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ORGANISATION DE L'AVIATION CIVILE INTERNATIONALE
ORGANIZACIÓN DE AVIACIÓN CIVIL INTERNACIONAL
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Ref.: ST 12/1-01/77

13 July 2001

Subject: Eleventh Air Navigation Conference (2003)

Action required: Comments as requested by 26 October 2001

Sir/Madam,

1. I have the honour to inform you that the Air Navigation Commission on 7 June 2001, at the ninth meeting of its 157th Session, agreed that States and appropriate international organizations be consulted on the convening of an air navigation conference to discuss subjects in the fields of air traffic management (ATM), communications (COM), navigation (NAV) and related operational issues which are expected to be mature for worldwide consideration in 2003. At present, this meeting has been included in the triennial meeting programme of the Organization for planning and budgetary purposes only.

2. In the ATM field, the main objective of the conference would be to obtain consensus on a newly developed global ATM operational concept and to review the technical means of implementation of the concept. Other ATM subjects to be discussed include: safety in air traffic management; air traffic management performance targets for safety, efficiency and regularity; the concept of required total system performance (RTSP); and capacity-enhancement measures.

3. In the COM field, the conference would review the outcome of the International Telecommunications Union (ITU) World Radio Conference (2003) (WRC-2003) and its impact on aeronautical electromagnetic spectrum utilization. In addition, the conference would review developments in ICAO towards the introduction of air-to-ground and air-to-air digital links in the high frequency (HF), very high frequency (VHF) and L bands, and develop principles for the future evolution of these digital links as well as the currently available analogue (voice) air/ground link.

4. In the NAV field, a host of aeronautical navigation issues would be reviewed, including a review of up-to-date information on the status of the global navigation satellite system (GNSS), its future architecture and levels of service that could be provided at various stages of system evolution. The discussions are expected to address, in particular, the need for a backup system(s) and conclude with updated guidelines for transition to satellite navigation.

5. The results of the conference could include recommendations for amendments to ICAO Standards and Recommended Practices (SARPs), Procedures for Air Navigation Services and guidance material. In particular, updates of the ICAO strategy for introduction and application of non-visual aids to approach and landing and the *Global Air Navigation Plan for CNS/ATM Systems* (Global Plan, Doc 9750) may be expected. Also, the conference may address the need for the development of proposals for new SARPs and further guidance for the implementation of CNS/ATM systems.

6. The Commission has prepared an initial list of subjects which might be considered by an air navigation conference in 2003. This list is reproduced in **Attachment A**, and background information on the origin and purpose of the subjects is contained in **Attachment B**. It is envisaged that two committees may be established to address subjects 1, 2, 3, 4 and 5, 6, 7, respectively. The views of States and international organizations are now being sought on the need for an air navigation conference in September/October 2003 to consider these subjects and on the maturity of the subjects themselves. May I therefore request that you provide me, in respect of the list at Attachment A, with your views on:

a) whether you consider that some or all the subjects will be of sufficient maturity for worldwide consideration in September/October 2003;

b) the order of priority for consideration of the individual subjects (i.e. essential, desirable, useful if time permits, or consideration limited to an exchange of views); and

Note. — It is important to indicate priorities as it may not be possible to include all of the subjects in the agenda. The sequence of subjects listed in Attachment A is not intended to imply an order of priority. You may, of course, suggest amendments to these subjects.

c) whether or not you would intend to submit documentation for the conference.

7. The Commission has also asked me to inquire whether you wish to propose additional subjects for consideration by the conference. If so, you are requested in each case to provide:

a) a specific description of the subject;

b) a proposal for action to be taken by the conference; and

c) justification supporting its inclusion in the agenda.

8. Additional subjects proposed for consideration should follow the style of those contained in Attachment A in order to assist the Air Navigation Commission in formulating, as required, specific agenda items. You may wish to note that, in determining the agenda items, the Commission applies certain principles which are given for your information in **Attachment C**.

9. To facilitate the preparation of your reply, its subsequent consolidation with other replies and their analysis by the Commission, it is suggested that you complete the questionnaire in **Attachment D**, amplified, as necessary, by narrative comments.

10. The Commission has directed that, in furtherance of successful discussions at the conference, full use should be made of panels, Secretariat study groups, correspondence or other sources for the preparation of documentation that may be devised. Consequently, the list of subjects in Attachment A includes an indication of possible sources of documentation on each subject.

