	1.5
Plymouth Marine Laboratory	Tracer patch monitoring	1 GPS/Argos drifter	1 GPS/Argos drifter	0.1
Royal Society for the Protection of Birds	Bird tracking	3 tags	10 tags	3
Scottish Association for Marine Science	Sea ice research	3 SVP-Bs (no drogues)	3 SVP-Bs (no drogues)	3
	Mooring monitoring	1	1	0.1
Sea Mammal Research Unit	Sea mammal tracking	~100 tags	~60 tags	12
University of Exeter	Turtle tracking	4 Sirtrack 8 Telonics 2 SMRU	7 Sirtrack 2 Telonics 1 SMRU	1.7
University of Southampton	Oceanographic research	1 waverider 1 drifting sediment trap 2 floats 1 AUV	1 float	1.5
University of Wales	Turtle tracking	5 SMRU tags	10 SMRU tags	0.7
University of York	Whale shark tracking	2		
Wildfowl and Wetlands Trust	Lesser flamingo tracking, East Africa	4	3	0.7

Publications

Hays, G C, Houghton, J D R and Myers, A E, 2004. Pan-Atlantic leatherback turtle movements. Nature, 429, p 522.

Young, E F, Brown, J, Aldridge, J N, Horsburgh, K J and Fernand, L, in press. Development and application of a three-dimensional baroclinic model to the study of the seasonal circulation in the Celtic Sea. Continental Shelf Research.

Country: United States of America

Year: CY 2005

The projection for JTA use in CY 2004 (with 9 months of actual use) is 1720 Ptt/yr, an increase of 14% over CY 2003. The service category breakdown for this estimate is as follows:

CY 2004 Total Projected Use 1720Ptt/yr

- Standard Location 1315 Ptt/yr (76% of total)
- Standard Collection 67 Ptt/yr (4%)
- Limited Use 304 Ptt/yr (18%)
- Inactive Status 0 Ptt/yr (0%)
- Backup Location 24 Ptt/yr (1%)
- Backup Collection 10 Ptt/yr (1%)

CY 2005 Total Projected Use 1900 Ptt/yr

The projection for CY 2005 represents an increase of 10% over CY 2004. The United States plans to deploy over 5,500 platforms carrying Argos transmitters in nearly every ocean and other remote area of the world for over 500 meteorological, oceanographic, biological, and other scientific programs. The platforms include about 2,860 drifting buoys, 900 profiling floats, 300 moored buoys, 720 marine animals, 520 birds, 200 terrestrial animals, 20 land stations, and 10 balloons. The following is a list of agencies/organizations using the Argos System with a description of the purpose and the estimated Ptt/years, number of platforms, and type of platforms for CY 2005:

A. National Oceanic and Atmospheric Administration

1. Oceanic and Atmospheric Research -- Meteorological and oceanographic observations for monitoring and prediction of climate change. Study biological and physical oceanographic processes.

1077 Ptt/yr -- 2050 Platforms: 900 profiling float, 1000 drifting buoys, 120 moored buoys, 30 marine biology

2. National Weather Service -- Operational meteorological and oceanographic data.

43 Ptt/yr -- 108 Platforms: 92 moored buoys, 16 drifting buoys

3. National Marine Fisheries Service -- Determine the distribution, migration, and behavior of marine animals and study marine ecological systems.

70 Ptt/yr -- 275 Platforms: 250 marine biology, 20 moored buoys, 5 drifting buoys

4. National Environmental Satellite and Data Information Service -- Meteorological and oceanographic observations for Arctic analysis and forecasting.

12 Ptt/yr -- 17 Platforms: 17 drifting buoys

5. National Ocean Service -- Study ecological systems and oil spill response.

40 Ptt/yr -- 45 Platforms: 35 drifting buoys, 10 moored buoys

B. National Aeronautics and Space Administration -- Study ocean currents and birds.

6 Ptt/yr -- 20 Platforms: 10 balloons, 10 birds

C. Department of Transportation - U.S. Coast Guard -- To collect current and sea surface temperature data for iceberg movement and deterioration and search & rescue operations. To detect oil pollution from shipping.

30 Ptt/yr -- 900 Platforms: 900 drifting buoys

D. National Science Foundation --

Biological Oceanography Program -- Study marine ecological systems.

