

**INTERNATIONAL ADVISORY GROUP AIR NAVIGATION SERVICES**



**THE ANSE & ANSA STORY**

**1967 - 2014**

**by Frank W Fischer**

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## **INTERNATIONAL ADVISORY GROUP AIR NAVIGATION SERVICES**

established in 1967 as a professional non-profit organization

The International Advisory Group - Air Navigation Services (ANSA) is an international membership organization dedicated to the continuous improvement of the Air Traffic - Control - Services provision. It is based on the membership of aviation and especially air navigation experts and specialists. Non-profit and independent, the group was privately established in 1967 on the initiative of air traffic controllers of the German upper airspace ATC centre "Rhein Control". Since 1985 it has its legal seat in Switzerland under the rules of the Swiss Civil Code (ZGB). Over the last 40 years some 100 individuals from 21 different countries have joined the group, speaking 13 different languages at a time.



### **1 Preface**

This is the story of a small professional organization, formed in 1967 by German air traffic controllers at the upper airspace air traffic control center RHEIN in Birkenfeld-Nahe (Germany) on their own initiative with the main objective of supporting the German air navigation authorities and the EUROCONTROL Agency for the improvement of the air traffic control system and its associated procedures in making recommendations in cooperation with civil and military airspace users, their organizations and the ATC industry. After having changed its name from ANSE to ANSA in 1971, the group moved its legal seat to Switzerland in 1985, still exists and has its legal seat and main office now at the town of Lüterkofen in Cantone Solothurn of Switzerland. ANSA, during the years of its highest activity counted 45 individual members in 21 countries of the world. Thirteen different languages were spoken.

This small group of aviation and especially air navigation and air traffic control experts and specialists from over 20 countries, based on their motivation to change the then existing circumstances which hampered Air Traffic Service provision and the performance of the overall ATS system in the 1960'ies and 70'ies, now existing over 40 years is worth of mentioning and being put on record for their untiring and repeated effort to promote flight safety and assist in ATC system modernization.. This „story“ shall serve as a record of the group's achievements over the years and as an example for its future members of another generation of civil aviation and air navigation community members.

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## 2 Background

In June 1957 the Rhein Air Traffic Control Centre for the upper airspace of South Germany was established by the US Air Force Europe (USAFE) on Erbeskopf mountain near the town of Birkenfeld-Nahe halfway between Frankfurt/Main and Luxembourg. This decision was already taken during the course of 1956 in negotiation between headquarters USAFE at Wiesbaden and the newly founded Federal Administration for Air Navigation Services (BFS - Bundesanstalt für Flugsicherung) in Frankfurt on demand of the US Forces.

As reported in detail in the book “The Story of Rhein Control”, this decision caused the Federal Republic of Germany to redelegate its sovereignty over the upper airspace altitude in the upper south of a line Köln - Kassel back to the US Forces until the end of 1960. A corresponding agreement between the USA and the FRG on Rhein Control was concluded for the same reason. With BFS lacking all the required resources and traffic controllers a joint operations team was formed by USAF, BFS and the German Air Force controllers at Birkenfeld as of June 1957. At that time the GAF practically only existed since one year after the establishment of the German Armed Forces in 1956 and endeavoured to gain jurisdiction for the control over their flights in the airspace. This process led to complicated national internal competition between BFS and the GAF over many years.



gate its sovereignty over above 20.000 feet flight information region Kassel back to the US 1960. A corresponding agreement between the USA and the FRG on Rhein Control was concluded for the same reason. With BFS lacking all the required resources and traffic controllers a joint operations team was formed by USAF, BFS and the German Air Force controllers at Birkenfeld as of June 1957. At that time the GAF practically only existed since one year

After USAFE had withdrawn their controllers in autumn 1960 only BFS and GAF personnel controlled all civil and military air traffic under the jurisdiction of this jointly operated USAFE-ATC centre for the years to come with BFS being responsible for the provision of air traffic services and after 1964 also for the whole facility.

This situation caused serious problems due to completely insufficient administration and supervision on behalf of BFS and of the newly formed European Organization for the Safety of Air Navigation (EUROCONTROL, founded in 1960 as a supra-national association and changed into a European organization in 1963) being called responsible for the provision of all air navigation services in the upper airspace of its member states, which were France, the UK, Belgium, Luxembourg, the Netherlands and Germany.

With the then existing insufficient and unsafe ATC procedures controllers became more and more dissatisfied and soon began complaining to their administration in BFS and the ministry of transport.

## 3 The Foundation of ANSE



Not expecting any change for the better in the foreseeable future the author of this report suggested to establish a new professional association comprised by ATS personnel working at Rhein UAC only and drafted the corresponding statutes and by-laws. Rhein Control's operations staff finally decided in February 1967 to form their own professional organization at Hoppstädten near Birkenfeld, called Evaluation Group - Air Navigation Services Europe, ANSE for short, incorporated into the official register of associations (eV) at Birkenfeld. The new organization's German name was called "Studiengemeinschaft für Flugsicherung".

So the Evaluation Group was established on the initiative of **Frank W Fischer**, a civilian air traffic controller employed by the Navigation Services (BFS). Its other founding members were, Roland Dehn, Georg Hain, Manfred Abelshauser, Erwin Guggenmeeting took place on 27 February 1967 and its incorporation into the official associations' register took place 28 August 1967. The first statutes amended on 4 December and the association finally registered at the court of Rüsselsheim on 19 September after Rhein UAC had been transferred from Birkenfeld-Nahe to Frankfurt/Main airport in May 1968. On the spot 32 civil and military controllers of BFS and the GAF plus a few US Air Force soldiers had joined the new association.



From the outset ANSE declared not to get involved in any trade association & union affairs, which were left to the well established DAG and ÖTV unions, in which many of the German controllers were members. For ANSE's statutes and objectives see Attachment 1 to this report. However, the accession of military GAF controllers caused controversy cause at that time German soldiers were not yet allowed to form unions or works councils, and their membership in ANSE was considered to be an unwanted grouping in a demand changes by the GAF. But, as to be expected, ANSE did not dismiss its German military members, especially so because they were part of the problem. When at the beginning only non-commissioned officers joined the group this changed in later years, when also some enlisted officers of the GAF and of USAFE decided to join. Rhein UAC was the only one and unique civil/military joint ATC centre in the whole country and therefore had to suffer from the quarrel.



BFS, under its president Dr. O. Heer, now facing another official, legally registered corporation formed mainly by his operations staff, reacted stiff, because it began to receive complaints on the ATC system and procedures shortcomings and corresponding recommendations for their solution by the number, negating most of them during ANSE's early years of existence. In general, ANSE's suggestions mainly remained unheard by BFS and EUROCONTROL during the first years. In later years some of the group's suggestions were however accepted and realized, such as the establishment of the Air Traffic Management Centre and the implementation of Area Navigation procedures. Other recommendations were much too early for the administration to judge.

#### 4 The Groups's Objectives

The group's first and initial objectives were the provision of advice to BFS, EUROCONTROL and the GAF on operational and technical air navigation matters in pointing out shortcomings and problems and recommending their possible solution free of charge; i.e. with the group's members paying the resulting expenses out of their own pocket without any other public support, subsidies or financial contributions, neither from industry or government nor from any aviation institutions, such as research establishments and the like or the general aviation community in general. All contributions were elaborated "free of charge". ANSE / ANSA was able to do so as a non-profit association in performing its activities until 1977. Without

any real positive reaction and support from the administration it was however resolved to limit these free-of-cost activities to an absolute minimum. As for the group's stated objectives in the statutes upon incorporation into the official register these were:

“The association aims at the promotion of the technical development in aviation, especially in the field of air navigation. The association does not aim at profit. Any economy management not serving the association's purpose and aims shall not be sustained. The association is aiming at the promotion of the exchange of experience and the advanced training of experts, the aviation industry and airspace users, engaged in the management of air traffic as well as the preparation and conduct of flights in order to contribute to the improvement of flying safety in civil and military air navigation, as well as to advise aviation companies, - organizations and - authorities in the development of new air navigation procedures and systems. The association pursues to reach its objectives in active cooperation with the various professional aviation organizations and in the exchange of experience with the aviation industry, the aviation authorities and the airspace users.

