WORLD METEOROLOGICAL ORGANIZATION

INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION (OF UNESCO)

ARGOS JOINT TARIFF AGREEMENT

TWENTY-FIFTH MEETING

Buenos Aires, Argentina, 24-26 October 2005

FINAL REPORT

N O T E

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C O N T E N T S

GENERAL SUMMARY OF THE WORK OF THE SESSION

1. ORGANIZATION OF THE MEETING

1.1. OPENING OF THE MEETING

1.1.1 The twenty-fifth meeting on the Argos Joint Tariff Agreement was opened at 0900 on Monday, 25 October 2005, in the conference room of the Regente Palace Hotel in Buenos Aires, Argentina, by its Chair, Mr Yves Tréglos. Mr Tréglos welcomed participants to the meeting, and expressed his thanks to the Servicio Meteorológico Nacional (SMN) and Servicio de Hidrografía Naval (SHN) for providing thoughtful preparations and for agreeable surroundings.

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,* after adding to the provisional agenda a new item 8 “Future of the Argos Joint Tariff Agreement”.

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 Joint Secretariat.

2. REPORT OF THE CHAIR OF THE JTA

2.1 The chairman reminded the JTA participants that, at the previous Argos JTA Meeting (Chennai, October 2004), the outgoing chairman, Mr. D. Painting, had agreed to continue duties as interim chair until the newly elected chairman was able to take up the position, at the 25th Meeting. The chairman’s report, therefore, concerned the main activities of the interim chairman since JTA-XXV.

2.2 At the 39th Argos Operations Committee Meeting (Collioure, France, 23-25 June 2005) the chair reported on the results of the 24th Meeting on the JTA and especially the agreement on a new Tariff structure. A very detailed presentation of the scheme was made by Mr. W. Woodward, Service Argos Inc., and Mr. C. Vassal, CEO, CLS/Service Argos, gave an in-depth description of the method used to asses the cost of providing the services enjoyed by JTA participants. The presentations were well received by the Operations Committee (OPSCOM) and no comments of substance were made.

2.3 Once again the blind orbit problem was raised at the OPSCOM. The chair was pleased to report that the NOAA’s Office of Satellite Data Processing was co-coordinating action to download blind orbit data at the Svalbard ground station with a target date for operational implementation in Autumn 2005 (see agenda item 5).

2.4 The chair‘s attention was drawn to a possible problem in the Final Report of the 24th Meeting on the JTA. This concerned the precise wording of paragraph 6.6 that described the new

tariff cost formula. The draft report, as agreed at the last session, indicated that time slots applied to all platforms. For the pilot scheme, they appeared to be restricted to animals and floats, according to the circulated final report. In his report, the interim chairman suggested that the 25th Meeting "*might wish to revisit this matter as it is of some importance to the operation of the new scheme and, in any case, changes of matters of substance in a draft report are most irregular*".

2.5 On this topic, the chairman expressed a similar standpoint. He considered that this problem should be treated two-fold: (i) with regard to substance, i.e. "*how do the time slots apply to various platforms*?" This would be done under agenda item 6; and (ii) with regard to form, i.e. "*how changes can be introduced in the final report after the Meeting is over?*" Regarding this second item, the chairman explained that the final report was the responsibility of the Secretariat under the supervision of the Chair. Editorial changes were obviously unavoidable and left to the skills of the Secretariat. Changes of substance, on the other hand, had to be reviewed by the Chair before the Secretariat be entitled to publish the final version of the report. The chairman therefore took on the responsibility for the change, expressed his regrets to it and ensured the Meeting that, as far as he might be concerned and able to, this would never happen again.

2.6 Another matter that had generated some discussion in the intersessional period concerned billing arrangements under the new Tariff Scheme and the role of ROCs. Participants in the 25th Meeting might wish to look closely at the role of the ROCs, possibly in order to agree Terms of Reference that take account of the new arrangements and particularly "billing on consumption". Action on this topic is reported under agenda items 7 and 8.

2.7 The Meeting received with appreciation the chair's report. It took this opportunity to thank the interim chairman to have agreed to undertake those tasks on behalf of the Meeting during the past year, and once more expressed its deep appreciation to Mr. Painting for his dedication to the work of the Meeting during the last few years. The Meeting then welcomed again Mr Tréglos commencing his duty as a JTA Chair.

3. REPORT ON THE 2005 GLOBAL AGREEMENT

3.1 The Meeting recalled the decisions made at its 24th Meeting, that some ROCs and Programmes joined a pilot programme for the New Tariff Scheme in order to gain experience in the application of the new principles agreed by the Meeting, whereas other ROCs remained on the 2005 Global Agreement which was similar to the previous agreements. Hence the report was made of two parts; on the former JTA agreement and on the Pilot Programme.

FORMER JTA AGREEMENT

3.2 Mr Christian Ortega of CLS/Service Argos reported on the status of the 2005 Global Agreement. He noted that only three countries - Canada, China and United Kingdom – had participated in the "former" Global Agreement, and a final total of 134.50 PTT (Platform Transmitter Terminal) years had eventually been signed for preferential tariff arrangements, made up as follows:

Countries	PTT-year
CANADA	80.00
CHINA	3.50
UNITED KINGDOM	51.00
TOTAL	**134.50**

3.3 Regarding the “bonus scheme” adopted at its seventeenth session (paragraph 5.5 of the final report), the Meeting noted that all Canada, China, and United Kingdom had full 82% bonus for year 2005. Comparing the situation in those countries between year 2004 and 2005, Mr Ortega indicated that the level of consumption above the contracted number was still high for Canada and UK.

PILOT PROGRAMME AGREEMENT

3.4 The Meeting recalled that, at the JTA-XXIV, a new tariff structure was adopted in principle, 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 (see item 6 and *Annex VII* of JTA-XXIV final report, as well as items 6 and 7 below). In order to gain experience in the application of the agreed new principles, all countries but Canada, China and United Kingdom agreed to join a pilot programme for the New Tariff Scheme practiced in 2005. A final total of 1319.1 PTT-years had eventually been agreed for preferential tariff arrangements, made up as follows:

Countries	PTT-year
AUSTRALIA	42.0
AUSTRIA	1.0
BRAZIL	5.0
DENMARK	9.2
FINLAND	1.3
FRANCE	80.5
GERMANY	53.0
INDIA	20.0
ITALY	13.0
KOREA, REPUBLIC OF	8.3
NETHERLANDS	6.0
NEW ZEALAND	9.3
NORWAY	16.0
SOUTH AFRICA	28.8
SPAIN	10.0

SWEDEN	2.2
UNITED ARAB EMIRATES	13.0
UNITED STATES	1000.0
OTHERS	0.5
TOTAL	**1319.1**

3.5 Mr Ortega noted that consumptions, both in term of active PTTs or PTT-years had been increasing all over year 2005, with almost even numbers for “Animals” and “Buoys and others”; smaller but increasing numbers for the float family.

3.6 The Meeting recalled that transmissions from inactive platforms were no long charged since 2004. Noting that the increasing trend of inactive platforms became steep in July and August, the Meeting considered new transmitters with solar panels might increase this trend in the future and impact substantially the burden on the satellite. It hence agreed to recommend to users and manufacturers to take this into account by programming their PTTs for the duration of the experiment.

3.7 The Meeting expressed concerns regarding the exact and clear definition on application of time slots, and serious increase of payment of users in some category, namely “Animals”. Those issues were thoroughly discussed under agenda item 6 below.

3.8 Detailed information on the 2004 Global Agreement and on the Pilot Programme Status are given in *Annex III* and *Annex IV*, respectively.

4. REPORT ON THE DEVELOPMENT OF CLS/SERVICE ARGOS

4.1 The reports on 2004-2005 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 V and VI*, respectively.

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 twenty-first session of the Panel, which had taken place in Buenos Aires from 17 to 21 October 2005. These included in particular the following specific recommendation to the JTA:

(i) *The Panel recalled that, under agenda item 2.2, the IBPIO reported it had experienced timeliness problems in drifting buoy data reception. The data from the La Reunion LUT were not received at CLS Argos during three months, which led to receiving less than 40% of the reports within 120 minutes of the observation time. The IPBIO therefore recommended that CLS/Service Argos: (1) carefully monitor data streams from its LUTs; and (2) improve the timeliness of data reception from the Indian Ocean to be comparable with the North Atlantic.*

(ii) *Under agenda item 8.6.2, the technical coordinator had demonstrated that installing LUTs on the island of Saint Helena, in the South Atlantic Ocean, and on Easter Island, in the South East Pacific Ocean, would result in improving significantly the near-real-*

time data coverage of the world ocean (up to 80% of the Argos data would be available in near real-time through the regional network, for a theoretical network of ocean stations split evenly over the oceans). The Panel recommended that CLS/Service Argos consider the feasibility of installing such LUTs with a view to possibly including this activity within their development projects.

(iii) *Under the same agenda item, the Panel had noted that, in the new JTA tariff policy, multi-satellite service was included within the standard service without any additional charge. However, when multi-satellite service was provided, Argos users were charged for the additional volume of information uploaded by them through the Service Argos so called Automatic Distribution System (ADS). This remained a deterrent for benefiting from the multi-satellite service (that allowed reducing the data transmission delays). The Panel therefore recommended to the Argos JTA to consider how ADS distribution of additional data sets should be charged, in order to find a solution that could be acceptable by the Argos users.*

(iv) *Under agenda item 10.3, the Panel had recommended to JTA-XXV to continue to fund the independent JTA Chair position through the JTA, using the DBCP trust funds as a relay mechanism. The estimated cost for the JTA would be USD 15,000.*

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

(i) *Timeliness reception of drifting buoy data in Indian Ocean*: The meeting noted that some relevant activities were already under way. It requested CLS, in coordination with the DBCP Technical Coordinator, to continue to identify the technical reasons of delays (e.g. large amount of data transmission at one time, including a quantity of more or less “delayed mode” data) and take necessary measures to solve this problem. It also requested CLS to monitor delays as a matter of routine.

(ii) *Installation of LUTs for the near-real-time data coverage of the world ocean*: Given the focus location (Easter Island and Saint Helena), the Meeting requested CLS to continue to investigate the feasibility to install LUTs. It stressed its particular interest in this action, considering ongoing deployment activities by USA and Chile in this area.

(iii) *Additional cost for multi-satellite service, regarding the Automatic Distribution System (ADS) distribution*: The meeting noted the importance of this request, particularly by the users in Polar region including the International Arctic Buoy Programme (IABP). It noted with appreciation the plan of CLS to offer an alternative tariff for ADS

(iv) *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-XXIV, the Meeting noted the following actions or considerations:

(i) *Continuous DCS mission on NOAA 12 and 14*: Further information on this issue is given in paragraph 5.4 below;

(ii) *Blind Orbit Support*: Further information on this issue is given in paragraph 5.4 below;

(iii) *Status of the proposal for connecting Argos to the Brazilian satellites*: The Meeting was informed that the process to store and to disseminate the acquired data was currently

performed through the Argos regional processing centre in Peru, in a similar fashion to CLS Argos. The Meeting however noted that this information was currently available for users in provider's country only, and therefore requested CLS to investigate possible improvements to make such data globally available. The Meeting further noted that this problem was in fact related to the global coverage of the equatorial/tropical area of the world and should be put in this wider context.

(iv) *Two Day accounting / Costs relating transmissions spanning UTC midnight*: This issue was clarified under agenda item 6.

(v) *The way the future Joint Tariff Agreement would allow dealing with multi-country programmes such as E-SURFMAR:* This issue had been solved at JTA-XXIV (see paragraph 6.9 in the final report of the Meeting) through the establishment of ROs, which were to be explicitly mentioned in the Terms and Conditions for 2006 (see Annex IX).

5.4 The Meeting recalled the presentation at DBCP-XXI by the NOAA Environmental Satellite and Information Service (NESDIS) representative, Mr. Darrell Robertson, on this topic. He noted that NOAA successfully launched NOAA-18 in May 2005, replacing NOAA-16 as the Operational afternoon satellite. NOAA currently maintained 6 POES satellites in various modes of operation and reported on the operational status of each satellite. He also reported on ongoing activity to address a DBCP request to investigate solutions; NOAA spent $100K to modify equipment at Svalbard to collect data from IJPS Satellites (NOAA-18, METOP and future spacecraft) by a separate antenna for normal recovery and blind orbit support, as agreed upon in the EUMETSAT/NOAA Memorandum of Understanding. NOAA had been currently testing the link from Svalbard to Suitland, Maryland. Testing of the internal communication lines and ingest by the NOAA Pre-Processor was under way. NOAA expected blind orbit support to be operational by March 2006. The Meeting was also informed that NOAA continued to operate NOAA-12 and NOAA-14, as stand-by missions, and would continue periodic evaluations of their performance and reliability to determine continued operation.

5.5 With regard to the electronic processing of the Argos System Use Agreement (SUA), the Meeting noted that the new web-based management tool was currently in operation with final acceptance testing being conducted. Upon successful acceptance testing, the system would be placed into operation in early 2006. The system was compatible with CLS web services, it enabled to streamline the SUA review process amongst the Argos Participating Agencies (NOAA and CNES, anticipating EUMETSAT from 2006 with the success of METOP) and to reduce the processing time from 14 to 7 days.

5.6 The Meeting noted with appreciation that significant progress had been made during the past with regard to the Users' Requirements, and decided that the list of JTA's achievements be included in the final report of next meeting.

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 2004 as well as of the amortization and promotion

and marketing items for the same year. These are given in *Annex VII,* and partly in *Annex IV* regarding the status of the Pilot Programme.

6.2 The Meeting acknowledged the information given, and noted the final 2004 figures of 5.343 M€ for personnel-related expenses, 5.105 M€ for other expenses, and 0.717 M€ for amortization, for a total of 11.166 M€. It further noted with appreciation the detailed breakdown of such costs for 2004, as well as the evolution of these figures over previous years, presented for comparison. Mr Vassal noted that the Five Year Plan (FYP) adopted by JTA-XIX had worked well, and provided adequate grounds to transfer into the new JTA.

6.3 With regard to the specific action items identified by previous meetings, the Meeting noted:

(i) *Unused ID Numbers and 28 bit IDs* (see summary report of JTA-XVIII, paragraph 6.2): The Meeting noted that 15,828 ID numbers out of 25 612 IDs (about 62%) were 28 bit, that the situation has improved from last year (about 50%). However, the Meeting considered that those unused IDs charges should be kept. It also recalled that the definition of 'Unused ID' had been clarified again in its 24th meeting through its final report and the 2005 global agreement, and decided to clearly state it in the new global agreement for 2006.

(ii) *Free Access to all Satellites*: The Meeting noted that the countries who joined in the pilot programme in 2005 enjoyed multi-satellite service for free. It noted with appreciation that all countries should get free access from 2006 onward, through the global agreement on the new tariff scheme.

(iii) *Incentive for frequency spreading*: CLS/Service Argos reported that it had been promoting activities to educate users and ask manufacturers to utilize voluntarily all available bandwidth. The reason for most users not to leave the Argos-1 bandwidth was that they could get more data from their platforms with less throughput time as two Argos-1 instruments were still transmitting real-time data. CLS/Service Argos proposed to enhance the situation through a better coordination between CLS/SAI, users and manufacturers.

(iv) *The likely effects of factoring the other charges levied by CLS on ROCs into the standard PTT charge*: The Meeting recalled that this issue was accommodated by the new tariff structure and already applied to countries participating to the pilot programme.

(v) *Downlink tariff and high data rate channel policy*: Noting that METOP 1 would carry an Argos-3 instrument equipped with downlink capability and the 4.8 kbits high data rate channel, it was proposed to add a category "high data rate" with a specific day unit rate, for example 1/3 more than the "Large Volume – Float" category, 12 €. Meanwhile, the Meeting noted with appreciation the proposal of CLS/Service Argos to grant free access to these new services for a one-year period.

REVIEW OF THE NEW JOINT TARIFF AGREEMENT

6.4 The Meeting recalled that, at JTA-XXIV, a new tariff structure was adopted and implemented on a pilot basis during 2005 in 19 countries out of 22, in relation with a new 5YP plan.

The general review and its financial impacts are described in the document “Pilot Programme Status”, which is reproduced in *Annex IV*.

6.5 The Meeting recalled that, in the new tariff structure, 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
- the day is divided into 4 time slots (0 - 6; 6 - 12; 12 - 18; 18 - 24 UTC). 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 at a value of 15 euros, for the pilot 2005 Agreement. B_1 and B_2 were 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 (ARGO Floats)	6	3	9
Animals	3	6	9

6.6 The Meeting took note of a misunderstanding between CLS and the meeting participants regarding the way that the time-slot mechanism would be applied during the 2005 Pilot Phase to calculate day-units consumed by Argos platforms (see also paragraph 2.4 and 2.5):

(i) The understanding of the participants at JTA-XXIV was that the time-slot approach was to be applied to all categories and that this was reflected in the JTA-XXIV meeting report as well as in the Terms and Conditions for the 2005 Pilot Programme;

(ii) The understanding of CLS after JTA-XXIV was that time-slots would be used to calculate day units for floats and animals only: they consequently applied this approach in 2005 to those categories only.

The Meeting reaffirmed that the agreement by the Meeting at JTA-XXIV regarding the implementation of the time-slot approach in the new tariff scheme was, in principle, relevant to all

categories, as described in (i) above. To clarify and correct this error, the Meeting welcomed CLS agreement to apply the time-slot computation to all platforms.

6.7 At the same time, the Meeting noted the potential financial implications of applying the time-slots to drifters and hence bringing an additional risk to what was an already potentially strong decrease in revenue. Therefore it agreed that the universal application of time-slots should be not applied before 1 January 2007, so that 2006 results can be used to assess whether an adjustment in the B coefficient would be necessary to insure that the JTA revenue covered the portion of the Argos basic costs attributed to the JTA.

6.8 The Meeting noted with pleasure that many member countries who joined in the Pilot Programme generally expressed their satisfaction on the new tariff scheme, particularly for its efficiency and global consistency.

6.9 The Meeting, meanwhile, revisited the basic principles of equality, fairness and fostering of science that had governed the JTA since its inception. In this context, the meeting was pleased to note that the representatives of CLS/Service Argos, NOAA and CNES reaffirmed their commitment to the core science mission of Argos, and their assurance that science should never be impeded by the tariff structure.

6.10 In the discussion on the tariff structure that followed, it became clear that certain classes of users, particularly sea mammal and amphibian trackers, were being severely penalised by the new arrangements. In some cases, costs had risen by nearly a factor of three. This was because sea mammals and amphibians, which had previously enjoyed the Limited Use Service (LUS) tariff, and some of them the full bonus, tended to transmit in every time-slot, and so effectively paid the full rate under the new system. Moreover, the full rate for this class of platform had been set by the previous meeting at 9€ per day, compared to 6€ per day for standard platforms such as drifters.

6.11 The meeting heard a presentation from Mr D Meldrum on a possible new algorithm that might more accurately apportion usage costs (part B of the tariff) according to satellite occupancy. Essentially, the algorithm would charge on the basis of the actual number of messages collected for a given platform, adjusted to take account of the satellite availability at the latitude of the platform. In this way, for example, a sea mammal or float that spent a limited time at the surface, and so did not make full use of available satellite passes, would pay a lesser charge, in proportion to the actual number of messages successfully received. By the same token, a fixed platform, transmitting at one third of the standard rate, would pay one third of the standard rate. Full details of the proposal are given in *Annex VIII*.

6.12 Although the meeting agreed that the new algorithm might potentially be a fairer way of charging for system use, it felt that introducing a new system at this stage would be confusing, and might only be beneficial to a small number of programmes. It also noted that CLS/Service Argos was working closely with affected programmes on an ad hoc basis to minimise the financial impact that they might suffer, in the short term at least.

6.13 The Meeting further heard a proposal by Mr. S Auer to reduce the B coefficient for marine mammal trackers from 9 euros to as low as 4 euros.