11. States may also wish to note that, although the meeting will focus on ATM, COM, NAV and related operational issues, and expertise in those fields is particularly important, several of the items proposed for consideration by the meeting would also benefit from expertise in the fields of aerodromes, aeronautical information, aircraft operations, and meteorology.

12. May I invite you to send the views of your Government/Organization to reach me not later than **26 October 2001** to assist the Commission with its further consideration of the matter. The Commission has asked me to specifically indicate that comments received after the due date may not be considered by the Commission and the Council. In this regard, should you anticipate a delay in providing your reply, please let me know in advance of the due date.

13. In light of the comments received, the Commission will consider the need for convening an air navigation conference in September/October 2003 and, if the need is established, will agree on an agenda, convening date, site, duration and organizational plan.

Accept, Sir/Madam, the assurances of my highest consideration.

DANB

R.C. Costa Pereira
for Secretary General

Enclosures:

Attachment A — List of subjects expected to be mature for consideration by an air navigation conference in 2003

Attachment B — Origin and purpose of the subjects and related issues listed in Attachment A

Attachment C — Principles to be applied in determining the agenda of an air navigation conference

Attachment D — Questionnaire on subjects for discussion by an air navigation conference (2003)

ATTACHMENT A to State letter ST 12/1-01/77

TENTATIVE LIST OF SUBJECTS FOR INCLUSION IN THE AIR NAVIGATION CONFERENCE (2003) AGENDA

Subject and related issues*	TWP task on conference recommendation	Technical fields involved	Sources of documentation other than States or organizations
1. **Introduction and acceptance of a global air traffic management operational concept**	ANB-9208 ATM-9002 ATM-9102 ATM-9202 ATM-9501 ATM-9502 ATM-9503 ATM-9504 ATM-9505 ATM-9509 ATM-9510 ATM-9703 ATM-0002	AGA AIS ATM MET OPS	Secretariat assisted by: Air Traffic Management Operational Concept Panel (ATMCP); Operational Data Link Panel (OPLINKP); European Organisation for the Safety of Air Navigation (EUROCONTROL); and the RTCA
2. **Safety in air traffic management**	ATM-6901 ATM-9202 ATM-9501 ATM-9505	AGA ATM OPS	Secretariat assisted by: ATMCP; Separation and Airspace Safety Panel (SASP); and EUROCONTROL
3. **Air traffic management performance targets for safety, efficiency and regularity and the concept of required total system performance (RTSP)**	ATM-9202 ATM-9501 ATM-9502 ATM-9503 ATM-9504 ATM-9505 ATM-9510	ATM OPS	Secretariat assisted by: ATMCP; SASP; EUROCONTROL; and Boeing
4. **Capacity-enhancement measures**	ATM-6301 ATM-6901 ATM-8510 ATM-9001 ATM-9203 ATM-9505	AGA ATM OPS MET	Secretariat assisted by: EUROCONTROL and the European Air Navigation Planning Group (EANPG)

*See Attachment B for related issues.

Subject and related issues*	TWP task on conference recommendation	Technical fields involved	Sources of documentation other than States or organizations
5. **Review of the outcome of the ITU World Radio Conference (2003) (WRC-2003) and its impact on aeronautical electromagnetic spectrum utilization**	CNS-7002	CNS	Secretariat assisted by: Aeronautical Mobile Communications Panel (AMCP) and the Global Navigation Satellite System Panel (GNSSP)
6. **Aeronautical navigation issues**	ATM-9503 CNS-9401 CNS-9402 OPS-8502	CNS ATM OPS AIS	Secretariat assisted by GNSSP and other panels as appropriate
7. **Aeronautical air-ground communications issues**	CNS-8702 CNS-9102 CNS-9403 CNS-9602 CNS-9604 CNS-9902	CNS ATM	Secretariat assisted by AMCP and other panels as appropriate

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*See Attachment B for related issues.

