SUMMARY OF DISCUSSIONS AND CONCLUSIONS

OF THE

EIGHTEENTH MEETING OF THE NAT SYSTEMS PLANNING GROUP

(Paris, 30 March - 10 April 1981)

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1. Introduction

1.1 Convening and Conduct of the Meeting

1.1.1 The Eighteenth Meeting of the NAT/SPG was held in the European Office of ICAO from 30 March to 10 April 1981. It was chaired by Mr. J.G. ten Velden, the Member of the Netherlands and a list of participants is given on page vii. The Meeting of the Group was conducted throughout as an open Meeting with all participants present.

1.1.2 In his opening address, the Chairman welcomed the two new Members of Iceland and Portugal which, after consultation within the Group and contacts with the two Administrations concerned, attended the Meeting for the first time in their new quality as full Members of the Group. He also welcomed Mr. F. Rico, of France, who had been appointed as the replacement of Mr. D. Rénuit and expressed the hope that the Group would continue, with its expanded Membership, in the same efficient manner as had been the case in the past.

1.1.3 While on the subject of the composition of the NAT/SPG, the Chairman also noted with regret that the present Meeting was likely to be the last one which would be attended by Messrs G. Foy (Canada), N. Boserup-Olsen (Denmark), R. Howley (Ireland), A. White (United Kingdom) and P. Berger (the Secretary). He therefore wished to pay tribute to them, in the name of the Group, for the services rendered to it and the contributions they had made to the continued improvement of air navigation services in the NAT Region, in the hope that all of them would continue to enjoy good health and success in their future stations in life.

1.1.4 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 so that their views could be taken into account on subjects of interest to them. Norway had, however, informed the Group that, due to unforeseen reasons, it could not be represented at this Meeting.

1.1.5 For some subjects, the Group created ad hoc drafting groups of varying composition. The more important groups were :

a) a drafting group charged with the scrutiny of observed gross errors of which Mr. R. Croxford, of the UK, acted as Rapporteur;

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

c) a group charged with the initial review of Agenda Item 9 of which Mr. R. Whitford, of Ireland, acted as Rapporteur.

1.1.6 Mr. P. Berger served as Secretary of the Meeting, assisted by Messrs W. Arcangeletti and C. Eigl. All three are Members of the European Office of ICAO.

2. Composition of the Agenda

2.1 Prior to the Meeting, a draft Agenda had been circulated, which had been prepared based on 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.

AGENDA

Item 1 : Review of the situation regarding lateral separation in the Region subsequent to the introduction of 60 NM lateral separation in MNPS airspace.

Item 2 : Review of the situation regarding the introduction of a reduction in longitudinal separation under specified conditions as of 26 November 1981 and related position reporting procedures.

Item 3 : Review of the provisions and guidance material regarding the application of the Mach Number Technique to a sub-sonic turbine-engined aircraft.

Item 4 : Review of a proposal to extend the MNPS airspace within the Reykjavik CTA from 6700N to the North Pole.

Item 5 : Initial assessment of the feasibility of using composite separation (30 NM/1000 feet) in MNPS airspace of the Region.

Item 6 : Review of future trends in air navigation developments, particularly those emanating from the OASIS project and their implications on future NAT air navigation system planning.

Item 7 : Review of developments regarding crossing and joining traffic.

Item 8 : Review of the NAT MNPS Operations Manual and the NAT Guidance Material with a view to their up-dating as required.

Item 9 : Review of the HF Communication situation in the NAT Region covering :

a) routine review;

b) uniform use of abbreviations by ground stations in the composition of messages;

c) designation of SSB frequencies in air-ground communications;

d) position report format;

e) SELCAL; and

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

Item 10 : Review of the situation regarding the introduction of automatic data processing in Oceanic ACCs of the Region.

Item 11 : Up-dating of the work programme of the NAT/SPG during the next two years.

Item 12 : Exchange of views on the need by ICAO to convene a Limited NAT (RAC/COM) RAN Meeting in 1982.

Item 13 : Any other business :

a) review of the new forecasts of the NAT Traffic Forecasting Group and their utility for traffic management purposes;

b) matters arising from the 11th Meeting of OAC Chiefs :

c) review of situation regarding airspace reservations;

d) improvements to the organized track system;

e) re-configuration of SST Routes;

f) extension of ATS Route G3 from Keflavik to Sondrestrom;

g) review of the situation regarding IGA operations in the NAT Region;

h) situation report on developments regarding the Paris - New York - Paris air race; and

i) situation report on planned round-the-world balloon flights.

LIST OF CONCLUSIONS

LIST OF PARTICIPANTS

CANADA

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Agenda Item 1 : Review of the situation regarding lateral separation in the Region subsequent to the introduction of 60 NM lateral separation in MNPS airspace.

1.1 Introduction

1.1.1 The review of this Item was conducted under the following four aspects :

a) operational considerations resulting from the use of 60 NM lateral separation;

b) validation of the continued use of this separation;

c) contingency planning for this separation; and

d) problems left in the mathematical-statistical field regarding this separation.

1.2 Operational considerations resulting from the use of 60 NM lateral separation

1.2.1 The Group was informed that, since the introduction of 60 NM lateral separation, it had been found that the positioning of the Organized Track System in the NAT Region tended to vary more than had been the case before. The only noticeable effect of this was that, on the occasion of a North-about arrangement of the tracks for West-bound flights, more of them penetrated the Reykjavik CTA. This did however not pose any specific problems since co-ordination between OACs concerned remained good.

1.2.2 Although not only relevant to the question of lateral separation as now used, the Member of the United Kingdom informed the Group at this stage that, since smaller deviations from track (within the 15 to 30 NM range) were now assuming greater interest in the assessment of the overall navigation performance, it intended to include a survey of such smaller errors in its 1981 core sample. In this survey, navigational data recorded by operators (and especially the navigational error recorded at the destination of the flight) will be taken into consideration. He suggested that similar efforts be made for West-bound flights on the North American boundary of the NAT Region and this was agreed to by the Member of Canada. However, the latter pointed out that, because Gander OAC was about to be moved into a new installation, no date could be given for the start of such a survey by that unit.

1.2.3 The Representative of IATA informed the Group that member airlines of his Organization were also taking a closer look at smaller errors with a view to their elimination. He felt that one possibility to be explored in this direction was to ensure that flights navigating on INS and which had already been en-route for a considerable time before arriving at the NAT boundary, would up-date their INS equipment as close as possible to that boundary. To this extent IATA was now engaged in the development of up-dating methods for INS which it intended to propose for use by its operators.

1.2.4 In this context, the Member of the United Kingdom informed the Group that his Administration, in co-operation with EUROCONTROL, had developed INS up-date tables, based on VOR/DMEs situated in the UK and Ireland. These tables were available to IATA.

1.3 Validation of the continued use of 60 NM lateral separation

1.3.1 Under this heading, the Group proceeded with the usual scrutiny of observed gross errors and found that, between 1 September 1980 and 31 March 1981, out of a total of 37 145 observed flights, 9 gross errors were found to be eligible for mathematical-statistical assessment.

1.3.2 Since it had been agreed at NAT/SPG 17 (Para. 1.7.9 of NAT/SPG 17 Summary refers) that both Model 1 (unweighted) and Model 2 (weighted) should be used when considering the number of gross errors against the 50 to 70 NM criteria, this was done with the following results :

a) Model 1 : 2

b) Model 2 : 4.06

The breakdown of errors according to classifications established by NAT/SPG 17 was as follows :

CLASS	ERROR				
	⩾ 30 NM	50 - 70 NM			
		Total Traffic		OTS Traffic	
		Model 1	Model 2	Model 1	Model 2
A*	1	0	0	0	0
C*	5	1	3.06	1	2.14
F*	2	0	0	0	0
*	1	1	1	0	0
Total	9	2	4.06	1	2.14
Observed Traffic		37,145		27,856	

* 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;

F - other navigation errors, including equipment failure of which notification was not received by ATC.

The error listed without indication of a class was notified during the NAT/SPG but, in the time available it was not possible to attribute it to any specific cause for lack of details.

1.3.3 Using the MNPS criteria to compare the above errors against the respective number of observed flights (i.e. total traffic and traffic on the OTS) it was calculated that the total number of flights observed would allow for 19.6 observed errors $\leqslant$ 30 NM and for 4.8 errors (for the total traffic) or 3.6 errors (traffic on the OTS) of 50 to 70 NM.

1.3.4 In conducting this scrutiny, it was believed useful to continue to circulate details of all navigation incidents to interested parties and it was therefore agreed that, in future, a separate tabulation of those errors not eligible for scrutiny would be prepared as part of the monthly monitoring data prepared by the United Kingdom. In this respect it was noted that, in the review period now under consideration, the number of such errors exceeded that of errors which were scrutinized.

1.3.5 The scrutiny als revealed that aircraft not meeting the MNPS continued to operate in MNPS airspace and that one error was caused by an aircraft which was equipped with single-OMEGA and DOPPLER equipment only. In the latter case it was therefore felt advisable to comment on the guidance material regarding navigation equipment fit as developed by the LIM NAT RAN Meeting 1976 regarding this particular fit and insert an appropriate note of warning, indicating that, while this fit was acceptable, it was nevertheless at the lower limit of what was tolerable (para. 8.2 in the Summary on Item 8 refers).

1.3.6 It was also found that future gross error investigations would be facilitated if the operator was requested to provide, on the error report form, the un-updated terminal INS error on arrival at destination and this in terms of bearing and distance. IATA was therefore requested to encourage its member airlines to record this information.

1.3.7 As to the application of the monitoring procedure in general, it was found that the response by operators concerned by gross errors was good and that administrations, seized with error reports, also took follow-up action. It was however believed necessary to warn States to keep monitoring authorities currently advised of changes in addresses to ensure that error reports reach the responsible parties with the least delay.

1.3.8 As to follow-up action on reported gross errors, experience seems to show that appropriate internal action, taken by operators in co-operation with the aviation authorities concerned, with respect to aircrews having been found to be at fault, was more effective than the institution of formal legal proceedings against them, because these latter were in general slow and cumbersome.

1.4 Contingency planning for 60 NM lateral separation

1.4.1 The Group confirmed that the procedures developed by the Special Co-ordination Meeting in September 1980, covering an increase in lateral separation in case of deteriorations of the system should be maintained without changes (para. 2.4 - and especially para. 2.4.9 - of the Summary on the Special NAT/SPG Co-ordination Meeting refer).

1.5 Problems left in the mathematical-statistical field regarding 60 NM lateral separation

1.5.1 The Meeting recalled that, at NAT/SPG 17, it had been found that there remained certain differences of views between the mathematical-statistical experts regarding the relative merits of Models 1 and 2 for the scrutiny of observed gross errors (paras. 1.7.2 and 1.7.3 of the NAT/SPG 17 Summary refer). At the Special Co-ordination Meeting of the Group in September 1980, it had been found that these differences continued to persist and it was for this reason that the Member of the USA had been requested to prepare detailed material on his point of view on this matter for presentation at this Meeting in order to assist in overcoming these differences (para. 2.3.2 of the Summary of the Special NAT/SPG Co-ordination Meeting refers).

1.5.2 The Group noted with appreciation the considerable effort which had been made by the Member of the USA to present the US point of view to this Meeting. This permitted the Group to more closely understand the differences between those who subscribe to Model 1 and those who prefer to use Model 2.

1.5.3 As the scrutiny of observed errors had revealed that the tendency towards an improvement in the navigation performance of traffic operating in the MNPS airspace of the NAT Region continued (see para. 1.1 above) and there was therefore, at least in the immediate future, little likelihood that the mathematical-statistical assessment would be required to be used as an important tool in the validation of 60 NM lateral separation, the Group agreed that the procedure, whereby Models 1 and 2 were used side by side did not cause difficulties.

1.5.4 However, in order to eventually resolve this problem, the Group requested its mathematical-statistical experts to continue work in this field with the objective to develop a commonly acceptable methodology.

1.5.5 In developing such a methodology, it was also believed necessary to put emphasis on the need that it should take realistic account of the nature, quality and origin of the data to which it was to be applied and also of the general level of navigation performance and tendencies in this respect.

1.5.6 With regard to the presentation of trends in the development of the mathematical-statistical risk, the Member of the USA presented a proposal to the Group that envisaged that this presentation should be related to a 12-month period rather than to a 6-month period only. He felt that such a presentation tended to put short-term variations into a better perspective and gave a clearer indication of the general trend of developments. It was agreed that all aspects relevant to this matter should be the subject of further study.

CONCLUSION 18/1 - 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) future scrutiny work continue to use both Models 1 and 2 until such time as these can be replaced by a methodology developed in accordance with c) below; and

c) the mathematical-statistical experts of the Group continue their work in this field with a view to developing proposals for a commonly acceptable methodology for the mathematical-statistical assessment of risk involved in the use of 60 NM lateral separation.