6.14 After considerable discussion on this issue, the meeting agreed on the following actions:

(i) CLS/Service Argos should evaluate other charging algorithms that might offer a better long-term solution for the apportioning of costs according to system use, and report back to the next session;

(ii) Subject to minor variations that might be subsequently agreed at the session, the tariff structure that had been agreed for the pilot programme should be adopted for 2006;

(iii) In the meantime, CLS/Service Argos should continue to work closely with affected programmes to ensure that their current and planned science was not adversely impacted by the current tariff;

(iv) CLS/Service Argos should, with the assistance of the JTA chair, identify a suitable representative from the animal tracking community, and invite that person to attend the next meeting at JTA expense, if required.

6.15 The Meeting finally agreed that all JTA members – including Canada, China, and UK – would join in the new tariff scheme from 2006 onward, on the understanding that the various figures presented would be tested during the coming year, in particular regarding the B coefficients, and might be adjusted as necessary.

6.16 Mr Vassal then presented the Meting with the updated 5 year plan, as follows:

In euro	2005 Predicted	2005 Actual	2006	2007	2008	2009
JTA Costs (M€)						
cost increase %	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Previous 5YP						
Actual & Forecast	6.53	6.06	6.18	6.30	6.43	6.56
Agreed 5YP JTA Cost	***6.00***	***6.00***	***6.40***	***6.40***	***6.40***	***6.40***

JTA Income						
Activity: Actual and *Forecast*						
Growth Active PTTs (%)	*5%*	*17%*	*5%*	*5%*	*5%*	*5%*
Growth PTT-yrs (%)	*5%*	*16%*	*5%*	*5%*	*5%*	*5%*
Active Ptfs (Total)	*6464*	*7496*	*6703*	*7038*	*7390*	*7759*
PTT-yrs (Total)	*2531*	*2715*	*2658*	*2791*	*2930*	*3077*
Active PTTs (w/o large program)	*4762*	*5185*	5001	5251	5513	5789
PTT-yrs (Standard)	*1029*	*681*	*1080*	*1134*	*1191*	*1251*
PTT-yrs (floats w/o large pgm)	*40*	*98*	*42*	*44*	*46*	*48*
PTT-yrs (Animal)	*465*	*578*	*488*	*512*	*538*	*565*
PTT-yrs (Fixed stations)	0	*153*	*0*	*0*	*0*	*0*
Active PTTs (large pgm)	*1702*	*2311*	*1702*	*1787*	*1876*	*1970*
PTT-yrs (large pgm) Buoys & Others	*998*	*1138*	*998*	*1460*	*1520*	*1596*
PTT-yrs (large pgm) Floats		*67*				
Basic Service Income						
Monthly fee (€)	15	15	15	15	15	15
Daily fee (€)	6.00	6.00	6.00	5.75	5.50	5.50
Month unit income (M€)	0.86	0.93	0.90	0.95	0.99	1.04
Day unit income (M€)	3.91	3.88	4.11	4.13	4.15	4.36

Total Large pgm (actual M€)	1.46	1.77	1.46	1.60	1.74	1.88
Total basic service expected (M€)	**6.22**	**6.59**	**6.47**	**6.68**	**6.88**	**7.28**

Revenue shortage						
Former JTA - CA, CN, UK		0.24				
Soft Landings		0.22				
Revenue above Large Program Fixed price		0.42				
Total Actual basic service (M€)		**5.71**				

Year Balance	-0.31	-0.35	0.28	0.37	0.45	0.72
Carried forward from previous year	0.50	0.50	0.15	0.43	0.80	1.25
Cumulated Balance	0.19	0.15	0.43	0.80	1.25	1.97

6.17 He noted that the actual income was 880 K€ lower than the expected revenue derived from the application of the new tariff to all countries, and 580 K€ (or 9%) lower than the JTA revenues collected in 2004.

	2004	**2005***	
JTA active PTTs	6 384	7 499	+ 17%
JTA PTTs.year	2 364	2 737	+ 16%
Revenue JTA CLS (M€)	2,21	1,90	- 14%
Revenue JTA SAI (M€)	4,08	3,81	- 7%
Total revenue (M€)	**6,29**	**5,71**	**- 9 %**

* Predictions based on 9 months of actual usage.

6.18 He further drew the Meeting's attention to the following:

(i) The decrease in value added services (multisat and auxiliary location process) from 2004 to 2005 was estimated to be in the order of magnitude of 130 000 €.

(ii) The cash flow situation was not improving either. While with the old JTA, 70% of the contracts were invoiced and paid by the end of August each year, in August 2005 less than 40% of the usage under the new tariff scheme was collected.

However, the overall situation at the end of August showed that contributions from fishing and sensitive applications were going to increase significantly in 2005 as compared to 2004. This was likely going to offset the JTA related decrease in revenues.

6.19 Consequently and in the spirit of the CNES / NOAA MoU, CLS/Service Argos proposed to maintain the 2006 prices at the 2005 level.

PERIODIC REPORTING BY CLS/SERVICE ARGOS

6.20 The Meeting recognized that there was a need for participants to get the information on the financial status well in advance of the annual meeting. It therefore requested CLS/Service Argos to provide the report on costs to be attributed to the JTA, with an analysis on previous year and a projection to the current year, by the end August each year.

6.21 The Meeting thanked CLS/Service Argos for making available some details of the JTA and non-JTA activities in terms of active IDs and revenue, as provided previously in meeting documents, and requested that this information be regularly made available in its reports to each JTA meeting.

7. TERMS AND CONDITIONS OF THE 2006 GLOBAL AGREEMENT

7.1 On the basis of the 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 2006 were estimated as follows:

COUNTRIES	**PTT-year**
AUSTRALIA	75,00
AUSTRIA ?	13,40
BRAZIL ?	0,00
CANADA	150,00
CHILE	2,00
CHINA	3,40
DENMARK ?	23,00
FINLAND ?	3,00
FRANCE	130,00
GERMANY ?	59,00
ICELAND ?	0,00
INDIA	9,00
ITALY ?	16,70
KOREA (REPUBLIC OF)	4,70
MALAYSIA ?	0,00
(The) NETHERLANDS	5,30
NEW ZEALAND	11,50
NORWAY	19,00
PAKISTAN ?	0,00
PORTUGAL ?	0,00
SOUTH AFRICA ?	23,00
SPAIN ?	4,40
SWEDEN	2,60

THAILAND ?	0,00
TUNISIA ?	0,00
UNITED ARAB EMIRATES ?	15,00
UNITED KINGDOM	65,00
USA	2 200,00
OTHERS ?	0,10
TOTAL	**2 835.00**

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

7.2 The principles agreed upon at JTA-XXIV, as well as those established under agenda items 5 and 6 above, were used to draft the Terms and Conditions for the 2006 Agreement for all participants. Eventually, and also taking into account a few editorial amendments, the Meeting agreed on the Terms and Conditions for the Agreement for 2006 as given in *Annex IX*.

8. THE FUTURE OF THE JOINT TARIFF AGREEMENT

8.1 In introducing this agenda item, the chairman stated that, after twenty-five years of difficulties and successes for the Argos JTA, it was probably time to give some thoughts to its future, on the one hand, and, as a result of that reflection, to the future of the Meeting itself, in terms of agenda, duration, periodicity, membership, etc., on the other.

8.2 Indeed, the JTA was evolving. The obvious success of the new pilot tariff scheme, for instance, notwithstanding possible further discussions on the time slots, might lead in some time to come to consider the review of the terms and conditions of the Global Agreement (agenda item 7) as a formality. Similarly, the new billing policy adopted by CLS/Service Argos might impinge upon the future of the ROCs themselves and therefore upon the attendance to the Meeting. On the other hand, the various items discussed under the review of users requirements (agenda item 5), as well as under the review of the structure of the Tariff Agreement and related matters (agenda item 6), might be considered as important issues, worth being kept under review in future. Consideration should undoubtedly be given to other aspects of the JTA.

8.3 The chairman emphasized that, at the present time, it was not sure at all there was the smallest need to review anything regarding the JTA and the Meeting. His proposal was definitely not to change anything for the sake of changing something. But he considered there was a need to develop a strong rationale behind whatever decision would be taken regarding the future of the JTA and of the Meeting. The question to be answered, if possible by the next Meeting, was: “Why to change or not the JTA and the Meeting?” At the present Meeting, he wished to initiate that reflection among the participants in the JTA.

8.4 The representative of CLS/Service Argos acknowledged that this might be a right time to review the future of the JTA. The questions that might be addressed during that review could divided into strategic and structural ones.

(i) Strategic questions might encompass the following: should the linkage with DBCP be

maintained, should new linkages be built, with JCOMM, GEOSS, GMES…? How would the science requirements be collected and what would be the mechanism implemented to take them into account? Should the JTA be "marketed" to International bodies, users, space agencies, funding agencies and politics, in order to get a better visibility and help in getting new budgets and satellite segment enhancements?

(ii) Structural questions mainly dealt with the practicalities of implementing the JTA: should the principles be reviewed? Should annual meetings be maintained, and/or made shorter? Should the role of the ROCs be redefined/reinforced? What would be the actions proposed for the intersessional periods (reporting, meetings….)?

8.5 CLS/Service Argos suggested that a working group be designated to take a look at the past 24 years and derive useful lessons from it: How well had the JTA served DBCP and other User's purposes? What were the main achievements of the JTA Meetings? What was less efficient, what was to be avoided? In conclusion what was specific and needed to be kept and what should be given up…?

8.6 The representative of CLS/Service Argos acknowledged that, from their perspective, the JTA mechanism had traditionally been a very successful mechanism to secure both the income needed to cover the Argos running costs and the investments required to develop and implement the user requirements. It had provided an excellent and valuable interface between CLS/Service Argos and the global scientific community, especially the DBCP, with regard to all Argos technical, financial, operational and usage issues, and it needed to be continued in some form. CLS/Service Argos believed that the existing concept of a single representative from each country and/or large organization, who could represent the interests and requirements of the Argos users in that country or organization, had been very successful and should be included as a necessary element of any revised JTA structure.

8.7 The meeting noted with interest the presentation by Dr Sidney Thurston, the representative of the NOAA Office of Climate Observation (OCO), on OCO's activities and his vision of the future for the JTA. He noted that science and technology were providing for a remarkable capability to observe and, with the resulting observations, understand the Earth as a system. There existed an unprecedented convergence of sophisticated platform and sensor technology, super-computing horsepower and communication throughput. This understanding in turn provided for a means to enhance the predictive capabilities to meet a variety of pressing societal needs. The new framework for sustaining earth observations and their applications, the Global Earth Observation System of Systems (GEOSS), was providing this opportunity by attracting the interest and support of high levels around the world. GEOSS was not just about making observations but also about applying this information for benefits to society such as mitigating disasters, improving weather forecasts and warnings, monitoring climate change, protecting human life, managing fisheries, and exploring the oceans – just to name a few. All of this began with observations, and their importance was now being recognized by world leaders through the GEOSS Initiative.

8.8 Dr. Thurston then noted that there was a real potential that through the emerging GEOSS process, new demands for currently unrealized ocean observations would be made upon the activities of the WMO/IOC Data Buoy Cooperation Panel (DBCP) and the associated Joint Tariff Agreement (JTA). To posture itself with these future changes and increasing demand, the

future JTA should be able to provide:

(i) Cost-Effective Communication Solutions since reasonable communications expenses translated into increased instrument procurements and deployment opportunities which resulted in more observations;

(ii) Long-term and Reliable Communication Strategies since these would assist OCO and most other ocean agencies around the world who also prepared budgets in advance of the present JTA year discussions;

(iii) A Forum to Maintain the International Harmony that had been established these past twenty-five year since a global observing system could not hope to be successful without international collaboration and this required mutual understanding, respect and trust of all contributors;

(iv) A Venue to Explore the Latest Communication Technologies and alternatives to maximize value and data throughput since OCO and other Agencies operated diverse networks and these disparate observing networks required different communication data rates, access schemes, services, etc.;

(v) Alignment with the GEOSS Data Management and Communication activities since OCO and many other global agencies were working towards the goals and priorities of the ocean component of GEOSS, namely GCOS-92.

8.9 The meeting thanked Dr Thurston for his presentation. Nonetheless it remained concerned that the presence of the OCO large programme within the JTA inevitably allowed such a programme to exert an enormous influence on the future of the JTA, and on its financial profile. While OCO was undoubtedly making a major contribution to ocean observation, and was clearly in a position to negotiate favourable terms within the JTA, its 2-year fixed price contract could potentially destabilise the JTA by forcing non-OCO programmes to bear a disproportionate share of the financial burden. This was brought into sharp focus by the provisional 2005 accounts tabled by CLS/Service Argos, which showed that revenue from OCO would have totalled 1.77M€ had it paid according to the agreed tariff structure for large programmes specifically established to serve its purpose: this was significantly more than the 1.35M€ fixed sum that had been negotiated with Service Argos in place of the agreed tariff. The meeting noted that the deficit thus introduced into the JTA budget was in principle to be borne by other non-OCO programmes. While it sympathised with the budgetary pressures within OCO that had led to its negotiation of a fixed price contract, it nonetheless noted that the same pressures applied to all other programmes. It therefore requested to be kept fully informed as to future negotiations between CLS/Service Argos and OCO, should these remain within the JTA sphere of influence. Alternative scenarios, including an analysis whereby the OCO arrangements might be removed from the JTA and the JTA financial obligations adjusted accordingly, or whereby the discount scheme for large programmes might be expanded to include further discounts, etc., should be reviewed during the intersessional period in the reflection on the future JTA.

8.10 CLS/Service Argos expressed its concern about the possible migration of non OCO PTTs into the OCO programme and the negative impact it would have on the JTA income. This might be the case in particular for the barometer upgrade mechanism implemented through the DBCP. Whilst they recognized the positive impact of this mechanism on DBCP programmes. CLS/Service Argos proposed that these migrating PTTs be closely monitored and, in particular

requested to be informed of the barometer upgrades implemented by non OCO programmes in the OCO programme.

8.11 In concluding this agenda item, the Chairman thanked the participants for their involvement in the discussion. He further explained the refection would be going on among a small group of interested/concerned people, including himself, CLS/Service Argos, Dr. S. Thurston and any other volunteering to take part in this reflection. Other participants in the JTA would of course be kept informed of the progress of this exercise as necessary.

9. FUTURE PLANS AND PROGRAMMES

9.1 Written reports on future plans and programmes for the use of the Argos System in 2005 were submitted to the meeting. Following normal practice, these reports are given in *Annex X*.

10. ELECTION OF THE CHAIR

10.1 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 (iv) and 5.2 (iv).)

10.2 The Meeting re-elected Mr Yves Tréglos as its Chair, to hold office until the end of JTA-XXVI.

11. DATE AND PLACE OF THE NEXT MEETING

11.1 In line with the agreement of the preceding nineteenth session of the Data Buoy Co-operation Panel, the Meeting accepted the kind offer of USA that the twenty-sixth meeting on the Argos Joint Tariff Agreement would take place in Annapolis, Maryland USA, jointly hosted by the National Data Buoy Center and the Office of Climate Observation, NOAA. Tentative dates for the session were agreed as 23 ~ 25 October 2006, following immediately after the twenty-second session of the DBCP.

12. CLOSURE OF THE MEETING

12.1 In closing the meeting, the Chair expressed his considerable gratitude to the team of local organizers from SMN and SHN, particularly to Ms Miriam Andrioli and Ms Paula Etala, for their outstanding organization and comprehensive support.

12.2 The Meeting then expressed its appreciation to the interim Chair, Mr Derek Painting, for his valuable service and support to the JTA during the intersessional period.

12.3 The twenty-fifth meeting on the Argos Joint Tariff Agreement closed at 12.15 hours on Wednesday, 26 October 2005.

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 2005 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 2006 GLOBAL AGREEMENT

8. THE FUTURE OF THE JOINT TARIFF AGREEMENT

9. FUTURE PLANS AND PROGRAMMES

10. ELECTION OF THE CHAIRMAN

11. DATE AND PLACE OF THE NEXT MEETING

12. CLOSURE OF THE MEETING

ANNEX III

REPORT ON THE 2005 AGREEMENT

1 RECALL OF 2004 PARTICIPATION

Countries	Signed PTT.Years 2004	Consumed PTT.Years 2004	Delta % 2004
AUSTRALIA	42.00	75.59	80%
AUSTRIA	3.00	1.35	-55%
BRAZIL	5.00	10.58	112%
CANADA	70.00	146.62	109%
CHINA	6.25	12.56	101%
DENMARK	11.50	13.43	17%
FINLAND	1.20	2.02	68%
FRANCE	84.00	99.24	18%
GERMANY	56.00	51.13	-9%
ICELAND	0.00	0.00	
INDIA	18.00	14.52	-19%
ITALY	13.00	13.80	6%
KOREA	7.00	11.40	63%
NETHERLANDS	6.60	3.47	-47%
NEW ZEALAND	9.30	10.02	8%
NORWAY	16.00	14.19	-11%
SOUTH AFRICA	28.80	32.27	12%
SPAIN	5.80	6.19	7%
SWEDEN	3.50	2.01	-43%
TAIWAN	1.00	0.30	-70%
UND ARAB EMTS	8.00	10.02	25%
UNITED KINGDOM	51.00	102.24	100%
UNITED STATES?	975.00	1733.78	78%
TOTAL	**1421.95**	**2366.73**	**66%**

Table 1: PTT-years contracted and consumed in 2004

2 2005 REPORT ON COUNTRIES UNDER FORMER JTA AGREEMENT

2.1 Canada, China and United Kingdom participation

Countries	Contracted PTT-years	Consumed PTT-years
CANADA	80.00	156.73
CHINA	3.50	3.74
UNITED KINGDOM	51.00	86.35
TOTAL	**134.50**	**246.82**

Table 2: numbers of PTT-years contracted and extrapolated for Y05 from January to August consumption

2.2 Consumption and bonus status

- The three countries, Canada, China, United Kingdom, have full 82% bonus.
- The table below compares the situation in those countries between year 2004 and 2005. It can be noted the level of consumption above the contracted number is still high for Canada and China.

Countries	Signed PTT.Years 2004	Actual PTT.Years 2004	Delta % 2004	Signed PTT.Years 2005	Projected PTT.Years Aug 2005	Delta % Aug 2005
CANADA	70.00	146.62.0	109%	80.00	156.73	96%
CHINA	6.25	12.56	101%	3.50	3.74	7%
UNITED KINGDOM	51.00	102.24	100%	51.00	86.35	83%
TOTAL	**127.25**	**261.42**	**105%**	**134.50**	**246.58**	**83%**

Table 3: Bonus situation

3 REPORT OF COUNTRIES UNDER THE PILOT PROGRAM AGREEMENT

3.1 The New Tariff Policy

3.1.1 Principles of the new tariff policy as agreed at the JTA XXIV

At the JTA XXIV a new tariff structure was discussed, amended and adopted:

"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*
- *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;

3.1.1.1 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 (Floats)	*6*	*3*	*9*
Animals	*3*	*6*	*9*

Table 4 - Platform categories and related tariffs

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."

3.1.2 Implementation of the new tariff structure as agreed at the JTA XXIV

"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)….

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."

Further to the JTA meeting, all the ROCs were informed of the new tariff structure and the possibility to join the pilot programme. As a result, in early 2005, all countries but Canada, China and United Kingdom decided to join the pilot programme.

The implementation tasks included on CLS and SAI side:
- Sending information to all ROCs and users
- Preparing new tariff catalogue and purchase orders, and sending them to all users
- Checking and upgrading all platform type declarations in the system (872 pgms, 22,772 PTTs)
- Implementing the new time slot calculation and validation
- Creating the new services in the database and adaptation of the User Office screens,
- Transfer of all the JTA Ptts within these new services
- Preparing new invoicing, labels, display etc…
- Developing new reporting boards
- Testing and checking the whole system in a test database in December 04 and January 05

The implementation of the new tariff structure was all the more sophisticated that we had to deal with both tariff structures, reporting and invoicing.