The fulfilment of these objectives is achieved by: - the presentation of recommendations and suggestions to the aviation administrations and appropriate technical groups for the improvement of procedures, facilities and equipment, as well as regulations useful for the safety of aviation; - the exchange of experience with air navigation services units and aviation organizations; - the collection of information, its evaluation and distribution, the set-up of studies on specific subjects, the elaboration of recommendations, the granting of advice to questions on air navigation, the holding of lectures, educational journeys, as well as the production of teaching and training material for aviation personnel.

Remark: For this purpose, a visit-, exchange- and study program is set-up. An economy management, ‘serving the association's purpose and aims’ may be sustained.”

It was and is group's philosophy to assist other members of the mainly civil aviation community, including airports, aircraft operators and air navigation services providers, as well as the ATM industry in their projects, in their indoctrination on operational requirements, their training, so to speak in the furtherance of flight safety in general. This included the performance of activities against remuneration (paid projects), non-profit activities (coverage of incurred costs only) and free advice and assistance if in the general public's interest. Advance training of the group's members on modern tools in ATC and their possible application was mainly conducted on their own initiative and expense.

## 5 Membership

In its first year of existence ANSE mainly consisted of upper airspace area control „air traffic controllers“ and flight data specialists of Rhein UAC, i.e. 75 % german civilians (BFS government officials and employees) and 25 % soldiers of the German Air Force and a few Americans, as well as three Belgian controllers from Brussels ACC.



M. Bowitz and J. Aelbrecht



Messrs. Abusbeih, Ali and Hasanat

This composition of membership practically remained unchanged until the dissolution of ANSE in favour of the German ATCA. As of 1.1.1972, when the group was re-established as ANSA, this composition of membership changed drastically. Now members of other air navigation professions joined ANSA, among them navigators, radio operators, civil and military pilots, aviation lawyers, ATC instructors, planners and procedures planners, airport chers, aeronautical telecommunication operators and air defence controllers; at times up to 45 specialists



F. Fischer and C. Olmos

This fact caused considerable irritation with the German air navigation administration, which considered ANSA as an opponent, complainer and critic, blaming the administration for its failures and non-feasance in properly regulating and operating the German air traffic control system. This is not what it really was, namely a supporter of flight safety and the improvement of the ATC system, a service provided free of charge to government, paid by the members only and achieved in their rare off-duty time. Instead, the administration hindered the group's activities where it could. Altogether, ANSA over the years counted some 100 members, of which only six to eight are still active in their professions (see bold print). As an example, members on 31 January 2002 were

- 01 Mr. B. Rüthy, chief air navigation operations, swisscontrol, retired, Switzerland
- 02 **Mrs. H. Fischer, ATC specialist, AIS + COM officer, private pilot, MD FSB GmbH, Germany**
- 03 Mr. J. W. Hsu, chief ATC Training, CAA, Aeron. Training Centre, Republic of China
- 04 **Mr. F. W. Fischer, ATS expert, administration management consultant, Germany**
- 05 Mr. Ch. Geli, ATC supervisor, AIS officer, CAA, The Philippines
- 06 Mr. R. A. Coulter, pilot ATP, flight instructor, chief operations ACA USA (1600 pilots)
- 07 Mr. J. Wang, air traffic controller, director aeronautical training center, CAA, ROC, re
- 08 **Mr. G. Melzer, pilot ATP + ATPL (B757 + 767 +747-200), flight instructor, Germany**
- 09 **Mr. R. Eckstein, air traffic controller, Hahn TWR, Germany**
- 10 **Prof. Dr. M. Cavcar, aeron. eng. associate professor, Anadolu University, Turkey**
- 11 Mr. J. Mihlan, pilot CPL, Avionics Spec., Technical Officer ERA, Germany
- 12 Mr. A. Dose, pilot ATPL, CEO Crossair, Switzerland
- 13 Mr. M. Zehender, Civ. Eng., chief Airport Planner, Airplan + Dorsch Consult, Germany
- 14 **Mr. I. Nurka, air traffic controller, ANTA, Tirana ACC, Albania**
- 15 **Mr. V. Bubalo, ATS Instructor, Eurocontrol, Luxembourg**
- 16 **Mr. D. Milanovski, ATS lecturer + instructor, CAA Macedonia**
- 17 Mr. P. Schüller, air traffic controller, private pilot, retired, Germany
- 18 Mr. Y. Gür, chief instructor ATC, Anadolu University, Turkey
- 19 Mr. E. Y. S. Chu, ATC standards officer & accident investigator, CAD, P.R.China, Hong Kong
- 20 Mr. Z. Ali, ATC instructor, Civil Aviation College Gulf States, Qatar and Tanzania
- 21 Mr. A. Avgoustis, retired, air traffic controller, chief airports section, CAD, Cyprus
- 22 Prof. Dr. H. J. Melzer, Dipl. Eng. + mathematician, University Munich, Germany
- 23 Mr. T. Abuzeid, ATC instructor, MD Telecom Equipment Co., Qatar and Sudan
- 24 Mr. L. Abelshauser, ATC instructor, DC-10 pilot ATPL with FedEx, Germany + Philippines

- 25 Mr. R. M. Kimilu, ATC Instructor, Civil Aviation College Gulf States, Kenya
- 26 Mr. S. K. Mworira, air traffic controller, Tanzania
- 27 Prof. Dr. E. Yoshioka, aeron. engineer, Japan Aeronautics Research Institute, Japan, retired
- 28 Mr. V. Konussenko, air navigation specialist, former president FATCU, Russia
- 29 Mr. D. Moisseev, ATC supervisor Moscow-Vnukovo, Russia
- 30 Mr. K. R. Dilks, pilot CPL, director aviation systems, ECI Inc., USA
- 31 Mr. A. Bradshaw, Chief ATS Operations, South Africa
- 32 Mr. D. F. Waters, Major USAF, retired, check-pilot CPL C-141
- 33 Mr. J. Racek, Senior ATM Expert, CAA Czech Republic

New members, having joined ANSA just recently are Mr. K. Wolf, managing director of company BAN-2000 of Germany and Mr. Ladurner, air traffic controller at a regional airport in Germany, Mr. J. Rössler military ATS expert of Germany and the German aviation historian M. Lenz.

F. W. Fischer also became a member for lifetime with the Turkish ATCA and their IFATCA Liaison Officer for a number of years after the war over Cyprus, an associate member with the Tanzanian ATCA and an honorary member with the Mexican ATCA, as did Mr. B. Rüthy. In 2011 he was accepted as full member of the International Society of Air Safety Investigators (ISASI) and the US Air Force Communicators and Air Traffic Controllers Association - AACCS.

## 6 Official Recognition

Upon its foundation ANSE primarily aimed at recognition by BFS, EUROCONTROL and ICAO. BFS just took notice about the group's foundation as did EUROCONTROL, but ICAO reacted positively and incorporated the group into its Technical Assistance roster. The German Air Force also reacted passively, but USAFE appreciated the contact and actively cooperated with ANSE and ANSA over 15 years.

In 2004 with the European Union's "Single European Sky" (SES) policy for Europe, the European Commission's directorate general for energy and transport (TREN) accepted ANSA into the pool of EC recognized selected Air Traffic Management experts. In this pool of accredited experts ANSA assigned Prof. Dr. M. Cavcar, B. Rüthy and F. W. Fischer. As a consequence of ANSA's contributions, in 2004 ANSA's members B. Rüthy, M. Cavcar and F. W. Fischer were given the status of European Commission officially recognized Air Traffic Management experts to be called from time to time by its General Directorate TREN, Directorate F Airspace, Air Traffic & ATM, on pending and ongoing ATM projects, in which the EU was involved.