Agenda Item 2 : Review of the situation regarding the introduction of a reduction in longitudinal separation under specified conditions as of 26 November 1981 and related position reporting procedures.

2.1 Introduction

2.1.1 When reviewing this Item, the Group considered the following three aspects :

a) practical considerations related to the use of 10 minutes longitudinal separation under specific conditions;

b) certain mathematical-statistical aspects related to this separation; and

c) review of the application date.

2.2 Practical considerations related to the use of 10 minutes longitudinal separation under specific conditions

2.2.1 The Member of the United Kingdom informed the Group that, in the United Kingdom, a simulation exercise using 10 minutes longitudinal separation and based on actual traffic samples from busy West-bound flow periods in July 1980 had been conducted at Shanwick OAC and this had given similar results to an earlier exercise conducted at Gander OAC (paras 3.3.8 to 3.3.10 of NAT/SPG 17 Summary refer). In fact, it had been found that the use of this reduced longitudinal separation :

a) did not increase the workload on ATC to a significant extent; and

b) more aircraft could be cleared at their requested flight levels and tracks than was the case at present.

The latter seemed to indicate that about a net 8% of the total traffic could expect improvements in the manner in which it was accommodated in the system but, as this figure had been derived from a simulation exercise only, it was to be treated cautiously. Nevertheless, it could safely be said that some improvement would result from the application of this reduced separation and this corresponded closely to the results of the simulation exercise which had previously been conducted at Gander OAC.

2.2.2 As to the problems likely to arise in the transition area between North Atlantic and domestic airspace on the Eastern side of the NAT Region, a fast-time simulation was currently being carried out by EUROCONTROL. Its results, while indicating the level of constraint to track land-falls, profiles, etc., will however not prevent the implementation of the reduced longitudinal separation in Oceanic airspace.

2.2.3 In summary, the Group therefore confirmed that there were no practical objections to the use of this type of separation.

2.3 Mathematical-statistical aspects related to a reduction in longitudinal separation

2.3.1 The Group was presented with a Report of its mathematical-statistical experts which had looked at the lateral occupancy values, the distribution of longitudinal exit separation of West-bound aircraft at 50°W, at the value of the probability of vertical overlap $P_z(0)$ and at certain monitoring aspects.

2.3.2 With respect to the lateral occupancy values for 10 and 15 minutes the UK had repeated the simulation calculations which had been presented to NAT/SPG 17 (para. 3.2.2. g) of the NAT/SPG 17 Summary refers) but using this time the 3-minute "rule of thumb" instead of the 4-minute rule for a difference of 0.01 in Mach number between a preceding slower and a successive faster aircraft. The experts noted that they were less affected by the change that might have been expected and that the reasons for this might be complex. It also noted in this context that the United Kingdom intended to measure the achieved occupancy values during 1981 and that this was expected to provide further data on this subject.

2.3.3 As to the distribution of longitudinal exit separations of West-bound aircraft at 50°W, it was found that data presented by Canada on this subject was very similar to that published earlier by the United Kingdom for East-bound aircraft.

2.3.4 The Group also noted a paper which had been prepared by the USA in response to a request made at NAT/SPG 17. It was found that the smoothing process described in that paper increased the estimates of collision risk calculated for those cases were there was essentially no control intervention on pairs of aircraft between which longitudinal separation diminished in the course of their flight across the North Atlantic. It was however agreed that the differences shown in this paper with respect to previous assumptions did not significantly influence the decision to accept the 10 minutes separation.

2.3.5 As to the value of the probability of vertical overlap $P_z(0)$, it was noted that this had been selected as 0.25 in 1966. It could be expected that some increase in height-keeping accuracy had been achieved since then. Recent information supplied by the USA indicated that some improvement had occurred but that the present value of $P_z(0)$ should still be below 0.5.

2.3.6 In conclusion, the mathematical-statistical experts agreed that the new evidence placed before them did not give reason to reverse the decision to implement 10 minutes separation in 1981.

2.3.7 With regard to certain requirements for continued specific monitoring of longitudinal separation put forward by the mathematical-statistical experts, the Group felt that such monitoring was inherent in the conduct of air traffic control and that, therefore, no special arrangements needed to be made. In fact, it was expected that, should any OAC find that it was confronted with a trend toward insufficient longitudinal separation between pairs of aircraft separated by this type of separation, this would be reported to the NAT/SPG for corrective action.

2.4 Review of the application date

2.4.1 In view of the above, the Group agreed that the application date for 10 minutes longitudinal separation, as established at NAT/SPG 17 (Conclusion 17/6 applies), was to be maintained and provider States concerned would take necessary co-ordination action with regard to the timely issue of an appropriate NOTAM announcing the use of this separation.

CONCLUSION 18/2 - APPLICATION OF REDUCED LONGITUDINAL SEPARATION IN THE NAT REGION

That :

a) the application date of 26 November 1981 for 10 minutes longitudinal separation under conditions specified in DOC 7030 be retained; and

b) provider States concerned arrange for the co-ordinated and timely publication of an appropriate NOTAM Class I announcing the use of such separation.

Agenda Item 3 : Review of the provisions and guidance material regarding the application of the Mach Number Technique to sub-sonic turbine-engined aircraft

3.1 Introduction

3.1.1 At NAT/SPG 17, it had, inter alia, been agreed that Canada, the United Kingdom and the USA prepare proposals for the up-dating of the material in Attachment H to the PANS/RAC regarding the application of the Mach Number Technique to sub-sonic aircraft (Conclusion 17/7 refers).

3.1.2 In pursuance of the above, the Group had now before it material which had been developed by the UK and reviewed by Canada and the USA as well as the Netherlands, which had made a specific contribution regarding the "rule of thumb" included in the material.

3.2 Discussion

3.2.1 When reviewing the material, the Group made a number of amendments and these related specifically to :

a) maintenance of the assigned Mach Number during climb and descent in the course of flight within the area where the Mach Number Technique was applied; and

b) the resultant procedure to be applied to aircraft during step-climb.

3.2.2 In addition, the Group made a number of editorial amendments to the text which, in its view, were required to render the new guidance material as clear and unambiguous as possible. The resultant proposed text for replacement of Attachment H in the PANS/RAC is contained in the Attachment to the Summary of this Item.

3.2.3 The Group also noted that the Member of the UK would request his Administration to present this text formally to ICAO for processing in accordance with the established amendment procedure.

3.2.4 As to the remaining task of extracting relevant material from this Attachment and transforming it into text suitable for inclusion into DOC 7030 as NAT RAC SUPPs, it was agreed that this should be done between the UK and the European Office of ICAO and that, after completion, the UK would present this text formally to ICAO for processing.

CONCLUSION 18/3 - REPLACEMENT OF GUIDANCE MATERIAL IN THE PANS/RAC ON THE APPLICATION OF THE MACH NUMBER TECHNIQUE

That :

a) the material shown in the Attachment to the Summary of this Item replace that contained in Attachment H to the PANS/RAC;

b) the Member of the UK take necessary action that this material be presented formally to ICAO for the necessary amendment of DOC 4444 - RAC/501; and

c) the UK, in co-operation with the European Office of ICAO, extract relevant material from this Attachment, prepare it for inclusion into Doc 7030 as NAT RAC SUPPs and present it formally to ICAO for processing.

ATTACHMENT
to Item 3

PANS/RAC DOC 4444 ATTACHMENT H - APPLICATION OF THE MACH NUMBER TECHNIQUE TO LONGITUDINAL SEPARATION BETWEEN SUBSONIC AIRCRAFT

1. Description of the term

1.1 The term "Mach Number Technique" is used to describe a technique whereby present generation sub-sonic turbojet aircraft operating successively along suitable routes are cleared by ATC to maintain appropriate Mach Numbers for a relevant portion of the en-route phase of their flight to which pairs of aircraft are required to adhere in order to maintain longitudinal separation between them.

2. Objectives

2.1 The principal objective of the use of the Mach Number Technique is to achieve improved utilisation of the airspace on long route segments with a minimum of ATC intervention where ATC has no means other than position reports of ensuring that longitudinal separation between successive aircraft is not reduced below the established minimum. The performance characteristics of turbojet aircraft during the en-route cruise phase of flight are used to stabilize the speed differential between aircraft operating along the same track and at the same flight level thereby facilitating the maintenance of more precise time separation between the aircraft concerned.

2.2 Practical experience in the NAT Region has shown that two or more turbo-jet aircraft operating along the same route at the same flight level and maintaining the same Mach Number are likely to maintain a constant time interval between each other. This is due to the fact that the aircraft concerned are normally subject to approximately the same wind and air temperature conditions. Minor variations in speed which might increase or decrease the spacing between them tend to be neutralized over long periods of flight.

3. Pre-requisites

Area of application

3.1 The application of the Mach Number Technique is particularly suitable for areas where the environment is such that position reporting and ATC intervention with individual flights can, at times, be subject to delay. In addition, the following represent typical characteristics of the route structure and environment which make a given area suitable for the application of the Mach Number Technique :

a) aircraft in the area generally follow the same or diverging tracks until they are provided with other than longitudinal separation; and

b) flights conducted in the area comprise a significantly large portion of stable flight (e.g. not less than one hour) and the aircraft concerned have normally reached their cruising level when entering the area.

Aircraft instrumentation

3.2 The application of the Mach Number Technique in a given area is based on the assumption that the relevant instruments used by aircraft to which the Mach Number Technique is applied, have been calibrated in accordance with applicable airworthiness practices. Therefore, both States of Registry and operators concerned will have to have taken necessary measures to ensure continued compliance with this prerequisite.

Adherence to the assigned Mach Number

3.3 Unless otherwise advised by the pilot concerned, ATC will assume that the last assigned Mach Number will also be maintained during climbs or descents made in the course of the flight due to re-clearances.

4. General procedures

4.1 Application of the Mach Number Technique should always be based on the True Mach Number.

4.2 The ATC clearance must include the assigned Mach Number which is to be maintained. It is therefore necessary that information on the desired Mach Number be included in the flight plans filed by pilots intending to operate along the routes in the area concerned.

4.3 The normal requirement for ATC to calculate estimated times over significant points by the aircraft along its track still remains. This is necessary both for the provision of horizontal separation between aircraft on crossing tracks and for co-ordination with adjacent ATC units. Therefore ATC must be provided with the necessary data to enable it to do so.

4.4 It is very important that the estimates for the entry point provided by pilots are as accurate as possible since they form the basis for the advance planning of longitudinal separation between aircraft.

4.5 The prescribed longitudinal separation between successive aircraft flying at the same flight level must be provided over the entry point for a particular track or tracks into the area concerned.

4.6 Thereafter, provided that the aircraft maintain their last assigned Mach Numbers, intervention by ATC for the portion of flight where the Mach Number Technique is used, should normally only be necessary if there is conflicting traffic on crossing tracks, or a flight level change is intended.

4.7 When the Mach Number Technique is used, the following procedures apply :

a) aircraft must adhere to the last ATC assigned Mach Number;

b) if essential to make an immediate temporary change in Mach Number (e.g. due to turbulence), ATC should be notified as soon as possible of that change;

c) when required by the appropriate ATC unit, the current true Mach Number should be included in routine position reports.

4.8 Due account must be taken of problems which may be caused at entry and exit points if the longitudinal separation minima used in adjacent airspace differ from those used in the area where the Mach Number Technique is used.

5. Specific procedures

5.1 The following specific procedures related to the use of the Mach Number Technique are based on experience gained in its use in the NAT Region. They are especially useful in areas of high traffic density and where position reporting and ATC intervention with individual flights may, at times, be subject to delay.

Use of the Mach Number Technique for climbing and descending aircraft

5.2 The Mach Number Technique may be used for the provision of longitudinal separation between aircraft carrying out climbs or descents and aircraft operating at the new and/or intermediate flight levels .

Use of the Mach Number Technique between successive aircraft operating at different Mach Numbers

5.3 If two successive aircraft intend to operate along the same track and at the same flight level and the second aircraft intends to operate at a higher Mach Number than the preceding aircraft, the longitudinal spacing between the aircraft over the entry point should be increased by an amount which takes into account the relative ground speeds and the track distance to ensure that longitudinal separation will exist over the exit point of the track. In order to achieve this, ATC must have at its disposal position information obtained from aircraft and preferably also latest forecast upper winds in order to prepare flight progress strips with calculated estimated times over significant points up to and including the exit point from the area.

5.4 In the absence of computer assisted conflict prediction the pre-calculation of ground speeds and aircraft times over significant points is time consuming, especially for long track distances, and in dense traffic situations would delay the issue of clearances to an unacceptable level. In these cases a "rule of thumb" can be developed which allows clearances to be issued in a timely manner, provided that the existence of the prescribed minimum longitudinal separation over the exit point is subsequently confirmed by reference to calculated flight progress strip information.

