SUMMARY OF DISCUSSIONS AND CONCLUSIONS

OF THE

NINETEENTH MEETING OF THE NAT SYSTEMS PLANNING GROUP

(Paris, 19 - 30 April 1982)

TABLE OF CONTENTS

	Page
Table of contents	i
Introduction	iii
List of Conclusions	iv
List of Participants	v
Summary of Agenda Item 1 : Review of the situation regarding lateral separation in the NAT Region including information on the 1981 survey on deviations from track in the 15-30 NM range	1-1
" " " " 2 : Review of the situation regarding longitudinal separation in the NAT Region	2-1
" " " " 3 : Review of progress of studies regarding the possible future introduction of composite separation (30 NM/1000 ft) in the NAT Organized Track Structure	3-1
" " " " 4 : Determination of possible improvements to the NAT Organized Track Structure on the basis of results achieved at a special meeting on that subject held in London in October 1981	4-1
" " " " 5 : Review of performance data of aircraft equipped with integrated dual-inertial, single-Omega navigation equipment	5-1
" " " " 6 : Review of the situation regarding the introduction of automated data processing in Oceanic ACCs in the NAT Region	6-1
" " " " 7 : Review of developments regarding crossing and joining traffic in the NAT Region	7-1
" " " " 8 : Review of progress of studies regarding the provision of improved MET information in the NAT Region	8-1
" " " " 9 : Review of the HF communications situation in the NAT Region	9-1

Page

Summary of Agenda Item 10 : Review of the situation regarding proposed amendments to the NAT Regional Supplementary Procedures and the PANS RAC 10-1

" " " " 11 : Updating of the work programme of the NAT SPG 11-1

" " " " 12 : Review of ATS problems of current operational interest 12-1

" " " " 13 : Election of Chairman 13-1

" " " " 14 : Any other business 14-1

List of names and addresses of the Members of the NAT Systems Planning Group 15-1

1. Introduction

1.1 Convening and conduct of the Meeting

1.1.1 The Nineteenth Meeting of the NAT SPG was held in the European Office of ICAO from 19 to 30 April 1982. It was chaired by Mr. J.G. ten Velden, the Member of the Netherlands and a list of participants is given on page v.

1.1.2 In his opening address, the Chairman welcomed Messrs J.D. Lyon (Canada), J.V. Feehan (Ireland) and R. Croxford (United Kingdom), who had been appointed as the replacement of Messrs G. Foy, R. Howley and A. White respectively. He also introduced Mr. W. Aardoom who would take over as the new Member of the Netherlands after this Meeting.

1.1.3 While on the subject of the composition of the NAT SPG, the Chairman informed the Group that the present Meeting was the last one he would be chairing and that a new Chairman would be elected during this Meeting. He also welcomed Mr. C. Eigl, of the European Office of ICAO, as the new Secretary of the Group replacing Mr. P. Berger.

1.1.4 The Group took this opportunity to express its thanks to Mr. ten Velden who had led it during a number of its most productive years. His Chairmanship extended through a period in which a number of important decisions were made and which had led to significant increases in safety and efficiency in the North Atlantic Region. The Group wished Jack a happy retirement and bade him a warm farewell.

1.1.5 Further to IATA and IFALPA, the Group had, as usual, also invited Denmark, Norway, Spain and the USSR, as well as IAOPA, to attend this Meeting. However, Norway and IAOPA had informed the Group that, due to unforeseen reasons, they could not be represented at this Meeting.

1.1.6 For some subjects, the Group created the following ad hoc drafting groups :

a) a drafting group charged with the scrutiny of observed gross errors, of which Mr. V. Singh, of the United Kingdom, acted as Rapporteur;

b) a drafting group dealing with mathematical aspects of lateral, longitudinal and composite separation, of which Mr. W. Aardoom, of the Netherlands, acted as Rapporteur;

c) a group charged with the review of the HF communications situation in the NAT Region and other subjects related to NAT aeronautical telecommunications, of which Mr. R. Whitford, of Ireland, acted as Rapporteur.

1.1.7 Mr. C. Eigl served as Secretary of the Meeting and was assisted by Messrs. W. Arcangeletti, A. Bruinenberg, E. Cerasi, D. Oudin and A. Suban of the European Office of ICAO. At the end of the Meeting, the Group complimented the Secretariat on the efficiency which they had demonstrated, and wished this to be recorded.

2. Composition of the Agenda

2.1 Prior to the Meeting, a draft Agenda had been circulated, which had been prepared on the basis of proposals received from Members of the Group for items which needed consideration at this Meeting. In the course of the Meeting, it became however apparent that a number of operational matters of current interest also needed review and they were therefore included in the Agenda as they were brought forward.

3. Terminology

3.1 During its discussions, the Group found some difficulty consistently to refer to aircraft/flights meeting the MNPS requirements in terms of certification and authorization, both as regards onboard navigation equipment fit and crew competency. It therefore agreed to use the term "MNPS aircraft" throughout the Summary to refer to a flight meeting the requirements necessary to operate within NAT MNPS airspace.

4. List of Conclusions

Conclusion	Subject	Page
19/1	Review of the use of 60 NM lateral separation	1-9
19/2	Continued use of 10 minutes longitudinal separation	2-2
19/3	NAT ATS improvement	4-2
19/4	Procedures for crossing and joining traffic	7-2
19/5	Amendment to the NAT Regional SUPPS	7-3
19/6	NAT HF data collection in 1982	9-4
19/7	Extension of MNPS airspace within CTA Reykjavik	10-3
19/8	Preparation of information document for IGA operations in the NAT Region	12-4
19/9	Rocket/missile firing in the NAT Region	12-8

LIST OF PARTICIPANTS
LISTE DES PARTICIPANTS

CANADA

R.E. Chafe
D.C. Clyde
R. Kenney
A.C. Lyon
*J.D. Lyon
D.R. Mair
R. Matchim
L.H. Saunders
E.A. Smith

DENMARK/DANEMARK

E. Christiansen
S.B. Gravesen
K. Theil

FRANCE

G. Godard
**C. Labbé
**M. Pubellier
*F. Rico

ICELAND/ISLANDE

S. Arndal
*G. Matthiasson

IRELAND/IRLANDE

*J.V. Feehan
T. O'Connor
R.M. Whitford

NETHERLANDS/PAYS-BAS

W. Aardoom
*J. Ten Velden

PORTUGAL

J.R. Dias
*L.D. Lopes
A.M. Marinho Falcao
J. Sequeira

SPAIN/ESPAGNE

J. Moreno
J.M. Tena

UNITED KINGDOM/ROYAUME-UNI

*R.N. Croxford
S.T. Garner
**M. Morris
**R. Hebron
V. Singh
R.A. Stamp

USA/ETATS-UNIS d'AMERIQUE

A. Busch
**R.K. Covell
N.M. Craddock
J.M. Davis
*J. Matt
H. Rubenstein

USSR

V. Buriakov
Y. Fedorov

IATA

**E. Couteaux
J. Hardonk
L. Lee
R.R. Spicq
G.A. White

IFALPA

H. Gallagher

**NAT TFG

J. Castro Silva
M.J. Ellis
W.T. Tucker

---

*Member/Membre
** Part-time/pour une partie des travaux

Agenda Item 1 : Review of the situation regarding lateral separation in the NAT Region including information on the 1981 survey on deviations from track in the 15-30 NM range.

1.1 Introduction

1.1.1 Discussions under this Agenda Item covered the following aspects :

a) validation of the continued use of 60 NM lateral separation in NAT MNPS airspace;

b) mathematical-statistical considerations pertaining to this type of separation.

1.2 Validation of continued use of 60 NM lateral separation

1.2.1 The Group proceeded with the usual scrutiny of observed gross errors in navigation and found that a total of 56 errors and navigation incidents were reported during the period 1 April 1981 to 31 March 1982. Of this number, 52 were retained for scrutiny and classification. 21 of these errors occurred outside MNPS airspace and they were therefore removed from the scrutiny list. Of the remaining 31 errors a further 16 were eliminated and 15 were classified as eligible for scrutiny according to the procedures established by NAT SPG/17. It was pointed out that of the 16 errors which were not included in the analysis, 10 occurred along the route via Greenland and Iceland. The following Table contains the classification of the errors broken down according to the established procedures.

CLASS	ERROR				
	⩾ 30 NM	50 - 70 NM			
		Total Traffic		OTS Traffic	
		Model 1	Model 2	Model 1	Model 2
A*	4	4	4	1	1
C	7	1	3.48		2.56
E*	1				
F*	2	1	1	1	1
	+ 1				
TOTAL	15	6	8.48	2	4.56
No. of errors allowed according to NAT SPG/17	41.8	10.25		7.69	
Observed traffic		78947		59210	

*Note : Letters in the column CLASS have the following meaning :

A - aircraft not certified for operations in MNPS airspace;

C - equipment control error, including way-point insertion error;

E - other navigation errors, including equipment failure notified to ATC too late for action;

F - As E but, of which notification was not received by ATC;

+ - unable to classify due to operators' non-response to error notification.

1.2.2 Although, overall there has been an improvement over the previous years, the Group nevertheless detected some disturbing trends and a number of items of interest. Overall, 30% of the gross navigation errors were attributed to aircraft that appeared to have limited MNPS capability (i.e. Doppler/Omega/Specialist Navigator). One item of major concern was the number of aircraft that have been identified as operating in the MNPS airspace without appropriate authorization and in most cases with inadequate navigation equipment. 26% of the errors included in the Table were attributable to unauthorized operators, predominantly IGA. Since this number is obtained from the information gathered in the process of monitoring of gross navigation errors, the actual number of unauthorized MNPS operations could be different.

1.2.3 Another item of concern was the number of errors which occurred due to equipment control problems (46%). It appeared that this was a matter which needed to be kept under constant surveillance. In the case of a 4° waypoint error, the Group was unable to conduct a full examination because of the lack of information provided by the operator. However, based on the available data it concluded that the most probable cause was a waypoint insertion error and has used an approximate weighting of 2.1. The Member for the United Kingdom agreed to calculate a weighting value for an error of this magnitude and to notify all concerned accordingly.

1.2.4 During the scrutiny process a further trend was identified concerning Omega failure rates. There are three gross navigation errors in the classified error table which are due to equipment failure on aircraft using Omega. In one instance there was a double failure. In this connexiok, it was pointed out that, generally, the performance of Omega was found to be quite satisfactory. However in view of the comparatively high error rate involving Omega failure it appeared that, perhaps, this could be attributed to a number of factors like training, cockpit procedures, equipment maintenance, etc. which could need review and improvement. In addition, it was noted that correct aircraft antenna installation was particularly critical and operators should therefore pay special attention to this element. Additionally, the Group recommended that Omega approvals should be critically reassessed in the light of the above, and that the use of VLF option should be encouraged.

1.2.5 Overall, 40% of the total reported gross navigation errors in the NAT have been incurred by aircraft operating outside MNPS airspace. This appeared to indicate that information concerning MNPS airspace is reaching the right levels of personnel and that responsible operators are adhering to the requirements of MNPS airspace by not operating within it with unsuitable equipment. The majority of gross navigation errors detected within MNPS airspace have been committed by non-regular users of this airspace.

1.2.6 The Group also noted that, in some instances, possibly due to a discrepancy between cockpit documentation and ATC clearance, aircraft had followed an incorrect route. This particularly applied where the destination of a flight is situated close to an Oceanic exit point and the aircraft, required to follow a NAT track terminating at that point, leaves the NAT track prematurely to route directly to destination without corresponding ATC clearance. It was hoped that IATA and IFALPA could take action to draw the attention of flight crews to the need to obtain an ATC clearance before altering the route of their flight /the NAT MNPS Operations Manual (Section 3) refers/.

1.2.6.1 Also the Group noted an example which although occurred outside MNPS airspace (FL 410) is worthy of mention as it illustrates a combination of ATC loop error and cockpit procedural errors. An aircraft's oceanic clearance became corrupted during its transmission through an adjacent OAC and a local ATC unit and the track was displaced by 2 degrees. Subsequently, the aircraft operated in accordance with the amended clearance but passed position reports which were in accordance with its original flight plan. Therefore, the ATC was unaware of the error in the clearance. The incorrect routing only became known when the aircraft was observed 120 NM removed from its expected position.

1.2.7 When discussing the results of the scrutiny, it was found that the reporting procedure and guidance on follow-up of gross navigational errors had not been reviewed in detail for several years. It was dispersed in various documents (NAT Guidance Material, various NAT SPG Summaries, etc.) and appeared to merit consolidation and updating in the light of developments.

1.2.8 Generally there was a shortcoming in that data and information provided by aircraft operators with respect to reported incidents was not sufficiently detailed or precise to allow valid scrutiny and classification of the error involved. In the past, the main concern was to reduce the high number of gross errors occurrencies. Now that this was achieved, the emphasis was on detail with respect to the actual circumstances of each error. ATC loop errors and errors by regular users of the NAT airspace have greatly diminished and are now a rather rare event. The majority of errors are committed by non-regular users and IGA. It appeared that strong action was called for if a further reduction of the error rate was to be achieved.

1.2.9 In many cases, aircraft operators involved, and particularly IGA operators, simply ignored requests for pertinent data. In other cases, the response times to requests were discouragingly long, often several weeks or months. It was obvious that flight crews would not be able to remember every detail of a situation which led to a navigational error after that amount of time. It should be stressed that all necessary detail must be made available to make possible the determination of causes and also to avoid attribution of mistakes to parties not directly involved in it.

1.2.10 A further problem was the difficulty to detect unauthorized aircraft operating in MNPS airspace or to prevent such aircraft from entering that airspace. Since this clearly was not a task to be performed by ATC, it was suggested that provider States concerned verify with the State of Registry of any suspected aircraft whether the aircraft in question, in fact, had been certificated for MNPS operations. Nevertheless, it was often very difficult to trace the offending flight crew or operator because of aircraft or crew leasing arrangements.

1.2.11 As to possible improvements to the reporting procedure which could help to resolve the various problems encountered, it was felt that the customary teletype message despatched within 24 hours by the OAC observing a navigational gross error to the aircraft operator concerned and to selected States of Registry, should also be sent simultaneously to those OACs through whose areas of responsibility the flight passed previously. This would enable these Units to take action to retain related documentation for future investigation. The State of Registry should be sent a copy of the investigation report letter which follows the telex notification.

1.2.12 The Group also felt that ICAO support should be sought in cases when both operators and States concerned did not respond to enquiries.

1.2.13 In the light of this discussion, the Member of the United Kingdom offered to develop a consolidated document setting out the reporting and follow-up procedures for gross errors in the NAT Region. This revised document would be circulated in a few months time to all Members of the NAT SPG for review and comment and could, ultimately, replace the material at present contained in the ICAO NAT Guidance Material on the subject.

1.2.14 Finally, the Member for Canada offered to enlarge the area of radar observation within the Gander OCA if this was considered conducive to an improvement of the monitoring arrangements of navigation performance. The Group agreed that such action would be very desirable in that it would yield useful additional statistical information.

1.3 Mathematical-statistical considerations

Occupancy

1.3.1 When discussing the mathematical statistical aspects of lateral separation in the NAT MNPS airspace, the Group was presented with results that showed that the occupancy values in the OTS were observed to be somewhat (10-20%) higher than the value used in the derivation of the MNPS criteria. However when looking at the overall picture of factors that together establish the risk, it was agreed that these occupancy figures in themselves give no reason to believe that the target level of safety is not met. Nevertheless, it highlighted the necessity for occupancy monitoring to continue on both sides of the Ocean.

1.3.2 As regards the occupancy for non-OTS traffic data showed that at 20° and 40° West this factor is very much (5 - 10 times) below the value for the OTS. The randomness of the traffic pattern makes it obvious that there is a variation of actual occupancy with location throughout the MNPS airspace.

1.3.3 The Group considered it reasonable, however, to conclude that the average occupancy for non-OTS random traffic is likely to be much lower than the one used for the derivation of the MNPS criteria.

Track keeping performance

1.3.4 With respect to track keeping performance on the basis of a data collection conducted in Summer 1981, it was found that :

a) the standard deviation of the distribution is estimated to be 3.6 NM which is well below the 6.3 NM criterion in the MNPS;

b) the probability of deviations beyond 30 NM and between multiples of ± 10 NM of the route-spacing are considered to be less than but of the same order as the MNPS criteria.

1.3.5 The related analysis shows that for the observed occupancies :

a) the 60 NM route spacing in the OTS is considered to meet the target level of safety;

b) with unchanged assumptions regarding the occupancies, relative velocities etc., a further reduction of the rectangular spacing below approximately 50 NM is expected not to be compatible with the target level of safety.

1.3.6 Generally the exercise demonstrated (or confirmed) the insensitivity of the estimated collision risk to reasonable variations in the standard deviation. This risk is dominated by the tails of the error distribution.

1.3.7 In trying to determine under which conditions a further reduction of route spacing could be feasible, two factors were considered to be relevant.

a) the magnitude of the tails of the distribution decreases very slowly with distance from centreline;

b) the tail distribution has become fairly stationary with time.

Therefore, regarding the efforts being made in recent years to improve the tail distribution, a rather pessimistic view concerning a further reduction of the rectangular spacing below 60 NM in the present technical and operational environment seems justified.

Random traffic

1.3.8 Under this heading, the Group specifically addressed the application of 60 NM separation between non-OTS MNPS traffic. The acceptability from the risk point of view is mainly determined by two factors :

a) the navigation performance; and

b) the occupancy.

The navigation performance outside OTS by MNPS aircraft is conforming to the standards or, as some data suggest, is only slightly worse. The average occupancy is expected to be very much lower (see 1.3.3). Therefore it is reasonable to assume that the application of 60 NM outside the OTS within MNPS airspace is acceptable. However, it was pointed out that even for a so-called random structure the traffic pattern might have characteristics that tend to increase the occupancy even at relative low daily traffic counts. Consequently, it was stressed that occupancy monitoring will remain a necessity.

1.3.9 If the conditions of navigation performance and occupancies are met, the application of 60 NM lateral spacing could also be considered between aircraft operating outside MNPS airspace in transit to or from that airspace.

1.3.10 With regard to the prescribed lateral separation of 60 NM, it was recalled that in some circumstances tracks are separated by one degree of latitude even though this may result in their distance apart being slightly less than 60 NM. The conditions under which a separation of one degree is deemed to provide 60 NM are specified by Regional Agreement (NAT RAC 7.1.2) which will need further elaboration to take account of the circumstances in high latitudes if approval is given for the use of 60 NM lateral separation north of the present MNPS airspace boundary of 67°. In this connexion it was agreed that Canada and Iceland, when developing their proposal for the extension of MNPS airspace to the North Pole, keep this matter in mind (para 10.3 refers).

MNPS monitoring control charts

1.3.11 With respect to MNPS navigation performance monitoring control charts, the Group agreed to standardize the presentation of the monitoring results from the MNPS airspace. It based its discussions on a detailed description of the mathematical statistical background underlying the proposed control charts which was provided by the Member of the USA as shown in the Attachment to this Item.

1.3.12 It was agreed that, at the end of each month of monitoring, the current month's observations would be added to the previous eleven months so that the new data point to be added to the control charts would be a proportion or rate of gross errors for the previous twelve months. The following three charts would be provided :

1) a continuous twelve month running estimate of the rate of occurrence of lateral deviations in excess of 30 NM (i.e. êta errors)

$$\hat{\eta} \text{ (each new data point)} = \frac{\text{number of errors} \geqslant 30 \text{ NM observed during the last 12 months}}{\text{total number of aircraft monitored during the last 12 months}}$$

This chart would have a solid horizontal line drawn at 5.3×10^{-4} - the MNPS requirement. The data would be expected to vary around or below this line. A dashed horizontal line drawn at 7.95×10^{-4} would be provided as a signal that this rate had probably increased significantly and that operational judgement should reflect on the meaning or system impact of this increase (see Figure 1 (page 1-10 for example).