Physical Oceanography Program -- Provide meteorological and oceanographic observations for physical oceanographic and circulation studies.

Polar Programs -- Circulation, physical oceanography, meteorology, ecology, and ice studies.

60 Ptt/yr -- 900 Platforms: 500 drifting buoys, 300 profiling floats, 50 marine biology, 40 birds, 10 land stations

E. Department of Agriculture -- Study the daily activity and movements of American wildlife, e.g., reindeer, lynx, pelicans, goshawks, vultures, cormorants, etc.

15 Ptt/yr -- 55 Platforms: 40 birds, 15 terrestrial biology

F. Department of Energy - EML, Sandia/NMSU/SWTDI, LANL -- Air filter samples and monitoring airborne radon, cosmic rays, nuclear radiation, and meteorological conditions.

2 Ptt/yr -- 10 Platforms: 10 moored buoys

G. Department of Interior

1. USGS - Biological Resources Division - Monitor the movement and activities of various species of birds, terrestrial animals, and marine animals and the associated environmental variables that influence these patterns.

60 Ptt/yr -- 270 Platforms: 200 birds, 50 terrestrial biology, 20 marine biology

2. Fish and Wildlife Service -- Determine raptor and crane movements and habitat and marine and terrestrial animal tracking.

20 Ptt/yr -- 60 Platforms: 25 terrestrial biology, 20 birds, 15 marine biology

3. National Park Service -- Study the migration of marine and terrestrial biology

10 Ptt/yr -- 30 Platforms: 10 birds, 10 marine biology, 10 terrestrial biology

H. Department of Defense

1. Naval Oceanographic Office -- Collection of real-time meteorological and oceanographic data for operational analysis and forecasting.

145 Ptt/yr -- 250 Platforms: 250 drifting buoys

2. Office of Naval Research -- Measurements and studies of surface and subsurface oceanographic parameters and marine animal migrations.

40 Ptt/yr -- 100 Platforms: 45 drifting buoys, 5 moored buoys, 50 marine biology.

3. Other -- Measurements and studies of surface and subsurface oceanographic parameters and animal tracking.

5 Ptt/yr -- 10 Platforms: 4 drifting buoys, 2 birds, 2 marine biology, 2 terrestrial biology

I. Non - U.S. Government (state and local governments, universities, laboratories, institutions, and non-profit organizations) -- Monitor the movement and activities of various species of birds, terrestrial animals, and marine animals and the associated environmental variables that influence these patterns, oceanographic studies, and weather and climate observations.

260 Ptt/yr -- 750 Platforms: 90 drifting buoys, 50 moored buoys, 10 land stations, 300 marine biology, 200 birds, 100 terrestrial biology

ANNEX XI

LIST OF ACRONYMS AND OTHER ABBREVIATIONS

ABE-LOS	The IOC Advisory Board of Experts on the Law of the Sea (IOC)
ADEOS	Advanced Earth Observing Satellite (Japan)
AIS	Argo Information Centre
AOML	Atlantic Oceanographic and Meteorological Laboratory (NOAA)
ARGO	Array for Real-time Geostrophic Oceanography programme
ASAP	Automated Shipboard Aerological Programme
BATHY	Bathythermograph report
BOM	Bureau of Meteorology (Australia)
BUFR	Binary Universal Form for Representation of Meteorological Data
	BUOY Report for Buoy Observations
CBS	Commission for Basic Systems (WMO)
CHMI	Czech Hydrometeorological Institute
CIMO	Commission for instruments and Methods of Observation (WMO)
CLIVAR	Climate Variability and Predictability (WCRP)
CLS	Collecte Localisation Satellites
CNES	Centre National d'études spatiales (France)
COP	Conference of the Parties to the Framework Convention on Climate Change
DART	Deep-ocean Assessment and Reporting of Tsunamis
DBCP	Data Buoy Cooperation Panel (WMO-IOC)
DWD	Deutscher Wetterdienst
ECMWF	European Centre for Medium-Range Weather Forecasting
EGOS	European Group on Ocean Stations
ET	Expert Team
ET-ODRRGOS	CBS Expert Team on Observational Data Requirements and Redesign of the Global Observing System
FAO	Food and Agriculture Organization of the United Nations
FRGPC	French Argos Global Processing Centre
GAC	Global Area Coverage
GCOS	Global Climate Observing System
GDP	Global Drifter Programme
GEO	<i>ad hoc</i> Group on Earth Observation
GEOSS	Global Earth Observation System of Systems
GIS	Geographic Information System
GLOSS	Global Sea-Level Observing System
GMA	Global Marine Assessment
GODAE	Global Ocean Data Assimilation Experiment
GOOS	Global Ocean Observing System
GTS	Global Telecommunication System (WMO)
HRPT	High Resolution Picture Transmission
IABP	International Arctic Buoy Programme
IBPIO	International Buoy Programme for the Indian Ocean
ICES	International Council for the Exploration of the Sea
IFREMER	Institut Francais de Recherche pour l'exploitation de la Mer
IGOOS	Intergovernmental Committee for GOOS
IHO	International Hydrographic Organization
IMO	International Maritime Organization
IMO	Iceland Meteorological Office
INMET	Brazilian National Institute of Meteorology
INPE	Instituto Nacional de Pesquisas Espaciais (Brazil)
IOC	Intergovernmental Oceanographic Commission (of UNESCO)
IODE	International Oceanographic Data and Information Exchange (IOC)
IRD	Institut francais de recherche scientifique pour le développement en coopération (ex ORSTOM)
ISABP	International South Atlantic Buoy Programme
JCL	Joint Circular Letter
JCOMM	Joint WMO/IOC Technical Commission for Oceanography and Marine Meteorology
JCOMMOPS	JCOMM Observing Platform Support Centre
JMA	Japan Meteorological Agency

