WORLD METEOROLOGICAL ORGANIZATION

INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION (OF UNESCO)

ARGOS JOINT TARIFF AGREEMENT
TWENTY-FIRST MEETING

Perth, Australia, 29-31 October 2001

FINAL REPORT

GENERAL SUMMARY OF THE WORK OF THE SESSION

1. ORGANIZATION OF THE MEETING

1.1. OPENING OF THE MEETING

1.1.1 The twenty-first meeting on the Argos Joint Tariff Agreement was opened at 0900 on Monday, 29 October 2001, in the conference room of Rydges Hotel in Perth, Australia, by the outgoing chairman, Mr Derek Painting. Mr Painting welcomed participants to the meeting, and expressed his thanks to the hosts, the Australian Bureau of Meteorology (and especially its Regional Office for Western Australia) and the IOC Perth Regional Office, for providing such excellent facilities and hospitality.

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

1.2. ELECTION OF THE CHAIRMAN

1.2.1 The meeting re-elected Mr Derek Painting as its chairman. It agreed that, as from the present meeting, the term of office of the chairman would be until the end of the following JTA meeting. It therefore requested the Secretariats to amend the agenda for JTA-XXII accordingly.

1.3. ADOPTION OF THE AGENDA

1.3.1 The meeting adopted its agenda, which is given in Annex II.

1.4. WORKING ARRANGEMENTS

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

2. REPORT OF THE CHAIRMAN OF THE JTA

2.1 The chairman informed the meeting on actions taken by him since, and resulting from, the 20th JTA. These actions included:

(i) In April, following a visit to CLS in Toulouse a progress report was circulated to JTA participants detailing the actual activity for 2000 and the final participation in the 2001 agreement;

(ii) During the visit to CLS, JTA matters to be tabled at the Argos Operations Committee meeting were agreed. These included the user requirements for system enhancement agreed at JTA 2000 and the strategy to be adopted in the face of global operating costs rising faster than anticipated in the JTA 'five year' plan;

(iii) The chairman attended the Argos Operations Committee meeting at Sarlat, France in June and presented a written report on the main results of JTA-XX. The Operations Committee concurred with the user requests to enhance the GTS subsystem with a BUFR encoder and to phase in class A/B positions for animal trackers as part of the basic service over a three-year period;

(iv) In connection with the problem of rising operating costs (arising mainly through increased non-JTA activity), the Operations Committee agreed in principle a proposal made jointly by the JTA chairman and CLS. The proposal is to limit the increase in operating costs, for the purpose of calculating the share to be met by the JTA, in order to avoid an increase in JTA accumulated deficit. The details of this limitation are to be agreed at JTA-XXI.

The meeting thanked the chairman for his intersessional work on behalf of JTA participants.

3. REPORT ON THE 2001 GLOBAL AGREEMENT

3.1 Mr Christian Ortega of CLS/Service Argos reported on the status of the 2001 Global Agreement. He noted that a final total of 1135.65 PTT (Platform Transmitter Terminal) years had eventually been signed under the agreement for preferential tariff arrangements, made up as follows:

Australia	42.00
Brazil	12.00
Burkina Faso	10.00
Canada	64.00
China	12.50
Denmark	11.50
Finland	2.00
France	82.00
Germany	42.80
Iceland	4.50
India	10.00
Italy	11.00
Korea (Republic of)	2.50
Netherlands	7.25
New Zealand	9.30
Norway	21.50
Pakistan	1.60
South Africa	38.00
Spain	1.70
Sweden	2.50
Tunisia	3.00
United Arab Emirates	6.00
United Kingdom	50.00
USA	685.00
Others	3.00
TOTAL	**1135.65**

3.2 Regarding the “bonus scheme” adopted at its seventeenth session (paragraph 5.5 of the final report), the meeting recalled that, at its twentieth session, it had “*agreed to continue the bonus system in 2001, with a continuing upper bonus limit of 82% to apply to those countries already benefiting from a bonus. At the same time, the meeting agreed to make the bonus available also to those ROCs whose signed PTT-years in 2001 were at least as great as those confirmed at this*

meeting and also those signed in 2000, initially at the 35% level." (paragraph 32 of the summary report). On that basis, the "bonus situation" appeared to be as given in the table below:

		Year 2000				Year 2001			
Countries	Agreed at JTA XVII (1997) PTT-Yrs	Contracted in 2000 PTT-Yrs	Bonus	Consumed in 2000 PTT-Yrs	Diff %	Contracted for 2001 PTT-Yrs	Bonus	Projected for 2001 sept-01 PTT-Yrs	Diff %
AUSTRALIA	53.00	40.50	**no**	40.3	0%	42.00	yes	45.85	**9%**
BRAZIL	12.00	12.00	yes	10.65	-11%	12.00	yes	9.25	-23%
BURKINA	14.00	10.80	**no**	8.87	-18%	10.00	**no**	8.12	-19%
CANADA	64.00	67.00	yes	68.06	2%	64.00	yes	72.09	**13%**
CHINA	1.50	2.37	yes	4.39	**85%**	12.50	yes	8.81	-30%
DENMARK	11.00	8.05	**no**	11.78	**46%**	11.50	yes	12.87	**12%**
FINLAND	1.45	2.35	yes	2.79	**19%**	2.00	yes	2.45	**23%**
FRANCE	80.50	82.00	yes	72.68	-11%	82.00	yes	99.98	**22%**
GERMANY	43.20	51.80	yes	41.49	-20%	42.80	**no**	53.82	**26%**
ICELAND	7.00	4.50	**no**	4.1	-9%	4.50	yes	1.64	-64%
INDIA	10.00	10.00	yes	11.61	**16%**	10.00	yes	10.75	**8%**
ITALY	12.00	11.00	**no**	10.01	-9%	11.00	yes	10.88	-1%
KOREA	5.00	3.00	**no**	3.47	**16%**	2.50	**no**	2.20	-12%
NETHERLANDS	15.47	13.70	yes	10.65	-22%	7.25	**no**	7.67	**6%**
NEW ZEALAND	9.30	9.30	yes	10.44	**12%**	9.30	yes	8.96	-4%
NORWAY	21.50	18.50	**no**	20.75	**12%**	21.50	yes	16.24	-24%
PAKISTAN	1.60	1.60	yes	0.49	-69%	1.60	yes	0.99	-38%
SOUTH AFRICA	38.00	38.00	yes	36.19	-5%	38.00	yes	33.86	-11%
SPAIN	1.25	4.85	yes	3.93	-19%	1.70	yes	1.67	-2%
SWEDEN	2.50	3.00	yes	3.13	4%	2.50	yes	3.99	**60%**
TAIWAN	3.00	1.00	**no**	0.76	-24%	3.00	yes	0.64	-79%
TUNISIA	3.00	3.00	yes	3.29	**10%**	3.00	yes	3.08	**3%**
UND ARAB EMTS	3.50	5.00	yes	5.33	**7%**	6.00	yes	8.26	**38%**
UK	50.00	50.00	yes	77.22	**54%**	50.00	yes	78.29	**57%**
USA	655.00	661.50	yes	1188	**80%**	685.00	yes	1219.63	**78%**
Total	**1119**	**1115**		**1650**	**48%**	**1136**		**1772**	**52%**

3.3 Detailed information on the 2001 Global Agreement is given in Annex III.

4. REPORT ON THE DEVELOPMENT OF CLS/SERVICE ARGOS

4.1 The reports on 2000-2001 operations and on system improvements and development projects had been already presented to the preceding DBCP session, where most of the meeting attendees were present. No new presentation was therefore made of those reports, which are nevertheless attached as Annexes IV and V, respectively, and updated appropriately.

5. REVIEW OF USER'S REQUIREMENTS

5.1 The meeting noted with interest a report from the chairman of the DBCP on the main results of the seventeenth session of the panel (including the technical workshop), which had taken place in Perth from 22 to 26 October 2001. These included in particular the following specific recommendations to the JTA:

(i) Recalling its discussion on Argos GTS processing of Argo float data, the DBCP had concluded that the Argos GTS sub-system should be enhanced with an optional Q/C module for Argo profiling data and that the DBCP chairman should bring a request to the JTA to include this enhancement in the Argos development programme.

(ii) The DBCP had noted that some platform data, suitable for insertion into the GTS, but processed outside the Argos system, could be accepted by the Argos GTS sub-system at little additional effort. It therefore asked its chairman to request the JTA to approve an appropriate enhancement to the GTS processing sub-system, subject a detailed examination of its feasibility and cost.

(iii) The DBCP had recalled the discussion on funding for the next biennium, in which it had noted it would be no longer possible to fund the position of the JTA chairman. The DBCP therefore requested its chairman to propose to the JTA that the JTA should take on this responsibility, should it agree that an independent chairman be funded in the future.

(iv) Recalling previous general recommendations on this subject, the DBCP had recommended that the JTA include in the Argos development programme any CLS/SAI technical developments associated with the emerging Brazilian satellite cooperative effort.

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

(i) *Argo QC module*. The meeting agreed in principle with the proposal, recognizing that it could be implemented only when details of the procedures were made available to CLS/Argos. It considered that, ideally, the module should be implemented prior to JTA-XXII.

(ii) *GTS subsystem to relay data from other sources.* The meeting agreed in principle with the proposal. It recommended that the feasibility study, to be undertaken by the DBCP technical coordinator and CLS, should be completed in time for presentation to the next OpsCom session in May 2002.

(iii) *JTA chairman*. The meeting agreed on the need to retain, at least for the time being, an independent chairman, and further agreed that the costs related to the JTA chairman (primarily contract and travel) should be funded fully through the JTA. Specific actions required to implement this are recorded under agenda item 6.

(iv) *Brazilian satellite and Argos*. The meeting recognized that there are currently two Brazilian satellites in equatorial orbits (and one in a polar orbit), and that connecting Argos to these satellites could therefore potentially greatly enhance equatorial coverage and data return, although at the same time implementing such a connection would be a complex process. The meeting recommended that a concrete proposal for such connection, including a cost/benefit analysis, should be prepared by CLS, to be put before the OpsCom session in May 2002 to seek an in-principle agreement, with a report on the matter to be made to JTA-XXII.

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

(i) *Class A/B location charges for animal trackers*. The meeting noted with appreciation that the OpsCom had accepted the proposal made at JTA-XX. After some discussion, it was agreed that the phase-out process for these charges would proceed as agreed in 2000, viz.: two-thirds charge in 2001, one-third in 2002 and zero in 2003.

(ii) *Possible free access to the third satellite*. The meeting noted that, with the launch of the ADEOS-II satellite in early 2002, all Argos users would automatically have access to this as a third satellite. The meeting agreed that CLS should report to JTA-XXII on experience with free access to this third satellite, including cost impacts.

(iii) *Entry of new scientific users into the Argos system during a calendar year*. The meeting recognized that, since most countries now benefit from the bonus, this should not, overall, be a major problem. In practice, no such problem had been identified in the past year. It was further recognized that, should a problem occur, there was still no obvious solution, and that overall this remained a risk which had to be carried by the ROCs. It was therefore decided to take no action.

(iv) *A possible new user category, to accommodate "single readout, post-collection archival tags"*. The meeting noted that no specific requirement had yet been detailed, and that there was no action required regarding the JTA at this stage.

5.4 Regarding 5.3 (iv) above, the meeting nevertheless recognized that there was a general requirement to provide further assistance and information to biologists concerning the JTA and Argos system use, in particular since they did not benefit from an organizational structure such as that provided to buoy users through the DBCP and its technical coordinator. As a first step, the meeting noted the potential benefit to biologists of having a website available, devoted to biological programmes using Argos, and welcomed the offer of the USA to consider establishing such a website, perhaps through the NOAA Fisheries Service or a similar agency. The meeting considered that, in the longer term, biologists might well benefit from the establishment of the equivalent of the DBCP, perhaps also with some technical coordinator assistance, although in practice this was a matter for the biologists themselves to investigate.

5.5 Concerning information for users on the Argos system and the JTA, the meeting recognized that a considerable amount of such information already existed on various websites, including in particular those of CLS and Service Argos Inc., although this information was not necessarily easily accessed by or understandable to users. The meeting recalled the discussions and conclusions reached at JTA-XX on this subject (see paragraph 29 of the final report of JTA-XX), and strongly encouraged ROCs, and other users generally, to provide input and feedback to CLS/SAI on the structure and contents of the information currently available, including appropriate national website addresses.

Argos System Use Agreement

5.6 Rob Bassett from NOAA/NESDIS presented actions taken by the Argos Operations Committee to streamline the System Use Agreement (SUA) approval process. Such actions included the implementation of administrative procedures (i.e. "a priori" approval) as well as the modernization of the SUA submission and approval processes. Proposed modifications to the SUA (Annex VI) that will facilitate electronic submission of the form were presented and the JTA was invited to provide feedback. The Argos OpsCom thanked the JTA ROCs for their support in renewing expired SUAs and encouraged them to continue their efforts. The JTA was invited to review the NOAA Argos web site (http://noaasis.noaa.gov/ARGOS/index.html) and provide links and comments as appropriate.

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

6.1 In line with its long-standing request, the meeting was presented by Mr M. Cazenave with details of the finalized Argos operating costs for 2000 as well as of the *amortization* and *promotion and marketing* items for the same year. These are given in Annex VII. The meeting acknowledged the information given, and noted the final 2000 figures of FRF 33.31M for personnel-related expenses and FRF 28.97M for other expenses, for a total of FRF 62.28M. It further noted with appreciation the detailed breakdown of such costs for 2000, as well as the evolution of these figures over previous years, presented for comparison.

6.2 With regard to the specific action items identified by JTA-XX, the meeting noted:

(i) *The operation of the basic principles adopted by JTA-XVIII and modified by JTA-XIX and JTA-XX, as well as the operation of the five-year plan adopted by JTA-XIX to address the Argos operating deficit and accumulated debt.* Detailed discussion on this item is given in paragraphs 6.3 and 6.4 below.

(ii) *The phasing out of the unused ID charges.* The meeting agreed with the proposal of CLS to retain this charge during 2002, to be reviewed again at JTA-XXII. At the same time, the meeting reiterated the potential value to ROCs of having available full lists of their unused IDs, and noted that such lists would be posted on the CLS website from January 2002. The meeting additionally requested that the lists for the present year only should be mailed to ROCs before the end of the year.

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

6.4 On the basis of this new computation for the Argos operating costs, the meeting agreed that the basic FYP principles should remain unchanged for a further year, to be reviewed again at the 2002 meeting. The tabulated plan, with the new operating cost estimates, actual contracted PTT years for 2001 and revised estimates of these for future years, is given in Annex VIII.

6.5 The meeting recalled that, in addition to the basic PTT year charges, there were other charges levied by CLS on ROCs, which provided what was essentially supplementary JTA income. It therefore requested CLS to undertake a study on the likely effects of factoring these additional charges (except for the unused ID charge) into the standard PTT charge, and to report on this to JTA-XXII.

6.6 The meeting recalled that at JTA-XX, CLS had offered a 10% basic tariff incentive to users to move their platform transmitters away from the central frequency band of 401.65 MHz, in order to make better use of the available wide-band capability and reduce congestion in the central band. Unfortunately, this incentive had made no impact in 2001, with no platform transmitting outside the central band, and CLS had therefore withdrawn the incentive. The meeting nevertheless recognized the importance of distributing transmissions throughout the available band, and in particular the advantages that would accrue to animal trackers if low-power transmission were segregated in a designated and protected sub-band. It therefore requested its chairman to raise with OpsCom the possibility of changing PTT certification requirements to effectively force better management and use of the available band.

6.7 The meeting recognized the value to participants of the regular reporting procedures implemented in 1999. It therefore agreed that this reporting should continue in 2002, to include:

(i) **On 15 February each year**: the actual JTA activity for the previous year (in PTT-years); the final participation in the agreement for the current year (numbers committed on 15 January); a brief commentary by the chairman;

(ii) **On 15 July each year**: a projection of activity for the current year, based on actual activity during the period 1 January to 30 June; a brief commentary by the chairman.

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

7. TERMS AND CONDITIONS OF THE 2002 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 2002 were estimated as follows:

Australia	42.00
Brazil	10.00
Burkina Faso ?	10.00
Canada	64.00
China ?	12.00
Denmark	11.00
Finland	3.61
France	81.00
Germany	57.00
Iceland	1.50
India	10.00
Italy ?	11.00
Korea (Republic of)	4.50
Netherlands	6.50
New Zealand	9.30
Norway	18.00
Pakistan	0
South Africa	29.00
Spain ?	1.70
Sweden	3.50
Tunisia ?	3.00
United Arab Emirates ?	6.00
United Kingdom	57.00

USA	695.00
Others ?	3.00
TOTAL	**1149.61**

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

7.2 The meeting recalled that it had been the practice for several years to consider the final total of PTT-years under the Agreement for any calendar year as being the sum of the numbers committed by countries by 15 January of that year. In this case, the above total of (roughly) 1150 was regarded as an approximation only.

7.3 The principles agreed upon at the twentieth meeting, as well as those established under agenda items 5 and 6 above, were used to agree on the terms and conditions for the 2002 Global Agreement. Eventually, and also taking into account a few editorial amendments, the following modifications were introduced into the 2002 Terms and Conditions, as compared to those for 2001:

(i) 2001 is replaced by 2002;

(ii) under "**USER CHARGES PER PLATFORM-YEAR**", third but last paragraph will read: "*CLS agrees to charge those authorized users at a rate of **X = 4,055 Euros** (**26,600 French Francs**) per platform-year*";

(iii) under "**CONDITIONS FOR LIMITED USE SERVICE**", item (2) will read: "*Platform can transmit no more than twenty four (24) hours in any and all seventy two (72) hour periods;*"

(iv) under "**ACTIVE PLATFORM FEE**", the first item will read: "*A monthly fee of **4.57 Euros** (**30 French Francs**) is applied …*";

(v) under "**BILLING AND PAYMENT**", Euro will be the only referred to currency and the figure of "15,000 French Francs" will be replaced by "2,287 Euros";

(vi) under "**GENERAL CONDITIONS OF AGREEMENT**", item (5), the 1st sentence will read: "*The terms of this Agreement are based on a planned minimum purchase of **1,150 platform-years** by all participants in the Global Agreement for the year **2002**.*";

(vii) under "**GENERAL CONDITIONS OF AGREEMENT**", item (6), sub-paragraphs a) and b) will be replaced by the following:

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

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

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

(viii) under "**GENERAL CONDITIONS OF AGREEMENT**", item (8) will be deleted and item (9) renumbered (8).

7.4 The Terms and Conditions for the Global Agreement for 2002 are given in Annex IX.

7.5 With regard to the revised General Conditions of Agreement No. 6 above, the meeting reiterated that the overall spirit of this condition was to encourage enhanced system use, through allowing somewhat easier access to the bonus. At the same time, it recognized that, no matter how carefully worded it was, such a condition would always remain potentially open to abuse. It therefore agreed that, if and when examples of such abuse were detected, these would be dealt with by the annual JTA on a case-by-case basis.

8. FUTURE PLANS AND PROGRAMMES

8.1 Written reports on future plans and programmes for the use of the Argos System in 2002 were presented to the meeting by Australia, Brazil, Canada, Finland, France, The Netherlands, New Zealand, Republic of Korea, South Africa, U.K., USA. Following normal practice, these reports, as well as those received before 15 November 2001, are given in Annex X.

9. DATE AND PLACE OF THE NEXT MEETING

9.1 In line with the agreement of the preceding seventeenth session of the Data Buoy Co-operation Panel, the meeting accepted the kind offer of France that the twenty-second meeting on the Argos Joint Tariff Agreement will take place in Martinique, France, from 21-23 October 2002, hosted by Météo-France. It will thus follow immediately after the eighteenth session of the DBCP. It was foreshadowed that the 2003 JTA meeting might take place in Brazil, as usual following the DBCP session.

10. CLOSURE OF THE MEETING

10.1 In closing the meeting, the chairman once more expressed his thanks, on behalf of all participants, to the hosts, the Australian Bureau of Meteorology (and especially its Western Australian Regional Office) and the IOC Perth Regional Office, for the excellent facilities, hospitality and support which they had provided. He particularly thanked Graeme Brough, Len Broadbridge, and their teams, including the administrative assistants, for their hard work and cooperation, both prior to and during the meeting. The chairman then thanked all participants for their input and cooperative approach, which had contributed greatly to the success of the meeting. Finally, he thanked the Secretariats for their ongoing support for the annual JTA meetings, and for JTA participants in general.