Example of "rule of thumb" used in the application of Mach Number Technique in NAT MNPS airspace

5.5 A useful "rule of thumb" has been derived for use with present generation sub-sonic turbo-jet aircraft which takes into account Mach Number difference and track distance. It does not however take any account of headwind component, hence it is essential that clearances are cross-checked with calculated flight progress strip information. This rule is as follows :

> For each 600 NM of track distance ADD one minute to the prescribed minimum longitudinal separation at entry point for each 0.01 Mach difference.

e.g.

Track Distance	1800 NM	ADD 3 mins for each 0.01 Mach Diff.
" "	2400 NM	ADD 4 " " " " " "
" "	3000 NM	ADD 5 " " " " " "

EXAMPLES :

(1) Mach 0.82 aircraft followed by Mach 0.84 aircraft.
Longitudinal separation minimum 15 mins.
Track distance 1800 NM : ADD 3 mins X 2 (Mach diff.) = 6 mins.

15 mins + 6 mins = 21 mins longitudinal separation required at the entry point.

(2) Mach 0.78 aircraft followed by Mach 0.84 aircraft.
Longitudinal separation minimum 15 mins.
Track distance 2400 NM : ADD 4 mins X 6 (Mach diff.) = 24 mins.

15 mins + 24 mins = 39 mins longitudinal separation required at the entry point.

Agenda Item 4 : Review of a proposal to extend the MNPS airspace within the Reykjavik CTA from 6700N to the North Pole

4.1 Introduction

4.1.1 At NAT/SPG 17, Iceland had presented to the Group a proposal to extend the MNPS airspace within the Reykjavik control area beyond 67°N to the North Pole. This proposal had at that time been based on the fact that practically all commercial air transport operations, operated in that airspace, were coming from, or proceeding into MNPS airspace in the course of their flight and therefore by necessity meet the MNPS. The present need to provide these aircraft with 120 NM lateral separation when flying North of 67°N within the Reykjavik CTA imposed considerable difficulties onto the ATC services and, at the same time, constituted a certain penalty to operators concerned because of the inherent deviation from the optimum track of at least part of the air traffic in case of conflict.

4.1.2 At NAT/SPG 17, the Group had reserved its position on this proposal because it felt that some of its aspects required further study, but it had also been agreed that the matter should once more be reviewed at this Meeting (para. 7.8 of Summary NAT/SPG 17 refers).

4.1.3 The Group had now before it :

a) a paper from IATA which proposed the straightforward extension of the MNPS airspace to the North Pole within the existing vertical limits of the MNPS airspace;

b) a paper from Denmark suggesting that the MNPS airspace be extended to the North Pole, however with a lower limit of FL 320 within the Reykjavik CTA; and

c) a paper from Iceland proposing that, as an interim solution, aircraft meeting the MNPS and while operating in the area North of 67°N in the Reykjavik CTA and within the vertical limits of MNPS airspace could be provided with 60 NM lateral separation.

4.1.4 This latter proposal by Iceland was based on a similar proposal regarding the New York Oceanic CTA which had been developed during the Special Co-ordination Meeting of the NAT/SPG in September 1980.

4.2 Discussion

4.2.1 When discussing the various proposals, it became immediately apparent that, for the reasons already stated at NAT/SPG 17, i.e. the continued presence of certain flight operations by aircraft not meeting the MNPS criteria, the application of the proposal by IATA was unrealisable.

4.2.2 As to the proposal by Denmark, it was noted that this was in fact the consequence of the continued presence of aircraft, not meeting the MNPS in Greenland. It was however felt that the establishment of a higher lower limit of the MNPS airspace over Greenland than that established elsewhere in the NAT Region (i.e. FL 320 instead of FL 275) would, apart from the complication in presentation, result in an unnecessary systematic restriction to civil operations in order to cater for comparatively limited, but nevertheless essential military operations over Greenland, especially as compliance with the MNPS by the aircraft concerned was foreseen to take place within the next few years.

4.2.3 It was therefore believed that, at this time, the most advantageous solution was to accept the proposal by Iceland, i.e. to authorize ATC to use 60 NM lateral separation within Reykjavik CTA but North of the MNPS airspace between aircraft meeting the MNPS and bound for or proceeding from MNPS airspace. The Representative of IFALPA stated, however, that he had to reserve his position on this proposal.

4.2.4 The Member of Canada recalled to the Meeting that within Canadian domestic airspace, adjacent to the Reykjavik CTA, lateral separation would have to be maintained at 90 NM at present. His agreement to the proposal was therefore dependent on the assurance that Reykjavik ACC would ensure that aircraft entering the Edmonton CTA from the Reykjavik CTA would have 90 NM lateral separation by the time they arrive over the boundary of Edmonton CTA or as otherwise agreed between Canada and Iceland. The Member of Iceland confirmed this understanding and, in view of this, the proposal was accepted by the Group.

4.2.5 When considering the procedural arrangements required to put this proposal into effect, the Group noted that all that was required was to insert Reykjavik CTA into the text developed at the Special Co-ordination Meeting in September 1980 for the New York Oceanic Control Area (para. 2.5.2 of the Summary of the Special Meeting 1980 of the NAT/SPG refers). It was also noted that the proposal made at that Meeting had not yet been formally presented by the USA to ICAO for processing in accordance with the established procedure and that therefore the most efficient manner would now be to combine the two proposals (i.e. that of the Special Co-ordination Meeting and that now agreed at this Meeting) into one single proposal for amendment of DOC 7030 which should, as soon as possible, be presented to ICAO for formal processing.

CONCLUSION 18/4 - AMENDMENT TO THE NAT REGIONAL SUPPS

That :

a) paragraph 2.1.1 b) on page RAC 1-1 of DOC 7030, as amended by Amendment 158, be replaced by the following new paragraph :

"2.1.1

b) 60 NM between aircraft which meet MNPS and which :

i) operate within the MNPS airspace; or

ii) while operating in the New York or Reykjavik Oceanic Control Areas at flight levels contained within the vertical limits of the MNPS airspace (FL 275 and FL 400) are in transit to or from this airspace."

b) the Members of Iceland and the USA take necessary action so that this proposal will be presented to ICAO as early as possible for formal processing.

Agenda Item 5 : Initial assessment of the feasibility of using composite separation (30 NM/1000 feet) in MNPS airspace of the Region.

5.1 Introduction

5.1.1 Consideration of this Item was conducted under the following four aspects :

a) what advantages could be gained from the use of composite separation;

b) practical operational questions requiring resolution;

c) mathematical statistical aspects to be resolved; and

d) determination of a target date for the application of this separation.

5.2 Advantages to be gained from the use of composite separation

5.2.1 Before entering into a detailed discussion of the operational and mathematical-statistical aspects involved in composite separation, the Group felt it useful to determine what advantages were likely to be gained from its use. It was obvious that the use of composite separation increased the capacity of the Organized Track System to accommodate air traffic demand not only as far as the total number of traffic at any given time was concerned, but also with respect to the possibility of ATC to place aircraft, which had to be deviated from their original flight planned track, for traffic reasons, closer to that track than was possible in a track system not using this type of separation. This obvious advantage had however to be seen in the light of improvements regarding lateral separation which were recently made and improvements in longitudinal separation which were to be brought about shortly (Summary of Item 2 refers), as well as with respect to the overall development of air traffic in the NAT Region.

5.2.2 Therefore, if one took account of the fact that, due to the general economic situation, the growth of air traffic in the NAT Region had been significantly reduced and was not likely to assume pre-1970 proportions before a considerable time to come, and taking into account that, during busy traffic periods in the North Atlantic, some 80 to 85% of the aircraft presenting themselves were, already now, cleared via the track and flight level requested in their flight plan, the expected advantages of the application of composite separation in the short term became much less apparent. If one further considered that the use of composite separation in the Organized Track System entailed by necessity a number of disadvantages (e.g. increased difficulties for traffic to join or cross the Organized Track System) and that this separation rendered changes of levels or tracks by aircraft within the OTS more difficult if not, in some cases, altogether impossible, the question of whether to use composite separation at all merited very careful consideration.

5.2.3 The argument, previously used when composite separation was applied in the normal 120 NM lateral/2000 feet vertical environment, namely that the use of composite separation permitted ATC to place aircraft closer to their desired track or level or that which had been found to correspond to this condition was also believed by some to lack some substance because present forecasting techniques, used for the NAT Region by the MET services did not permit a fine-grain planning down to 30 NM, quite apart from the general uncertainty with which MET forecasting had to contend.

5.2.4 It therefore appeared that it would be worthwhile to keep these considerations in mind in further work on this subject so that they could be placed in their proper context whenever more realistic cost effectiveness considerations regarding the use of this type of separation could be made, once further studies had been completed.

5.2.5 On the other hand, the Group felt that, because of the complexity of the above considerations and the uncertainty still surrounding some of the factors involved, it was undesirable to stop work on this subject because, should it be found, some years hence, that use of this separation had to be made in order to accommodate more traffic under the best possible conditions, valuable time for study and resolution of all, as yet open, questions would have been lost with all the accompanying consequences this could have on the economy of NAT operations.

5.2.6 In summary, the Group therefore agreed that work on the subject of composite separation should be pursued without interruption so that no time would be lost, should it be found that its use was offering more advantages than disadvantages.

5.3 Practical operational questions requiring resolution

5.3.1 With regard to the practical operational questions raised in relation to composite separation, the Group believed that this separation, consisting of a mix of 30 NM lateral separation with 1000 feet vertical separation should in any case be applied only to establish "composite tracks" in between the normal ones provided within the Organized Track System in MNPS airspace and between FL 290 and FL 390.

5.3.2 In addition, based on past experience, it was expected that, because of prevailing meteorological conditions in the NAT Region, it would primarily be of benefit to East-bound flights (in order to permit a maximum number of aircraft to take advantage of a frequently narrow band of high tail-winds) but that its application to opposite direction traffic should also be permissible, provided collision risk considerations did not indicate otherwise.

5.3.3 As to the environment required for the use of composite separation, it was noted that, most likely, the following conditions would have to be considered :

a) radar coverage at both the Oceanic entry and exit areas where composite separation was applied;

b) entry and exit procedures to permit a smooth transition from domestic routes to the OTS and vice-versa;

c) the effects of the use of composite separation onto the traffic handling capabilities within the domestic ATS route network on either side of the NAT Region so that likely integration problems are kept to manageable proportions.

5.3.4 Furthermore, when using composite separation within the OTS, the following cases needed to be covered by appropriate procedures ;

a) changes of cruising levels in the tracks affected by composite separation;

b) track changes or crossings of the OTS when composite separation was in use;

c) aircraft joining or leaving the OTS; and

d) emergency descents and/or turnbacks by aircraft operating within the OTS.

5.4 Mathematical-statistical aspects to be resolved

5.4.1 In the mathematical field, it was found that, at present, diverging views existed with regard to analysis covering :

a) height-keeping accuracy;

b) the occupancies;

c) the probability of lateral overlap; and

d) the MNPS criterion.

It was therefore felt that more data was required before it was possible to come to definite conclusions. This applied particularly with respect to data on height-keeping and data on lateral deviations in the range between 10 and 30 NM off-track. In addition, there were still diverging views on the methodology to be applied in treating such data once it became available and this required therefore considerably more work by the mathematical-statistical experts before it was possible to reach a consensus.

5.4.2 Consequently, it was believed necessary that work on the methodology should be continued and that, once a consensus had been reached, detailed specifications for the type and size of data collections be established so that these could be organized on a systematic basis at an early stage.

5.4.3 In any case, the Member of the United Kingdom indicated that his Administration was prepared to organize, in co-operation with others, a data collection on lateral deviations (see also para. 1.2.2), lateral occupancy and, if possible, also on height-keeping so that, at the next meeting of the NAT/SPG, at least initial data on these parameters were available.

5.5 Determination of a target date

5.5.1 In view of the foregoing, the Group believed that there was little use in establishing a fixed date for the application of composite separation in the NAT Region but that, in order to give a general indication of the speed with which necessary further work in this field should be pursued, it would be useful to establish, at this time, a target date by which practical use of composite separation could be expected at the earliest. It therefore agreed that this target date should be Autumn of 1985.

CONCLUSION 18/5 - APPLICATION OF COMPOSITE SEPARATION WITHIN THE OTS OF THE NAT REGION

That preparatory work required both in the operational and mathematical statistical fields regarding the use of composite separation within the Organized Track System of the NAT Region and between FL 290 and FL 390 be pursued with the objective that its practical application may become feasible by the end of 1985.

Agenda Item 6 : Review of future trends in air navigation developments, particularly those emanating from the OASIS project and their implications on future NAT air navigation system planning.

6.1 Introduction

6.1.1 In considering this Item, the Group dealt with the following two aspects :

a) information on a new navigation equipment fit for aircraft engaged in NAT MNPS operations; and

b) an initial review of the results of the work conducted by the "Committee to review the application of satellite and other techniques to civil aviation" (ARC).