In order to avoid ambiguous declarations, the definition of the platform categories described in Table 3 above were clarified as follows:

- Drifters and other platforms: all drifting and moored buoys, most of them transmitting full time and platforms not fitting in categories below.
- Fixed Stations: land stations
- Subsurface Floats (large data volume): ARGO and all other floats
- Animals: all animals including fishes…

3.2 Original "Bid" and consumption per country

COUNTRY	PTT-Yrs 05 "bid"	PTT-Yrs August 05	PTT-Yrs 05 Projection
AUSTRALIA	42.0	52.9	79.4
AUSTRIA	1.0	0.3	0.5
BRAZIL	5.0	9.0	13.4
DENMARK	9.2	15.3	23.0
FINLAND	1.3	2.1	3.1
FRANCE	80.5	80.1	120.2
GERMANY	53.0	39.5	59.2
INDIA	20.0	6.2	9.2
ITALY	13.0	11.1	16.7
KOREA, REPUBLIC OF	8.3	3.8	5.6
NETHERLANDS	6.0	9.1	13.6
NEW ZEALAND	9.3	5.9	8.8
NORWAY	16.0	12.6	18.9
SOUTH AFRICA	28.8	15.2	22.8
SPAIN	10.0	2.9	4.4
SWEDEN	2.2	1.7	2.6
TAIWAN, ROC	0.5	0.1	0.1
UNITED ARAB EMIRATES	13.0	10.1	15.2
UNITED STATES	1000.0	1369.3	2053.9
Total	**1319.1**	**1647.1**	**2474.1**

Table 5: Numbers of PTT-years announced in October 05 – ie "bid", consumed until August and projected for 2005.

The PTT-years are the numbers of day units, with time slot calculation where appropriate, divided by 365 days.

3.3 Average active PTTs per country

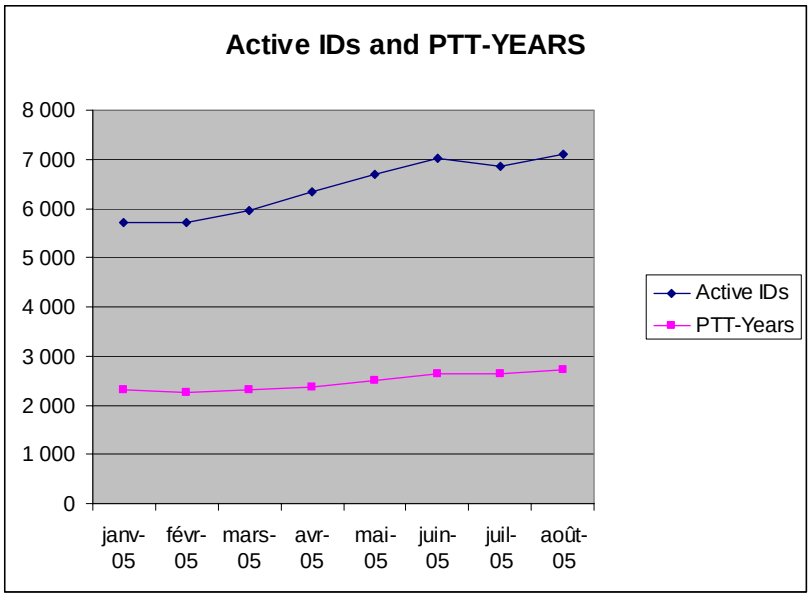
Country	Average Active PTTs
AUSTRALIA	242
AUSTRIA	8
BRAZIL	26
DENMARK	56
FINLAND	5
FRANCE	368
GERMANY	246
INDIA	59
ITALY	43
KOREA, REPUBLIC OF	84
NETHERLANDS	23
NEW ZEALAND	18
NORWAY	54
SOUTH AFRICA	31
SPAIN	35
SWEDEN	16
TAIWAN, REPUBLIC OF CHINA	1
UNITED ARAB EMIRATES	58
UNITED STATES	5,058
Total	**6,428**

Table 6: Average number of Active platforms per country from January to August 2005*

* An active PTT is a PTT which transmitted at least once in a month. The average is the total number of Active PTTs divided by number of months.

Some 6400 PTTs are transmitting from the field each month.

3.4 Consumption evolution over year2005



3.1.1.2

Figure 1: Consumption evolution over the year in Active PTTs and PTT-years

Consumptions, both in term of active PTTs or PTT-years kept increasing all over year 2005.

3.5 Monthly evolution by platform category – i.e. Drifters & others, Floats, Animals, Fixed stations

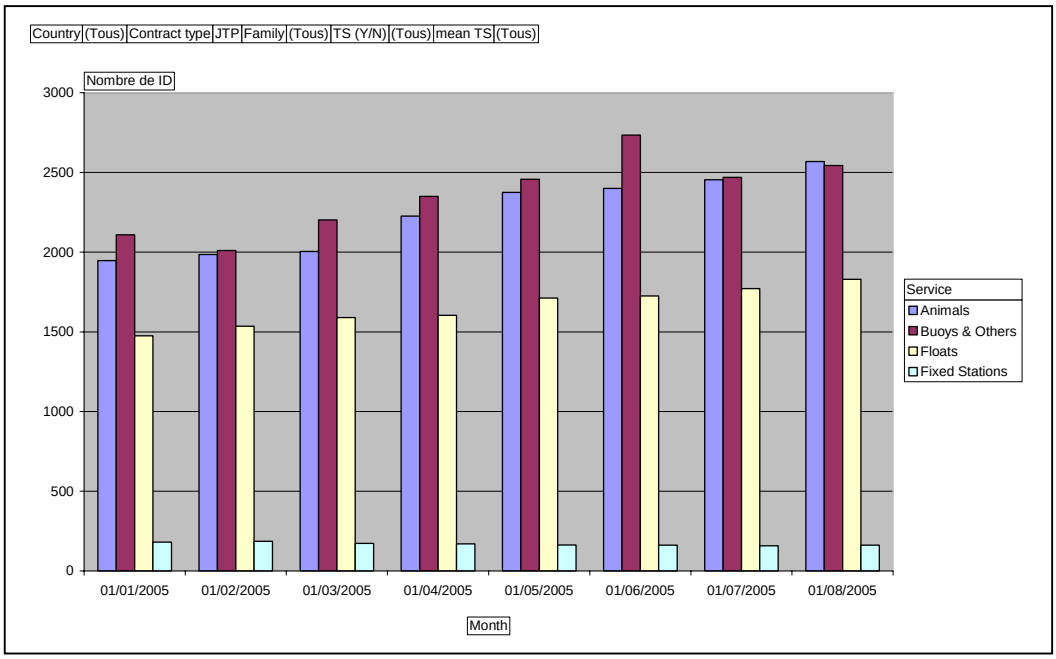


Figure 2: Active PTTs evolution

Overall, the active PTTs and thus the number of transmitters in the field, is increasing with almost even numbers for “Animals” and “Buoys and others”; smaller but increasing numbers for the float family.

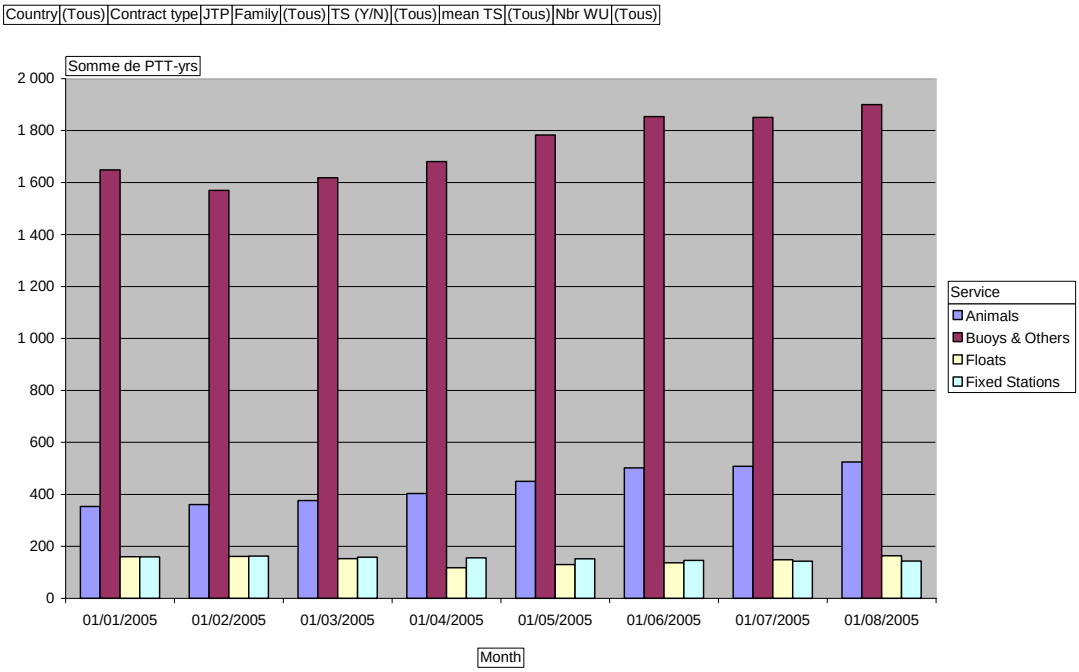


Figure 3: PTT-years evolution

It can be noticed that:

- The PTT-years picture reflects the huge difference in term of actual consumption between categories.
- “Drifters & Others” - also referred as the “Full time” category in the JTA meeting report - consume about four times more than the “Animals”, the second “top” category.
- “Floats” and “Fixed Stations” consumptions in PTT-years are similar whereas they are very different in term of volume of data transmitted, (typically 12 to 18 different messages for a float, 1 to 3 different messages for a fixed station).

3.6 Time slot analysis

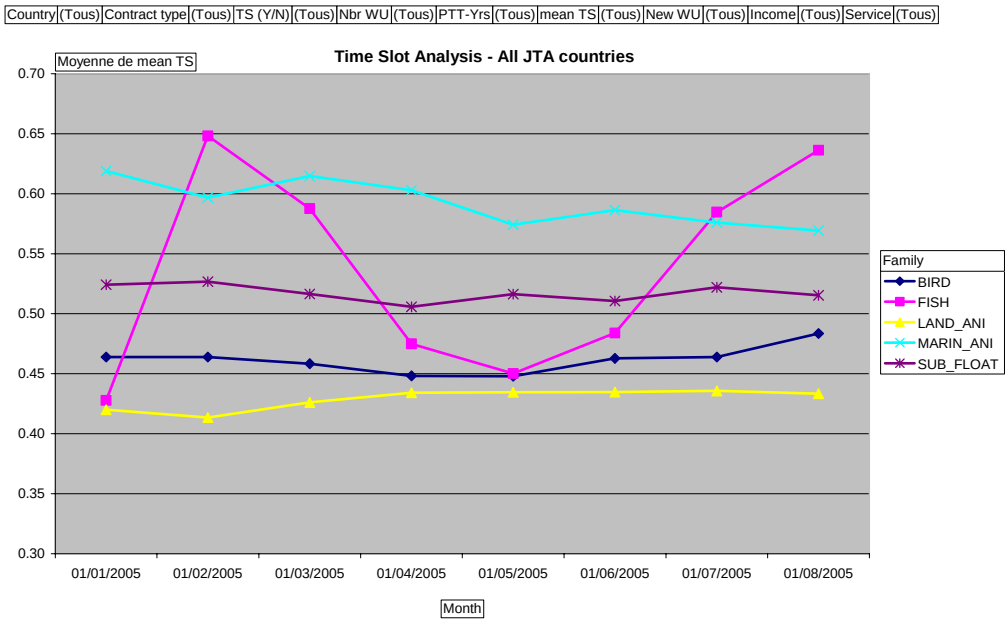


Figure 4: Average time slot level by platform category

This diagram reflects the economy in day units provided by the time slot counting – for example.0.5 means that 0.5 day unit is counted instead of 1. This positive effect is to be added to the "upon consumption" which is crucial for animal applications for which predictions are difficult.

It can be noticed that:

- "Floats"," "Birds" and "Land animals" look pretty stable on average.
- There seems to be a decreasing trend in Marine animals which suggests that the users and manufacturers are adapting their transmission strategy to take benefit of the time slots.
- Time slot impact on Fish looks erratic.
- For the two previous categories, even PTTs transmitting full time are benefiting from the time slots, this may be explained by the difficult transmission conditions prevailing either because of the behavior of the marine animal or because of the low transmit power (125 mW) and sea conditions for fish tags.

3.7 Inactive status

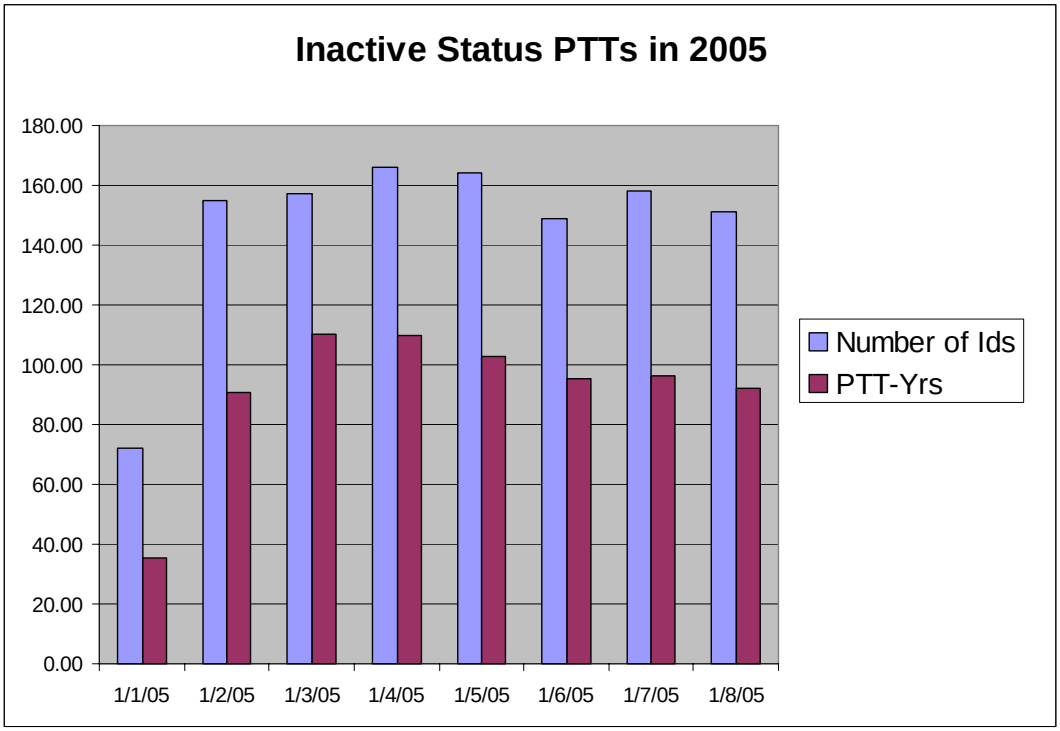


Figure 5: Inactive PTTs evolution in term of number of Ids and PTT-years

Recall: since year 2004, transmissions from inactive Ids are no longer charged.

It can be noticed that the number of IDs in Inactive status is regularly increasing with a steep increase in July and August (150). The PTT-year consumption at a significant level of ~100 PTT-years looks stable and, surprisingly, shows a slight decrease since May.

The availability of new transmitters with solar panels may increase this trend in the future and impact substantially the satellite load. It is hence suggested to produce a recommendation to users and manufacturers to take this into account by programming their PTTs for the duration of the experiment.

4 THE JOINT TARIFF AGREEMENT FROM 1982 TO 2004

4.1 Participation over the 22 past years

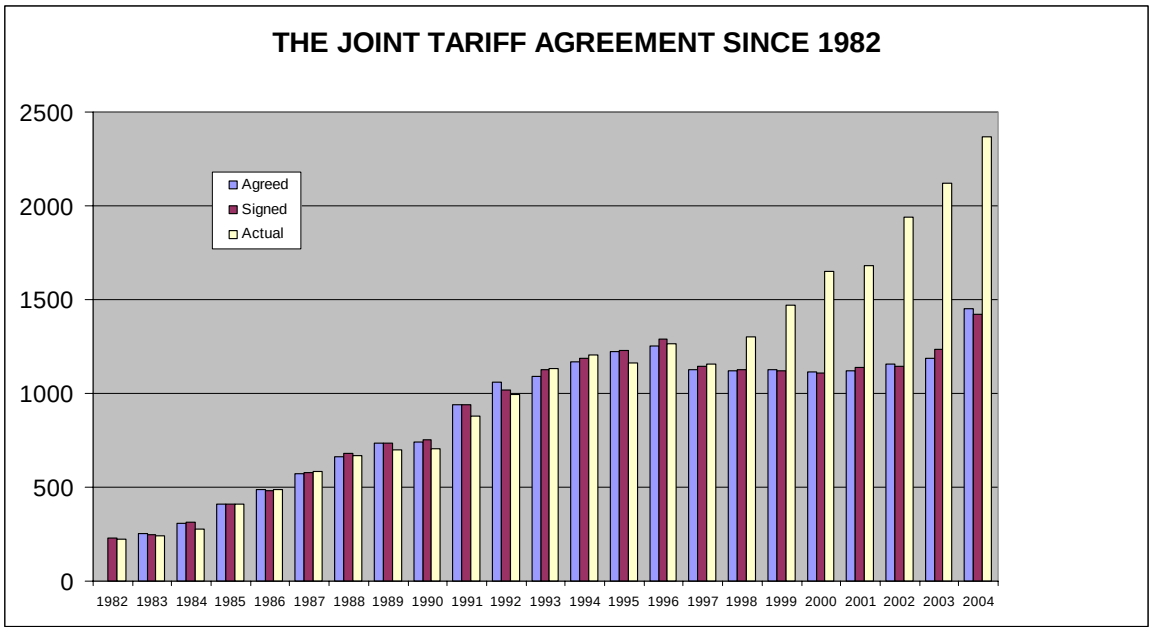


Figure 6: Signed, consumed and extra consumption in % for all countries

The diagram displays the steady growth of the JTA and the positive impact of the bonus scheme implemented in 1998.

4.2 Bonus use from 2002 to 2004

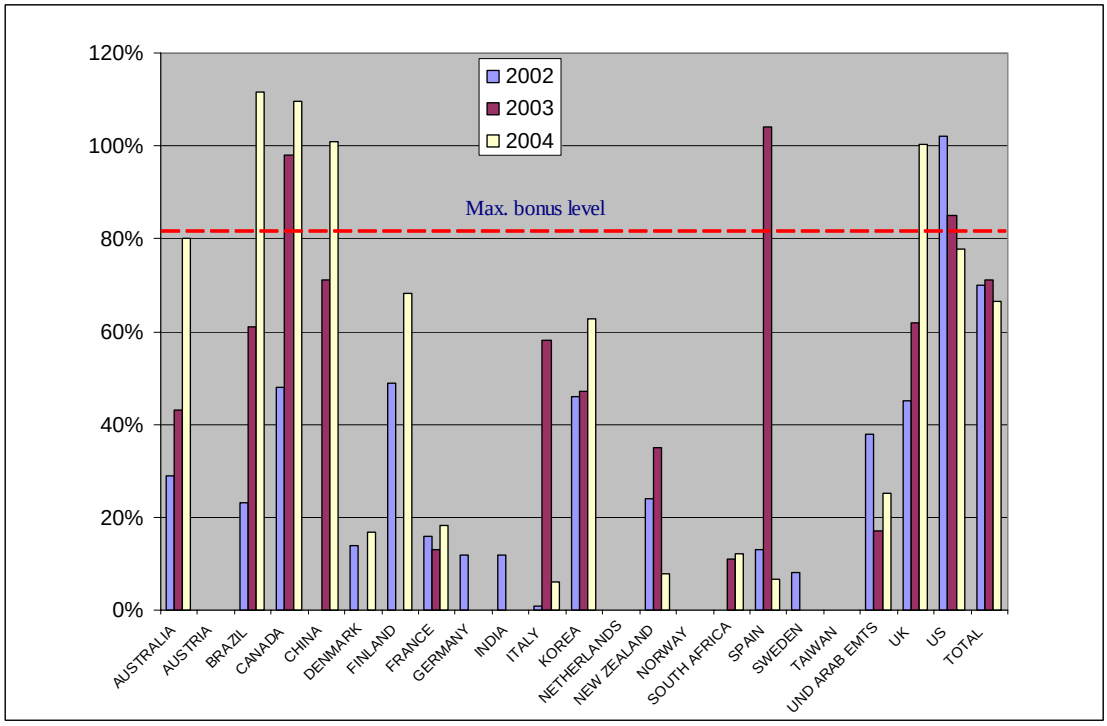


Figure 7: Bonus use per countries over the past three years

It shows that most countries were able to benefit from the bonus. The average level of bonus use over these years is 69%.