2) A continuous twelve month running estimate of the rate of occurrence of lateral deviations between 50 and 70 NM (i.e. zeta errors).

$$\hat{\zeta} \text{ (each new data point)} = \frac{\text{number of errors between 50 and 70 NM observed during the last 12 months}}{\text{total number of aircraft monitored during the last 12 months}}$$

This chart would have a solid horizontal line drawn at 1.3×10^{-4} - the MNPS requirement. A dashed horizontal line drawn at 1.95×10^{-4} would be provided as a signal that this rate had probably increased significantly and that operational judgement should reflect on the system impact of this increase (see Figure 2 page 1-11 for example). This figure would indicate a presentation of all the errors between 50 and 70 NM "unweighted".

3) This chart would be identical to the previous chart except that the errors between 50 and 70 NM would be "weighted" according to the scheme provided in NAT SPG/17.

1.3.13 The data included on the 2nd and 3rd charts would include all observed MNPS traffic and OTS only traffic. It was agreed that the inclusion of other subsets on the graph would not be necessary; however, the basic data for these other subsets should be maintained in the event that this data is needed for other analyses.

1.3.14 A 12-month estimate was selected rather than a 6-month estimate because :

a) 12-month estimates smooth out seasonal effects due to differences observed in the rate of large errors between seasons; and

b) 6-month estimates are significantly more variable and could result in too many false alarms (estimates above the dashed line when the specification was actually being met).

1.3.15 The reason that a longer estimate such as 24 months was not selected was based on the fact that 24-month estimates respond more slowly to true increases and would tend to mask effects that should be brought to the attention of the decision makers. The location of the dashed lines was based on a desire to balance the probability of false alarms (Type I error - economic penalty) with the chance of not detecting real increases in the error rate (Type II error - safety penalty) (see Table 1 page 1-12). With current yearly operations count the Type I or Type II error rate should be 10 percent or less.

1.3.16 This monitoring procedure is consistent with the same sound statistical and operational decision criteria employed by NAT SPG throughout its deliberations for the reduction from 120 NM to 60 NM. It is felt that this procedure, when applied together with sound operational judgement, will ensure that collision risk in the North Atlantic MNPS airspace remains acceptably small.

CONCLUSION 19/1 - REVIEW OF THE USE OF 60 NM LATERAL SEPARATION

That :

a) data presented to the Group at this Meeting had confirmed the continued validity of the use of 60 NM lateral separation in the NAT Region under conditions as now specified in the NAT RAC SUPPS;

b) appropriate amendments be developed by the United States for inclusion in the ICAO NAT Guidance and Information Material to reflect the Group's considerations on the use of Omega in NAT MNPS airspace;

c) monitoring procedures be expanded, control charts be introduced, and a consolidated description of the revised procedures be developed by the United Kingdom for inclusion in the ICAO NAT Guidance and Information Material.

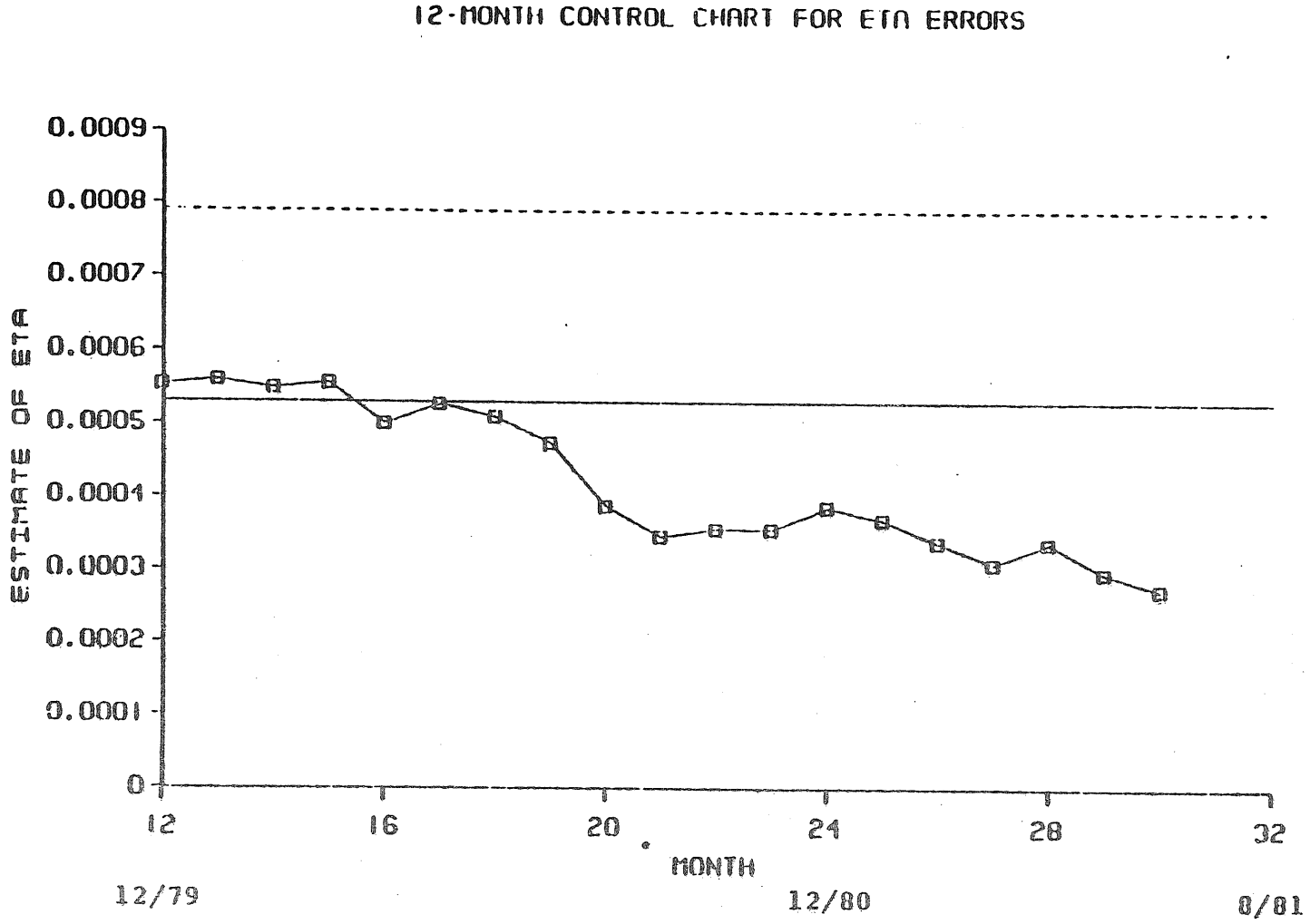

Figure 1

Control Chart for Eta Errors
Updated Through June 1981

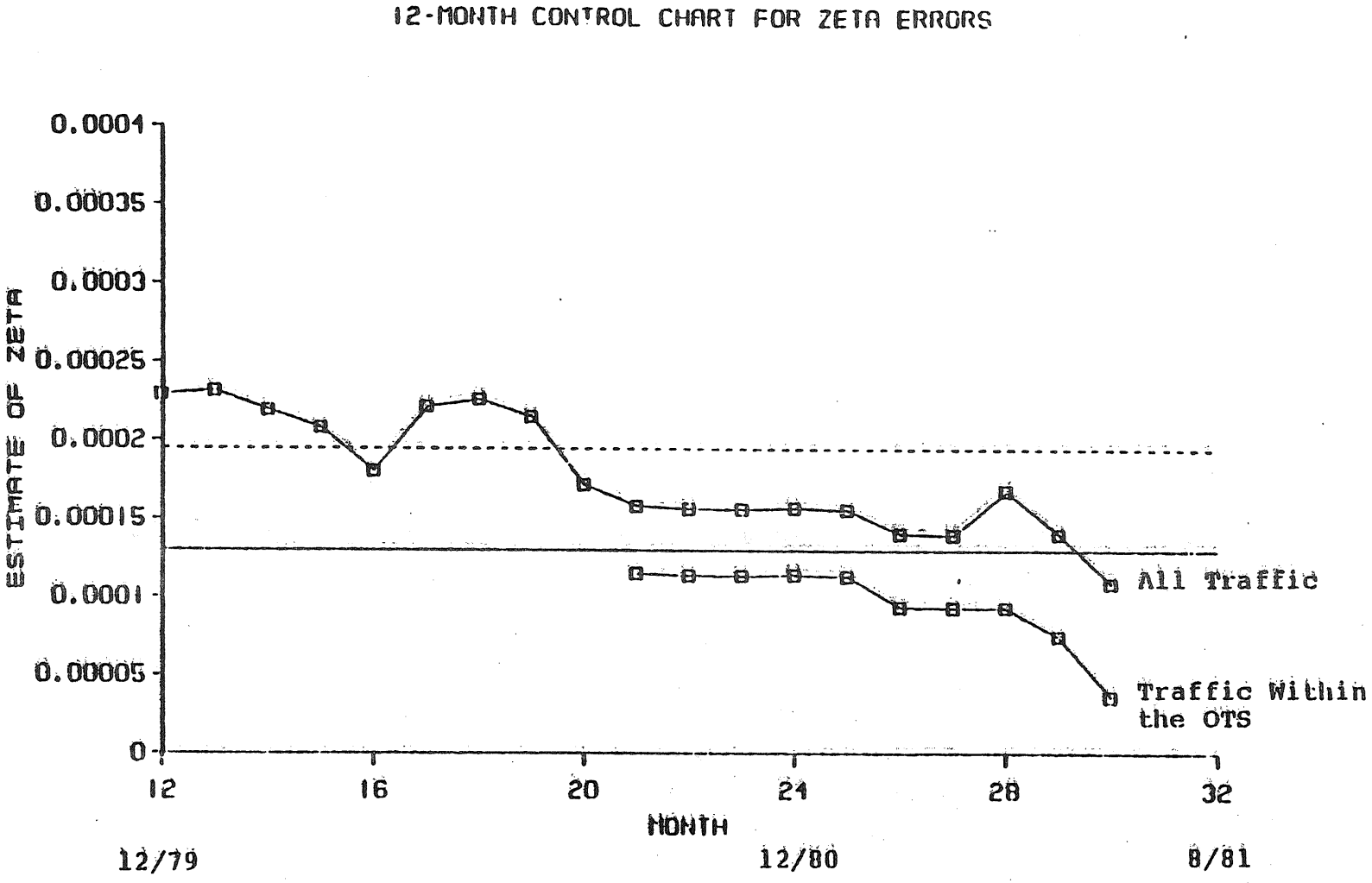

Figure 2

Control Chart for Zeta Errors
Updated Through June 1981

Table 1

Error Probabilities as a Function of
Total Traffic Count

	Total Traffic Count in 12 MONTH PERIOD									
	30000	40000	50000	60000	70000	80000	90000	100000	110000	120000
Eta:										
Prob. of Type I Error (Economic Penalty)	3.5%	1.7%	0.9%	0.4%	0.2%	0.1%	0.1%	0.0%	0.0%	0.0%
Prob. of Type II Error (Safety Penalty)	6.5%	4.2%	2.8%	1.8%	1.2%	0.8%	0.5%	0.4%	0.3%	0.2%
Zeta:										
Prob. of Type I Error (Economic Penalty)	19.9%	15.5%	12.3%	9.8%	7.9%	6.4%	5.2%	4.3%	3.5%	2.9%
Prob. of Type II Error (Safety Penalty)	21.0%	18.6%	16.6%	14.8%	13.3%	11.9%	10.7%	9.7%	8.7%	7.9%

ATTACHMENT
to Item 1

MATHEMATICAL BASIS FOR THE CONTROL CHARTS

The control chart methodology proposed assumes that the occurrence of large errors follows a Poisson process with rate ζ (or η). If n is the total number of flights monitored in any period, then the probability of observing n_1 zeta errors is given by

$$p(n_1|\zeta) = \frac{(n\zeta)^{n_1} e^{-n\zeta}}{n_1!} \qquad n_1 = 0,1,2,\ldots$$

An unbiased, maximum likelihood estimator of the rate parameter ζ is

$$\hat{\zeta} = \frac{n_1}{n}$$

with variance

$$\text{var}(\hat{\zeta}) = \zeta/n.$$

As noted by Johnson and Kotz (1969), the probability that $\hat{\zeta}$ will exceed some control value ζ_c can be related to the chi-square distribution by

$$\text{prob}(\hat{\zeta} > \zeta_c|\zeta) = \text{prob}(\chi^2_{2(n\zeta_c+1)} < 2n\zeta)$$

In setting up the control chart, the two parameters which must be selected are n (the total number of flights used in the estimator $\hat{\zeta}$) and ζ_c (the rate above which an estimate will be deemed to signal a rise above the MNPS value).

Selection of Sampling Period

It has been proposed that, instead of using a fixed value for n, the estimator $\hat{\zeta}$ be based upon all monitored flights during the last 12 months. In recent years, this would correspond to a sample size n between approximately 60000 and 75000 flights. Although this varying sample size will cause some fluctuation in the variance of $\hat{\zeta}$ and consequently the probabilities of true or false signals, practical considerations suggest that use of a fixed number of months would be much easier to implement than a fixed number of flights. Further, as shown earlier, the error probabilities are not very sensitive to changes in sample size within this range.

The selection of 12 months rather than 6 months or 18 months does, however, significantly affect the behavior of the control scheme. One reason for the selection of 12 months is the presence of noticeable periodic fluctuations in the rate of large deviations. During the period of July 1979 - June 1981, the rates of zeta and eta errors for winter and summer months are tabulated in Table A.1.

Table A.1

Estimates of Zeta and Eta Rates
July 1979 - June 1981
Winter and Summer Months

	ETA	ZETA	Approx. Total Flights
Winter (Oct-Mar)	3.4×10^{-4}	1.2×10^{-4}	59397
Summer (April-Sept)	4.3×10^{-4}	2.0×10^{-4}	84584
Total	3.9×10^{-4}	1.7×10^{-4}	143981

The estimates of the error rates are somewhat higher in the summer months than in the winter months.

Estimates of eta and zeta rates based upon 6 months rather than 12 months suffer from two problems:

(i) they are sensitive to seasonal fluctuations.

(ii) they have a high variance.

Figures 3 and 4 show control charts based upon 6-month estimates. The control chart for zeta demonstrates quite clearly the difficulties with a six-month estimate.

Table 1* in the main body of the paper tabulates the rates of Type I and Type II errors. Specifically, these errors are defined as:

