



Annual Report of the Council 1997

*Documentation for the session
of the Assembly in 1998*



INTERNATIONAL CIVIL AVIATION ORGANIZATION

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Senegal. Représentant de l'OACI, Bureau Afrique occidentale et centrale, Boîte postale 2356, Dakar
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South Africa. Avex Air Training (Pty) Ltd., Private Bag X102, Halfway House, 1685, Republic of South Africa
Telephone: (27-11) 315-0003/4; Facsimile: (27-11) 805-3649; Internet: avex@iafrica.com

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Teléfono: (34 1) 321-3148; Facsímile: (34 1) 321-3157; Internet: sccc.jcsoria@aena.es

Thailand. ICAO Representative, Asia and Pacific Office, P.O. Box 11, Samsaek Ladprao,
Bangkok 10901
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United Kingdom. Westward Digital Limited,
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TO THE ASSEMBLY
OF THE
INTERNATIONAL CIVIL AVIATION ORGANIZATION

I have the honour to transmit, at the direction of the Council, its Report for the year 1997 prepared in compliance with Article 54(a) of the Convention on International Civil Aviation. With the Reports for 1995 (Doc 9667) and 1996 (Doc 9685), it constitutes documentation for Item 7 of the Provisional Agenda of the 32nd Session of the Assembly, and it will be supplemented by a brief review of the work of the Organization for the first six months of 1998. It is being circulated to Contracting States now for their information and will also be sent to the Economic and Social Council of the United Nations in pursuance of Article VI, paragraph 2 (a) of the Agreement between the United Nations and ICAO.

The Report was prepared by the Secretariat and circulated in draft form to the Representatives of Council Member States for their suggestions. The Council, as a body, did not formally examine or adopt it but, as in the past, delegated to its President authority to approve the final text after considering all the suggestions received.

Chapter I summarizes the principal trends and developments in civil aviation and the work of the Organization during the year; the activities of ICAO itself are described in Chapters II to X.

The Council held three sessions in 1997. These were the One hundred and fiftieth Session from 7 February to 21 March, with a total of eighteen meetings, one of which was held outside the Council phase; the One hundred and fifty-first Session from 26 May to 20 June, with a total of fifteen meetings; and the One hundred and fifty-second Session from 1 October to 11 December, with a total of seventeen meetings, two of which were held outside the Council phase. Authority was delegated to the President to act on a number of matters, as necessary, when the Council was not in session.



Assad Kotaite
President of the Council

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Glossary

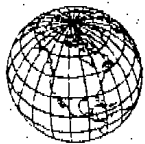
- AACO.** Arab Air Carriers Organization
ACAC. Arab Civil Aviation Commission
ACAS. Airborne collision avoidance systems
ACC. Area control centre
ACI. Airports Council International
ADREP. Accident and incident reporting data
ADS. Automatic dependent surveillance
AFCAC. African Civil Aviation Commission
AFRAA. African Airlines Association
AH-DE. Ad hoc group of specialists on the detection of explosives
AIMS. ANB integrated management system
AIS. Aeronautical information service
AMBEX. AFI bulletins exchange
ANC. Air Navigation Commission
AOSCF. Administrative and operational services cost fund
APANPIRG. ASIA/PAC Planning and Implementation Regional Group
APATSI. Airport and Air Traffic System Interface Task Force
APIRG. AFI Planning and Implementation Group
APT. Asia-Pacific Telecommunity
ASECNA. Agency for the Security of Aerial Navigation in Africa and Madagascar
AsMA. Aerospace Medical Association
A-SMCGS. Advanced surface movement guidance and control systems
ASP. Aeronautical surveillance plan
ATM. Air traffic management
ATN. Aeronautical telecommunication network
ATS. Air traffic services
CAEP. Committee on Aviation Environmental Protection
CAI. CNS/ATM Implementation Committee
CAMA. Civil Aviation and Meteorology Authority
CAMP. Civil Aviation Master Plan
CAPS. Civil aviation purchasing service
CFIT. Controlled flight into terrain
CIDIN. Common ICAO data interchange network
CNS. Communications, navigation and surveillance
CNS/ATM. Communications, navigation, surveillance and air traffic management
COCESNA. Central American Corporation for Air Navigation Services
COMESA. Common market for Eastern and Southern Africa
COSPAS. Space system for search of vessels in distress
CPDLC. Controller-pilot data link communications
DCA. Department of Civil Aviation
DFIS. Data link flight information services
DGCA. Directorate General of Civil Aviation
DGTA. Directorate General of Air Transport
EANPG. EUR Air Navigation Planning Group
EASA. East African School of Aviation
EATCHIP. European ATC Harmonization and Integration Programme
EC. European Commission
ECA. Economic Commission for Africa
ECAC. European Civil Aviation Conference
ECE. Economic Commission for Europe
ECOSOC. Economic and Social Council
EDDS. Explosive device detection system
EDS. Explosive detection system
ESCAP. Economic and Social Commission for Asia and the Pacific
EU. European Union
EUROCONTROL. European Organization for the Safety of Air Navigation
FAA. Federal Aviation Administration
FAI. *Fédération aéro-nautique internationale*
GATS. General Agreement on Trade in Services
GDP. Gross domestic product
GLONASS. Global orbiting navigation satellite system
GNSS. Global navigation satellite systems
GREPECAS. CAR/SAM Regional Planning and Implementation Group
GTS. Global telecommunications system
IACA. International Air Carrier Association
IAEA. International Atomic Energy Agency
IAOPA. International Council of Aircraft Owner and Pilot Associations
IATA. International Air Transport Association
IAVW. International airways volcano watch
IBAC. International Business Aviation Council
IBIS. ICAO bird strike information system
IBS. Intelsat Business Service
ICAN. International Commission for Air Navigation