## 7 Dissolution of ANSE and Re-establishment as ANSA

The most negative reaction and resistance came from a completely unexpected direction, namely from the German Air Traffic Controllers' Association - (VDF, Verband Deutscher Flugleiter), whose new executive board members became harsh opponents to ANSE, since the ATCA / VDF did not fulfil during all those years and competitor in ANSE in the which only knew about VDF. practically within the inner community, civil, military, But pilot organizations and the came aware that there now tional and technical" voice.



Cpt. Campbell & L. Abelshauser, ANSE's Interim President

The resulting controversies, quarrel and defamatory statements lasted for years, until the ANSE members finally decided to dissolve their association in favour of the German ATCA with ANSE's president, Frank W Fischer, to be appointed as chairman of a newly established ATC Safety Committee within the ATCA in 1971. The key players on behalf of the ATCA, all being lower airspace controllers, in driving this opposition at that time were W. Kassebohm, H. Klinke, H. Guddat and K. Piotrowski.

With the change having taken place ATCA after only one year of existence of the safety committee in 1972 suddenly and quietly dissolved its ATC Safety Committee without reason and public motion. They had won a game under unfair rules, but did not realize what they had lost in doing so in the long run. So the first German ATC Safety Committee was buried forever.

The development in 1971 caused a small group of former ANSE members to revive the organization in founding a successor group, called "Advisory Group - Air Navigation Services", ANSA for short. ANSA's first executive board was formed by F. W. Fischer as president, L. Abelshauser as secretary and P. Kuberski as cashier. In this form the group constituted a non-incorporated association. To overcome this status the group decided to change its status into „incorporated = eV“ on 14 November 1973. With this new start the new group now consisted of F. W. Fischer, K. Weber, L. Abelshauser, P. Kuberski, H.J. Kloiber, P. Schüller and A. Auer, with all of them originally being air traffic controllers.

Now the former group's activities as regards technical advice and support to air navigation services organizations, airline companies, military aircraft operators, airport operators and the ATC industry were continued throughout Europe, because the given problems had quickly become border-crossing in every respect, with aircraft now travelling mostly at 400+ knots. At the beginning the training of private pilots on air navigation theory and radiotelephony procedures had priority. In cooperation with ANSA's sister company AIRADIO about 230 pilots were trained over the following years until about 1978. The failure rate of ANSA's pilots in official examinations was in the order of nil to 2%.

But soon larger scale projects were performed, as shown in the attached list of successfully performed projects and the first project to be conducted was LANS, the Libyan Air Navigation Services project with the German AEG-Telefunken company, which mainly produced radar systems and manufactured the first german digital radar data processing and display system – DERD.

## **8 The Group's changing Legal Status**

### **8.1. eV in Germany**

The ANSE group started its existence as a professional association incorporated into the register of associations with the court of Birkenfeld-Nahe in Rhineland-Palatinate. This status, requiring at least seven members, which had to form an executive board of three, namely president, secretary and cashier, was maintained until the dissolution in 1971. Between 1968 and 1971 ANSE was registered with the court of Rüsselsheim-Main in Hassia. As an incorporated non-commercial association ANSE constituted a legal person and was freed from corporation tax.

### **8.2. GbR in Germany**

When the group was revived as ANSA only a few months later, it started off as a non-incorporated, professional and non-commercial association. This status only required three members. As such, ANSA constituted a grouping of natural persons. However, driven by its objectives, which the group pursued, ANSA was confirmed to be a professional association to represent members of the air navigation profession (Berufsverband) by the tax administration of Offenbach am Main in 1974 and again in 1983. In 1978 the status was again changed into an incorporated association "e.V". ANSA maintained this status of corporate tax free association under German law until 1985, when it was decided to move the legal seat to Switzerland in order to make further attacks by BFS more difficult.

### **8.3. ZGB Association in Switzerland**

With the law on associations in Switzerland being slightly different, ANSA maintained its status as a legal entity, but there obligatory incorporation into an association register does not exist by the Civil Code (ZGB).

However, in registering its seat and office with the local community ANSA declared its status as a charitable (gemeinnützig) organization. This is ANSA's status until today. With the group's now mostly international membership and developing international industry contacts the new legal seat was more suitable.

#### 8.4. Liability

With the status of "e.V" ANSE and ANSA were only liable to third parties to the maximum of the association's property. As a non-incorporated body between 1971 and 1978, all members were equally liable to third parties personally.

### **9 The Move to Switzerland**

With ANSA being disliked by BFS due to its intensive activities in supporting the ATC industry like AEG/TFK in the Libyan project or in offering to train SIEMENS engineers on ATC operations and system planning aspects over a one-year period a very tight relation had developed, especially so since 1977. The president of BFS had already demanded a few years earlier without reason that the group dissolve itself. This unfounded and unfair demand had then been rejected by ANSE. A group of BFS lawyers together with the vice president of BFS visited the AEG/TFK management in Ulm and the SIEMENS management in München demanding to be given insight into respective contracts with ANSA. The Libyan project, however was completed as contractually agreed, but the SIEMENS project was abandoned by the company in order not to be excluded from future BFS projects. The Libyan project led to disciplinary investigation against two ANSA members, which was only stopped when ANSA informed the president of BFS (Voss) that he would now be called to public court because of illegally pursuing unjustified disciplinary procedures against two members. This announcement stopped the procedure, but the case remained unclarified for BFS, which argued that professional BFS know-how might have been transferred by ANSA to AEG.

The group's further intensive conceptual design work on a computerized aeronautical information and data system (CAIDS) together with the industry further deteriorated the relation with BFS. ANSA's president finally retired from his post as government official in 1981 and canceled his assignment with BFS. This step, however, did not stop defamation on behalf of and intrusion by BFS into ANSA's business, altogether causing damage in the order of three million DEM in stopping business projects under development and it was therefore decided to move the legal seat of ANSA to Switzerland in order to avert further negative consequences and detriment to ANSA. This happened in 1985. The legal seat and main office then were established at Fraubrunnen, Cantone Berne. In 2004 the groups' legal seat was again moved to the community of Lüterkofen in Cantone Solothurn, where it is now.

### **10 The Statutes of ANSA**

For the current wording of ANSA's statutes enquire via e-mail ([info@atc-ansa.org](mailto:info@atc-ansa.org)).

### **11 ANSA's By-Laws**

The current wording of ANSA's By-Laws are only available for members.

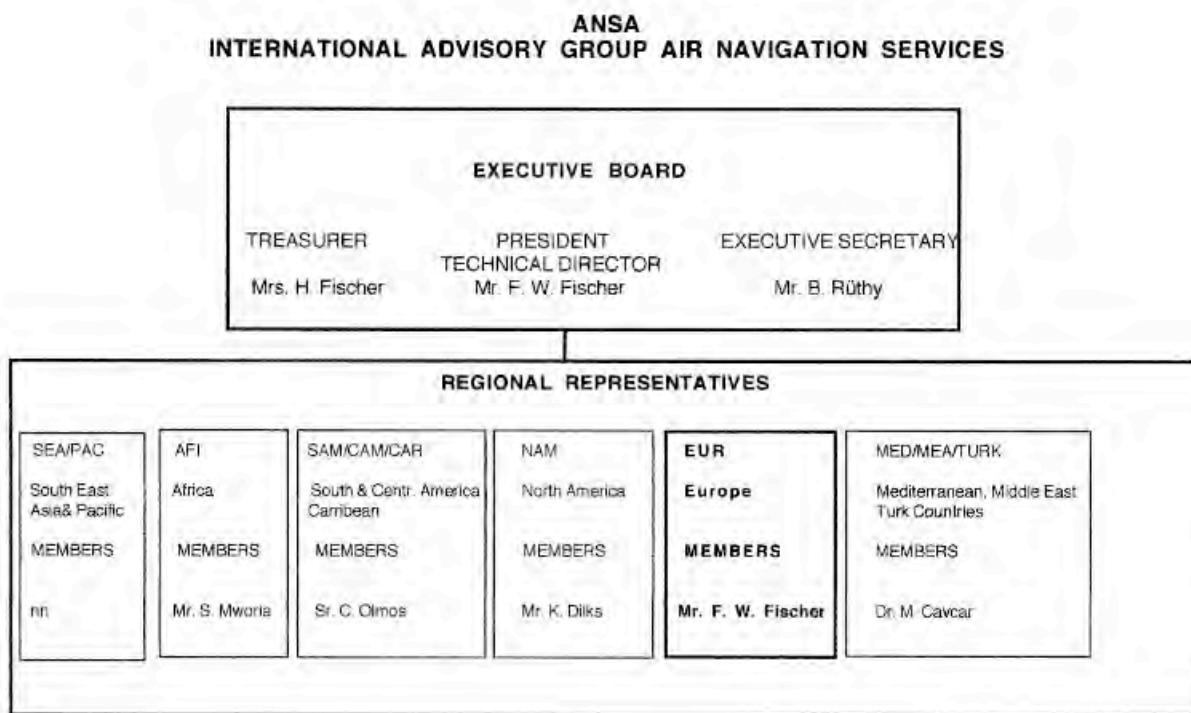
### **12 The Executive Board and its Members**