4.3 The joint tariff agreement from 1982 to 2004

Table 7: Detailed numbers

THE JOINT TARIFF AGR EEMENT 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

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

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.
AUSTRALIA	40.5	40.3	42.0	45.1	42.0	54.1	42.0	68.6	42.0	75.59
AUSTRIA					2.0	1.5	3.4	2.2	3.0	1.35
BRASIL	12.0	10.7	12.0	9.5	10.0	12.3	6.0	9.7	5.0	10.58
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	146.6
CHINA	2.4	4.4	12.5	5.8	15.5	15.0	11.7	21.9	6.3	12.6
DENMARK	8.1	11.8	11.5	11.3	10.1	11.5	11.5	15.3	11.5	13.4
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	2.0
FRANCE	82.0	72.7	82.0	93.8	80.5	93.6	81.5	84.4	84.0	99.2
GERMANY	51.8	41.5	42.8	51.9	56.0	62.5	56.0	52.0	56.0	51.1
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	14.5
ITALY	11.0	10.0	11.0	11.3	13.0	13.2	13.0	22.1	13.0	13.8
KOREA	3.0	3.5	2.5	2.4	4.5	6.6	4.7	7.7	7.0	11.4
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	3.5
NEW ZEALAND	9.3	10.4	9.3	8.9	9.3	11.5	9.3	11.9	9.3	10.0
NORWAY	18.5	20.8	21.5	16.5	19.0	13.5	19.0	17.2	16.0	14.2
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	32.3
SPAIN	4.9	3.9	1.7	2.0	2.6	3.0	2.8	6.5	5.8	6.2
SWEDEN	3.0	3.1	2.5	3.5	2.0	2.2	2.0	1.8	3.5	2.0
OTHER	1.0	0.8	3.0	0.8	2.0	0.0	2.0	1.3	1.0	0.3
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	10.0
UNITED KINGDOM	50.0	77.2	50.0	77.5	57.0	82.6	57.0	95.7	51.0	102.2
USA	655.0	1188.0	685.0	1191.0	695.0	1401.8	790.0	1505.5	975.0	1733.8
TOTAL	1108.32	1650.38	1135.65	1679.67	1144.68	1940.38	1237.18	2119.21	1421.95	2366.73

ANNEX IV

Report on JTA Pilot Programme

1 NEW JTA TARIFF: BENEFIT FOR USERS

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.

a. 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 from CLS to users, easier budget planning, simple rules…

b. 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.

c. 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.

d. 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.

2 FINANCIAL SITUATION

2.1 RECALL OF THE 5Y PLAN

In euro	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%*
Number of Active Ptfs (Total)	*6464*	*6703*	*7038*	*7390*	*7759*
Number of PTT-yrs (Total)	*2531*	*2657*	*2790*	*2930*	*3076*
Number of active PTTs (w/o large program)	*4762*	5001	5251	5513	5789
Number of PTT-yrs (Standard)	*1029*	*1080*	*1134*	*1191*	*1250*
Number of PTT-yrs (floats w/o large pgm)	*40*	*42*	*44*	*46*	*48*
Number of PTT-yrs (Animal)	*465*	*488*	*512*	*538*	*565*
Number of Active PTTs (large pgm)	*1702*	*1702*	*1787*	*1876*	*1970*
Number of PTT-yrs (large pgm)	*998*	*998*	*1460*	*1520*	*1596*
Basic Service Income					
Monthly fee (€)	15	15	15	15	15
Daily fee (€)	6.00	6.00	5.75	5.50	5.50
Month unit income (M€)	0.86	0.90	0.95	0.99	1.04
Day unit income (M€)	3.91	4.10	4.13	4.15	4.36
Total Large pgm (actual M€)	1.46	1.46	1.60	1.74	1.88
Total basic service (M€)	**6.22**	**6.46**	**6.67**	**6.88**	**7.27**

2.2 ACTUAL SITUATION FOR 2005

Charges	€
Monthly Fee	15
PTT-day Fee - Floats and Animals	9
PTT-day Fee - Buoys & Others (std)	6
PTT-day Fee - Fixed stations	3
Growth rate	**2%**

JTA Income	2005		2006	
Pilot JTA - NOTUS	**Quantities**	**Income (M€)**	**Quantities**	**Income (M€)**
Active PTTs	*1398*	0,25	1426	0,26
Buoys & Others (PTT-yrs)	*199*	*0,44*	203	*0,44*
Floats (PTT-yrs)	*54*	*0,18*	55	*0,18*
Animal (PTT-yrs)	*89*	*0,29*	91	*0,30*
Fixed stations (PTT-yrs)	*84*	*0,09*	*86*	*0,09*
Sub-Total PTT-yrs & Income	***426***	***1,25***	***435***	***1,27***
Actual Income		***1,25***		***1,27***

Former JTA - CA, CN, UK	Quantities	Income (M€)	Quantities	Income (M€)
Active PTTs	*1038*	0,19	1059	0,19
Buoys & Others (PTT-yrs)	*71*	*0,16*	72	*0,16*
Floats (PTT-yrs)	*12*	*0,04*	12	*0,04*
Animal (PTT-yrs)	*154*	*0,51*	157	*0,52*
Fixed stations (PTT-yrs)	*2*	*0,00*	2	*0,00*
Sub-Total PTT-yrs & Income	***239***	**0,89**	***244***	***0,91***
Actual Income		***0,65***		***0,91***

Pilot JTA - US	Quantities	Income (M€)	Quantities	Income (M€)
Active PTTs	*2749*	0,49	2804	0,50
Buoys & Others (PTT-yrs)	*411*	*0,90*	*419*	*0,92*
Floats (PTT-yrs)	*32*	*0,11*	*33*	*0,11*
Animal (PTT-yrs)	*335*	*1,10*	*342*	*1,12*
Fixed stations (PTT-yrs)	*69*	*0,08*	*70*	*0,08*
Sub-Total PTT-yrs & Income	***847***	***2,68***	***869***	***2,76***
Actual Income		***2,46***	***864***	***2,73***

Pilot JTA - Large Program	Quantities	Income (M€)	Quantities	Income (M€)
Active PTTs	*2311*	0,42	2357	0,42
Buoys & Others (PTT-yrs)	*1138*	*1,25*	*1161*	*1,27*
Floats (PTT-yrs)	*67*	*0,11*	*68*	*0,11*
Sub-Total PTT-yrs and Income	***1205***	***1,77***	***1229***	***1,81***
Actual Income		***1,35***		***1,35***

TOTAL Active PTTs	**7496**	
TOTAL PTT-yrs	**2717**	
TOTAL New JTA 2005 expected Income		***6,59***
TOTAL 2005 Actual INCOME		**5,71**

The actual income is 880 K€ lower than the expected revenue derived from the application of the new tariff to all countries, and 580 K€ (or – 9%) lower than the JTA revenues collected in 2004.

	2004	2005*	
JTA active PTTs	6 384	7 499	+ 17%
JTA PTTs.year	2 364	2 737	+ 16%
Revenue JTA CLS (M€)	2,21	1,90	- 14%
Revenue JTA SAI (M€)	4,08	3,81	- 7%
Total revenue (M€)	**6,29**	**5,71**	**- 9 %**

* Predictions based on 9 months of actual usage.

Two additional comments need to be taken into account:

- ✓ The decrease in value added services (multisat and auxiliary location process) from 2004 to 2005 is estimated to be in the order of magnitude of 130 000 €.
- ✓ The cash flow situation is also not improving. While with the old JTA, 70% of the contracts were invoiced and paid by the end of August each year, in August 2005 less than 40% of the usage under the new tariff scheme was collected.

However, the overall situation at the end of August shows that contributions from fishing and sensitive applications are going to increase significantly in 2005 compared to 2004. This is likely going to offset the JTA related decrease in revenues.

Consequently and in the spirit of the CNES / NOAA MoU, we propose to maintain the same prices in 2006 together with the following assumptions.

2.3 PROPOSAL FOR 2006

The proposal for 2006 includes following features:

1. Migrate all countries to the new tariff structure
2. Maintain categories
3. Explore ways to reach the predicted Y2006 JTA income without increasing the tariff rate

ANNEX V

REPORT ON 2004-2005 OPERATIONS

1 SPACE SEGMENT

NOAA-18 (N) was successfully launched on May 20th 2005.
Next satellite with two-way capability is METOP-1 scheduled for the middle of 2006.
The Argos constellation includes 6 satellites which are used as follows:

1.1 Basic service satellites

The basic service has been provided since December 2003 by NOAA-16 and NOAA-17.

1.2 Other satellites

NOAA-18 (N), 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 Satellite status	July 02	May 03	July 03	October 03	Dec 03	June 04	July 04	May 05
Commissioning	NOAA-17	ADEOS-2						NOAA-18
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	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	NOAA-18 NOAA-15 NOAA-14 NOAA-12
Lost				ADEOS-2				

Table 8: Table above displays satellites in service since July 2002

Figure 1 shows the satellite orbit plans in September 2005.

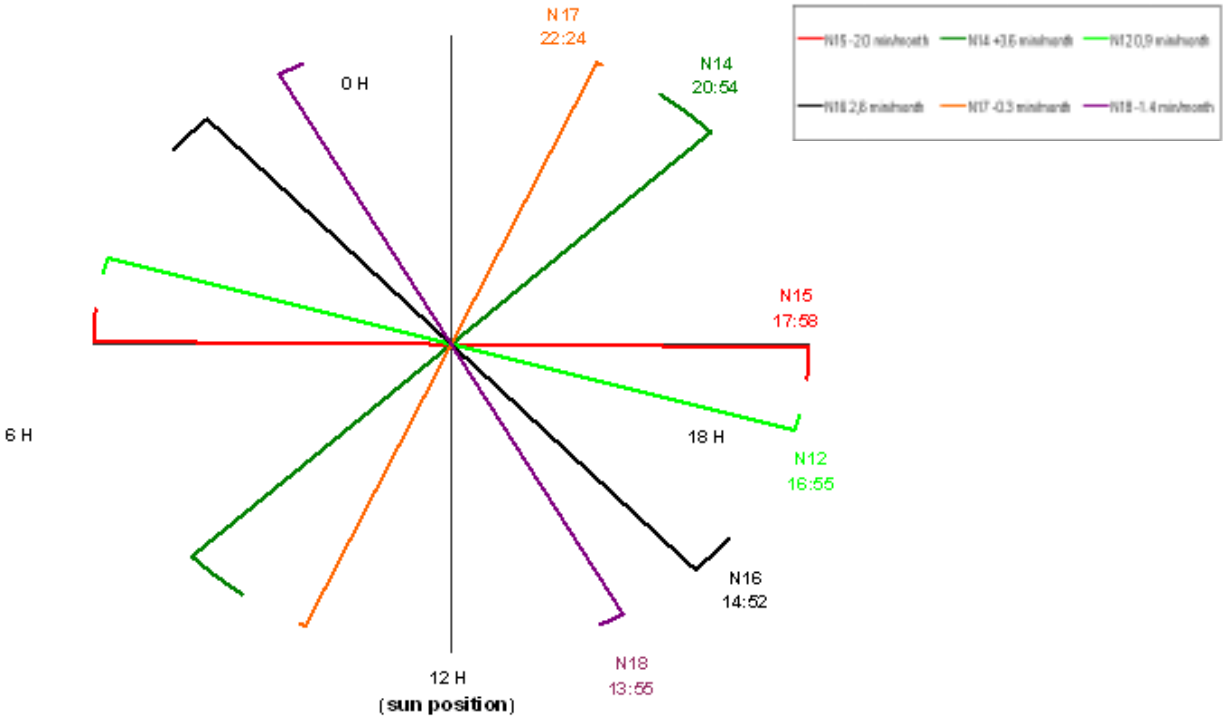
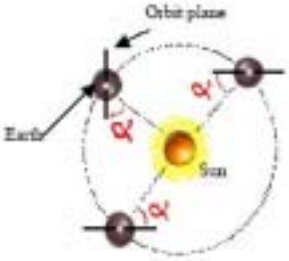


Figure 1: NOAA Satellite Orbit, September 2005

ABOUT ORBIT PLANES

Plane and drift of a Sun-synchronous orbit



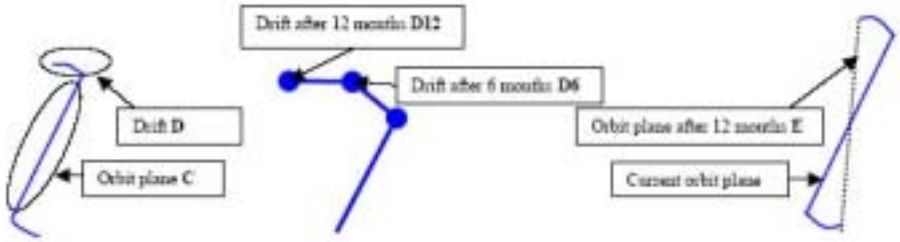
The angle (α) between the orbit plane of the satellite and the direction of solar illumination is constant if the satellite completes an orbital revolution of 360 degrees in 365.242 days (i.e., 0.9856° per day). In this case, the satellite will always be at the same angle to the Sun.
The drift of the 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

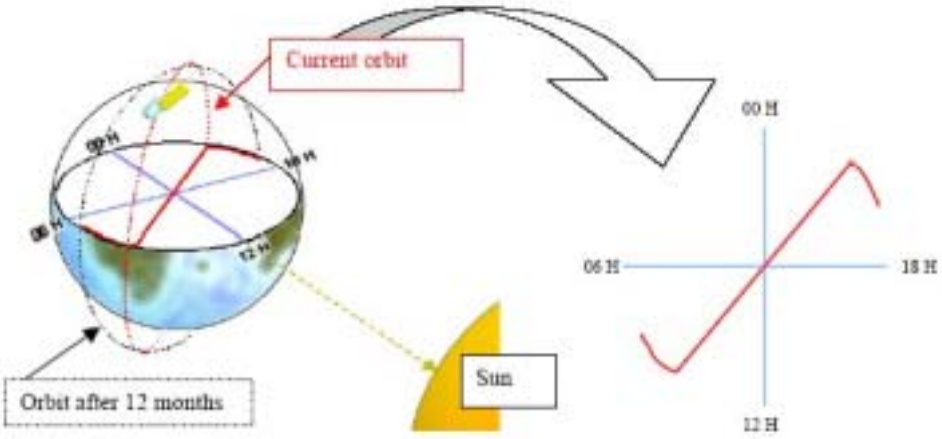


Figure 2

2 GROUND RECEIVING STATIONS

2.1 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. An effort is underway to eliminate blind orbits by using NPOESS Svalbard (Norway) facility. Testing of this resource were planned for this summer and if successful, it would be implemented in the operational system and significantly increasing the number of global data sets recovered and processed.

- The two global stations of Fairbanks and Wallops deliver the STIP telemetry from the satellites NOAA-12, NOAA-14, NOAA-15, NOAA-16, NOAA-17 and NOAA-18.

- 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.

Figure 3 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.

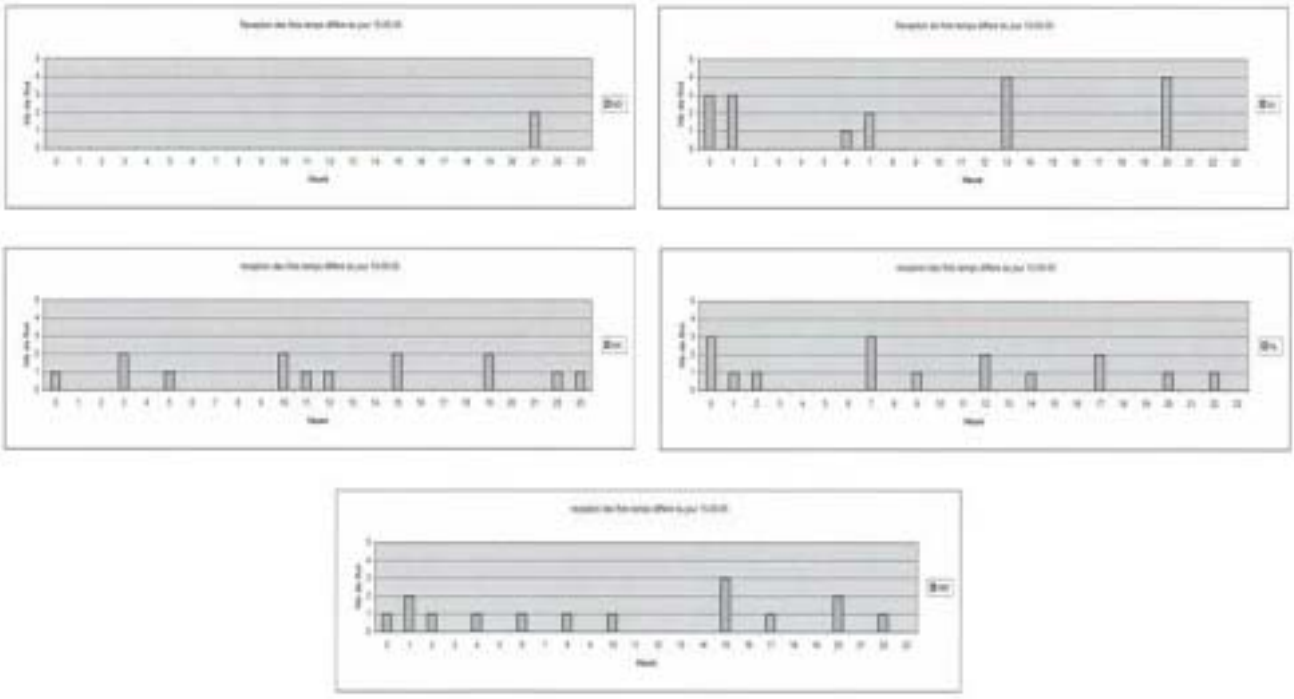


Figure 3

2.2 Regional stations

CLS and Service Argos Inc. pursued their efforts to increase the number of receiving stations able to provide TIP data sets from the NOAA satellites. Two new stations joined the Argos network since last JTA session, Chennai, October 2004. They are in Indonesia (Bali) and India (Hyderabad).

There are currently 44 stations (figures 3 & 4) delivering real time (TIP) data sets to CLS and Service Argos Inc. Most of them process data from NOAA-16, NOAA-17, NOAA-18, NOAA-15, NOAA-14 and NOAA-12, so good throughput times for delivery of results can be maintained.

Service Argos has plans to install an antenna in Gabon.