* page 1-12

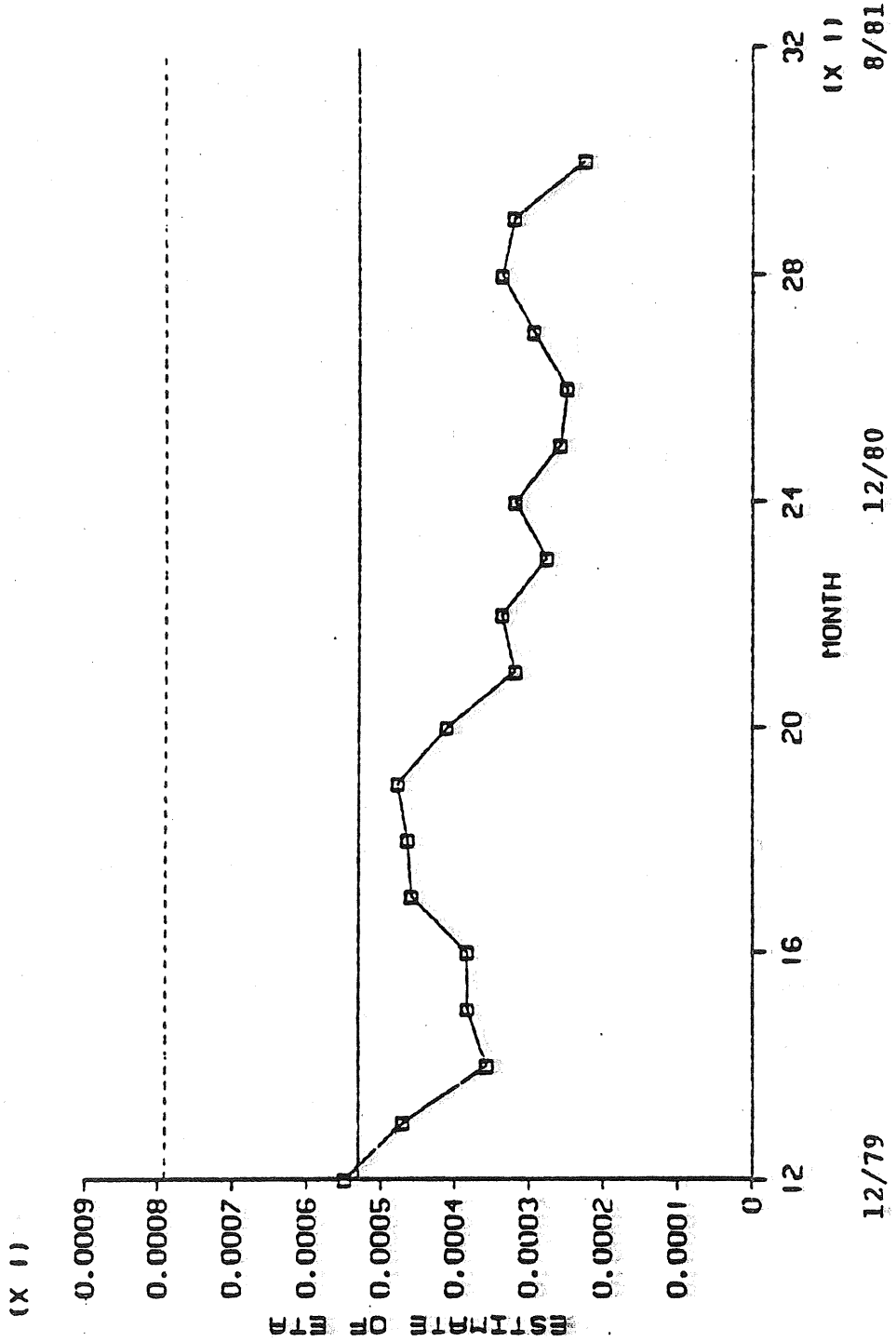

Figure 3

6-Month Control Chart for Eta Errors

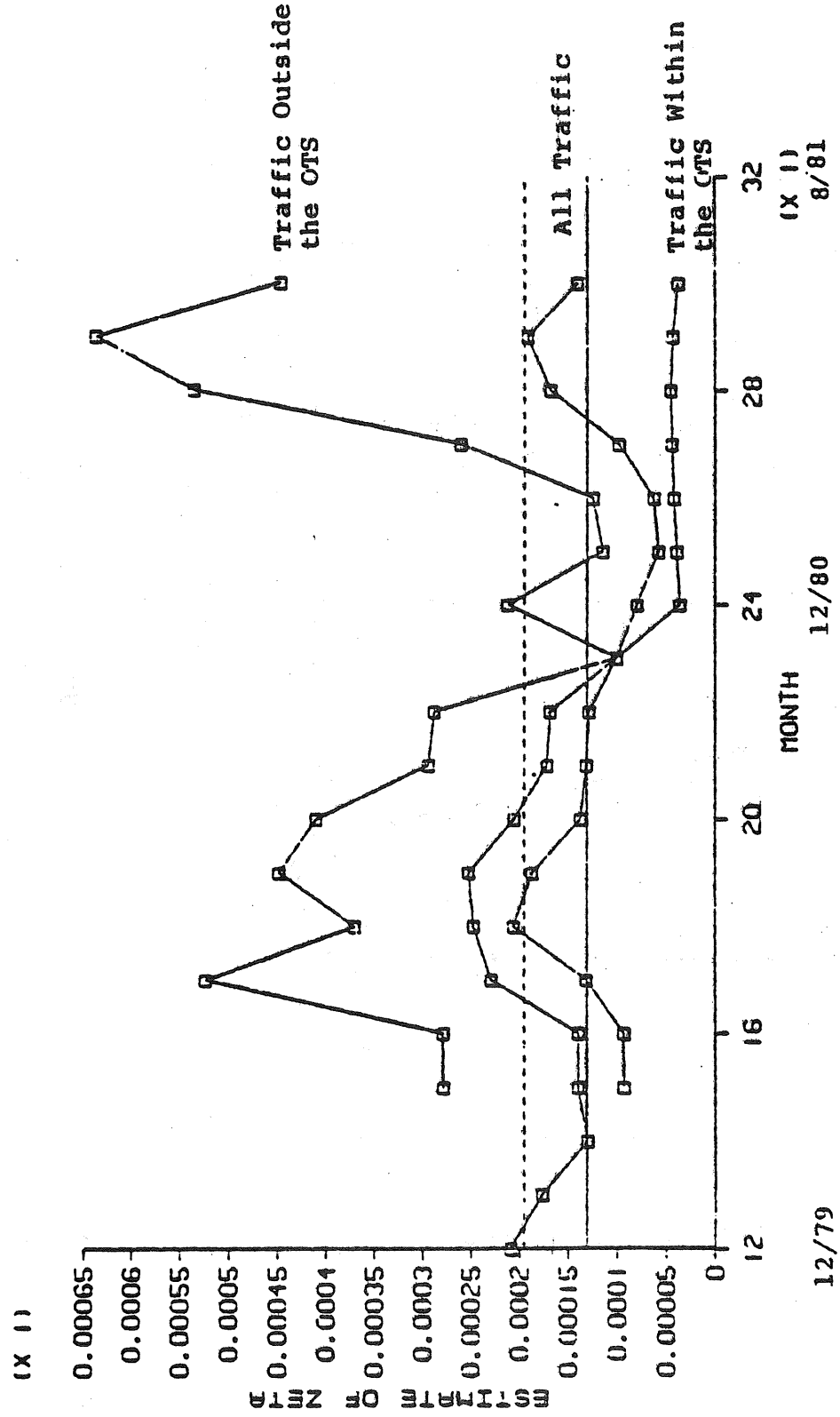

Figure 4

6-Month Control Chart for Zeta Errors

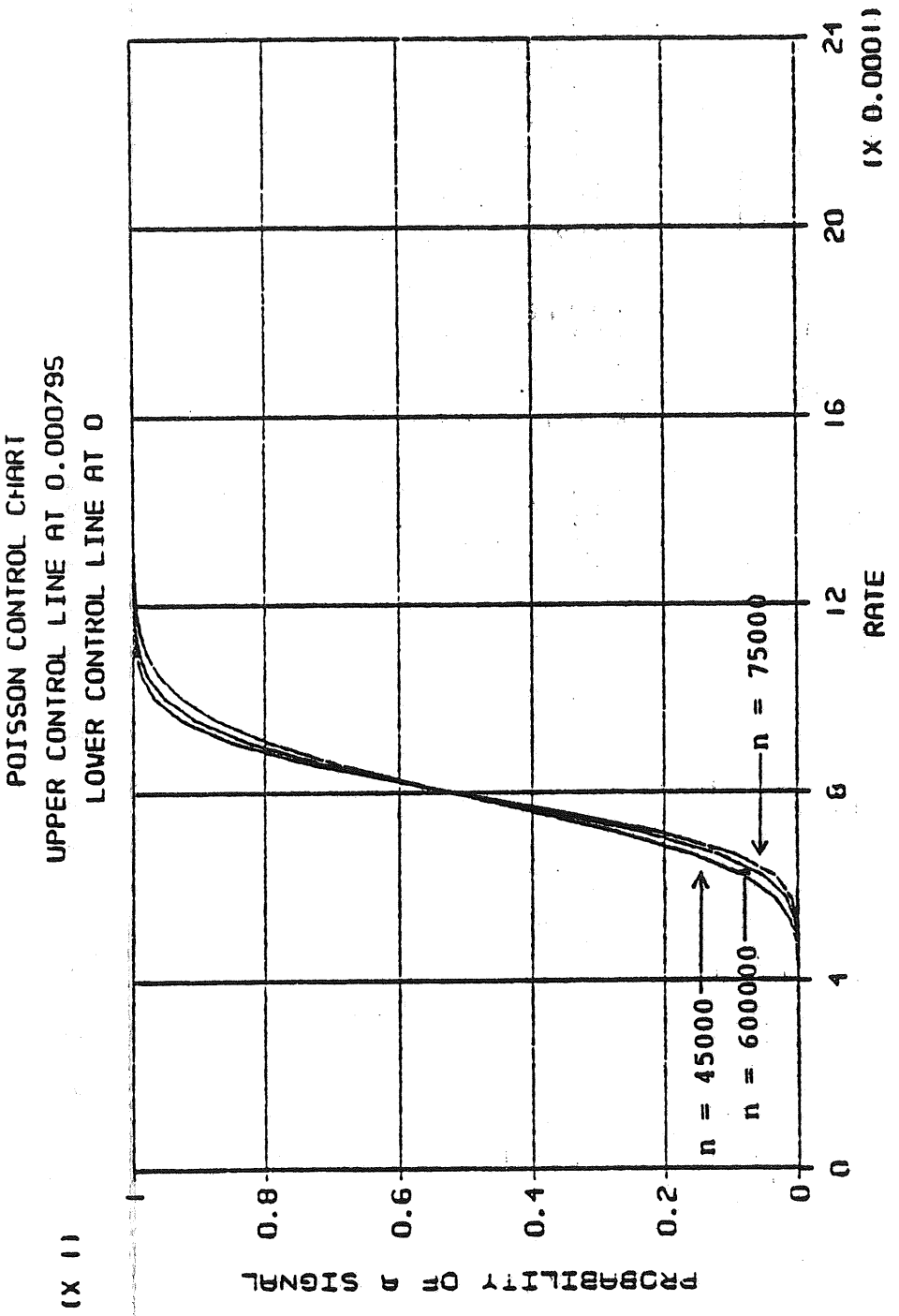

Figure 5

Probability of a Signal for
Proposed Eta Control Chart as a
Function of True Error Rate

Type I error:

the probability that a single estimate $\hat{\zeta}$ will exceed the upper control line when, for the last 12 months, ζ equalled 1.3×10^{-4}. Thus:

$$\text{Prob(Type I error)} = 1 - \sum_{n_1=0}^{n_c} p(n_1 | 1.3\text{x}10^{-4})$$

where n_c is the greatest integer for which

$$n_c \leq (1.95\text{x}10^{-4})n$$

Type II error:

the probability that a single estimate $\hat{\zeta}$ will not exceed the upper control line when, for the last 12 months, ζ equalled 2.6×10^{-4}. Thus:

$$\text{Prob(Type II error)} = \sum_{n_1=0}^{n_c} p(n_1 | 2.6\text{x}10^{-4})$$

An ideal control procedure would have very low probabilities for both types of errors. As noted earlier in Table 1 of the body of this report, these probabilities are sensitive to total traffic count. With a sample size of 30000 (which could easily occur in a 6-month sample), both errors probabilities are near 20% for zeta, which is unacceptable. Plots of the probability of rejection (exceeding the upper control line) for samples of sizes n = 45000, 60000, and 75000 are shown in Figures 5 and 6. Note the relatively small chance of rejection near the MNPS and relatively large chance near twice the MNPS. As the sample size increases, the rejection profile becomes steeper and thus more desirable.

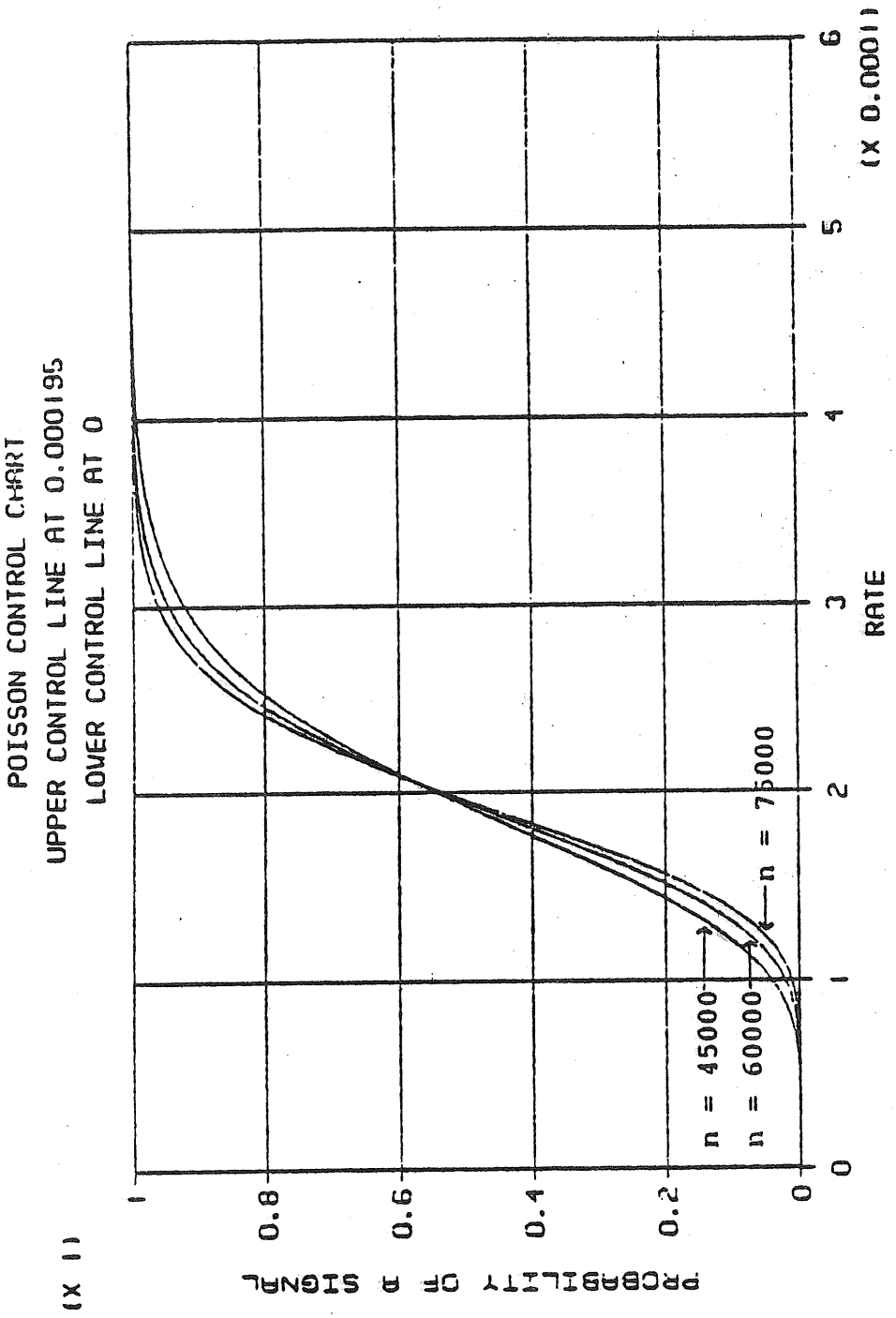

Figure 6

Probability of a Signal for Proposed Zeta Control Chart as a Function of True Error Rate

Why not then move toward an estimate based on 24 months rather than 12 months? The major reason is that the response of the control procedure becomes more sluggish. This is best illustrated by supposing that the system is in compliance with the specification until some point in time t_1, at which point it changes. For purposes of illustration, we will consider a step change from 1.3×10^{-4} to 2.6×10^{-4} at time t_1, given by:

$$\zeta(t) = 1.3 \times 10^{-4} + 1.3 \times 10^{-4} \, I(t-t_1)$$

where

$$I(t-t_1) = \begin{cases} 1 \text{ if } t \geq t_1 \\ 0 \text{ if } t < t_1 \end{cases}$$

and a similar change for eta. Other types of changes, such as gradual increases, would yield similar comparisons.

Figures 7 and 8 show that the 12-month estimate has a much higher probability of rejection over the initial 18 months. Although eventually surpassed by the 24-month estimate, it is superior over a very critical period. The 24-month estimate is felt to be too slow to be operationally useful.

Location of Control Lines

The upper control lines have been located at 1.5 times the specification. This is based on a desire to balance the Type I error at the MNPS and at the Type II error at

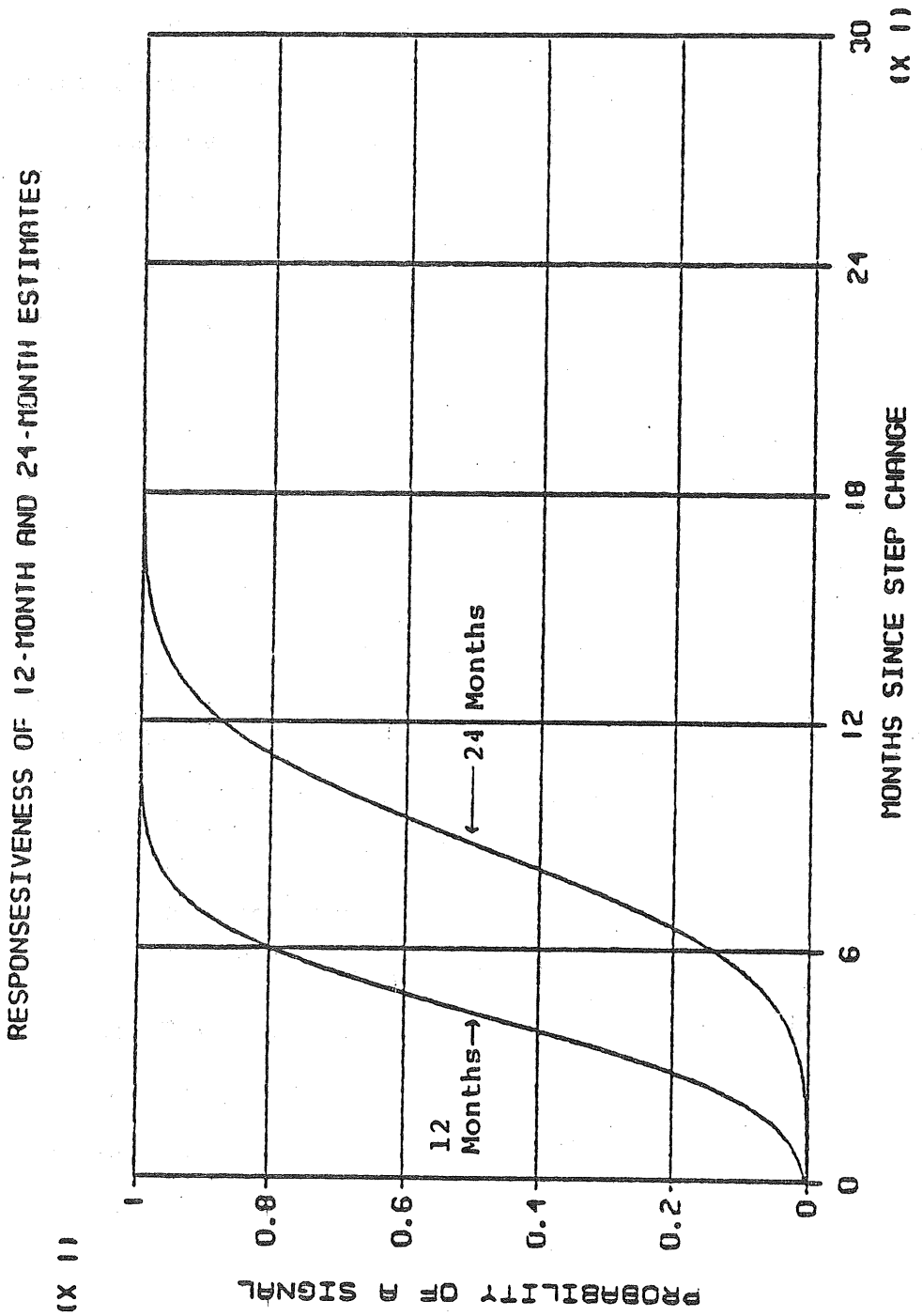

Figure 7

Responsiveness of Eta Control Chart to Step Change from 5.3×10^{-4} to 10.6×10^{-4}

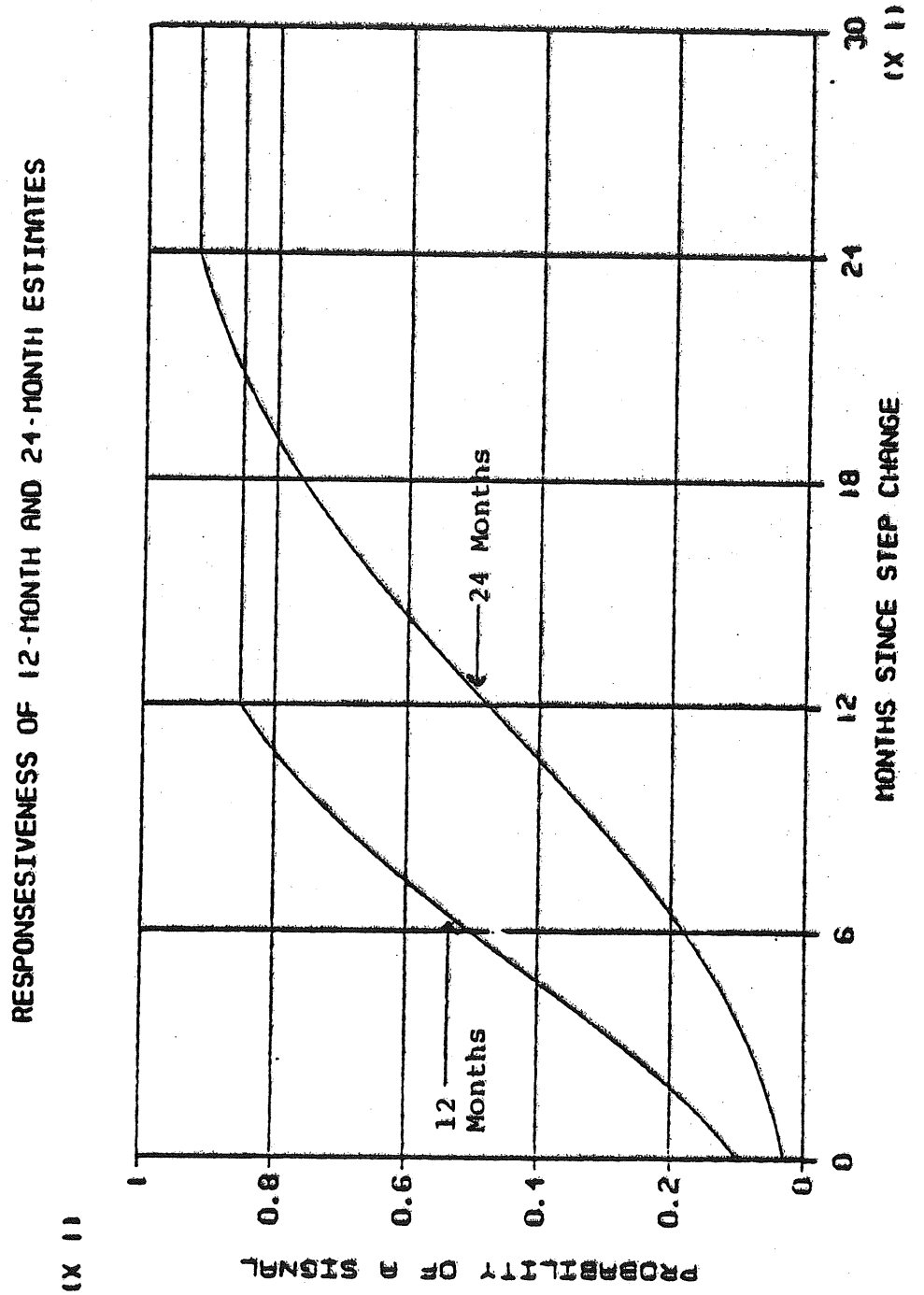

Figure 8

Responsiveness of Zeta Control Chart to Step Change from 1.3×10^{-4} to 2.6×10^{-4}

twice the MNPS. In the case of eta, both error probabilities are very small. For zeta, the probabilities are considerably larger. However, to bring the Type I error down to a level such as 5% at a traffic count of 60000 would mean raising the control line, causing an undesirable increase in the probability of a Type II error and a decrease in the speed of response to any real change above the MNPS.

Comparison with Sequential Sampling Scheme

The control procedures proposed are based on the same assumptions regarding the nature of large errors, i.e. that their occurrence can be represented approximately with a Poisson distribution. Further, the placement of the control lines is based upon Type I and Type II errors at the MNPS and twice the MNPS, respectively. At one point, it was proposed to use the sequential sampling charts, which were originally prepared to decide whether reduction to 60 n.m. should be implemented, as a day-to-day device to assess continued compliance. A comment on the inappropriateness of such a procedure is in order.