ANSE's first executive board consisted of three persons, Messrs. M. Bowitz as chairman PANS, L. Abelshauser as chairman PE, and F. W. Fischer as chairman EoE, who selected the president, which became F. W. Fischer, the founder and representing the association externally in accordance with § 26 of the German Civil Code.

Three working groups were set-up to cater for the many different subjects to be dealt with. These were, PANS Procedures Air Navigation Services, EoE Exchange of Experience and PE Professional Education; plus two representatives for matters relating to „ATSE Air Traffic Services Equipment“ and „SP Social Problems“. Their chairmen were Mr. M. Bowitz for PANS, Mr. F. W. Fischer for EoE, Mr. L. Abelshauser for PE, Mr. H. Wiegand for ATSE, Mr. E. Guggenberger for SP and Mr. R. Dehn as treasurer.

This organization was maintained until 1969. Thereafter only the three working groups were maintained, with only ATSE matters to be dealt with by PANS and SP be given up. PANS, EoE and PE were maintained by the same persons. The treasurer became B. Ehrenberger.

ANSA's general legal organizational structure changed slightly over the years with the executive board now being formed by the technical director, the executive secretary and the treasurer, while the regional representatives of the chosen regions reported directly to the president.



ANSA's legal Structure until today

Who were these devoted members, willing to spend so much time, effort and expense for the improvement of the ATS system?

M. Bowitz, senior air traffic controller (civil and military upper airspace area control), a talented mathematician and navigation calculator;

L. Abelshauser, air traffic controller (civil and military upper airspace area control), ATC instructor, private pilot (ATPL – IFR) and flight instructor;

E. Guggenberger, air traffic controller (civil and military upper airspace area control);

H. Wiegand, military air traffic controller (military upper airspace area control) and an experienced automated data processing software programmer;

F. W. Fischer, air traffic controller (civil and military upper airspace area control), private pilot, ATC instructor, works council chairman, union representative and ATS lecturer, accredited German air navigation administration expert (Dipl.).

Other members, joining the group in the following years, who significantly added to the group's success were the treasurers K. Weber, P. Schüller and Mrs. H. Fischer, who acts as treasurer until today, Mr. B. Rüthy of Switzerland, Swisscontrol's chief of training, who acted as secretary as of 1985, as well as Prof. Dr. M. Cavcar of Anadolu University in Eskisehir / Turkey, who became ANSA's secretary for international affairs.

### 13 The Advisory Board

In order to support ANSA's executive board in its decisions on the conduct of commercial projects, an advisory board was formed in 1978 consisting of experts on "Commercial Law", "Taxation and Financial Regulations", "Private and Corporation Law", "Air Law" and "Air Navigation Operations and System Engineering".

Its advisors were Messrs. H. Laupichler, managing director of TRANSFORM AG, Dr. H. Ruthkowsky, lawyer, Dr. W.D. Diersch, an aviation lawyer and CEO of the German Aero Club DAeC, and Mr. Bick, engineer with BFS. The function on "taxation" was to be assigned from time to time. This board was maintained until 1985, when ANSA moved its legal seat to Switzerland.

### 14 The Offices of ANSE and ANSA



ANSE's first Residence at Hoppstädten

ANSE's first office was established at Hoppstädten/Nahe (Am Flugplatz 17) near Birkenfeld in Rhineland-Palatinate, in the immediate vicinity of the US "Boehmer" AAF, where it was incorporated into the register of associations in December 1967. When Rhein UAC moved to Frankfurt/Main airport in 1968 the seat and office were moved to Rüsselsheim/Main (Düsseldorfer Strasse 9).



A Look into ANSE's office at Rüsselsheim

This seat was maintained until 1972, when it was moved to the president's new residence in the Taunus mountain range north of Frankfurt to the town of Oberreifenberg (Salzgrund).

In 1975 it moved again to Frankfurt (Mauritius Str. 2) and in 1977 finally to Westerngrund (Kleine Wiese 6) in Bavaria near the city of Aschaffenburg, now changing its status into an incorporated association (e.V.) at the court of Alzenau., Bavaria.

When ANSA finally moved its legal seat to Switzerland the registration in the German register was deleted.



ANSA's new Residence from 1977 to 1985 at Westerngrund

Seat and office were maintained there until 1985, when it was decided to move both to the town of Fraubrunnen (Bürenstr. 23) in Switzerland with the German office being set-up at Wetzelsberg (House 35) in Bavaria.



ANSA's German office at Wetzelsberg 1985-2007



Office Wetzelsberg

The offices at Westerngrund and Wetzelsberg should become very busy in the years after 1981 with group members and industry visitors from the USA, Russia, Mexico, Germany, Switzerland, Turkey, the Czech Republic, Bulgaria, Jordan, England, the Netherlands, Iceland, Ghana, Cyprus, Jordan, China and Denmark meeting there.



ANSA's East European Subsidiary at Gardony since 1996

In 2004, finally the legal seat and main office moved to the town of Lüterkofen (Hauptstr. 21) in Switzerland, where ANSA now is registered. It remained there until December 2013, when it moved its office to Kreuzlingen at Lake Constance.



ANSA's Office at Lüterkofen



ANSA's Office at Kreuzlingen

Subsidiary offices were established over time at the residences of some of the regional representatives with the exception of Gardony (Babits M. utca 32) in Hungary, from where all east european projects were handled.

## 15 Working Groups

At the very beginning five working groups existed. These were

- PANS Procedures Air Navigation Services,
- EOE Exchange of Experience,
- PE Professional Education,
- ATSE Air Traffic Services Equipment, and
- SP Social Problems.

The latter two were soon given up for fatalistic reasons, since nobody wanted to listen to ANSE recommendations regarding ATS Equipment requirements and as regards SP the main voice was the German ATCA anyhow and ANSE forwarded its reports and demands to ATCA already. So finally, only the first three groups remained; see 12 "The Executive Board".

## 16 The Visit & Exchange Program

Already in 1968 ANSE set-up a visit, study & exchange program for its members, which only had to pay for their actual expenses in conducting visits, except for a few, which were sponsored by ANSE itself. This program was run by working group EoE (Exchange of Experience).

Serving the exchange of information and the acquisition of additional knowledge, members visited other civil and military air navigation facilities and air traffic control units across the world, such as Reykjavik, Oslo, Stockholm, London, Prestwick, Tokio, Hong Kong, Taipei, Mexico City, Barcelona, Sofia, Istanbul, Rome, Paris, Reims, Brussels, Zürich, Vienna, N.Y. (Han-cock Field City, Florida, Oak-land ington DC, New York (Islip go, Dubrovnik, Beograd, military units throu-ghout navigation au-thorities of (Toronto), Washing-ton DC, included.



M. Bowitz + DGCA Yugoslavia, Mr. Mrkonjic

Amman, Akaba, Madrid, Syracus SAGE), Tyndall AFB Panama California, Lees-burg near Wash-and McAr-thur), Toronto, Chica-Prague, Ber-lin and most of the Germany; official visits to the air Bulgaria (Sofia), Canada USA) and Turkey (Istanbul)



Rhein Controllers visiting USAF's Ramstein RAPCC

One of ANSA's more extensive tours under the visit & exchange program included visits to the Venice, Kerkira, Istanbul, Athens, Brindisi, Rome and München ATC facilities in conducting an experience flight from Bad Nauheim via Augsburg, Venice, Bari, Corfu, Istanbul, Athens, Brindisi, Rome-Ciampino, München and back to Bad Nauheim in 1974 in a Piaggio P-149 single engine aircraft on IFR flight.