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, , N18**
13	Melbourne	ME	Australia	BOM	**N12, N14, N15, N16, N17, N18**
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, N18**
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	Tahiti	TA	France (Tahiti)	Météo France	**N12, , N15, N16, N17, N18**
22	Tromsoe	ST	Norway	KSAT	**N12, N14, N15, N16, N17**
23	Wallops	WI	USA	NOAA/NESDIS	**N12, N14, N15, N16, N17**
24	Wellington	NZ	New-Zeland	Met Office	**, N14, N15, N16, N17**
25	Athenes	AT	Greece	NCMR	**N12, N14, N15, N16, N17, N18**
26	Aussaguel	AU	France	CLS	**N12, N14, N15, N16, N17**
27	Bali	BL	Indonesia	PT CLS	**N12, N14, N15, N16, N17, N18**
28	Bitung	BI	Indonesia	PT CLS	**N12, N14, N15, N16, N17**
29	Cape Town	SA	South Africa	CLS/SAWB	**N12, N14, N15, N16, N17, N18**
30	Helsinki	HL	Finland	CLS	**N12, N14, N15, N16, N17, N18**
31	Largo	LA	USA	SAI	**N12, N14, N15, N16, N17**
32	Las Palmas	CN	Canaries Island	CLS	**N12, N14, N15, N16, N17, N18**
33	Lima	PR	Peru	CLS Perù	**N12, N14, N15, N16, N17, N18**
34	Toulouse	RV	France	CLS	**N12, N14, N15, N16, N17, N18**
35	Murmansk	RU	Russia	Complex System	**N12, N14, N15, N16, , N18**
36	Petropavlosk	PT	Russia	Rybradiov	**N12, N14, N15, N16, N17**
37	Tokyo	JM	Japan	Jamstec	**N12, N14, N15, N16, N17, N18**
38	Antarctica	AC	Chile	Meteo Chile	**N12, N14,N15 , ,**
39	Edmonton	ED	Canada	Envir. Canada	**N12, N14, , N16, N17**
40	Fidji	FI	Fidji	FMS	**, N14,N15 , ,**
41	Hyderabad	HY	India	ISRO	**N12, N14, N15, N16, N17**
42	Monterey	MO	USA	NESDIS/NWS	**N12, , N15 , N16, N17**
43	Riyadh	RY	AU	KACST	**N12, N14, N15, N16, N17**
44	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")

Table 1

ARGOS receiving station network

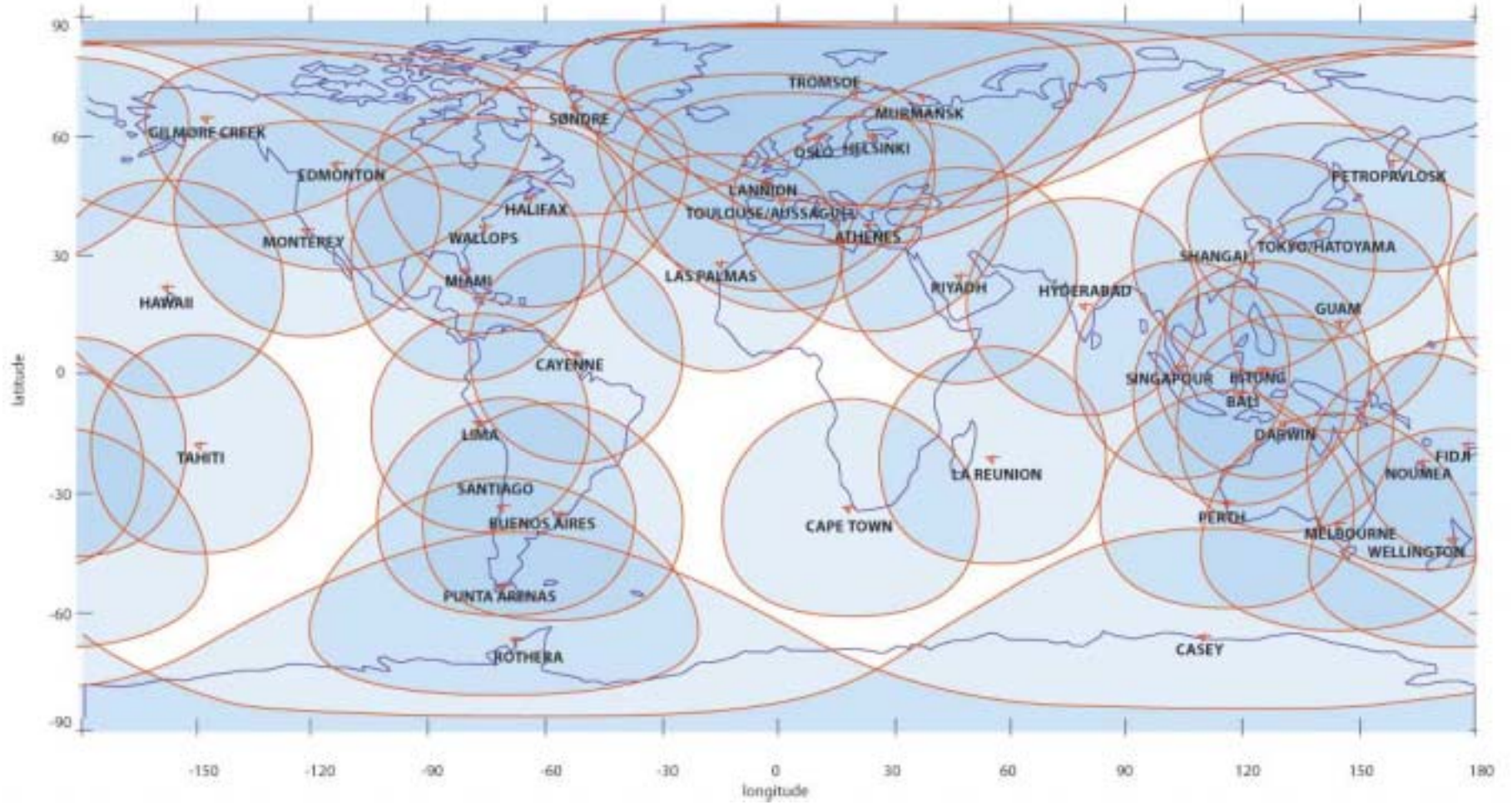


Figure 4

3 PROCESSING CENTERS

Each of the six Argos processing centers—in Toulouse, Largo, Melbourne, Tokyo, Lima and Jakarta — operated without a major hitch in 2004.

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 5). The regional processing centers in Tokyo, Lima and Jakarta 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 when necessary.

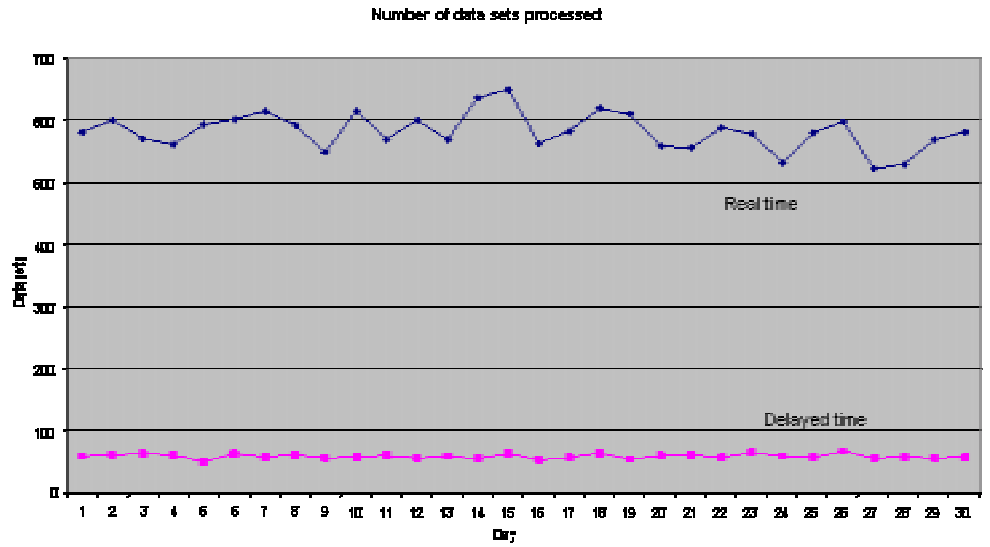


Figure 5

The processing computers of the Australian regional centers, located in Melbourne, were switched-off in 2004. The data sets collected by the BoM antennas are still relayed to the Toulouse processing center. Declarations are input directly in the Toulouse GPCs database using an Internet link. The Australian User Office keeps serving the Australian and NZ Users, as before. On the other hand, in 2004, we implemented the Indonesian processing center located in Jakarta. This center is essentially in charge of managing the fishing vessels in the Indonesian area.

The number of Argos platforms operating continues to increase. In April 2005, more than 7800 platforms were seen on average per day (figure 6). Each of the two global centers processed data from 14 000 individual platforms during this month.

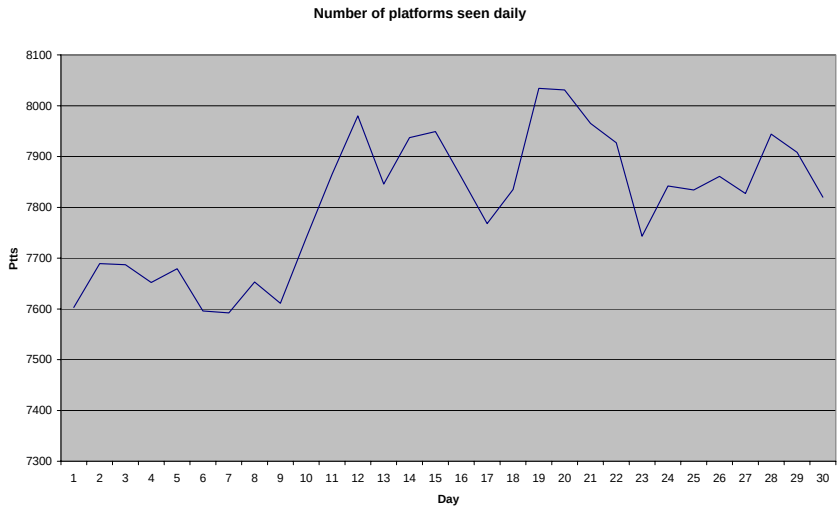


Figure 6

Figures 7 and 8 below show the number of locations and messages computed every day by the Largo and Toulouse centers.

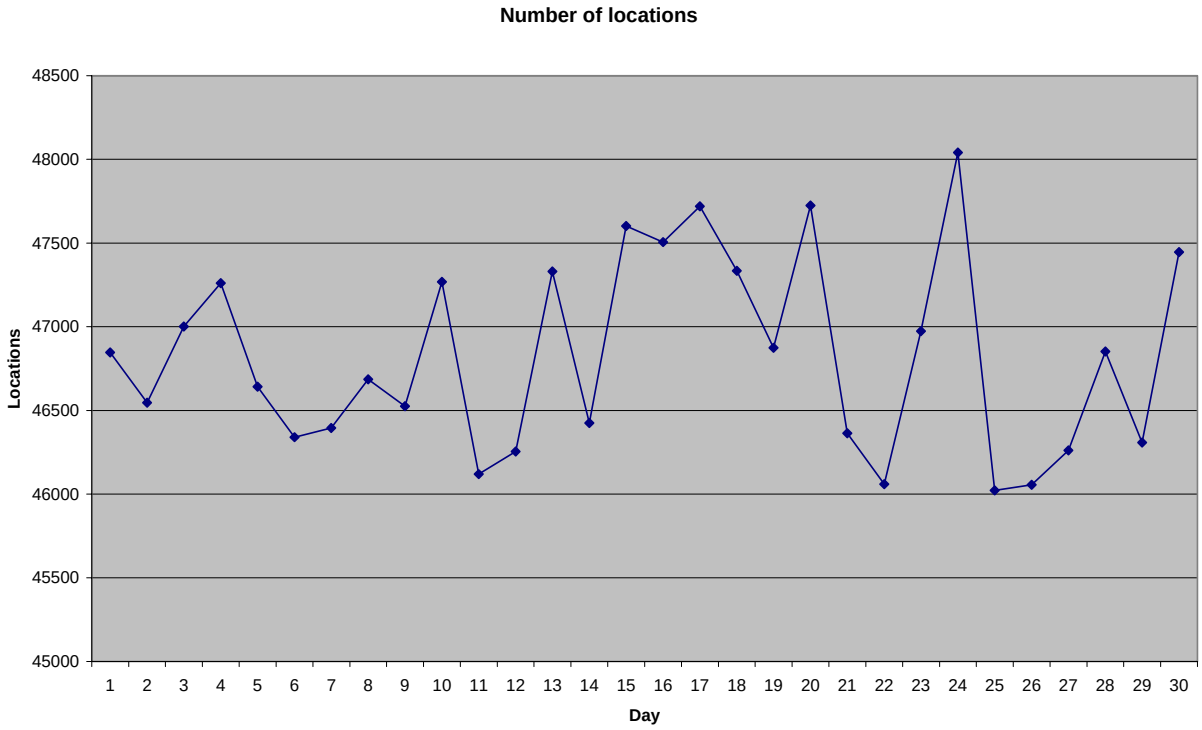


Figure 7

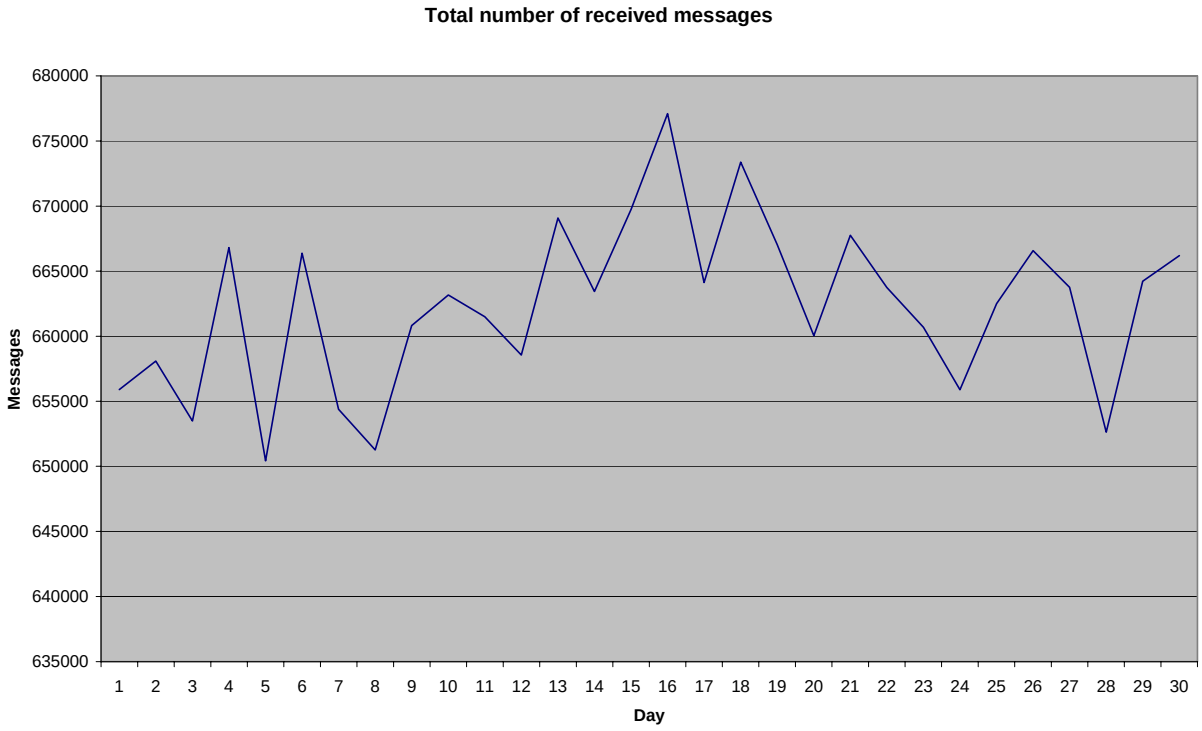


Figure 8

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).

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 2 shows the throughput time for stored data result delivery from NOAA-18, NOAA-17, NOAA-16 and NOAA-15.

Satellite Delivery	NOAA-15, NOAA-16, NOAA-17 & NOAA-18
1 h	14 %
1 h 30	27 %
2 h	44 %
2 h 30	60 %
4 h	82 %
> 4 h	100 %

Table 2: Stored data availability for satellites NOAA-15, NOAA-16, NOAA-17 and NOAA-18

Table 3 below shows the throughput time for stored data result delivery from NOAA-12 and NOAA-14, two back-up satellites. The delivery of stored data is not done after every download for these two satellites but four satellites are now in table 1, instead of three last year.

Satellite Delivery	NOAA-12 & NOAA-14
1 h	3 %
1 h 30	7 %
2 h	14 %
2 h 30	25 %
4 h	55 %
> 4 h	100 %

Table 3: Stored data availability for satellites NOAA-12 and NOAA-14

Table 11 shows the throughput time for real-time result delivery from NOAA-18, NOAA-17, NOAA-16, NOAA-15, NOAA-14 and NOAA-12 and acquired by the 44 HRPT receiving stations.

Satellite Delivery	NOAA-12, NOAA-14 NOAA-15, NOAA-16 NOAA-17 & NOAA-18
<10’	41 %
<15’	55 %
<30’	85 %
<45’	93 %
>45’	100 %

Table 9: Real-time data availability

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

- 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 of the order of few minutes.

About three quarters of the Argos data are available in near real time. Figure 9 shows percentage of global data received in real time via the 44 regional stations (simulation for August 2005). It shows that there are two regions where less than 30% of the global data are received in real-time, i.e. (i) South Atlantic ocean, near Saint Helena Island, and (ii) South East Pacific Ocean, between French Polynesia and Easter Island.

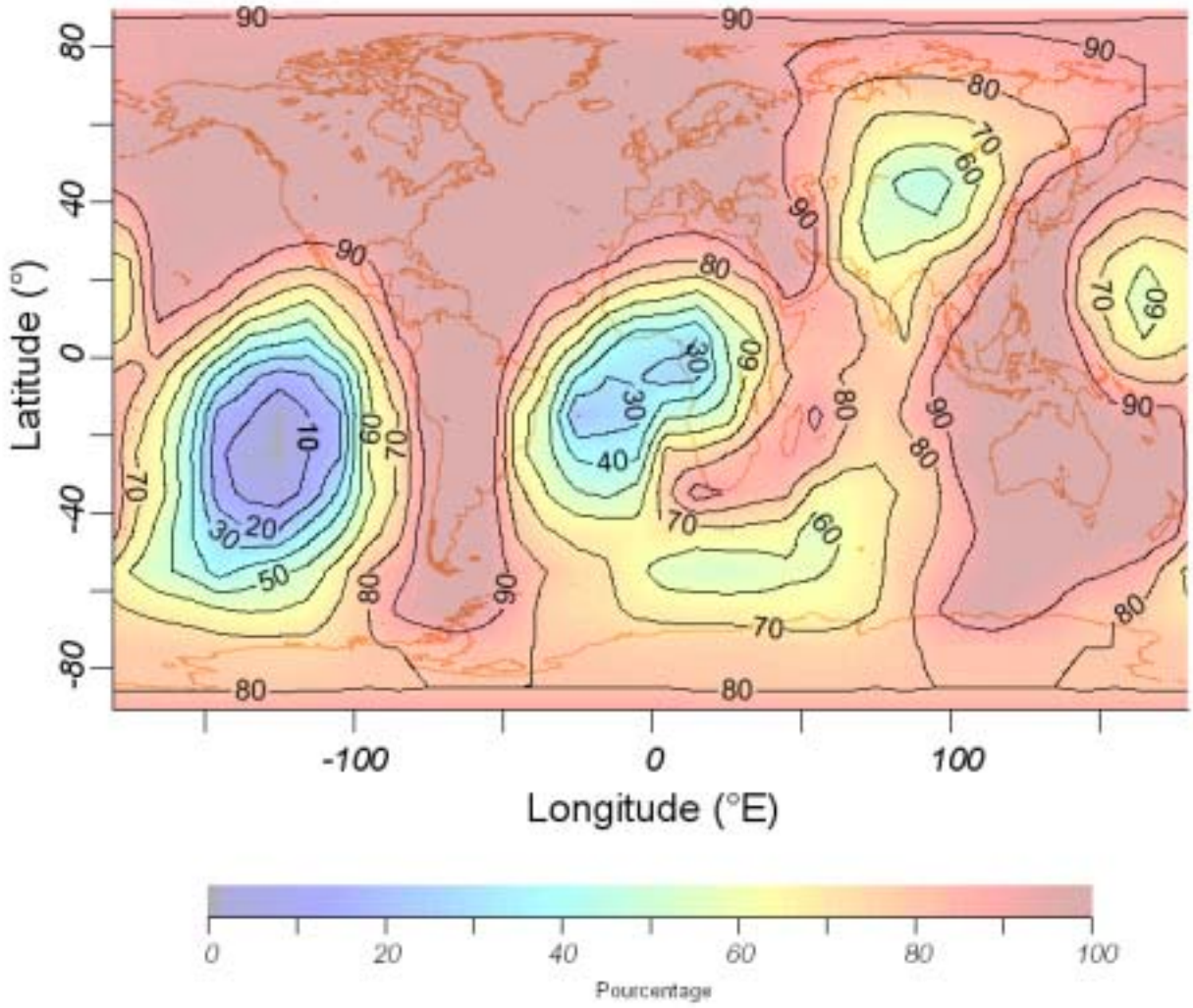
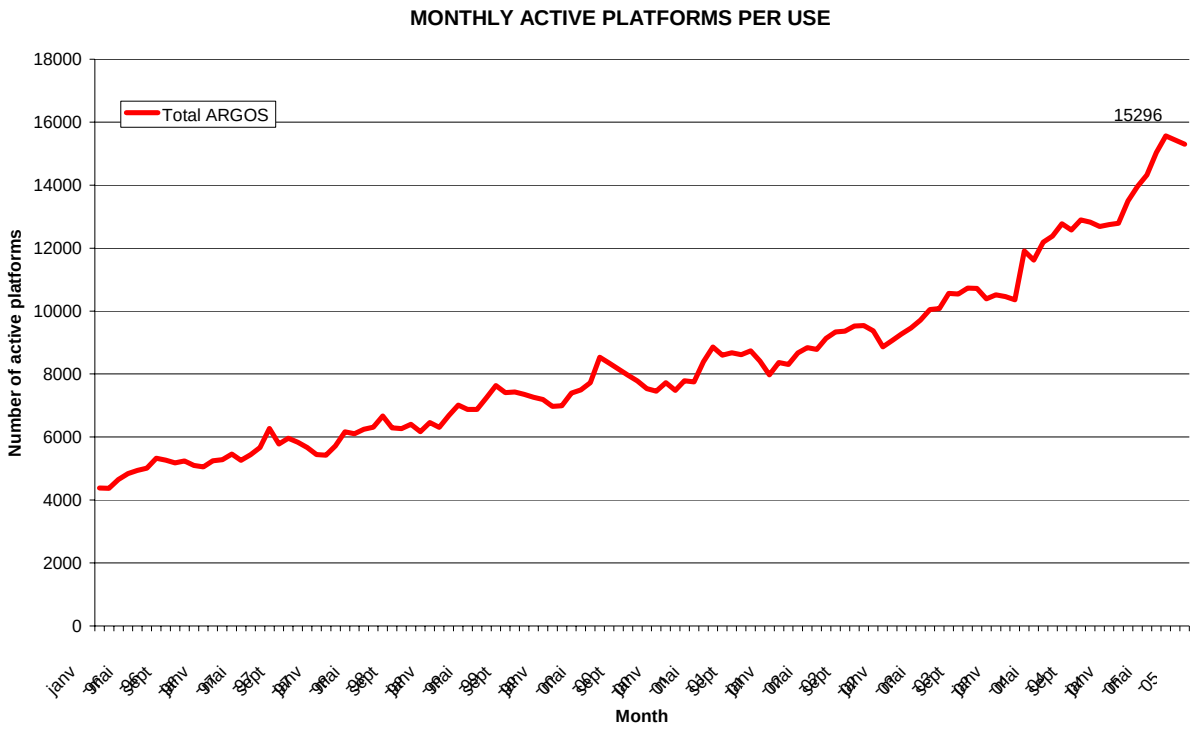