6.2 Information on a new navigation equipment fit

6.2.1 The Member of the USA presented the Group with a paper, prepared by Mr. P.R.J. Reynolds, of Pan American Airways, describing the results which this operator had achieved with the provision of an integrated, dual-inertial, single-OMEGA aircraft navigation system which had been installed on board a number of PAA aircraft. From this paper, it appeared that this mixture of inertial and OMEGA navigation equipment had given very satisfactory results because the insertion of OMEGA-derived data into the navigation system tended to compensate for the cumulative error likely to be encountered with INS alone, while the INS equipment was of assistance in those cases where OMEGA-derived data were subject to lane-slipping. In fact, results obtained so far seemed to indicate that, throughout long flights, the total error in navigation for the aircraft concerned could be kept to within small deviations.

6.2.2 At the same time, the costs required to provide this type of navigation fit compared very favourably with those required to have a triple INS fit installed and it was therefore anticipated that increased use of this new arrangement could be expected.

6.2.3 The Group noted this paper with considerable interest and felt that the development indicated therein should be kept under close observation in order to determine whether the expectations, now placed into it, would be justified by future developments, thus offering operators the possibility of meeting the present and possibly more stringent future navigation performance requirements specified by the MNPS in a cost effective manner.

6.2.4 To assist in the future evaluation of this navigation system, the Member of the United Kingdom offered the possibility to extract performance data of aircraft already equipped with this type of navigation system from their normal data collection exercise. However, to do this, it was necessary for these aircraft to be identified and it was agreed that representatives of the UK, the USA and PAA should develop necessary procedures permitting this to be done so that, at the next meeting of the NAT/SPG, the UK would be in a position to present more detailed performance data on these aircraft.

6.3 Initial review of the results of work done by the ARC

6.3.1 Further to information provided to the NAT/SPG at its 17th Meeting on work done by the ARC and, in compliance with Conclusion 17/16 regarding liaison between the NAT/SPG and other bodies on NAT air navigation matters, the Group was informed on the results so far achieved by the ARC up to its 5th Meeting, which had been held in Malaga in December 1980. From this information it became apparent that the ARC, in pursuance of its OASIS project, had arrived at a number of alternatives regarding options for the improvement of the Air Navigation System in the NAT Region and that these were now up for consideration at the 6th Meeting of the ARC which was planned to be held in Ottawa in May 1981. From this situation, it was evident that, at this time, the NAT/SPG could do no more than express its initial reaction with regard to the ARC work because this, in itself, was still tentative. The Group therefore wanted it clearly understood that whatever is recorded hereafter constitutes no more than a preliminary appraisal of the ARC work to-date and should be treated accordingly.

6.3.2 Before dealing with specific options developed by the ARC, the NAT/SPG wanted however to place on record its appreciation for the work done by that Committee because it had, in the view of those, being more closely associated with its work, broken new ground in at least two fields by developing:

a) a more fully integrated approach to all aspects of air navigation in a given environment; and

b) a flight cost model which could, with appropriate adjustments, provide a useful tool to air navigation planning in other parts of the world.

6.3.3 As to the specific options applicable to the NAT Region, and developed by the ARC, it was noted that these appeared to cover the following items :

a) the exploitation of the possibility of a reduction in the vertical separation above FL 290 to 1000 feet;

b) the implementation, on an evolutionary basis, of :

i) improvements in air-ground communications by means of simple HF with data link and optimum coding expandable to a more sophisticated network HF with data link as needed;

ii) an airborne separation assurance device;

iii) improved controller displays;

iv) automatic dependent surveillance;

v) improved on-board navigation capability to support reductions in separation minima;

c) in parallel with b), continued study of improved capability such as simple data-only satellite, and also the optimum options of the development of a multiple-function, multiple satellite system with co-operative independent surveillance.

6.3.4 With regard to a) above, i.e. the reduction in vertical separation, the Group noted that this subject was already under review within ICAO. It was therefore felt that, if this subject was taken up by yet another body duplication of effort could result and it was most likely that the same persons now engaged in this work within ICAO would also be required to engage in the activities of another body dealing with this subject.

6.3.5 As regards the potential use of an airborne separation assurance device (para. b) ii) above refers), the Group noted that this could only refer to the "beacon based collision avoidance system" (BCAS) since this was the only system known to be under development. However, it was also noted that the entire question of improvements to the use of SSR by the use of Mode S (including BCAS) was :

a) as yet in a very tentative stage with regard to likely world-wide technical and operational specifications; and

b) in the process of being included in the world-wide work programme of ICAO, thus again raising the possibility of dual efforts.

6.3.6 With regard to the options mentioned in b) i) and iv), the Group noted that the ARC had recognized that, while they "were imperfect ... they represented useful, potentially cost effective improvements" (para. 6.4 vii) d) on page 2-33 of the draft Report of the 5th Meeting of the ARC refers). In the ensuing discussion with regard to the option mentioned in para. b) i) above (i.e. an HF air-ground data link) this proved to be a most difficult subject because views within the Group on this matter differed considerably.

6.3.7 Those supporting continued studies of this subject by ARC or another similar body felt that this proposal would have to be seen within the overall improvements to the Air Navigation System and that it would therefore be useful to pursue this subject along the lines suggested by the ARC in order not to forego an opportunity to improve the Air Navigation System in the NAT Region appreciably and in the most cost effective manner.

6.3.8 Those having reservations with regard to the manner in which the option of an HF data link system was now presented by the ARC, based these mainly on the following considerations :

a) the traffic forecasts and resulting occupancy times of Oceanic airspace by traffic, developed by the ARC as a basis for a cost effectiveness assessment of the options proposed, were believed to be much too optimistic;

b) the cost savings likely to be achieved with an HF data link system were considerably over-estimated;

c) the operational advantages of an HF data link system, as assumed by the ARC, were not as evident as they were made out to be;

d) the costs for the introduction of an HF data system were believed to be appreciably higher than those quoted by the ARC;

e) the target dates for implementation of such a system assumed by the ARC were over-optimistic because major changes in the NAT Region had generally required lead-times in the order of 10 to 12 years before they could be brought into use and the automated data processing equipment now being brought into operation could not be changed without considerable extra cost to the users;

f) a realistic target date for the implementation of an HF data link system would have to be somewhere around 1995 and it remained to be seen whether a system based on the use of HF was at that time still competitive, taking into account progress made in other fields;

g) further detailed studies of such a system would require a large data collection regarding HF propagation conditions throughout the entire NAT Region with its associated efforts and expenses.

6.3.9 As to the early study of more advanced techniques, and more especially those based on the use of satellites, the Group recalled that ICAO had already formulated a resolution that this matter be kept under review (Resolution A22-20 refers) and the Group felt that, in its view, it was opportune for ICAO to undertake more specific work on this subject.

CONCLUSION 18/6 - INITIAL REVIEW OF THE WORK DONE BY THE ARC IN THE FIELD OF AIR NAVIGATION IN THE NAT REGION

That, after having placed on record its appreciation for the work done by the "Committee to review the application of satellited and other techniques to civil aviation", the following constitutes the initial assessment of the options proposed by that Committee for the improvement of the Air Navigation System in the NAT Region :

a) that work on the reduction of vertical separation above FL 290 in the NAT Region be based on the results of that conducted by ICAO on a world-wide basis;

b) that the potential use of BCAS in the NAT Region be only pursued once the necessary standards regarding its operational performance had been developed within ICAO;

c) that studies regarding the use of an HF data link system in the NAT Region be pursued, taking into account, as appropriate, the observations made in para. 6.3.8 so as to ensure that such studies are based on assumptions which correspond as closely as possible to anticipated general developments in the NAT Region;

d) that ICAO establish, as early as possible, appropriate machinery to develop concepts for the use of advanced techniques, especially those based on the use of satellites in those parts of the world where such techniques are likely to assist in overcoming present communication and ATC problems; and

e) that, as regards the introduction of specific air navigation features in the NAT Region, the NAT/SPG be retained as the primary advisory body of experts to ICAO in this respect.

6.3.10 When discussing data links, the Representative of IATA expressed his view that their provision was a logical development to supplement the present air-ground speech communination links, especially in view of likely technical developments, independent of the technical means used for such a link.

Agenda Item 7 : Review of developments regarding crossing and joining traffic

7.1 Introduction

7.1.1 The problems related to traffic crossing or joining the organized track system (OTS) or operating South of the OTS in the NAT Region were reviewed under the following two aspects :

a) review of the situation to the South of the NAT Region in the light of the results of the NAT/CAR ATS Informal Meeting, held in Mexico City in January 1981; and

b) certain problems encountered with the use of ATS route R99 by traffic operating from the CAR/SAM Regions to Europe.

7.2 Review of the situation to the South of the NAT Region

7.2.1 The Group noted that, in January 1981, an informal ATS Meeting had been held in the North American and Caribbean Office of ICAO in Mexico City between the Netherlands Antilles, Trinidad and Tobago, the USA, IATA and IFALPA at which the ATS situation in the CAR and SAM Regions had been reviewed to the extent that it had an influence on flight operations between these two Regions and Europe across the NAT Region.

7.2.2 The Group noted that the main reasons for the difficulties encountered in the planning, conduct and proper co-ordination of flights originating in the CAR and SAM Regions and bound for Europe resulted from communications difficulties existing in these Regions and that these concerned not only the operation of the AFTN but also the direct ATS inter-area communication links and the aeronautical mobile service. In addition, it was also noted that the existing provisions regarding the application of lateral separation in the CAR Region were such that they rather contributed to these difficulties than alleviate them. From the report of the Meeting in Mexico City it was however noted that these difficulties had been recognized and that agreement had been reached between those present at the Meeting that maximum efforts should be made to eliminate them as early as possible and that the North American and Caribbean Office of ICAO would provide full assistance in these efforts.

7.2.3 As to the question of lateral separation which is used in the CAR Region, it was however found that, since this had repercussions on the manner in which traffic was organized in the NAT Region, the Group felt that it had a legitimate interest in expressing its views on this particular aspect. It noted that, at present 90 NM lateral separation was used in New York Oceanic control area while 100 NM was used west of 55°W in the Caribbean control areas and that 120 NM was used East of 55°W in that Region. Therefore, when projecting the routes normally flown by aircraft between Europe and points in the CAR

and SAM Regions, it was noted that, upon leaving the NAT Region for a short period they had to be provided with 120 NM while operating East of 55°W in the San Juan Control Area and that this was then reduced to 100 NM. The same was obviously true in reverse order for flights operating in the opposite direction. The Group believed that this could not but create serious difficulties to ATC and contribute significantly to the problems already encountered.

7.2.4 It therefore noted with interest proposals by the USA which were discussed at the Mexico Meeting and which envisaged the following :

a) that lateral separation throughout the Miami Oceanic and that part of San Juan CTAs where 100 NM lateral separation is now used, be reduced to 90 NM, thus eliminating the difference between the separation used by the New York and Miami OACs and the San Juan ACC for comparable flight operations in their control areas;

b) that East of 60°W lateral separation should be maintained at 120 NM in the San Juan CTA, except that 60 NM lateral separation could be provided between aircraft meeting the MNPS and transiting to and from MNPS airspace at flight levels contained within the vertical limits of that airspace.

7.2.5 It was believed that the latter proposal was of particular interest to San Juan ACC because it would permit more flexibility in the transfer of air traffic between it and New York or Miami OACs.

7.2.6 Therefore, while fully recognizing that the above was a matter which fell strictly within the competence of CAR States and ICAO, the Group nevertheless felt that, in view of its undoubted beneficial consequences on the organization of air traffic in the NAT Region, it should put on record that, in its view this proposal should receive early consideration. The Representative of IFALPA wanted it however recorded that he reserved his position with respect to this proposal.

7.2.7 As to the extension of 60 NM lateral separation between aircraft meeting the MNPS into the San Juan CTA, the Group was aware that its adoption might be made dependent on the exposure time. This applied especially for West-bound flights of aircraft using INS taking into account the time since initial alignment or subsequent up-dating. The Member of the UK therefore pointed out that extensive data collections made in the UK with regard to the accuracy of navigation with INS on prolonged over-water flights (which as to exposure time and operating conditions were comparable to those encountered in this case) had shown that the degree of accuracy achieved with INS was, in his view, entirely satisfactory to support the proposal from that point of view. In addition, he offered to make this data available to parties concerned, should this be found necessary.

7.3 Problems encountered with the use of ATS Route R 99

7.3.1 The Representative of IATA informed the Group of two problems which were still encountered by flights operating on the EUR-CAR axis. One of these concerned the fact that, even though it had been agreed that, when dictated by meteorological conditions, ATS Route R 99 should be replaced by a flexible track and that this procedure had been implemented during 1980, the flexible route had been established on comparatively few occasions. It was pointed out that this was mainly due to the fact that, on a number of occasions, when the OACs concerned were prepared to establish a flexible track, provided this was requested in the company preferred tracks forwarded by operators, at least one of them had frequently proposed a flexible track, followed by the remark that the use of ATS Route R 99 was satisfactory. It was therefore up to the operators to state their preferences clearly and in an unambiguous manner.