ANSA's Fam – Flight Route

Similar to this flight many other familiarization flights were arranged for and conducted by ANSE's and ANSA's members over the years, many of them with USAFE, GAF and CAF high performance aircraft in the upper airspace. But other flights included destinations, such as Tokio (Japan), New York, San Francisco, Chicago, Anchorage and Washington-DC (USA), Sofia (Bulgaria), Budapest (Hungary), Rome (Italy), Madrid and Barcelona (Spain), London, Birmingham + Glasgow (UK), Montreal and Toronto (Canada) and Reykjavik (Iceland). On the occasion of such flights all local ATC units were visited for an exchange of information in determining common perience and knowledge during membership meetings.



The Aircraft P-149

Over time this led to a significant increase in flight operations knowledge among many members and a good number underwent flight training and acquired pilot licences, such as PPL, CPL and ATPL with often IFR ratings and a vast variety of pilots and later on flew Learjets, Mitsubishi Jets, and a great variety of aviation aircraft. mostly pilots on C-130s, similar type aircraft. given theoretical and training and received and on ejection seats. flights with fighter type F-102, F-105, F4 and F-16 and F-18.



A USAF F-100 Fam Flight

## 17 Regional Representation

In 1981 it was decided to appoint regional representatives for the various regions in which ANSA's members resided. The first appointed Europe (EUR), at Ulm Fischer, K. Dilks for North America (NAM) in Florida, followed by Col. R. A. Coulter in Central America (SAM/CAM), South East Asia (SEA), Hong Kong (China), followed by Ch. Geli, for Africa (AFI) in Arusha (Cyprus), followed by Dr. M.Cavcar in Eskisehir (Turkey).



E.Y.S. Chu, Reg.-Rep. SEA

These representatives gathered information on possible developing projects and acted as contact persons and information providers to interested parties trying to work with ANSA. This led to on-site valuable contacts with aviation authorities and organizations in their respective regions and greatly facilitated the communication with ANSA. With the reduction in membership and the death of C. Olmos the posts of SAM/CAM and NAM remained vacant.

## **18 Work Programs & Results, Projects**

Annual work programmes were set-up and the group's "for-free" activities until 1977 included the

- Set-up of a European VFR-Guide for General Aviation,
- Calculation and redesign of military high altitude holding patterns,
- Suggestions on the implementation of air traffic flow control procedures,
- Implementation of 121.5 MHz emergency frequency override modules in airplane radios,
- The re-alignment of ATS routes (UR11 via BAY, UA9W via RUD-STR-HOC),
- Clarification of the causes of the Zagreb accident of 1973 in interviewing Mr. Tasic after his release from prison in Beograd,
- Saving the Turkish ATCA (THTKC) from dismission with IFATCA and
- Conduct of ATC briefings to general aviation, civil airline and military pilots.

Such activities after 1977 reduced significantly and were limited to

- The arrangement of VOR replacement modules for the Ercan VOR in Turkish Cyprus,
- Assistance to the Federation of ATC Unions of the Russian Federation,
- The re-assessment of the Ukrainian Civil Aviation Code for correctness,
- The submission of a military CAIDS concept to USAF,
- Elaboration on the results and consequences of the European Union's "Single European Sky" regulations to ATS and CNS providers in assisting their certification process under regulations imposed by the German administration,
- Elaboration of the commentary on the causes of the Überlingen midair collision of 2002,
- The draft of a generally applicable content of an ATS Operations Manual for Europe,
- The recommendation to ICAO on the implementation of the Chinese (Mandarin) language as a regionally accepted language in ATS operations in the SEA/PAC region,
- Briefings, seminars and presentations to the aviation community and the media,
- Financial support to the Turkish ATCA and
- Assistance to the story book for the TV documentation "Competition in the Sky".

### **18.1 ANSA – VFR Guide**

During 1974 and 1975 it became evident that public availability and presentation of aeronautical information for visual flights in Europe was completely insufficient for aircraft operators and especially so for private pilots. ANSA, therefore, concluded to design a consolidated „VFR GUIDE“ containing all aeronautical information relating to visual flight in West-European countries. This effort meant extracting all such information from the various European AIPs and was mainly performed by H. Fischer, a certified AIS officer, who became ANSA's treasurer. The project had to be given up by ANSA due to internal problems and lack of interest on behalf of Jeppesen&Co, not being able to realize an existing requirement. No similar product is known to be produced in all those years or to be on the market today, even after more than 25 years.

### **18.2 ANSA – ATS Questionnaire**

Soon after ANSE's foundation it was concluded that practically all ATC upgrade projects require a thorough analysis of the given technical, operational and organizational circumstances, situation and existing shortcomings as a baseline for all further project preparation work. For this reason a comprehensive questionnaire containing a few hundred items was set up covering all such possible aspects and was used in all of ANSE's and ANSA's projects.

### **18.3 ANSA – Strategic Conflict Point Areas**

ANSA's ATC experts soon realized that the multiple flight progress strip operations concept for the presentation of the traffic situation under the continuously growing traffic volume had reached its limits for the control of flights even in a pure radar operations environment. With advanced ADP application programs coming on the market a method was developed allowing to display only flights by means of automated traffic and conflict calculation methods, which were not conflicting with each other. The backbone of this method relied on airspace and air route structuring, which used so-called "strategic conflict point areas – SCPA" for conflict calculation. The results became known as ODIN display routines after part-aspect simulations of the method at the EUROCONTROL Test



## 18.5 ANSE – ATC Safety Committee

The set-up of ANSE's Air Traffic Control Safety Committee (ASC) in 1971 proved to be a major and complicated activity in incorporating civil as well as military aircraft operator organizations and all types of appropriate and associated air navigation organizations for the determination and future solution of ATS system caused flight safety infringements. The USAFE and the German Cockpit Association participated in this ASC.

This committee met with stiff opposition of BFS, the GAF Command and the German ATCA (VDF), due to the fact that it covered activities, which BFS either did not want to touch due to their political implications or the German ATCA had listed as one of their objectives, but never fulfilled them and therefore feared to lose public reputation. The latter demanded ANSE's dissolution and as a compromise the integration of the safety committee into the organization of the German ATCA, which finally happened in 1971.



The first German ATC Safety Committee

The ATC Safety Committee for flight operations in the upper airspace, called ANSE – ASC, was formed because of the continuously deteriorating level of flight safety in the Rhein and Hannover upper flight information regions (UIR). As a major objective it said that this committee was formed in order to reach a problem-oriented adequate professional representation of the air traffic controllers of the upper airspace in the FRG against governmental administrations, i.e. the EUROCONTROL Agency and the German Administrations, such as the MOT, the MOD, BFS, etc.

The committee's purpose aimed at the provision of assistance and advice in the development of safe and orderly systems of ATC for the promotion of safety, efficiency and regularity in air navigation by assisting the development of new procedures, facilities and regulations. The Canadian ATCA had made a corresponding recommendation, but neither IFATCA nor the German ATCA followed it, whereas there existed a strong need for the discussion and clarification of the upper airspace problems. The geographical area was limited to the Rhein and Hannover UIRs with effect to the neighbouring UIRs of Belgium, France, Czechoslovakia, Austria, Netherlands, Denmark and East Germany. The committee foresaw representation by the air forces and the air defence organization to handle operational hazard reports relating to civil and military flights of all kinds. Aspects referring to operations, equipment, systems, training and personnel were covered.