10.1 The twenty-first meeting on the Argos Joint Tariff Agreement closed at 1015 hours on Wednesday, 31 October 2001.

oOo

LIST OF PARTICIPANTS

AUSTRALIA

Mr Graeme Brough
Chairman, DBCP
Bureau of Meteorology
G.P.O. Box 1289 K
MELBOURNE, Vic. 3001
Australia
Telephone: +61-3 9669 4163
Telefax: +61-3 9669 4168
E-mail: g.brough@bom.gov.au

Mr Graeme Ball
Manager, Marine Observations Unit
Bureau of Meteorology
GPO Box 1289K
MELBOURNE, Vic. 3001
Australia
Telephone: +61-3 9669 4203
Telefax: +61-3 9669 4168
E-mail: g.ball@bom.gov.au

Mr Graham Jones
Chairman, IBPIO
Bureau of Meteorology
G.P.O. Box 1289 K
MELBOURNE, Vic. 3001
Australia
Telephone: +61-3 9669 4167
Telefax: +61-3 9669 4168
E-mail: g.jones@bom.gov.au

Mr Walter McLean
Bureau of Meteorology
GPO Box 1289K
Melbourne VIC 3001
Australia
Tel: + 613 9669 4735
Fax: + 613 9669 4168
Email: w.mclean@bom.gov.au

CANADA

Mr Brian O'Donnell
Regional Director
Meteorological Service of Canada
Pacific and Yukon Region
Environment Canada
Suite 200, 1200 West 73rd Avenue
VANCOUVER, British Columbia
Canada V6P 6H9
Telephone: +1-604 664 9090
Telefax: +1-604 664 9004
E-mail: Brian.O'Donnell@ec.gc.ca

Mr Ronald G. Perkin
Institute of Ocean Sciences
9860 West Saanich Road
SIDNEY, BC V8L 4B2
Canada
Telephone: +1-250 363 6584
Telefax: +1-250 363 6746
E-mail: perkinr@pac.dfo-mpo.gc.ca

Mr Ron McLaren
Head, Marine Services
Meteorological Service of Canada
Pacific and Yukon Region
Environment Canada
Suite 700-1200 West 73rd Avenue
VANCOUVER, B.C., V6P 6H9
Canada
Telephone: +1-604 664 9188
Telefax: +1-604 664 9195
E-mail: Ron.McLaren@ec.gc.ca

FRANCE

Mr Pierre Blouch
Programme coordinator, IBPIO and EGOS
Météo-France
Centre de météorologie marine/Brest
13, rue du Chatellier
BP 90411
F-29604 BREST Cédex
France
Telephone: +33-2 98 22 18 52
Telefax: +33-2 98 22 18 49
E-mail: pierre.blouch@meteo.fr

ITALY

Dr Enrico Zambianchi
Chairman, IPAB
Instituto di Meteorologia e Oceanografia
Universita Parthenope
Via Acton 38
80133 NAPOLI
Italy
Telephone: +39-81 5475583
Telefax: +39-81 5513679
E-mail: enrico.zambianchi@uninav.it

KOREA, REPUBLIC OF

Mr Tae-Hee Kim
Scientific Researcher
Marine Meteorology and Earthquake
Research Laboratory
Meteorological Research Institute, KMA

460-18 Shindaebang-dong
Dongjak-gu
SEOUL, 156-720
Republic of Korea
Tel: + 822 847 2495
Telefax: +82-2 847 2496
Email: kth@metri.re.kr

Mr Jae-Cheol Nam
Director
Marine Meteorology and Earthquake Research Laboratory
Meteorological Research Institute, KMA
460-18 Shindaebang-dong
Dongjak-gu
SEOUL, 156-720
Republic of Korea
Telephone: +82-2 847 2495
Telefax: +82-2 847 2496
E-mail: jcnam@metri.re.kr

NETHERLANDS

Mr A.T. Frank Grooters
Observations and Modelling Department
Royal Netherlands Meteorological Institute
P.O. Box 201
3730 AE DE BILT
The Netherlands
Telephone: +31-30 220 6691
Telefax: +31-30 221 0407
E-mail: frank.grooters@knmi.nl

NEW ZEALAND

Ms Julie Fletcher
Marine Meteorological Officer
Meteorological Service of NZ Ltd
P.O. Box 722
WELLINGTON
New Zealand
Telephone: +64-4 4700 789
Telefax: +64-4 4700 772
E-mail: fletcher@met.co.nz

SOUTH AFRICA

Mr Carlton Fillis
South African Weather Service
Private Bag X097
Pretoria 0001
South Africa
Telephone: + 2712 309 3009
Telefax: + 2712 309 3020
E-mail: carlton@weathersa.co.za

Mr Louis Vermaak
Technical Coordinator, ISABP
South African Weather Service
Private Bag X97
PRETORIA 0001
South Africa
Telephone: +27-12 309 3834
Telefax: +27-12 309 3020
E-mail: vermaak@weathersa.co.za

UNITED KINGDOM

Mr David Meldrum
Vice-chairman, DBCP
Programme Leader, Technology Development
Dunstaffnage Marine Laboratory
Dunbeg
OBAN PA37 1QA
Scotland
United Kingdom
Telephone: +44-1631 559 273
Telefax: +44-1631 559 001
E-mail: dtm@dml.ac.uk

USA

Mr Stephen J. Auer
NOAA Office of Global Programs
Office of Oceanic and Atmospheric Research
1100 Wayne Avenue, Suite 1210
SILVER SPRING, MD 20910
USA
Telephone: +1-301 427 2089 Ext. 153
Telefax: +1-301 427 2222
E-mail: Stephen.Auer@noaa.gov

Mr Robert Bassett
National Environmental Satellite, Data, and Information Service (NESDIS/NOAA)
Route: E/SP3, BLDG FB4, RM 3320
5200 Auth Road
SUITLAND, MD 20746-4304
USA
Telephone: +1-301 457 5681
Telefax: +1-301 457 5620
E-mail: Robert.Bassett@hdq.noaa.gov

Mr Steven K. Cook
Atlantic Oceanographic and Meteorological
Laboratories (R/AOML)
Office of Oceanic and Atmospheric Research (NOAA)
8604 La Jolla Shores Drive
LA JOLLA, CA 92038
USA
Telephone: +1-858 546 7103
Telefax: +1-858 546 7185
E-mail: skcook@ucsd.edu

Ms Elizabeth Horton
Naval Oceanographic Office, 01O (NAVOCEANO)
Stennis Space Center, MS 39529
USA
Telephone: +1-228 688 5725
Telefax: +1-228 688 5514
E-mail: hortone@navo.navy.mil

Prof. Peter Niiler
Scripps Institution of Oceanography
La Jolla CA 92093-0213
USA
Tel: + 1858 534 4100
Fax: + 1858 534 7931
Email: pniiler@uscd.edu

CLS/ARGOS

Mr Michel Cazenave
CLS/Service Argos
8-10 rue Hermes
Parc Technologique du Canal
31526 Ramonville St. Agne
FRANCE
Tel: (1)(33) 561 39 47 01
Fax: (1)(33) 561 75 10 14
E-mail: cazenave@cls.fr

Mr Christian Ortega
CLS/Service Argos
8-10 rue Hermès
Parc technologique du canal
31526 RAMONVILLE ST AGNE
France
Telephone: +33-5 61 39 47 29
Telefax: +33-5 61 39 47 97
E-mail: christian.ortega@cls.fr

Mr Christophe Vassal
CLS/Service Argos
8-10 rue Hermès
Parc technologique du canal
31526 RAMONVILLE ST AGNE
France
Telephone: +33-5 61 39 48 60
Telefax: +33-5 61 75 10 14
E-mail: christophe.vassal@cls.fr

DBCP

Mr Etienne Charpentier
Technical Coordinator, DBCP and SOOP
JCOMMOPS
Parc Technologique du Canal
8-10 rue Hermes
F-31526 RAMONVILLE SAINT-AGNE
France
Telephone: +33-5 61 39 47 82
Telefax: +33-5 61 75 10 14
E-mail: charpentier@jcommops.org

JTA CHAIRMAN

Mr Derek J. Painting
Chairman, Argos JTA
5 The Sycamores
Darby Green
Blackwater
CAMBERLEY GU17 0EE
United Kingdom
Telephone: +44-1252 876804
Telefax: +44-1252 654612
E-mail: djpainting@compuserve.com

SERVICE ARGOS INC.

Mr William E. Woodward
Service Argos Inc.
1801 McCormick Drive, Suite 10
LARGO, MD 20774
USA
Telephone: +1-301 925 4411
Telefax: +1-301 925 8995
E-mail: woodward@argosinc.com

OBSERVERS

Mr Andy Sybrandy
President
Pacific Gyre

Carlsbad CA
USA
Tel: + 1760 918 9798
Fax: + 1413 375 0914
Email: asybrandy@pacificgyre.com

SECRETARIATS

IOC

Mr Yves Tréglos
GOOS Project Office
UNESCO/Intergovernmental
Oceanographic Commission
1, rue Miollis
75732 PARIS Cédex 15
France
Telephone: +33-1 45 68 39 76
Telefax: +33-1 45 68 58 12
E-mail: y.treglos@unesco.org

WMO

Dr Peter Dexter
Ocean Affairs Division
World Meteorological Organization
7 bis, Avenue de la Paix
Case postale No 2300
CH-1211 GENEVE 2
Switzerland
Telephone: +41-22 730 82 37
Telefax: +41-22 730 80 21
E-mail: dexter@www.wmo.ch

ANNEX II

AGENDA

1. ORGANIZATION OF THE MEETING

1.1 OPENING OF THE MEETING
1.2 ELECTION OF THE CHAIRMAN
1.3 ADOPTION OF THE AGENDA
1.4 WORKING ARRANGEMENTS

2. REPORT OF THE CHAIRMAN OF THE JTA

3. REPORT ON THE 2001 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 2002 GLOBAL AGREEMENT

8. FUTURE PLANS AND PROGRAMMES

9. DATE AND PLACE OF THE NEXT MEETING

10. CLOSURE OF THE MEETING

REPORT ON THE 2001 AGREEMENT

1. CONTRACTED PARTICIPATION FOR 2001

COUNTRIES	PTT-year
AUSTRALIA	42.00
BRASIL	12.00
BURKINA FASO	10.00
CANADA	64.00
CHINA	12.50
DENMARK	11.50
FINLAND	2.00
FRANCE	82.00
GERMANY	42.80
ICELAND	4.50
INDIA	10.00
ITALY	11.00
KOREA	2.50
NETHERLANDS	7.25
NEW ZEALAND	9.30
NORWAY	21.50
PAKISTAN	1.60
SOUTH AFRICA	38.00
SPAIN	1.70
SWEDEN	2.50
TUNISIA	3.00
UND ARAB EMTS	6.00
UNITED KINGDOM	50.00
USA	685.00
OTHER	3.00
TOTAL	**1135.65**

Table 1 - The numbers contracted by each country for year 2001

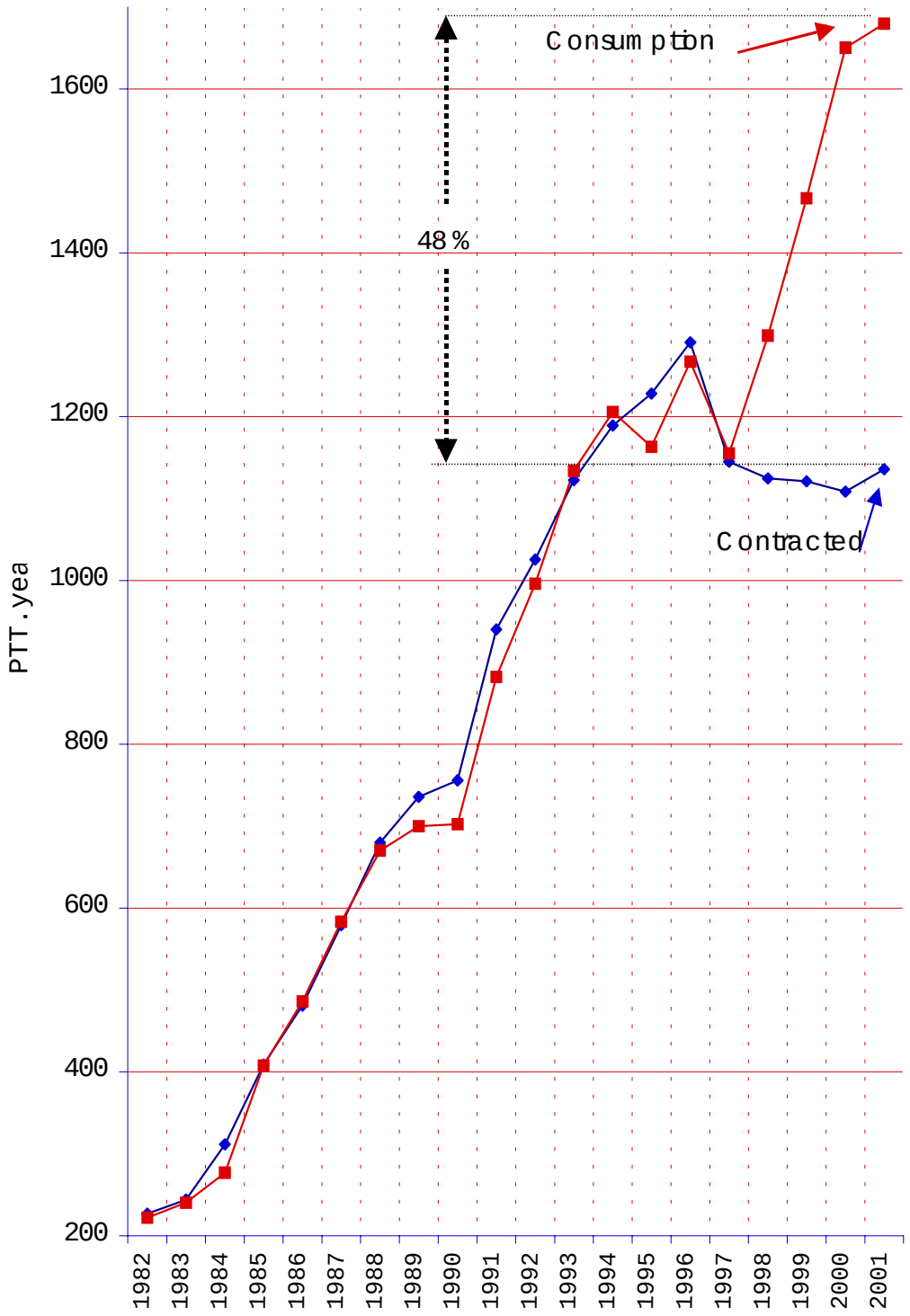
The total number contracted is higher than estimated number recorded at the JTA-XX meeting, 1123.47 PTT-year.

2. PROJECTED 2001 CONSUMPTION BASED ON ACTUAL USE AT END JULY

COUNTRIES	PTT-year
AUSTRALIA	45.13
BRASIL	9.46
BURKINA FASO	8.11
CANADA	69.70
CHINA	5.8
DENMARK	11.29
FINLAND	2.38
FRANCE	93.79
GERMANY	51.91
ICELAND	1.74
INDIA	11.01
ITALY	11.27
KOREA	2.38
NETHERLANDS	8.03
NEW ZEALAND	8.85
NORWAY	16.5
PAKISTAN	0.98
SOUTH AFRICA	35.45
SPAIN	1.99
SWEDEN	3.47
TUNISIA	3.05
UND ARAB EMTS	8.17
UNITED KINGDOM	77.46
USA	1191.04
OTHER	0.75
TOTAL	**1679.71**

Table 2 - The projected consumption for 2001

This consumption is an extrapolation based on the actual consumptions till July 2001.



Curve 2.1: PTT-year contracted an consumption since 1982

The curves confirm the consumption growth observed from 1998 as the result of the bonus policy. The overall bonus level is now close to 50%.

3. EVOLUTION OF THE AGREEMENT FOR THE "BONUS YEARS" (1998-2001)

3.1 Principles of the bonus

- **JTA XVII (La Réunion, October 1997)**

Agreement reached at the seventeenth JTA meeting (La Réunion, October 1997, paragraph 5.5 of the final report):
« the basic principles for the 1998 and 1999 JTAs at least should be:

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

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

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

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

- **JTA XIX (Wellington, November 1999)**

The JTA - XIX meeting:

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

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

- **JTA XX (Victoria, October 2001)**

The bonus policy was reconfirmed an expanded as below:

The meeting agreed to :

a) continue the bonus system in 2001, with a continuing upper bonus limit of 82% to apply to those countries whose contracted number equal or exceeds the JTA-XVII bid,

b) make the bonus available also to those countries whose signed PTT-years in 2001 is at least as great as those confirmed at this meeting and also those signed in 2000, initially at the 35% level.

3.2 Application of the bonus

3.2.1 Situation of Agreements per country

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

Countries	Agreed at JTA XVII PTT-Yrs	Contracted for 1999 PTT-Yrs	Contracted for 2000 PTT-Yrs	Contracted for 2001 PTT-Yrs	Bonus for 2001 82%	Bonus for 2001 35%
AUSTRALIA	53.00	53.00	40.50	42.00		yes
BRAZIL	12.00	16.00	12.00	12.00	yes	
BURKINA	14.00	10.80	10.80	10.00	no	
CANADA	64.00	67.00	67.00	64.00	yes	
CHINA	1.50	3.00	2.37	12.50	yes	
DENMARK	11.00	11.00	8.05	11.50	yes	
FINLAND	1.45	1.60	2.35	2.00	yes	
FRANCE	80.50	81.00	82.00	82.00	yes	
GERMANY	43.20	38.80	51.80	42.80	no	
ICELAND	7.00	8.50	4.50	4.50		yes
INDIA	10.00	10.00	10.00	10.00	yes	
ITALY	12.00	13.50	11.00	11.00		yes
KOREA	5.00	5.00	3.00	2.50	no	
NETHERLANDS	15.47	11.00	13.70	7.25	no	
NEW ZEALAND	9.30	9.30	9.30	9.30	yes	
NORWAY	21.50	21.50	18.50	21.50	yes	
PAKISTAN	1.60	1.60	1.60	1.60	yes	
SOUTH AFRICA	38.00	38.00	38.00	38.00	yes	
SPAIN	1.25	1.95	4.85	1.70	yes	
SWEDEN	2.50	3.00	3.00	2.50	yes	
TUNISIA	3.00	3.00	3.00	3.00	yes	
UND ARAB EMTS	3.50	4.50	50.00	6.00	yes	
UK	50.00	50.00	5.00	50.00	yes	
USA	655.00	661.50	661.50	685.00	yes	
OTHER	3.00	3.00	1.00	3.00	yes	
Total	**1119**	**1128**	**1115**	**1136**		

Table 3.2.1: Bonus situation. From 1999 to 2000, countries for which contracted number equals or exceeds their « Agreed JTA XVII » number were entitled to bonus.

3.2.2 Contracted versus consumed PTT-Yrs by country

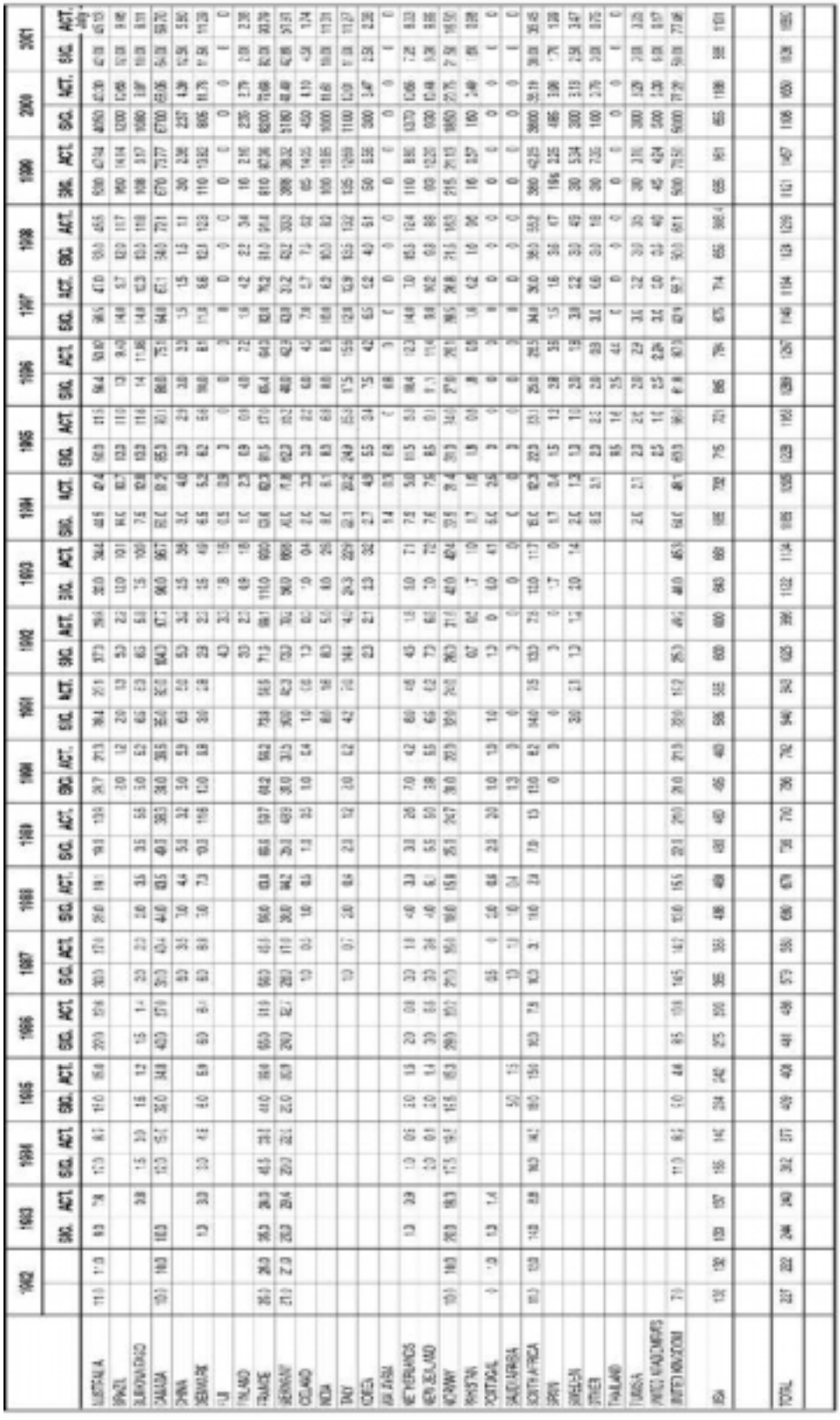
The total consumption in PTT-years was:
- in 2000: 48 % (535 PTT-year) higher than the total signed 1115 PTT-year
- in July 2001: 48 % (544 PTT-year) higher than the total signed 1136 PTT-year.

In July 2001, the projected consumption of 14 countries (among 21 bonus allowed) was exceeding their signed amount.