ORIGIN AND PURPOSE OF THE SUBJECTS AND RELATED ISSUES LISTED IN ATTACHMENT A

1. ORIGIN AND PURPOSE OF THE AIR TRAFFIC MANAGEMENT SUBJECTS

1.1 Introduction and acceptance of a global air traffic management operational concept

1.1.1 To date, no comprehensive description has been developed of how new communications, navigation and surveillance/air traffic management (CNS/ATM) technologies should evolve into a global and more efficient ATM system. Consequently, there has been, to some degree, an *ad hoc* implementation of available technologies. To remedy this, work on a global ATM operational concept is currently underway by the Air Navigation Commission with the assistance of the Air Traffic Management Operational Concept Panel (ATMCP). The operational concept will describe how an integrated global ATM system should operate and provide States and industry with clearer objectives for designing and implementing ATM and supporting systems.

1.1.2 The first panel meeting of the ATMCP will take place in March 2002 at which time an operational concept will be finalized, along with Standards and Recommended Practices (SARPs) for Annex 11 — *Air Traffic Services* with supporting guidance material. An air navigation conference to discuss the concept and to obtain consensus would facilitate the implementation of the concept into the planning framework of States and planning and implementation regional groups (PIRGs). By the time of the proposed air navigation conference in the last quarter of 2003, work on the operational concept, and on the technical means of implementation of the concept, including the development of concepts of use for sub-elements and enabling technologies will have been greatly progressed. Measures to ensure the safety of highly-integrated, automated systems will also have been developed. Implementation means, transition strategies and safety would therefore be addressed at the conference. The foregoing matters are expected to involve proposals to amend Annex 11, as well as recommendations that would guide and encourage transition and implementation.

1.2 Safety in air traffic management

1.2.1 New technologies continue to emerge for improving and enhancing the ATM environment along with increasing integration, automation and complexity. The ATM operational concept will offer guidance on integration and planning of emerging and future ATM systems and will encourage further development and implementation. It is essential, therefore, that the impact of new systems and technologies on safety is clearly identified, systematically assessed and properly managed. The Commission had previously requested the Secretariat to consider establishing appropriate provisions for evaluation and certification of CNS/ATM systems and operations in accordance with a total system safety engineering approach. On 12 March 2001, the Council adopted Amendment 40 to Annex 11 which, *inter alia*, requires that States implement systematic and appropriate air traffic services (ATS) safety management programmes to ensure that safety is maintained in the provision of ATS within airspaces and at aerodromes. Additionally, amendments to the *Procedures for Air Navigation Services — Rules of the Air and Air Traffic Services* (PANS-RAC, Doc 4444) (which will be renamed *Procedures for Air Navigation Services — Air Traffic Management* (PANS-ATM, Doc 4444) which include the introduction of a new part relating to safety management procedures for ATS, have an applicability date of 1 November 2001. Finally, the Universal Safety Oversight Audit Programme (USOAP) may be expanded to include ATM in 2004. It is envisaged that a review of States' safety management programmes will form a critical aspect of these audits.

1.2.2 Managing and regulating safety in ATM systems will be an increasingly critical and complex endeavour, especially considering the move toward greater autonomy of ATM service providers. It is necessary that a global approach using standardized procedures and methods be adopted. The majority of States do not yet have safety management programmes in place; neither have they established the formal means for regulating safety in ATM. Considering the imminent need to address safety management in ATM systems, and the possible expansion of the safety oversight programme to include air traffic services, it is considered essential to address all aspects of ATM safety at the global level. States may also will wish to take advantage of the conference to discuss the new SARPs and procedures associated with safety management systems, their means of implementation, together with all related aspects of ATM safety regulation. Awareness would be raised and recommendations developed at the conference that would facilitate implementation of safety management programmes, concurrent with implementation of the ATM operational concept and new systems and procedures.

1.3 Air traffic management performance targets for safety, efficiency and regularity and the concept of required total system performance (RTSP)

1.3.1 The present ATM infrastructure has evolved without globally-agreed criteria for safety, efficiency and regularity. As a result, there are no means to ensure that emerging and future ATM systems will meet minimum levels of performance. Furthermore, little work has been accomplished by bodies outside ICAO on the subject of ATM performance measurement. It is foreseen that RTSP will serve as a means for the measurement of safety, efficiency and regularity of the emerging and future global ATM system. Although the work on RTSP is still in its early stages, significant progress could be made by the time of the proposed conference. The work of the first ATMCP meeting will include defining RTSP and elaborating on its role in ATM systems performance measurement. It is foreseen that recommendations of the proposed conference could facilitate the endorsement of RTSP. It is expected that the foregoing would also involve proposals to amend Annex 11.