This happened during 1971 and 1972 with this new ATCA committee being dissolved by the ATCA in 1972 to be buried forever. Until today, no successor safety committee has ever been formed again in Germany. The only positive response came from the airlines, the German Cockpit Association, GAF – ATC units and by the US

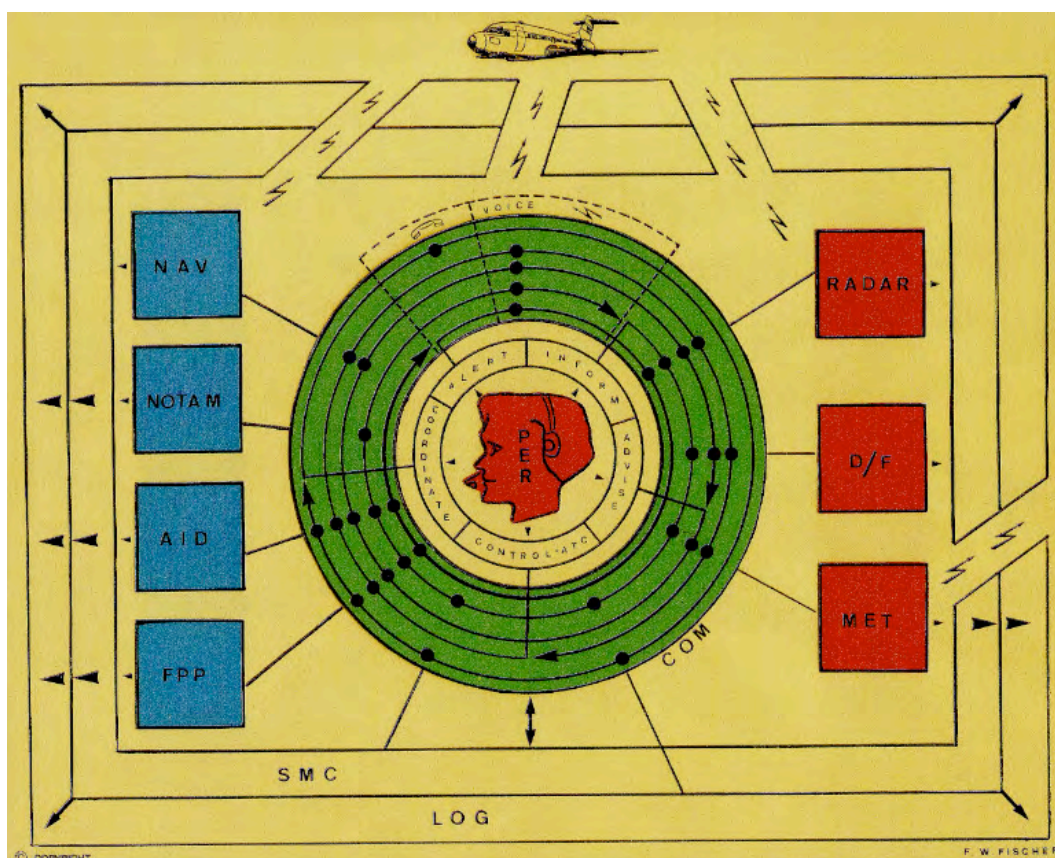
Forces. It was only fortunate that the Iron Curtain fell in 1989 and military flight operations were therefore reduced to a bare minimum afterwards. This, however, did and does not mean that new and other flight safety problems evolved, which require a solution. But that is another issue.

## 18.6 ANSA – Air Traffic Flow Control Procedures

Already since 1968 ANSE pursued the development of Air Traffic Flow Control (ATFC) procedures at Rhein UAC for the management of civil and military traffic flows in the upper airspace of South Germany. Corresponding recommendations were made to BFS and to the suggestions award committee of the MOT and resulted in positive response and award. The procedures as drafted by ANSE & ANSA later on formed the basis for the concept of an Air Traffic Management Centre (LRNZ / ATMC) of BFS at Frankfurt.

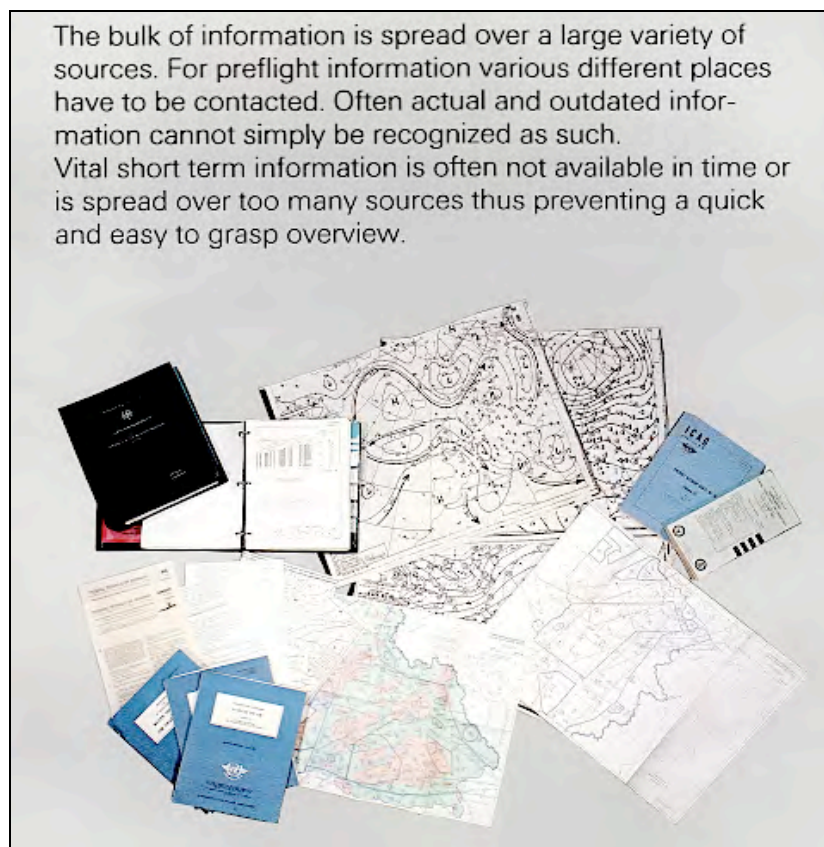
## 18.7 ANSA – Computerized Aeronautical Information & Data Systems / CAIDS

One of ANSA's largest involvements requiring input and intense activity over a period of seven years was the elaboration of an operational functions concept for ADP based computerized aeronautical information and data (AID) handling. Two studies on civil and military AID requirements and aeronautical information services (AIS) were elaborated as a basis for the conceptual design. Civil and Military systems' concepts were specified. Two demonstration models with three different flight preparation examples were made, one with company PTI, the other with company ESG of München, presented to the public during the 1981 Dubai Airshow, the 1981 IFATCA Conference Cairo and the 1982 ILA Airshow Hannover. Eight ANSA members were regularly engaged in the project, which was finally accepted by the Danish CAA for their INFO-87 system in 1987. This happened between 1978 and 1985, when ANSA and FSB cooperated first with PHILIPS, then ESG and finally CONRAC. Especially the response from civil and military aircraft operators, such as USAF and the GAF, was tremendous. Dozens of air navigation organizations showed great interest in this new development, which happened at the doorstep of advanced ADP application programs and therefore too early for most of the civilian information service providers, Jeppesen included. The whole development and effort was financed by FSB and ANSA out of earnings from other projects. The whole idea was born by ATC operations experts knowing about the then existing shortcomings in AID and AIS provision to airspace users.