		Year 2000				***Year 2001***			
Countries	**Agreed at JTA XVII** (1997) **PTT-Yrs**	**Contracted in 2000** **PTT-Yrs**	**Bonus**	**Consumed in 2000** **PTT-Yrs**	**Diff** **%**	**Contracted for 2001** **PTT-Yrs**	**Bonus**	**Projected for 2001** juil-01 **PTT-Yrs**	**Diff** **%**
AUSTRALIA	53.00	40.50	**no**	40.3	0%	42.00	yes	45.13	**7%**
BRAZIL	12.00	12.00	yes	10.65	-11%	12.00	yes	9.46	-21%
BURKINA	14.00	10.80	**no**	8.87	-18%	10.00	**no**	8.11	-19%
CANADA	64.00	67.00	yes	68.06	2%	64.00	yes	69.7	**9%**
CHINA	1.50	2.37	yes	4.39	**85%**	12.50	yes	5.8	-54%
DENMARK	11.00	8.05	**no**	11.78	**46%**	11.50	yes	11.29	-2%
FINLAND	1.45	2.35	yes	2.79	**19%**	2.00	yes	2.38	**19%**
FRANCE	80.50	82.00	yes	72.68	-11%	82.00	yes	93.79	**14%**
GERMANY	43.20	51.80	yes	41.49	-20%	42.80	**no**	51.91	**21%**
ICELAND	7.00	4.50	**no**	4.1	-9%	4.50	yes	1.74	-61%
INDIA	10.00	10.00	yes	11.61	**16%**	10.00	yes	11.01	**10%**
ITALY	12.00	11.00	**no**	10.01	-9%	11.00	yes	11.27	**2%**
KOREA	5.00	3.00	**no**	3.47	**16%**	2.50	**no**	2.38	**-5%**
NETHERLANDS	15.47	13.70	yes	10.65	-22%	7.25	**no**	8.03	**11%**
NEW ZEALAND	9.30	9.30	yes	10.44	**12%**	9.30	yes	8.85	-5%
NORWAY	21.50	18.50	**no**	20.75	**12%**	21.50	yes	16.5	-23%
PAKISTAN	1.60	1.60	yes	0.49	-69%	1.60	yes	0.98	-39%
SOUTH AFRICA	38.00	38.00	yes	36.19	-5%	38.00	yes	35.45	-7%
SPAIN	1.25	4.85	yes	3.93	-19%	1.70	yes	1.99	**17%**
SWEDEN	2.50	3.00	yes	3.13	4%	2.50	yes	3.47	**39%**
TUNISIA	3.00	3.00	yes	3.29	**10%**	3.00	yes	3.05	**2%**
UND ARAB EMTS	3.50	5.00	yes	5.33	**7%**	6.00	yes	8.17	**36%**
UK	50.00	50.00	yes	77.22	**54%**	50.00	yes	77.46	**55%**
USA	655.00	661.50	yes	1188	**80%**	685.00	yes	1191.04	**74%**
OTHER	3.00	1.00	**no**	0.76	-24%	3.00	yes	0.75	-75%
Total	**1119**	**1115**		**1650**	**48%**	**1136**		**1680**	**48%**

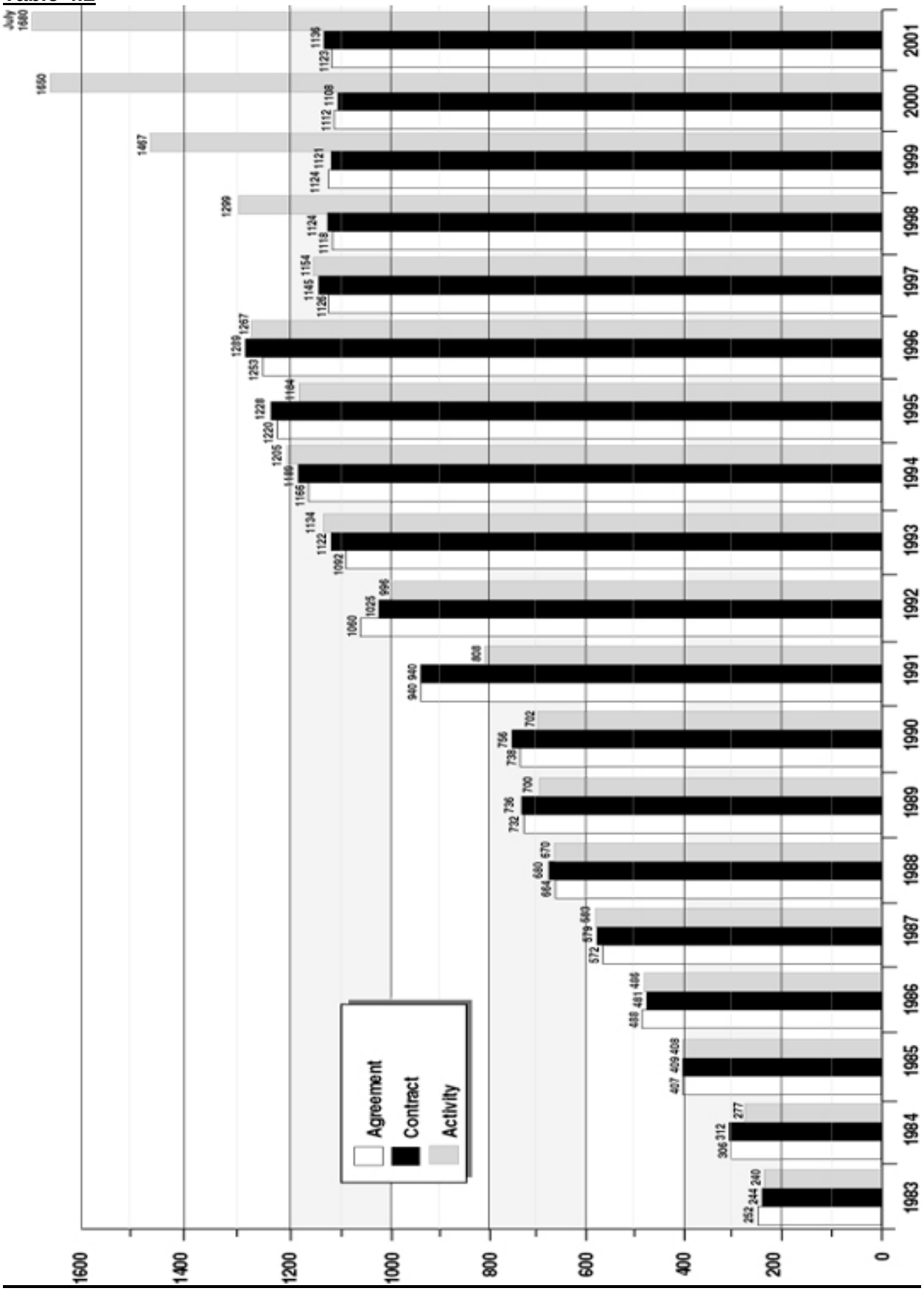
4. THE JOINT TARIFF AGREEMENT FROM 1982 TO 2001

Table 4.1



4. THE JOINT TARIFF AGREEMENT FROM 1982 TO 2001

Table 4.2



REPORT ON 2000-2001 OPERATIONS

1. GROUND RECEIVING STATIONS

1.2 Global stations

In 2000, the delivery of STIP data sets to Lannion station was stopped. Even though previously this station only received two data sets per day from each satellite (corresponding to two “blind” orbits), it nevertheless helped us to deliver data faster to users.

An important and positive development was the resumption in STIP data reception from the NOAA-12 (D) satellite. Previously, we were only receiving two orbits daily in all. From July 27, 2000, we again started receiving all orbits via the Wallops and Fairbanks stations. Since March 20 last, we have been receiving only two orbits per day.

We continued to receive STIP data sets from NOAA-11 (H), especially since the HRPT channel was shut down last October. This is an essential factor for the Argos system (see figure 2).

As regards the two operational satellites, NOAA-15 (K) and NOAA-14 (J), the latter now having been replaced by NOAA-16 (L), we find ourselves in a similar situation to last year. Overall performance is good. We are experiencing some delays with NOAA-15 between 7:00 and 12:00 UTC and NOAA-16 (L) between 2:00 and 6:00 UTC.

Figure 1 shows STIP data set arrival times at the Toulouse and Largo processing centers. Ideally, one data set should be received every 100 minutes.

Figure 2 shows the satellite orbit plans in April 2001. NOAA-11 significantly enhances the satellite pass distribution.

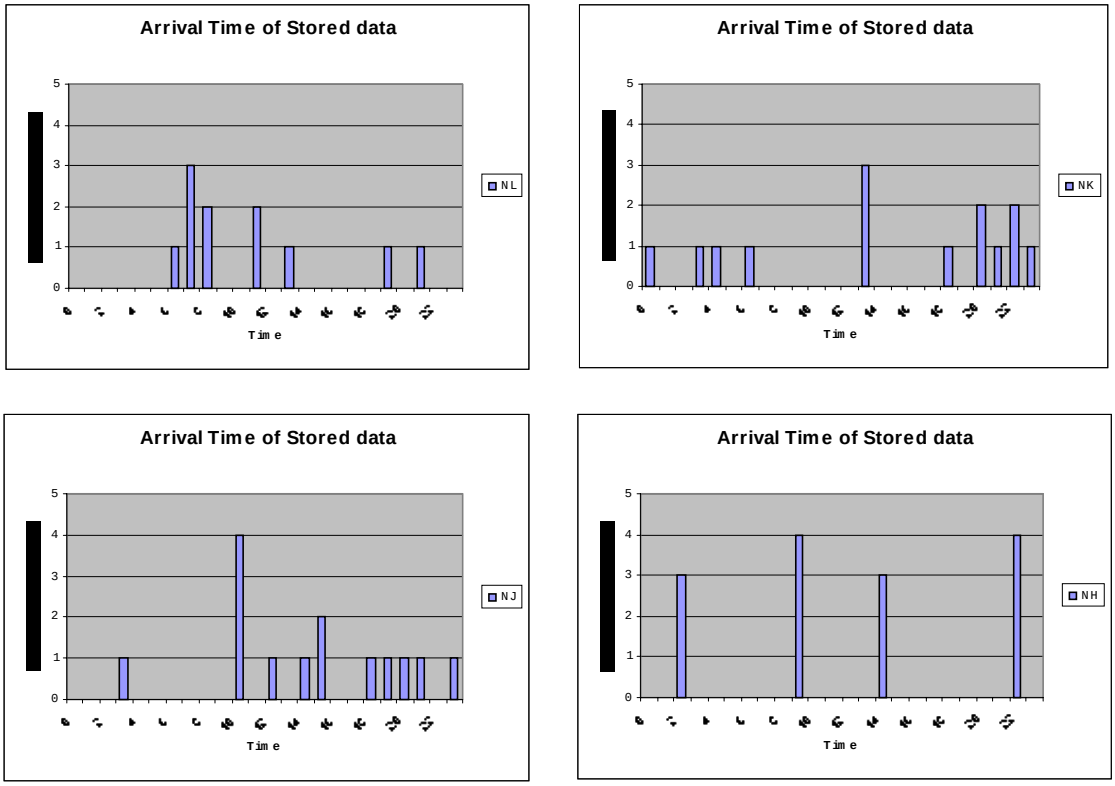


Figure 1

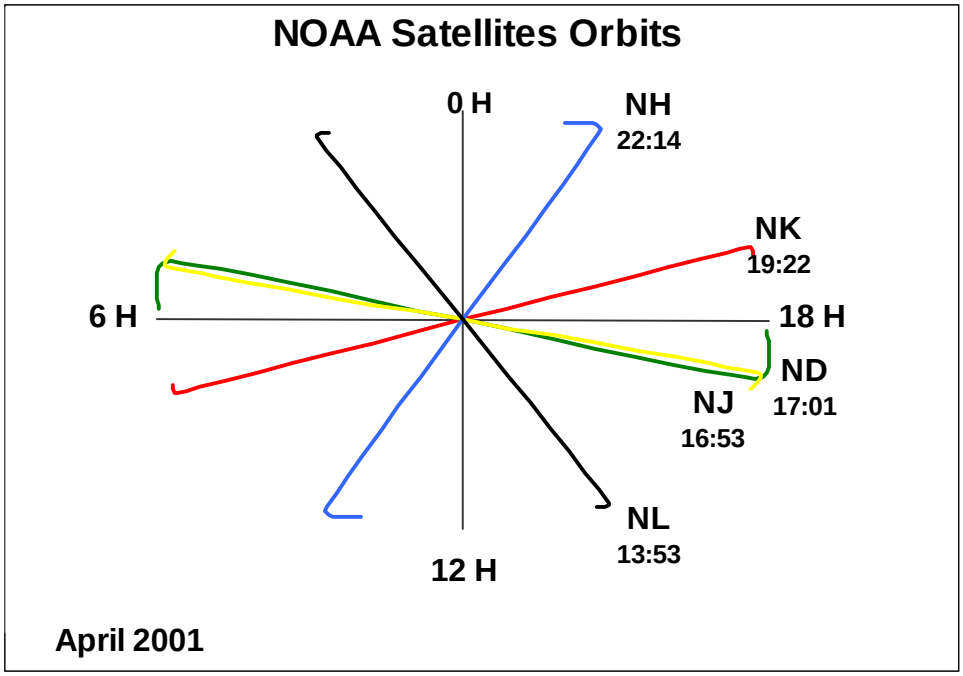


Figure 2

1.3 Regional stations

CLS and Service Argos Inc. pursued their efforts in 2000 to increase the number of receiving stations able to provide TIP data sets from the NOAA satellites. Three new stations thus joined the Argos network during the year. They are in Cayenne (French Guiana, IRD), Hawaii (USA, NOAA/NWS), and Toulouse (France, CLS). The latter, which is running alongside the existing station at CLS, is dedicated above all to studies, testing and other activities not compatible with operational requirements.

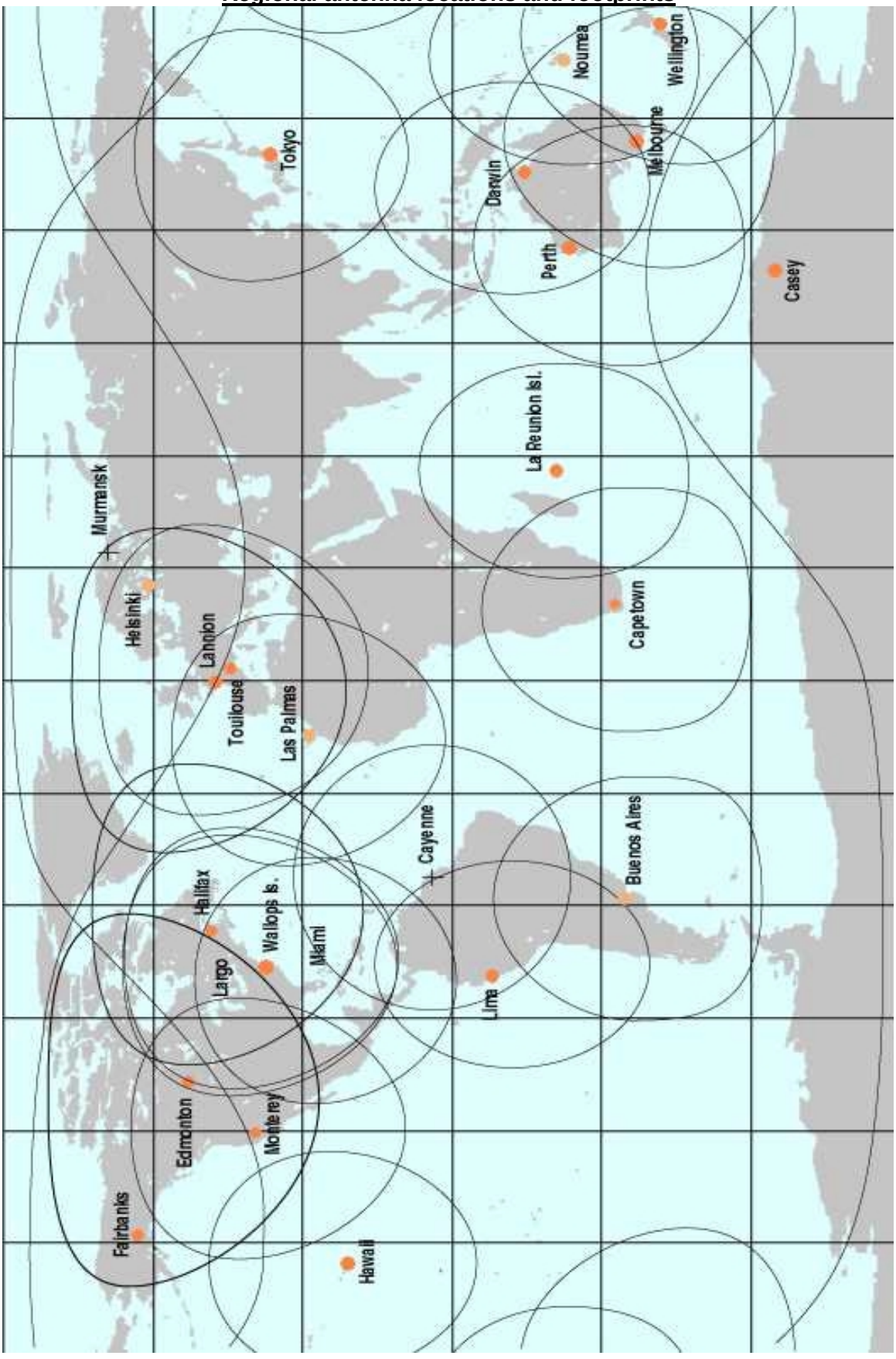
There are currently 28 stations delivering TIP data sets to CLS and Service Argos Inc.

None of these regional stations process data from NOAA-11 since the HRPT channel was shut down on October 17, 2000. However, most of them process data from NOAA-16, NOAA-15, NOAA-14 and NOAA-12, so we have been able to maintain good throughput times for delivery of results.

Regional Receiving Stations

Antennas	Sigle	Country	Operator	Satellites
Buenos Aires	BA	Argentina	INTA	**N16, N15, N14, N12**
Casey	CA	Australia (Antarctica)	BOM	**N16, N15, N14, N12**
Cayenne	CY	France (Guyana)	IRD	**N16, N15, N14, N12**
Darwin	DA	Australia	BOM	**N16, N15, N14, N12**
Gilmore	GC	USA	NOAA/NESDIS	**N16, N15, N14, N12**
Halifax	HA	Canada	Can. Coast Guard	**N16, N15, N14, N12**
Ile de la Réunion	RN	France (Reunion Island)	Météo France	**N16, , N14,**
Ile de la Réunion	RE	France (Reunion Island)	IRD	**N16, N15, N14, N12**
Lannion	WE	France	Météo France	**N16, N15, N14,**
Las Palmas	LP	Canaries Island	Univ. Las Palmas	**N16, N15, N14, N12**
Melbourne	ME	Australia	BOM	**N16, N15, N14, N12**
Miami	MI	USA	NOAA/AOML	**N16, N15, N14, N12**
Hawaï	HW	USA	NOAA/NWS	**, , N14, N12**
Noumea	NO	France (New Caledonia)	IRD	**N16, , N14, N12**
Perth	PE	Australia	BOM	**N16, N15, N14, N12**
Wallops	WI	USA	NOAA/NESDIS	**N16, N15, N14, N12**
Wellington	NZ	New-Zeland	Met Office	**N16, N15, ,**
Cape Town	SA	South Africa	CLS/SAWB	**N16, N15, N14, N12**
Largo	LA	USA	SAI	**N16, N15, N14, N12**
Lima	PR	Peru	CLS perù	**N16, N15, N14, N12**
Toulouse	RV	France	CLS	**N16, N15, N14, N12**
Aussaguel	AU	France	CLS	**N16, N15, N14, N12**
Helsinki	HL	Finland	CLS	**N16, N15, N14, N12**
Murmansk	RU	Russia	Complex System	**N16, N15, N14, N12**
Petropavlosk	PT	Russia	Rybradiov	**N16, N15, N14, N12**
Tokyo	JM	Japan	Jamstec	**N16, N15, N14, N12**
Edmonton	ED	Canada	Envir. Canada	**N16, , N14, N12**
Monterey	MO	USA	NESDIS/NWS	**N16, , , N12**

Regional antenna locations and footprints



Regional Antenna performance

The table below describes the average performance over the year of the regional antennas.

Antennas/Satellites	N12	N14	N15	N16
Aussaguel	75%	75%	73%	77%
Buenos Aires	42%	40%	42%	44%
Cape Town	72%	72%	68%	75%
Casey	53%	63%	12%	28%
Cayenne	19%	15%	15%	6%
Darwin	58%	73%	27%	31%
Edmonton	78%	100%	*	42%
Gilmore	18%	59%	62%	65%
Halifax	71%	72%	22%	13%
Hawaï	61%	65%	*	*
Helsinki	22%	22%	22%	22%
Ile de la Réunion (1)	63%	82%	*	*
Ile de la Réunion (2)	19%	15%	15%	6%
Lannion	*	85%	75%	72%
Largo	77%	75%	72%	80%
Las Palmas	24%	25%	23%	20%
Lima	84%	86%	83%	86%
Melbourne	65%	71%	43%	65%
Miami	59%	70%	38%	74%
Monterey	67%	*	*	37%
Murmansk	73%	75%	57%	73%
Noumea	13%	12%	*	14%
Perth	42%	42%	38%	63%
Petropavlosk	19%	17%	18%	0%
Tokyo	66%	65%	65%	75%
Toulouse	69%	70%	67%	74%
Wallops	21%	62%	66%	69%
Wellington	*	*	30%	32%

The percentage reflects the ratio number of datasets received on number of datasets expected. “*” means this station is not processing this satellite.

2. SPACE SEGMENT

2.1 Operational satellites

NOAA-16 (L), launched on September 21, 2000, replaced NOAA-14 (J) as one of the two NOAA operational satellites on March 20, 2001. The other operational satellite NOAA-15 (K) has been operating nominally since December 1st, 1998.

The launch of NOAA-17 (M) is scheduled for March 2002.

2.2 Other satellites

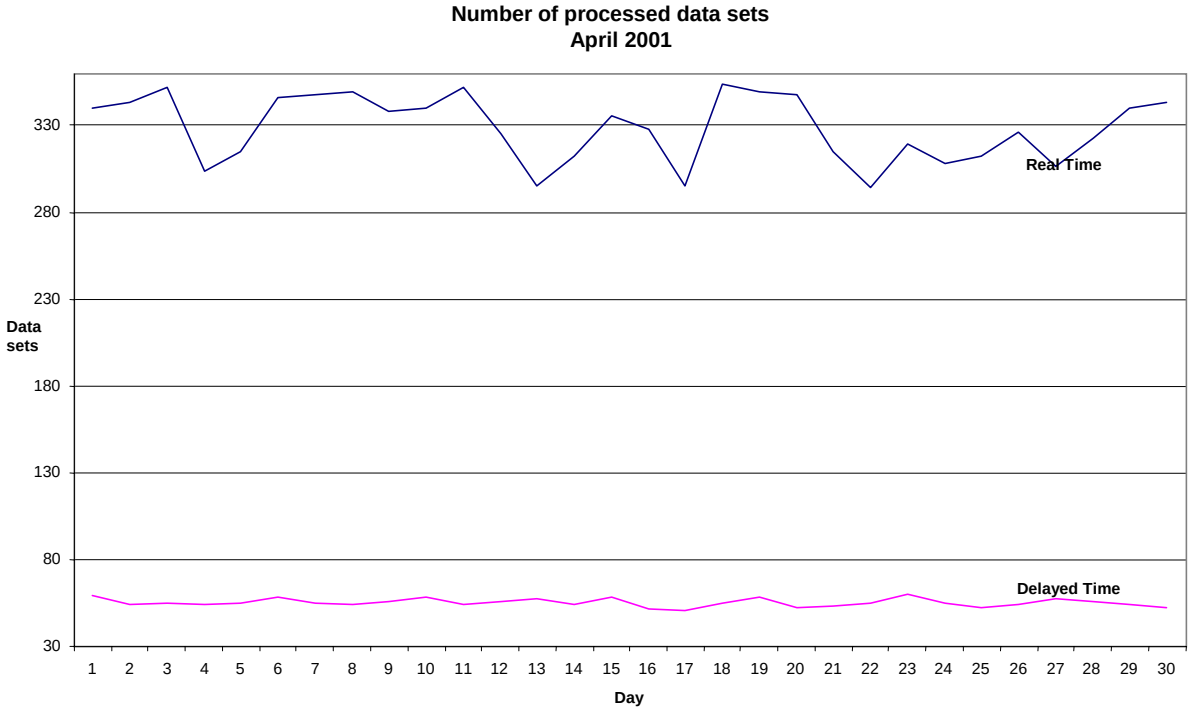
NOAA-14 (J) and NOAA-12 (D) are used as secondary satellites. Global and Regional datasets they collect are delivered according the "multi-satellite" service characteristics. NOAA-11 (H) is providing global datasets which are also delivered through the "multi-satellite". NOAA-11 is no longer delivering real-time data through the HRPT downlink since October 2001.

From **Satellite status**	May 98	Dec 98	Oct 99	Sep 2000	Mar 01
Under test	NOAA-15			NOAA-16	
Operational	NOAA-14 NOAA-12	NOAA-15 NOAA-14	NOAA-15 NOAA-14	NOAA-15 NOAA-14	NOAA-16 NOAA-15
Back-up Third satellite	NOAA-11 NOAA-10	NOAA-11 NOAA-12 NOAA-10	NOAA-11 NOAA-12	NOAA-11 NOAA-12	NOAA-14 NOAA-11 NOAA-12
Decommisioned	NOAA-9	NOAA-9	NOAA-9 NOAA-10	NOAA-9 NOAA-10	NOAA-9 NOAA-10

3. PROCESSING CENTERS

Each of the five Argos processing centers—in Toulouse, Largo, Melbourne, Tokyo, and Lima—operated without a major hitch in 2000.

The two global processing centers in Toulouse and Largo continue to process data sets from all receiving stations, handling over 380 data sets per day (see Figure 4). The regional processing centers in Melbourne, Tokyo, and Lima only process data sets from stations covering their region. Supplementary data providing global coverage are supplied by the Toulouse center.



The number of Argos platforms operating continues to increase. In December 2000, about 4400 platforms were active on average per day. However, each of the two global centers processed data from 8000 individual platforms during this month.