- ICC.** International Chamber of Commerce
ICS. Inventory control system
ICPO/INTERPOL. International Criminal Police Organization
IFAD. International Fund for Agricultural Development
IFALDA. International Federation of Air Line Dispatchers' Associations
IFALPA. International Federation of Air Line Pilots' Associations
IFATCA. International Federation of Air Traffic Controllers' Associations
IFOR. Implementation Force
IMO. International Maritime Organization
INMARSAT. International Mobile Satellite Organization
IPCC. Intergovernmental Panel on Climate Change
ISCS. International Satellite Communications System
ISO. International Organization for Standardization
ITF. International Transport Workers' Federation
ITU. International Telecommunication Union
JAA. Joint Aviation Authorities
JIU. Joint Inspection Unit
LACAC. Latin American Civil Aviation Commission
LAN. Local area network
LUT. Local user terminal
MCC. Mission control centre
MET. Meteorology
MIDANPIRG. MID Air Navigation Planning and Implementation Regional Group
MLS. Microwave landing system
MOTNEG. Meteorological Operational Telecommunications Network Europe — Regional Planning Group
MoU. Memorandum of Understanding
MRTD. Machine readable travel documents
MSA. Management service agreement
MWO. Meteorological watch office
NAT SPG. NAT Systems Planning Group
OAS. Obstacle assessment surface
OPAS. Operational assignment
OPMET. Operational meteorological information
OPS. Operations
PANS. Procedures for Air Navigation Services
PIRGs. Planning and implementation regional groups
RAC. Rules of the air and air traffic services
RAS. Regional augmentation system
RCAG. Remote control air/ground
RCP. Required communication performance
RNAV. Area navigation
RNP. Required navigation performance
RVSM. Reduced vertical separation minima
SADC. Southern African Development Community
SADIS. Satellite distribution system
SARPs. Standards and Recommended Practices
SARSAT. Search and rescue satellite-aided tracking
SATCOM. Satellite communication
SBAS. Satellite based augmentation system
SIGWX. Significant weather
SIP. Special implementation project
SSR. Secondary surveillance radar
STP. Standardized Training Package
TF. Trust Funds
UNCTAD. United Nations Conference on Trade and Development
UNDP. United Nations Development Programme
UNEP. United Nations Environment Programme
UNFCCC. United Nations Framework Convention on Climate Change
UNIDROIT. International Institute for the Unification of Private Law
UPU. Universal Postal Union
VDL. VHF digital link
VSAT. Very small aperture terminal
WAFC. World area forecast centre
WAFS. World area forecast system
WCO. World Customs Organization
WGS-84. World Geodetic System — 1984
WHO. World Health Organization
WMO. World Meteorological Organization
WRC-97. World Radiocommunication Conference — 1997
WTO. World Tourism Organization.

Chapter I

The Year in Summary

This chapter summarizes the principal trends and developments in civil aviation and the work of ICAO in 1997. References are made in brackets to relevant tables in Appendix 12, which provide statistics used in the diagrams broken down into further details and identify the sources and extent of coverage of these statistics.



THE WORLD ECONOMY

In 1997, world gross domestic product (GDP) continued to grow, by approximately 3.9 per cent in real terms (Figure 1) compared with an increase in scheduled air traffic of about 8 per cent (see

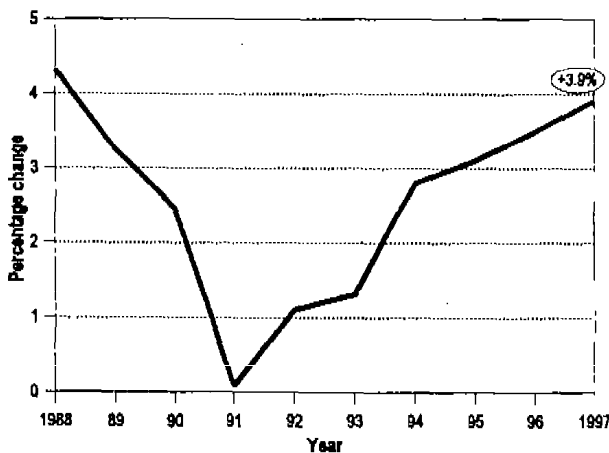


Figure 1. Development in world GDP in constant prices year-on-year changes, 1988-1997

below). For the industrialized countries, GDP grew by 3 per cent on average, supported by a strengthened economic recovery in North America (3.5 per cent) and a slightly improved growth path for the European Union (2.5 per cent). Developing countries in the aggregate maintained a higher GDP growth rate than the industrialized countries, at about 5 per cent.

As a region, Asia/Pacific experienced financial difficulties and a substantial slowdown of GDP growth in the latter part of the year, with implications for air transport, although over the full year growth was maintained at approximately 5 per cent. The other regions showed stabilization of economic development, a GDP growth of around 4 per cent being exhibited both in Africa and in Latin America and the Caribbean, with the Middle East performing slightly stronger at 4.5 per cent. Europe achieved an average GDP growth of 2.7 per cent, including the countries of Eastern and Central Europe (2.8 per cent) and the Commonwealth of Independent States (1.5 per cent).

International tourism generally benefited from the strengthened economic situation at a global level. In 1997, some 617 million tourists travelled to foreign countries, spending more than \$448 billion* according to preliminary results of the World Tourism Organization. However, the global development in tourism promptly reflected the Asian financial situation, slowing growth in international arrivals to 3.8 per cent and in receipts to 3 per cent for the year compared to 5.5 per cent and 7.8 per cent respectively in 1996. Figure 2 shows that international tourism receipts are estimated to approach \$450 billion in 1997.

In 1997, the world trade volume in goods and services is estimated to have grown by over 7.5 per cent.

* All amounts in this chapters are in U.S. dollars.

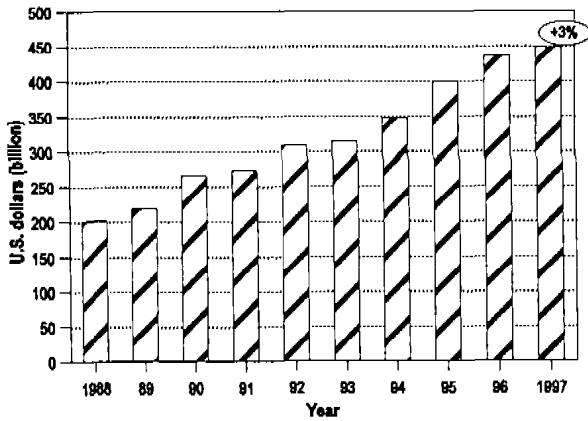


Figure 2. International tourism receipts
U.S. dollars, 1988-1997

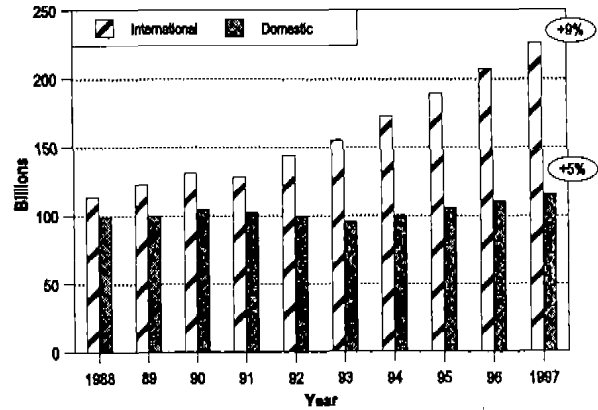
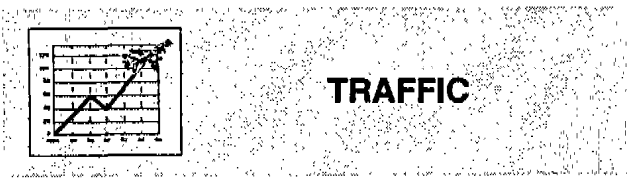


Figure 3. Scheduled traffic
tonne-kilometres performed, 1988-1997



Scheduled Operations

In 1997, the total scheduled traffic carried by the airlines of the 185 Contracting States of ICAO amounted to a total of about 1 448 million passengers and some 26 million tonnes of freight. Over-all passenger/freight/mail tonne-kilometres performed were up by 8 per cent (Table 1) and international tonne-kilometres by 9 per cent (Table 2). Domestic traffic showed an increase of 5 per cent. Figure 3 shows the trend from 1988 to 1997.