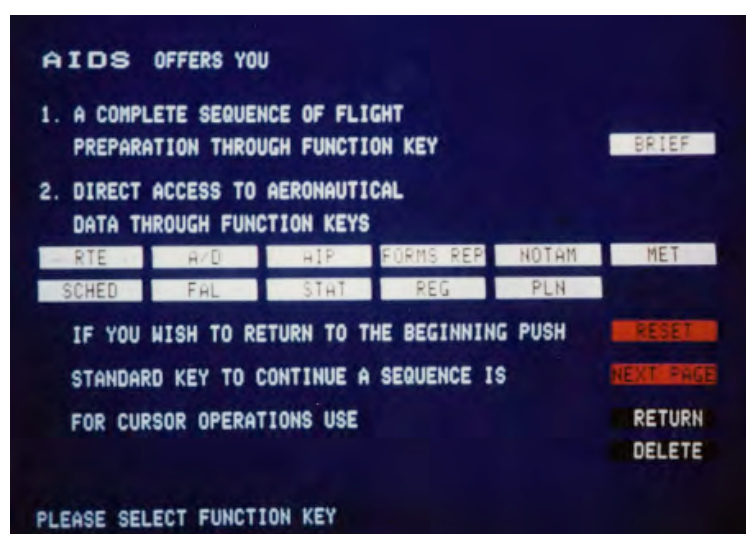


The Air Traffic Services System Connectivity & Services Diagram

But unfortunately, most of the involved ATC industry companies were not enough forward oriented and lacked operational shortcomings and requirements knowledge. Especially EUROCONTROL and the US FAA also showed interest, but EUROCONTROL's staff was not yet prepared to also help solve aircraft operator problems and the US FAA, like USAF refused to acquire such system because FSB and ANSA were Non-US organizations. A most interested client, the Ministry of the Interior of Kuwait, was rejected by PHILIPS for company policy reasons. Kuwait would have been a multi-million USD project.



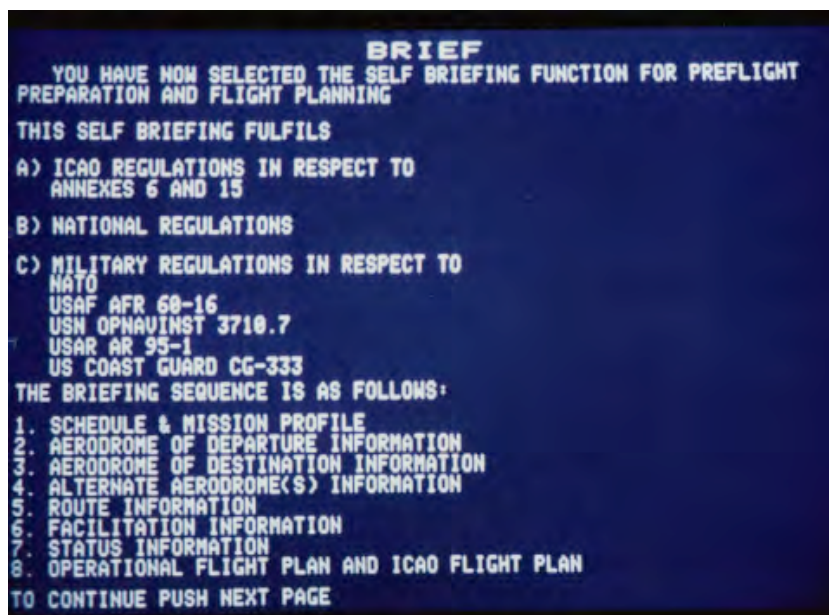
The general Requirement for CAIDS



The CAIDS Menu

During the cooperation with ESG another demonstration model was produced and shown at the 1982 Hannover International Airshow (ILA) with great success; a third model, set-up in cooperation with CCS, was shown during

the 1984 Inter Airport Expo at Frankfurt airport. The general problems at that time were the inavailability of suitable computers for all the required message switching, combination, correlation, sorting and lack of automated data processing knowledge among the managements of the sought partner companies.



The CAIDS BRIEF Function



The Dubai Airshow 1981



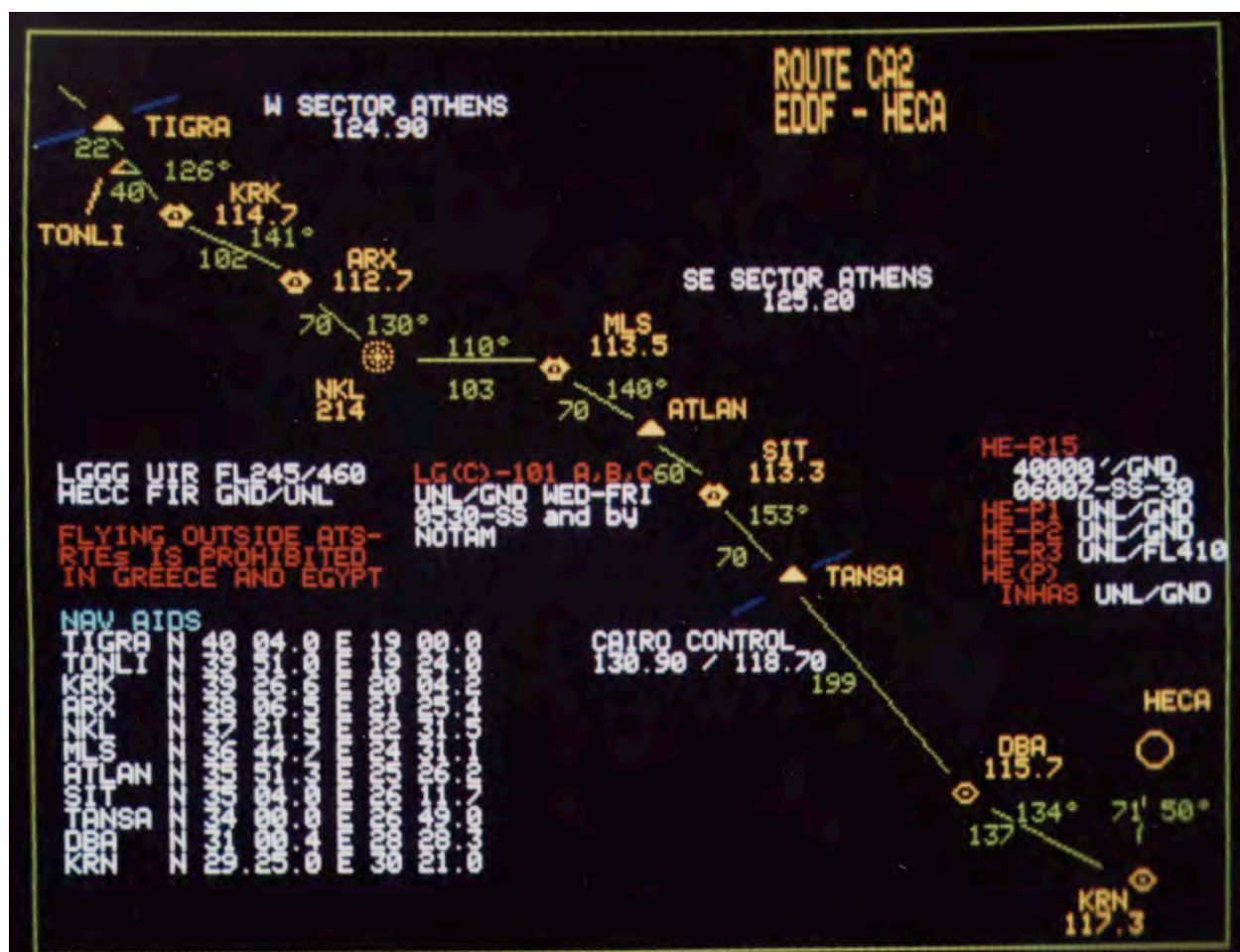
Sheikh Makhtoum, the MoD

The CAIDS concept, however, survived and development contracts were concluded with German company Elektronik System Gesellschaft Communication Systems CCS. marketing CAIDS a third of Denmark in 1987 on the SLV's, INFO-87 project. This units were equipped with systems, as conceptually the US Air Force, which both seen the demonstration model pursued further due to lack of later years part-CAIDS systems by EUROCONTROL in



H.E. Makhtoum at the CAIDS Stand

were concluded with German company ESG/FEG and CONRAC. With both not being successful in contract was signed with ISS-Videotex Danish Civil Aviation Authority – was successful and all Danish ATC CAIDS-ATCISS units. The military designed for the German Air Force and had shown considerable interest and of ESG/FEG at München, could not be US and German government support. In of CRI and TERMA were also installed Maastricht UAC.