Figure 9: Percentage of data received in real time via the 44 regional stations (August 2005)



Active platform evolution since 1996

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

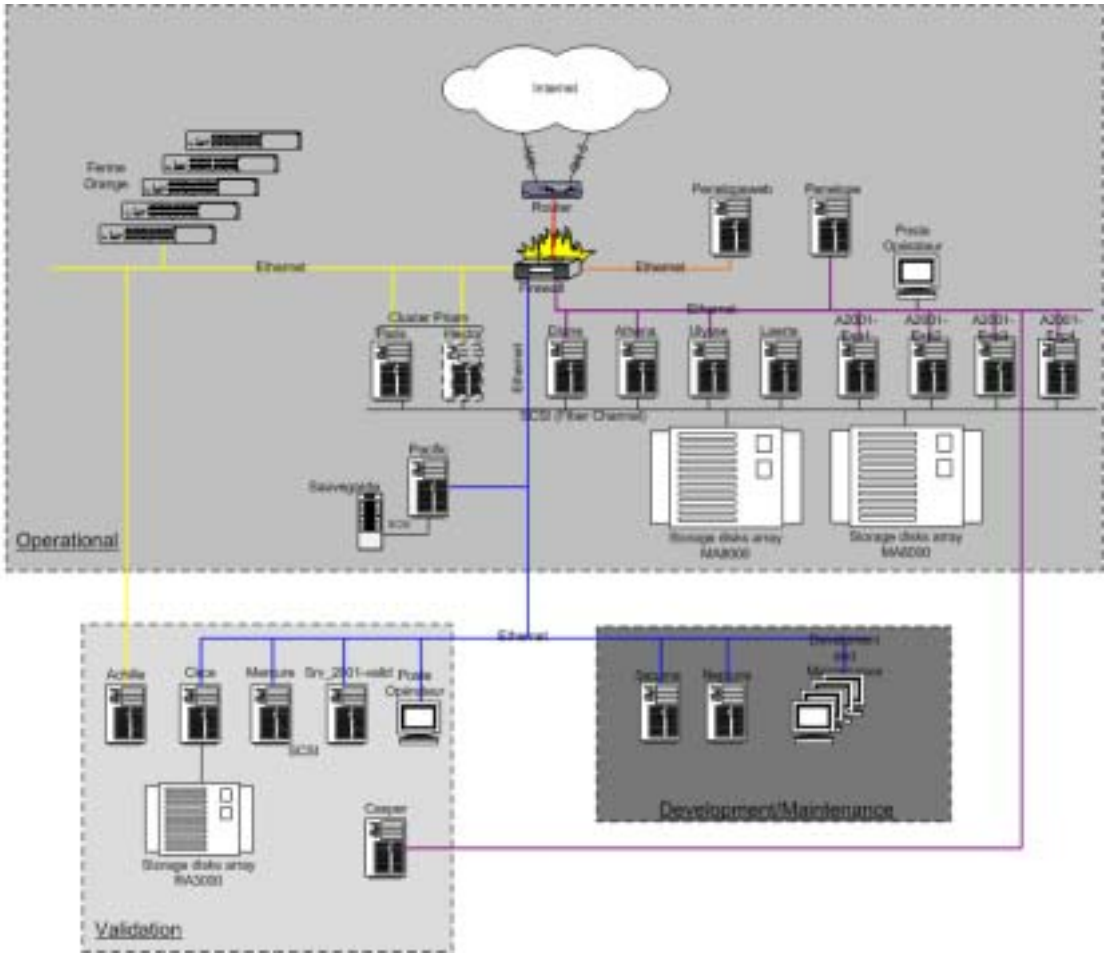
ANNEX VI

SYSTEM IMPROVEMENTS

1 HARDWARE AND SOFTWARE CONFIGURATION

1.1 Hardware Configuration

In 2004, we implemented the definitive computing architecture dedicated to the Argos 2001 application.

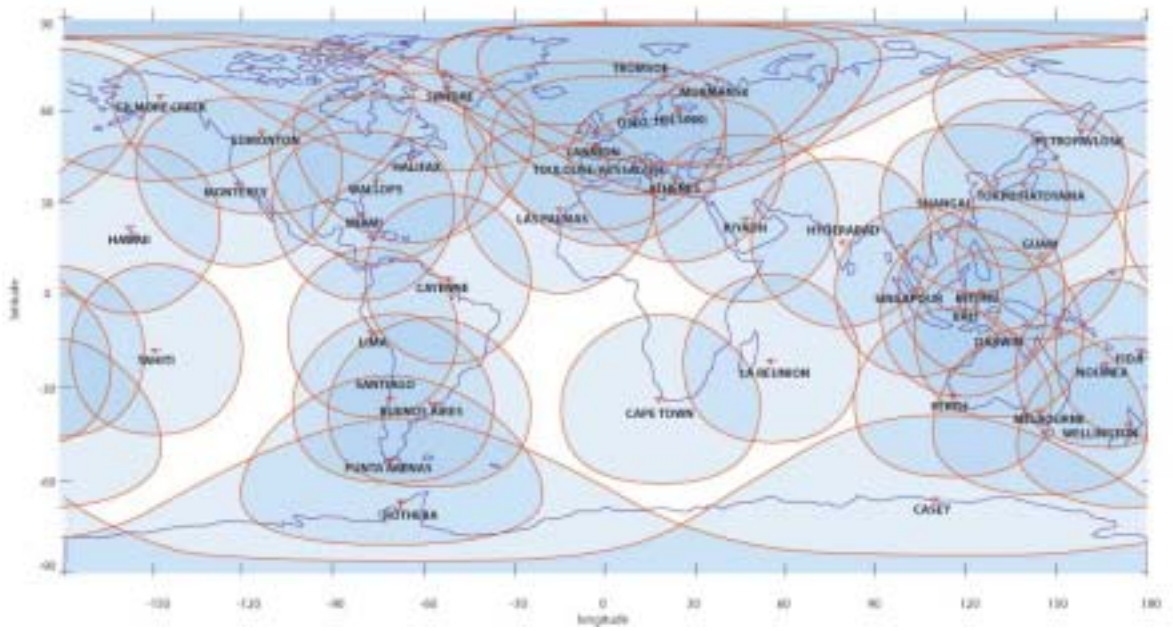


This architecture has been designed to reach a high level of availability. However, all these computing facilities are located in the same room with the same power supply and air conditioned facilities. So, next step concerns the position of the computing facilities on two computing rooms. These two rooms will be 3 to 4 km apart and in case of a problem in one center, it will be possible to continue with the facilities of the other center.

1.2 Ground Segment Architecture

Four new stations joined the Argos network during the year. They are in Bali (Indonesia, CLS), Bitung (Indonesia, CLS), Shanghai (China, East China Sea Fisheries Research Institute) and Tahiti (French Polynesia, Meteo France).

The Argos stations network has now 44 antennas.



1.3 Software configuration

CLS continues to focus most of its software development efforts on the Argos 2001 and Argos 3 projects – see paragraph 2. PROJECTS. At the same time the team regularly works on corrective software maintenance and upgrades that are vital to continue meeting user requirements.

1.4 Regional processing centers

The four regional processing centers—in Melbourne, Tokyo, Lima and Jakarta — operated without a major hitch in 2004.

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. 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. This phase has been subdivided into 2 sub phases:

- IIIA : Redesign of Argos processing chain
- IIB : Redesign of GTS processing chain

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 started in December 2002.
The development has been completed in May 2004.
This phase has been put in operation in May for CLS and will be put in operation in July for SAI.

Phase III:
Requirement specifications have been 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 partial acceptance test of the phases IIIA and IIIB will start in june 2005 and the final acceptance test is scheduled in September 2005.
This phase will be put in operation during first quarter of 2006.

2.2 Argos 3 Ground Segment (SSA3 Project)

In March 2003 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. It includes the downlink and the new format for the uplink messages (new modulation, high bit data rate…).

The sub-systems of the Argos 3 ground segment development shall be completed and validated for the first METOP satellite launch which will be called METOP A. This launch has been postponed until June 2006.

This project is driven in parallel with the Argos 2001 Phase III project and then the first milestone is now the delivery of the Argos 2001 phase III delivery which is scheduled in early 2006.

The Project covers the following developments:

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

- **Argos Processing Center**

The Argos Processing center is made up of several sub-systems. Each sub-system follows its own life cycle driven by the need in terms of integration and validation of the center.

These subsystems are:

- ✓ ACQ/PTR: it is responsible for the acquisition of the mission telemetry from the regional antenna or the global receiving stations. Once acquired, the telemetry is processed in order to provide the other subsystems with “clean” and homogeneous Argos telemetry.
- ✓ LOC: it is in charge for the determination of the plate-form localization by using the frequency measurements made by the instruments.
- ✓ DAT/ORB: The relation between the on board time and UTC, used to time stamp the Argos messages, is assessed by the DAT subsystem. ORB is in charge of the production of ephemeris data used to localize the satellites.
- ✓ TRM and GTS are two subsystems for which the evolution are mainly due to the objectives of the A2001 Phase III. It means to provide new capabilities to the users for encoding what they want to transmit through Argos.
- ✓ DMMC: this sub-system is responsible for the management of the downlink message capability. Due to the failure of ADEOS II mission, this sub-system is now fully dedicated to Argos 3 instrument. The Specification Requirement Review took place on April, 29 2004. A first version of this subsystem has been delivered in November 2004. The first version is mainly dedicated to the instrument administration. The second version, including all services available for the users, will take its acceptance tests in August 2005.

The integration tests with EUMETSAT have been postponed by EUMETSAT, they took place in March and April 2005.

The Integration, Validation and Verification phase has started in April. SSA3 project will be tested with CNES in July and September 2005.

- **Time tagging beacon**

A new generation of the Time tagging beacon has been specified to meet the new requirements of the Argos 3 instrument. The Factory Acceptance Test took place in June 2004. The new beacon will be operational September 2005.

- **Master Beacon**

The Master Bacon, compliant with Argos 3 instrument, has been accepted by the CNES in March 2004. The first MB has been installed in Svalbard this September. The Fairbanks MB is also scheduled for the 2005 third quarter.

- **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 on-board Argos equipment operations). The test equipment has been accepted by CNES and will be used as the nominal one in September 2005.

2.3 Regional processing centers

As planned, the Indonesian regional processing center in Djakarta has been implemented. This center is essentially in charge of processing the data transmitted by the fishing vessels in the Indonesian area.

The Australian regional center, created in 1989 – it was the first one -, was stopped in 2004. This center is now of little added value for the users since they can easily receive, without delay, the data collected by the real time antennas data via ADS or the Telnet distribution of the French global processing center. The user guidance office still exists and it is the most important from the user point of view.

3 REVIEW OF USERS REQUIREMENTS

3.1 Data Buoy Cooperation Panel requirements

3.1.1 Keep NOAA-12 and NOAA-14 in operation

***Requirement**: The Argos data relayed by NOAA 12 and NOAA 14 are of considerable value as part of the multisat service. The DBCP has made a strong request to keep NOAA 12 and 14 in operation.*

Status: NOAA/NESDIS convened a POES constellation meeting in July 2005 at which decisions were to be made regarding the entire POES constellation. As of this writing a decision has been postponed until the next meeting which will be in October.

3.1.2 Activate Svalbard Ground Station.

***Requirement**: The lack of a capability to download blind orbit data from the NOAA Polar Orbiting Satellites contributes significantly to the Argos data delays on the GTS. A possible solution to this problem is the early activation of the Svalbard NPOESS ground station to enable it to capture blind orbit POES data.*

The NOAA/NESDIS Office of Satellite Data Processing and Distribution (OSDPD) is coordinating the action to download 'blind orbit' data from pre NOAA 18 satellites at Svalbard in response to the request from the DBCP. Funding was provided by NOAA to build the communication infrastructure which will carry the Svalbard data to the current NOAA POES preprocessing system. Testing is scheduled for early September 2005 where NESDIS will dump NOAA18 GACs (Argos data is inside) for 7 straight days. The NPOESS Svalbard group will receive, package and transmit the data to NESDIS/SOCC in Suitland. MD via their SIMR network and NESDIS will attempt to ingest the data through their frame synchronizers. Once this effort is sufficiently proven reliable, scheduling the NOAA 15, 16 and 17 spacecrafts downloads will begin. Data from NOAA 18 will not be included due to Initial Joint Polar System (IJPS) agreements.

3.1.3 Acquire Data from Brazilian LUT's

***Requirement:** In order to enhance the timeliness of Argos data, particularly in tropical areas, a tentative cooperation with the Brazilian Space Agency is still a work in progress. In addition to the possibility of processing data from the Brazilian DCS within the Argos system, there was the additional possibility of using Brazilian LUT's to obtain standard Argos data that would improve observational coverage for the ISABP, amongst others.*

Status:

- ✓ Messages transmitted from Argos PTT's that are retransmitted by the Brazilian DCS and are received at the Cuiaba station continue to be transferred to CLS
- ✓ The formal agreement is still under discussion

3.1.4 Eliminate the Two-day Accounting from Transmissions Spanning UTC Midnight

***Requirement:** It was reported that Argos communication costs for the Argo floats could possibly be doubled as a result of transmissions spanning UTC midnight.*

This is addressed by the new tariff and the time slots accounting. A float transmitting 10 hours over midnight will be counted from 0.5 to 0.75 day units – i.e. two to three time slots - instead of 2 days units with the previous system.

3.1.5 Include the Possibility of Argos Costs for Multi-Country Programs being Paid at the Program Level rather than the ROC Level

The new tariff structure includes the concept of Representative of Organization (RO) which specifically addresses the need.

3.1.6 Various GTS sub-system Enhancements.

GTS will be included in the new Argos 2001 processing system

When Phase IIIB is operational, the GTS sub-system will be an entire part of the full Argos processing system. All data (Argos outputs and GTS formatted data) will be delivered by the same system.

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 implementation of the compression of the BUFR files was completed in September 2005.

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. It was implemented in mid-October 2004 and after a PTT declaration tuning run properly end October.

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 was implemented in September 2005.

ARGO, APEX 28-bit format

The new code concatenates the 40 last bits of the previous float message to the next message, then processes it. S-T-D samples are then complete.
This was implemented in September 05.

ARGO – AOML redundancy

Action pending.

ARGO – Speeding-up the data distribution

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 (18 hours). This routine was implemented in October 2004. Declaration tunings were applied in 2005.

ARGO – Meta data dissemination to Ifremer or others

All ARGO data processed by the CLS GTS subsystem are delivered to Coriolis (at Ifremer) by Ftp.

3.2 Falklands LUT

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

There is a South-African action to write an official letter to the Met Office to remind them of their undertakings and to request an action plan.

3.3 Issues arising from the Argos Operations Committee

No special issues to address

ANNEX VII

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 Report and recommendations from the Operations Committee

39th Operations Committee (June 2005)

G-1-1. Report on JTA Meeting (see exhibit # 20)

Derek Painting informed the meeting on the results of the twenty fourth meeting on the JTA. The most important outcome was agreement, in principle, for a radically new tariff structure to be tested in 2005 in a pilot program and be implemented for all JTA participants in 2006. The results of the 2005 pilot program would be used to make detailed refinements to the new tariff formulation.

Other issues of concern discussed at the JTA session related to continued operation of the DCS missions on NOAA 12 and 14 and the blind orbit problem. These issues are fully covered in D-1 and F-1 above.

At the October 25-27, 2004 meeting of the Argos Joint Tariff Agreement (JTA) in Chennai, India, agreement was reached on a structure for a new Tariff to begin January 2005. Bill Woodward presented an overview of the new JTA Tariff Structure.

The new structure is simple, comprehensive and flexible, cost-efficient, and globally consistent. The main features are itemized below:

- ✓ *Simple accounting: a monthly charge per active PTT and a PTT-day rate*
- ✓ *Users are invoiced quarterly only from Service Argos (SAI) and on actual consumption – no more advanced payment required*
- ✓ *Only two categories of service: 1) Basic Service -Location and Data Collection, and 2) Inactive Service (free of charge*
- ✓ *)Multisatellite service, Auxiliary Location Processing (ALP) and dual-processing are included in the Basic Service*
- ✓ *No more surcharge for more than 6 locations/10 data collections*
- ✓ *Additional services such as Databank, Automatic Distribution Service (ADS), and Processing Modifications are not included in the Basic Service and are invoiced separately when they are required as they are today*
- ✓ *The cost of a PTT will be calculated according to the formula given in exhibit 20: The JTA Meeting recognized that a transition period was required so that the new tariff mechanism can be fully explained to the users and be ready to be implemented. Consequently, for 2005, implementing the new tariff is being considered a "Pilot Program." All JTA member countries are participating in the Pilot except for UK, China and Canada.*

The Argos users like the simplicity and lower cost of the new Tariff structure and several of the many positive reactions in the U.S. were presented including ones from the NOAA Office of Climate Observations, the NOAA TAO Project Office, the U.S. Geological Survey and the Chairman of the Data Buoy Cooperation Panel.

G-1-5. Financial status of Agent (see exhibit # 24)

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 was maintained for the purpose of calculating the annual 2004 Argos basic costs.