7.3.2 The second point raised by the Representative of IATA concerned the fact that, when ATS Route R 99 was used for East-bound flights, the operators were at present required to flight plan along that route (including the detour it implied when entering the EUR Region as compared to the preferred route from a suitable point within the NAT Region to their destination) and carry consequently the additional fuel required for this route, thus resulting in an unnecessary economic penalty. In practice, it had however been found that, upon approaching the point 45N20W, Shanwick OAC was able to clear aircraft on a much more direct routing towards their destination.

7.3.3 He therefore requested whether it would not be possible to permit operators to indicate in their flight plans that while they would operate along ATS Route R 99 up to point 45N20W, from there on they would show their preferred route to destination. After discussion of all relevant aspects, including that the indication of the preferred route from 45N20W to destination did not automatically imply approval of this route by ATC but would in each individual case require confirmation by Shanwick OAC in the form of the specific clearance, the Group accepted the proposal by IATA with the following proviso :

a) ATS Route R 99 is maintained with its present alignment;

b) when ATS Route R 99 has been specified as the East-bound route on a specific day, operators should file flight plans along that route at least up to 45N20W. However, thereafter they may state, in their flight plans, a route of their choice to the most convenient landfall point in the EUR Region;

c) New York OAC and San Juan ACC, when issuing the initial oceanic clearance for such flights will clear them along ATS route R 99 to its landfall points at Nantes;

d) if the pilot wishes to proceed along the route specified in his flight plan onwards from 45N20W, he must, when approaching that point, request a reclearance from Shanwick OAC and this OAC will comply with this request or issue another suitable clearance, depending on traffic conditions as they exist at the time; and

e) in case such a re-clearance cannot be requested and obtained in time, the aircraft concerned will follow their initial ATC clearance and proceed along ATS route R 99 to Nantes.

7.3.4 In view of the fact that the above arrangements concerned only a limited number of operators, the Group felt that it would not be necessary to make them the subject of a NOTAM but felt that it was sufficient if they were notified to operators concerned in the form of a letter.

7.3.5 While on this subject, the Group also agreed that the arrangements regarding the flexible tracks, which had previously been instituted on a trial basis, should now be given permanent status in view of the fact that their application had been found to be feasible.

CONCLUSION 18/7 - USE OF FLEXIBLE TRACKS FOR FLIGHT OPERATIONS BETWEEN THE EUR AND CAR REGIONS

That the arrangements concluded between OACs and operators concerned regarding the use of flexible tracks, which had previously been instituted on a trial basis, be as of now considered as part of the routine procedures applied in the NAT Region.

Agenda Item 8 : Review of the NAT MNPS Operations Manual and the NAT Guidance Material with a view to their up-dating as required.

8.1 Review of the NAT MNPS Operations Manual

8.1.1 The Group was informed by its Member of the United Kingdom that the production run of 1000 copies of the NAT MNPS Airspace Operations Manual, which had been made by the United Kingdom, was now exhausted and that demands for further copies were still received. Other Members of the Group also stated that the request for copies of this Manual persisted and that they had been required to reproduce, on their own, additional copies to satisfy the demand. Judging from the response of recipients of this Manual, it also appeared that this document had met with considerable success amongst users and had been found very useful.

8.1.2 The Group therefore noted with satisfaction the statement by its Member of the UK that his Administration was prepared to print a new edition of this document in which a number of editorial amendments and also a number of additions of substance would be incorporated.

8.1.3 After a brief discussion of the various points raised in this context, the following proposals were accepted by the Group :

a) after revision by the editors from the UK and IATA the United Kingdom will make arrangements for the issue of a third edition of the NAT MNPS Airspace Operations Manual with a production run of 3000 copies;

b) 1000 copies of this third edition will be made available to the European Office of ICAO for regular distribution to NAT States and International Organizations concerned, including the provision, on a limited scale, of additional copies to individual States and/or Organizations upon specific request;

c) the Paris Office will, as in the past, provide for a translation of this new edition into French and Russian and will also arrange for the production of a version in Spanish, this latter intended to satisfy the requirements of States and operators using that language as their primary communication means.

d) the issue of the third edition will be planned for December 1981 so that the new provisions regarding 10 minutes longitudinal separation for aircraft qualifying for this separation can be included in the Manual;

e) approximately one month prior to the issue of the third edition of the Manual, a draft text will be provided to the European Office of ICAO for editorial review so that difficulties likely to arise in the translation process can be resolved; and

f) the co-ordinator of the above exercise will be Mr. H. Sweetman of the United Kingdom to whom all inquiries and proposals for revisions or additions to the content of the Manual should be addressed.

8.2 NAT Guidance and Information Material

8.2.1 With respect to the third edition of the NAT Guidance Material, as prepared by the European Office of ICAO, the Member of the United Kingdom pointed out that this gave rise to only one query. This concerned the material shown in Appendix B to Part I of the material concerning "Specific navigation equipment fits likely to meet MNPS in the NAT Region". This Appendix, which was an extract from the Report of the LIM NAT RAN Meeting (1976) stated in its paragraph 3 that aircraft equipped with a single-OMEGA together with a fit of DOPPLER equipment could be considered as meeting the MNPS. This statement was made in 1976, taking into account the best possible advice available on this subject at that time.

8.2.2 Experience gathered with aircraft equipped with such a navigation fit, while confirming the assumptions made in 1976, seemed however now also to indicate that the use of this equipment fit required a particularly high operational skill and discipline of the aircrews concerned if the navigation performance was in fact to be kept within the MNPS. The Group therefore felt that, while not putting in doubt the ability to meet the MNPS with this navigation fit, it would nevertheless be prudent to indicate that it constituted the absolute minimum which was still acceptable and that :

a) it would therefore not be useful if new operators planning NAT operations were basing their navigation equipment policy on this minimum; and

b) operators now using such navigation equipment in the NAT Region would be well advised to improve the navigational capabilities of their aircraft at the first suitable opportunity.

8.2.3 The Group noted that the above comments would be inserted, in appropriate form, against the relevant text of the NAT Guidance Material by the European Office of ICAO at the next suitable opportunity.

Agenda Item 9 : NAT Aeronautical Telecommunications

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) uniform use of abbreviations by ground stations in the composition of messages;

c) designation of SSB frequencies in air-ground communications;

d) position report format;

e) SELCAL; and

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

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

9.2.1 The Group reviewed the results of the 1980 NAT HF data collection exercise, which had been made in accordance with Conclusion 17/11 of the NAT SPG/17 Meeting. The arrangements for the data collection had been the same as for the 1979 exercise, i.e. a collection of data during three days in the summer period, when the alignment of the organized track system was North-about, Central and South-about respectively. The dates selected were 27 July, 26 August and 28 August 1980.

9.2.2 A comparison of the HF communication traffic figures with those of 1979 showed a slight increase in HF traffic and a decrease in VHF traffic, the latter traffic averaging 647 position reports per day as compared to 726 reports in 1979.

9.2.3 The distribution of loading on the four HF families appeared to have remained substantially the same as in 1979. The heaviest load was carried by Family A on two days and there was an almost equal share of load between Families A and C on one day. The distribution of traffic load on the various frequencies showed a very slight increase in the 8 MHz order frequency, no significant change in the 5 MHz frequency, an increase in the 13 MHz frequency and a marked decrease in the 2 MHz order frequency.

9.2.4 It was noted that certain frequencies carried substantially higher communications traffic than others. This seemed to indicate that little use was made of the existing provisions for off-loading a given frequency Family through the use of another appropriate Family when circumstances so dictate (cf.Regional Supplementary Procedures, DOC. 7030, page COM 2-1, paragraph 1.1.1). The Group agreed that the practice of changing to less busy frequencies in such circumstances should be encouraged as this was likely to result in making a better use of system capacity and in shortening message delay times.

9.2.5 Gander Aeradio had the highest peak hourly load of 75 position reports. Participation by Sondrestrom on HF was limited to 40 reports during the three-day period.

9.2.6 The overall message delay* was 3.35 minutes (Sondrestrom excluded). This figure shows an increase over the one reported in the previous exercise (2.92 minutes). There were only slight increases in the mean delay times. It was, however, expected that the measures mentioned in para 9.2.4 would assist in improving this situation

9.2.7 A check of actual SSB/DSB capability was carried out by Gander and Shannon on July 18, 1980 and January 16, 1981. The results showed that the SSB/DSB ratio for the two respective dates were 94.3 % to 5.7 % and 96.3 % to 3.7 %. The DSB-only flights were for the most part of DC 8/B 707 operations. Such aircraft were expected to be either retrofitted with SSB or phased out of NAT operations by February 1982 when complete conversion to SSB was to become applicable. The total flights equipped with SSB were in excess of 98 %.

9.2.8 In view of the transition to SSB operation by February 1982, the table shown in Document 7030 listing the allocation of the four families of frequencies should be changed to reflect the new situation. In this regard, the Group agreed that the existing Table should be replaced by the following :

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* 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 deviding the total delay of a number of messages by that number.

Designated for	Route		
	Southern*	Central	Northern
Aircraft registered in the hemisphere W of 30° W	A	B	B
Aircraft registered in the hemisphere E of 30° W	A	C	C
Aircraft flying Northern routes outside OTS tracks	-	-	D

* Note 1 : Southern Routes are those which enter the New York Oceanic or Santa Maria Oceanic flight information regions. The Central and Northern Routes comprise all others.

Note 2 : Aircraft registered in Australia will use Families designated for aircraft registered East of 30°W.

The Member of Ireland agreed to request his Administration to present a relevant proposal for amendment of the Regional Supplementary Procedures (DOC. 7030).

9.2.9 Based on the results of the 1980 HF data collection exercise, in particular with regard to the noted changes in the use of frequencies, the Group considered that it was advisable to have a new data collection exercise in 1981 similar to the previous one except for the evaluation of DSB/SSB ratios, noting that a complete transition to SSB will take place in February 1982. In this regard, it was agreed that :

a) the dates should be selected at the end of August 1981;

b) the returns should be provided to the United Kingdom for analysis by the end of October 1981; and

c) the final report on the exercise should be made available to NAT/SPG Members and COM experts concerned by the end of February 1982 to permit adequate time for the study of that Report.

CONCLUSION 18/8 - NAT HF DATA COLLECTION IN 1981

That a three-day NAT HF data colleciton be conducted in 1981 with the same arrangements agreed for 1980, 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 1981 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 1981 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 1982; and

e) Sondrestrom data will be included.

9.2.10 The Group alao agreed that, in the light of the results of the 1981 exercise, the data collection procedures should be reviewed at the next Meeting to decide whether a more comprehensive analysis of traffic loads, including contacts other than position reports, is necessary to assess the overall capacity of the system.

9.3 Uniform use of abbreviations by ground stations in the composition of messages

9.3.1 The Group considered that, with the increasing use of computers in the processing of messages received from radio stations, it was imperative that standard abbreviations were used.

9.3.2 A survey had shown that there existed the following shortcomings concerning the use of abbreviations related to ATC and of location indicators in ATC messages :

a) a comparison between a list of abbreviations used at Prestwick OAC and Ballygireen radio with those listed in the current edition of DOC 8400 revealed five differences and fifty-one abbreviations not contained in the latter document;

b) different location indicators were used by radio stations reading back and intercepting traffic.

9.3.3 It was therefore agreed that all stations should be requested to use exclusively the abbreviations and location indicators as shown in DOCs. 8400 and 7910 respectively.

CONCLUSION 18/9 - STANDARDIZATION IN THE USE OF ATC ABBREVIATIONS AND LOCATION INDICATORS IN THE COMPOSITION OF MESSAGES

That NAT Communication Centres :

a) use those standard abbreviations in the composition of all messages shown in ICAO DOC. 8400; and

b) use the location indicators shown in ICAO DOC. 7910 when logging read-back and intercept information.

9.3.4 Further to this Conclusion the Group agreed that proposals for the inclusion of additional abbreviations in DOC 8400 should be co-ordinated between all parties concerned prior to their presentation to ICAO. In addition, specific abbreviations needed locally at specific radio stations only should be included in the read-back (RB) line of the message concerned.

9.4 Designation of SSB frequencies used in air-ground communications

9.4.1 The Group noted a proposal by Ireland to set out a methodology for determining HF designators for NAT families. The proposal as shown below was agreed. It was intended that NAT communication stations would implement the procedure at the time of the 1st phase of the frequency transition programme, i.e. at 0001 GMT, 18 February 1982.

9.4.2 Note was also taken that frequency designators for VHF were not assigned because, except for Gander, only one frequency was used (127.9) in the NAT Region. Iceland, Sondrestrom and Ballygireen used the designator ZV for this frequency. Gander will use a 4-digit designator (e.g. 1269, 1271, 1279).