Capacity increases continued to be kept in check, as shown in Figure 4. The passenger and aircraft load factors on total scheduled services (domestic plus international) each increased by 1 percentage point to 69 and 61 per cent respectively (Table 3).

On a regional basis, some 38 per cent of the total traffic volume (passengers/freight/mail) was carried by North American airlines. Asia/Pacific airlines carried 27 per cent, European airlines 25 per cent, Latin American airlines 5 per cent, Middle East airlines 3 per cent and African airlines 2 per cent (Table 4).

Data for individual countries (Tables 5 and 6) show that in 1997 approximately 46 per cent of the total volume of scheduled passenger, freight and mail traffic was accounted for by the airlines of the United States, the United Kingdom and Japan (34, 6 and 6 per cent respectively). On international services, about 34 per cent of all traffic was carried by the airlines of the same three countries, the United States, the United Kingdom and Japan (18, 9 and 7 per cent respectively).

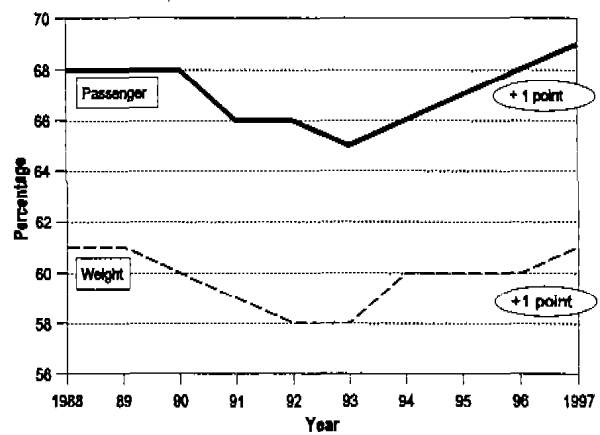


Figure 4. Scheduled traffic
achieved load factors, 1988-1997

Non-scheduled Commercial Operations

It is estimated that in 1997 total international non-scheduled passenger-kilometres increased by almost 5 per cent, with its share of over-all international air passenger traffic remaining at just over 14 per cent (Figure 5 and Table 7). Domestic non-scheduled passenger traffic represents only about 8 per cent of total non-scheduled passenger traffic and some 2 per cent of total domestic passenger traffic world-wide.

General Aviation

In 1997 general aviation flying is estimated to have shown a slight increase over 1996, from about 40.7 million hours to some 41.2 million hours (Figure 6).

Airport Operations

In 1997, the 25 largest airports in the world handled some 969 million passengers, according to preliminary estimates (Table 8). During the same period the airports concerned (17 of which

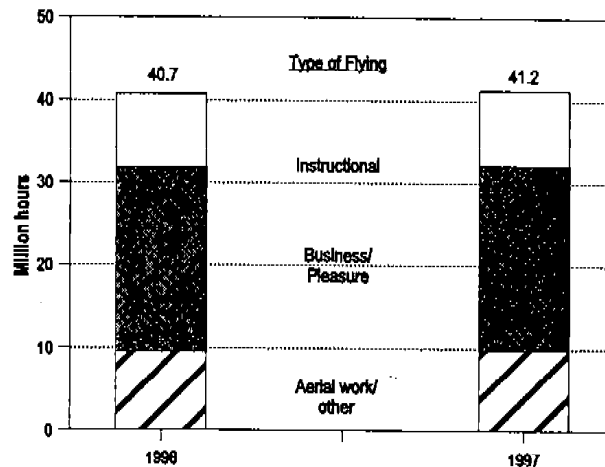


Figure 6. General aviation activities estimated number of hours flown, 1996-1997

are located in North America, 5 in Europe and 3 in Asia) also handled some 10.7 million commercial air transport movements.



Preliminary estimates for 1997 indicate that the world's scheduled airlines as a whole experienced an operating profit for the fifth year in succession (Table 9 and Figure 7).

The operating revenues of scheduled airlines of ICAO Contracting States are tentatively estimated at \$291 000 million in 1997 and operating expenses for the same airlines at \$274 000 million, giving an operating profit of 5.7 per cent of operating revenues. This follows an operating profit of 4.4 per cent in 1996.

Per tonne-kilometre, operating revenues fell from 84.8 cents in 1996 to an estimated 81.5 cents in 1997, while operating expenses decreased from 81.1 cents to an estimated 76.9 cents.

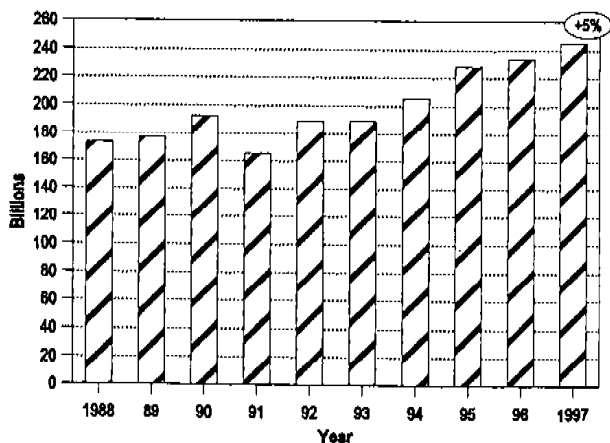


Figure 5. International non-scheduled traffic passenger-kilometres performed, 1988-1997

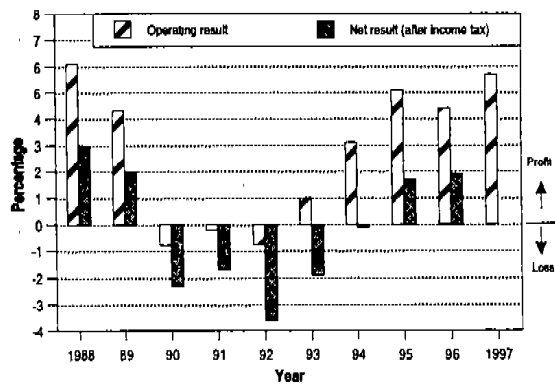


Figure 7. Scheduled airlines
Operating and net results, 1988-1997



Carriers

On the basis of schedules published in multi-lateral airline schedule guides, it is estimated that at the end of 1997 there were some 705 air carriers world-wide providing scheduled passenger services (international and/or domestic) and about 70 operating scheduled all-freight services. Compared with the same period in 1996 this represents a net over-all decrease of about 15 air carriers.