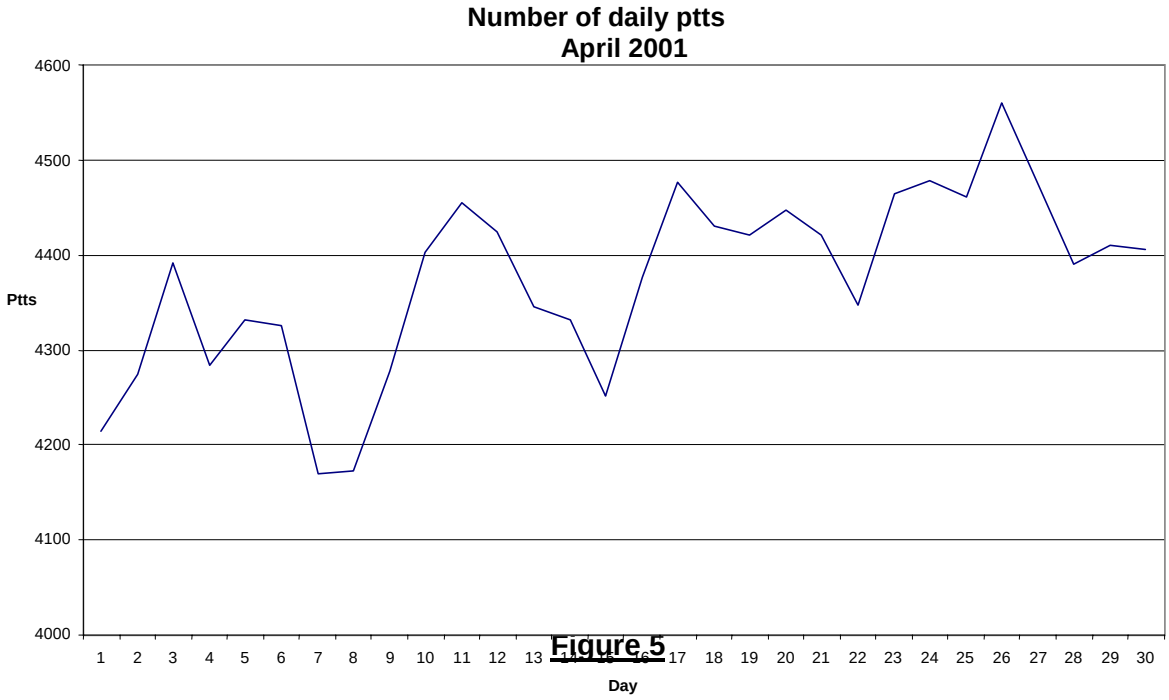


Figure 5

Figures 6 and 7 below show the number of locations and messages received every day by the Largo and Toulouse centers.

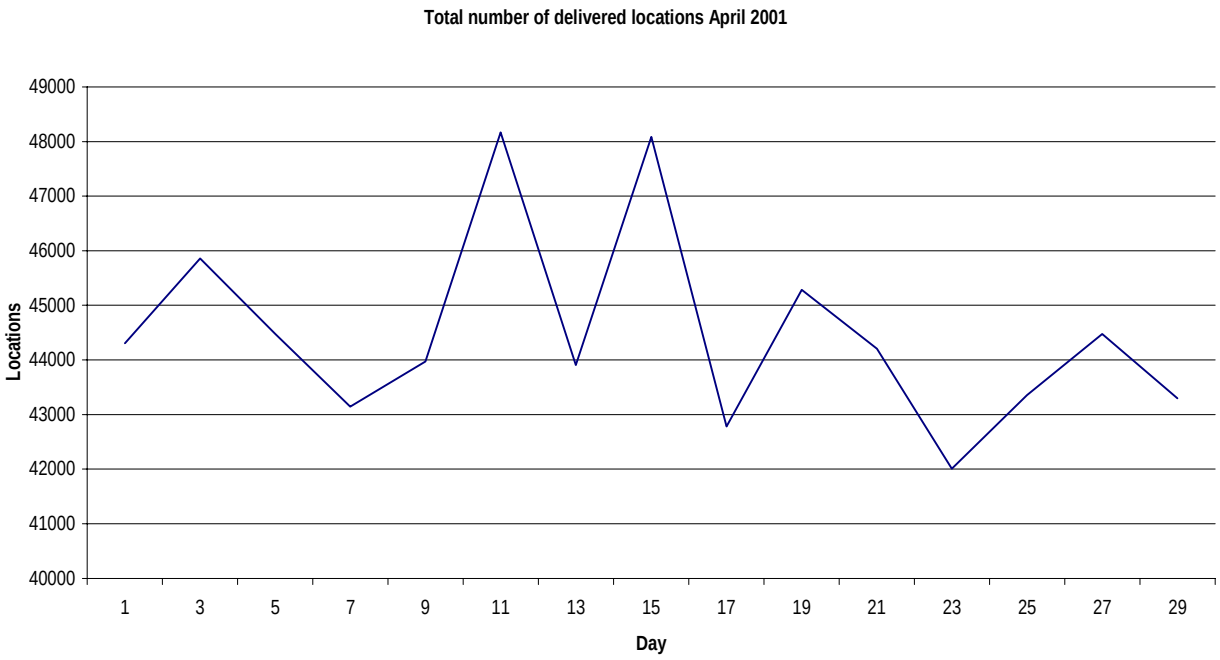


Figure 6

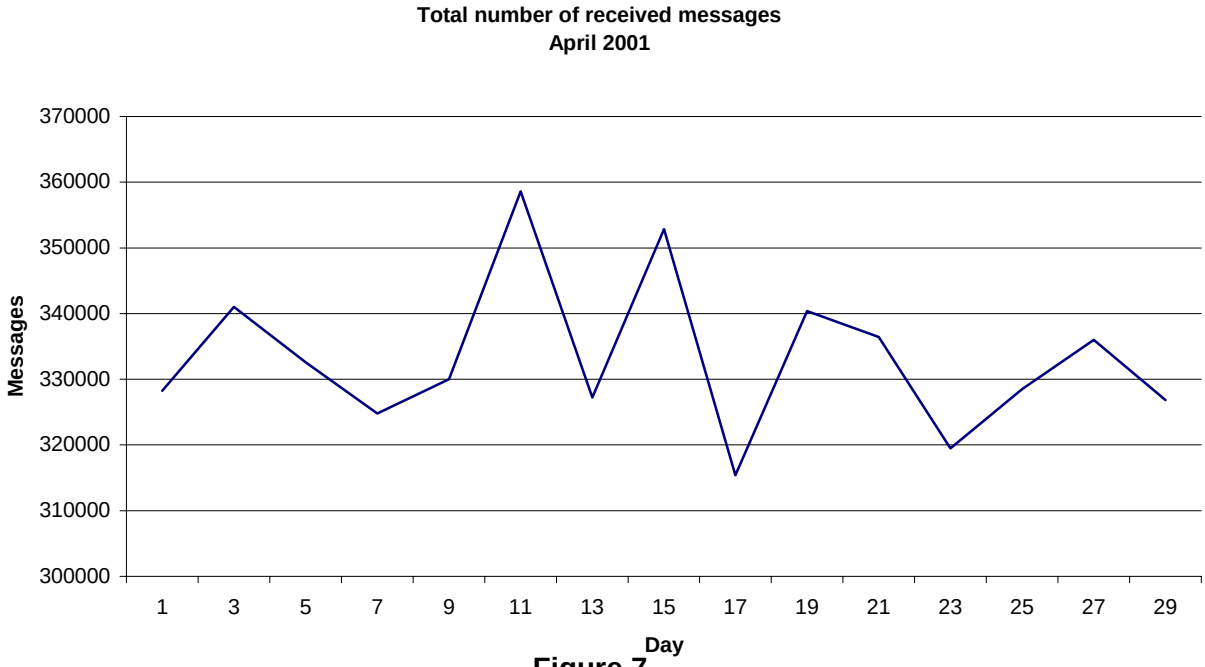


Figure 7

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. Each global center has a 512 kbps link.

The X25 protocol is now used only by the Toulouse center to send weather bulletins to the Météo France weather service. Some users, for security reasons, still prefer to receive their data using this communications protocol via our Automatic Distribution Service (ADS).

The transatlantic link between Toulouse and Largo still exists but its days are numbered and it will be phased out in July this year.

5. THROUGHPUT TIME FOR DELIVERY OF RESULTS

CLS throughput times for delivery of results should be calculated in terms of the time taken to make available the data for end users.
For each message received by the satellite, we compute the 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 center.

Table 8 shows the throughput time for delivery of results for stored data from NOAA-16 and NOAA-15.

Satellite Delivery	NOAA-15 & NOAA-16
1 h	18 %
2 h	39 %
3 h	69 %
4 h	76 %
5 h	84 %
> 5 h	100 %

Table 8: Stored data availability for satellites NOAA-15 and NOAA-16

40% of the data are available within two hours, while 65% of the data are available within three hours. This is quite the same situation as the last year.

Table 9 shows the throughput time for delivery of results for stored data from NOAA-11 and NOAA-14, the two backup satellites (we no longer receive stored data from NOAA-12).

Satellite Delivery	NOAA-11 & NOAA-14
1 h	3 %
2 h	13 %
3 h	22 %
4 h	44 %
5 h	47 %
> 5 h	100 %

Table 9: Stored data availability for satellites NOAA-11 and NOAA-14

Only 30% of the data are available within three hours as opposed to 65% for the two operational satellites. This delay is due to NOAA-11 data set delivery times.

Table 10 shows the throughput time for delivery of results for real-time data from NOAA-16, NOAA-15, NOAA-14 and NOAA-12, and data acquired by the 23 HRPT receiving stations. Note that about 2/3 of the Argos data are now available in near real time.

Satellite **Delivery**	**NOAA-12, NOAA-14 NOAA-15 & NOAA-16**
10’	5 %
15’	25 %
20’	50 %
30’	87 %
45’	97 %
60’	99 %
>60’	100 %

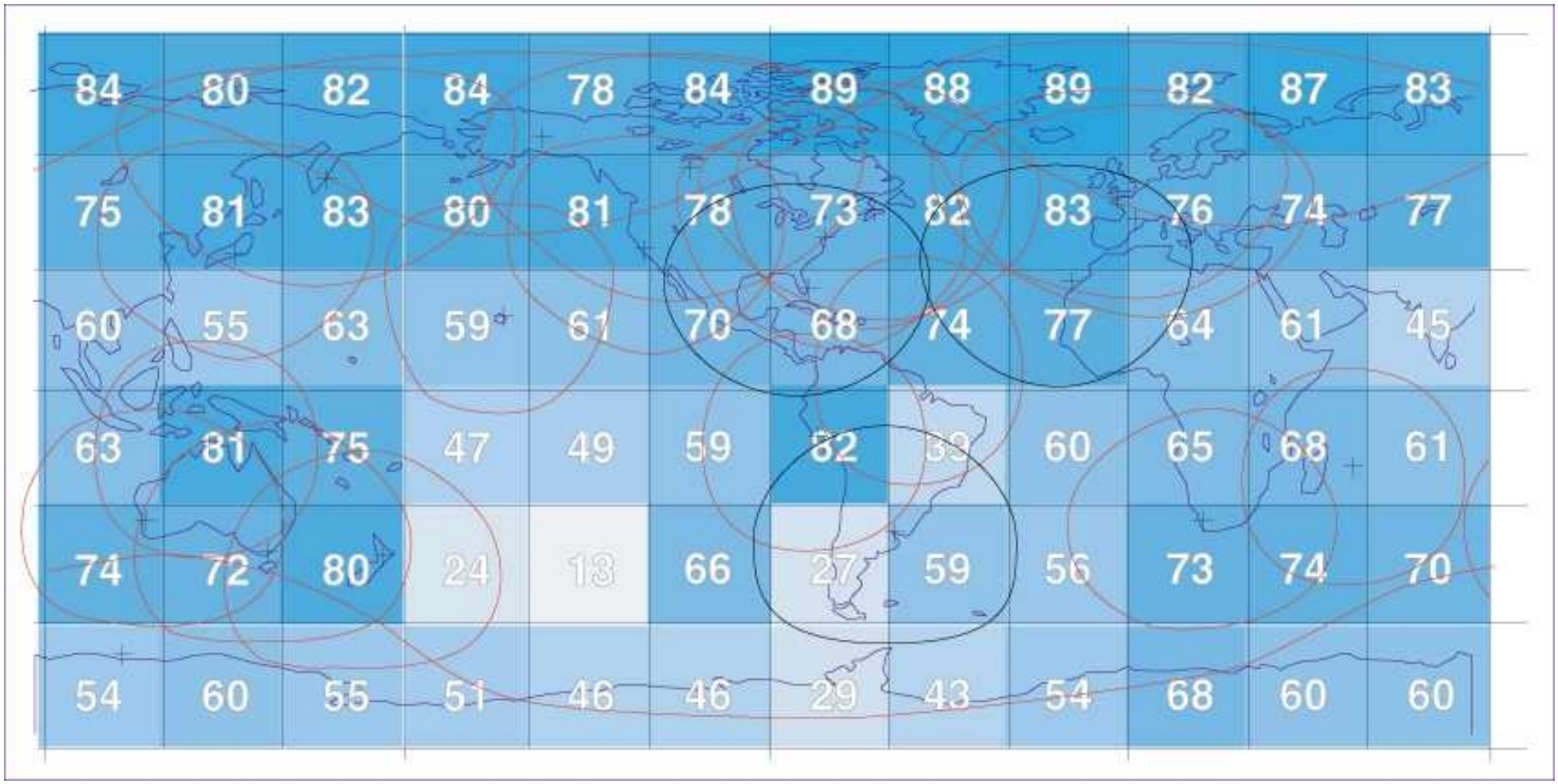
Table 10: Real-time data availability

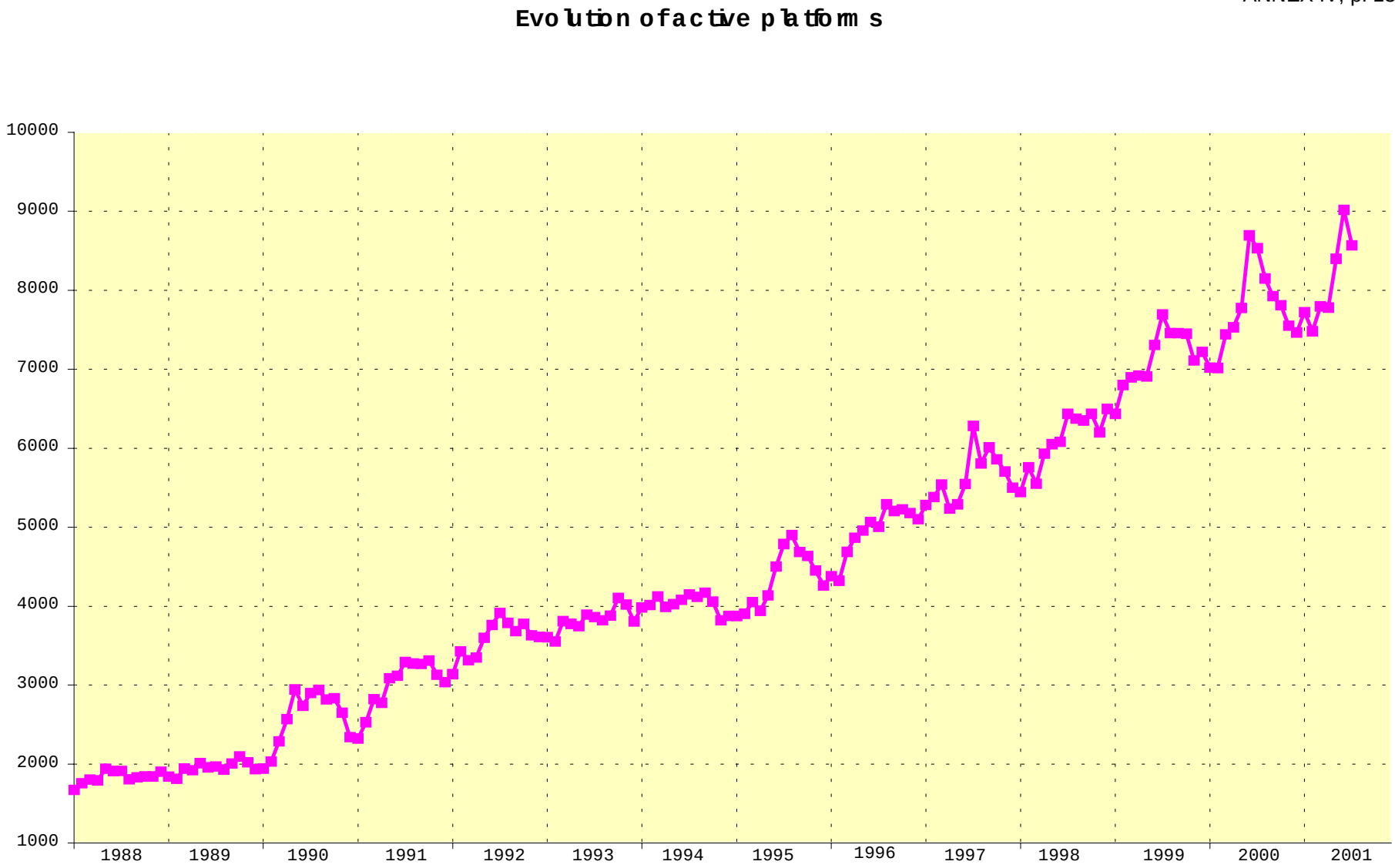
87% of these real-time data are available within 30 minutes.

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

- satellite pass duration, because we have to wait for the end of the pass to transfer and process the data set. It means an average of 5 minutes.
- time taken to transfer the data set to the global processing centers. Most transfers go over the Internet and the transfer rate is getting better and better.
- time taken to process the data set by the global processing centers, which is not significant (less than 30 seconds).

Percentage of real-time data received in each geographical square (July 2001)





Active platform evolution since 1988
An active platform is a platform received at least once in the month

SYSTEM IMPROVEMENTS

1. HARDWARE AND SOFTWARE CONFIGURATION

1.1 Hardware Configuration

After making a successful year 2000 transition, which took up a lot of our time in 1999 and somewhat held back investments due to the perceived risks involved, we resumed work in 2000 on upgrading our computer systems architecture.

This task consisted in preparing for the arrival of the first elements of the Argos 2001 project to upgrade the Argos processing system. The new system will be built around an Oracle database, which will now support all modules. The first module of the system is the User Office, comprising all software required to declare technical and commercial data regarding users, programs, transmitters and sensors.

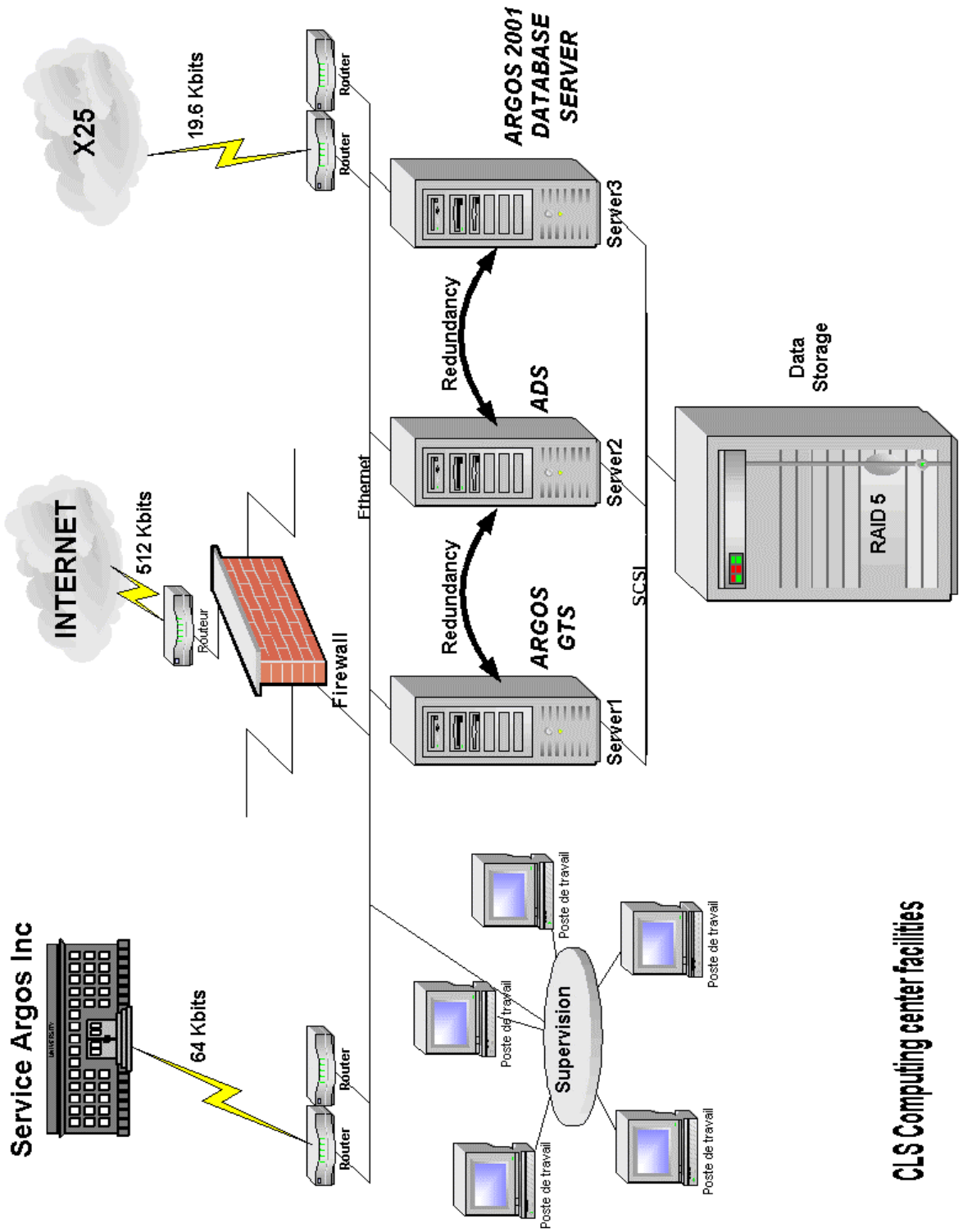
The main changes in our computer systems architecture involved:

- integrating a third computer with enough processing power to support the new database;
- upgrading the two other computers so that they can back up the new one if needed;
- increasing disk storage capacity by about 70 gigabytes to accommodate the new database.

Basically, our computer systems architecture is the one presented in the next page.

Another key investment in 2000 was the acquisition of a reliable, efficient, centralized data backup system. Our processing center environment is becoming increasingly heterogeneous, with a Sun Solaris firewall, Argos data processing and distribution under OpenVms, and desktop office systems under Windows. Using dedicated resources to back up data from each element at the processing center was becoming complex and virtually unmanageable. For this reason we opted for a centralized solution able to back up any kind of data from any system.