The sequential procedure is designed to make a single decision between two hypotheses, such as:

$$H_O: \zeta = 1.3 \times 10^{-4}$$
$$H_A: \zeta = 2.6 \times 10^{-4}$$

Data is accumulated until sufficient information is obtained to choose between the hypotheses. In the current situation, decisions are made repeatedly on a routine basis to determine

whether or not the system remains in compliance with the specification of 1.3×10^{-4}. If one tried to use the sequential sampling charts repeatedly using only the last 12 months data, updating them every month, a specific error pattern which fell in the accept region when it first arose could, with no further errors, eventually enter the reject region. The procedure is simply not meant for routine monitoring.

References

NAT/SPG (1981) "Monitoring Navigational Performance in the North Atlantic (NAT) Region", NAT/SPG 18 - WP/25, presented by the USA.

Johnson, N.L. and S. Kotz (1969) Discrete Distributions, Houghton-Mifflin Co., Boston.

Agenda Item 2 : Review of the situation regarding longitudinal separation in the NAT Region.

2.1 Under this Agenda Item, the Group briefly reviewed the situation since the reduction of the longitudinal separation minimum within NAT MNPS airspace from 15 minutes to 10 minutes. It was found that no significant problems or losses of separation have been experienced since. A simulation exercise with regard to the oceanic/domestic airspace interface, carried out by Eurocontrol, indicated that airspace congestion problems could arise in the summer peak period in the United Kingdom. This situation will be kept under continuous review and appropriate action will be taken as necessary.

2.2 With respect to the mathematical-statistical aspects of longitudinal separation, the Group recalled that, at its Eighteenth Meeting, a paper was presented on longitudinal separation accuracies utilizing data that had been collected for the NAT Traffic Forecasting Group (NAT TFG). The result of this analysis had been roughly equivalent to that obtained by the United Kingdom in an extensive study carried out two years previously. A similar analysis was carried out using the 1981 NAT TFG data which showed a 10% increase in standard deviation. However, the input data contained a number of suspected inaccuracies, which were due to a number of reasons, such as the use of estimated times in some cases, re-clearances of flights by ATC when entering radar-coverage, modification of Mach-number when under radar control, etc.

2.3 In view of this, the Group was unable to reach any conclusions regarding longitudinal collision risk on the basis of the data. The exercise reaffirmed, however, that, if any future studies of this nature were to be conducted, this should be done with data collected in line with the specific requirements of the purpose and that specific guidelines would then be needed for the monitoring of achieved longitudinal separation between pairs of aircraft.

2.4 With respect to this latter question, doubt was expressed as to the need for continued specific monitoring of longitudinal separation. The Group re-affirmed its views expressed at NAT SPG/18 that such monitoring was inherent in the conduct of air traffic control which intervened upon detection of erosion of longitudinal separation below prescribed minima (NAT SPG/18 Summary, para 2.3.7 refers). To ensure that all cases of significant erosion of separation were drawn to the attention of the Group, provider States were requested to notify any cases where longitudinal separation between pairs of aircraft was found to have eroded by 3 minutes or more below the established minimum (10 minutes) together with the underlying reasons, if possible, to the United Kingdom for inclusion in the routine monitoring reports. No reports have been received.

2.5 In this connexion, the question was raised regarding the provision of 10 minutes longitudinal separation between MNPS aircraft operating for part of their flight within NAT MNPS airspace, while still outside of this airspace. It was confirmed that this separation was, in fact, applied without difficulty, e.g. for flights between the West coast of the USA and Europe. Application of different longitudinal separation minima to such flights while still outside MNPS airspace would create unnecessary ATC problems, would penalize some of the flights and would defeat the purpose for which the 10 minutes longitudinal separation minimum was introduced in NAT MNPS airspace (increase of system efficiency).

2.6 Finally, the point was made that pilots should maintain their assigned Mach number in domestic airspace after leaving the OCA until such time as an authorization for a change has been obtained from the appropriate ATC unit. In some cases, erosion of longitudinal separation occurred when flights changed speed upon reaching radar coverage or entering domestic airspace. It was agreed that States should clearly indicate in their aeronautical information publications that a clearance must be obtained in all cases from ATC before adjusting assigned Mach-number.

CONCLUSION 19/2 - CONTINUED USE OF 10 MINUTES LONGITUDINAL SEPARATION

That the use of 10 minutes longitudinal separation under the conditions specified in the NAT RAC SUPPS be continued.

Agenda Item 3 : Review of progress of studies regarding the possible future introduction of composite separation (30 NM/1000 ft) in the NAT Organized Track Structure.

3.1 Introduction

3.1.1 Consideration of this item was conducted under the following aspects :

a) mathematical statistical considerations;

b) cost-effectiveness considerations;

c) practical operational questions related to the implementation of this type of separation.

3.2 Mathematical statistical considerations

3.2.1 The Group had discussed the possibility of introducing composite separation in MNPS airspace of the NAT Region at its 18th Meeting and had agreed that preparatory work was required both in the operational and mathematical statistical fields regarding the use of this separation (Conclusion 18/5 refers).

3.2.2 First results in this respect were now available and it was found that if

a) lateral occupancy would not increase with the introduction of composite tracks; and

b) lateral navigational performance would be as observed during the summer of 1981,

it appeared that with the introduction of composite separation, the risk would continue to meet the target level of safety.

3.2.3 In considering the lateral occupancy it was felt that it would be prudent during any implementation of composite separations to ensure that initially any composite tracks should be additional to the normal number of rectangular tracks, i.e. establishment of one or two composite tracks through the busiest core of the OTS. This would minimize the risk of an unforeseen rise in lateral occupancy. After some experience of operating such a system, it might prove possible to relax this constraint. During the period of implementation of composite separation, the achieved lateral and diagonal occupancies would need to be monitored.

3.2.4 In considering the lateral navigation distribution to be used in the risk assessment, two distinct points of view emerged. The first was based on the argument that achieved (observed) performance was now sufficiently good to ensure that the target level of safety would be met. Provided a monitoring scheme was designed and implemented to detect any significant change in achieved navigation performance, composite separation could be introduced. Should the performance deteriorate after implementation of composite separation, it might be necessary to revert to 60 NM rectangular separation on the basis that navigation performance still met the MNPS but was not sufficient to sustain composite separation.

3.2.5 If this approach were adopted then the achieved navigation performance indicated by the Summer 1981 study was sufficiently good to ensure that the risk assessment will not be sensitive to reasonable changes in the vertical overlap probabilities and diagonal occupancies. Exact values are therefore not required.

3.2.6 The second point of view suggested that no changes to separation standards should be made which would require a better navigational performance to be achieved than that implied by the present MNPS criteria. Thus even if current achieved performance were to deteriorate in future, 60 NM lateral separation could still be used provided that the MNPS criteria continued to be met. Safety assessment of composite separation should be based on the same assumption and methodology from which the current MNPS criteria for 60 NM spacing were derived, thus deriving a new set of criteria for the composite separation (a reduction of the standard deviation as the most likely consequence).

3.2.7 In conclusion, the Group found that :

a) If the safety assessment of 30 NM/1000 feet composite separation was based on current achieved lateral navigation performance, the introduction of composite separation would not cause current safety levels to deteriorate i.e. the target level of safety would be met. Monitoring of navigational performance for this type of separation together with occupancies would be required.

b) If new MNPS requirements were to be established to support a 30 NM/1000 feet composite separation, a re-examination of certification requirements, monitoring requirements and assessment techniques would be necessary.

3.3 Cost-effectiveness considerations

3.3.1 The Group was presented with a detailed analysis of possible cost savings resulting from the introduction of composite separation within the NAT OTS. The study took into account a number of significant factors which had not been included in previous studies on this subject, such as the effects of meteorological forecast errors, of the incidence of step-climb and of changes in the preference for re-clearance at oceanic entry.

3.3.2 The study indicated that best results might be achieved from a change to composite separation if it were used to increase the number of tracks in that part of the system where the expected traffic density was highest.

3.3.3 It suggested that further important factor would be the order of preferences for re-clearance at oceanic entry. If re-clearance is necessary, aircraft should prefer a change in track rather than in flight level which, from an economical point of view, would be the better option in a composite system. This could possibly lead to a better distribution of traffic in the system and facilitate step-climb.

3.3.4 The study concluded however that, even with these assumptions, the estimated gain from a change from the present to a composite system will be modest, amounting to not more than £1.2M per annum at current traffic levels (which are not expected to increase in the near future). This represents about 0.1% of the direct operating cost of trans-atlantic flight operations. Also, the improvement will be confined to aircraft using the OTS.

3.4 Practical operational questions related to implementation

3.4.1 When discussing practical operational questions related to the implementation of composite separation, the Group felt that, although this might not happen immediately, an increase in capacity in the NAT OTS could result in a consequent increase of traffic density which might cause ATC problems in domestic airspace at either end of the NAT Region. In any case significant bunching of traffic had to be expected within more limited volumes of airspace at the NAT entry and exit points which would certainly cause problems for ATC to integrate flights into the domestic ATC System.

3.4.2 This problem was expected to be particularly serious in the New York OCA due to the high amount of crossing traffic which had to be accommodated between the USA and the Caribbean area. It appeared that this situation would very probably lead to traffic flow restrictions with all their negative consequences upstream.

3.4.3 In addition it was pointed out that the problem of traffic crossing or joining OTS would become even more difficult to resolve than is the case at the present time since a rectangular OTS was more "permeable" than a composite system which carried traffic in a much more solidly packed manner. In all probability it would only be possible to cross either above or below an OTS which was based on composite separation.

3.4.4 Finally, it was pointed out that the technological progress was advancing rapidly in certain fields (e.g. collision avoidance systems, etc.) which may have a future impact on NAT flight operations and might well lead to situations where the introduction of composite separation would no longer be required to achieve the benefits expected from it.

3.4.5 Considering that the present NAT System was digesting two major changes introduced only recently in the Region (reduction in lateral and longitudinal separation standards), the Group felt that it was not advisable to introduce yet another modification for some time. It was felt that before separation standards were further reduced, one should make efforts to improve the situation under the existing conditions so as to achieve maximum economical and operational benefits. As an example, arrangements and procedures covering step-climb could be improved both as far as coordination on the ground was concerned as well as arrangements necessary at the flight deck.

3.4.6 In the light of the above, the Group agreed not to pursue the question of the introduction of composite separation in the NAT MNPS airspace with any particular urgency at this time. It nevertheless agreed to retain the subject on its work programme and to consider the matter on future occasions as required. Further work on the subject was desirable and this might show that the problems mentioned above could be overcome.

Agenda Item 4 : Determination of possible improvements to the NAT Organized Track Structure on the basis of results achieved at a special meeting on that subject held in London in October 1981.

4.1 Introduction

4.1.1 In considering this Item, the Group dealt with the following topics :

a) improvements in the traffic flow arrangements for Westbound NAT flights;

b) improvements to the NAT ATS system; and

c) the datum line technique.

4.2 Improvements in the traffic flow arrangements for Westbound NAT flights

4.2.1 The Group was informed that following agreement between the United States and Canada revised procedures were introduced on 21 April 1982 to optimize the Westbound flow of traffic. This improvement was possible due mainly to a relaxation of restrictions in the United States. The representative of IATA expressed appreciation to the States concerned for the introduction of these improved procedures which would be of considerable benefit to operators.

4.2.2 The United Kingdom for its part had established a NAT flow regulator position and had published details of the procedure to be followed by flights subject to flow regulation to obtain approved slot times for entry to Shanwick OCA.

4.2.3 While on this subject, the Group wished to place on record its appreciation for the invaluable assistance provided by the Air Traffic Flow Management Unit Paris (CORTA) in the regulation of NAT traffic flows during the difficult period that had existed over the past eight months.

4.2.4 A question was raised regarding the possibility of re-introducing flexible routings for north/south traffic in the New York OCA which had been suspended in the light of the current difficult situation in the United States. The Member of the United States advised that the matter would be kept under review and a resumption of the flexible operation would be considered as soon as the situation improved.

4.3 Improvements to the NAT ATS system

4.3.1 The Group was informed that following a NAT ATS Improvement Meeting which had been held in London in October 1981, a number of minor modifications in the NAT ATC system, intended to provide in the short-term, at little or no cost, improvements in operational efficiencies with potential economic benefit to NAT operators. While the period available to analyze the results of these changes was limited, they appear to have been successful.

4.3.2 Early indications suggest that further improvements along similar lines are possible. The Group therefore accepted the following points for further consideration :

a) that the number of tracks within the OTS should be kept to a minimum compatible with operational requirements;

b) that the valid hours of the OTS be kept as short as practicable;

c) that the datum line technique might be extended to other areas of the NAT Region;

d) that where possible such changes be introduced prior to peak traffic periods;

e) that States concerned monitor the operation closely to ensure that these proposals continue to meet operational requirements and provision be made for input from user groups in this regard;

f) that States concerned continue to record and analyze appropriate traffic statistics;

g) that, in consultation with affected OACs, due consideration will be given to joining and crossing traffic when establishing the OTS and extending the datum line technique.

4.3.3 The Group therefore agreed on the following Conclusion :

CONCLUSION 19/3 - NAT ATS IMPROVEMENT

That all NAT OACs co-ordinate as necessary to introduce as soon as practicable further improvements to the NAT ATS.

4.4 The datum line technique

4.4.1 The representative of IATA was thankful for the efforts being made to improve the NAT ATS system and more especially with the wider opportunities for random flight planning. The use of the datum line technique was not however fully understood in airline flight planning departments and there was a need to provide some information on the matter for the guidance of those concerned.

4.4.2 The Group therefore developed guidance material regarding the application of the datum line technique as contained in the Attachment to this Item. It was further agreed that this material should be included in the NAT MNPS Airspace Operations Manual at the next suitable opportunity.

ATTACHMENT
to Item 4

GUIDANCE MATERIAL ON APPLICATION OF DATUM LINE TECHNIQUE

1. Datum line technique is a method utilized in the NAT Region to assist at the flight planning stage by delineating in advance a block of airspace in which flight level(s) not appropriate to direction of flight can be used. Normally this is done in order to accommodate a peak flow of aircraft operating on random routes.

2. In the Gander/Shanwick OCAs the technique allows for improved utilization of airspace laterally clear of the Organized Tracks during the main traffic flows and operates as follows :

a) Normally an additional level laterally clear of the OTS as defined by datum line would be made available :

- during hours of night OTS ..... Eastbound FL 350
- during hours of day OTS ..... Westbound FL 330

b) Operators are encouraged to flight plan as follows :

i) in accordance with the OTS, or

ii) a route to join an outer track of the OTS, or

iii) a random route to remain clear of the OTS.

Note : Nothing in the preceeding paragraphs prevents operators from flight planning across the OTS. However, operators should be aware that whilst ATC will make every effort to clear random traffic across the OTS at published levels, re-routes or changes of flight level may be necessary during peak OTS traffic periods.

c) In order to ensure a smooth transition from night to day tracks and vice versa, it is recommended that random flights crossing 30W Eastbound within the hour preceeding the onset of the day tracks or crossing 30W Westbound within the hour preceeding the onset of the night tracks, flight plan to join a track of the OTS at or beyond 30W in accordance with the flight levels published in the OTS message, or flight plan to remain clear of the OTS.

d) Outside the hours of the OTS and the transition period as defined in c) above, operators are encouraged to flight plan a random route at flight levels appropriate to the direction of flight.

Valid April 1982

Agenda Item 5 : Review of performance data of aircraft equipped with integrated dual-inertial, single-Omega navigation equipment.

5.1 At its 18th Meeting, the NAT SPG had briefly discussed results of trials with the use of an integrated, dual-inertial, single-Omega aircraft navigation system carried out by Pan American Airways. The information available had appeared promising and the Group agreed to undertake further work on this subject (NAT SPG/18 Summary, para 6.2 refers).

5.2 The Member of the USA now informed the Group that the person charged with further detailed work on the subject had become ill and the desired progress had therefore not materialized. Nevertheless, the USA would continue work in this field and expected to retrieve navigation data from PAA and to correlate it with data on actual position information of the flights concerned which was available from the United Kingdom. He hoped that the outcome of this activity would become available for the next Meeting of the Group.

5.3 In this connexion, IATA pointed out that it was still considerably interested in the subject. It was also noted that an Omega Seminar would be held soon in the USA. The Member of the USA agreed to monitor the activities at that Seminar on behalf of the Group and to report on any essential matters arising.

Agenda Item 6 : Review of the situation regarding the introduction of automated data processing in Oceanic ACCs in the NAT Region.

6.1 Introduction

6.1.1 The Group reviewed the question of the introduction of automated data processing in Oceanic ACCs under the following two aspects :

a) present situation and short term future developments in the provision of automated data processing in NAT OACs;

b) general problems related to the compatibility of automated data processing systems in the field of procedures, software programmes, applications, etc.

6.2 Present situation and short term future development

6.2.1 The Group noted that, on various occasions in the past, concern had been expressed as to the need for compatibility between automated data processing (ADP) systems used by NAT OACs and as to their development on a systems basis. In this connexion the Group reviewed latest information provided with respect to the present state of development in the field of ADP in the various OACs of the Region, and it was found that all of them had plans in this respect and the implementation ranged from actual use of ADP in some of the centres to planned introduction of automated equipment to commence in the very near future and extending well into 1985 when general use of ADP by all Units was expected.

6.2.2 Considering that the capabilities offered, or intended to be offered, include digitized radar data processing, automated inter-centre communications, automated flight plan data processing, conflict prediction and automated data transfer, it is obvious that efforts will have to be made to ensure compatibility between the various systems intended to be used. The fact that, of necessity, automation is taking place in phases and on different time scales throughout the Region, is in itself not necessarily a drawback, provided that co-ordination takes place during all stages of development. This was particularly important with respect to the compatibility of codes, transmission speeds and message formats to enable computer to computer transfer of data when that stage is reached in the implementation plan.

6.2.3 With this in mind, the Group agreed that provider States involved in the phased implementation of OAC automation should ensure a free exchange of information related to their plans to enable any compatibility problems to be detected and resolved at an early stage. Similarly, whenever changes are to be introduced after implementation of automation, the States concerned should liaise with adjacent OACs to ensure that full advance information is provided and co-ordination is effected. In this connexion, the Group recalled NAT SPG Conclusion 17/13 which covered this matter and was still fully applicable.

6.3 General problems related to the compatibility of automated data processing systems

6.3.1 Although at the present time only some of the OACs were using ADP equipment, one particular problem came to light which was related to the direct insertion of flight plans into the computers concerned. It was found that still a very high percentage of flight plans were not completed in accordance with prescribed formats which vary considerably due to the options available in the ICAO standard flight plan form. They are therefore rejected by the computer and require manual handling as a consequence. In view of an expected expansion of the use of ADP equipment by OACs, this problem would take on and increasing amount of importance in the future.

6.3.2 There were various reasons for these problems which were related to the great number of personnel who had to file and submit flight plans and were not necessarily specialized in detecting format defaults before transmission. In addition, it was felt that available instructions were not always entirely clear or varied from State to State. This was particularly so with respect to the need to file FIR boundary estimates, the way of describing the planned route of the flight as well as the use of Field 18 of the flight plan. It was therefore felt that States concerned should develop and publish commonly agreed clear, unambiguous and uniform instructions in this respect.

6.3.3 On the subject of compatibility of the various ADP systems used, it was felt that this would also take an increasing significance as the introduction of automation expanded in the NAT Region. This was particularly so in the context of conflict prediction, alert and perhaps resolution. It was highly desirable that ADP systems used by the various OACs should use software developed along identical interpretations of the application of separation standards in order to avoid adjacent ADP systems differing on whether or not a conflict does indeed exist in a given situation. It appears necessary, therefore, to undertake a general review of the current criteria in the application of separation minima by all OACs concerned.

6.3.4 A matter directly related to this problem was the use of MET information by different OACs obtained from different sources. It was obvious that the use of differing values for forecast wind, temperature, etc. would create different predicted traffic pictures in the various computers and could lead to conflict alert upon transfer of flights between automated OACs.