1.4 Capacity-enhancement measures

1.4.1 Implementation of capacity-enhancing measures is increasingly being considered, if not already implemented, in the vicinity of aerodromes by individual States and, at times, in contravention of ICAO provisions. These measures are often in response to increasing demand and associated political and industrial pressures. At the same time, there has been a growing awareness within the civil aviation community that safety must be improved in light of increasing traffic, particularly in the vicinity of aerodromes. The use of procedures and separation minima inconsistent with ICAO provisions, is an obvious threat to safety. In the same way, accommodating regional needs for capacity enhancement through amendments to ICAO Regional Supplementary Procedures (SUPPs) would also lead to a disparity of ICAO procedures. Based on the above, it is felt that a global approach to addressing capacity-enhancing measures should be developed. Discussions at a conference of the problems associated with increasing demand would facilitate a common understanding as to the most appropriate methods to alleviate the situation and prepare for the future environment. It is also likely that PANS material could be developed along with guidance material on specific capacity-enhancing measures. All of the above subjects would provide the basis for discussions.

1.4.2 The international civil aviation community is entering a new stage in its evolution that will see the introduction of increasing levels of automation and other technologies, changes to the roles of the users and operators of the systems, and increasing pressure to increase capacity and accommodate more aircraft into the available airspace. The subjects above address these issues which, it is felt, must be

thoroughly examined and discussed at the worldwide level. Furthermore, the subjects have a relationship to each other in that they all relate to safety. It is felt that the new global ATM operational concept, along with the maturing work of the panels of the Air Navigation Commission, offers a unique opportunity to address safety, capacity and performance issues in the new millennium.

2. ORIGIN AND PURPOSE OF THE COMMUNICATIONS AND NAVIGATION SUBJECTS

2.1 Review of the outcome of the International Telecommunications Union (ITU) World Radio Conference (2003) (WRC-2003) and its impact on aeronautical electromagnetic spectrum utilization

2.1.1 The agenda for the ITU WRC-2003 contains more than fifteen items which may have an impact on aeronautical radionavigation and communication services. The outcome of WRC-2003 on these items would be presented for review at the proposed conference. Subjects of particular importance include radionavigation satellite service/aeronautical radionavigation service (RNSS/ARNS) compatibility, future aeronautical utilization of the 5 GHz band in light of spectrum requirements for the microwave landing system (MLS) and possible new requirements for ARNS and/or aeronautical mobile (R) services (AM(R)S). Additionally, the continuing availability of spectrum for aeronautical communications and navigation will be considered. The conference would also review the draft agenda of the WRC-2006 to identify any items of potential concern to aviation that would need to be addressed in preparation for that conference.

2.2 Aeronautical navigation issues

2.2.1 The *Global Air Navigation Plan for CNS/ATM Systems* (Global Plan, Doc 9750) indicates that successful implementation of the global navigation satellite system (GNSS) would provide seamless global navigation for all phases of flight, thus offering the possibility for many States to dismantle some or all of their ground-based navigation aids. The Special Communications/Operations Divisional Meeting (1995) (SP COM/OPS/95, Doc 9650) recommended (Recommendation 3/1) the development of SARPs, procedures and criteria to support the gradual introduction of GNSS. The meeting also developed Recommendation 5/1 proposing an amendment to Annex 10 to incorporate the ICAO strategy for introduction and application of non-visual aids to approach and landing (Annex 10, Volume I, Attachment B) which promoted GNSS as an ICAO standard aid in addition to the instrument landing system (ILS) and MLS.

2.2.2 In its assessment of GNSS, the SP COM/OPS/95 raised a number of concerns over system capabilities and identified issues to be addressed in validation activities and feasibility studies. Subsequently, further concerns were raised regarding the ability of GNSS to become the "sole-means" navigation system. These concerns were partially addressed through Amendment 1 to the Global Plan. However, the ability of GNSS to become the only navigation system for all phases of flight continues to be questioned, thus various back-up options have been proposed.