Airline alliances, particularly those involving major carriers, continued to attract attention from regulatory authorities because of their potential effect on competition. Some such alliances — for example, a proposed alliance between American Airlines and British Airways, the Star Alliance comprised of Air Canada, United Airlines, Lufthansa, Scandinavian Airlines System, Thai Airways International and Varig, and the alliance between American Airlines, Iberia and Aerolineas Argentinas — were being investigated by national authorities as well as the European Commission.

These and other airlines continued to expand co-operative ties, including codesharing, joint services and joint participation in frequent flyer programmes.

Aircraft

Between 1988 and 1997 the reported number of commercial air transport aircraft in service increased by about 59 per cent from 10 712 to 16 993 (excluding aircraft with a maximum take-off weight of less than 9 000 kg). Within these totals, turbo-jet aircraft numbers increased by about 65 per cent, from 8 179 to 13 489, over the same period (Figure 8 and Table 10).

In 1997, 1 309 jet aircraft were ordered (compared with 1 003 in 1996) and 674 aircraft were delivered (compared with 491 in 1996). The backlog of unfilled orders at the end of 1997 was 3 062 aircraft compared with 2 501 at the end of 1996.

The financial commitment in terms of jet aircraft orders placed in 1997 is estimated to be about \$78 000 million compared with \$65 000 million for orders in 1996.

The number of turboprop aircraft ordered in 1997 was 128 and 129 turboprop aircraft were delivered during the year.

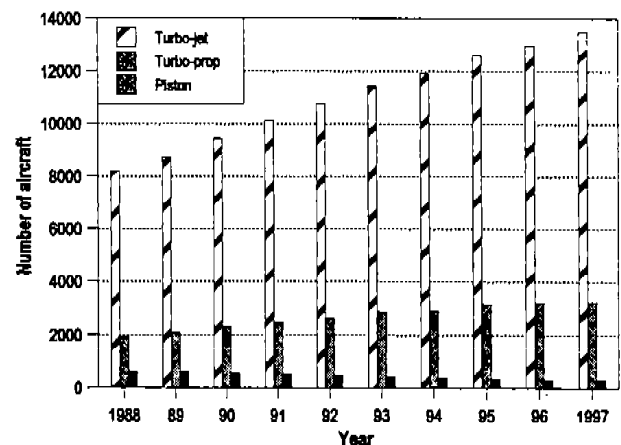
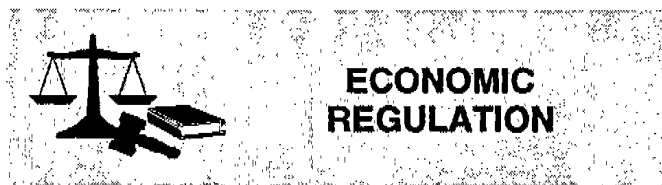


Figure 8. Total commercial air transport fleet
1988-1997

Most active aircraft type transactions, 1997

Aircraft	Orders	Deliveries	Backlog
Airbus A 319/ 320/321	347	127	741
Boeing 737	318	134	907
Canadair RJ	156	61	146
Embraer EMB-145	121	32	132
Boeing 767	98	42	141
Airbus A330	63	14	162



In 1997, States reportedly concluded 78 bilateral air services agreements (of which 54 were new, first time accords, and 24 were replacements), one Memorandum of Understanding (MoU), and 19 amendments to existing agreements. In comparison with 1996, 18 more air service agreements and 3 more amendments were concluded in 1997.

In terms of the regions involved, 20 new agreements, 7 replacements, one MoU and 13 amendments involved States within the same ICAO region while 34 new agreements, 17 replacements and 6 amendments were between States from different ICAO regions. In terms of numbers of agreements and amendments, the United States was a party to 18, India was involved in 10 and Hong Kong (as authorized pursuant to the 1984 Joint Declaration) concluded 8. Twenty-two agreements, one MoU and one amendment concluded in 1997 accorded full market access to the air carriers of both parties; an additional 15 agreements and 2 amendments provided for multiple designation. Fifth freedom rights were left to subsequent negotiations in 12 agreements.

★ *The ICAO Air Transport Regulation Panel produced 5 Recommendations, subsequently approved by the Council, which provide States with guidance on a safeguard mechanism for fair competition, measures for the effective and sustained participation of all States in international air transport, broadened ownership*

and control criteria for the use of market access, model clauses on commercial matters (ground handling, currency conversion and remittance of earnings, payment of local expenses, non-national personnel and access to local services, and the sale and marketing of air service products); and a recommendation on providing consumers with the necessary information in situations involving code-sharing.

In developments concerning regional approaches to international air transport, the Transport Ministers of States in the South American region began discussions on a common air transport policy for this region. The Caribbean Community Air Service Agreement received 7 of the 8 ratifications required to bring it into force. In accordance with the authority granted by the Council of Ministers (Transport) in June 1996, the European Commission continued negotiations with the United States on aspects of a common aviation area other than traffic rights (such as computer reservation systems, codesharing and ownership rules); the Council of Ministers (Transport) referred a proposal by the Commission to include market access and traffic rights in these negotiations to the Committee of Permanent Representatives for a report in March 1998. The European Union also began negotiations on air transport agreements with 10 Eastern and Central European States.

★ *In June, ICAO published a comprehensive study on airline codesharing, demonstrating that this increasingly widespread practice has tended to divert traffic among participating airlines rather than generate new traffic, but has benefited the partner airlines both in terms of revenue generation and traffic, particularly where the codesharing arrangement is part of a wider alliance.*

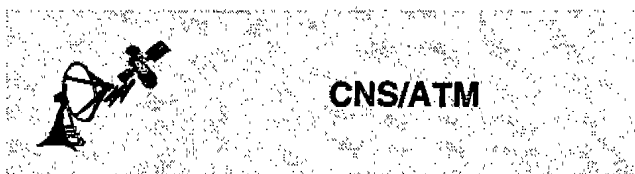
In October the European Commission, for the third time, sought the approval of the European Council of Ministers to apply Union competition rules externally so that the same competition regime, including exemptions for certain activities, applicable to air transport within the European Community would apply to air transport on Community/third country routes.

★ *The entry into force on 20 June 1997 of Article 83 bis of the Convention on International Civil*

Aviation concerning the lease, charter or interchange of aircraft spurred interest in the economic regulatory aspects of aircraft leasing. ICAO plans a study on this subject, drawing on provisions in bilateral and multilateral agreements, regional regulations and resolutions as well as national and industry policies and practices concerning aircraft leasing, with a view to producing practical guidance for States for approving leasing arrangements.

Congested airports and a consequent insufficiency of slots (designated times for aircraft to take off or land) continued to occupy the attention of regulatory authorities and negotiators. The European Commission continued its efforts to revise its airport slot allocation code and the United States Department of Transport granted some exemptions from the high-density rule to encourage domestic competition and additional air services at airports subject to this rule. The availability of airport slots continued to be a market access issue in several longstanding bilateral negotiations, such as those between Japan and the United States and between the United Kingdom and the United States.