6.3.5 In view of the general developments towards the introduction of ADP in the NAT Region, the Group felt that urgent action was required to develop guidelines to be used by the States concerned to maximise the necessary compatibility and it therefore agreed to include this item for special review in its work programme.

Agenda Item 7 : Review of developments regarding crossing and joining traffic in the NAT Region.

7.1 Introduction

7.1.1 The Group discussed under this Item the following subjects :

a) flight levels available for aircraft crossing the OTS;

b) longitudinal separation to be applied to aircraft joining a track of another aircraft

7.2 Flight levels available for aircraft crossing the OTS

7.2.1 The Group was presented with the results and analysis which had been made by Canada of the flight level usage in the OTS with the Gander OCA. The objective of the study was to assess whether the vertical dimensions of the OTS could be reduced to any extent to permit more economical fuel efficient profiles for traffic crossing or joining the main OTS or to permit a wider use of random flight planning.

7.2.2 The analysis showed, inter alia, that the use of FL 310 within the track system was relatively low, especially during the period of the Eastbound flow. It therefore appeared that FL 310 could be made available on a more regular basis for crossing and joining traffic.

7.2.3 In the ensuing discussion it was pointed out that, although the aircraft concerned could confidently anticipate clearance to preferred flight levels on a tactical basis, it was still not possible to reserve any flight level permanently for crossing traffic. The Group emphasized that, in flight planning, operators should be cogniscent of the fact that aircraft concerned might have to cross or join the OTS at other than their preferred flight levels or be re-routed.

7.2.4 During the discussion, the representative of Spain, while he appreciated the measures taken so far to improve the situation, pointed out that, in his view, since the implementation of the OTS, the system had been working in some discriminating way by giving better possibilities to the main traffic flow in detriment to the one proceeding to/from or overflying the Iberian Peninsula.

7.2.5 Taking that into consideration, the Group agreed that the States concerned would continue to make every effort through their OACs to permit, on a tactical basis, random traffic to cross the OTS at economical flight levels, considering that only a small number of flights are involved, which affected daily the same operators.

CONCLUSION 19/4 - PROCEDURES FOR CROSSING AND JOINING TRAFFIC

That States concerned continue their efforts to improve the procedures allowing flights to join and cross the NAT OTS at desired flight levels.

7.3 Longitudinal separation to be applied to aircraft joining a track of another aircraft

7.3.1 The discussion on this subject was based on a paper presented by the Member of the United Kingdom in which it was pointed out that the Group in its past consideration of the reduction of longitudinal separation in NAT MNPS airspace to 10 minutes had not addressed the minor but significant case of the longitudinal separation to be applied to an aircraft joining a track at other than at the track entry point.

7.3.2 When 15 minutes had been the minimum longitudinal separation, a separation of 20 minutes could be applied in the case of an aircraft joining an established track other than at the track entry point. This gave an additional 5 minute buffer which took into account such considerations as the MET conditions affecting the aircraft concerned which could have been different from those experienced by other aircraft on the track it was joining. It therefore appeared logical to apply the same criterion in the new 10 minutes longitudinal separation environment and consider a reduction in this type of separation from 20 to 15 minutes.

7.3.3 In the discussion, it was proposed that the use of 15 minutes longitudinal separation would be applied to aircraft joining one of the tracks of the OTS. The Group believed that with the growing use of random flight tracks, any new procedure would of necessity have to be applied in the whole of the MNPS airspace rather than be restricted to situations where an aircraft was joining one of the tracks of the OTS. Moreover, it would also be necessary to ensure that the Mach number technique was applied between all the aircraft concerned.

7.3.4 In the light of these discussions the Group accepted that the 15 minutes longitudinal separation may be applied in the case of aircraft joining a track in MNPS airspace and other aircraft established on that track and developed an appropriate proposal for amendment of the relevant Regional SUPPS.

CONCLUSION 19/5 - AMENDMENT TO THE NAT REGIONAL SUPPS

a) The NAT Regional SUPPS regarding longitudinal separation (Doc 7030/3-NAT, Part I, para 7.2) be amended as follows :

(i) Add the following new para 7.2.1 2 b) :

"b) 15 minutes between turbojet aircraft joining the same track, provided that the aircraft meet the Minimum Navigation Performance Specifications (MNPS) and operate wholly or partly in MNPS airspace, and that the Mach number technique is applied";

(ii) Renumber the existing para 7.2.1 2 b) as 7.2.1 2 c);

(iii) Renumber the existing para 7.2.1 2 c) as 7.2.1 2 d) and change the text of sub-para 1) to read as follows :

"1) turbojet aircraft not covered by 2 a), b) and c) above";

b) The Member of the United Kingdom take the necessary action within his Administration to present to ICAO a formal proposal for amendment of Doc 7030.

Agenda Item 8 : Review of progress of studies regarding the provision of improved MET information in the NAT Region.

8.1 Introduction

8.1.1 Under this Agenda Item the Group dealt with the following subjects :

a) a study made by the United Kingdom on the effect of MET forecasting procedures and errors on NAT flight planning and the establishment of the organized track system;

b) a study made by Canada regarding AIREP reporting;

c) procedures for the Shannon HF VOLMET broadcast;

d) contents of the three NAT HF VOLMET broadcasts;

e) referencing of SIGMET information;

f) progress with the US Total Ozone Measurement System (TOMS) Programme.

8.2 Reporting on the studies

8.2.1 The study made by the United Kingdom compared minimum time tracks (MTTs) compiled for routes between 12 city pairs between Western Europe and Eastern Canada/USA, based on the forecasts produced by the Bracknell area forecast centre 24 hours and 12 hours before the time T with those, established on the basis of the 250 mb analysis at time T. The study had, for the time being, been limited to Westbound flights and to the 250 mb level winds and temperatures.

8.2.2 The initial outcome of this study, prepared for 12 days evenly distributed over a six-month period, showed that the time differences between the MTTs averaged over the 12 days, were small for each of the 12 ~~months~~ routes. The 12-hour forecast produced only slightly better results than the 24-hour forecast. On an occasional day the deviations in times could, however, be substantially larger.

8.2.3 The study is intended to be continued and to take into account forecast winds for more than one level; it will also be extended to Eastbound OTS tracks.

8.2.4 In the context of this study, it was stated that the computer model used at Bracknell to prepare the forecast charts, would produce more reliable 24-hour forecasts if the actual upper air chart on which it was based, were better. In order to improve the quality of the actual charts it was desirable to receive AIREPs better distributed in space.

8.2.5 In this respect it was noted that some 40 % of the position reports now contain meteorological information which is normally related to longitudes of 20°, 30°, 40° and 50° West. One carrier provided, additionally, meteorological information for the intermediate longitudes at 25°, 35° and 45° West. Bearing in mind that during peak hours (0300-0700 and 1400-1800) the HF air/ground communication system was heavily loaded, it was feared that an increased amount of additional AIREPs to be transmitted at intermediate longitudes was likely to saturate the system. It was, therefore, suggested to designate more aircraft required to include the MET section in their position reports, when operating at times outside these peak hours.

8.2.6 Furthermore, a better distribution of AIREPs would be obtained, also during peak hour periods, if one of the two aircraft per hour, currently designated to provide AIREPs, while operating in the OTS, would give the meteorological information for the intermediate longitudes.

8.2.7 In the light of the above, it was agreed that the United Kingdom and the United States should develop an agreed statement of MET requirements for AIREPs. On the basis of this statement the NAT provider States would study the matter of meeting these requirements, taking into account possible communication constraints during the peak hours.

8.2.8 It was also noted during the discussion that the full use was not made by some operators of the present NAT MET forecast contents, and that the use of "rolling" MET forecasts could improve flight time calculations. The representative of IATA undertook to examine these points and to report back to the Group.

8.3 Procedures for the Shannon HF VOLMET Broadcasts

8.3.1 The Group considered the proposal, originated by the MET Advisory Group of the EANPG, to amend the procedures governing the Shannon HF VOLMET broadcasts. The original procedures had been developed for the NAT HF VOLMET broadcast family as a whole (then consisting of the New York, Gander and Shannon broadcasts), but in view of the fact that, for all stations included in the Shannon broadcast, half hourly observations and 9-hour TAFs could be provided which were not available for the New York and Gander broadcasts, common procedures are not practical. The Group accepted that the revised procedures for the Shannon HF VOLMET broadcast should replace the current procedures (Attachment to this Agenda Item refers).

8.3.2 When considering the topic of the Shannon HF VOLMET broadcast, the Group noted that, since 1970, the requirement for this broadcast was contained in the EUR Regional Air Navigation Plan Publication despite the fact that it primarily served Eastbound NAT traffic. It agreed that the requirement should better be contained in the NAT/NAM/PAC Regional Air Navigation Plan Publication. No change in the current use of HF channels would be required.

8.4 Contents of the New York, Gander and Shannon HF VOLMET broadcasts

8.4.1 With respect to the contents of the three NAT HF VOLMET broadcasts, IATA stated that, since their establishment, operations across the North Atlantic had expanded, covering destinations and alternate aerodromes in the CAR and NAM Regions and a considerable number of airports in the EUR Region. The broadcasts would, therefore, have to provide MET information for several additional aerodromes. The users of the broadcasts had further expressed the view that more emphasis should be placed on actual weather reports (METARs) with trend type landing forecasts rather than on aerodrome forecasts for longer time periods.

8.4.2 Currently, the New York and Gander HF VOLMET broadcasts share 60-minutes broadcast time each hour on a NAT HF family. Shannon has 50-minutes broadcast time on a EUR HF family. No expansion is therefore possible for the former two broadcasts and little only for Shannon. Unless new frequencies would be made available, no additional information could be accommodated, except by replacing part of the existing MET information (e.g. aerodrome forecasts). In this connexion, the Group was informed that a proposal for minor amendments to the programme of the Shannon broadcast was planned to be presented by a Scandinavian State in the near future.

8.4.3 From the above it appeared necessary to undertake a detailed study of the NAT HF VOLMET broadcast system to make it more useful. The fact that after February 1983 a new HF family would become available for the NAT Region, might be used to study the feasibility of separating the New York and Gander HF VOLMET broadcasts and, by extending each of them timewise, provide MET information for several more destinations and alternate aerodromes. IATA planned to consult with member airlines on their requirements for type of information and aerodromes to be included in these broadcasts.

8.4.4 In this connexion, the Group noted that the COM/MET Divisional Meeting (Montreal, April/May 1982) was expected to recommend the replacement of VOLMET broadcasts by OFIS broadcasts. This change, if implemented, would affect the number of stations contained in any broadcast because of the amount of additional information contained in an OFIS type message compared with that in present VOLMET broadcasts. It was agreed that this aspect would also be kept in mind in future work by the Group on that subject.

8.5 Referencing of SIGMET information

8.5.1 A brief discussion ensued on the subject of referencing SIGMET information geographically. For some time in the past, this had been done with reference to a zone-system which had later been replaced by references based on co-ordinates of latitude and longitude. While it appeared that the zone-system was somewhat simpler to apply in air/ground communications, it was found that aircrews did not always have related documentation available on board to determine the location of the various zones. Since States were able to provide SIGMET information in either reference system, it was felt that guidance was needed to determine the ultimate course of action. Since the specific requirements of IFALPA were not known at this time, the Group agreed that no changes to present practice (geographical co-ordinates) should be introduced at this time. This left the opportunity for IFALPA to make their preference known at the next Meeting of the Group, if required.

8.6 Progress with the US Total Ozone Measurement System (TOMS) Programme

8.6.1 A situation report was given to the Group concerning the TOMS Programme, which is intended, in part, to obtain a depiction of the jet stream by using satellite measurements of ozone distribution in the atmosphere. Several NAT States are being invited by NASA in the USA to participate in some phases of the research. The Group will be kept informed concerning the progress of this work.

ATTACHMENT
to Item 8

REVISED PROCEDURES FOR THE SHANNON HF VOLMET BROADCAST

1. Relevant SIGMET information or an indication of NIL SIGMET, as decided by the ATS centre concerned, should be broadcast in the time blocks allotted for this purpose.

2. If the ACC concerned does not indicate a need for SIGMET information to be included in the VOLMET Broadcast and all the elements of a broadcast have been transmitted in less than the 5 minutes allotted, remaining time should be used by :

a) repeating the first and possibly the second Routine Report, if there is time;

b) repeating the station identification if there is sufficient time for a) or at any time remaining after a).

3. If the ACC concerned indicates a need for SIGMET information to be included in a VOLMET Broadcast, that information should be broadcast at the beginning of the 5 minute time block concerned.

4. The aerodrome forecasts should be transmitted before the routine reports plus trend.

5. The aerodrome forecasts should cover a period of at least the next 6 hours.

6. The same order of stations in the broadcasts should always be maintained.

7. When data have not arrived from an aerodrome in time for a broadcast, the latest earlier material should be included in the broadcast, together with the time of observation.

8. The Shannon VOLMET broadcasts should be made in the English language.

Agenda Item 9 : Review of the HF communications situation in the NAT Region.

9.1 Introduction

9.1.1 Under this Item, the Group dealt with the following specific subjects regarding NAT aeronautical telecommunications :

a) routine review of the HF communications situation in the NAT Region;

b) review of abbreviations in Doc 8400;

c) position report format;

d) SELCAL;

e) use of addressee designators in position report messages;

f) provision of HF phone-patch facilities; and

g) developments with respect to HF data links.

9.2 Routine review of the HF communications situation in the NAT Region

9.2.1 The Group reviewed the results of the 1981 NAT HF data collection exercise which had been made in accordance with Conclusion 18/8 of the NAT SPG/18 Meeting. The arrangements for the data collection had been the same as for the 1980 collection, i.e. data related to three days when the alignment of the Organized Track System was northabout, central and southabout respectively. The dates selected were July 19 (central), July 26 (South) and July 31 (North). Data was received from all stations with the exception of Søndrestrom, where industrial action precluded participation. A DSB/SSB evaluation was not considered necessary, since a complete transition to SSB was expected, and did in fact take place, in February 1982.

9.2.2 A comparison of the communication traffic figures with those of 1980 showed a decrease in HF traffic (6939 position reports for the three days in 1981 as compared with 7521 for the same period in 1980). On the other hand, there was a marked increase in the use of GP/VHF overall in the NAT Region (22% over the 1980 figures), with the Gander and Reykjavik aeradio being the most affected (38% increase in the case of Gander and 17% in the case of Reykjavik). In the opinion of the Group, such an increase was due to more aircraft being within VHF coverage during the 3-day period.

9.2.3 The distribution of loading on the four HF families was found to be, overall, comparable to that recorded in the course of the 1980 exercise, apart from an overbearing on Family A (43.96%) on the morning of July 26. Again, this seemed to indicate that little use was made of the existing provisions for off-loading a given frequency Family by use of another appropriate Family, as set forth in the Regional Supplementary Procedures (cf. Doc. 7030/3 - NAT/COM-1, paragraph 1.1.1). Therefore, the Group confirmed the view previously expressed that action should be taken to encourage the practice of changing to less busy families of frequencies when circumstances so dictate, in order to make a better use of system capacity and to shorten message delay times. It was suggested that, in order to obtain a more rational spread of the message load, the New York station should be encouraged to make more use of Family B and Gander to make more use of Family D.

9.2.4 The distribution of traffic load on the various frequencies, as compared to that observed in 1980, showed no change in the 2 MHz frequency, a decrease in the 5 MHz and an increase in the 8 MHz and, to a lesser extent, in the 13 MHz order frequency. It was observed that the use of the 13 MHz order frequency had reached its maximum in connexion with the increase of sunspot activity, which made lower frequencies unusable on occasion. However, the inversion of such an activity was now expected to result in the use of 13 MHz reverting to its normal figure of about 13%. As in the case of the 1980 exercise, it was noted that certain frequencies carried substantially higher communication traffic than others.

9.2.5 Gander aeradio had the highest peak hour load of 78 reports. Shannon was a close second with 77 and 75 reports in two consecutive hours. The mean delay (*) overall was 3.15 minutes, which was a slight improvement on the 1980 figure of 3.35 minutes. However, somewhat higher delays than in 1980 were recorded at Shannon aeradio (3.36 minutes). In this regard, it was observed that, in the data collection exercise, no distinction could be made between genuine delays and "artificial" delays stemming from the repetition on HF of reports already transmitted on VHF. Generally speaking, the reasons for real delays were believed to be : (a) cockpit delays (between the time of passage over a reporting point and the time of transmission of the report), (b) the reluctance on the part of pilots to change to a secondary frequency when the primary frequency was busy and (c) failure to contact a second ground station when communications with the first selected station was poor due to propagation conditions.

(*) Delay is the time period which has elapsed between the moment an aircraft passes over a reporting point and the moment the HF ground station has completed reception of the corresponding position report. Mean delay is obtained by dividing the total delay of a number of messages by that number.

9.2.6 With regard to HF DSB/SSB transition, the Group agreed to put on record the related frequency changes affecting NAT communications. This is as follows :

a) on 1 February 1982 all NAT HF frequencies were changed to SSB (A3J) emission (Phase I of the programme);

b) on 18 February 1982 certain frequency changes were accomplished (Phase II);

c) transition to Phase III of programme is cheduled for 1 February 1983, as follows :

	Present	Feb. 1 1983 (0001 GMT)
NAT-A	2931	3016
	5610	5598
	8945	8825
	13306	13306
NAT-B	2987	2899
	5673	5616
	8889	8864
	13291	13291
NAT-C	2962	2962
	5638	5649
	8879	8879
	13306	13306
NAT-D	2868	2971
	5624	4675
	8910	8891
	11303	11279
	13291	13291
Comm. Freq.	17946	17946

NAT VOLMET

(New York and Gander)

3001	2905
5652	5592
8868	8870
13270	13270

9.2.7 On the whole, the results of the 1981 HF data collection exercise showed an even distribution of HF message traffic with no evidence of overloading and no immediate requirement to change the existing arrangements for traffic management. However, the Group considered it necessary to continue to monitor frequency loading distributions and delay times in order to avoid any unbalance of the communication system over the North Atlantic. It accordingly agreed that a new data collection exercise, similar to the one made in 1981, should be carried out in 1982, with the following provisions :

a) the dates should be selected preferably at the end of August 1982;

b) the returns should be provided to the United Kingdom for analysis by the end of October 1982;

c) the final report of the exercise should be made available for study to NAT SPG Members and COM experts concerned by the end of February 1983; and

d) the Søndrestrøm data (HF Family "D" and GP VHF) should be included.

CONCLUSION 19/6 - NAT HF DATA COLLECTION IN 1982

That a three-day NAT HF data collection be conducted in 1982 with the same arrangements agreed for 1981, noting that :

a) Ireland will co-ordinate the exercise and, in consultation with other participating States, select suitable dates;

b) States concerned will retain message data for July and August 1982 until the dates have been selected;

c) States concerned will send the results of the exercise to the United Kingdom by the end of October 1982 to the following address :

Civil Aviation Authority (CG2)
Room T 901
CAA House
45-59, Kingsway
LONDON WC2B 6TE

d) the United Kingdom will analyze the results and send the final report to the ICAO European Office for distribution to NAT SPG Members by the end of January 1983, and

e) Søndrestrøm data will be included.

9.2.8 Over and above its routine review of the results of the last NAT HF data collection exercise, the Group undertook to make a further analysis regarding the following areas :

a) frequency loading by station;

b) distribution of traffic on optimum frequencies;

c) delay times during peak periods.

9.2.9 In this regard, the Group noted that :

a) At no time was any one frequency overloaded (40 position reports per hour per frequency would indicate frequency overloaded). Off-loading procedures were available for use, had that condition been approached.

b) With the high sunspot activity affecting the use of lower family frequencies, utilization of two higher frequencies (8 and 13 MHz) by the network compensated and delay times and frequency loading were satisfactory. In this connexion, trials were reported to have been conducted in July and August 1981 at Gander on the use of the 17 MHz frequency, in view of its possible use during high sunspot activity for long-distance daytime communications. The results of the trials showed that there would be no problem in using the 17 MHz in the future, if and when propagation conditions so required, to reduce the load on the 13 MHz frequency.

c) Delay times during peak periods were improved over the last year and in fact it was noted that delay times at busy periods were less than those at low traffic times. (This was thought to be due to the lack of competition for frequency use on the part of the pilot).