FREQUENCY DESIGNATORS

FREQUENCY	1ST LETTER	2ND LETTER/NAT FAMILY USED
2 MHz/3 MHz	Q	A, B, C or D
5 MHz	T	A, B, C or D
8 MHz	V	A, B, C or D
11 MHz	X	A, B, C or D
13 MHz	Y	A, B, C or D
17 MHz	Z	A, B, C or D

For example :

3016 kHz NAT-A = QA
5616 kHz NAT-B = TB
8864 kHz NAT-C = VC
11303 kHz NAT-D = XD
*13306 kHz NAT-A/C = YA or YC
17946 kHz NAT-A = ZA

*As 13306 kHz will be common to Families A and C it will be identified as YA or YC depending upon Family in use. Similarly, 13291 kHz, which will be common to Families B and D, will be identified as YB or YD."

9.5 Position report format

9.5.1 The Group was advised that surveys had been carried out at Shannon Aeradio on 10, 11 and 12 March 1981 concerning the compliance with the new procedures governing position reporting. It was found that approximately 25% of the aircraft were not using the new procedure requiring pilots to start position reports by the word "position" and that about 4% of the aircraft were not using the prescribed 4-figure time group.

9.5.2 With regard to this new procedure the Group was confident that the recent publication of the related amendment of ICAO DOC. 7030 (N^{c} 157) would assist in eliminating these shortcomings.

9.5.3 As to the time group, it was agreed that ground stations would include the 4-figure group in message read-backs and would query pilots about the time of each report, when this is given in only two figures (e.g. "time 16" - "Confirm 1216").

9.6 SELCAL

9.6.1 Difficulties have been experienced at Shannon Aeradio with the receipt of incorrect SELCAL information. It was noted that the SELCAL codes were extracted from flight plans by Shanwick and subsequently transmitted to Ballygireen.

9.6.2 The Group recognized that the reductions in separation put an additional emphasis on the ability of ground stations to contact aircraft immediately when required. There was, therefore, a growing need to ensure that correct SELCAL codes are always available.

9.6.3 It was therefore agreed that some measures aiming at a correct utilization of SELCAL codes needed to be devised. Such measures could, in the Group's opinion, be the following :

a) flight crews should request a SELCAL check on HF prior to or on entry into the Oceanic airspace;

b) operators should inform all the original addressees of a flight plan of any change to the SELCAL code;

c) COM centres discovering an incorrect SELCAL code should nofity the error to other OAC/COM centres and should send a fault report to the operator originating the flight plan concerned.

CONCLUSION 18/10 - MEASURES TO ENSURE CORRECT SELCAL INFORMATION

That, in order to ensure the correctness of SELCAL information, the following measures be used :

a) flight crews request a SELCAL check on HF prior to or on entry of the aircraft into the Oceanic airspace;

b) operators inform all the addressees of the original flight plan of any change to the SELCAL code specified in that flight plan;

c) any COM centre discovering an incorrect SELCAL code notify the error to other OAC/COM centres concerned and send a fault report to the operator who originated the flight plan containing an incorrect SELCAL code.

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

9.7.1 The Group was informed that a third Informal NAT AFTN/AFS Meeting had been convened on 27-30 April 1981. The purpose of this Meeting was to study the operational, technical and financial implications of a new option recently offered by one of the States leasing services on the NAT cable system for the post-1982 utilization of the ICECAN part of that system.

9.7.2 The Group expected to be kept informed of the results of the above Meeting, in view of the particular importance of the NAT cable system, in terms of reliability and capacity, for the conduct of flight operations over the North Atlantic.

9.7.3 In this context it was noted that, in 1980, 42773 justified VHF air-ground communication contacts with NAT Oceanic flights had been made by GANDER communication station through the use of remote-controlled VHF communication stations at Frederiksdal and Prins-Christiansund in Greenland. The Group therefore wished to confirm its strong support, already expressed at NAT/SPG 17, for the retention of these remote-controlled VHF facilities for use by Gander.

Agenda Item 10 : Review of the situation regarding the introduction of automatic data processing in Oceanic ACCs of the Region

10.1 Introduction

10.1.1 The Group reviewed the question of the introduction of automatic data processing in OACs under the following two aspects :

a) general problems encountered with the insertion of filed flight plans into automatic data processing equipment; and

b) problems related to flight plans for flights to and from airspace reservations established in the NAT Region.

10.2 General problems encountered with the insertion of flight plans into automatic data processing equipment

10.2.1 The Member of the United Kingdom informed the Group that, initially, 90% of the flight plans received at Shanwick OAC were not suitable for direct insertion into the automatic data processing equipment available at this unit because they contained errors in format or in the composition of individual data groups. They therefore required manual correction and this, apart from imposing an additional workload on Shanwick OAC, tended to diminish considerably the effectiveness of the data processing equipment. He further pointed out that, after indoctrination efforts had been made with a selected number of operators, conducting regular flight operations in the NAT Region and with ground services concerned with the handling of flight plans, the error rate for flight plans received from them had dropped to 75% and that efforts were continuing to obtain yet a further reduction.

10.2.2 As it could be expected that, with the more widespread use of automatic data processing equipment in OACs, this problem was likely to become more general, he thought it useful to bring it to the attention of the Group for possible co-ordinated corrective action.

10.2.3 Both the Members of Canada and the USA pointed out that,where their Administrations had introduced such equipment in Gander OAC and New York ACC, they had initially encountered the same problems and that only through concerted efforts between the ATC units and operators concerned had it been possible to reduce this problem to manageable proportions. However, ten years experience in New York ACC had also shown that it could probably never be overcome completely because it was essentially one related to individuals concerned with the preparation and transmission of flight plans and, as these individuals tended to change, educational efforts had continuously to be repeated.

10.2.4 In this respect the Group also noted that the ATS Data Acquisition, Processing and Transfer Panel (ADAPTP) of ICAO had recently completed its proposals for a new flight plan format and that these were now before the relevant bodies of ICAO for review and adoption. However, since these proposals had been related to the general review of Annexes 2 and 11, now under consideration within ICAO, it could not be expected that ADAPT Panel proposals would become applicable before November 1982 at the earliest. It was therefore felt that any proposal, aimed at the improvement of the present situation through a change of the world-wide provisions governing flight plans, would have to be held in abeyance at least until after the time the ADAPT Panel proposals had come into force.

10.2.5 In view of this situation, the Group felt that there was no alternative left but to continue the educational efforts on the widest possible scale, even though it was realized that this was particularly difficult on the European scale because of the wide spread of departure points for NAT flights in that Region and thus the associated originating points of the related flight plans for them. It was therefore agreed that the United Kingdom should provide the European Office of ICAO with information on the more frequent errors observed at Shanwick OAC in NAT flight plans so that these could be brought to the attention of NAT user States and operators together with a request that necessary corrective measures be taken by them.

CONCLUSION 18/11 - COMPLIANCE WITH PROVISIONS REGARDING THE CONTENT AND FORMAT OF FLIGHT PLANS FOR NAT OPERATIONS

That :

a) NAT provider States, using automatic data processing equipment in their OACs, or intending to do so, continue their educational efforts with operators and other ground services concerned in order to obtain strictest possible compliance with the provisions regarding the content and format of flight plans so as to permit their direct insertion into automatic data processing equipment without the need for further processing;

b) the United Kingdom provide the European Office of ICAO with information on the more frequent errors observed with respect to the content and format of flight plans covering NAT flights; and

c) the European Office bring this information to the attention of all NAT States and IATA, together with a request that States and operators concerned make continuous, concerted efforts to reduce the number of errors with regard to content and format of NAT flight plans to the absolute minimum.

10.3 Problems related to flight plans for flights to and from airspace reservations

10.3.1 The Member of the United Kingdom informed the Group also that Shanwick OAC had encountered certain problems with regard to flight plans for flights proceeding to or coming from airspace reservations which had been established in the NAT Region. These problems were primarily related to the fact that flight plans filed for such flights were not in a standard format and, as such, required special treatment before input into ATC computers. He therefore felt that it would be advantageous if such flight plans could be filed in a commonly agreed format thus permitting OAC computers to recognize them immediately.

10.3.2 In view of the fact that no specific proposal requiring a specific format had been made and noting that arrangements were in hand to convene a meeting dealing with airspace reservations in May 1981 in Prestwick, the Group agreed that this matter should be referred to that meeting for resolution and that the procedures developed by it should be forwarded to the European Office of ICAO for circulation to all interested parties and adoption in the most appropriate manner. In developing such a format, account should, however, be taken of the fact that any insertion in Item 18 of the flight plan will not resolve the problem as this item is, in general, not processed by ATC computers.

CONCLUSION 18/12 - FLIGHT PLAN FORMAT FOR NAT FLIGHTS TO AND FROM AIRSPACE RESERVATIONS

That :

a) the meeting on airspace reservations, planned to be held in May 1981 in Prestwick, develop a format for flight plans covering flights to and from airspace reservations in the NAT Region; and

b) the European Office of ICAO be informed of this format so that it may bring it to the attention of all parties concerned for adoption in the most appropriate manner.

Agenda Item 11 : Up-dating of the work programme of the NAT/SPG during the next two years.

11.1 Future work programme

11.1.1 Reviewing briefly its discussions at, and the results of this Meeting, the Group established a list of those items which needed retention on its future work programme :

a) review of the situation after the introduction of the use of 10 minutes longitudinal separation between flights in the NAT Region;

b) review 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, Reykjavik 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) review of the contingency arrangements made at the Special Co-ordination Meeting in 1980;

c) further review of relevant aspects regarding the use of composite separation in MNPS airspace in the NAT Region;

d) review of methods used for the establishment of organized tracks in the NAT Region, based on proposals made at the meeting planned to be held later in 1981;

e) review of developments regarding crossing and joining traffic in the NAT Region;

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

g) review of developments with regard to the application of electronic data processing in OACs and related questions;

h) review of the need to improve the quality and availability of MET information regarding the NAT Region, both for flight planning purposes and for the establishment of organized tracks;

i) review of the NAT Operations Manual and of the NAT Guidance and Information Material in the light of developments;

j) review of the situation regarding IGA operations in the NAT Region;

k) review of the situation regarding the collection of statistical data in the NAT Region both for traffic forecasting and traffic management purposes;

l) review of the HF situation in the NAT Region;

m) review of future trends in air navigation developments in the NAT Region, especially with respect to :

   i) experience with the double-INS plus OMEGA equipment fit on board aircraft in the MNPS airspace in the NAT Region;

   ii) conclusions reached by the ARC regarding improvement options to the air navigation system in the NAT Region;

n) start of preparation of supporting documentation for the Limited NAT (RAC/COM) RAN Meeting.

11.1.2 With respect to item l) above (HF review), it was suggested that consideration of this item should also include a review of the feasability of providing OAC controllers with a direct access to HF communication channels so as to be able to communicate directly with pilots in cases where this appeared to be desirable to either party.

11.2 Arrangements for the next Meeting

11.2.1 As to the venue of the next Meeting of the Group (NAT/SPG 19), it was agreed that it should be held in the European Office of ICAO for a duration of some 10 working days and that participation by States and International Organizations should be identical to that at NAT/SPG 18. With regard to the date of that Meeting, it was agreed that this should tentatively be planned some time in April 1982.

11.2.2 Concerning NAT/SPG Meetings beyond NAT/SPG 19, it was noted that their timing would greatly depend on the dates eventually retained for the Limited NAT (RAC/COM) RAN Meeting, in order to ensure that the supporting documentation required to be prepared for that Meeting by the NAT/SPG, can be produced in good time (para. 11.1.1 n) above refers).

Agenda Item 12 : Exchange of views on the need by ICAO to convene a Limited NAT (RAC/COM) RAN Meeting in 1982

12.1 The Group was informed that consideration was being given within ICAO to the convening of a Limited NAT (RAC/COM) RAN Meeting in the latter part of 1982. It was also noted that such a limited Meeting had been on the tentative meeting schedule of ICAO since 1979 but that, in view of the delays encountered with the introduction of 60 NM lateral separation in MNPS airspace in the NAT Region it had already been postponed twice.

12.2 As this matter was shortly scheduled for consideration within the Air Navigation Commission of ICAO, it was believed useful if the NAT/SPG was asked to express its views on the matter on the understanding that these were in no way binding for the States and International Organizations having provided representation at this Meeting but could only be taken as the personal views of those present at this Meeting.

12.3 In the ensuing discussion, it became apparent that there was no doubt about the need, in principle, for a formal NAT/RAN Meeting dealing essentially with ATS and communication matters but that the two aspects requiring closer review were :

a) the anticipation of the likely developments in the NAT Region and the associated ability of the NAT/SPG to prepare useful and mature supporting documentation on such developments for presentation at such a Meeting; and

b) as a consequence of a) above, the timing of such a Meeting.