The trend towards partial or full privatization of government-owned airlines continued in 1997. Five airlines successfully achieved their privatization aims and privatization objectives were made known for 4 other airlines. Preparations for privatization continued during the year for some 20 government-owned carriers which had been targeted in previous years. However, some other privatizations had to be deferred or postponed because of economic conditions, the state of the airlines concerned or local circumstances.



Implementation of communications, navigation, surveillance/air traffic management (CNS/ATM) systems continued. This has allowed States to gain some benefits as well as valuable experience and

data. Early benefits of CNS/ATM were realized through the opening of new ATS routes and more dynamic and flexible route structures. Reduced lateral and longitudinal distance based separation minima were introduced in the Pacific Region, using the concept of required navigation performance (RNP). Communication via data link was increasingly used for transmission of ATM-related information such as oceanic clearances, pre-departure clearances and weather information.

- ★ *A revised ICAO Global Air Navigation Plan for CNS/ATM Systems was finalized. The revised plan clearly defines and illustrates ICAO's process for CNS/ATM systems planning and implementation as a logical progression of the work already accomplished. The tables of the Global Plan form the framework to guide the implementation of CNS/ATM systems, using the traditional regional planning processes. The revised Global Plan offers, under one cover, a global snapshot of progress achieved and work remaining, thereby serving as a consolidated planning tool.*

Communications

Work continued in a number of States and international organizations, with industry input, on developing sub-systems for the aeronautical telecommunications network (ATN). Work on the development of draft SARPs updating the current AMSS SARPs has progressed, and this task is expected to be completed in 1999. In addition, work on VDL Mode 3 (TDMA integrated voice data) and VDL Mode 4 (data link for navigation and surveillance application) is continuing. SARPs for VDL Modes 1 and 2 and 8.33 kHz channel spacing in the VHF-COM band (11 975-137 Mhz) became applicable.

Controller-pilot data link communication is being used increasingly to communicate with suitably equipped aircraft in oceanic and remote areas of the world.

Navigation

Significant progress continued in a number of States and international organizations in global navigation satellite systems (GNSS) development

and implementation. The ICAO GNSS Panel continued development of SARPs for GNSS.

Development of satellite-based augmentation systems continued in a number of regions. This form of augmentation has the potential to support sole-means use of GNSS for all phases of flight down to Category I precision approach. Several architectures for ground-based augmentation systems with the potential to support Category II/III precision approach applications also continue to be developed and tested. This type of augmentation may be used by some States as an alternative in support of Category I operations. A number of States have approved global positioning systems for supplemental or primary use for some operations and types of airspace.

Considering that as of 1 January 1998 all published aeronautical coordinates must be referenced to the World Geodetic System — 1984 (WGS-84), progress continued in a number of States to implement this standard.

Surveillance

Considerable progress continued to be reported during the year in improving surveillance capabilities. This included development of the ADS-B concept, and an aeronautical surveillance plan (ASP) aimed at coherent implementation of surveillance facilities, including automatic dependent surveillance and SSR.

Air Traffic Management

Air traffic control systems around the world continue to be updated as part of the evolutionary process leading to a seamless global air traffic management system.

Many States developed short- and medium-term programmes and ordered equipment to update their air traffic control systems within the near future. Improvements and operational procedures were also being developed to support the integration of airborne and ground systems components.

Supporting CNS/ATM systems were implemented with a view to achieving early benefits as well as meeting long-term requirements. Several regions developed ATM plans. The revised ICAO Global Air Navigation Plan for CNS/ATM Systems offers practical guidance to the planning

and implementation regional groups (PIRGs) based on a series of homogeneous ATM areas and international traffic flows, many of which have already been identified by the PIRGs. This comprehensive approach should lead toward a progressive and balanced implementation of CNS/ATM systems.

Major milestones were achieved concerning the use of RNP as an integral tool for airspace planning and implementation of CNS/ATM systems. In this context, reduced lateral and longitudinal distance based separation minima for area navigation in an RNP environment are expected to be applicable in November 1998. RNP/10 airspace, allowing separation minimum of 50 NM both longitudinally and laterally, will be introduced in the Pacific Region in April 1998, and RNP/5 airspace will be introduced in the airspace of ECAC States in January 1998. It is envisaged that satellite-based navigation systems, in combination with airborne navigation systems, will meet any future navigation performance requirements.



Future larger aeroplanes with wing spans greater than 65 m (larger than the B747-400) and capable of carrying more than 550 passengers may enter service by the year 2003, and they would have an impact on the airport infrastructure. To assist States in planning to accommodate these aeroplanes, a review of the Annex 14, Volume I specifications on airport design is under way.

States are required to evaluate and publish the strength of airport pavements using ICAO's ACN/PCN system. As the current procedures for pavement design and evaluation indicated some limitations when used for analysing the complex loading of new larger aeroplanes equipped with six or more wheels per strut (e.g. Boeing 777), more mature and globally acceptable procedures are being examined. In this context, a full-scale research project is being planned in one State and these tests are likely to commence in 1998.

As a result of the *Montreal Protocol on Substances that Deplete the Ozone Layer*, the production of halons, one of the three complementary fire extinguishing agents recommended in Annex 14, Volume I for aerodrome rescue and fire fighting, ceased on 31 December 1993. Only remaining stocks of halons and recycled halons have since been permitted for essential uses and the search for a suitable alternative is still in progress. In this regard, research in the industry is being monitored by ICAO in order to keep the related specifications current.



AERONAUTICAL METEOROLOGY

The centralization and commercialization of meteorological forecast services around the world continued in 1997. Considerable progress was achieved in the computer preparation of global forecasts of significant weather by the WAFCS. As a result, significant weather (SIGWX) charts for Europe, Middle East, the North Atlantic and Western Asia are prepared in WAFCS London by means of an interactive computer workstation. Global coverage by three ICAO satellite broadcasts has been achieved, and very small aperture terminals have been installed in approximately 110 States. The implementation of the satellite broadcasts and the provision of SIGWX forecasts by the WAFCS permitted the closure of the Frankfurt, London, Moscow and Toulouse regional area forecast centres from 1 January 1997.

All 9 volcanic ash advisory centres became operational — Buenos Aires (Argentina), Darwin (Australia), Montreal (Canada), Toulouse (France), Tokyo (Japan), Wellington (New Zealand), London (United Kingdom), Anchorage and Washington (United States) — providing advisory information to area control centres and meteorological watch offices concerning the extent and trajectory of volcanic ash clouds.

All 6 tropical cyclone advisory centres — Darwin (Australia), Nadi (Fiji), La Réunion (France), New Delhi (India), Tokyo (Japan) and Miami (United States) — covering the areas prone to tropical cyclones continued and extended their operations in support of aviation.