9.2.10 In conclusion, it was found that the family and network principles continued to work well. It was estimated that there was approximately 30% spare capacity in the 4 family network. In addition, it was agreed by the Group that the three factors noted in paragraph 9.2.8 should be investigated after each data collection exercise and, further, that individual stations should conduct spot checks throughout the year, as necessary, in order to evaluate system efficiency.

9.2.11 A set of revised instructions for the conduct of annual HF data collection exercises was presented by the NAT SPG Member for Canada. These instructions are given at Attachment A to the Report on Agenda Item 9 for any ongoing action.

9.3 Review of abbreviations in Doc 8400

9.3.1 At its 18th Meeting, the NAT SPG had agreed that all communications stations should use exclusively the abbreviations and location indicators as shown in ICAO Docs 8400 and 7910 respectively (NAT SPG/18-Report para 9.3.3 and Conclusion 18/9 refer). It was since found, however, that the abbreviations contained in Doc 8400 were not sufficient to cover satisfactorily all requirements in day-to-day message exchanges between communications stations and OACs. As a consequence, the Group developed a list of additional abbreviations which were already used by certain stations and which should preferably be used generally by all stations in the system to avoid possible confusion.

9.3.2 Because of difficulties expected with a straightforward proposal for inclusion of these abbreviations into ICAO Doc 8400 the Group agreed not to propose an amendment of this document at this time, but to circulate this list amongst NAT provider States for use by communications stations in the NAT Region and adjacent affected areas. This list is contained in Attachment B to this part of the Report.

9.3.3 The Group also agreed to keep this list under review in the light of practical experience gained and to develop a comprehensive proposal for the amendment of Doc 8400 if this appeared to be required at some time in the future.

9.4 Position report format

9.4.1 It was reported to the Group that the contents of position reports transmitted from aircraft were in a number of cases not fully in compliance with the provisions set forth in the NAT Regional Supplementary Procedures (cf. Doc 7030/3 - NAT/RAC-5, para 4.2). While compliance with paras 4.2.1.4 and 4.2.2.2 of the above SUPPs was more than 90%, this did not appear to be the case with the provisions in para 4.2.1.1.

9.4.2 Noting that a number of factors may be responsible for this, the Group agreed that a further study of the compliance by pilots with the provisions of para 4.2.1.1 of Doc 7030/3 would be undertaken prior to the next meeting.

9.5 SELCAL

9.5.1 It was recalled that, according to NAT SPG Conclusion 18/10 c), any COM centre discovering an incorrect SELCAL code was to notify the error to the other OAC/COM centres concerned and to send a SELCAL fault report to the operator who originated the flight plan containing the incorrect code. It was reported to the Group that, based on this Conclusion, the station operations manuals had been updated and that the SELCAL procedures were satisfactorily applied. All ground stations were currently sending fault reports to offending airlines (117 fault reports had been sent by Shannon in 10 months).

9.5.2 However, it was reported that, on occasion, two aircraft with the same SELCAL code have been flying in the Region at the same time. This, concurrently with a similarity of callsigns, was recognized to be potentially a dangerous situation, since it might result in essential information, such as clearances, being transmitted to the wrong aircraft. The problem was recognized to arise from the present shortage of SELCAL codes, which made duplication of a given code sometimes unavoidable.

9.5.3 It was recalled that the problem of shortage of SELCAL codes was under active consideration by ICAO. A suggested amendment to Annex 10, providing for a considerable increase of the codes available, had been circulated among States for comments with a target date for replies set for 9 January 1982 (ICAO State letter N° AN 7/22 - 81/166 of 9 October 1981 refers). The target date of 1 January 1985 for the implementation of new equipment suitable to operate on the expanded stock of SELCAL codes had been suggested in the ICAO letter.

9.5.4 While appreciating that the above date had been selected on account of the worldwide implications of this problem, the Group wished to emphasize the urgency of a solution in the NAT Region. It was hopeful that ICAO would consider the possibility of expediting the implementation of the programme of expansion of SELCAL codes.

9.6 Use of addressee designators in position report messages

9.6.1 A particular problem was reported to arise, although not frequently, in those cases where a position report message was intended for AFTN delivery to an addressee that had not been allocated an ICAO 2-letter designator. According to Annex 10, Vol. II, paragraph 4.4.4.1.2.2, in such cases the Location Indicator of the place of destination should be followed by the ICAO 2-letter designator YY or YX and the name of the addressee should be included in the first item of the text of the message. This procedure appeared to be incompatible with the requirement to identify position reports by the prefix "POS" immediately before the aircraft identification.

9.6.2 In the opinion of the Group, this anomaly could be resolved by "manual" reprocessing of the message by the ground station, before AFTN retransmission to the addressee.

9.7 Provision of HF phone-patch facilities

9.7.1 The Group was requested to consider the requirement for the provision of phone-patch facilities on the ICAO NAT HF channels in the communication centres serving the OACs. It was intended that the use of any such facility would be requested by pilots or controllers in special circumstances. In fact, States already using phone-patch facilities confirmed that operational advantages are being gained by them.

9.7.2 The following examples of situations in which a pilot may request a phone-patch to the controller were given by IFALPA :

a) Flight operational problem - engine shut-down, decompression, unusual unforecast meteorological conditions, navigation system failure - which require an immediate change of level or track.

b) Medical problem - an acute illness on board which requires medical advice from the ground or requires immediate turnback or diversion.

c) Security - a hijack situation or a bomb threat which may require advice on bomb recognition and disarm procedures.

d) Interception - in the unlikely event of this happening, the pilot's ability to inform immediately ATC of his actions may avoid a serious conflict situation.

In support of the request, it was suggested by IFALPA that lengthy delays were experienced on occasion and that clearance request/response times might be reduced by use of a phone-patch facility.

9.7.3 The Group believed that, should such delays be considered critical, access to the HF equipment by the air traffic controller would be desirable. Nevertheless, it was felt that phone-patch facilities, if they were implemented, should be utilized only in situations of particular urgency, recognizing that other ATS messages might be delayed for the duration of and following the period in which the phone-patch would be used.

9.7.4 The Group was unable to conclude on this matter on the basis of the limited evidence available to it. It therefore agreed that those States, using HF phone-patch facilities should report on their experience with it, covering matters like frequency of use, circumstances of use, advantages gained and problems encountered, so as to assist the Group in further discussions on this subject at its next meeting. In addition, States experiencing difficulties as a result of the use of HF phone-patch facilities by other States, should provide information in this respect so as to enable the Group to assess the overall situation.

9.8 Developments with respect to HF data links

9.8.1 The Member for the USA provided the Group with latest information on developments in the field of HF data links. It was noted that ARINC was engaged in experiments to extend their VHF data link system technology to HF. A series of promising point-to-point tests between the West coast of the USA and Annapolis/Maryland had been carried out. In collaboration with American Airlines and Air Canada, preparations were now being made for flight testing during the third quarter of 1982. A further progress report in this respect will be made to the NAT SPG in due course.

NAT ANNUAL HF DATA COLLECTION

INSTRUCTIONS FOR COMPILATION OF ANNUAL RETURN

1. Count POSITION REPORTS only - and those positions reports where you are the station of read-back.

2. Prepare a table for your particular station, divided in hours for each frequency as shown in the Specimen at page 9-A-4. The time in the left hand 'hour' column refers to the time of receipt of the REPORT, not the time of the position. Hour 0000-0059 covers the period midnight to 0059, hour 0100-0159 the period 0100-0159, etc. You may use either the frequency letters or state the frequency in figures at the top of each column. Complete the table with hourly totals for all frequencies used during the Data Collection days.

3. When this table is complete, the two busiest frequencies should be determined as follows:

a) San Juan, New York, Santa Maria and Reykjavik

Choose the two frequencies which have the highest total of position reports for the whole 24 hours.

b) Gander, Shannon

Choose the two frequencies which show the heaviest total over a period of two to three hours.

Since this is a 'sampling' exercise, if the totals are very nearly equal, making choice difficult, it is not likely to make much difference which two are chosen.

4. All Stations

4.1 As shown in the Specimen at page 9-A-5, a table can be prepared for each of the two selected frequencies. Go through the hard copy for the two selected frequencies for the whole 24 hours, but remember - for position report messages only, and only where you are the station of read-back. Look at the time of receipt of the report and compare it with the time of the position, the difference being the time of delay. Insert a tick in the relevant place in the table, remembering that the time in the left hand 'hour' column refers to the time of receipt of the report, not the time of the position.

e.g.: Position Report received at 1405
Time of position 1355
Time difference 10 minutes

Therefore, tick the '10 minute' delay box for the period 1400-1459.

5. If the delay is more than 12 minutes, tick the > 12 box and note the actual delay in the 'Notes' column. If you receive a report at say 1401 and it refers to a position at 1402, tick the '-1' column. If the delay time difference relates to a domestic fix or to a light low level aircraft, include the tick in the appropriate column, but place an asterisk against the tick. This factor can then be taken into account if necessary in the analysis. If an occasional 'delay' of -2 minutes arises, you can annotate the tick in the '-1' column with, say, a + and note the actual 'delay' in the 'Remarks' column.

6. To obtain the mean delay for each hour, obtain the total delay of all reports for that hour, and divide by the number of reports. An example of this for the period 1300-1359 is shown in the Specimen at page 9-A-5.

2	reports of	1	minute delay	=	2
4	" "	2	" "	=	8
2	" "	3	" "	=	6
2	" "	4	" "	=	8
2	" "	5	" "	=	10
1	" "	8	" "	=	8
1	" "	10	" "	=	10
Total reports 14			Total delay		52 mins

Mean delay = 52 ÷ 14 = 3.7 mins

7. When the three forms are completed, send them to:

Civil Aviation Authority (CG2)
Room T901
CAA House
45-59, Kingsway
London WC2B 6TE

Retain the 'hard Copy' for the collection day for a period of three months from date of dispatch of the forms in case we wish to ask you for any additional information after the returns for the other stations have been examined.

8. If you have any information you wish to pass on (e.g. the hours) this can be written on the back of the form. If you have any queries while you are preparing the information, ask Shanwick (Ballygirreen) for advice, using the AFTN address EIAAYF. If they cannot supply the answer immediately, they will be able to contact the United Kingdom CAA Section (CG)2 and obtain further advice.

9. The data days will normally be in either July or August each year, and the decision on the date will be made early in September.

DISTRIBUTION OF POSITION REPORT BY TIME AND FREQUENCY

STATION GANDER

DATE: July 19/81

HOUR	QA	TA	VA	QB	TB	VB	QC	TC	VC	QD	TD	VD	YA	YC	HF TTL	127.9	127.1	126.9	VHF TTL.
0000-0059	-	1	1	2	1	-	-	3	-	-	6	-	-	-	14	1	6	8	15
0100-0159	4	3	-	2	6	-	1	2	-	-	6	-	-	-	24	-	19	14	33
0200-0259	9	10	-	4	5	-	5	4	-	-	7	-	-	-	44	-	21	30	51
0300-0359	6	10	-	12	6	-	4	5	2	-	5	1	-	-	56	-	15	24	39
0400-0459	6	7	-	11	7	1	5	11	-	-	3	-	-	-	51	2	4	54	60
0500-0559	3	13	1	9	9	-	4	7	-	-	5	-	-	-	51	3	17	5	25
0600-0659																			
0700-0759																			
0800-0859																			
0900-0959																			
1000-1059																			
1100-1159																			
1200-1259																			
1300-1359																			
1400-1459																			
1500-1559																			
1600-1659																			
1700-1759																			
1800-1859																			
1900-1959																			
2000-2059																			
2100-2159																			
2200-2259																			
2300-2359																			
TOTALS																			

DATE : JULY 19, 1981

POSITION REPORT DELAYS

FREQUENCY : 8854

STATION : GANDER

Delay times in minutes

HOUR	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	>12	Mean delay per hour	Notes
0000-0059																	
0100-0159																	
0200-0259																	
0300-0359																	
0400-0459																	
0500-0559																	
0600-0659																	
0700-0759																	
0800-0859																	
0900-0959																	
1000-1059																	
1100-1159																	
1200-1259																	
1300-1359			✓✓	✓✓✓✓	✓✓	✓✓	✓✓			✓		✓				52÷14 = 3.7	
1400-1459																	
1500-1559																	
1600-1659																	
1700-1759																	
1800-1859																	
1900-1959																	
2000-2059																	
2100-2159																	
2200-2259																	
2300-2359																	
TOTALS	0	0	2×1 =2	4×2 =8	2×3 =6	2×4 =8	2×5 =10	0	0	1×8 =8	0	1×10 =10	0	0			

ABBREVIATIONS FOR USE BY COMMUNICATIONS STATIONS

ACK	Acknowledge
AFM	Affirmative
ANS	Answer
APSG	After passing
APV	Approve, Approved, Approval
ARNG	Arrange
BFR	Before
CF	Change to ..... (Frequency)
CK	Check
CLG	Calling
CLRSU	Clears You
CMB	Climb
CRZ	Cruise
CTC	Contact
DEV	Deviation, Deviating
DIV	Divert, Diverting
E/B	Eastbound
FPR	Flight Plan Route
FR	Fuel remaining
HIER	Higher
HVY	Heavy
IMM	Immediately
LVE	Leave
LVL	Level
NBFR	Not before
NEG	Negative
NRH	No reply heard
PCD	Proceed, Proceeding
PCPN	Precipitation
PLVL	Present Level
PPX	Present Position
PSG	Passing
PX	Position
RCH	Reach, Reaching
RECLR	Recleared
RECLRSU	Reclears You
RERTE	Reroute
RL	Report Leaving
RLA	Relay to
RR	Report Reaching

RTE	Route
RTN	Returned, Returning
STD	Standard
UHDT	Unable Higher Due Traffic
UNA	Unable
UNAP	Unable to Approve
UR	You are
VCTY	Vicinity
W/B	Westbound
WT	Weight
X	Cross
XNG	Crossing

Agenda Item 10 : Review of the situation regarding proposed amendments to the NAT Regional Supplementary Procedures and the PANS RAC.

10.1 Introduction

10.1.1 Under this Agenda Item, the Group discussed the following three subjects :

a) the status of current proposals for amendment of the NAT RAC SUPPS ;

b) extension of MNPS airspace within CTA Reykjavik to the North Pole ;

c) inconsistencies in the terminology in the SUPPS regarding lateral separation.

10.2 Status of current proposals for amendment of the NAT RAC SUPPS

10.2.1 The Group was informed by the Secretariat of the situation with respect to the processing of current proposals for amendment to the NAT Regional SUPPS. This review covered the following :

a) a proposal to extend the area of application of 60 NM lateral separation (NAT SUPPS RAC/12)

b) the special procedure to be followed by aircraft in the event of inability to continue flight in accordance with the ATC clearance (NAT SUPPS RAC/13)

c) the provisions regarding the application of the Mach number technique (NAT SUPPS RAC/14).

10.2.2 At NAT SPG/18, the Group had developed the proposal in NAT SUPPS RAC/12 concerning the application of 60 NM lateral separation in specified transition areas adjacent to NAT MNPS airspace and had given its approval noting that IFALPA had reserved its position. Subsequently IFALPA had provided detailed comments indicating opposition to the proposed amendment. Furthermore, IFALPA had also commented unfavourably on a similar proposal concerning the CAR Regional SUPPS which has been originated by the United States (NAM/CAR-S 81/1 - RAC/SAR). In order to avoid protracted correspondence agreement was reached among the parties directly involved to discuss outstanding problems relating to both proposals on the occasion of NAT SPG/19.

10.2.3 In the light of the subsequent discussions, the representative of IFALPA indicated that additional information regarding application of the procedure had now been provided. He therefore undertook to bring this information to the attention of IFALPA after this Meeting with all due urgency and indicated that a formal reply to ICAO could be expected in the near future. The Group was conscious of the considerable benefits that would accrue both to operators and ATC alike from the application of this procedure. It therefore expressed its satisfaction with the outcome of these discussions and hoped that further processing of the proposals would be expedited so as to permit the procedure to be applied during the forthcoming summer traffic period.

10.2.4 As to the proposal NAT SUPPS RAC/13, this had been originated by the United Kingdom in coordination with other NAT Provider States and was currently being circulated. The need for the amendment stemmed from the fact that the existing provisions in Doc 7030 relate to a composite separation environment of 60 NM/1000 ft which was discontinued following the introduction of a minimum lateral separation of 60 NM. In view of the safety aspects involved, NOTAM action had already been taken by the States concerned.

10.2.5 The proposal NAT SUPPS RAC/14 concerning the application of the Mach number technique was presented to ICAO by the United Kingdom in follow-up of NAT SPG Conclusion 18/3 and has recently been circulated to States. In this connexion, the Group noted that the revised guidance material regarding the application of the Mach number technique developed by NAT SPG/18 to replace that currently contained in Attachment H of the PANS RAC had been submitted to ICAO by the United Kingdom, and it was expected that this would shortly be circulated to States for comment.

10.3 Extension of MNPS airspace within CTA Reykjavik to the North Pole

10.3.1 The Group recalled discussions at its last Meeting regarding a proposal to extend MNPS airspace within CTA Reykjavik from 67°N to the North Pole as all of the commercial aircraft operating in this area were believed to be MNPS aircraft. The only factor which had prevented this desirable extension of MNPS airspace to the North Pole was the continued operation in Greenland of aircraft not meeting the MNPS. As an interim measure the current proposal (NAT SUPPS RAC/12) to apply 60 NM lateral separation in the CTA New York Oceanic and Reykjavik was developed by the Group.

10.3.2 The Representative of Denmark was now able to inform the Group that the problem which had been encountered in the area of Greenland had now been resolved, thus removing the obstacle to the extension of MNPS airspace to cover the whole of CTA Reykjavik.

10.3.3 The Group welcomed this development and in the circumstances agreed that it now seemed a feasible proposition to propose an extension of MNPS airspace within CTA Reykjavik from 67°N to the North Pole. However, some discussions still had to take place between provider States concerned and other interested parties regarding the related operational procedures to be applied, and consequently the Group refrained from selecting a proposed date for application. It was therefore agreed that the Member of Iceland will take the necessary action to co-ordinate the required procedural arrangements and the development of an appropriate proposal for amendment of the NAT Regional SUPPS for presentation to ICAO. In this context, the Group however stressed that, despite the obvious relationship of this matter with the current proposal to extend the use of 60 NM outside MNPS airspace (paras 10.2.2/3 refer), the processing of NAT SUPPS RAC/12 should continue with all possible speed.

CONCLUSION 19/7 - EXTENSION OF MNPS AIRSPACE WITHIN CTA REYKJAVIK

That :

a) following satisfactory completion of the necessary discussions, MNPS airspace be extended within CTA Reykjavik from 67°N to the North Pole; and

b) the Member of Iceland co-ordinate the required procedural arrangements with provider States concerned as well as other interested parties and take the necessary action to present to ICAO an appropriate proposal for amendment to the NAT Regional Supplementary Procedures.

10.3.4 While on this subject, the Group noted that the pre-determined track system used in the northern part of CTA Reykjavik for flights between Europe and Alaska had worked reasonably satisfactory. Although the traffic density was relatively low, some 20 different routes were involved and this had created a certain amount of problems for air traffic controllers in Reykjavik OAC. Moreover, the flights concerned crossed a fair amount of tracks used by other traffic (e.g. Scandinavia-New-York) in the south-eastern part of CTA Reykjavik. Discussions were in progress between the users and States concerned regarding improvements to the system and a possible reduction in the number of routes involved to reduce problems which had been encountered. It was also thought that it would be useful to allocate designators to the routes concerned in order to simplify identification and position reporting.

10.3.5 The Group noted that further development in the area concerned were closely related to the proposal to extend MNPS airspace in CTA Reykjavik to the North Pole. It was therefore expected that the matter would be taken into account by the States concerned in the co-ordination of the required procedural arrangements for the extension of MNPS airspace in this area.