JOMDB	JCOMM in situ ODAS Metadata Database
JTA	Argos Joint Tariff Agreement
LAC	Local Area Coverage
KNMI	Royal Netherlands Meteorological Institute
MEDS	Marine Environmental Data Service (Canada)
MSC	Meteorological Service of Canada
MSNZ	Meteorological Service of New Zealand
NCEP	US National Centers for Environmental Prediction
NDBC	National Data Buoy Center
NESDIS	NOAA Satellites and Information Service
NOAA	National Oceanographic and Atmospheric Administration (USA)
NPDBAP	North Pacific Data Buoy Advisory Panel
NPOESS	National Polar Orbiting Environmental Satellite (USA)
NWP	Numerical Weather Prediction
NWS	National Weather Service (NOAA)
OCG	JCOMM Observations Programme Area Coordination Group
ODAS	Ocean Data Acquisition Systems
ONR	Office of Naval Research (USA)
OOPC	Ocean Observation Panel for Climate (of GOOS, GCOS, WCRP)
OOSDP	Ocean Observing System Development Panel
OPSCOM	U.S. Argos Operations Committee
PIRATA	Pilot Research Moored Array in the Tropical Atlantic
PMEL	Pacific Marine Environmental Laboratory (USA)
PMO	Port Meteorological Officer
PMOCs	Principal Meteorological or Oceanographic Centres
PMT	Platform Messaging Transceiver
POES	Polar-orbiting Operational Environmental Satellite
QC	Quality Control
RMS	Root Mean Square
RNODC	Responsible National Oceanographic Data Centre
SAWS	South African Weather Service
SBSTA	Subsidiary Body for Scientific and Technological Advice (of the COP)
SCOR	Scientific Committee on Oceanic Research
SOBP	Southern Ocean Buoy Programme
SOC	Specialized Oceanographic Centre
SOOP	Ship-of-Opportunity Programme
SOOPIP	JCOMM Ship-of-Opportunity Programme Implementation Panel
SOT	Ship Observations Team (JCOMM)
SST	Sea Surface Temperature
STIP	Stored TIROS Information Processor
SUA	Argos System Use Agreement
SVP	Surface Velocity Programme Drifter
SVPB	Surface Velocity Programme Barometer Drifter
TAO	Tropical Atmosphere Ocean Array
TIP	TAO Implementation Panel
UKMO	United Kingdom Meteorological Office
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNFCCC	United Nations Framework Convention on Climate Change
URL	Universal Resource Locator
USGPC	US Argos Global Processing Center
VOS	Voluntary Observing Ship
VSOP-NA	VOS Special Observing Project-North Atlantic
WIOMAP	Western Indian Ocean Marine Applications Project
WMO	World Meteorological Organization
WOCE	World Ocean Circulation Experiment (WCRP)
XBT	Expendable Bathythermograph