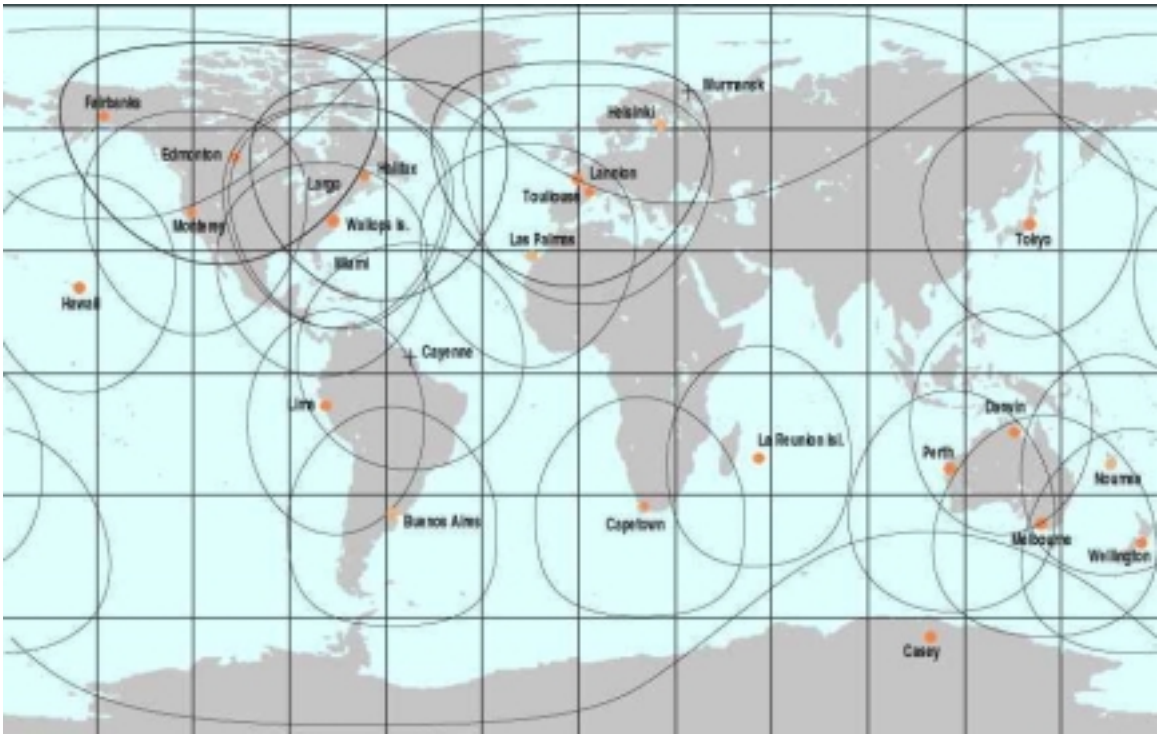
We pushed back our project to increase the bandwidth on our Internet connection to 1 Mbit until 2001. We are currently operating at 512 kbits.
However, we pursued and nearly completed the migration of our LAN from 10 to 100 Mbits.


X25
19.6 Kbits
Router
Router
ARGOS 2001
DATABASE
SERVER
Server3
Redundancy
ADS
Server2
Data
Storage
INTERNET
512 Kbits
Routeur
Firewall
Ethernet
Redundancy
ARGOS
GTS
Server1
SCSI
RAID 5
Service Argos Inc
64 Kbits
Router
Router
Supervision
Poste de travail
Poste de travail
Poste de travail
Poste de travail
Poste de travail
CLS Computing center facilities

1.2 Ground Segment Architecture

Three new HRPT stations joined our network in 2000, thus helping to improve data throughput times to users. They are in Cayenne (French Guyana), operated by the French development agency IRD; Hawaii (USA), operated by NOAA/NWS; and Toulouse (France), where CLS is running a station dedicated to operations only.

By the end of 2000, most of the 23 stations in our network had acquired the capability to process data from the new NOAA-16 satellite.



1.3 Software Configuration

Although CLS is now focusing most of its software development efforts on the Argos 2001 and Argos/Next projects, a team is still working on corrective software maintenance and upgrades that are vital to continue meeting user requirements.

The major tasks in 2000 consisted of:

- increasing the reliability of ADS software;
- providing support for new data formats used by transmitters on fishing vessels;
- migrating all data transfers between global and regional processing systems to IP;
- providing support for transmitters with 28-bit ID numbers.

1.4 Regional Processing Centers

The three regional processing centers—in Melbourne, Tokyo, and Lima—operated without a major hitch in 2000.
The main work at these centers involved upgrading versions of basic software and installing new software (ADS, Internet Protocol, new data formats for fishing vessels) already in use at global processing centers to ensure uniformity.

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.

Current status:
Phase I began end 1998 and is being pursued.
The user management application is operational.
The User Office application is operational since end of 2000.
The Web interface will be opened to beta testing users in September and for all users at the end of the year.
The SUA web interface for NOAA and CNES will be operational in September.
The phase II is started.
The operating interface specifications are completed.
The specifications for value-added services will be completed for September.
The end of this phase is scheduled for the end of next year.

2.2 Argos Next

The downlink messaging capabilities provided by the ADEOS II/Argos DCS equipment will require the addition of two new components to the current Argos ground segment:

A Downlink Message Management Center *(DMMC)* ***located at CLS premises in Toulouse, France.***

The DMMC's role is to centralize, validate, and schedule downlink message requests from users before transmitting downlink messages to the satellite (via a Master Beacon).

DMMC development was completed by the end of the second quarter of 2000. DMMC Acceptance tests took place during the third quarter of 2000.

Note : a symmetrical DMMC will be installed at SAI Largo - USA (after ARGOS 2001 phase I development will be completed).

The Argos/Next Web server developed within the scope of the Argos 2001 project will allow users to:

- enter requests and compile downlink messages for platforms carrying an Argos Next/Argos 3 receiver;
- monitor request status until completion.

The Argos Web server - Argos-Next part development is underway : completion is scheduled for next autumn 2001.

A network of four master beacons located at strategic points around the globe, acting as the link between satellites and the DMMC.

The four locations foreseen for these beacons are:
Toulouse, Hatoyama, Fairbanks, and Spitsberg (TBC).

After completing the development of the prototype, the first two master beacons were installed in Toulouse (France) and Hatoyama (Japan) respectively in September and December 2000.

The Fairbanks Master Beacon installation is scheduled for October 2001.

The *Argos Next* project is also managing the current Argos software upgrade to support:

- file exchanges with the ADEOS II ground segment;
- ADEOS II spacecraft maneuvers;
- ADEOS II/Argos DCS Level-0 data and HK telemetry processing;
- processing of Argos messages related to the downlink messaging service;
- 28-bit ID numbers.

All these modifications have now been completed.

Fully detailed interface tests between NASDA/ADEOS II ground segment and CLS/APC were conducted since mid-2000 and will last till the ADEOS-II launch (called Mission Simulation test - MST).

The goal of these tests is to confirm both mission data and mission operation interface compatibility between NASDA/ground segment and CLS/APC.

The launch of ADEOS-II, previously scheduled for November 2001, has now been pushed back to February 2002.

3. FREQUENCY SPREADING

3.1 Report from the 35th Argos Operations Committee Meeting, June 2001.

Michel Cazenave reported that the situation with the platforms operating in the Argos 1 frequency bandwidth slightly improved over one year. The percentage of the total number of platforms operating in these three central frequencies is approximately 60%.
During the past year comparative measurements as a function of power, message length, etc., have been made by CLS to demonstrate the benefits of shifting the transmission frequency that can be obtained by users. All these results were presented at the Annapolis International Argos Users Conference where 15 manufacturers were represented.

3.2 System Performance

The conclusions from the performance testing conducted by CLS are:

- Shifting the frequency increases the probability of receipt of good messages for both high and low power transmitters that have either long or short Argos messages;
- Even a 4KHz shift is beneficial;
- Since February 2001 the Argos system is fully operational with two Argos 2 generation instruments. A third one is scheduled for launch in March 2002;
- CLS/SAI encourages users to use the full bandwidth of the system;
- CLS/SAI is ready to help users with specific studies as well as to test prototypes with manufacturers.

3.3 JTA Incentive

The JTA XX meeting in October, 2000, agreed to provide in year 2001 a 10% discount on the basic service rate for those Argos PTT's that register to transmit within the available band but outside the central band of 401.648 – 401.652MHz. There have been no users to date that have taken advantage of this discount.

4. REVIEW OF USERS REQUIREMENTS

4.1 Data Buoy Cooperation Panel requirements

Action 1*. To complete the connections of LUT's to Argos Processing Centers in support of ISABP.*

South African LUT's

The LUT's on Marion and Gough Island are operational and are transmitting processed buoy data to the South African mainland. However, due to present bandwidth limitations the raw data cannot be sent to Argos for processing and distribution on the GTS. The South African Weather Service (SAWS) continues to search for solutions for adequate communications.

Argentina LUT

In early May, 2001 a cooperative program was developed with:
Lic. Tomas Hartmann
Instituto de Clima y Agua, INTA
Las Cabañas y Los Reseros
(1712) Castelar, prov. de Bs.As.
Argentina to send Argos data received via his local LUT to Argos for processing and distribution onto the GTS. Since then real-time data received in Argentina from NOAA-12, 14, 15, and 16 are being sent daily to Argos. This LUT provides a substantial increase in the Argos coverage of the South Atlantic and improves the real-time data collection for the ISABP.

Falklands LUT

Contact was established in July, 2001 with Mr. Mark Salkovskis of the UK Met Office. He is the person who is responsible for the operation of the LUT in the Falklands. The LUT is operational but there is currently no robust internet connection to it that would allow data transfer to Argos. Mark is exploring all options available including the possibility of sharing the cost of a dedicated 64K line between the UKMO and Argos. Dave McCaffrey at NAVOCEANO will be asked to provide necessary software/hardware support as before. As of this writing we are still awaiting a response from the UKMO regarding cost-sharing.

Action 2. *To inform the meeting of the results of discussions between CNES and INPE re. Future access by Argos to the Brazilian satellite.*

Today SCD1, SCD2 and CBERS-1 are operational, 5 more satellites are planned for launch in the future: CBERS-2 (2002), SSR-1 (2005), CBERS-3 (2005), SCD-3 (2007) and CBERS-4 (2007).

The ground processing segment is fully operational with one receiving S-band station in Cuiaba and another one in Alcantara. Three more receiving S-band antennas are planned in the near future. An average of 850 DCPS is received per satellite and per day.

Tests have been performed between CLS and INPE to evaluate the interest of integrating Argos data received through the Brazilian network in the Argos global network.

The preliminary results are very encouraging: the Brazilian DCS and Argos DCS prove to be compatible. The Brazilian DCS offers improved coverage and reduced latency times within equatorial regions. The quantity of usable Argos data collected by the Brazilian DCS is estimated at about 30 % to 50 % of that of the Argos system without too much technical work having being done so far.

CLS, CNES and INPE are willing to perform a more detailed technical evaluation, in particular regarding the ground based message decoding equipment.

To give a framework to this cooperation, the parties will plan to develop the basis of a future Agreement.

Action 3. *To develop a BUFR encoder for incorporation into the Argos GTS sub-system (if no direct, identifiable impact on Argos funding plan)*

During the intersessional period the DBCP Technical Coordinator wrote technical specifications which had been submitted by CLS/Service Argos to a private company for cost evaluation. No figures had been provided yet but developments should start in early 2002.

Action 4*. To report on actions taken to meet the needs identified re: alternative satellite data processing.*

A separate report has been provided to DBCP that describes the actions taken by CLS/Argos in response to this need. In short, three tasks were considered and analyzed:
Task 1 - Access to data : retrieving or receiving data files from the operators.
Task 2 - Data integration in Argos GTS subsytem, depends on data type and format.
Task 3 - Adaptations to the Argos GTS subsystem, this is a direct consequence of tasks 1 and 2.

For each task, options are reviewed in the report which have a direct impact on the complexity of the needed effort. This will be discussed at the DBCP meeting.

4.2 A/B class locations

Action 1*. To phase-in the inclusion of Class A/B locations as a part of the basic JTA over the next three years (provided that the PTT-year commitments continue to increase)*

Action 2*. To bring that proposal to the attention of the Argos Operations Committee*

Action 3*. To review the whole issue*

The 35th Argos Operations Committee Meeting concurred with the proposal made at the JTA XX meeting to phase in Class A/B positions for animal trackers as part of the basic services. This to be accomplished over a three-year period through a 1/3 reduction of full cost per year, contingent upon whether the PTT-year commitments continue to increase.

4.3 Access to third satellite

Action: *To provide JTA members with specific details of the cost/income implications of the proposal, as well as with details of additional Argos incomes for value-added services directly linked to or affecting JTA participants*.

The policy about the access to third satellite needs to be reviewed in light of the expected launch of ADEOS-II in early 2002, it is thus proposed to discuss this with the participants during the meeting.

4.4 New users during the year

Action: *To review the issue of unfair penalty.*

No intercessional action required on this issue

4.5 Possible new user category – Archival Fish Tags

Action*: To study how that technique could fit into the JTA user classes and prepare a specific proposal to accommodate it within the JTA*

CLS has studied this proposal for a new user class and has determined that it is premature to establish a unique service category for this developing technology. This is especially true since the latest generation of pop-up tags stores a substantially larger amount of data, and thirty days or more are required for transmitting that data to the satellite. CLS continues to follow the development of this technology closely.

4.6 Issues arising from the Argos Operations Committee

Action 1. *To send comments and suggestions about the modified Argos System Use Agreement*

Done

Action 2*. To assist the ROCs in renewing SUAs by mid-December 2000 by sending them a sample cc: of the notification letter and an updated list of affected programmes.*

Done

Action 3*. To link the various websites/discussion fora relating to Argos and develop a site with general JTA information.*

See web sites below

(http://www.ogp.noaa.gov/argos/

(http://noaasis.noaa.gov/ARGOS/index.html

Annex VI is .pdf in separate file.

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 2001 Agreement, paragraph 3.1

1.2 Recommendations from the Operations Committee

35th Operations Committee (June 2001)

G-1-1. Report on the JTA Meeting

"…..The JTA had agreed to maintain the five-year plan, agreed at JTA XIX, although it had noted that global operating costs had risen above the 2% allowed for in the plan. The Operations Committee agreed in principle to a proposal made jointly by CLS and the JTA Chairman to limit the increase in operating costs for the purpose of calculating the actual share to be met by the JTA in order to avoid an increase in accumulated deficit of JTA income over costs.
(The details of this limitation to be decided at the next JTA session)
The meeting noted that increases in operating costs were inevitable during periods of investments in system improvements and expansion of services that were to the benefit of JTA and non-JTA users. However, the meeting stressed the need to maintain a sound business footing for the Argos service whilst keeping a fair balance of contributions of JTA and non-JTA users to operating costs.……"

G-1-5. Financial Status of Agent

"…..Michel Cazenave reviewed the Argos financial status. The proposal made during the 34th Operations Committee to separate the JTA operating cost obligations from the total operating cost was considered but not adopted by the JTA XX meeting.

The continued increase in JTA accumulated losses suggests to make a similar proposal to JTA XXI for the year 2000 financial result. The Operations Committee concurred and accordingly asked the JTA Chairman and CLS/Service Argos to negotiate a suitable financial agreement by the next JTA meeting (October 29, 2001)…."

2. FIVE YEAR OPERATING PLAN

2.2 JTA GUIDANCE

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

(i) An annual inflation of 2% would be allowed in Argos operating costs;
(ii) The JTA share of these operating costs would decrease from the existing 60%, initially by 2% in 2000, and then in increments of 1.5%, to reach 52% in 2004;

(iii) *The Monthly Active Platform Fee would be phased in over the period, beginning at FRF 10 per active platform in 2000 to reach FRF 50 in 2004;*

(iv) *The basic price per PTT-year would also be increased by FRF 200 per year, beginning in 2000, to reach FRF 27,000 in 2004;*

(v) *The unused ID charge would be phased out over the period, subject to annual review;*

(vi) Free access to the third satellite would be provided immediately for animal trackers, within limitations on number of locations; the situation with regard to access to the third satellite would be reviewed at the next meeting, with a view to its eventual introduction for all users.

JTA XX

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

2.2 Five Year Plan Projection

The five year plan projection will be presented, reviewed and discussed during the meeting.

The figure 2.2 below shows the evolution of operation costs and active platforms since 1986. There is a 101% increase in platforms within the last 5 years. Also over the past 14 years, operating costs were practically constant except for the last two years, emphazising CLS/SAI capability to restrain costs while processing many more platforms and making major investments to enhance the Argos system.

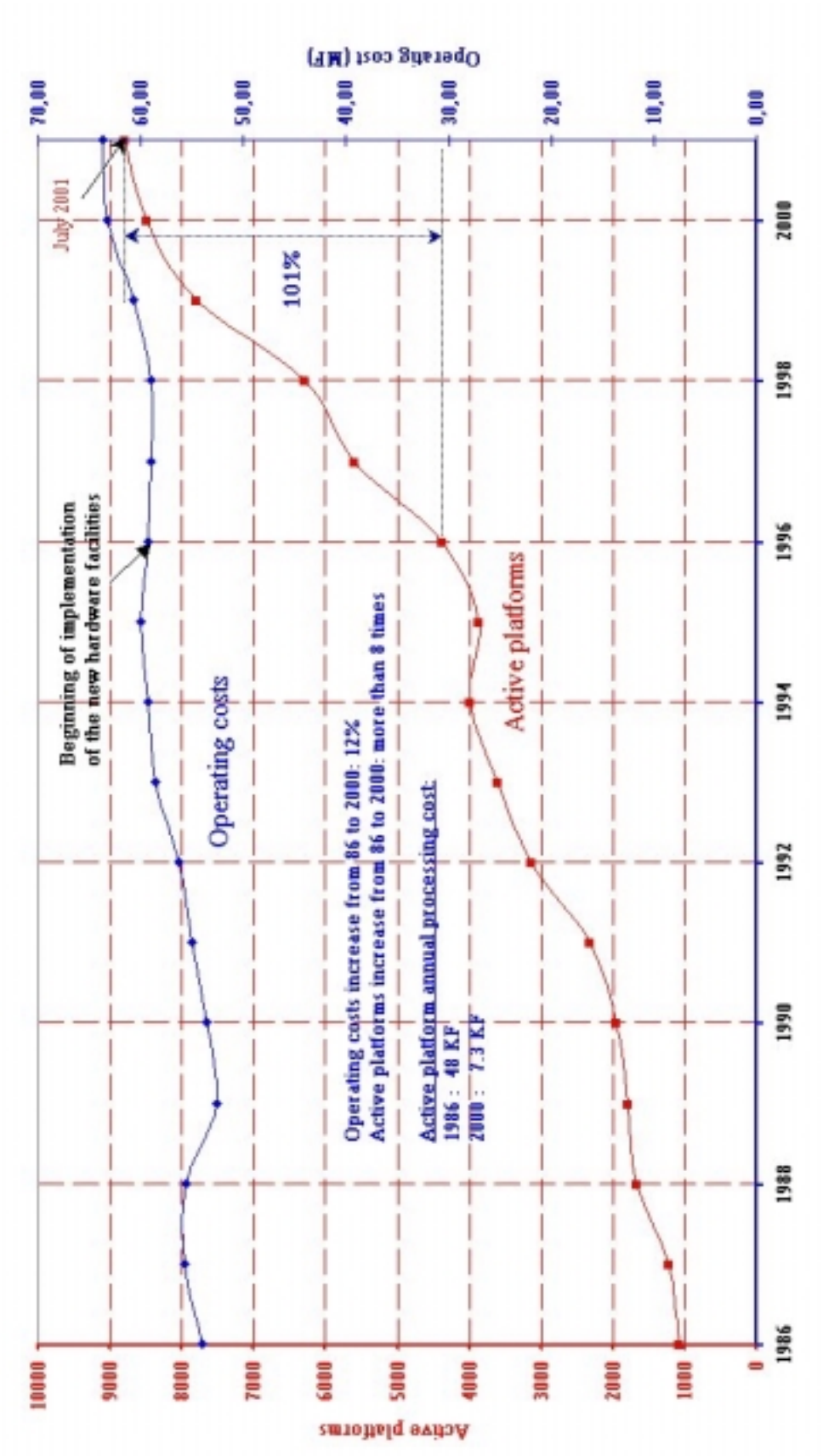


Fig. 2.2: Evolution of Operation costs and number of active platforms

3. FINANCIAL STATEMENT

3.1 Annual Expenses (in millions of French Francs)

Expenses (MF)	1999	2000
Personnel related	32.24	35.41
Others	26.55	26.86
Total	**58.78**	**62.28**

Table 3.1: 1999 and 2000 Expenses

3.2 Detail on 2000 expenses (in millions of French Francs)

A - Communications	1.82
B - Maintenance & consummable	1.97
C - General & Administrative (building, power, logistics.)	7.34
D - Foreign agents & Marketing	5.73
E - Financial costs & taxes	6.61
F - Amortization	5.49
G - Salaries	32.06
H - Management & human ressource administration	3.35
TOTAL	**62.28**

Table 3.2: Detail on 2000 Expenses

3.3 Details of Amortization Items

CLS + SAI amortization details	1997	1998	1999	2000
SOFTWARE				
S/W to make computer centers operational	39	0	0	0
Regional Processing Center	115	102	42	43
New location - new ARGOS accounting system	179	102	0	22
GTS				70
TOTAL	333	204	42	135
ARGOS on ADEOS (Part of) & 2001 projects	952	2100	2100	2100
HARDWARE				
US. GPC Hardware	745	650	489	606
French GPC Hardware	1386	1541	1871	2028
VAX Development	120	0	0	0
Transatlantic line (Equipment)				
TOTAL	2251	2191	2360	2634
General and Miscellaneous				
µ computers	218	53	0	0
Promotional Hardware	205	7	0	0
Office furniture- Safety - General equipment	278	579	566	625
TOTAL	701	639	566	625
GRAND TOTAL	**4237**	**5134**	**5069**	**5494**

Table 3.3: Detail of Amortization Items

3.4 Annual Incomes (in millions of French Francs)

Incomes (MF)	1999	2000
JTA	31.24	32.08
Non JTA	29.66	35.47
Total	**60.90**	**67.55**

Table 3.4: JTA and non JTA 1999, 2000 Incomes

3.5 Details of JTA and non JTA Incomes and Expenses (in million French Francs)

	1999	2000	
INCOMES			
JTA CLS	13.89	14.31	
JTA SAI	17.35	17.77	
	31.24	**32.08**	
Non JTA CLS	26.52	32.10	
Non JTA SAI	3.14	3.37	
	29.66	**35.47**	
Total incomes	**60.90**	**67.55**	**+ 10.9%**
EXPENSES			
CLS	38.22	41.27	
SAI	20.56	21.01	
Total expenses	**58.78**	**62.28**	**+ 5.9%**

Table 3.5: Detail of JTA and non JTA Incomes and Expenses

3.6 JTA Annual Balance (in millions of French Francs)

	1999	2000
JTA Operating Costs	34.97	35.81
JTA Income	31.24	32.08
Difference	-3.73	-3.73
Accumulated Difference	-5.45*	-9.18

Table 3.6: Detail of Amortization Items

* The remaining difference from 1998 was -1.72 MF.

JTA operating costs for 2000 result from actual operation costs for 2000 - 62.28 MF, see table 3.5 above - and the actual JTA share 57.5% (ratio JTA active PTT/all active PTT). This table will be reviewed and finalized during the meeting.

4. OTHER ISSUES RELATING TO ARGOS FUNDING

4.1 Management of ID numbers

Unused ID Numbers and 28 bit IDs

The JTA-XV meeting (1995) decided to implement an unused ID charge designed to encourage the return to CLS of such IDs, and thus alleviate a developing problem of ID number shortage.

JTA XIX meeting (2000) decided to continue to operate this charge, but to review it at the 2001 meeting, with a view to phasing it out completely within the next four years

From January 2001, the rule is to distribute only 28 bit Ids. Because all manufacturers were not ready or because the data format could not be made compatible in time, we had to continue the delivery of some 20 bit Ids. In August 2001 there were 17484 ID numbers allocated to JTA application out of which only 871 were 28 bit IDs. It is to be recalled that the recovery of 20 bit ID numbers is crucial as they are the roots used to build the 28 bit ID's. As a consequence, we strongly encourage the unused ID charge to continue.