The 2004 Argos basic costs for the purpose of calculating the JTA share was capped at the actual 2000 figure of M€ 9.49 and then increased by the annual inflation rates of 2001, 2002, 2003 and 2004 successively.
The 2004 JTA structure shows:

- ✓ *A calculated Argos basic cost of M€ 10.38 (2003 capped figure of M€ 10.13 times 2004 inflation calculated at 2.44%)*
- ✓ *A ratio JTA active PTTs/total active PTTs at 54.6% capped at 52% according to FYP.*

Taking this into account, the 2004 JTA had an excess revenue of 0.89 M€ and the JTA accumulated loss disappeared. Thus the FYP showed an excess of 0.5 M€.

In conclusion, the Five Year Plan worked perfectly to help put the JTA back on track. The non JTA incomes also slightly exceeded their portion of the costs.
Consequently, the non JTA accumulated loss at the end of 2004 is calculated at 9.87 M€.

Methodology to derive Argos costs to be attributed to JTA:

During the twenty third JTA meeting in Brazil, the meeting asked CLS to determine the portion of Argos costs to be attributed to the JTA to be approved by the Operations Committee.

At the 38th OPSCOM, Christophe Vassal presented the methodology to derive the Argos costs to be attributed to the JTA from the global CLS costs following a 3 step approach using CLS's analytical accounting principles and distribution by percentages. The meeting took good note and agreed in principle with the methodology proposed and that after some detailed elaboration with the JTA working group it could provide a satisfactory basis for determination of the future JTA share of operating costs.

At the twenty fourth JTA meeting in India, Christophe Vassal presented details of the finalized Argos operating costs for 2003. The meeting acknowledged the information given and noted the 2003 actual cost figure of 11.09 M€. It noted with appreciation the detailed breakdown of such costs for 2003 as well as the evolution of these figures over previous years.

At the present OPSCOM meeting, the methodology to derive Argos costs to be attributed to the JTA was again presented. It showed that the Argos basic costs remained very stable at 11.17 M€ in 2004 compared to 2003. This is mainly because certain costs for software development that are considered Argos value added expenses or that have been offset by a contract from the French Space Agency are not included in 2004. The presentation was well received with no comments. The meeting also recognized that on the long term, the JTA has the possibility to represent even a larger scientific community from many more countries.

2 THE 5 YEAR OPERATING PLANS

2.1 2000-2004 Five Year Plan Projection

The table below provides the completed five year plan, from 2000 to 2004.

Completed 2000-2004 2000 Plan in EURO

In euro	1998	1999	2000	2001	2002	2003	2004
Total costs							
FYP	8.54	8.72	8.89	9.07	9.25	9.44	9.62
Inflation	2%	2%	2.00%	2.14%	2.44%	2.00%	2.44%
Actual and *agreed for the future*	8.54	8.96	9.49	9.68	9.93	10.13	10.38
JTA Share							
FYP "no more than"	60%	60%	58%	56.50%	55.00%	53.50%	52.00%
Actual and *agreed for the future*	**60.00%**	**59.50%**	**57.50%**	**56.50%**	**55.00%**	**53.50%**	**52.00%**
JTA costs (M€)							
FYP	5.13	5.23	5.15	5.12	5.09	5.05	5.00
Actual and *agreed for the future*	5.13	5.33	5.46	5.47	5.46	5.42	5.40
Non inflated income (constant number)							
FYP	4.79	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	5.87
Subscription		1 121	1 108	1 136	1 145	1 237	1 422
Number active PTT							
FYP			4 000	4 500	5 000	5 500	6 000
Actual and *forecast*			4 448	4 571	5 085	5 666	6 384
€/active PTT/month			1.52	3.05	4.57	6.10	7.62
Active PTT fixed fee (M€)			0.07	0.16	0.27	0.40	0.55
Actual and *agreed for the future*			0.08	0.17	*0.28*	0.41	0.58
Adjustment PTT years fee (€/year)							
FYP			30.49	60.98	91.47	121.96	152.45
Actual and *agreed for the future*			30.49	60.98	91.47	91.47	-113.67
Adjustment (M€)							
FYP			0.03	0.07	0.10	0.14	0.19
Actual and agreed for the future			0.03	0.07	0.10	0.11	-0.16
Annual loss							
FYP	0.26	0.43	0.25	0.09	-0.09	-0.30	-0.54
Actual and *agreed for the future*	0.26	0.57	0.57	0.13	-0.50	-0.63	-0.89
Accumulated loss (M€)							
FYP	0.26	0.69	0.93	1.02	0.93	0.63	0.09
Actual and *agreed for the future*	0.26	0.83	1.40	1.52	1.02	0.39	-0.50

The 5 year plan worked extremely well and ends with an excess of 0.5 M€.

2.2 The 2005-2009 Operating Plan

The evolution of the Pilot programme, the related new 5YP plan and the financial impacts are described in a specific document “Pilote Programme Status”.

3 FINANCIAL STATEMENT

3.1 Annual Expenses (in kEuros) for Year 2004

	Personnel	Costs	Amortiz-ation	Total
Management	**576**	**445**		**1021**
Operational costs				
Quality	180	16	1	196
Studies & development	484	221	295	1 000
Processing center	1 351	171	277	1 799
Client support/customer service	676	1 117		1 793
Sub-total Operational	***2 691***	***1 525***	***573***	***4 788***
Promotion costs				
Promotion Communication	878	590	31	1 500
Travels, hosting		487		487
Sub-total Marketing	***878***	***1 078***	***31***	***1 987***
Administrative costs				
Administration, finance, audit	1 049	384	16	1 449
Costs for presence	149	713	98	960
Sub-total Administrative	***1 198***	***1 097***	***114***	***2 409***
		450		450
Taxes, bad debts provision & financial costs		***961***		***961***
	484	221	295	1 000
TOTAL	5 343	5105	717	11 166

Table 3.1: Detail on 2004 Expenses in k€

3.2 Details of Amortization Items

	Amortization	Description
Operational costs		
Quality	1	
Studies & development	295	*GTS, SSA3, Argos 2001*
Processing center	277	*Maintenance processing center (hardware and software)*
Sub-total	**573**	
Promotion costs		
Promotion	5	*Exhibit, International meetings, User Conference Costs*
Communication	26	*Exhibit, documentation Costs*
Sub-total	**31**	
Administrative costs		
Management control	16	*Accounting system, Argos registred mark*
Costs for presence	98	*Office furniture, safety, general equipment*
Sub-total	**114**	
Total	**717**	

Table 3.2: Detail of Amortization Items in k€

3.3 Annual Incomes (in millions of Euros)

Incomes (M€)	2003	2004
JTA	**6.04**	**6.29**
Non JTA	**5.66**	**6.08**
Total	**11.70**	**12.37**

Table 3.3: JTA and non JTA 2003, 2004 Incomes

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

	2003	2004	
Incomes			
JTA CLS	2.21	2.21	
JTA SAI	3.83	4.08	
	6.04	**6.29**	**+4.07%**
Non JTA CLS	5.10	5.58	
Non JTA SAI	0.56	0.51	
	5.66	**6.08**	
Total basic Argos incomes	**11.70**	**12.37**	**+5.73%**
Expenses			
Total basic Argos expenses	**11.09**	**11.17**	**+0.66%**

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

3.5 JTA Annual Balance (in millions of Euros)

	2003	2004
JTA Operating Costs*	5.42	5.40
JTA Income	6.04	6.29
Difference	0.62	0.89
Accumulated Difference	-0.4	0.49

Table 3.5: Annual Balance

* The remaining difference from 2002 was -1.02 M€.

The 2004 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, 2003 and 2004 successively. The percentage of JTA active PTTs versus the total number of active PTTs is also capped at 52% according to previous 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 2005 there were 25 612 ID numbers allocated to JTA applications out of which some 62% (against 50% last year) – 15 828 IDs - were 28 bit. Though the situation is improving, there's still a fair amount of 20 bit IDs in JTA programs thus we strongly encourage the unused ID charge to continue.

4.2 Free Access to Third Satellite

Countries in the pilot programme are enjoying multi-satellite service for free.
All countries should enjoy it from 2006.

4.3 Incentive for frequency spreading

CLS/SAi continued promotional activities to educate users and ask manufacturers to
Utilize voluntarily all available bandwidth. The reason for most users not to leave the Argos-1 bandwidth is that they can get more data from their platforms with less throughput time as two Argos-1 instruments are still transmitting real-time data.
Yet, in some cases we see transmitters set on the central frequencies in areas where the overall result for the user is not beneficial to the user. We propose to enhance the situation through a better coordination between CLS/SAI, Users and manufacturers.

4.4 Factoring additional charges

This was accommodated by the new tariff structure and applied to countries participating to the pilot programme.

4.5 Downlink tariff and high data rate channel policy

METOP 1 will carry an Argos-3 instrument equipped with a downlink capability and the 4.8 kbits high data rate channel.
The proposed Downlink Tariff Policy presented at JTA XXII is still valid, that is a fixed monthly fee of possibly 30 € per active PTT. As per the high-data rate channel, it's proposed to add a category "high data rate" with a specific day unit rate, for example 1/3 more than the "Large Volume – Float" category, 12 €.
In line with our discussions at JTA XXII meeting, to foster the test and use of these new capabilities, CLS/SAI proposes to grant free access to these new services for a one year period.

4.6 New Tariff Structure

The new tariff structure was presented and approved at the JTA-XXIII for full implementation in 2006. This structure was implemented on pilot basis in 2005 in 19 countries out of 22. The document "Pilote Programme Status" provides an insight on this implementation and the related budgetary impacts.

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
Argos 2001 project (Argos processing chain renewal) step 2
ADEOS II/Argos processing sub-system upgrade
GTS distribution of sub-surface floats

5.2 Projects Being Developed (or which started in 2005)

Argos 2001 project (Argos processing system renewal) step 3
GTS Subsystem Quality control
Improved delivery times (open action item)
Argos data web

5.3 Projects under study

Error detection/correction codes, requested by JTA (DBCP)
Data sharing facilities

ANNEX VIII

A PROPOSAL FOR A NEW CHARGING ARGORITHM

1. Background

Most communications companies (e.g. phone companies) base their charging algorithm on two components, a 'membership' charge **A** (e.g. monthly fixed charge, line rental), plus a 'consumption' charge **B** (e.g. call volume, connect time, data volume). The consumption charge **B** is quantised so that a minimum call charge is always payable (typically quanta are 1 minute, or 1 kbyte).

Until a few years ago, Argos based its charging algorithm on the PTT-day, whereby any activity by a platform during a UTC day triggered payment of a day unit charge. Essentially there was no membership charge (**A** = 0), and the **B** quantum was 1 day.

More recently, a membership charge **A** was introduced in the form of an 'active platform' fee, whereby any activity by a platform during a calendar month triggered the payment of **A**. This was to help pay for the additional workload associated with programmes whose consumption was low, but whose platform count was high. These programmes typically belonged to animal trackers.

At more or less the same time, it was realised that many platforms did not transmit continuously, and so were making a limited use of the communications opportunities afforded to them. Nonetheless these platforms paid the full day rate **B**. This was recognised as being unfair, and a 'Limited Use Service' (LUS) charging category was introduced whereby such platforms effectively paid a day rate of **B/3**. Platforms eligible for this category included units for which the duty cycle was less than 1/3, and sea mammals, which typically spent most of their time submerged.

Additionally, the tariff algorithm contained many other components, such as different **B** rates for other classes of platform and use, additional charges for supplementary locations, access to the full satellite constellation, bonus allocations, etc. Eventually it became almost incomprehensible except to the few who regularly attended the JTA sessions.

The need for change was recognised, and a possible framework sketched out at the 2003 JTA session in Brazil. The key features were to simplify the system, to make it equitable, and to operate like a phone company, with billing in arrears based on actual consumption.

2. The pilot scheme (2005)

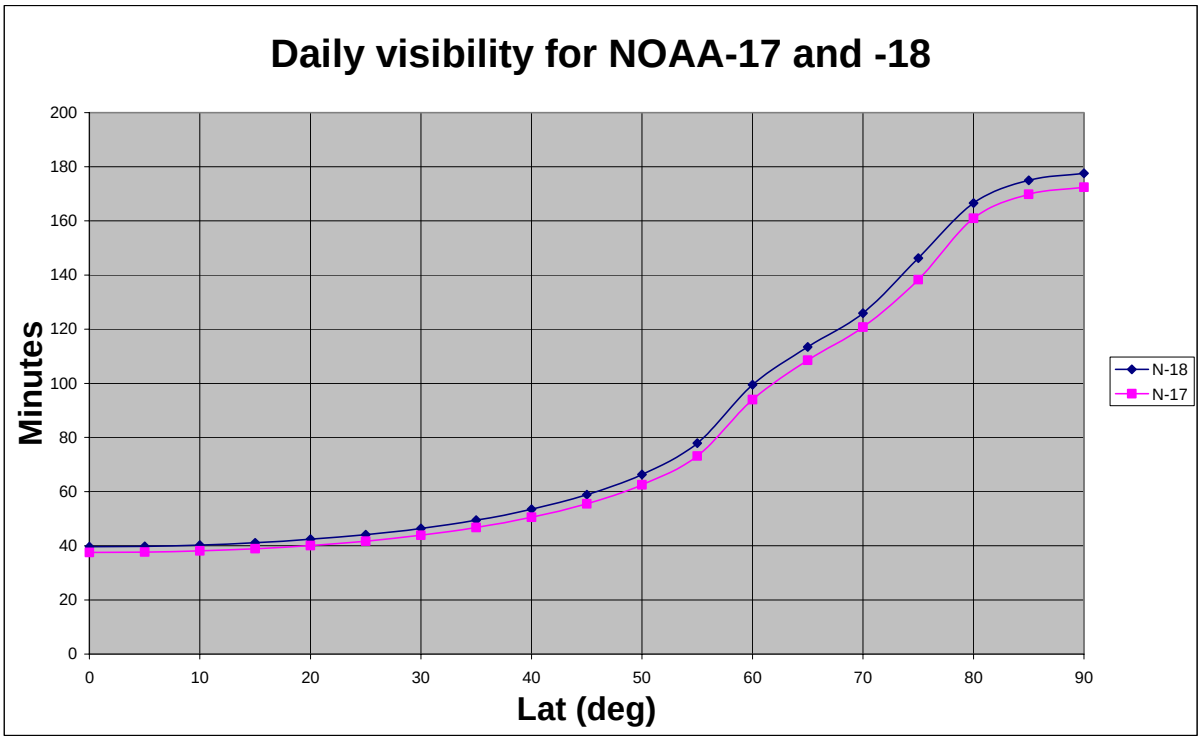
The first outcome of the tariff review has been the 'pilot scheme', which is well described in the body of this report. Essentially the full functionality of the Argos system is made available to all platforms for an **A** rate of 15 euro per month, plus a daily **B** rate. The **B** rate depends on the class of platform, and the charging quantum is reduced to 6 hours in some cases. Invoicing is in arrears. Overall this is a significant step forward, and has been widely welcomed in most quarters.

Nonetheless, whereas the **A** rate is recognised as being an appropriate 'membership' charge, difficulties remain in matching the **B** rate to 'consumption' in an equitable way. Attempts to redress this inequality have already caused the complexity of the algorithm to grow in an unwelcome way. The fundamental problem is that the time quantum (6 hours minimum at present) cannot be reduced indefinitely to improve the accuracy of the consumption charge because of the multi-hour gaps that naturally exist between satellite passes at low latitudes. Even a quantum as large as 1 hour would show a strong latitudinal dependence in platform operating costs, given the concentration of satellite passes over the poles.

3. An alternative approach

The problem lies with the consumption charge, the **B** rate. Ideally the **B** rate should be a charge per kilobyte of data passed through the system by the platform, but these data are apparently not readily available in the current Argos database (though they could be). A close proxy to data volume could be the number of messages ('hits') passed by the platform, or indeed the number of time quanta ('time-slots') occupied by the platform, if the quantum was a 'mini-slot', say, of 1 minute. As noted above, however, a strong latitudinal dependence in costs would result.

4. Correcting for the latitude dependence



The above chart shows the total daily visibility for two Argos satellites as a function of latitude. The visibility is a function of the orbital parameters, which are well known, and change little during the life of the satellite. It is therefore relatively straightforward to scale the number of mini-slots or messages to correct for latitude, and thus prevent overcharging of high latitude platforms.

5. Correcting for constellation size

The number of mini-slots or messages ('system occupancy') logged by a platform on a give day also depends on the number of active satellites in the constellation. This can change in response to new launches, operational problems, ground station availability, network outages and so on. Fortunately there are a number of Argos–operated reference stations in the system, the orbitography beacons, which could easily be used to give a figure for the effective size of the constellation on a given day.

It might also be thought that the apparent system occupancy might depend on the number of LUTs reporting data, but thankfully the Argos processing system effectively removes all duplicate messages and this will not confuse the picture.

6. The standard platform

One can envisage the concept of a standard platform as a platform situated on the equator, transmitting every 90 seconds. Such a platform would pay the standard **A** and **B** rates. The number $\mathbf{N_0}$ of mini-slots or messages that would be logged by such a platform is computed daily using the orbitography beacons (to give effective constellation size), and the latitudal dependence curve.

A real platform, which logged **M** mini-slots or messages during the same day, would have the value of **M** scaled according to its latitude to give the occupancy $\mathbf{M_0}$ that it would have logged had it been on the equator alongside the standard platform. The platform would then be charged the standard **A** rate and an adjusted **B** rate:

$$\mathbf{B}' = \mathbf{B}\frac{\mathbf{M}_0}{\mathbf{N}_0}$$

Given that the majority of platforms transmit every 90 seconds, just like the standard platform, it is likely that a **B** rate slightly above the pilot value of 6 euro per day will generate approximately the same level of revenue as the pilot programme, with high occupancy platforms paying more (**B' > B**), and low occupancy platforms paying less (**B' < B**).

7. How to compute B

The correct choice of **A** and **B** is obviously crucial to the financial viability of this approach. If we choose to keep **A** at its present value of 15 euro per month, then the total **B** revenue should be the same as for the pilot programme. In other words,

$$\sum \mathbf{B}' = \sum \mathbf{B}_{\mathbf{pilot}}$$

which can be expressed as

$$\mathbf{B} = \mathbf{N}_0 \frac{\sum \mathbf{B}_{\mathbf{pilot}}}{\sum \mathbf{M}_0}$$

This equation can be solved using existing data for a random selection of platforms, or indeed the entire JTA population. Furthermore, the exercise could be repeated using different values of **A**, to allow the selection of global **A** and **B** coefficients that deliver the fairest possible result, with the least disruption to existing programme budgets.

David Meldrum
January 2006

ANNEX IX

TERMS AND CONDITIONS OF THE AGREEMENT FOR 2006

OBJECTIVE:

Further to the success of the JTA pilot program, to implement the new tariff structure for the whole JTA countries.

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 all the countries participating in the JTA.

TIME PERIOD OF COVERAGE:

These Terms and Conditions are valid for the time period beginning on **January 1 and ending on December 31, 2006.**

DEFINITIONS

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

“ROC” is the Responsible Organization representing a country or a group of countries.

“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, 2006**.

(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”.

BASIC 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 (fixed station) 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 BASIC SERVICE CHARGES

BASIC SERVICE

Basic service charges for authorized users under this Agreement are in accordance with the payment on consumption.

They are calculated according to the following formula:

Price per month, per platform = **A** + **B** x **n**

where:

- **A** represents the monthly charge per active PTT (an active PTT is one that transmits a least once during a given calendar month)

- **B** represents the PTT-day rate.

- **n** is the number of day units. The day is divided into 4 time slots (0 - 6; 6 - 12; 12 - 18; 18 – 24 UTC). Any PTT transmission collected into a given time slot produces a 0.25 day unit. In 2006 the time slots will be applied only to Animals and Subsurface Float categories.

A and B coefficients for all platform categories are provided in table below:

Category	**A (€)**	**B (€)**
Full Time PTT	15	6
Fixed Station	15	3
Animal	15	9
Subsurface Float	15	9

Full Time PTT – PTT’s in this category are drifting and moored buoys, and more generally all those PTTs which do not belong to categories below.