2.2.3 Developments in recent years have indicated that progress towards the objectives established in the Global Plan was slower than initially envisaged. It has also been suggested that some GNSS-related issues may not be resolved until additional civil signals or core satellite constellations are introduced. It is expected that, in the near future, final decisions will be taken and firm plans will be approved for modernization of the global positioning system (GPS) and the GLObal NAvigation Satellite System

(GLONASS), and deployment of the Galileo system. Feasibility studies of GNSS-based Category II/III approaches and aerodrome surface operations will also be available to demonstrate GNSS capability to support all phases of flight. Thus, the future (2010 onwards) GNSS architecture will be defined and available by the time of the conference together with SARPs in Annex 10, Volume I, Chapters 2 and 3* which define present and near-term GNSS with its augmentations.

2.2.4 After eight years of GNSS development and implementation activities (since SP COM/OPS/95), the proposed conference would review up-to-date information on GNSS status, its future architecture and levels of service that could be provided at the various stages of system evolution. Other subjects involve system status monitoring and NOTAMs, interference mitigation and database issues. In light of this information, the conference would also assess the role of terrestrial radio navigation aids and area navigation capability. The discussions are expected to address, in particular, the need for a back-up system(s) and conclude with updated guidelines for transition to satellite navigation. As a result, the conference is expected to recommend revisions to the navigation sections in the Global Plan, draft amendments to SARPs in Annex 10, and update the ICAO strategy for introduction and application of non-visual aids to approach and landing.

2.3 Aeronautical air-ground communications issues

2.3.1 As a result of growing air-ground communications requirements and of the potential spectrum scarcity created by claims on aeronautical spectrum by non-aeronautical parties, efficient utilization of the aeronautical spectrum by communications systems is becoming a critical aspect of air navigation planning. Over the last decade, ICAO has introduced into Annex 10 a number of new air-ground communication technologies. Implementation of those technologies is currently underway and contributes to increasing the aggregate aviation spectrum requirements, while analog air-ground voice communications systems continue to operate, still representing the main medium for operational communications.

2.3.2 It is expected that the conference would review the results of the most recent ICAO work on the optimal utilization of the terrestrial and satellite air-ground communication bands (HF, VHF and L-band) including the development of new air-ground communications systems meeting evolving requirements. The planned evolution of existing systems and potential development of future systems will be considered, together with any associated proposals for changes to ICAO documents.

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*The first package of GNSS SARPs is being introduced in Annex 10 with Amendment 76 to become applicable on 1 November 2001.

PRINCIPLES TO BE APPLIED IN DETERMINING THE AGENDA OF DIVISIONAL-TYPE MEETINGS

1. Items should be precisely defined.

2. Items should only be included if they are important and mature for consideration and cannot be resolved or progressed by other means.

3. Items of limited application or related to new complex procedures or the provision of new equipment should normally only be included after development by a preparatory medium to the point where world-wide agreement is necessary.

4. No item should be included simply to remove known inconsistencies in the ICAO regulatory documents, unless they have substantive implications.

5. Exchange-of-views items should be included only in those circumstances when broad discussion is needed on the applicability to civil aviation of new concepts or techniques.

ATTACHMENT D to State letter ST 12/1-01/77

QUESTIONNAIRE ON SUBJECTS FOR DISCUSSION BY THE AIR NAVIGATION CONFERENCE (2003)

State/Organization_____

1. **Maturity of subjects**

Subjects as per Attachment A	Questions from paragraph 6								**Remarks**
	a) mature and requiring resolution		**b) priority for consideration**				**c) intend to contribute documentation**		
Subjects	Yes	No	Essential	Desirable	Useful	Exchange of views	Yes	No	
1. Introduction and acceptance of a global air traffic management operational concept									
2. Safety in air traffic management									
3. Air traffic management performance targets for safety, efficiency and regularity and the concept of required total system performance (RTSP)									
4. Capacity enhancement measures									
5. Review of the outcome of the ITU World Radio Conference (2003) (WRC-2003) and its impact on aeronautical electromagnetic spectrum utilization									
6. Aeronautical navigation issues									
7. Aeronautical air-ground communications issues									

2. **Additional subjects as discussed in paragraphs 7 and 8**

a) Description of the subject

b) Proposal for action to be taken by the conference

c) Justification supporting its inclusion in the agenda

3. **Need for the conference**

In view of the foregoing, is there a need for an air navigation conference in September/October 2003? YES ☐ NO ☐

— END —