4.2 Free access to A/B Class Location

JTA XX

" Parag. 21: On this basis, the meeting finally agreed to phase-in the inclusion of class A/B locations as a part of the basic JTA over a 3-year period, beginning with a one-third reduction of the charges for this service in 2001. As noted above, the cost of this action in lost income to CLS could be offset by the additional revenues to be generated under the JTA by the additional 20 PTT-years to be committed by the USA in 2001. Provided that the PTT-year commitments to the JTA continued to increase by an appropriate amount in subsequent years, the one-third year-on-year reduction would be continued until the A/B class locations could be effectively included under the JTA as a basic, free service."

Parag. 22: While unsure of the exact nature of the implications of this action for the agreements governing the JTA, the meeting finally agreed that it would be prudent to obtain the opinion and agreement of the Argos Operations Committee for its proposal. The meeting therefore requested its chairman and CLS to bring the full proposal to the attention of the Operations Committee at the earliest opportunity, with a view to seeking their formal approval. If this approval was not immediately forthcoming, the meeting recognized that implementation of the proposal in 2001 would have to be suspended. The meeting agreed to review the whole issue again at JTA-XXI, based on the decisions of the Operations Committee, the financial and other results of the implementation of the proposal in 2001, and the projected PTT-year commitments for 2002 and beyond."

As indicated in Section 3.4 of this report the 35th Operations Committee Meeting concurred with the proposal made at the JTA XX meeting to phase in Class A/B positions.

The revenue to CLS/SAI for this service in year 2000 is 2.05 million French Francs. This amount represents the result of this action in lost income to CLS. Since the actual cost incurred by CLS/SAI to provide this service is 80% of the above revenue, that amount (0.8 times the revenue) will therefore be included in the operating costs for the Argos system. Also, although the JTA XX proposed a three-year phase-in of this service, CLS recommends a complete transfer of the service to the JTA in year 2002 in order to simplify the accounting process.

4.3 Free Access to Third Satellite

JTA XX

" Parag. 23 The meeting further recalled that at JTA-XIX it had agreed that "free access to the third satellite would be provided immediately for animal trackers, within limitations on number of locations; the situation with regard to access to the third satellite would be reviewed at the next meeting, with a view to its eventual introduction for all users…".

The policy about the access to third satellite needs to be reviewed in light of the expected launch of ADEOS-II in early 2002, and it is proposed to discuss this with the participants during the meeting.

4.4 Incentive for frequency spreading

JTA XX

"Parag. 39
(8) In order to encourage manufacturers and users to move their transmissions to less crowded parts of the designated Argos spectrum, those Argos PTTs which register to transmit within the available band but outside the central band of 401.648 - 401.652 MHz will attract a discount of 10%…".

As indicated in section 3, parag.3 Frequency spreading, this incentive had no impact as we did not record any platform transmitting outside the central band. As this measure appears to be uneffective while significantly increasing the account complexity and work load both for CLS/SAI and the ROCs, we propose to cancel it and work instead to improve global cost policy for the benefit of all JTA participants.

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 M t o France in La R union
Data processing of JAMSTEC TRITON moored buoys
Specific algorithms for new Argos XBT devices

5.2. Projects Under Development (or to begin in 2001)

ADEOS II/Argos processing chain project
Argos 2001 project (Argos processing chain renewal) step1
On-line access to Argos technical files
On-line access to ADS technical files
GTS distribution of sub-surface floats
Improved delivery times (open action item)

5.3. Projects under study

Error detection/correction codes
Requested by JTA (DBCP)
Data sharing facilities
GTS Subsystem Quality control
Access to both GPC.
Specific algorithm for TAO moorings (cancelled, no need expressed)
BUFR code development

Final Plan presented at the JTA XXI
in EURO

IN EURO	1998	1999	2000	2001	2002	2003	2004	2005
Total costs								
FYP	8.54	8.72	8.89	9.07	9.25	9.44	9.62	9.82
Inflation	2%	2%	2%	2%	2%	2%	2%	2%
Actual and *agreed for the future*	**8.54**	**8.96**	**9.49**	***9.68***	***9.88***	***10.08***	***10.28***	***10.48***
JTA Share								
FYP "no more than"	60%	60%	58%	56.50%	55%	53.50%	52%	52%
Actual and *agreed for the future*	**60.00%**	**59.50%**	**57.50%**	***56.50%***	***55,00%***	***53.50%***	***52,00%***	***52,00%***
JTA costs (M)								
FYP	5.13	5.23	5.15	5.12	5.09	5.05	5.00	5.11
Actual and *agreed for the future*	**5.13**	**5.33**	**5.46**	***5.47***	***5.43***	***5.39***	***5.34***	***5.45***
Non inflated income (constant number)								
FYP	4.79	4.80	4.80	4.80	4.80	4.80	4.80	4.80
Actual and *agreed for the future*	**4.79**	**4.76**	***4.78***	***4.90***	***4.96***	***5.22***	***5.39***	***5.47***
Subscription		**1121**	**1108**	**1136**	**1150**	**1210**	**1250**	**1270**
Number active PTT								
FYP			4000	4500	5000	5500	6000	6000
Actual and *forecast*			***4448***	***4565***	***5000***	***5240***	***5480***	***5720***

/active PTT/month			1.52	3.05	4.57	6.10	7.62	7.62
Active PTT fixed fee (M)			0.07	0.16	0.27	0.40	0.55	0.55
Actual and *agreed for the future*			**0.08**	***0.17***	***0.27***	***0.38***	***0.50***	***0.52***
Adjustment PTT years fee (/year)								
FYP			30.49	60.98	91.47	121.96	152.45	152.45
Actual and *agreed for the future*			**30.49**	***60.98***	***91.47***	***121.96***	***152.45***	***152.45***
Adjustment (M)								
FYP			0.03	0.07	0.11	0.15	0.19	0.19
Actual and agreed for the future			**0.03**	***0.07***	**0.11**	**0.15**	**0.19**	**0.19**
Annual loss								
FYP	0.26	0.43	0.25	0.09	-0.09	-0.30	-0.54	-0.44
Actual and *agreed for the future*	**0.26**	**0.57**	**0.57**	***0.34***	***0.10***	***-0.36***	***-0.74***	***-0.74***
Accumulated loss (M)								
FYP	0.26	0.69	0.93	1.02	0.93	0.63	0.09	-0.35
Actual and *agreed for the future*	**0.26**	**0.83**	**1.40**	***1.73***	***1.83***	***1.47***	***0.74***	***0.00***

TERMS AND CONDITIONS OF THE GLOBAL AGREEMENT

FOR 2002

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

(2) *

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

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

TIME PERIOD OF COVERAGE

These Terms and Conditions are valid for the time period beginning on January 1 and ending on December 31, 2002.

DEFINITIONS

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

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

The "Global 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, 2002**.

(1) Collecte Localisation Satellites is the affiliate of CNES, in charge of operating the Argos system.

(2) Quote the country and its own organization in charge of the Agreement with regard to CLS. Hereafter defined by "ROC", i.e. a unique Representative Organization for a country or a group of countries.

SERVICES PROVIDED BY CLS

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

(1) Location determination or both location determination and data collection for PTT's with a repetition period equal to or less than 120 seconds, application of calibration curves to the data when appropriate, access to the data and distribution of the data according to the paragraph below entitled "Distribution of processed data" and archiving for three months;

(1a) Same as (1) but subject to the limitation under LIMITED USE SERVICE;

(2) Data collection for PTT's with a repetition period equal to or greater than 200 seconds, application of calibration curves to the data when appropriate, access to the data and the distribution of the data according to the paragraph below entitled "Distribution of processed data" and archiving for three months;

(3) Same service as (1) except the location and the data are not made available to the users unless they require the data and follow the conditions for back-up services;

(4) Same service as (2) except the data are not made available to the users unless they require the data and follow the conditions for back-up service.

USER CHARGES PER PLATFORM YEAR

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

Summary of services and tariffs to users under the Global Agreement

Processing by CLS	Category	Repetition Period	Location computed	Data collection and sensor processing	On line data access	Data archiving	Tariff
Standard	1	≤ 120 sec	YES	YES	YES	YES	X
	2	>= 200 sec	NO	YES	YES	YES	X/2
Limited Use Service	1a	≤ 120 sec	YES	YES	YES	YES	*
Back Up	3	≤ 120 sec	YES	YES	NO	YES	2X/5
	4	=> 200 sec	NO	YES	NO	YES	X/5
Inactive Status	5		NO	NO	NO	NO	X/6

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

CLS agrees to charge those authorized users a rate of **X = 4,055 Euro** (**26,600 French Francs**) per platform-year for services defined in category (1), a rate as defined below under conditions for limited use service (paragraph 3) for services defined in category (1a), and a rate of **X/2** for services in category (2).

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

These charges will remain the same for the time period of coverage stated above. It is possible that these costs may vary from year to year. Therefore, the ROC and CLS will discuss and conclude Agreements concerning fees to be charged to users prior to establishing the Terms and Conditions for the Agreement valid for the following year.

CONDITIONS FOR LIMITED USE SERVICE

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

The following conditions must be met to qualify:

(1) Standard location or standard location and data processing (services) only apply;

(2) Platform can transmit no more than twenty four (24) hours in any and all seventy two (72) hours periods;

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

(4) All platforms in a single programme must meet these conditions;

(5) Separate programme applications must be submitted.

CONDITIONS FOR BACK-UP SERVICE

(1) For PTTs covered by the "back-up service" the data are stored in a special data bank for 6 months, but will not be distributed to the user. All PTT's of this type will be counted at **2X/5** (category 3) or **X/5** (category 4) of the corresponding tariff under the Global Agreement;

(2) Each user can require CLS to grant access to the active computer files during a specified period. CLS will perform the required file modifications. During the specified period, the PTT's will be counted at the standard tariff (category 1 or 2) in the Global Agreement from the first of the month in progress. Each operation involving a file modification will be charged directly to the user as indicated under "Limitations on PTT's", paragraph 1;

(3) Upon request, CLS will provide printouts and/or floppy disks and/or CDs including the data from PTT's in the back-up mode for a specified period up to six months before the receipt of the order. For the specified period the PTTs will be counted at the standard tariff (category 1 or 2) in the Global Agreement;

(4) CLS will begin required services only after receipt of a detailed letter or e-mail specifying the service and the period required and the programme involved.

CONDITIONS FOR INACTIVE STATUS

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

(1) Only platforms in Standard Service (category (1) or (2)) or Limited Use Service (category 1a)) are admissible;

(2) The platforms must have operated in category (1), (1a) or(2) for a minimum of 2 months;

(3) Data or location information cannot be retrieved nor can the platform revert to any category of service;

(4) It is intended that Location and/or data collection may not be computed using a Local User Terminal or other direct readout facility.

ACTIVE PLATFORM FEE

(1) A monthly fee of **4.57 Euro** (**30 French Francs**) is applied to each active platform (those transmitting at least once per month).

(2) The yearly total is estimated in January, based on the active platform quantities from the previous year.

(3) An adjustment is made at the end of the year using actual figures.

DESIGNATED ROC

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

ROC PARTICIPATION

For the period beginning 1 January 2002, the ROC will purchase for authorized users the guaranteed minimum **of * platform-years** in advance for 12 months service. On December 31, 2002**,** the final count of platform-years and fractions thereof which were actually used will be determined. The final cost adjustment over **the * platform-years** amount (if required) will be determined at the tariff defined above under "USER CHARGES PER PLATFORM-YEAR".

LIMITATIONS ON PTT'S

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

(1) The modification of platform characteristics (number of sensors, calibration curves, etc.) will require a charge defined in the annual price list issued by CLS. This charge and any additional financial cost resulting from these limitations will be paid by the users directly to CLS. Platform modifications within the GTS processing subsystem are not charged. In order to enter, delete or modify a platform, a one-week period may be necessary. After entering a new platform, a minimum of one calendar month is required to change the processing category of that platform. However, two months are required to enter inactive status;

(2) As an average per individual Agreement and per category of service for the platforms covered under these Terms and Conditions, there will be no more than six (6) locations for two (2) satellites processing and nine (9) locations for three (3) satellite processing derived for repetition periods up to and including 120 seconds or no more than ten (10) data acquisitions for two (2) satellite processing and fifteen (15) data acquisitions for three (3)

satellite processing for a platform-day, allowed without financial cost. This cost will be 1/25 of the tariff rate for each processing category multiplied by the number of processed platform-years in each category. Funds for unused PTT-years under this agreement will be applied to offset these supplemental charges.

DISTRIBUTION OF PROCESSED DATA

(1) These Terms and Conditions do not cover the costs of special off-line arrangements made to provide the processed data back to the users. These must be made by the user directly with CLS;

(2) However, it is understood that CLS will continue to provide data from PTTs via the World Weather Watch Global Telecommunication System (WWW/GTS) of the World Meteorological Organization (WMO) according to procedures established by WMO.

PERIOD OF SYSTEM USE

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

BILLING AND PAYMENT

(1) CLS will send a preliminary bill **for * (at least 70% of the total amount) in Euro**, in advance to the ROC, with the agreement to be signed. The indicated amount must include the additional 2,287 Euros required per Agreement for general and administrative costs. This latter cost will be waived if the number of platform-years initially agreed to is three or less. The number of active platforms charged by programme will be attached to the bill.

Final adjustment will be made after December 31, 2002**,** CLS will send a second bill to the **ROC for * Euro** with additional charges if necessary.

These bills should be sent to:

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

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

CLS
8/10, rue Hermès - Parc Technologique du Canal
31526 RAMONVILLE Cedex
FRANCE
Account number : 30004 00762 00020666305 63
Bank : Banque Nationale de Paris

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

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

(4) Services which are charged directly to users as in paragraph (1) under "LIMITATIONS ON PTT's" and paragraph (1) under "DISTRIBUTION OF PROCESSED DATA" above require a purchase order directly between the individual user and CLS, as noted in paragraph (2) under "GENERAL CONDITIONS OF AGREEMENT" below.

GENERAL CONDITIONS OF AGREEMENT

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

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

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

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

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

(5) The terms of this Agreement are based on a planned minimum purchase of **1,150 platform-years** by all participants in the Global Agreement for the year **2002**. Each ROC must finalize their commitment by **January 15, 2002**. Each ROC is responsible to assure that the signed Agreement for the amount committed on **January 15, 2002** is received by CLS before **March 1, 2002**. On and after this date, CLS will not take into account other Agreements and will invoice according to the above conditions.

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

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

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

c) For countries not meeting the requirements in (a) and (b) above, but whose number of platform-years contracted equals or exceeds the number signed under

the preceding Terms and Conditions, the contracted number will be increased by 35% for the purpose of calculating any excess.

(7) Each participating country will be charged for excess use over and above the contracted number of PTT-years (inflated by the above bonus as appropriate) at the tariff defined under "USER CHARGES PER PLATFORM-YEAR" plus 25%. These charges will be applied to the second invoice sent at the end of the year. ROCs are responsible for the allocation of the bonus within their country, but shall not transfer PTT-years between themselves to take advantage of this allowance.

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

NORMAL TARIFFS CHARGED BY CLS

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

_____	_____	_____	_____
Signed by the designated ROC	(Date)	Signed by CLS	(Date)

NATIONAL REPORTS ON CURRENT AND PLANNED PROGRAMMES

Country: **AUSTRALIA**

During the year 2002 Australian participants will operate a total of approximately 20 Argos programs, consuming an estimated **47.6 PTT-yrs.** The main users are the Australian Bureau of Meteorology, CSIRO Marine Research, and Antarctic Division, plus several biological researchers.

A. Australian Bureau Of Meteorology

Program		Est. PTT-yr	
0085	Drifting Buoy (FGGE/TOGA type)	7.0	
9085	SVP-B drifters	6.0	
0086	Automatic Weather Station (AWS) (data only X/2)	1.0	
0799	Ship DCP	4.0	
30085	Expendable Bathythermograph (XBT)		2.0
	Total PTT-yr requirement:	**20.0**	

B. Australian Antarctic Division

Program			
0366	AWS (data only reporting only X/2)	12.5	
0973	Penguins	0.55	
1155	Ice buoys	5.0	
	Total PTT-yr requirement:	**18.05**	

C. CSIRO Marine Research

PROGRAM			
1715	Whale Shark Tracking		0.15
2039	Argo floats	1.2	
	Total PTT-yr requirement:	**1.35**	

D. Australian Animal trackers (excluding CSIRO, Ant Div.)

PROGRAM			
0527	Dugong tracking	1.10	
1447	Turtle tracking	0.50	
1527	Seal tracking	1.00	
1728	Seal tracking	0.25	
1807	Bird research	0.50	
2006	Seal tracking	2.20	
2073	Bird research	0.50	
2216	Bird research	0.57	
------	Dugong tracking	0.25	
------	Dingo tracking	1.00	
2394	Turtle research	0.30	
	Total PTT-yr requirement:	**8.17**	

BRAZIL

Currently, the Instituto Nacional de Pesquisas Espaciais (INPE), the National Institute for Space Research, operates nearly 400 platforms distributed in national territory, on the sea coast and Brazilian Antarctic base. Principal programs are attached to meteorological, hydrographic, oceanographic and other scientific research areas. During 2002, the INPE plans to deploy over 100 PTT's for environmental control of the Amazon basin. Since 2001 the INPE will use, exclusively, the ARGOS system for positioning location. For the current data collect services it will use own satellites (SCD-1, SCD-2 and CBERS-1). At last 2002, new set of PTT's will be installed for environmental monitoring and operates at same conditions.

A. AGENCY: Instituto Nacional de Pesquisas Espaciais

1. PROGRAM 01195: INPE/PETROBRÁS/DHN/LCD

Purpose: To provide sea surface temperature and velocity data and represent the Brazilian participation in WOCE and TOGA programs.

Number and type of PTT's:	(a) 2001: 16 - Drifters and moored buoys
	(b) 2002: 16 - Drifters and moored buoys
PTT's/Year:	(a) 2001: 5.0
	(b) 2002: 5.0

2. PROGRAM 01423: PROANTAR

Purpose: To provide meteorological data and safety status information on Brazilian group based at Antarctic base.

Number and type of PTT's:	(a) 2001: 02 - PTTs animal tracking
	08 - Portable alert terminals
	(b) 2002: 02 - PTTs animal tracking
	08 - Portable alert terminals
PTT's/Year	(a) 2001: 1.0
	(b) 2002: 1.0

3. PROGRAM 00447:

3.1 OCEANOGRAPHY:

Purpose: To provide meteorological data, sea surface velocity and wave and current measurements. Operates exclusively with SCD-1, SCD-2 and CBERS-1.

Number and type of PTT's	(a) 2001: Cancelled
	(b) 2002: Cancelled
PTT's/Year	(a) 2001: 0
	(b) 2002: 0

3.2. METEOROLOGY AND CLIMATOLOGY

Purpose: To provide meteorological data for prediction of the climate change. Operates exclusively with SCD-1, SCD-2 and CBERS-1.

Number and type of PTT's	(a) 2001: Cancelled
	(b) 2002: Cancelled
PTT's/Year	(a) 2001: 0

(b) 2002: 0

3.3. OZONE AND CO_2 MONITORING

Purpose: To provide ozone and CO_2 concentration measurements for study effects on environment. Operates exclusively with SCD-1, SCD-2 and CBERS-1.

Number and type of PTT's (a) 2001: Cancelled
(b) 2002: Cancelled
PTT's/Year (a) 2001: 0
(b) 2002: 0

3.4. ANTARTIC SAFETY MONITORING

Purpose: To inform the situation status of scientist group based at Brazilian Antarctic base.

Number and type of PTT's (a) 2001: 07 – Alert and climatological stations
(b) 2002: 07 – Alert and climatological stations
PTT's/Year (a) 2001: 3.0
(b) 2002: 3.0

4. PROGRAM 00510: ENGINEERING

Purpose: To provide technical information on functioning of new equipment or stations.

Number and type of PTT's (a) 2001: 04 - Engineering tests
04 - Site tests
(b) 2002: 04 - Engineering tests
04 - Site tests
PTT's/Year (a) 2001: 0.5
(b) 2002: 0.5

5. PROGRAM 09447: TIDE GAUGE

Purpose: To provide sea level data measurement collection for studies circulation in TOGA program. Operates exclusively with SCD-1, SCD-2 and CBERS-1.

Number and type of PTT's (a) 2001: Cancelled
(b) 2002: Cancelled
PTT's/Year (a) 2001: 0
(b) 2002: 0

6. PROGRAM 01950: ANIMAL TRACKING

Purpose: To provide biological and location data for studies the maned wolf and mountain.

Number and type of PTT's (a) 2001: 04 - PTTs necklace
(b) 2002: 04 - PTTs necklace
PTT's/Year (a) 2001: 0.5
(b) 2002: 0.5

B. AGENCY: AGÊNCIA NACIONAL DE ENERGIA ELÉTRICA

Program cancelled. Operates exclusively with SCD-1, SCD-2 and CBERS-1.

1. PROGRAM 00377: HYDROLOGICAL MONITORING AMAZON BASIN

Purpose: To provide data set to monitor the water flux in rivers and lakes of the amazon basin.

Number and type of PTT's	(a) 2001: Cancelled
	(b) 2002: Cancelled
PTT's/Year	(a) 2001: 0
	(b) 2002: 0

2. PROGRAM 01549: PERFORMANCE MECB/ARGOS

Program cancelled. Operates exclusively with SCD-1, SCD-2 and CBERS-1.

Purpose: To evaluate the data consistence for both ARGOS and MECB systems.

Number and type of PTT's	(a) 2001: Cancelled
	(b) 2002: Cancelled
PTT's/Year	(a) 2001: 0
	(b) 2002: 0

C. NUMBER OF PTT's/YEAR UNDER JTA

PTT's/Year	(a) 2001: 12.0 – JTA/2001
	(b) 2002: 10.0 – JTA/2002

CANADA

Year: 2001 and 2002

A. Agency or programme: Institute of Ocean Sciences

Purpose of programme: 00704 WITNESS for tracking moorings which break free

8704 Sub~program 704 WITNESS

Numbers & types of platforms:

a) Deployed current year: 4
b) Planned next year: 4

Estimated number of PTT-years:

a) Current year: 0.200 Equi
b) Next year: 0.200 Equi

Purpose of programme: 09704 ARGO floats to track ocean currents

Numbers & types of platforms:

a) Deployed current year: ?
b) Planned next year: ?