Fixed Station – PTTs in this category are land fixed PTTs, a specific and set apart subset of Full Time PTTs.

Animal – PTT’s in this category are those that are used to track animals and transmit on either a designed in (by the manufacturer) duty cycle or on an effective duty cycle as with many marine animals.

Floats – PTT’s in this category are subsurface floats such as the ARGO program floats.

DISCOUNT SCHEME FOR PROGRAMMES USING A LARGE NUMBER OF PLATFORMS

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

UNUSED IDs

PTTs which have not transmitted during a period of 24 months will be charged 3.85 € per month from the 25th month until the ID numbers are returned to CLS/Service Argos.

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 Basic Service 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;

(5) ID numbers of such platforms are actually returned to CLS/Service Argos who will recycle them after the platform stops transmitting.

ADDED VALUE SERVICES PROVIDED BY CLS/SERVICE ARGOS AND NOT INCLUDED IN BASIC SERVICES

Added value services such as ArgosDirect (the former ADS) service, Databank, Moored Buoy monitoring and others are provided by CLS/Service Argos and charged upon the year catalogue of prices.

DESIGNATED ROC / RO / PROGRAMME MANAGER

.....
.....
.....
.....

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 PTT's 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 organizations listed in the count covered by the country agreement.

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.

(3) Authorized users are defined as those implementing PTT's which are government funded. However, other users of agencies or organizations which are considered "non-profit" may be authorized. PTT's 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 PTT's 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	/ /	Signed by CLS Chief Executive Officer Christophe VASSAL	/ /

ANNEX X

NATIONAL REPORTS ON CURRENT AND PLANNED PROGRAMMES

The Following national reports were received by the Secretariat:

Canada
China
India
(the) Netherland
New Zealand
Peru
Republic of Korea
South Africa
Sweden
UK

Country: Canada

Year: 2005

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: 76
	(b)	Planned next year: 75
Estimated number of PTT-years:	(a)	Current year 9.7 Equi
	(b)	Next year: 8.9

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: .41
	(b)	Next year: .25

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
	(b)	Next year: 0.1

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
	(b)	Planned next year: 25
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: 164
	(b)	Planned next year: 140
Estimated number of PTT-years:	(a)	Current year: 13.6
	(b)	Next year: 10.2

D. Agency or programme: Yukon Fish and Wildlife Branch

Purpose of programme: 1207: Tracking Porcupine Caribou Herd in Yukon, Alaska and NWT

Numbers and types of platforms:	(a)	deployed current year:
	(b)	planned next year:
Estimated number of PTT-years:	(a)	current year: 2.8
	(b)	next year: 2.5

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 Drift (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: Department of National Defence

Purpose of programme: 2019: SAR for personnel in open water by tracking buoy drift rate.
2176: Wave measurements primarily in Atlantic Ocean

Numbers and types of platforms:	(a)	deployed current year:	
	(b)	planned next year:	
Estimated number of PTT-years:	(a)	current year:	.55
	(b)	next year:	.70

H. Agency or programme: Canadian wildlife Service

Purpose of programme: 2443: Tracking arctic seabirds through migration

Numbers and types of platforms:	(a)	deployed current year:	
	(b)	planned next year:	
Estimated number of PTT-years:	(a)	current year:	.80
	(b)	next year:	.66

I. Agency or programme: Department of National Defence

Purpose of programme: 2497, 2593: Tracking Woodland Caribou in Labrador

Numbers and types of platforms:	(a)	deployed current year:	
	(b)	planned next year:	
Estimated number of PTT-years:	(a)	current year:	6.1
	(b)	next year:	10

J. Agency or programme: Dalhousie University Oceanography

Purpose of programme: 2533: mooring marker locators on fixed buoys in Lunenburg Bay, Nova Scotia
12533: carioca buoy deployed in coastal waters, Nova Scotia

Numbers and types of platforms:	(a)	deployed current year:	
	(b)	planned next year:	2
Estimated number of PTT-years:	(a)	current year:	
	(b)	next year:	1.2

K. Agency or programme: Ontario Ministry of Natural Resources

Purpose of programme: 2587: 2 collars on Caribou in Geraldton Ontario

Numbers and types of platforms:	(a)	deployed current year:	
	(b)	planned next year:	2
Estimated number of PTT-years:	(a)	current year:	.50
	(b)	next year:	.25

L. Agency or programme: Alberta Fish and Wildlife Service

Purpose of programme: 2599: tracking of wolves and grizzly bears in Alberta

Numbers and types of platforms:	(a)	deployed current year:	
	(b)	planned next year:	
Estimated number of PTT-years:	(a)	current year:	.9
	(b)	next year:	1.37

M. Agency or programme: University of Alberta Biological Sciences

Purpose of programme: 2846: Tracking of grizzly and polar bears: NWT and Manitoba

Numbers and types of platforms:	(a)	deployed current year:	
	(b)	planned next year:	
Estimated number of PTT-years:	(a)	current year:	7.9
	(b)	next year:	10.96

N. Agency or programme: Canadian Coast Guard

Purpose of programme: 2856: CCG Oil Spill Emergencies Tracking Maritimes

Numbers and types of platforms:	(a)	deployed current year:	
	(b)	planned next year:	
Estimated number of PTT-years:	(a)	current year:	.04
	(b)	next year:	.03

O. Agency or programme: Environment Canada, Canadian Wildlife Service

Purpose of programme: 2900: Tracking large falcons in western Canada into central America

Numbers and types of platforms:	(a)	deployed current year:	
	(b)	planned next year:	
Estimated number of PTT-years:	(a)	current year:	0.20
	(b)	next year:	1.10

P. Agency or programme: Kintama Research

Purpose of programme: 3065: PACIFIC OCEAN SHELF TRACKING PROJECT

Numbers and types of platforms:	(a)	deployed current year:	
	(b)	planned next year:	
Estimated number of PTT-years:	(a)	current year:	0
	(b)	next year:	1.42

Q. Agency or programme: Canadian Wildlife Service: Migratory Bird Division

Purpose of programme:	3082: Greater Snow Goose monitoring		
Numbers and types of platforms:	(a)	deployed current year:	0
	(b)	planned next year:	
Estimated number of PTT-years:	(a)	current year:	0.0
	(b)	next year:	3.08

Special comments (if any):

Polling of users is incomplete because of difficulties in getting a full response from users. Usage for 2005 will be approximately 150 PTT-years and that level of activity will continue in 2006, dominated by animal trackers. Climate change is affecting the Canadian environment and significant research activity can be expected to address the need to understand its effects.

Country: P.R. CHINA

Year: 2005

A. Agency or programme: National Ocean Technology Center

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

Numbers and types of platforms:	(a)	deployed current year:	2
	(b)	planned next year:	1
Estimated number of PTT-years:	(a)	current year:	0.5 PTT
	(b)	next year:	0.25 PTT

B. Agency or programme: The Second Institute of Oceanography, State Oceanic Administration

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

Numbers and types of platforms:	(a)	deployed current year:	27
	(c)	planned next year:	23
Estimated number of PTT-years:	(a)	current year:	2.5 PTT
	(b)	next year:	3.15 PTT

C. Agency or programme: National Ocean Technology Center, State Oceanic Administration

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

Numbers and types of platforms:	(a)	deployed current year:	2
	(d)	planned next year:	-
Estimated number of PTT-years:	(a)	current year:	1.5 PTT
	(b)	next year:	- PTT

Country: **INDIA**

Year: **2005**

A. **Agency or programme:** **INCOIS, Hyderabad**

Purpose of programme: Indian Argo Project, Indian Drifting buoy program and National Moored Data buoy Program

Numbers and types of platforms:
(a) deployed current year:
55 Argo floats and 7 drifting buoy
(e) planned next year:
50 Argo floats, 10 drifting buoy and 10 moored Buoy

Estimated number of PTT-years:
(a) current year: 20 PTT
(b) next year: 25 PTT

Special comments (if any): INCOIS has set up a Regional data reception centre at Hyderabad for receiving ARGOS data

Country: The Netherlands

Year: 2005

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

Purpose of programme: Drifting Buoy Programme, contribution to E-SURFMAR (0436)

Numbers and types of platforms:	(a)	deployed current year:	2 SVP-B drifters
	(b)	planned next year:	0 (under E-SURFMAR)
Estimated number of PTT-years:	(a)	current year:	2.43
	(b)	next year:	0 (under 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:	--	(stable operational network)
Estimated number of PTT-years:	(a)	current year:	2.6	
	(b)	next year:	2.7	

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: 18 Telonics ST-16 PTTs

(b) planned next year: 6 Telonics ST-16 PTTs

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

D **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: 4 SEIMAC tx
(b) planned next year: 4 SEIMAC tx

Estimated number of PTT-years: (a) current year: 0.08
(b) next year: 0.07

Country NEW ZEALAND

Year 2005

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: 6 drifters
(b) planned next year: 6 drifters

Estimated number of PTT-years (a) current year: 7.0 PTT years
(b) next year: 7.0 PTT years

B. Agency : **Department of Conservation**

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

Number and types of platforms: (a) deployed current year: 24 animal PTTs
(b) planned next year: 16 animal PTTs

Estimated number of PTT-years (a) current year: 1.5 PTT years
(b) next year: 0.8 PTT years

C. Agency: **Department of Conservation**

Purpose of programme: **Albatross Tracking**

Number and types of platforms: (a) deployed current year: 0
(b) planned next year: 0

Estimated number of PTT years- (a) current year: 0.06 PTT years
(b) next year: 0.0 PTT years

D. Agency: **NIWA Christchurch**

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

Number and types of platforms: (a) deployed current year: 0
(b) planned next year: possibly 12 bird PTTs

Estimated number of PTT-years (a) current year: 0.0 PTT years
(b) next year: 0.5 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: 3 tags

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

F. Agency: **Massey University**

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

Number and types of platforms: (a) deployed current year: 3 bird PTTs
(b) planned next year: 5 bird PTTs

Estimated number of PTT-years (a) current year: 0.5 PTT years
(b) next year: 1.2 PTT years

G. Agency: **NIWA Wellington**

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

Number and types of platforms: (a) deployed current year: 2 buoys
(b) planned next year: 2 or 3 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: 1 turtle
(b) planned next year: 1 ? turtle

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

I. Agency: **Department of Conservation**

Purpose of programme: **Kereru Tracking**

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

Estimated number of PTT-years (a) current year: 0.3 PTT years
(b) next year: 2 PTT years

J. Agency: Massey University

Purpose of programme: **Marlin Tracking**

Number and types of platforms: (a) deployed current year: 10 fish tags
(b) planned next year: under a US programme

Estimated number of PTT-years (a) current year: 0.26 PTT years
(b) next year: under a US programme

K. Agency: Leigh Marine Laboratory

Purpose of programme: **Stingray Population Structure and Breeding Migrations**

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

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

Country: **Perú**

Year: **2005**

A. Agency or programme: **Proyecto “Niño Anual Y Las Anomalias Medidas en el Pacifico” (NAYLAMP)**

Purpose of programme: The program of monitoring in real time, in front of the costs of the Peru

Numbers and types of platforrns: (a) deployed current year: 01 moored buoy

(b) planned next year: 01 moored buoy

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

(b) next year:

Country: Republic of KOREA

Year: 2005

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

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

Numbers and types of platforms: (a) deployed current year:15

(b) planned next year: 15

Estimated number of PTT-years: (a) current year: 1.6

(b) next year: 2.7 (estimated)

B. Agency or programme: 2096 (KORDI)

Purpose of programme: Argo-KORDI and East Sea Circulation

Numbers and types of platforms: (a) deployed current year: 18

(b) planned next year: 15

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

(b) next year: 2.0 (estimated)

Country: South Africa

Year: 2005

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

Purpose of program: Increase and maintain platforms in the South Atlantic Ocean mainly for weather forecasting services.

Number and types of platforms:

(a) Deployed current year - 2005:
The SAWS currently has 52 transmitting PTT's.
During 2005 38 SVP's from NOAA with barometric upgrades by SAWS will be deployed.

(b) Planned next year - 2006:
The 52 PTT's will be maintained until they stop transmitting.
Approximately 30 SVP's from NOAA with barometric upgrades by SAWS will be deployed.
The SAWS plan to install two fixed ICEX aws stations on remote islands.
The SAWS plan to deploy two SVP-BW drifters.

Estimated number of PTT years:

(a) Current year - 2005: 52

(b) Next year - 2006: 35

Special comments (if any): The SAWS has received no inputs in this regard from other programs also running in South Africa, but we will report their current and future plans as soon as it becomes available to us.

Country: SWEDEN

Year: 2005-2006

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: 0
	(b)	planned next year: 3
Estimated number of PTT-years:	(a)	current year: 0
	(b)	next year: 0.3

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: 5
	(b)	planned next year: 5
Estimated number of PTT-years:	(a)	current year: ca 0.6
	(b)	next year: 0.6

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: 20
	(b)	planned next year: at least 10
Estimated number of PTT-years:	(a)	current year: 2
	(b)	next year: 2

Country: **UNITED KINGDOM**

Year: **2005-2006**

Organisation	Type of programme	Platforms deployed in 2005	Location	Active at 31 Aug / on GTS at 31 Aug	Platforms planned for 2006	Location
Met Office	Moored buoy network	10	UK waters	10/8	7	UK waters
	Drifting buoy network	5 SVP-B (N Atlantic buoys now within E-SURFMAR)	Southern Ocean (SOBP)	5/5	5 SVP-B (N Atlantic buoys now within E-SURFMAR)	Southern Ocean (SOBP)
	Argo float programme	88	N Atlantic, Arctic, Indian Ocean, Southern Ocean	80/80	~30 new floats	N Atlantic, Arctic, Indian Ocean, Southern Ocean
Plymouth Marine Laboratory	Tracer patch monitoring	1			1 GPS/Argos drifter	Mediterranean
Scottish Association for Marine Science	Sea ice research	5 Iridium ice buoys 4 SVP-Bs	Arctic Ocean Weddell Sea	4/9	1 SVP-B	Polar seas
SOC/NOCS	Oceanographic research				4 drifters	Mozambique Straits

Technical Developments

Within the Met Office, a project has been initiated to provide 3D wave spectra measurements on K Series moored buoys to meet E-SURFMAR programme requirements The project will also investigate other communication systems (e.g. Iridium) as an alternative/backup to existing Meteosat DCP systems.

The Scottish Association for Marine Science continues to make combined Iridium/Argos deployments in the Arctic as part of an EU-funded study to investigate changing patterns of sea ice dynamics and thickness. The Iridium system is used to relay wave spectral and GPS data, while Argos is used for GTS insertion of meteorological data.

ANNEX XI

ACTION SHEET ON DECISION OF JTA-XXV
(Buenos Aires, 24-26 October 2005)

Ref.	Subject	Action proposed	Resp.	Target date	Comments
para 2.5	**Finalization of the report**	1. Insert editorial changes & polish the text	Sec (with chair)	ASAP after each meeting	done
		2. Insert substantive changes (if absolutely needed) & take responsibility for them	Chair (with Sec)	ASAP after each meeting	done (nil)
para 3.6	**Inactive platforms**	Recommend that users/manufacturers program PTTs for duration of experiment only	CLS	continuous	
para 5.2 (i)	**Timely data reception in various parts of the World**	1. Continue identify technical reasons for delays	CLS, TC	continuous	
		2. Take measures to solve the problems	CLS (with TC)	as appropriate	
		3. Monitor delays routinely	CLS	continuous	
para 5.2 (ii), 5.3 (iii)	**Near-real-time data coverage of the World Ocean**	1. Investigate feasibility of installing LUTs in Easter Island (in coop. with Chjle & USA) & Saint Helena	CLS	ASAP	
		2. Investigate possible improvements in the process to store and disseminate the Argos data acquired by the Brazilian satellites in order to make the data available to all users whose data is captured by these satellites.	CLS	ASAP	
		3. More generally, investigate ways & means to improve coverage in equatorial/tropical area	CLS	ASAP	
para 5.2 (iii)	**ADS costs**	Propose appropriate price strategy for users in Polar regions	CLS	ASAP	
para 5.2 (iv)	**Support of JTA chair**	Reimburse Secretariat from JTA income	CLS	yearly, on request	
para 5.4	**Argos space segment & its management**	1. Identify performance & reliability problems re. data availability due to space segment & its management	JTA (& DBCP) participants	continuous	

Ref.	Subject	Action proposed	Resp.	Target date	Comments
		2. Report on efforts to address those problems	NESDIS rep. (& others as needed)	JTA meetings	
para 6.3 (iii)	**Incentive for frequency spreading**	Enhance the situation through a better coordination between CLS/SAI, users & manufacturers	CLS	continuous	
para 6.3 (v)	**Downlink tariff & high data rate channel policy**	1. Submit a detailed, comprehensive proposal for discussion	CLS	before JTA-XXVI	
		2. Grant free access to those new services for a one-year period	CLS	June 06-June 07	
para 6.7, 6.14	**New tariff scheme**	1. Use 2006 results to assess whether the B coef. should be adjusted to cope with applying time-slot computation to all categories	CLS	JTA-XXVI	
		2. Evaluate other charging algorithms (incl. D. Meldrum's & S. Auer's proposals)	CLS (with concerned indiv.)	JTA-XXVI	
		3. Work closely with "affected programmes" to ensure that their current and planned science is not adversely impacted by the new tariff	CLS	during 2006	
		4. Identify a rep. from animal trackers to attend JTA-XXVI	CLS, chair	August 2006	
para 6.20, 6.21	**Reporting by CLS/SAI**	1. Provide report on costs to be attributed to the JTA, with analysis on previous year and projection to the current year	CLS	end August each year	
		2. Make available some details of the JTA and non-JTA activities in terms of active IDs and revenue	CLS	each JTA meeting	
item 7, annex IX	**Official information of Members/Member States**	Circulate the Terms and Conditions under JCL to all Members/Member States (cc to ROCs & ROs)	Sec	yearly in November	
para 5.6, 8.4, 8.5, 8.11	**Future of the JTA**	1. Establish a small working group to review the past of the JTA & derive lessons	chair	ASAP	
		2. Prepare a 1st draft on JTA history	chair	ASAP	

Ref.	Subject	Action proposed	Resp.	Target date	Comments
		3. Supplement the 1st draft & develop reflection	working group	when feasible	
para 8.9, 8.10	**OCO**	1. Keep JTA participants informed of future negotiations between CLS/SAI & OCO	CLS, OCO	when applicable	
		2. Study alternative scenarios re. OCO, incl. removal from JTA, expansion of the discount scheme, etc. (as part of the reflection on the future of the JTA)	OCO, CLS, other interested/concerned partic., chair	intersessional period	
		3. Monitor possible migration of non OCO PTTs into the OCO prog., incl. barometer upgrades implemented by non OCO prog. in the OCO prog., & inform CLS accordingly	OCO, other concerned partic.	continuous	
item 11	**JTA-XXVI**	1. Arrange for hosting JTA-XXVI	NDBC, OCO, SAI	ASAP	
		2. Prepare for JTA-XXVI	Sec, NDBC, OCO, CLS/SAI	May 2006, continuous	

ANNEX XII

NAT 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`ètudes 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	*ad hoc* 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`èxploitation 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 National de Pesquisas Espaciais (Brazil)
IOC	Intergovernmental Oceanographic Commission (of UNESCO)
IODE	International Oceanographic Data and Information Exchange (IOC)
IRD	Instituit francais de recherche scientifique pour le dévelpment 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
LUT	Local User Terminal (Argos)
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
PTT	Platform Transmitter Terminal (JTA)
QC	Quality Control
RMS	Root Mean Square
RNODC	Responsible National Oceanographic Data Centre
RO	Responsible Organization representing an agreed set of Argos User programs (JTA)
ROC	Responsible Organization representing a country or a group of countries (JTA)
SAWS	South African Weather Service
SBSTA	Subsidiary Body for Scientific and Technological Advice (of the COP)
SCOR	Scientific Committee on Oceanic Research
SHN	Servicio de Hidrografía Naval (Argentina)
SMN	Servicio Meteorológico Nacional (Argentina)
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