12.4 After a careful and thorough review of matters discussed at this Meeting, and in particular those mentioned under Items 5 and 6, and having considered those developments which could be envisaged at this time, the Group came to the conclusion that there was no matter which would, in its view, justify the convening of a Limited NAT RAN Meeting dealing with ATS and COM matters before early 1983 at the earliest. However when considering the Group's obligation to account to such a Meeting of its activities and, as is implied in its name, put forward its proposals for a reasonable systems planning concept it was found that even that time-frame would impose considerable difficulties on the Group to complete such material, because it left only a maximum of three meetings (of which two would have to be held in 1982) to do the necessary preparatory work. In this context, the Member of Canada wished to indicate a need for such a meeting to be convened at the earliest suitable date.

12.5 On the other hand, it was believed that certain developments, now set into motion, and especially those mentioned under Item 6, were likely to reach a higher state of maturity if they were given some more time and it was therefore felt that from this aspect, and from the point of view of preparation by the NAT/SPG for such a Meeting, it would be preferable if the Meeting were planned for some time in the first half of 1984. This latter suggestion took also into account that 1983 was an Assembly year for ICAO.

12.6 In summary the Group therefore felt that, if requested by States, it would be possible for the Group to prepare for a Meeting in early 1983 but that, both from the point of view of quality of preparation and of maturity of certain subjects, it would be preferable if that Meeting could tentatively be scheduled for some time in the first half of 1984.

Agenda Item 13 : Any other business

13.1 Introduction

13.1.1 Under this Item the Group reviewed the following subjects :

a) review of the new forecasts of the NAT Traffic Forcasting Group and their utility for traffic management purposes;

b) matters arising from the 11th Meeting of the Chiefs of the NAT Oceanic ACCs;

c) review of the situation regarding airspace reservations;

d) improvements to the Organized Track System;

e) reconfiguration of SST routes;

f) extension of ATS Route G 3 from Keflavik to Sondrestrom;

g) review of the situation regarding IGA operations in the NAT Region;

h) situation report on developments regarding the Paris New York - Paris air race, and

i) situation report on planned round-the-world balloon flights.

13.2 Review of the new forecasts of the NAT Traffic Forecasting Group (NAT/TFG) and their utility for Traffic Management Purposes

13.2.1 When dealing with this subject the Group discussed the following two aspects :

a) problems encountered with the preparation of the traffic forecasts by the NAT/TFG; and

b) use of the forecasts for traffic management purposes.

Problems encountered with the preparation of the traffic forecasts

13.2.2 When considering the question of NAT traffic forecasts, the Chairman informed the Group that the Chairman of the NAT/TFG had addressed a letter to the NAT/SPG in which he drew the Group's attention to certain difficulties which had been encountered by the NAT/TFG in the preparation of the forecasts covering the period 1980 to 1985. It was noted that these difficulties were mainly due to the fact that certain of the OACs, required to submit data on the actual traffic observed during a specified period had either not presented it in the required format or had submitted data which was related to a period other than that selected for the common exercise. The Chairman of the NAT/TFG expressed the hope that, through the good services of the NAT/SPG, it would be possible to impress once more on the ATC units concerned the need for strict compliance with the prescribed format (since otherwise the automatic processing of such data would be greatly complicated) and strict observance of the agreed collection period (since otherwise data from different ATC Units would not be comparable and would need adjustments which could only be based on guess-work).

13.2.3 He also pointed out that, now that automated processing of data on actual air traffic was being used, the NAT/TFG hoped that the format of the NAT traffic forecasts would only be changed if it was justified by compelling operational reasons, in order to keep the costs and efforts involved in changing computer programmes concerned to a minimum.

13.2.4 The Group also noted that the UK member of the NAT/TFG was now preparing the instructions relative to the data collection in 1981 and that these would be sent shortly to the OACs concerned.

Use of forecasts for traffic management purposes

13.2.5 Based on an intervention by the Member of Canada, the Group then had a brief discussion on the use which could be made of the forecasts for air traffic management purposes and the Member of the UK stated that, in his view, the forecasts provided a useful, even though a somewhat rough tool in order to give an indication of the likely traffic developments in the NAT Region. As such, they could also serve as a basis for assessment of the likely income from user charges to provider States, thus permitting them to plan their investments accordingly. He felt that the latter aspect was of particular importance because this could assist in avoiding States getting involved in a vicious circle starting with an increase in user charges because of large investments and a resultant stagnation of traffic, followed by a consequent further stagnation of traffic due to the need to further increase user charges.

13.2.6 He also felt that there was merit in using the NAT traffic forecasts on the widest possible scale in order to avoid the proliferation of forecasts made by other bodies which, when coming to different conclusions as to the evolution of traffic because different forecasting methods were used or different assumptions were made, could but result in confusion an uncertainty (see para 6.3.7 a) of this Summary).

13.2.7 The Group agreed that, in any case, the NAT traffic forecasts had the advantage of being based on the most recent actual traffic figures and from this point alone were a useful source of reference. In addition it was believed that these forecasts should be given widest possible distribution within State administrations concerned with NAT operations so that it would eventually be possible to obtain a clear indication whether the forecasts were serving their intended purpose, i.e. to constitute an essential tool in planning NAT operations and the NAT Air Navigation System by all parties concerned.

CONCLUSION 18/13 - NAT TRAFFIC FORECASTS

That :

a) the NAT Traffic Forecasting Group continue its present method of preparing the NAT Traffic forecasts and that provider States required to supply actual traffic data for their preparation give full support to the work of the NAT/TFG; and

b) NAT traffic forecasts be given a wide distribution within Administrations and International Organizations concerned with NAT operations and that, if required, comments aimed at their improvement as a planning tool be addressed to the NAT/SPG through the European Office of ICAO for consideration.

13.3 Matters arising from the 11th Meeting of the OAC Chiefs

13.3.1 The Group noted that there were four matters which had been considered at the 11th Meeting of the OAC Chiefs and which merited consideration by the NAT/SPG. These were :

a) correction of track messages;

b) contingency planning in the NAT Region;

c) participation by the Chief of Bodo FIC in the OAC Chiefs' Meeting; and

d) familiarization visits by oceanic controllers to other OACs.

Correction of Track Messages

13.3.2 The Representative of IATA informed the Group that the new format adopted for the issue of corrections to OTS track messages worked very well because it eliminated previously noted ambiguities. He therefore hoped that this new procedure would continue to be applied.

Contingency Planning

13.3.3 The Group noted that, at the 11th Meeting of the OAC Chiefs, the question of contingency planning in the NAT Region had been raised and it therefore felt that it would be advantageous if the Group were to record its views on the matter so that they could be used as guidance in the further development of detailed arrangements regarding this subject.

13.3.4 Before entering into detailed considerations, the Group felt it useful to confirm once more that, because of the wide variety of the manner in which contingencies could present themselves, it was not possible to develop hard and fast rules covering them because this could only result in :

a) the development of elaborate procedures which would, in the majority of cases, not be suitable for application; or

b) if applied rigidly, could introduce an inflexibility in responses to the specific contingency which would not take account of all possibilities offered in a specific situation.

As a consequence, it was agreed that specific contingencies should be dealt with on an ad hoc basis on the understanding that all parties concerned would make maximum efforts to keep the detrimental effects of the contingency in question on normal operations as small as possible.

13.3.5 In this context the Representative of IATA questioned whether, as past experience had shown, it was in all cases necessary to resort to more restrictive traffic arrangements in order to deal with the contingency (e.g. limitation of traffic to specific routes and/or flight levels). He proposed that the possibility be explored whether the use of random tracks and/or a free choice of flight levels could not contribute to alleviate the restrictions imposed by a contingency. After a brief discussion, the Group felt that, in view of the fact that a contingency always implied a limitation of the freedom of action of the air traffic services affected by it (regardless of whether this was caused by industrial action of one element of the ATC System or by the temporary failure of specific parts of the air navigation system) the consequences were generally that air traffic demand had to be adjusted to the remaining capacity of the ATC system and this both with respect to the quantity of air traffic, as well as to its disposition within the system so as to maintain a reasonable balance.

13.3.6 It was however noted that in some cases States had already established plans regarding routing of traffic to cater for those contingencies which could be envisaged (i.e. loss of radar coverage or of navigational guidance through the failure of specific aids) and that it might be useful if these plans were made available to adjacent ATC units so that these would be aware of what to expect in case these contingencies occur. Furthermore, it was felt that specific arrangements could be concluded which designated the ATC personnel or the authorities which should be contacted in case of a contingency so that co-ordination could be effected with the least delay. Finally, it was felt that a set of uniform basic principles should be developed which could be applied in a local planning for an envisageable contingency (e.g. industrial action), permitting to reduce the air traffic demand to manageable proportions. Such principles should cover primarily the question of which type of flights should be given priority if demand had to be restricted, the amount of advance information required on flight operations (if this was different from the existing provisions) and arrangements for cooperation with operators.

CONCLUSION 18/14 - CONTINGENCY PLANNING

That, further to Recommendations 2/4 and 2/5 of the Limited NAT RAN Meeting (1976) the following measures be developed amongst provider States in order to cater for contingencies likely to affect flight operations in the NAT Region :

a) provider States should exchange any national plans they may have developed regarding the routing of air traffic in case of envisageable contingencies;

b) OACs should prepare agreements amongst each other and with adjacent ATC units concerning the co-operative arrangements between specified persons and/or authorities in case of contingencies;

c) OACs should be provided with a set of common principles regarding the local arrangements permitting to reduce air traffic to manageable porportions in case of contingencies. These should cover at least priorities given to specific types of flights, advance notice required for flight operations, if different from the normal requirement and arrangements regarding co-operation with operators providing the bulk of the traffic in the area concerned; and

d) OACs continue to react as flexibly as possible to contingency situations and their evolution with the objective to provide optimum service to flight operations under the conditions imposed on them by a specific contingency.

Participation by the Chief of Bodo FIC in the OAC Chiefs Meeting

13.3.7 The Group was informed that information had been received from Norway that, in future, that State was prepared to make arrangements to permit the Chief of the Bodo FIC to participate in the Meetings of the OAC Chiefs. This was noted with satisfaction because it was believed that this would close an information gap which had existed in the past and had rendered the development of appropriate working arrangements somewhat difficult.

Familiarization visits

13.3.8 In view of certain tendencies towards greater economy with regard to travel arrangements and participation in international gatherings, the Group felt it advisable to reconfirm the continued validity of Recommendation 10/32, regarding familiarization visits, as it had been formulated at the NAT RAN/5 Meeting in 1970. In fact, it was believed that with the introduction of more sophisticated equipment into the various OACs and the resultant complexity in operating procedures it became important that ATC personnel of one OAC was aware of the facilities offered at other, adjacent units so that co-operative arrangements could be based on mutual understanding of each others' working conditions. It was however also pointed out that, whenever such visits were made, these should be made the subject of a specific report by the visitor so that the experience gained could be shared by all personnel of the ATC unit from which the visit had taken place.

13.4 Review of the situation regarding Airspace Reservations

13.4.1 Under this item, the Representative of IATA stated that in 1980 operators had encountered a number of problems with airspace reservations established in the NAT Region. There were basically three reasons for this :

a) exercise areas had been established where they interfered with the main flow of civil air traffic across the North Atlantic;

b) advance notice given for some of these airspace reservations had been so short that operators had had difficulties in assessing their impact and informing their flight crews properly; and

c) the provisions regarding the establishment of certain airspace reservations had been so complex that their transposition into limitations affecting flight planning had been unduly difficult.

In addition he wondered whether military aircraft using these airspace reservations could not be made to meet the MNPS because he felt that this could make it possible to keep the extent of airspace reservations smaller since the aircraft using them could navigate with a higher degree of precision.

13.4.2 Both the Members of Canada and the US stated that a review of airspace reservations established in 1980 in their respective areas of responsibility in the NAT Region showed that these had not been excessive and corresponded to the normal level of activities observed since a number of years.

13.4.3 The Member of the UK pointed out that one difficulty still encountered in the coordination of airspace reservations with the military was that it was frequently necessary to obtain confirmation from them that the activities, intended to be conducted in such airspace reservations could be contained therein. He felt however that this, as well as the complexity of provisions regarding airspace reservations mentioned by IATA, were mainly due to the fact that the arrangements, agreed at NAT/SPG 17, had not yet become accepted routine amongst the military authorities and that further efforts were required to make them known at all levels concerned with this subject.

13.4.4 The Member of Canada informed the Group that a meeting with military authorities, dealing with the question of airspace reservations, is planned to be held in May 1981 and that at that meeting it is intended to review the arrangements developed at NAT/SPG 17 and to revise them as required (Summary on Item 5 of NAT/SPG 17 refers).

13.4.5 With regard to the question of the location and extent of airspace reservations and the ability of military aircraft to comply with the MNPS, it was pointed out to the Group that, while the military were fully aware of the effects airspace reservations could have on civil operations, the military also had to consider the economical aspects of their operations and that it was therefore essential to find an acceptable compromise satisfying, to the extent possible, the requirements of both parties concerned.

13.4.6 As to the question of advance notification given for specific airspace reservations, it was noted that this depended very much on the nature of the operations conducted in them but that in each case efforts were made to give as much advance notice as was possible considering the specific circumstances.