10.4 Inconsistencies in the terminology in the SUPPS regarding lateral separation

10.4.1 The Member of Canada raised the question of the lateral separation to be applied between aircraft operating above or below MNPS airspace while they are in transit to or from that airspace. According to the existing provisions of Doc 7030 (para 7.1.1 2) refers), the use of 60 NM is confined to the period when an aircraft is actually within MNPS airspace. Hence, in the case of two aircraft operating at Flight Level 390 within MNPS airspace laterally spaced at 60 NM and wishing to climb to FL 410, a lateral separation of 120 NM will have to be applied. It was felt that this procedure was unduly restrictive in such situations, especially when contrasted with the procedures agreed for the use of 10 minutes longitudinal separation between MNPS aircraft operating wholly or partly in MNPS airspace.

10.4.2 The Group agreed that some anomalies seem to exist between the procedures regarding the longitudinal and lateral separation minima which had been developed separately over a period of several years. This was not an unusual occurrence in evolving situations and it was believed that action should be taken to eliminate such inconsistencies. It was therefore agreed that this matter be taken up by the Member of Canada in co-ordination with other interested parties, in parallel with the discussions regarding the extension of MNPS airspace within CTA Reykjavik and that a suitable text be developed as a basis for a separate proposal for amendment of the relevant SUPPS.

Agenda Item 11 : Updating of the work programme of the NAT SPG.

11.1 Introduction

11.1.1 When reviewing and updating its future work programme, the Group took stock of the current NAT situation as it evolved from the discussions of the various Agenda Items at this Meeting. It was found that through the work of the NAT SPG, significant improvements of the NAT ATS system have been achieved. Lateral and longitudinal separation standards have been reduced within the NAT MNPS airspace and efforts are in hand to increase system flexibility.

11.1.2 In view of this, and of current and projected traffic densities in the NAT Region as reflected in the NAT traffic forecasts, it did not appear appropriate to propose measures intended solely for increasing system capacity. It therefore appeared that, for the time being, further work of the NAT SPG should concentrate on essential improvements within the current framework of the system. These could include broad areas such as :

a) improved flexibility;

b) increased use of tactical air traffic control;

c) improved meteorological forecasting;

d) improvements to the oceanic/domestic airspace interface;

e) improved procedures to crossing traffic;

f) improved communications (air/ground and ground/ground); etc.

11.1.3 This would entail activities particularly in fields like :

a) reduction of the OTS and its period of validity;

b) reduction of vertical separation criteria above FL 290;

c) ATC automation and data exchange.

11.2 Reduction of vertical separation criteria

11.2.1 Most of the above mentioned aspects have been touched upon under various Agenda Items and the discussions are reflected in the corresponding section of this Summary. However, with respect to the question of reduction of the vertical separation criteria above FL 290, some discussion arose in the context of the work programme of the Group. Particularly, the airspace users attributed very considerable importance to this matter and hoped that work would be advanced with all due speed.

11.2.2 It was pointed out that significant efforts were being made on a world-wide level by the Review of the General Concept of Separation Panel (RGCSP) of ICAO. Furthermore, the USA was actively engaged in what appears to be a considerably complex matter involving extensive data collections and surveys.

11.2.3 Since it was conceivable that, under certain conditions, a reduction of vertical separation criteria could be introduced in NAT MNPS airspace before the world-wide introduction of related provisions, it was agreed that the Group's attention should focus, among other matters, also on this subject with a view to achieve progress as soon as possible.

11.3 Future work programme

11.3.1 After very detailed discussions, the Group developed the following list of tasks to be dealt with by it in the future :

a) consideration of the situation regarding lateral separation in the NAT Region, especially with respect to :

   i) navigational accuracy achieved and maintained in NAT MNPS airspace;

   ii) extension of 60 NM lateral separation into New York and San Juan OCAs;

   iii) transition problems encountered in airspace adjacent to NAT MNPS airspace resulting from the use of 60 NM lateral separation within the latter;

   iv) extension of MNPS to North Pole in Reykjavik OCA;

   v) improvements in navigation performance which could lead to further reduction of lateral separation;

b) consideration of the situation regarding the use of 10 minutes longitudinal separation between flights in the NAT Region;

c) further efforts regarding the possible use of 30 NM/1000 ft composite separation in MNPS airspace in the NAT Region;

d) NAT ATS improvements, and consideration of further changes;

e) assessment of the impact of technological developments on the overall NAT system;

f) further improvements regarding crossing and joining traffic in the NAT Region;

g) review of progress in ATC contingency planning undertaken by NAT OACs;

h) increased application of electronic data processing in OACs and related questions (achievement of compatibility and resolution of problems that may arise);

i) improvements in the quality and availability of MET information regarding the NAT Region, both for flight planning purposes and for the establishment of organized tracks;

j) updating of the NAT MNPS Operations Manual and of the NAT Guidance and Information Material in the light of developments;

k) consideration of problems regarding IGA operations in the NAT Region;

l) improvements regarding the collection and use of statistical data in the NAT Region both for traffic forecasting and traffic management purposes;

m) review of the HF situation in the NAT Region; consideration of desirability of HF phone-patch in certain circumstances;

n) preparations for the LIM NAT (RAC/COM) RAN Meeting;

o) NAT SPG Special Review Items :

   i) procedures required for possible implementation of reduced vertical separation in the NAT Region;

   ii) application of separation standards and development of related Guidance Material;

   iii) development of broad statements of functional requirements for the next 5 years;

   iv) improvements to ground communications between units providing air traffic services in the NAT Region;

   v) examination of problems which are presently being encountered in domestic/oceanic interface;

   vi) consideration of the NAT HF VOLMET broadcast system to align it with actual operational requirements.

11.3.2 The Group agreed that, in particular, work on Agenda Items d), h) and o) should be pursued with vigour prior to NAT SPG/20. The Member from Canada undertook to develop proposals in respect of these items, and to circulate such proposals to all NAT SPG representatives in sufficient time for comments to be made and for amended proposals to be presented to NAT SPG/20.

11.4 Arrangements for the next Meeting

11.4.1 As to arrangements for the next Meeting of the Group, it was agreed that NAT SPG/20 should be held in the European Office of ICAO for a duration of two weeks. With regard to the likely dates for the Meeting, it was agreed that it should tentatively be planned for 14 - 25 March 1983 on the understanding that this would be specifically confirmed in advance consultation with Members.

11.5 Involvement of the Secretariat

11.5.1 In view of the importance and complexity of the Group's work, the point was made that its Secretariat should attempt to gain some operational insight into the various matters dealt with by the Group. It was therefore believed that it would be beneficial for all concerned if the members of the Secretariat, both from the ATS and COM disciplines, were to visit the various NAT OACs and communications centres to observe actual day-to-day operations.

Agenda Item 12 : Review of ATS problems of current operational interest.

12.1 Introduction

12.1.1 The Group considered under this Item the following topics :

a) IGA operations in the NAT Region;

b) Paris - New York - Paris air race;

c) balloon flights in the NAT Region;

d) airspace reservations;

e) similarity in aircraft callsigns;

f) terminology used by flight dispatch units;

g) review of the situation concerning the ATS Routes G3 and G11.

12.2 IGA operations in the NAT Region

12.2.1 The Group reviewed once again the problems which had been encountered with IGA operations in the NAT Region. Generally speaking no marked improvement regarding needless SAR activities, controller and communications workload and other difficulties involving IGA operations had been noted in recent years and it appeared that a more determined approach was now required to improve the situation.

12.2.2 From the information available to the Group, the main causes of the difficulties experienced with IGA operations across the North Atlantic were due to :

a) inadequate or no HF equipment;

b) lack of a basic navigation capability;

c) poor pre-flight planning;

d) inadequate MET briefing.

12.2.3 Almost all of the more extensive and costly search and rescue actions in the NAT Region have been due to emergencies involving IGA aircraft. In some cases, these activities were subsequently found to have been unnecessary as the aircraft concerned was not in any difficulty but had simply been unable to contact HF ground stations due to inadequate or lack of communications equipment.

12.2.4 The Group recalled the discussions at its last Meeting regarding the measures to be taken to improve compliance by IGA operations conducted in the NAT Region and in particular the carriage of appropriate HF equipment (NAT SPG Conclusion 18/15 refers). It was noted that Canada had since published in its AIP the need for aircraft engaged in flights across the North Atlantic to be equipped with approved, serviceable and functioning HF communications equipment. In the United States, a special programme had been instituted to make general aviation operators aware of the need for the carriage of HF equipment for flight in the New York OCA. Nevertheless, the evidence available to the Group indicated that the quality of HF equipment in IGA aircraft still left very much to be desired. In this context, the method whereby an aircraft not equipped with HF equipment uses a relay through another aircraft could not be considered as meeting the minimum HF communications requirements. IATA pointed out that use of this method could have a regrettable effect on the emergency procedures. The Group re-iterated its concern with regard to this matter and, as called for in Conclusion 18/15, urged States to continue to take all measures necessary to effect an improvement in the situation.

12.2.5 With respect to enforcement action regarding infringements of the regulations by IGA flights, a considerable amount of success had been achieved where nationals of the State concerned were involved. However, in cases of infringements involving persons of different nationality, the legal problems which had arisen were such that similar action could not always be taken.

12.2.6 With regard to the follow-up action on reported incidents involving IGA flights in the NAT Region, the Group was informed of the serious difficulties in attempting to locate the operator of the aircraft concerned in order to investigate the causes of an incident. In the particular case of ferry flights, the operator or pilot generally has no connexion with the State of Registry of the aircraft and some time elapses before they can be traced, if at all. As a result, it is rarely possible to establish the real causes of these incidents.

12.2.7 It was also noted that the present method used to report incidents involving IGA NAT flights took too long and invariably records relating to the flight were no longer available. For example, the reporting of an incident involving an IGA aircraft which had operated through the NAT Region would in the first instance be reported to the State of Registry, which generally would not have been concerned with the operation of the flight in NAT airspace. By the time follow-up action was taken and a request made to the NAT centres, the records relating to the flight had been destroyed. It was therefore agreed that in future incidents involving IGA flights on NAT operations should also be reported via the AFTN to NAT provider States in a manner similar to that used in the lateral deviation reporting and monitoring system.

12.2.8 When considering the measures to resolve these problems, it became abundantly clear that the provision of an information document for IGA operations in the NAT Region was long overdue. A suggestion was made that the wider availability of aeronautical information publications of NAT provider States at departure aerodrome briefing units used by IGA flights would overcome the difficulty to some extent. However, in view of the large number of departure points used by IGA flights and having regard to the fact that the pre-flight planning for such a flight could take place at an aerodrome far removed from the area immediately adjacent to the NAT Region, it was felt that this course of action could only have a very limited effect.

12.2.9 The Group recalled that as far back as its 13th Meeting, the need for a consolidated information document for use by IGA pilots operating in the NAT Region below FL275 had been evident. It was believed that early action should now be taken to produce this document. The Member of the United States confirmed that, as previously indicated, he would be ready to request that necessary arrangements within his Administration be made to prepare such a document in co-operation with suitable representatives from other interested NAT provider States and user Organizations.

12.2.10 Some discussion then arose on the likely contents of the document and the subjects which needed to be covered in the information document. It was believed that it would be necessary to give a broad indication of these matters for the guidance of those involved in the preparation of the document. On the basis of work carried out by an ad hoc drafting group, a list of the areas and subjects concerning IGA operations in the NAT Region which should be covered in the document was developed by the Group as shown in Attachment A to this Item.

12.2.11 As to the printing, publication and distribution of the document, it was believed that the most practical arrangement was to follow the practice used in the past with the NAT MNPS Airspace Operations Manual whereby one State would undertake this task on behalf of the Group. Since the greater part of IGA activity in the NAT Region originates in North America and a fairly extensive distribution would be required in that area, the United States seemed to be the most appropriate State to carry out this task. As was the case with the MNPS Airspace Operations Manual, ICAO could undertake the translation of the document into other languages and its distribution to NAT States.

12.2.12 The Group expressed its hope that work on this important subject could proceed with all due haste so that the document will become available at an early date.

CONCLUSION 19/8 - PREPARATION OF INFORMATION DOCUMENT FOR IGA OPERATIONS IN THE NAT REGION

That :

a) an information document for use by IGA operations in the NAT Region be prepared at the earliest possible date;

b) the content of the information document covers at least the areas and subjects listed in Attachment A to the Summary on this Item;

c) the United States, in co-operation with suitable representatives from interested NAT provider States and user Organizations consider to make the necessary arrangements for the production and publication of the information document on behalf of the NAT SPG; and

d) ICAO undertake the translation into other languages and distribution of the information document to all NAT States and interested International Organizations.

12.2.13 While on this subject, the Group was presented with a paper from the Member of the United Kingdom containing a proposal to raise the lower limit of controlled airspace in the NAT Region to FL245, which could possibly be included on the agenda of the LIM NAT (RAC/COM) Meeting (1984). It was argued in the paper that, since the number of operations in the lower airspace of the NAT Region was extremely small, the continued existence of controlled airspace did not appear to be justified. Moreover, bearing in mind the difficulties currently experienced with IGA operations in the NAT Region, this "deregulation" of the airspace would result in less stringent communications requirements and position reporting for such flights.

12.2.14 The Members of Ireland and Iceland expressed their objections to the proposal of the United Kingdom for operational and air safety reasons. The Group felt that the overall effect of raising of the lower limit of controlled airspace would have profound implications on operations in the Region which would need to be studied in detail. Quite apart from the services provided to IGA flights, there were still commercial operations in the lower airspace, which would have to be considered. The Group therefore refrained from entering into a detailed discussion at this time, but agreed to come back to this subject at its next Meeting.

12.3 Paris - New York - Paris air race

12.3.1 The Group reviewed the problems which had been encountered by States providing services in the NAT Region and adjacent areas during the Paris - New York - Paris air race which took place in June 1981. Numerous incidents had taken place during the course of the air race, one regrettably with a tragic outcome, which had placed a heavy strain on all the services involved. Several SAR activities had been necessary at considerable expense to the States concerned.

12.3.2 The Group again drew attention to the considerable risks for aircraft participating in such events. It also noted that it was the declared policy of IAOPA not to support or encourage transocean air racing. The Group therefore emphasized that organizers planning to stage these events must bear in mind the risks involved and the impact on States obliged to provide services to aircraft in the area concerned. In this context, it was noted that the present restrictions on general aviation activity in the United States would seem to preclude the possibility of organizing another air race similar to that which occurred in 1981, at least in the foreseeable future.

12.4 Manned balloon flights in the NAT Region

12.4.1 The Group was informed that there had been some reports in aviation trade journals about the possibility of holding a transatlantic balloon race. However, these reports could not be substantiated and no action was called for. In view of the potential hazards that could be created by such flights the Group reaffirmed the views it had expressed at its previous Meeting (NAT SPG Conclusion 18/16 refers).

12.5 Airspace reservations

12.5.1 The Group reviewed a number of problems which had arisen with the application of the provisions which had been developed by NAT SPG/17 regarding the separation to be provided between moving temporary airspace reservations and other aircraft, operating in MNPS airspace. These provisions specified, inter alia, values of 60 NM or 120 NM to be used depending on whether or not all the aircraft operating in the reserved airspace met the MNPS.

12.5.2 Problems however arose when attempting to apply the minimum value of 60 NM in the cases of military formation flights where :

a) the aircraft in the formation were laterally spaced around the centre-line of the reserved track;

b) only one of the aircraft in the formation could meet the MNPS; and

c) two or more aircraft in a formation were each equipped with a single long-range navigation system.

12.5.3 With regard to the situation mentioned in a) above, it was noted that the general operating configuration of a formation flight consisted of a number of wing aircraft (usually a maximum of five) operating within one NM and 100 feet vertically of a lead aircraft which was responsible for navigation and communication. The question arose as to whether or not these could be considered as a single flight for the purpose of establishing tracks adjacent to the reserved airspace. The Group was conscious of the importance of this matter and was aware of the penalties imposed on other aircraft due to inefficient utilization of the airspace. A mathematical assessment of the procedure indicated that a formation flight so described did not materially affect the lateral risk component as the combination of the vertical/lateral displacement off-sets any possible increase in risk to aircraft on adjacent tracks. It was therefore agreed that a formation flight operating in a temporary moving airspace reservation could be regarded as a single flight for the purposes of establishing separation with the tracks of other aircraft outside the reservation.

12.5.4 While it was now clear that 60 NM separation from the reserved airspace could be used when all the aircraft in a formation flight meet the MNPS, differing practices had been applied in cases where only one of the aircraft concerned meets the MNPS. It was noted that in the latter case a strict interpretation of the provisions which had been developed by NAT SPG/17 would appear to require the use of 120 NM to separate other aircraft on tracks adjacent to the reserved airspace. In the light of the agreement to regard a formation flight as a single flight for this purpose this now appeared to be an unduly restrictive practice. The Group therefore agreed that provided at least one aircraft in the formation meets the MNPS then the whole formation flight should be regarded as meeting the MNPS. The representative of IFALPA reserved his position in this respect.

12.5.5 As to whether two or more aircraft in a cell each equipped with a single long-range navigation system should be considered as capable of meeting the MNPS, the Group felt that this type of situation presented an entirely different kind of problem. It was therefore agreed that the matter needed to be studied in more detail.

12.5.6 Some concern was however expressed regarding the operating procedures used in formation flights. It was felt that the agencies concerned with the planning of temporary moving airspace reservations should be made aware of the considerations involved. It was therefore agreed that Members would take the necessary measures to inform such agencies within their own States.

12.5.7 As a result of the Group's deliberations on this subject, a modification to the procedures previously agreed at NAT SPG/17 was developed as shown in Attachment B to this Item. As the provisions regarding temporary airspace reservations had been included in the NAT Guidance Material, it was noted that the Paris Office would take the necessary steps to circulate the revised material in loose leaf form until such time as it could be incorporated in that document.

12.5.8 While on the subject of airspace reservations, the Group was informed that a number of rocket and missile firing activities had taken place at various locations in the North Atlantic without any co-ordination with the OACs involved or with inadequate notification. This had resulted in an unplanned sterilization of the airspace in the area concerned and a consequential disruptive effect on the flow of air traffic.

12.5.9 Two separate causes were identified as being at the root of the problem :

a) lack of advance co-ordination with the appropriate ATS authorities regarding firing activities in the NAT Region and the issue of the relevant NOTAM;

b) the non-receipt by the NAT OAC concerned of notification from other States of firing activities conducted by their national agencies.

12.5.10 It was noted that in accordance with the provisions of Annex 11 (para 2.1.4), timely co-ordination must be effected with the appropriate ATS authorities regarding any activities potentially hazardous to civil aviation. In a number of cases this practice had not been followed and consequently there had been no opportunity either to make arrangements that would minimize the effect on civil air traffic or to promulgate information concerning the activities. In some cases also, the State of the agency conducting the firing issued its own NOTAMs concerning the activities which were not however received by all of the NAT provider States or users of NAT airspace.

12.5.11 As to the notification of information regarding firing activities it was pointed out that there was no fail safe method in place at this time for ensuring that this was received by the OACs concerned and hence no guarantee that the airspace concerned would be clear of aircraft. Several situations had arisen where the notification had not been received by the ATC units concerned due to technical errors in the transmission and dissemination of the information. Moreover, it is not always possible to contact the responsible State or agency conducting the activity to obtain additional information or to co-ordinate the firing exercise to minimize the impact on normal operations.

12.5.12 The Group emphasized its concern for the serious hazard that unco-ordinated rocket and missile firing had on civil aircraft and the normal flow of air traffic in the NAT Region. It stressed that States should comply fully with the provisions laid down in Annex 11 which applied over the High Seas.

12.5.13 Moreover, it was believed that the notification of rocket/missile firing activities should contain the address of the agency to be contacted should the need arise. It was also felt that it would be useful if a list could be prepared of the addresses of agencies in States responsible for the co-ordination of rocket/missile firing in the NAT Region as well as the agencies in other States conducting such activities. A preliminary list, in so far as it could be completed at this time, is at Attachment C to this Item.

12.5.14 In order to give more prominence to this matter, the Group believed that it would be appropriate if ICAO were to inform States of the problems which had been encountered with unco-ordinated rocket/missile firing in the NAT Region.