Estimated number of PTT-years:

a) Current year: 0.500 Equi
b) Next year: ? Equi

704 Currents around eddies

Numbers & types of platforms:

a) Deployed current year: 4
b) Planned next year: 0

Estimated number of PTT-years:

a) Current year: 1.000 Equi
b) Next year: 0 Equi

496 Tracking moorings for chemical sampling

Numbers & types of platforms:

a) Deployed current year: 0
b) Planned next year: 1

Estimated number of PTT-years:

a) Current year: 0.000 Equi
b) Next year: .1 Equi

411, 30411, 9411 Witness buoy for moorings

Numbers & types of platforms:

a) Deployed current year: 4
b) Planned next year: 4

Estimated number of PTT-years:

a) Current year: 0.300 Equi
b) Next year: 0.300 Equi

B. Agency or programme: Bedford institute of Oceanography

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

Numbers & types of platforms:

a) Deployed current year:
b) Planned next year:

Estimated number of PTT-years:

a) Current year: 4.3
b) Next year: 2.05

C. Agency or programme: Institut Maurice-Lamontagne

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

Numbers & types of platforms:
a) Deployed current year: 11(standard use), 12(limited use)
b) Planned next year: 13(standard use)
Estimated number of PTT-years:
a) Current year: 3
b) Next year: 2

D. Agency or programme: Freshwater Institute

Purpose of programme: 01142 Beluga Telemetry

Numbers & types of platforms:
a) Deployed current year: 0
b) Planned next year: 4
Estimated number of PTT-years:
a) Current year:0 Equi
b) Next year: 0

E. Agency or programme: Environment Canada

Purpose of programme:

00323	Pacific PAPA
00626	Pacific C-NOMAD
00627	International Arctic Buoy Program
00693	Atlantic Buoy Program
00633	Ice Floe Drift
09633	Ice Floe Drif (Sub-program)

Numbers & types of platforms:

Program 323	Pacific Region	16 b/u service
Program 627/693	Prairie Region	3 b/u 3 standard service
Program 633	Ice Branch	.75 b/u and 1.75 standard service

a) Deployed current year: ?
b) Planned next year: 25
Estimated number of PTT-years:
a) Current year: 4.1
b) Next year: 13.9

F. Agency or programme: University of Saskatchewan

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

Numbers & types of platforms:
a) Deployed current year: 20
b) Planned next year: ?
Estimated number of PTT-years:
a) Current year: 2.2
b) Next year: 1.5

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

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

Numbers & types of platforms:
a) Deployed current year: 7
b) Planned next year: 7
Estimated number of PTT-years:
a) Current year: 5.0
b) Next year: 4.0

H. Agency or programme: Parks Canada

Purpose of programme: 01015 Grizzly Bear Study

Numbers & types of platforms:
a) Deployed current year: 3
b) Planned next year:
Estimated number of PTT-years:
a) Current year: 0.2500 Equi
b) Next year: 0.25

I. Agency or programme: National Defence Headquarters

Purpose of programme: 00959 Radio-Tracking of Migratory Caribou Herds

Numbers & types of platforms:
a) Deployed current year: 0
b) Planned next year:
Estimated number of PTT-years:
a) Current year: 6.8
b) Next year: 7.0

J. Agency or programme: Government of Northwest Territories

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

Numbers & types of platforms:
a) Deployed current year:
b) Planned next year:
Estimated number of PTT-years:
a) Current year: 5.8 Equi
b) Next year: 5.8

K. Agency or programme: Government of Northwest Territories

Purpose of programme: 00606 Satellite Telemetry of Bathurst caribou
09606 Satellite Telemetry of Nahanni caribou
30606 Satellite Telemetry of Victoria Island Caribou

Numbers & types of platforms next year:
Program 606 Bathurst caribou
10 PTT's
Standard use
Transmitting 6 hrs on/114 off

73 PTT days X 10 PTT's = 730 PTT days/365 = 2.0 PTT year

Program 9606 Nahanni caribou
5 PTT's
Standard use
Transmitting 6 hrs on/114 off

73 PTT days X 5 PTT's = 365 PTT days/365 = 1.0 PTT year

a) Deployed current year: ?
b) Planned next year: 15
Estimated number of PTT-years:
a) Current year: 5.0 Equi
b) Next year: 3.0

L. Agency or programme: Environment Canada

Purpose of programme: 01375 Seasonal Movements of Osprey Nesting

Numbers & types of platforms:
a) Deployed current year: 4
b) Planned next year:
Estimated number of PTT~years:
a) Current year: .6 Equi
b) Next year: .5

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

Purpose of programme: 01709 NWT Wolf Studies

Numbers & types of platforms:
a) Deployed current year: 0
b) Planned next year: 0
Estimated number of PTT~years:
a) Current year: .3
b) Next year: 1.37

N. Agency or programme: Laurentian University

Purpose of programme: 01839 Noodland Caribou East Project

Numbers & types of platforms:
a) Deployed current year: ?
b) Planned next year: 0
Estimated number of PTT-years:
a) Current year: 5 Equi
b) Next year: 0

O. Agency or programme: Environment Canada

Purpose of programme: 01706 King Eider Molting and Wintering Areas -
09706 King Eider Molting and Wintering Areas - *N*

Numbers & types of platforms:
a) Deployed current year: ?
b) Planned next year:
Estimated number of PTT-years:
a) Current year: 0.7 Equi
b) Next year: 4.0

P. Agency or programme: Institute of Ocean Sciences

Purpose of programme: 00411 Ocean Search (1)
09411 Ocean Search (2)
30411 Ocean Search (Sub-Program)

Numbers & types of platforms:
a) Deployed current year: ?
b) Planned next year: ?
Estimated number of PTT-years:
a) Current year: 0.3 Equi
b) Next year: . 3

Q. Agency or programme: Long Point Bird Observatory

Purpose of programme: 01856 Long Point Tundra Swans

Numbers & types of platforms:
a) Deployed current year: ?
b) Planned next year: ?
Estimated number of PTT-years:
a) Current year: .32 Equi
b) Next year: 0

R. Agency or programme: GNWT / Resources & wildlife

Purpose of programme: 01816 Keewatin wildlife Monitoring Program

Numbers & types of platforms:
a) Deployed current year: ?
b) Planned next year: ?

Estimated number of PTT-years:
a) Current year: 4.2 Equi
b) Next year: 4.0

S. Agency or programme: Ontario Ministry of Natural Resources

Purpose of programme: 01444 North Western Ont. Woodland Caribou migration Study

Numbers & types of platforms:
a) Deployed current year: ?
b) Planned next year: ?
Estimated number of PTT-years:
a) Current year: 2.0 Equi
b) Next year: 1.0

S1.Agency or programme: Environment Canada, Canada Wildlife Service

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

Numbers & types of platforms:
a) Deployed current year: 0
b) Planned next year:
Estimated number of PTT-years:
a) Current year: 0.150 Raw 0.150 Equi
b) Next year: 2.0

T. Agency or programme: Renewable Resources

Purpose of programme: 01207 Procupine Caribou Satellite - *SSS*
09207 Procupine Caribou Satellite non-SSS

Numbers & types of platforms:
a) Deployed current year: 23
b) Planned next year:
Estimated number of PTT-years:
a) Current year: 1.4
b) Next year: 1.4

U. Agency or programme: Department of National Defence

Purpose of programme: 01194 Environmental Measurements in an Ocean Eddy

Numbers & types of platforms:
a) Deployed current year: 28
b) Planned next year:
Estimated number of PTT-years:
a) Current year: 0.0 Equi
b) Next year: 0.0

V. Agency or programme: Department of National Defence

Purpose of programme: 02019 Self Locating Datum Marker Buoy

Numbers & types.of platforms:
a) Deployed current year: 80
b) Planned next year: ?

Estimated number of PTT-years:
a) Current year: 5.0 Equi
b) Next year: 1.0

W. Agency or programme: Government of Nunavut, Canada

Purpose of programme: 02080 Survival of Dolphin-Union Caribou

Numbers & types of platforms:

a) Deployed current year: 0
b) Planned next year:

Estimated number of PTT-years:
a) Current year: 5.0 Equi
b) Next year: 5.0(tentative)

X. Agency or programme: DFO Canadian Coast Guard

Purpose of programme: 01387 SAR DMB Development

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

Estimated number.of PTT-years:
a) Current year: 0.12 Equi
b) Next year: 0.5

Y. Agency or programme: Environment Canada

Purpose of programme: 02027 Herring Gull

Numbers & types of platforms:
a) Deployed current year: 8
b) Planned next year:

Estimated number of PTT-years:
a) Current year: 0.2
b) Next year: 0.2

Z. Agency or programme: Environment Canada, Yellowknife

Purpose of programme: (new program) Migration Pathways of Eider Ducks

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

Estimated number of PTT-years:
a) Current year: 0.8 Equi
b) Next year: 2.33 Equi

FINLAND

Year: 2001/2002

A. Agency : FINNISH INSTITUTE OF MARINE RESEARCH

Purpose of programme: Meteorological observations (Program 815)

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

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

Purpose of programme: Wave studies (Program 1626)

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

Estimated number of PTT-years: (a) current year: 1,2
(b) next year: 1

Purpose of programme: Meteorological observations (Program 740)

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

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

B. Agency: MINISTRY OF ENVIRONMENT

Purpose of programme: Fjell goose migration (Program 1377)

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

Estimated number of PTT-years: (a) current year: 0,2
(b) next year: 0,1

C. Agency: ASSOCIATION OF THE FINNISH ORNITHOLOGICA

Purpose of programme: Finnish crane migration (Program 913)

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

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

FRANCE

TOTAL ESTIMATED PTT-YEARS FOR FRANCE IN 2002 = 81

CNES - Centre National d'Etudes Spatiales

Estimated PTT-years in 2002 : **10**

- Program 351: measuring water depth in River Niger
data collection only transmitters, backup

- Program 1154: stratospheric balloons
location and data collection transmitters

- Program 159: Spectrophometers are installed onboard stratospheric balloons

- Program 1036 : Argos Topex Poseidon Calval
data collection only- fixed stations

- Program 1068 : Aeroclipper

- Program 891 : Pressurized Balloon

- Program 1945 : Data collection transmitters

IFREMER

Estimated PTT-years in 2002 : **8**

See programs description attached

IFRTP - Institut Français pour la Recherche et la Technologie Polaires

Estimated PTT-years in 2002 : **6**

- Program 830: stratospheric monitoring
Fixed SAOZ spectrometer monitoring the stratospheric ozone layer in Terre Adélie

Estimated PTT-years in 2001: 0.5 PTT-years

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

- Program 738: Albatross and Royal Penguins tracking
1 PTT-year

- Program 952: Albatross and Royal Penguins tracking
1 PTT-year

- Program 1331 : Penguins tracking
Traking of royal penguins on Crozet Island
0.63 PTT-years

- Program 1786 : ICOTA
Drifting buoys to follow larvaes
0,30 PTT-year

CNRS - Centre National de Recherches Scientifiques

Estimated PTT-years in 2002**: 1.5 PTT-years**

- Program 1830: stratospheric monitoring
A network of 3 fixed SAOZ spectrophotometers is monitoring the stratospheric ozone layer (Siberi, Greenland and Kiribati Isl.). Argos is used for data collection only.
Balloon-borne version of SAOZ spectrometers are installed onboard stratospheric ballons:
- 10 short term balloon flights (a few hours) launched from Norway, Sweden, France and Spain, Argos is used for location only.
- 2 long duration balloon flights (MIR) (more than 30 days float) launched in the Tropics. Argos is used for location and data collection.

LMD: Laboratoire De Météorologie Dynamique

Estimated PTT-years in 2002 : **1**

- Program 286: wave dynamics

Meteo-France

Estimated PTTs.years in 2002 : **27**

See programs description attached

IRD :

Estimated PTT-years in 2002: **10**

- Program 299
Rainfall measurements in French Guyana
10 rainfall gauges planned, back-up mode.
Estimated PTT-years: 1.5

- Program 936
Hydrometric measurements in French Guyana
Data collection only transmitters
12 limnigraphs, back-up mode will be upgraded to data collection.
Estimated PTT-years: 2.5

- Program 687: XBT. SOOP program
12 XBT acquisition systems on board a ships of opportunity network (global)
Data collection and GTS transmission.
20 Platforms declared.
Estimated PTT-years: 2

- Program 448 : Matem sis Vanuatu
volcanoes activity monitoring
Data-collection-only, back-up, 4 platforms declared
Estimated PTT-years: 1.5

- Program 570 : US OBHI
Hydrology monitoring in Western Africa
Unknown number of platforms. Data collection only.
Estimated PTT-years: 2

- Program 2381 : Acousthon
Tuna biomass estimation through acoustic detection
Data collection. 1 platform
Estimated PTT-years: 5

SHOM

Estimated PTT-years in 2002 : **14**

- Program 720 : MODYCOT and AGAPANTHE experiments
14 air deployable CMOD drifting buoys
Estimated PTT-years: 2,6 PTT-years

- Program 8170 : Lagrangian Monocycle RAFOS type for POMME experiment,
4 floats
Estimated PTT-years: 1 PTT-year

- Program 9170 : Location and data collection for Lagrangian multicycle type MARVOR floats.
10 floats for ARCANE experiment
Estimated PTT-years: 0.5 PTT-year

- Program 1171: MODYCOT and AGAPANTHE experiments
7 Drifting buoys
Estimated PTT-years: 3.5 PTTs-year

- Program 31170: POMME, GYROSCOPE and CORIOLIS experiments
Location and data collection of 26 PROVOR type profiling floats.
Estimated PTT-years: 2.5 PTTs-year

LODYC

Estimated PTT-years in 2002 : **2**

Differents experiments

EXPECTED ADDITIONAL CONTRIBUTION TBD: 1.5 PTT-years

APPENDIX I – METEO-FRANCE

A. Météo-France
Estimated PTT-years in 2002 : **27**

Purpose of programme :

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

Number and type of platforms :

(a) operating current year (2001) :

Prog.	PTT-years	Type of platform
0044	15.6	Drifting buoys (research)
0435	0.3	Drifting buoys in N-Atlantic and Indian Oceans (operational)
9435	14.7	SVP-Baro drifters (research and operational)
0115	4.1	Moored buoys (operational)
1450	2.5	Waverider buoys in French Caribbea (operational)

(b) planned next year (2002) :

Prog.	PTT-years	Type of platform
0044	3.0	Drifting buoys (research)
0435	1.0	Drifting buoys in N-Atlantic and Indian Oceans (operational)
9435	17.0	SVP-Baro drifters (research and operational)
0115	3.0	Moored buoys (operational)
1450	3.0	Waverider buoys in French Caribbea (operational)

Estimated number of PTT-years :

(a) 2001: 37.2 for 27 contracted

(b) 2002: 27

APPENDIX I – METEO-FRANCE

IFREMER

Argos system – Requirements for 2002 (PTT-years)

Total contract requirement: 8 PTT-years

Total Consumption estimation: 15.7 PTT-years

Program 1309: SAMBA
Requirement: 3 PTT-years (location, data collection, precision time-tagging)

The SAMBA experiment *(Sub Antarctic Motions in the Brazil Basin)* aims to use MARVOR floats to determine the general circulation of the Antarctic Intermediate Water in the Brazil basin. These floats will be tracked until 2002 by a network of sound sources in the South Atlantic.

Program 1615: ARCANE
Requirement: 0.4 PTT-years (location and data collection, location plus, three satellites).

The ARCANE program aims to study ocean circulation at mid-latitudes in the North-East Atlantic. ARCANE is a joint program being pursued between 1996 and 2001 – an dnow extended thanks to longer than expected lifetime of the floats - by SHOM (CPO), the French Navy's hydrography and oceanography department, and IFREMER (LPO), the French ocean research agency. LPO deployed 24 MARVOR floats released in the autumn of 1996 in the Mediterranean and mid-North Atlantic. In June 2001, there were still 11 floats operational. The SHOM deployed 16 Marvor and 69 Rafos between 1996 and 1998.These floats are positioned using an acoustic network maintained by SHOM and IFREMER. ARCANE program is coordinated with the EUROFLOAT european program for which 21 Marvor were deployed in Labrador sea.

Program 1616: EUROFLOAT
Requirement: 0.6 PTT-year (location and data collection, location plus, three satellites)

The EUROFLOAT program, started in 1996, aims to use drifting buoys to study deep-water circulation in the North-East Atlantic. EUROFLOAT is a joint program being pursued by SHOM (CPO), the French Navy's hydrography and oceanography department, and IFREMER (LPO), the French ocean research agency. LPO deployed 21 MARVOR acoustic floats in the fall of 1996 in the Labrador Sea water, at an average depth of 1,750 meters. These floats are positioned using an acoustic network maintained by SHOM and IFREMER. They pop up every three months, then transmit their data to Argos for three days before diving under again. The floats' nominal life cycle is over three years.

Program 2273: POMME
Requirement: 0.6 PTT-year (location plus, three satellites)

The POMME program aims to study the role of medium-scale variability/phenomena in the process of modal water subduction in the region from 38-45N to 16-22W, to describe the processes regulating the physical and biogeochemical characteristics of modal water masses, and to discover where subducted and exported biogenic material goes. Different kinds of Lagrangian floats, including 20 MARVORs at 400 dbars, will be deployed in September 2000.The study area is the North-East Atlantic (38°-45°N; 010-025°W)and it has started in September 2000. 5 MARVOR were deployed in the area, out of which 4 are still operational (August 2001).

Program 1009: NIVMER/ROSAME
Requirement: 2 PTT-years (data collection)

The ROSAME network *(Réseau d'Observation Sub-antarctique et Antarctique du niveau de la MEr)* provides data on sea level variability for a number of scientific programs, including CLIVAR, Topex/Poseidon, European ERS-1 and ERS-2, and the future Jason and Envisat satellite altimetry missions, and for long-term monitoring of sea level (GLOSS).

Each instrumented station in this network measures sea level, atmospheric pressure, sea water temperature, and the absolute location of a reference point on the station with respect to the Earth's center of mass.

There are four sites in the ROSAME network, in the Kerguelen Islands, on Nouvelle Amsterdam and St Paul islands, the Crozet Islands and Dumont d'Urville. Each site has a coastal station. Moored stations at the edge of the ice shelf complement the three sub-Antarctic coastal stations. These moored stations tie absolute measurements taken at the coastal station to the offshore oceanographic signal.

Each coastal station has an underwater pressure gauge inside a protective shaft, and a central unit for acquiring readings from the water pressure and temperature and atmospheric

pressure sensors. This central unit transmits data via Argos. Absolute location coordinates are determined by GPS.

Data are transmitted in near-real mode (under two weeks) to the Sea Level Fast Delivery Center in Hawaii, and to the GLOSS data bank in Bidston, United Kingdom. Data are accessible over the Internet.

Program 1903: PROVOR
Requirement: 0.5 PTT-year (location and data collection, location plus, three satellites)

PROVOR is a drifting hydrographic profiling float based on a similar technology to the MARVOR float. PROVOR profilers record CTD profiles (Conductivity, Temperature, Depth) automatically. After preprocessing and validation, these profiles are fed into models used by scientific and operational programs to enhance our understanding of ocean circulation and climate change.

PROVOR is a multicycle profiler (10 to 150 cycles) with a cycle that typically lasts about 10 days, during which it records profiles at depths ranging from 0 to 2,000 meters. It pops up and stays on the surface to transmit its data to Argos for a maximum of about 12 hours, and can operate in a multi-transmitter environment if necessary.

Program 1967: EMMA
Requirement: 0.2 PTT-year (location and data collection, location plus, three satellites)

EMMA profilers are designed to record hydrographic (C)TD profiles in a single cycle, operating down to a depth of 6,000 meters after being placed on the ocean floor and released at a pre-programmed date. The aim is similar to the PROVOR's indicated above. Transmissions may last up to 4 days.

Program 2412: CORIOLIS
Requirement: 6 PTT-year (location and data collection, location plus, multi satellites)

The French contribution to ARGO. In 2002, 90 PROVOR floats will be deployed in North-Atlantic. Floats from GYROSCOPE program, financed by EU, are integrated to CORIOLIS. Of EMMA profilers are designed to record hydrographic (C)TD profiles in a single cycle, operating down to a depth

Program 1785: Marine Turtle in Indian Ocean
Requirement: 0.4 PTT-year (location and data collection, location plus, three satellites)

The aim of this program is to study the migrations and the spatial distributions of marine turtles in coastal and ocean living areas, at different stages of their growth. Information gathered in 2002 will supplement the ones obtained in 1997. The goal is to establish a population dynamic model in South-East Indian Ocean.

Program 2476: DORADE
Requirement: 2 PTT-year (location and data collection, location plus, three satellites)

The DORADE (Dynamique et Organisation de Ressources Agrégées Epipélagiques) program aims at studying the behavior of agregating epipelagic fishes around floating objects. The biological model selected is the sea bream (Coryphaenae). Artificial agregations are generated with moored and drifting agregating devices. These devices will be tracked with Argos SC40 drifters. Tag transmitters (under development) will equip some fishes to provide the migrations at regional scale. At the end, behavior data from different scales will be used to build a dynamic model of species distribution in South-East Indian ocean.

REPUBLIC OF KOREA

YEAR: 2001

CURRENT PROGRAMMES

A. PROGRAM 1002 (KOREA OCEAN RESEARCH AND DEVELOPMENT INSTITUTE, KORDI)

Number and type of buoys: (a) deployed during year: 7
(5 surface floats, 2 PALACE)
(b) operational at 31 August: 3
(c) reporting on GTS at 31 August:

Purpose of programmes : (a) operational
(b) met/ocean research: circulation
(c)developments
Main deployment areas: Yellow Sea, Western Pacific
Ptt-years for 2001: 1.5

B. PROGRAM 2096 (KORDI)

Number and type of buoys: (a) deployed during year: 8/PALACE
(b) operational at 31 August 9: 2
(c) reporting on GTS at 31 August:

Purpose of programmes : (a) operational
(b) met/ocean research: International ARGO Program
(c)developments
Main deployment areas: East Sea
Ptt-years for 2001: 1.0

***** REMARKS: TOTAL PTT-YEARS = 2.5***

C. PROGRAM 2397 (METEOROLOGICAL RESEARCH INSTITUTE; METRI /KMA)

Number and type of buoys planned for deployment in October: 10 (APEX/CTD floats)
Purpose of programme: (a) operational
(b) met/ocean research: International ARGO Program
(c) developmental
Main deployment areas: East Sea(3) and Western Pacific(7)
Expected ptt-years: 1.0

PLANNED PROGRAMMES

A. PROGRAM 1002 (KORDI)

Number and type of buoys planned for deployment in next 12months: 7 (6 surface floats, 1 PALACE) (surface floats)
Purpose of programme: (a) operational
(b) met/ocean research: circulation
(c) developmental
Main deployment areas: Yellow Sea, Western Pacific
Expected ptt-years: 1.5

B. PROGRAM 2096 (KORDI)

Number and type of buoys planned for deployment in next 12months: 7/PALACE
Purpose of programme: (a) operational
(b) met/ocean research: International ARGO Program
(c) developmental
Main deployment areas: East Sea, Western Pacific, South of Chile

Expected ptt-years: 1.5

C. PROGRAM 2397 METRI/KMA

Number and type of buoys planned for deployment in next 12months: 15 (APEX/CTD floats)
Purpose of programme: (a) operational
(b) met/ocean research: International ARGO Program
(c) developmental
Main deployment areas: East Sea and Western Pacific
Expected ptt-years: 1.5

Remarks: Total expected PTT-years for 2002= 4.5

THE NETHERLANDS
Year: 2001

A Agency or programme Royal Netherlands Meteorological Institute (KNMI)

Purpose of programme EGOS Drifting Buoy Programme (0436)

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

Estimated number of PTT-years (a) current year 3
(b) next year 3

B Agency or programme Netherlands Institute for Sea Research (NIOZ)

Purpose of programme Mixing of Agulhas Rings Experiment (2119)

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

Estimated number of PTT-years (a) current year 0.45
(b) next year 0

C Agency or programme Institute for Marine and Atmospheric Research (IMAU)

Purpose of programme Land ice and sea level monitoring (1238)
As a contribution to the European Project on Ice Coring in Antarctica (EPICA) the IMAU has placed initially six and eventually ten Automatic Weather Stations (AWS) in Dronning Maud Land, Antarctica. These AWSs were installed on a transect ranging from the coast to the plateau Amundsenisen, along the Swedish research stations Wasa and Svea. 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. Therefor 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.