13.4.7 Finally, the Member of the UK stated that, in their negotiations with their military authorities, they were also making the point to keep the duration and extent of airspace reservations to the absolute minimum consistent with the purpose they served.

13.4.8 In view of this situation, the Group expected to be kept informed of the results of the meeting mentioned in para 13.4.4 above so that this matter could once more be reviewed if this was required.

13.5 Improvements to the Organized Track System (OTS)

13.5.1 The Representative of IATA stated that, in the view of his Organization, the time had come to make a basic review of the manner in which air traffic in the NAT Region was organized. He based this request on the fact that, because more NAT operations between new city pairs in North America and Europe were introduced and because of operations by military flights in the NAT Region, about one-third of the air traffic in the Gander and Shanwick OACs was now operating on random tracks. In addition, he believed that the introduction of the new lateral and, as of November 1981, reduced longitudinal separation minima offered additional possibilities to ATC to accommodate air traffic in the NAT Region. Therefore, in his view, the main objective of a basic review of the organization of air traffic in the NAT Region should be to consider :

a) providing more flexibility to operators regarding the planning of their flight operations;

b) improved use of "tactical control" of air traffic operating in that Region, i.e. to obtain an improved response of ATC to requests from pilots regarding changes of flight levels and/or their route of flight;

c) the provisions made for opposite direction traffic in the Organized Track System;

d) a possible reduction in the time during which the Organized Track System is in force;

e) a more frequent adjustment of the organized track system in the light of current meteorological information;

f) improvement of the transition procedures applied in the areas adjacent to Eastern and Western limits of the NAT Region; and

g) improved arrangements for air traffic joining or crossing the Organized Track System.

13.5.2 The Group felt that this request merited early consideration. However, it was also pointed out that, in order to bring it to a successful conclusion, it would be necessary to have more data on the actual traffic flow in the Region available as regards flight levels and routes used and times during which traffic was present in the Region. In this respect it was noted that data collections made at Gander OAC seemed to go a considerable way to meeting this requirement and it was therefore hoped that, once the review was started, this data would be made available.

13.5.3 As to the Administrative arrangements for making this review, the Group felt that it would be best if, on the occasion of the 12th meeting of the Chiefs of OACs, this meeting was prolonged by one week and that during that time IATA and IFALPA, together with additional Representatives from administrations concerned would be present to discuss this subject. The terms of reference of this Meeting should be to :

> "Review all aspects of the use of the Organized Track System and the management of air traffic during times when the OTS was not in operation and make appropriate proposals for improvements which could be realized without major investments and in the comparatively near future."

The proposals thus developed should then be presented to the NAT/SPG for review as soon as possible.

13.6 Reconfiguration of SST Routes South of Ireland

13.6.1 The Member of the United Kingdom informed the Group that, in order to alleviate the effects of secondary sonic booms experienced in Southern Ireland, South Wales and South-West England during the Winter months (November to February inclusive), it was necessary for in-bound British Airways SST aircraft operating during this period to effect deceleration at a point 50 NM further West than at present. In order to off-set the economic penalties resulting from this, a re-configuration of the in-bound and out-bound routes used by SST aircraft in the area South of Ireland, was proposed. This re-configuration also reduced the track mileage for Air France SST operations with a resultant fuel saving.

13.6.2 It was noted that the proposed re-configuration covered essentially the following provisions :

a) the fixed organized SST tracks "SM", "SN" and "SO" will commence/terminate at the appropriate 15°W position;

b) when necessary, any height restrictions currently applied to West-bound SST aircraft at 12°W will need to be extended to 15°W; and

c) during the Winter period, early deceleration will be at the discretion of ATC on the understanding that, in some instances, it may be necessary, due to conflicting traffic, to instruct a specific British Airways in-bound SST aircraft to carry out a normal deceleration.

13.6.3 The Member of Ireland informed the Group that, while he was not opposed to this re-configuration, he had nevertheless certain reservations on them because of possible noise effects in the area of Cork. He also confirmed that the new positions mentioned in para. 13.6.2 a) were within radar coverage. The Member of France stated that his Administration had no problems with this re-arrangement but would need further co-ordination with Air France before any formal approval could be forwarded to the UK Administration.

13.6.4 In view of this situation the Group accepted the proposal put forward by the United Kingdom.

13.7 Extension of ATS Route G 3 from Keflavik to Sondrestrom

13.7.1 The Representative of Denmark presented a proposal which envisaged that ATS Route G 3 should be extended from Keflavik via Kulusuk to Sondrestrom on the understanding that operations along this route within MNPS airspace should be permissible by aircraft equipped with short-range navigation equipment only.

13.7.2 After a brief discussion, the Group felt that acceptance of this proposal could create an unacceptable precedent regarding the compliance with the MNPS, especially in view of the fact that appreciable portions of the contingency routes were provided with navigational guidance from NDBs only. It therefore agreed that the present provisions regarding this route, as specified in the NAT information and guidance material issued by the European Office of ICAO, i.e. that they could be used by aircraft with normal short-range navigation equipment and at least one fully operational set of the following navigation equipment :

i) DOPPLER with computer,

ii) INS,

iii) OMEGA,

iv) LORAN C,

also applied to the route segment Keflavik-Kulusuk-Sondrestrom and should be maintained without modification. This was accepted by the Representative of Denmark.

13.8 Review of the situation regarding the IGA operations in the NAT Region

13.8.1 The Group made yet a further review of the situation with regard to operations by International General Aviation flights in the NAT Region. To this extent, the Member of Ireland provided the Group with information which indicated that IGA operations continued to be conducted in the NAT Region without being equipped with any HF communication equipment or having only partial equipment (receivers only) available to them. In addition, it was found that, in some cases, flight plans filed for IGA operations were containing wrong information thus causing unnecessary concern to the ATC and communication services concerned with such flights.

13.8.2 As to those IGA flights with missing or inadequate HF communication equipment, these continued to make excessive use of frequency 121.5 MHz requesting air transport flights to relay their messages to the communication stations concerned. Both the Representatives of IATA and IFALPA pointed out that, while operators and pilots were perfectly willing to render this service in those cases where this was justified from circumstances, they nevertheless felt that, when this was done for convenience only, it presented an additional workload which they were not prepared to accept, quite apart from the fact that this unauthorized use of the emergency frequency could have very serious consequences in case it had to be used for a legitimate emergency.

13.8.3 Discussion within the Group seemed to indicate that the major source of these problems was still situated in North America and that arrangements regarding pre-flight checks, ensuring that IGA aircraft were properly equipped, seemed to leave something to be desired. It was therefore, once more, hoped that States concerned would be able to take energetic measures to achieve better enforcement of existing regulations, either through information and education or, where necessary by appropriate punitive action if it was found that pilots were wilfully disregarding appropriate regulations. The Group noted with satisfaction a statement by the Representative of IAOPA that his Organization was prepared to assist in the information and education process to the best of its ability.

13.8.4 Finally, it was noted that, in some isolated cases, States of Registry had issued waivers to specific IGA flights, purporting to relieve them from compliance with HF communication requirements in the NAT Region and, in some cases, even when operating within the domestic airspace of another State. It was felt that such a practice should, under no circumstances, be continued because this created unacceptable precedents which could but have adverse effects on the operation of the Air Navigation System in the NAT Region.

CONCLUSION 18/15 - COMPLIANCE BY IGA FLIGHTS WITH EXISTING PROVISIONS REGARDING THE OPERATIONS IN THE NAT REGION

That,

a) States primarily concerned with IGA flight operations in the NAT Region publish once more, in appropriate form, the need for IGA flights to fully comply with the provisions governing flight operations in the NAT Region, with emphasis on the need to carry fully operational HF equipment and the ability of pilots to use it in the required manner where this was required;

b) IAOPA use all means at its disposal to assist in an educational and information programme addressed to pilots concerned to make them aware of the need for compliance with existing provisions;

c) States more directly concerned with this question (Canada, Denmark, France, Iceland, Ireland and the USA) take appropriate steps to improve the enforcement of compliance by IGA flights with respect to such operations, especially as regards the carriage of appropriate HF communications equipment.

Note : It was also understood that Canada, Denmark, Iceland and Ireland would establish direct contacts with the USA in order to develop a procedure permitting the rapid transmission of incident or violation reports with respect to IGA flights originating from the USA.

13.9 Situation report on developments regarding the Paris - New York - Paris air race

13.9.1 The Group recalled that, at its Seventeenth Meeting, the Member of France had informed the Group of the intention of a French association to organize an air race from Paris to New York and back on the occasion of the "Salon Aéronautique" in June 1981. At that time the Group had noted this intention and expected that the organizers of this race would get in touch with the administrations affected in order to negotiate the necessary provisions regarding its conduct.

13.9.2 At this Meeting, the Group was now given an update report on developments since NAT/SPG 17 and representatives of the organizing body were available for detailed questioning. In the ensuing discussion it was noted that, while preparations had been made, at least two of the administrations directly affected by the race had not yet been contacted and it was hoped that this would be corrected in the very near future due to the proximity of the race.

13.9.3 Apart from that, the Group reiterated the previously expressed view that detailed arrangements for this race were an exclusive matter between the organizers and administrations affected. Nevertheless the Member of Iceland and the Representative of Denmark drew attention to the limited SAR capacities of their States and seized the opportunity of this Meeting to impress, once more, on the organizers the need for the most careful planning especially with respect to those portions of the air race route extending between Iceland and Canada via Greenland.

13.9.4 In the course of discussions, the Group also noted that the organizers intended to make this air race a repeat event and this gave rise to the expression of some concern even though it was realized that final judgement on this intention could only be passed once the results of the first air race were known. The Representatives of IATA and IAOPA took however the opportunity to express their special concern over public reaction should this air race lead to an accident because, with the expected coverage by the media, it was most likely that any negative aspects would reach greater attention than if everything went well.

13.9.5 Finally, the Group wished the organizers the best of luck in this undertaking but felt that, in view of the efforts in its organization and the likely advantages to be gained from it, serious consideration be given to making this air race a one-time event. It was also hoped that, after this race, the "Fédération Aéronautique Internationale (FAI)" would review its policy of endorsing such events in the light of a realistic assessment of the likely gains versus the risks involved in such undertakings.

13.10 Situation report on planned round-the-world balloon flights

13.10.1 The Group noted that, at its Special Co-ordination Meeting in 1980, it had been informed of the project regarding a round-the-world flight by a manned balloon. It also noted that at that time the Group had agreed that the initiators of this project should be discouraged from entering MNPS airspace in the NAT Region because it was felt that the prolonged presence of such a vehicle in that airspace could have considerable detrimental effects on the flow of air traffic, quite apart from the fact that, for obvious reasons, it was not possible to meet the MNPS.

13.10.2 At this Meeting it was now noted that the number of projects for such flights had now increased to four and that one actual attempt, even though prematurely aborted, had already been made. In this latter case it was also learned that the balloon in question had had only limited navigational equipment (which appears to have failed fairly early in the flight) and that its communication capabilities were limited to frequencies in the amateur bands.

13.10.3 As experience has shown that pressure for the conduct of such projects (whether industrial, political or through the media) is generally high, the Group felt that urgent action was required to limit such undertakings to acceptable proportions and that the technical and operational restrictions imposed on each of them should be such that its detrimental effects on normal civil aviation operations in the NAT Region were kept within tolerable margins.

13.10.4 It was realized that the latter was particularly difficult because, in view of the limits to the supplies which could be carried by the balloons in question, all counted on using jet streams as a means of comparatively rapid locomotion and this placed them invariably in the MNPS airspace within the NAT Region. In addition, dependence on the jet streams also meant that, because of their variability in space and time, any longer term prediction of the possible flight path of the balloons in question was rendered highly inaccurate, thus requiring the establishment of very large buffer zones which were particularly penalizing in those cases where ATC was based on a strategic control concept and the associated organized track system.

13.10.5 As these operations were, at least in part, conducted over the high seas, the Group further realized that their operation raised a number of legal questions but the Group did not feel competent to go into these in any detail. It was however felt appropriate that, because of these high sea operations, ICAO should be seized with this question so that its governing bodies could address themselves both to States of Registry and provider States confronted with such projects and provide guidance as to their handling. In doing so, the Group felt that the question of the interests of the majority versus the desirable freedom of action of individuals might also be covered in view of the numerous commercial air transport operations which might be affected by each such undertaking.

CONCLUSION 18/16 - ACTION BY ICAO WITH RESPECT TO BALLOON FLIGHTS OVER THE HIGH SEAS

That,

a) ICAO, as a matter of urgency, undertake action to clarify the situation with regard to manned balloon flights conducted over the high seas, especially in those cases where these flights are likely to operate in areas or height bands normally occupied by commercial air transport operations; and

b) the decisions reached on this matter within ICAO be brought, as early as possible to the attention of all States likely to be concerned with such operations, be it in their capacity of States of Registry of balloons used for such purposes or of provider States rendering air navigation services in the airspace concerned.

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