CONCLUSION 19/9 - ROCKET/MISSILE FIRING IN THE NAT REGION

That :

a) States conducting rocket/missile firing in the NAT Region ensure that such activities are co-ordinated in advance and in a timely manner with the appropriate ATS authorities in accordance with the provisions of Annex 11;

b) States involved in such activities ensure that the appropriate ATS authorities are informed of the address of the agency to contact to obtain additional information, should the need arise; and

c) the European Regional Office of ICAO inform States of the problems encountered in the NAT Region with unco-ordinated rocket /missile firing.

12.6 Similarity in aircraft call-signs

12.6.1 The subject of difficulties experienced resulting from similarity in aircraft call-signs was raised by the Member of Iceland. Examples were quoted of three flights from the same airline company, using call-signs XX 111, XX 1411 and XX 141, all passing through one control sector at the same time.

12.6.2 The Group recognized that this was a serious problem which could easily lead to misunderstandings between pilots, controllers and communicators. Similar difficulties could also arise in cases where the same flight number is used by two different airline companies or where the flight number is the same as one of the cruising levels.

12.6.3 It was realized that this was a perennial problem for which no single solution was satisfactory for all occasions. The subject had been under study within ICAO for several years and trials in the use of a new-style alpha-numeric call-sign system were currently being carried out.

12.6.4 Nevertheless, it appeared to the Group that there was scope for some action to be taken at local level with the airlines involved to try to resolve specific known recurrent situations of the kind mentioned above. In addition, it was felt that IATA should investigate the method of flight number allocation with particular regard to the use of suffixes to identify delayed flights or extra sections. The representative of IATA pointed out that the flight numbering system used within the airlines was a highly structured system which was not susceptible to changes. He nevertheless undertook to raise the matter within IATA to see if anything could be done to improve the situation.

12.7 Terminology used by flight despatch units

12.7.1 The Group was informed of instances which had arisen when aircraft had been mistakenly re-routed on the basis of messages received from company despatch units. The misunderstanding had apparently been due to the use in the despatch messages of phrases such as "clears, cleared, recleared and approved" which had been interpreted by the pilot as an ATC clearance.

12.7.2 The Group believed it essential that company despatch units should be particularly careful in the choice of terminology used in messages to aircraft, especially where a reclearance of the flight was involved, and avoid phraseology commonly used in ATC messages. The representative of IATA agreed to bring these points to the attention of the appropriate departments within IATA.

12.8 Review of the situation with respect to ATS routes G3 and G11

12.8.1 The representative of Denmark informed the Group about a problem of navigational coverage on ATS Routes G3 and G11 which were routes which have been established to accommodate flights within NAT MNPS airspace which were only equipped with short range navigation capability. He pointed out that the operational coverage of Myggenaes NDB was only extending to 100 NM and would therefore not provide sufficient on-track navigational guidance.

12.8.2 In this connexion, it was pointed out that the amount of lateral deviation from track before entering MNPS airspace can be determined without any problem by a DME reading from Sumburgh VOR/DME which was located virtually at right angles to that track. In view of this the Group agreed that no changes were required with respect to the use of these routes and that the respective Guidance Material be amended to reflect the need for pilots to perform the DME cross check before entering MNPS airspace. In addition, States concerned were requested to indicate the same requirement in their respective aeronautical information publications.

ATTACHMENT A
to Item 12

LIST OF AREAS AND SUBJECTS TO BE INCLUDED IN AN INFORMATION DOCUMENT FOR IGA OPERATIONS IN THE NAT REGION BELOW FL 275

PART I

This should contain a general statement as to the objectives of the information document and a description of problems encountered in the past.

PART II

This should cover the requirements affecting the aircraft and pilot relating to the following subjects :

a) essential pilot qualifications, including flight experience;

b) aircraft performance and airworthiness requirements;

c) essential requirements for navigation and communications equipment, especially HF, SSR transponders, etc.;

d) rules and regulations applicable to such flights;

e) description of likely flight conditions in the NAT Region and appropriate action pilots should take (icing, thunder storms and other in-flight contingencies);

f) survival and emergency equipment (ELT) requirements.

PART III

This should give a description of the airspace and the air traffic services provided in the NAT Region covering the following matters :

a) provision of flight information and/or air traffic control services;

b) position reporting procedures;

c) alerting service and SAR procedures;

d) handling of incidents and flight irregularities by ATS units concerned;

e) reports of incident and flight irregularities to operators and States of Registry;

f) procedures regarding the monitoring and reporting of navigation and communications irregularities.

PART IV

This should cover the need for pre-flight briefing on the following matters :

a) the need to consult AIPs of States concerned as well as current NOTAMs (Class I/II) applicable to the route of the flight and destination and alternate aerodromes;

b) the necessity to obtain appropriate charts and other relevant flight documentation;

c) the need for adequate MET briefing for the route of the flight, including destination and alternate aerodromes;

d) flight hazards that could be encountered;

e) assistance in planning flight and submission of an ICAO flight plan;

f) navigation and communications requirements for the route to be flown;

g) pilot pre-flight check-list (similar to MNPS Airspace Operations Manual check-list).

PART V

This should contain a comprehensive cross-referencing between the relevant requirements and the governing provisions, both of ICAO and of the provider States, as well as the sources and availability of that documentation.

ATTACHMENT B
to Item 12

REVISED MATERIAL REGARDING THE MINIMUM VALUES TO BE USED IN THE NAT REGION FOR THE SEPARATION OF AIR TRAFFIC FROM MOVING TEMPORARY AIRSPACE RESERVATIONS

Note : Changes to text of the original materials developed by the NAT SPG at its 17th Meeting in March 1980 (cf. NAT SPG/17 - Summary on Item 5) have been identified by a vertical line in the margin

1. In the case of moving temporary airspace reservations the following values shall be used :

a) within MNPS airspace :

i) 60 NM between the track of an aircraft operating under the control of the ATC unit concerned and the closest track of any of the aircraft for which the airspace is reserved, provided all aircraft concerned meet the MNPS; or

ii) 60 NM between the track of an aircraft operating under the control of the ATC unit concerned and the track of a formation flight, provided that at least one aircraft in the formation meets the MNPS; or

iii) 120 NM between the track of an aircraft operating under the control of the ATC unit concerned and the closest track of any of the aircraft for which the airspace is reserved, whenever none of the aircraft contained in the airspace reservation meet the MNPS.

b) outside MNPS airspace : 120 NM between the track of an aircraft operating under the control of the ATC unit concerned and the closest track of any of the aircraft for which the airspace is reserved, except that, in that portion of the New York OCA West of 60°W 90 NM may be applied.

2. For the purpose of the procedure in para 1 a) above, a formation is considered to be a flight of more than one aircraft which, by prior arrangement between the pilots, operates as a single aircraft throughout that portion of flight conducted in MNPS airspace with regard to navigation and position reporting, and where the wing aircraft maintain a distance of not more than one NM laterally or longitudinally and a vertical displacement of not greater than 100 feet from the flight leader.

3. Between aircraft operating under the control of the ATC unit concerned and the first and last aircraft operating within a moving temporary airspace reservation minimum longitudinal separation may be applied.

4. The vertical values used to separate aircraft under the control of an ATC unit from the lower or upper limit of temporary airspace reservations shall be those specified in Part III, para 3.1 of the PANS-RAC.

ATTACHMENT C
to Item 12

LIST OF ADDRESSES OF AGENCIES IN STATES CONCERNED WITH THE CO-ORDINATION AND CONDUCT OF ROCKET/MISSILE ACTIVITIES IN THE NAT REGION

CANADA

Airspace Reservation Unit ARU/T
6th Floor, Transport Canada Building
Place de Ville
Ottawa, Canada
KIA-ON8
Tel. : 1-613-996-7178
AFTN : CYHQ Attn. ARU

DENMARK

Directorate of Civil Aviation
Air Traffic Division
Gammel Kongevej 60
DK-1850 København V
Tel. : 01-314848 Ext. 240
Telex : 27096 CAA DK
AFTN : EKCHYAFL
(Short-time notices of rocket/missile firing activities also to be addressed to Søndrestrøm FIC : AFTN BGGLZI)

FRANCE

Direction de la Navigation Aérienne
3 Avenue de Friedland
75008 Paris
Tel. : (1) 563 19 00
Telex 28081
AFTN : LFPSYADN Attn. DNA/1

ICELAND

Directorate of Civil Aviation
Air Traffic Service
Reykjavik Airport
101 Reykjavik
Tel. : 17430
Telex : 2250 FALCON IS.
AFTN : BICAYA

(Short time notices to be addressed to Reykjavik OAC as well : AFTN BIRDZQ)

IRELAND

Mr. D. Eglington
Chief ATC Officer
Air Traffic Services
Shannon Airport
Tel. : 061 61227

PORTUGAL

Chefe do Centro de Controlo
Aeroporto de Santa Maria
9580 Vila do Porto
Telex : 82386 DRAASM P
AFTN : LPAZYJCC
(For short-time notices also to be addressed to LPPOZO, Attn. Supervisor)

UNITED KINGDOM

Watch Supervisor Shanwick OATCC
Atlantic House - Sherwood Road
Prestwick
Ayrshire, Scotland
KA9 2NR
Tel. : 292 79800 Ext. 2663
AFTN : EGGXZO

UNITED STATES

Federal Aviation Administration
Central Altitude Reservation Facility
c/o Jacksonville ARTCC
Attn. J. Richardson
Hilliard, Fla.

USSR

Mr. V. Sagin
Executive Secretary of USSR Commission for ICAO
Leningradsky Prospect 37
Moscow

Agenda Item 13 : Election of Chairman.

13.1 When proceeding to this Item on the Agenda, the Group noted that its present Chairman would not be able to continue in his post after this Meeting due to his retirement from the Netherlands Administration. Before electing a new Chairman, the Group recalled the general practice to define the duration of the mandate of the Chairman of a Group to the period from his election up to the end of the Meeting following the election. As a consequence, it would again conduct an election at the end of NAT SPG/20.

13.2 Furthermore, the Group found it advisable to take this opportunity also to elect a Vice-Chairman, which it had not done in the past and which, at least on one occasion, had led to some administrative difficulties.

13.3 The Group then unanimously elected Mr. F. Rico (France) as its new Chairman and Mr. G. Matthiasson (Iceland) as its Vice-Chairman. Mr. Rico assumed the Chairmanship of the Group for the last two days of this Meeting since its present Chairman was compelled to leave the Meeting before its end.

Agenda Item 14 : Any other business.

14.1 Introduction

14.1.1 Under this Agenda Item, the Group considered :

a) NAT Guidance Material and NAT MNPS Operations Manual;

b) review of latest air traffic forecasts for the NAT Region;

c) exchange of views on preparation of LIM NAT (RAC/COM) Meeting (1984);

d) developments related to the termination of the SCOTICE and ICECAN cable contracts.

14.2 NAT Guidance Material and NAT MNPS Operations Manual

14.2.1 The Group noted that the "Guidance and information Material concerning air navigation in the NAT Region" issued by the European Regional Office of ICAO and the NAT MNPS airspace operations Manual were now both in their 3rd editions. This coincidence in publication had removed a source of confusion which had existed previously when different editions of the documents were in force. It was therefore hoped that it would be possible to update and issue both these documents at the same time in the future.

14.2.2 It was noted that apart from some minor modifications to the NAT Guidance Material which had arisen as the result of ongoing work in the NAT SPG, there appeared to be no pressing need at this stage to embark on the preparation of a 4th edition of these documents. With respect to the NAT Guidance Material, the Paris Office had already circulated in loose-leaf form updated material regarding the minimum navigation equipment fit required to meet the MNPS which had been developed by NAT SPG/18. It was felt that this was a practical and economic way of ensuring that users of this document are kept informed of most recent developments until such time as the next edition is prepared.

14.2.3 The Member of Portugal informed the Group that the publication in the NAT Guidance Material of the geographical coordinates of intermediate points on the routes through MNPS airspace between Portuguese territories and the names used for the terminal points have given rise to some confusion because they differed somewhat from information published in AIP Portugal. It was pointed out that the AIP was the users' prime source of reference for detailed information regarding a particular route and therefore it would be important to ensure that conflicting information was not published elsewhere. After some discussions, it was agreed that it was not necessary to show the geographical coordinates for the intermediate points along the routes concerned in the NAT Guidance Material as the terminal points would suffice. The modified description of the routes as agreed by the Group which will be included in the NAT Guidance Material at the next suitable opportunity is shown in the Attachment to this Item.

14.2.4 As a result of discussions regarding temporary airspace reservations under Item 12, modifications to material previously developed by the NAT SPG and currently published in the NAT Guidance Material were also agreed (Attachment B to Item 12 refers).

14.3 Review of latest air traffic forecast for the NAT Region

14.3.1 The Chairman of the NAT TFG presented the updated traffic forecasts for the NAT Region covering the 5-year period 1982-1987. These had been developed by the 16th Meeting of the NAT TFG which was held concurrently with this Meeting of the NAT SPG.

14.3.2 At the outset, the Group was informed that the NAT TFG had been hampered in its work by lack of participation from the United States (apparently due to fiscal constraints) and the type of data that had been provided. Since it was the turn of the United States to process the 1982 data for next years forecasting exercise, it was essential to have a firm commitment as to its continuing participation. The NAT SPG was advised by its Member from the United States that he believed the non-participation of his State in the work of the NAT TFG was a temporary difficulty and he was confident that full participation would be resumed in the future.

14.3.3 As to the forecast itself, the Group noted that due to the continuing economic recession in major traffic generating areas, little growth is expected in traffic over the forecast period. It was further noted that the forecast busy hour figures indicated that expected traffic in the NAT Region over the next 5 years should be well within the traffic handling capabilities of the system.

14.3.4 An exchange of views took place on the utility of the NAT forecast for planning purposes. It was recalled that the Group had specifically endorsed the format of the forecast produced by the NAT TFG which had been tailored to suit the requirements previously expressed by the NAT SPG (NAT SPG Conclusion 18/13 refers). It was nevertheless felt that it would be useful if Members of the Group could institute inquiries within their home Administrations as to the use being made of the NAT forecast. Furthermore, it was agreed that members should also review the content of the forecast between now and the next meeting in order to identify new requirements which would warrant inclusion in the forecast and any elements which could be dispensed with so that the NAT TFG could be appraised accordingly. In this connexion, it was pointed out that any expansion of the elements or area covered by the forecast would probably create a corresponding requirement for more extensive data collections thus imposing additional workload on all concerned.

14.4 Exchange of views on preparation for the LIM NAT (RAC/COM) RAN Meeting

14.4.1 The Group was informed that, for planning and budgetary purposes within ICAO, a Limited NAT (RAC/COM) RAN Meeting had been tentatively scheduled for the second half of 1984. The need to convene such a Meeting to deal with a number of ATS and COM Problems in the NAT Region was originally envisaged in 1979. However, in view of the situation regarding new developments in the Region, particularly the introduction of reduced lateral and longitudinal separation, no specific date had been determined for its actual convening.

14.4.2 The Group recalled that at its last Meeting, it had formed the opinion that there were as yet no subjects sufficiently mature that would justify the early convening of a Limited NAT (RAC/COM) RAN Meeting. This view was reinforced when developing the future work programme at this Meeting, which contained many subjects that might eventually require consideration by a Limited RAN Meeting. However, detailed studies have still to be carried out on these matters before reasonable proposals could be developed.

14.4.3 The Group also believed that having regard to the significant developments in the NAT airspace environment in recent years, there was now a need to allow the system to stabilize in order to assess the effectiveness of the changes over a reasonable period of time. Moreover, while further major developments were unlikely in the immediate future, there was a necessity to concentrate on improving the existing system in order to obtain the maximum benefits from the recent changes.

14.4.4 The Group was conscious that the tentative selection of 1984 for the holding of the LIM NAT (RAC/COM) RAN Meeting had been based to some extent on the views expressed at NAT SPG/18. It now appeared to the Group that even this date would be premature and that there would be a danger that its work in a number of important areas would not be sufficiently advanced by that time. Having regard to these considerations, it would therefore be preferable if the Limited NAT (RAC/COM) RAN Meeting were planned for the second half of 1985.

14.4.5 The Group agreed to revert to this matter again at its next Meeting in the light of progress achieved in its work programme.

14.5 Developments related to the termination of the SCOTICE and ICECAN cable contracts

14.5.1 In accordance with the provisions made at the NAT SPG/18 Meeting, (cf. paragraph 9.7 of the Report of that Meeting), the Group was informed of the results of the Third Informal NAT AFTN/AFS Meeting (27-30 April 1981). That Meeting had considered various options that could be used to meet the stated operational requirements for AFS circuits in the Northern part of the NAT Region. It had recommended the continuing use of the SCOTICE/ICECAN cable after 31 December 1982, when the present cable leasing arrangements are to expire, up to 31 December 1985. In particular, "bundled cost" quotations had been discussed and agreed for the use of the ICECAN cable during the 1983-1985 three-year period. The circuit configuration for this period also envisaged the use of the CANTAT 2 cable or satellite for the routing of circuits between Canada and the United Kingdom. This configuration had been agreed mainly on the grounds that it best suited the AFS operational requirements for the Region by providing routing diversity.

14.5.2 It was reported to the Group that the ICAO Joint Support Committee of Air Navigation Services had considered the Report of the Third Informal NAT AFTN/AFS Meeting and generally agreed with the recommended arrangements.

ATTACHMENT
to Item 14

MODIFICATION TO DESCRIPTION OF ROUTES THROUGH MNPS AIRSPACE BETWEEN SPECIFIC POINTS IN PORTUGUESE TERRITORIES

Note : The following is a modification to the description of the routes currently contained in the NAT Guidance Material (Appendix H to Part 1, para 1.5 refers). Changes are identified by a vertical line in the margin.

The Group agreed that aircraft which are equipped with normal short-range navigation equipment (VOR/DME, ADF) and at least one fully operational set of one of the following navigation equipment :

i) DOPPLER with computer

ii) INS

iii) OMEGA

should be considered capable of meeting the MNPS while operating along routes between :

a) Funchal — Santa Maria
Funchal — Ponta Delgada

b) Lisboa — Ponta Delgada
Lisboa — Santa Maria

c) Lisboa - Lajes

LIST OF NAMES AND ADDRESSES OF THE MEMBERS OF THE NORTH ATLANTIC SYSTEMS PLANNING GROUP

LISTE DES NOMS ET ADRESSES DES MEMBRES DU GROUPE DE PLANIFICATION COORDONNEE ATLANTIQUE NORD

Name/Nom	State/Etat	Address/Adresse	Remarks/ Observations
J.D. Lyon	CANADA	Transport Canada ATP/T Ottawa, Ontario KIA ON8 Tel. (613) 995 5542 Telex 053 3130	
F. Rico	FRANCE	Direction de la Navigation aérienne 3, avenue de Friedland 75008 Paris Tel. (1) 563 19 00 Telex 28081	
G. Matthiasson	ICELAND/ ISLANDE	Chief, ATS Section Directorate of Civil Aviation Reykjavik Airport P.O. Box 350 101 Reykjavik Tel. (91) 17430 Telex 2250 FALCON ISLAND	
J.V. Feehan	IRELAND/ IRLANDE	Chief Executive Officer Air Navigation Services Office Department of Transport Kildare Street Dublin 2 Tel. (01) 789522 Ext 460) or (01) 763716 (Direct) Telex 4651	
W. Aardoom	KINGDOM OF THE NETHERLANDS/ ROYAUME DES PAYS-BAS	Head ATS Studies and Research Department of ATS and Telecommunications Koninginnegracht 19-21 P.O. Box 20903 2500 EX The Hague Tel. (020) 5162127 Telex 31435	

Name/Nom	State/Etat	Address/Adresse	Remarks/ Observations
L.D. Lopes	PORTUGAL	Direcçao de Planeamento ANA-EP Avenida Marechal Gomes da Costa, 21 1800 - Lisboa Tel. 852 546 Telex 14738 ANA EP P	
R. Croxford	UNITED KINGDOM/ ROYAUME-UNI	National Air Traffic Services CAA House - Room T926 45-59 Kingsway London WC2B 6TE Tel. (01) 379 7311 Ext. 2487 Telex 883092	
J. Matt	UNITED STATES OF AMERICA/ ETATS-UNIS D'AMERIQUE	North Atlantic Systems Planning Office AIA-104, FAA Office of International Aviation Affairs Washington D.C. 20591 Tel. (202) 426 3710 Telex 892562	

- END -