SEARCH AND RESCUE

The satellite-based COSPAS-SARSAT system continued to play an important role in detecting emergency locator transmitters and in locating aviation distress sites.

The system also continued to expand its capability. There were 6 satellites in operation, and several replacement satellites incorporating technical enhancements were being built. The ground system of local user terminals (LUTs) and mission control centres (MCCs) was improved and expanded. At year's end, 38 LUTs and 22 MCCs were in operation or under test. Although global coverage was already provided on 406 MHz, additional LUTs and MCCs were planned to increase the real-time coverage of the system and reduce over-all response time. A geostationary component of the system was being developed which would provide for almost instantaneous alert. Since it began trial operations in September 1982, the COSPAS-SARSAT system has contributed to the rescue of over 7 800 persons in aeronautical, maritime and terrestrial incidents.



CONGESTION

In the context of the Machine Readable Travel Documents (MRTD) programme, ICAO commenced work on specifications for official travel cards which could be used to implement systems for the automated border inspection of passengers. Such systems, which involve enrolment by a State's immigration authorities and automated identity confirmation using biometrics, are being developed with the objective of enabling frequent travellers to bypass the queues at the immigration booths, particularly at airports with high traffic volumes at peak periods.

Experts from States having experience with the issuance of MRTDs are available for informal consultation in order to help other States implement the technical specifications. ICAO continues to advocate the installation of mechanical reading systems at airports where large numbers of passengers carry machine readable passports, in order to process the passengers more quickly through immigration and customs formalities.



Scheduled Operations

Preliminary information on aircraft accidents involving passenger fatalities in scheduled air services for ICAO Contracting States shows that there were 26 fatal aircraft accidents in 1997 involving 916 passenger fatalities compared to 23 fatal accidents and 1 135 passenger fatalities in 1996 (Table 11). Relating passenger fatalities to the volume of traffic, the number of passenger fatalities per 100 million passenger-kilometres decreased from 0.05 to 0.04 in 1997. The number of fatal aircraft accidents per 100 million aircraft-kilometres flown increased to 0.12 in 1997 from 0.11 in 1996, and the number of fatal aircraft accidents per 100 000 landings also increased, to 0.14 in 1997 from the previous rate of 0.13 in 1996 (Figure 9).

The safety levels are significantly different for the various types of aircraft operated on scheduled passenger services. For instance, in turbo-jet aircraft operations, which account for about 95 per cent of the total volume of scheduled traffic (i.e. in terms of passenger-kilometres performed), there were 11 accidents in 1997 with 752 passenger fatalities; in turboprop and piston-engined aircraft operations, which account for about 5 per cent of the scheduled traffic volume, there were 15 accidents with 164 passenger fatalities. The fatality rate for turbo-jet aircraft operations was, therefore, far lower than for propeller-driven aircraft.

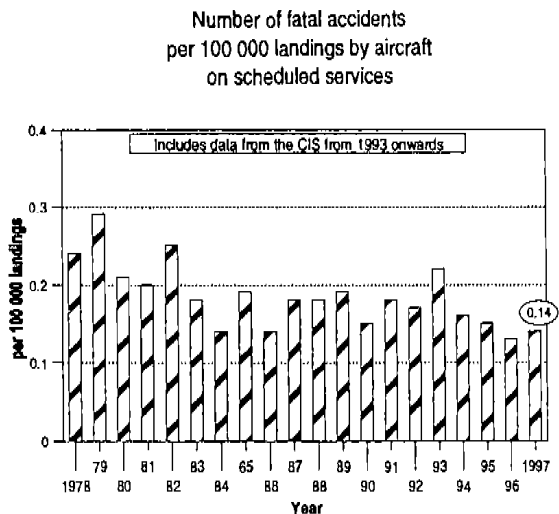
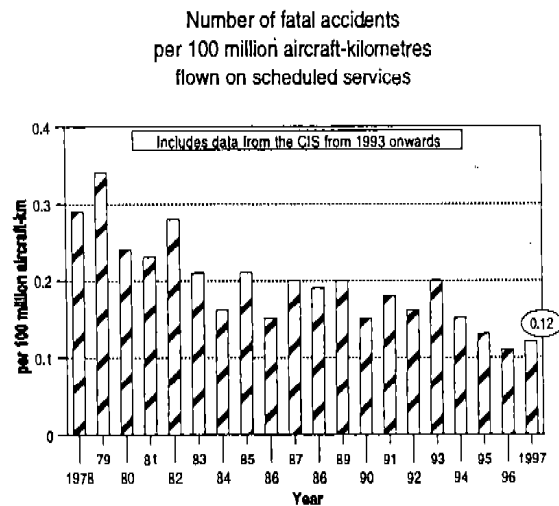
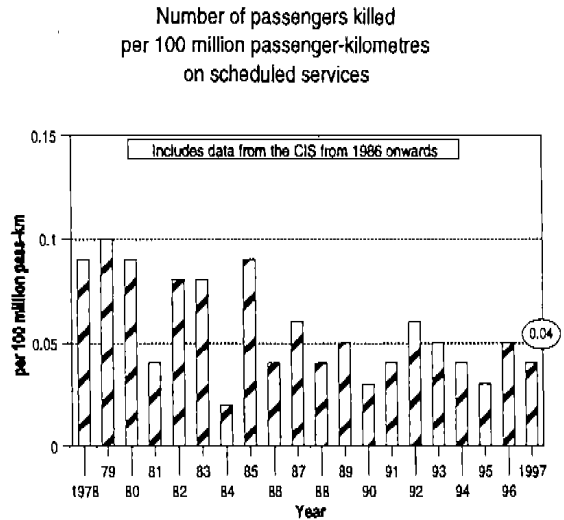


Figure 9. Aircraft accident statistics 1978-1997

Non-scheduled Commercial Operations

Non-scheduled commercial operations include both the non-scheduled flights of scheduled airlines and all air transport flights of non-scheduled commercial operators. Data available to ICAO on the safety of non-scheduled passenger operations show that in 1997 there were a total of 31 fatal accidents with 305 passenger fatalities compared to 25 fatal accidents with 479 passenger fatalities in 1996.

In non-scheduled operations performed with aircraft of more than 9 000 kg take-off mass, whether by scheduled airlines or non-scheduled operators, there were 7 fatal accidents with 198 passenger fatalities in 1997.

General Aviation

Complete statistical information is not available on safety in general aviation operations. In 1996, it is estimated that general aviation aircraft were involved in about 830 fatal accidents and that the number of fatalities in these accidents was about 1 650. The number of fatal accidents per 100 000 aircraft hours flown was about 2.02 in 1996. In the United States, which accounts for about 60 per cent of all reported general aviation activities in the world there were 350 fatal accidents in 1997 resulting in 646 fatalities, according to preliminary information. The corresponding numbers for 1996 were 359 fatal accidents and 631 fatalities. For the United States, the rate of fatal general aviation accidents per 100 000 aircraft hours flown was about 1.42 in 1997, compared to 1.46 in 1996.