Numbers and types of platforms (a) deployed current year 5 Telonics PTTs
(b) planned next year 5 Telonics PTTs

Estimated number of PTT-years (a) current year 3.7
(b) next year 3.5

D Agency or programme ALTERRA, Dept. of Aquatic Ecology

Purpose of programme Habitat use of harbour seals in the Oosterschelde river in relation to boat traffic (1877)

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

Estimated number of PTT-years	(a) current year	0.1
	(b) next year	0

NEW ZEALAND
Year **2001**

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

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

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

Estimated number of PTT-years (a) current year: 6 PTT years
(b) next year: 6 PTT years

B. Agency : **Department of Conservation**

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

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

Estimated number of PTT-years (a) current year: 0.4 PTT years
(b) next year: 0.5 PTT years

C. Agency: **Department of Conservation**

Purpose of programme: **Albatross Tracking**

Number and types of platforms: (a) deployed current year: 10 bird PTTs
(b) planned next year: 3 bird PTTs

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

D. Agency: **NIWA Christchurch**

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

Number and types of platforms: (a) deployed current year: 4 bird PTTs
(b) planned next year: 8 bird PTTs

Estimated number of PTT-years (a) current year: 0.7 PTT years
(b) next year: 1.3 PTT years

E. Agency: **NIWA Christchurch**

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

Number and types of platforms: (a) deployed current year: 1 pop up tag
(b) planned next year: Nil

Estimated number of PTT-years (a) current year: 0.5 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: Nil (b) planned next year: 1 bird PTT
Estimated number of PTT-years	(a) current year: Nil (b) next year: 0.33 PTT years

SOUTH AFRICA
Year: 2001

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

Purpose of programme: Deployment of drifters to provide real-time data for operational weather forecasting.

Numbers and types of platforms:
(a) deployed current year: A total of 41: 26 SVPB in the South Atlantic Ocean and 15 SVP in the Tropical Indian Ocean.
(b) planned next year: A total of 37: 24 SVPB and 13 SVP drifters

Estimated number of PTT-years:
(a) current year: 32,5
(b) next year: 25

B. Agency or programme: Scripps Institute Oceanography – Program 2065

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

Numbers and types of platforms:
(a) deployed current year: 3 SVP drifters
(b) planned next year: 10 SVP drifters

Estimated number of PTT years
(a) current year: 0,5 years
(b) next year: 1,0 years

C. Agency or programme: Conservation Ecology Research Unit, Pretoria University.

Program 1536

Purpose of the programme: Tracking of elephants to evaluate the feasibility of reconnecting elephant populations separated by an international boundary.

Number and types of platforms:
(a) deployed current year: 9 transmitters.
(b) planned next year: 9 transmitters

Estimated number of PTT years:
(a) currend year: 3 years
(b) next year: 2,7 years

UNITED KINGDOM

2001

Institute: **The Met Office**

Programmes: Moored buoys (programme 0309)
Drifting buoys - EGOS, IABP, ISABP, IPAB (programmes 0484, 9484)
ARGO floats

	MOORED BUOYS	DRIFTERS	ARGO FLOATS
Total deployed during 2001	12***	34*	13† (expect 25+ by end 2001)
Total operational at 31/8/2001	11**** open ocean buoys	27**	12 (1 failure)
Total reporting on GTS 31/8/2001	11	22 (fully reporting) 5 (partially reporting)	12
Status	Operational	Operational	Operational
Total planned for 2002	Redeployments only	~15 new deployments	~50 new deployments

Notes

* includes 1 Arctic (White Trident) Ice buoy and 1 South Atlantic buoy;
excludes 3 additional SVP-B drifters deployed by NERC.

** 2 additional drifting buoys were deployed in September 2001 and a further 3 are planned for deployment in October.

*** includes new deployments of joint operated Irish buoys M1 and M2 buoys and redeployments of existing open ocean buoys.

**** includes joint operated buoys - Irish M1 and M2 buoys and French Brittany and Gascogne buoys;
K3 and K7 were not operational at 31/8/2001;
excludes 3 inshore buoys.

† float deployments include: 5 in Irminger Sea (Jan), 3 in north-east Atlantic (May), 5 in south-west Indian Ocean (July/Aug). Other floats expected to be deployed in 2001 include 5 in Arabian Sea, 2 in Norwegian Sea, 5+ in Irminger Sea (this to be made up from 5 NERC research (non-UK Argo) and 5 MARTEC (UK Argo) floats).

Estimated number of PTT-years:
a) current year: 62
b) next year: 71

Institute: **CEFAS**

Programme: 0526
Purpose of programme: Oceanography

Numbers & types of platforms:
a) deployed current year: 28 drifters (20 SERPE-IESM, 3 IDB, 4 Far Horizon, 1 GPS SERPE)
b) planned next year: 25 drifters (all SERPE-IESM)
Estimated number of PTT-years:
a) current year: 5
b) next year: 5

Programme: 1905
Purpose of programme: Marine Biology
Numbers & types of platforms:
a) deployed current year: 6 x PTT-100 pop-up tags (Microwave Telemetry); 125 days (of which 77 > 1 uplink/day)
2 x PAT pop-up archival tags (Wildlife Computers); 81 days (of which 70 > 1 uplink/day)
b) planned next year: 6-8 pop-up tags (if further tests prove necessary – see comments)

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

Additional comments:

During the TUNASAT project we experienced much lower rates of tag detection (~20%) in the Mediterranean and eastern North Atlantic than we expected, using PTT-100 pop-up tags manufactured by Microwave Telemetry (Columbia, Maryland) - see Table A. US scientists had previously obtained detection rates of 56-93% in the western and central North Atlantic with these tags, also using large bluefin tuna. Because of this sharp contrast, we carried out a series of tests at selected locations in northern Europe, the Mediterranean, Madeira and the USA in 2000/2001. Our aim was to assess the extent to which the low detection rates experienced during the TUNASAT programme could be accounted for by non-detection of tags by the Argos satellite system.

Table A – Comparison of location rates for PTT-100 single-point pop-up satellite-detected tags (Microwave Telemetry, Columbia, Maryland, USA) conducted as part of the TUNASAT project. The tests were carried out between September 2000 and June 2001 with the same 5 tags in each location. Measurements at Lowestoft in August 2001 showed that the tags were performing to the manufacturer's specification (frequency and radiated power) at the end of the tests.

Location	No. of tests*	No. of locations	Location rate (%)
Lowestoft (1) (UK)	50	0	0
Columbia (USA)	20	19	95
Lowestoft (2)	60	3	5
Bari (1) (Italy)	65	0	0
Bari (2)	90	18	20
Bari (3)	75	10	13
Athens (Greece)	50	15	30
Malaga (Spain)	45	21	47
Madeira (Portugal)	40	31	78

* No. of tests = no. of tags (5) x no. of satellite passes

The need (and opportunity) to carry out comparative trials with two types of tags in a range of different geographical locations only became apparent after last year's bids had been made.

The results of our trials suggest that tag performance is critical to successful detection in the European – Mediterranean area and that success cannot be guaranteed simply because commercially available tags meet the criteria (power output & frequency) specified by Argos. We need to complete our assessment of the TUNASAT data and discuss results with Argos before undertaking further tests. Ideally, though, Argos should institute an evaluation programme of its own to determine the extent of the detection/competition problem with its systems in Europe and the Mediterranean. Research funding bodies are unlikely to support projects using the Argos system unless the problems identified during the TUNASAT project are acknowledged and solved.

Publications:

De Metrio, G., Arnold, G., Cort, J.L., de la Serna, J.M., Yannopoulos, C., Megalofonou, P., and Labini, G.S. (1999). Bluefin tuna tagging using "pop-up tags": first experiments in the Mediterranean and eastern Atlantic. ICCAT, Coll. Vol. Sci. Pap., XLIX(1), 113-119.

De Metrio, G., Arnold, G.P., de la Serna, J. M., Yannopoulos, C., Megalofonou, P., Buckley, A. A. & Sylos Labini, G. (2000). Tagging Mediterranean bluefin tuna with pop-up satellite-detected tags. Symposium on Tagging and Tracking Marine Fish with Electronic Devices, University of Hawaii, Honolulu, February 2000.

De Metrio, G., Arnold, G.P., de la Serna, J.M., Yannopoulos, C., Megalofonou, P., Buckley, A.A., and Pappalepore, M. (2000). Further results of tagging Mediterranean bluefin tuna with pop-up satellite-detected tags. ICCAT, SCRS/00/109, 7 pp. (mimeo.).

Arnold, G.P., Block, B.A., De Metrio, G., Farwell, C., de la Serna, J.M., Yannopoulos, C., Megalofonou, P., Beemer, S., Seitz, A. and Cort, J.L. (2001). Movements of Mediterranean bluefin tuna from pop-up satellite tags. 52nd Tuna Conference: Multidisciplinary Approaches to Pelagic Fisheries Research. Inter-American Tropical Tuna Commission, Lake Arrowhead, California, May 2001.

De Metrio, G., Arnold, G.P., Block, B.A., Farwell, C., de la Serna, J.M., Cort, J.L., Beemer, S., Seitz, A., Yannopoulos, C., and Megalofonou, P. (2001). Movements of Mediterranean bluefin tuna (Thunnus thynnus) from pop-up satellite-detected tags. Fourth Conference on Fish Telemetry in Europe, Trondheim, Norway, June 2001.

De Metrio, G., Arnold, G.P., Block, B.A., de la Serna, J.M., Deflorio, M., Cataldo, M., Yannopoulos, C., Megalofonou, P., Beemer, S., Farwell, C. and Seitz, A. (2001). Behaviour of post-spawning Atlantic bluefin tuna tagged with pop-up satellite tags in the Mediterranean and eastern Atlantic. ICCAT, ICCAT SRCS/01/78, 8 pp. (mimeo.).

Institute:	**British Antarctic Survey**
Programme:	920, 1920
Purpose of programme:	Tracking seals and penguins in the Southern Oceans
Numbers & types of platforms:	
a) deployed current year:	13 x ST-18, 14 x ST-10 (Telonics); 2 x Kiwisat 101 (Sirtrack) 10 x Kiwisat 101 duty cycled 12 h in 48 h (Sirtrack)
b) planned next year:	14 x ST-18, 14 x ST-10 (Telonics); 2 x Kiwisat 101 (Sirtrack) 10 x Kiwisat 101 duty cycled 12 h in 48 h (Sirtrack)
Estimated number of PTT-years:	
a) current year:	6
b) next year:	5

Programme: 859, 3059
Purpose of programme: Tracking of flying birds in the Southern Hemisphere
Numbers & types of platforms:
a) deployed current year: 8 x 30g hatchback (Microwave Telemetry)
b) planned next year: 3 x 20g hatchback (Microwave Telemetry), 22 x 30g hatchback (Microwave Telemetry), 1 x 45g hatchback (Microwave Telemetry), 2 x 50g solar hatchback (Microwave Telemetry)
Estimated number of PTT-years:
a) current year: 3
b) next year: 2

Publications

Boyd, I.L. 1999. Foraging and provisioning in Antarctic fur seals: interannual variability in time-energy budgets. Behavioural Ecology, 10, 198-208.

Waugh, S.M., Weimerskirch, H., Cherel, Y., Shankar, U., Prince, P.A. & Sagar, P.M. 1999. Exploitation of the marine environment by two sympatric albatrosses in the Pacific Southern Ocean. Marine Ecology Progress Series, 177, 243-254

Berrow, S.D., Wood, A.G. & Prince, P.A. 2000. Foraging location and range of white-chinned petrels Procellaria aequinoctialis breeding in the South Atlantic. Journal of Avian Biology, 31:303-311

González-Solís, J., Croxall, J.P. & Wood, A.G. 2000. Sexual dimorphism and sexual segregation in foraging strategies of northern giant petrels Macronectes halli during the incubation period. Oikos. 90:390-398

González-Solís, J., Croxall, J.P. & Wood, A.G. 2000. Foraging partitioning between giant petrels Macronectes spp and its relationship with breeding population changes at Bird Island, South Georgia. Marine Ecology Progress Series, 204:279-288

Hamer, K.C., Phillips, R.A., Wanless, S., Harris, M.P. & Wood, A.G. 2000. Foraging ranges, diets and feeding locations of gannets in the North Sea: evidence from satellite telemetry. Marine Ecology Progress Series, 204: 279-288

Wood, A.G., Naef-Daenzer, B., Prince, P.A. & Croxall, J.P. 2000. Quantifying habitat use in satellite-tracked pelagic seabirds: use of kernel estimation with albatrosses. Journal of Avian Biology. 31:278-286

Programme: 2264
Purpose of programme: Studies of sea ice dynamics in the Bellingshausen Sea
Numbers & types of platforms:
a) deployed current year: 4 x CALIB air-dropped ice drifters (Metocean)
b) planned next year: 0
Estimated number of PTT-years:
a) current year: 3
b) next year: 0

Programme:
Purpose of programme: Studies of Antarctic krill transport in Scotia Sea
Numbers & types of platforms:
a) deployed current year: 0
b) planned next year: 20 x Clearsat SVP (Clearwater);
will change to duty-cycle mode after 2 months

Estimated number of PTT-years:
a) current year: 0
b) next year: 9

Institute: **Falklands Conservation Trust**

Programme: 1875
Purpose of programme: Penguin tracking
Numbers & types of platforms:
a) deployed current year: 0
b) planned next year: 15 x penguin tags
Estimated number of PTT-years:
a) current year: 0
b) next year: 1

Institute: **Sea Mammal Research Unit**

Programme: 0400
Purpose of programme: Behaviour and movements of marine mammals
Numbers & types of platforms:
a) deployed current year: 31 x Animal (SMRU)
b) planned next year: 20 x Animal (SMRU)
Estimated number of PTT-years:
a) current year: 3
b) next year: 3.5

Institute: **Scottish Association for Marine Science**
Scott Polar Research Institute

Programme: 9484 (Met Office)
Purpose of programme: Sea ice dynamics
Numbers & types of platforms:
a) deployed current year: 3 x SVP-B (Metocean)
b) planned next year: 0
Estimated number of PTT-years:
a) current year: 1.5
b) next year: 0

Institute: **Southampton Oceanography Centre**

Programme: 1644
Purpose of programme: Operational oceanography / oceanographic research
Numbers & types of platforms:
a) deployed current year: 3 x profiling floats
b) planned next year: 5 x profiling floats
Estimated number of PTT-years:
a) current year: 1.3
b) next year: 1.3

Publications:

Bacon,S, Centurioni, L.R., Gould J.W, 2000, The evaluation of salinity measurements from PALACE floats, J. Atm. Oc. Techn.. 18,1258.

Institute:	**University of Durham**
Programme:	1864
Purpose of programme:	Studies of foraging behaviour of gannets
Numbers & types of platforms:	
a) deployed current year:	0
b) planned next year:	6 x PTT-100 (Microwave Telemetry)
Estimated number of PTT-years:	
a) current year:	0
b) next year:	0.4

Institute:	**University of Wales Swansea**
Programme:	1682
Purpose of programme:	Turtle tracking
Numbers & types of platforms:	
a) deployed current year:	7 x SRDL (SMRU), 2 x ST1x (Telonics)
b) planned next year:	>2 x SRDL (SMRU)
Estimated number of PTT-years:	
a) current year:	0.5
b) next year:	0.5

UNITED STATES OF AMERICA
Year: CY 2002

The U.S. projection for JTA use in CY 2001 (after 9 months of actual use) is 1233 Ptt/yr. The projection for JTA use in CY 2002 is an increase of about 5% to 1300 Ptt/yr.

During 2002, the United States plans to deploy over 4,000 platforms carrying Argos transmitters in nearly every ocean and other remote area of the world for over 400 meteorological, oceanographic, biological, and other scientific programs. The platforms include about 2,000 drifting buoys, 800 profiling floats, 250 moored buoys, 500 birds, 700 marine animals, 50 terrestrial animals, 20 land stations, and 5 balloons. The sponsors of these programs are the Department of Commerce - National Oceanic and Atmospheric Administration, the National Science Foundation, the Department of Defense, the Department of Transportation - U.S. Coast Guard, the Department of Interior, Department of Energy, the National Aeronautics and Space Administration, state institutions, and nonprofit organizations.

The following is a list of agencies/organizations using the Argos System with a description of the purpose and the Ptt/years and number and type of platforms for 2001 and 2002:

A. National Oceanic and Atmospheric Administration

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

2001: 605 Ptt/yr -- 100 moored buoys, 750 drifting buoys, 19 profiling floats, 1 balloon
2002: 705 Ptt/yr -- 105 moored buoys, 640 drifting buoys, 480 profiling floats,
10 marine biology

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

2001: 30 Ptt/yr -- 58 moored buoys
2002: 29 Ptt/yr – 62 moored buoys, 4 drifting buoys

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

2001: 39 Ptt/yr -- 200 animals
2002: 47 Ptt/yr – 250 marine biology, 20 moored buoys, 5 drifting buoys,
6 profiling floats

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

2001: 13 Ptt/yr -- 16 drifting buoys, 1 moored buoy
2002: 14 Ptt/yr – 18 drifting buoys

5. National Ocean Service -- Study ecological systems for GLOBEC. Oil spill response and turtle tracking.

2001: 2 Ptt/yr -- 4 drifting buoys
2002: 31 Ptt/yr – 72 drifting buoys, 18 moored buoys

B. National Aeronautics and Space Administration -- Study Pacific Ocean currents and Siberian Cranes.

2001: 10 Ptt/yr -- 24 drifting buoys, 5 birds
2002: 8 Ptt/yr -- 20 drifting buoys, 5 birds

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

2001: 10 Ptt/yr -- 100 drifting buoys
2002: 23 Ptt/yr – 330 drifting buoys

D. National Science Foundation –
Biological Oceanography Program -- Study marine ecological systems for GLOBEC.
Physical Oceanography Program -- Provide meteorological and oceanographic observations for physical oceanographic and circulation studies.
Polar Programs -- Circulation, physical oceanography, meteorology, ecology, and ice studies.

2001: 120 Ptt/yr -- 760 drifting buoys, 10 moored buoys, 60 land stations, 8 balloons, 3 penguins
2002: 120 Ptt/yr – 500 drifting buoys, 340 profiling floats, 10 land stations, 15 marine biology, 10 birds

E. Department of Agriculture -- Study the daily activity and movements of American White Pelicans and vultures and Double-crested Cormorants.

2001: 20 Ptt/yr -- 100 birds
2002: 11 Ptt/yr – 55 birds

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

2001: 5 Ptt/yr -- 10 land stations, 5 elk
2002: 3 Ptt/yr – 5 terrestrial biology

G. Department of Interior

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

2001: 15 Ptt/yr -- 20 marine biology, 100 birds, 5 terrestrial biology
2002: 30 Ptt/yr – 20 marine biology, 200 birds, 10 terrestrial biology

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

2001: 19 Ptt/yr -- 18 birds, 30 terrestrial mammals, 15 turtles
2002: 10 Ptt/yr – 11 birds, 17 marine biology, 17 terrestrial biology

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

2001: 8 Ptt/yr -- 7 turtles, 14 moose
2002: 8 Ptt/yr – 6 marine biology, 14 terrestrial biology

H. Department of Defense

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

2001: 84 Ptt/yr -- 280 drifting buoys
2002: 85 Ptt/yr – 215 drifting buoys

2. Office of Naval Research -- Measurements and studies of surface and subsurface oceanographic parameters and whale tracking.

2001: 18 Ptt/yr -- 20 drifting buoys, 5 moored buoys, 72 whales
2002: 15 Ptt/yr – 20 drifting buoys, 5 moored buoys, 50 marine biology

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

2001: 132 Ptt/yr -- 500 animals, 20 moored buoys, 80 drifting buoys
2002: 140 Ptt/yr – 50 moored buoys, 80 drifting buoys, 5 land stations, 320 marine biology, 250 birds, 10 terrestrial biology

Special comments (if any):
The new user applications for Argos JTA service are predominantly for biological applications.

ANNEX

Action Sheet on decisions of JTA-XXI

(Perth, Australia, 29-31 October 2001)

Ref.	Subject	Action proposed	Resp.	Target date	Comments
paras. 5.1 & 5.2	**DBCP recommend.:** **(i) Argo QC module**	1. To make available the details of the Argo QC procedure	Argo DM team	ASAP	
		2. To enhance the Argos GTS sub-system with an optional QC module for Argo	CLS, TC	ASAP afterwards	
	(ii) data relay	1. To undertake a cost & feasibility study	TC, CLS	next OpsCom (May 2002)	
		2. To enhance the Argos GTS sub-system to insert onto GTS data processed outside Argos system (if possible)	CLS, TC	ASAP afterwards	
	(iii) JTA chair funding	To fund an independant chair through the JTA	CLS, WMO Sec.	continuous	
	(iv) Brazilian satellites	1. To draft a concrete proposal, incl. a cost/benefit analysis, to seek ObsCom in principle agreement	CLS	next OpsCom (May 2002)	
		2. To report to JTA-XXII	CLS	JTA-XXII	
paras. 5.3 & 5.4	**Other user requir.:** **(i) class A/B loc.**	To pursue the phasing out of the charges as agreed at JTA-XX	CLS	continuous	
	(ii) 3rd satellite	To report on free access to ADEOS-2, incl. costs impact	CLS	JTA-XXII	
	(iii) new users	To maintain present rules	CLS	continuous	

Ref.	Subject	Action proposed	Resp.	Target date	Comments
	(iv) biologists	1. To consider establishing a website devoted to biological programmes using Argos	USA	when feasible	
		2. To eventually establish the equivalent of DBCP for biologists	biologists	if & when feasible	
para. 5.5	**Information for users**	To provide input & feedback to CLS/SAI on structure & content of available information, incl. national websites addresses	ROCs, users	continuous	
para. 5.6	**System Use Agreement**	To review the website & provide links & comments	JTA members	continuous	
para. 6.2	**Unused ID charges**	1. To retain the charge during 2002	CLS	continuous	
		2. To post the full lists on CLS website	CLS	January 2002	
		3. To mail this year's lists to ROCs	CLS	before end 2001	
para. 6.4	**5-year plan**	To continue on the basic principles of the plan and review them annually	CLS, JTA	continuous, JTA-XXII	
para. 6.5	**Other charges**	To study the effects of factoring the additional charges into the standard PTT charges & report to JTA	CLS	JTA-XXII	
para. 6.6	**Better use of bandwidth**	To raise the possibility of changing PTT certification requirements	Chair, OpsCom	next OpsCom (May 2002)	
para. 6.7	**Reporting**	1. To report on (i) actual JTA activity (in PTT-year) for the previous year and (ii) final participation in the agreement for current year (+ chair's comments)	CLS, chair	15 Feb. each year	
		2. To report on projection of activity for current year (+chair's comments)	CLS, chair	15 July each year	

Ref.	Subject	Action proposed	Resp.	Target date	Comments
		3. To include information on details of JTA & non-JTA activity in terms of active IDs & revenue in report to JTA	CLS	JTA meetings	
para. 7.5	**Abuses**	To check for any abuse(s) of the bonus conditions & take action on a case by case basis	JTA	JTA meetings	
para. 9.1	**JTA-XXII**	1. To make local arrangements	Météo-France	ASAP	
		2. To prepare agenda & annotated agenda; to issue invitation letter	Secretariats, Chairman	June 2001	
		3. To prepare the basic documentation and send it to the Secretariats	CLS	August 2001	