Safety Oversight

- ★ *The voluntary ICAO safety oversight programme continued its activities in 1997. By the end of the year, 80 States had requested a safety oversight assessment by an ICAO team since the beginning of the programme in March 1996; 25 administrations were assessed during the year, bringing the total of assessed States to 57. The remaining 23 assessments are planned for 1998, and new requests for assessment are also expected during the year.*

- ★ *By 31 December, 26 of the assessed States had prepared and submitted to ICAO action plans in order to rectify deficiencies or to implement ICAO Standards and Recommended Practices. Five of these action plans were developed by the Technical Co-operation Bureau as part of project documents.*
- ★ *Follow-up action on the safety oversight assessment reports commenced during 1997 with a briefing for the Technical Officers/Operations from the ICAO Regional Offices.*
- ★ *A meeting of Directors General of Civil Aviation took place at ICAO Headquarters from 10 to 12 November to formulate a global strategy for safety oversight. The Conference was attended by 436 participants from 147 Contracting States, 1 non-Contracting State and 13 international organizations.*
- ★ *Major recommendations of the Conference included the introduction of regular, mandatory, systematic and harmonized safety audits of all Contracting States to be carried out by ICAO, the implementation of greater transparency and disclosure of assessment reports, and the incorporation of the programme into the regular budget of the Organization.*
- ★ *The Conference called on donors and funding organizations to co-operate with ICAO in making use of its technical co-operation services.*
- ★ *The Conference also recommended that the ICAO safety oversight programme should be expanded to other technical fields at the appropriate time, initially to include air traffic services, aerodromes and support facilities and services.*
- ★ *A co-ordination agreement on safety oversight issues between ICAO and ECAC was signed during the DGCA conference.*

Controlled Flight into Terrain (CFIT)

The ICAO Air Navigation Commission has progressed development of amendments to Annex 6, Parts I, II and III and the *Procedures for*

Air Navigation Services — Aircraft Operations in response to recommendations of the ICAO and Industry Controlled Flight Into Terrain (CFIT) Task Force. The CFIT Education and Training Aid, developed by the CFIT Task Force, has been completed, and ICAO expects to commence distribution to States in the second quarter of 1998. Delegations to ICAO were provided with an opportunity to observe in-flight demonstrations of a predictive terrain hazard warning system. The ANC also approved a new task on radiotelephony speech for international aviation and urged the use of minimum safe altitude warning systems in association with ATC radar facilities.

Laser Emitters

The commercial use of laser emitters for entertainment and promotional purposes is becoming more popular throughout the world. Such use has been reported to affect aviation safety detrimentally by distracting or even blinding pilots. Many States have now introduced specific regulations to control the use of laser emitters.

- ★ *A proposal to develop Human Factors SARPs for inclusion in several Annexes, which includes the role of Human Factors in present and future operational environments, was circulated to States and international organizations. The proposal was unanimously endorsed and will be submitted to the Council for approval during 1998.*
- ★ *Contracting States and international organizations continued to hold Human Factors-related international events, in order to engage in co-operation and exchange of information on the latest developments in the field of aviation Human Factors. ICAO participated in most key events, maintaining a leadership role in this field.*



PERSONNEL LICENSING

The pace of harmonizing licensing requirements advanced a step further in Europe as the JAA issued the Joint Aviation Requirements for Flight Crew Licensing. These requirements have been issued with no national variants.



HUMAN FACTOR

The initiative in 1996 to incorporate Human Factors requirements into the certification process of equipment, procedures and personnel focused during 1997 on flight deck systems design. In follow-up action on a joint FAA/JAA study on flight crew/flight deck systems interfaces, two JAA-sponsored events were held, in February and September, at which regulatory authorities, operators and manufacturers discussed and defined guidelines for research and implementation of Human Factors requirements into flight deck systems certification. Early results are expected during 1998. ICAO participated actively in this initiative.



TRAINING

The ICAO Safety oversight programme identified a significant need for training government safety inspectors (operations and airworthiness). A study of the specific training needs was completed, and the potential for developing TRAINAIR Standardized Training Packages, in co-operation with a Contracting State, is being explored.



WARSAW SYSTEM

★ The 30th Session of the Legal Committee approved a text of a Draft New Convention for the Unification of Certain Rules for International Carriage by Air. Outstanding questions relating to this instrument are expected to be considered by a special group established by the Council, before Council consideration of whether the text should be referred to a Diplomatic Conference.



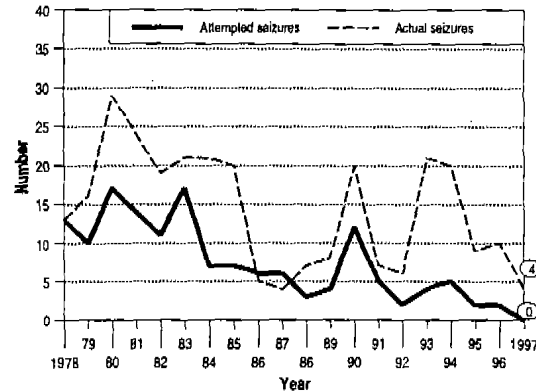
SECURITY

During the reporting period there were 5 acts of unlawful interference officially reported or confirmed by concerned States, of which 4 were unlawful seizures, and 1 was an unlawful act against the safety of civil aviation (Table 12). These acts have been included in the annual statistics to assist in the analysis of trends and developments (Figure 10).

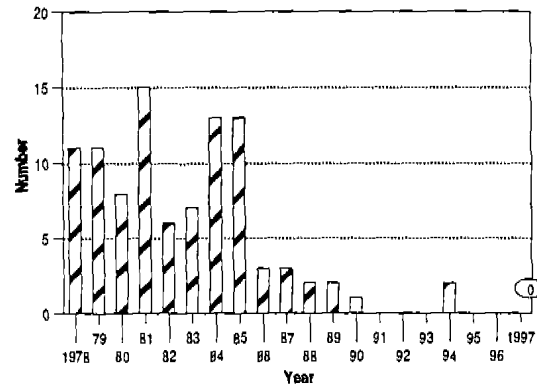
★ Since the commencement of Mechanism activities in 1989, 128 States have requested assistance; of these, 105 received technical evaluation missions, 28 were visited during follow-up missions and 87 training events were staged in which 1 936 trainees participated. These activities were financed through voluntary contributions by 15 donor States totalling \$4 191 514 and through the funding of 7 posts by 3 donor States.

With a view to enhancing the implementation of Standards and Recommended Practices (SARPs) of Annex 17 and developing national training capabilities, regional/sub-regional aviation security training centres have been established in Amman, Brussels, Casablanca, Dakar, Kyiv, Moscow, Nairobi, Penang, Port-of-Spain and Quito.

Acts of unlawful seizure



Incidents of sabotage



Number of persons killed or injured

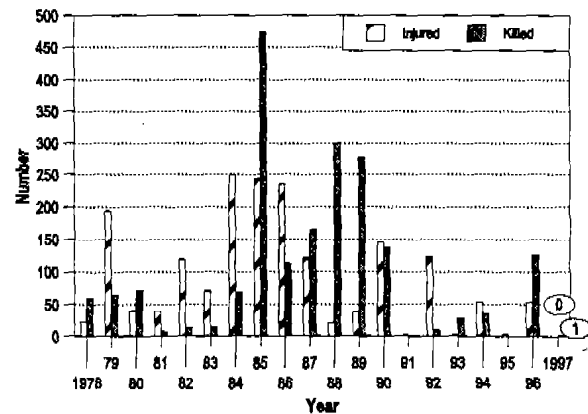


Figure 10. Aviation security statistics 1978-1997



ENVIRONMENTAL PROTECTION

Following the decision in September 1996 by the Intergovernmental Panel on Climate Change (IPCC), at ICAO's request, to undertake the preparation of a special report on *Aviation and the Global Atmosphere* in collaboration with the Scientific Assessment Panel of the Montreal Protocol and with ICAO involvement, writing teams have been appointed, and completion is expected in March 1999. This report should give States, ICAO and other UN policy-making bodies an authoritative common base of information for addressing the impact of aircraft engine emissions.

In June, a special session of the United Nations General Assembly convened to review progress since the Earth Summit identified the need for "the continuation of studies in the appropriate fora, including ICAO, on the use of economic instruments for the mitigation of the negative environmental impact of aviation in the context of sustainable development".

In December in Kyoto, Japan, the Conference of the Parties to the UN Framework Convention on Climate Change adopted a new protocol to the Convention that includes a provision that developed countries shall pursue limitation or reduction of greenhouse gas emissions from international aviation, working through ICAO.

- ★ In March, the Council reviewed the recommendations made by the third meeting of its Committee on Aviation Environmental Protection (CAEP/3) in December 1995, in the light of comments received from States. As a result, the Council made several amendments to Annex 16 and decided to refer CAEP/3 Recommendation 2/3 on emissions limits for oxides of nitrogen back to CAEP for further consideration. The Council also referred CAEP/3 proposals to amend PANS-OPS, Volume I concerning take-off noise abatement procedures to the Operations Study Group for review of the safety implications.
- ★ In September, in a statement to the 10th anniversary Meeting of the Parties to the Montreal Protocol, the President of the

Council emphasized the need for ICAO and the Montreal Protocol process to work together on the environmental acceptability of a possible new generation of supersonic aircraft.



SUBSTANCE ABUSE

- ★ The Air Navigation Commission (ANC) reviewed a compilation and analysis of responses from 60 States and 3 international organizations to a letter sent to States concerning a proposal to amend Annex 1 by adding new provisions relating to the use of psychoactive substances. The ANC approved the proposal and recommended that a similar amendment be made to Annex 2. The proposal will be submitted to the Council for adoption in 1998.



TECHNICAL CO-OPERATION

- ★ The ICAO Technical Co-operation Programme for 1997 was valued at \$75.1 million, of which \$65.3 million (or 87 per cent) was implemented.
- ★ During the year, the Technical Co-operation Bureau executed 116 projects in 74 developing countries and a total of 13 new and revised large-scale projects were approved. The Bureau employed 314 experts from 41 countries to work in its field projects. A total of 627 fellowships were awarded and procurement expenditures for field projects totalled \$35.92 million.
- ★ Registration for the ICAO Civil Aviation Purchasing Service (CAPS) was made by 3 additional countries, bringing the total to 84.

★ *Assembly Resolution A31-14 endorsed the ICAO Objectives Implementation Funding Mechanism established to provide funding for the ICAO Technical Co-operation Programme and encouraged Contracting States to contribute to it. During the 1996-1998 Triennium, contributions to the Mechanism were received from 2 Contracting States. Contribution to the Mechanism reflected the commitment of the Government of Spain to the ICAO Technical Co-operation Programme particularly in the Latin America Region and in the area of training.*

During this period, the Government of Spain contributed over \$2.375 million to funding training/TRAINAIR projects in States of Latin America. In addition, it provided more than \$300 000 to fund two Technical Co-operation Officers in ICAO's Lima and Mexico Regional Offices as well as one Procurement Officer at Headquarters. The Government of the Kingdom of the Netherlands, the Mechanism's other contributor, pledged approximately \$40 000 to be utilized in the purchase of office equipment for least developed countries.

THE ORGANIZATION

- ★ *In April, ICAO marked the 50th anniversary of the coming into force of the Convention on International Civil Aviation. The Convention, drafted in Chicago in 1944, came into force 30 days after ratification by a 26th State, which occurred on 4 April 1947. The Convention is currently ratified by 185 States.*
 - ★ *In May, ICAO launched its first ever Strategic Action Plan, which is the first comprehensive re-evaluation of ICAO's mission since it was created through the Convention on International Civil Aviation. The Plan focuses on 8 major objectives to further the safety, security and efficiency of ICAO and identifies 43 related key activities which will define the core programmes of the Organization.*
 - ★ *In May, ICAO also conveyed to all States an interim report on implementation of Assembly Resolution A31-2 on increasing effectiveness in the Organization indicating measures taken to streamline procedures of the Assembly, Council and its subsidiary bodies, reducing the number of Committees, improving and increasing electronic means of communication, and outsourcing of translation and printing activities.*
 - ★ *In March the ICAO Council appointed Mr. Renato Cláudio Costa Pereira (Brazil) as the new Secretary General of ICAO for a three-year term beginning 1 August 1997.*
 - ★ *In April, ICAO held a precedent-setting meeting of representatives of all its Regional Planning Groups and a cross-section of aviation partners to chart the course for a seamless, integrated, world-wide traffic management system.*
 - ★ *In a further precedent, 147 Directors General of Civil Aviation of ICAO's Contracting States, 1 non-Contracting State and representatives of 13 international organizations met at ICAO Headquarters in November to formulate a global strategy for safety oversight. As a major recommendation, the Conference agreed that ICAO should introduce regular, mandatory, systematic and harmonized safety audits which should include all Contracting States.*
 - ★ *In April, in response to efforts by ICAO, the airspace of Bosnia and Herzegovina was opened to civil air traffic.*
 - ★ *The value of the ICAO Technical Co-operation Programme for 1997 was \$75.1 million, of which \$65.3 million (or 87%) was implemented.*
 - ★ *In October, the President of the Council, Dr. Assad Kotaite, who initiated in 1981 negotiations through ICAO between the Democratic People's Republic of Korea and the Republic of Korea signed with the Directors General of Civil Aviation of these two countries a Memorandum of Understanding which permits for the first time the use by any State of air routes between North Korean-controlled airspace and South Korean-controlled airspace.*
-