## A CAIDS Route Briefing Result – Frankfurt to Cairo



The joint ESG/FEG and FSB Stand at ILA 1982 Hannover

## 18.8 ANSE/ANSA – 121.5 MHz Emergency Override Radios

With radio transmissions to/from aircraft and ATC units being a major safety issue almost worldwide, ANSE in 1968 elaborated a recommendation to the national and international aviation organizations for the implementation of a mandatory 121.5 MHz emergency frequency override in the receivers of VHF aircraft radios, similar to those of the UHF band (243.0), so that in cases of urgency and emergency and imminent danger of collision between aircraft all involved stations could immediately be addressed and informed. The suggestion was repeated about every five years but remained unaccepted until today by ICAO, EUROCAE, EUROCONTROL and the aircraft industry. Only radio manufacturing company BOFORS of Norway reacted and offered a combined VHF/UHF aircraft radio with the override function for 121.5 and 243.0 MHz on the market in 1970.

## 18.9 ANSA – Support to BFS on the Testing of the DERD System

The effort of BFS to develop a digital radar data processing system for Germany together with AEG-Telefunken in 1972 to 1974, called “Display of Extracted Radar Data – DERD” caused ANSA to support this effort in assisting the testing of the system. ANSA provided significant support and extensive activity through its members L. Abelshauser and F. W. Fischer by designing test flight patterns and by arranging test flights with US Air Force T-39 and F-4 and Canadian Air Force F-104 fighter aircraft for the commissioning of the new system. ANSA was able to arrange for half a dozen USAF and CAF flights free of charge with L. Abelshauser participating as crew member. This close cooperation headquarters and preparation and became necessary Söl-ingen. This never properly hundreds of But the sys-tem, test flights could CAF meet-ings estab-lished good

activity led to intensive and with USAFE and CAF their flying squadrons. Many post-mission meetings at Frankfurt, Ramstein and significant contribution was hon-oured by BFS, despite working hours in-volved. thanks to the commissioning be implemented in 1975. The are an example of the then contacts.



F. Fischer thanking Col. Bauer 421 CAF Sqdn for the Support



F. Fischer, L. Abelshauser and B. Scheuver of ANSA tahnking Gen. Lewis CAF Cdr

### 18.10 ANSA – ROCATCA Taiwan

With two of ANSA's members being officials of the Civil Aviation Administration of the Republic of China (Taiwan) soon good relations developed and mutual visits took place by ANSA in Taipei and by the CAA in Germany. ANSA assisted China Airlines (CAL) to acquire landing rights for their international flights in Austria. ANSA also assisted the CAA's ATC Academy in their development of an own ATC simulator. Some of the meetings took place on the occasion of IFATCA annual or regional conferences.



Gen. Chen, DGCA ROC / Taiwan & ANSA 1986



ROCATCA's Logo

### 18.11 ANSA – FATCU Russia and ROSAERONAVIGATSIA

The opening of the Iron Curtain brought with it new contacts in countries of Eastern-Europe for ANSA, foremostly Russia, Azerbaijan, Ukraine, Bulgaria, Armenia and Georgia. In 1992 ANSA had invited the new president of the Federation of the Russian ATC Union – FATCU, Mr. W. Konussenko, the vice-president of the newly established ATC Ministry – Rosaeronavigatsia, Mr. S. Evsiukov, and the ATC chief of Moscow-Vnukovo airport, Mr. D. Moiseev, for a one-week seminar to ANSA's office in Bavaria. This meeting led to a good cooperation and return visits of ANSA to Moscow for the arrangements of ATC equipment exhibitions, material support to FATCU and to US ATC Industry assistance to Rosaeronavigatsia.



FATCU & ANSA Meeting Moscow 1992  
Messrs. Konussenko, Evsiukov and Moiseev  
H. Fischer and F. W. Fischer

## 18.12 ANSA – ICAO ATC Training Programm Turkey / TUR-013

In 1988 ICAO started a UNDP financed technical assistance program for Turkey for the elaboration of a common set of ATC training outlines for Turkey. F. Fischer of ANSA was selected as project leader for this one year long project, which was based at Anadolu University in Eskisehir, Turkey. ANSA produced a complete set of these outlines, covering some 2500 pages of syllabus and curriculum. The project was successfully completed in December 1989, ahead of time.



FRANK W. FISCHER

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ANSA's Function In Turkey

Turkish CAA & DHMI Audience listening to ANSA



Anadolu University – Eskişehir / Civil Aviation School

## 19 The Group's Financial Status

When established, the executive board of ANSE decided to keep membership dues to a minimum. Monthly dues per member were set at 1,00 DEM. So, with 32 members ANSE had to exist with an annual budget of only 384 DEM. This caused the board members to mostly cover travel expenses out of their own pockets. Dues were used to cover telephone charges, stationary, stamps, technical literature, such as from the US Government Printing Office, and in later years also business cards. A bank account was maintained, but neither ANSE nor ANSA ever went into debt.

The group's policy, not to spend any money on any activity, if there was no cash available, proved well over the last 47 years. When ANSE transformed into ANSA, membership dues were raised to 5,00 DEM per month, but at the same time members in countries with currency exchange restrictions were freed from paying any dues.

During the end of the 70'ies, throughout the 80'ies until about 1993 membership then grew to 45. As of 1975 and throughout all these years ANSA's finance and bookkeeping was in the good hands of Helga Fischer, who kept a proper journal and strict control over the annual budgets.

## **20 Opponents among Governmental Organizations**

### **20.1 GERMAN AEROSPACE SOCIETY – BDLI AND MOT**

When ANSA compiled a summary in 1978 on the german air navigation / air traffic control industry's competitiveness with foreign manufacturers and sent that report to the german aerospace society BDLI, it caused unexpected negative reactions with BDLI, its members, and foremostly SIEMENS, AEG/Telefunken and SEL, but also with the MOT and BFS with the latter being informed by BDLI members.

BDLI's executive secretary, then Dr. Baumeister, experienced totally unexpected statements and negative response by the society's members, which felt disturbed in their reluctance to gain a greater market share abroad, considering their market mainly being West Germany only. If this was caused by their dependence from larger foreign companies remained known.

The summary had compared them with Westinghouse, Raytheon, Univac, IBM, Thomson, Plessey, Alenia, Cossor and some other comparable manufacturers. As a result, Dr. Baumeister resigned from BDLI, established his own aerospace consultancy company and ANSA's president received a harsh and unjustified reprimand from the MOT, which considered the comparative summary a negative attack on the german companies and the lacking support of the german governmental bureaucracy for them. Altogether, one more typical german negative reaction on a positively meant activity in trying to improve the overall situation in that industry. Siemens, AEG/Telefunken, and SEL have meanwhile practically disappeared from the german market completely, as feared in 1978.

### **20.2 BUNDESANSTALT FÜR FLUGSICHERUNG – BFS**

When the initial personal contacts to BFS officials, such as with Mr. Engel were positive, this changed considerably once ANSA started submitting suggestions and making recommendations for the ATC system's operation and maintenance. Many made over the many years after suggestions award committee, such became the basis of the planning on (LRNZ) at Frankfurt/Main.



When the government decided to set-up the "Schlieker Committee" to compile a report on the given circumstances of the German ATC system in 1972, to which BFS, DAeC, AOPA, GATCA, BARIG, etc. participated, ANSE was excluded. By demand of the MOT and the MOD the investigation, findings and report on Germany's upper airspace were excluded completely.

ANSE therefore decided to write its own report "**REPORT ON THE SITUATION and PROBLEMS OF AIR NAVIGATION IN THE UPPER AIRSPACE OF THE FEDERAL REPUBLIC OF GERMANY For Presentation to the MOT and the Schlieker Committee by Working Group "AIR NAVIGATION SERVICES" EVALUATION GROUP – AIR NAVIGATION SERVICES / EUROPE - FRG- ANSE - 13 July 1971**" and submitted it to the Schlieker Committee via the MOT; see **Attachment 7**.

Its existence and content were negated by the MoT and the report later on given to the new BFS president, Mr. Voss, by Mr. Schlieker. So, the outcome was nil. The new BFS president then invited ANSA to a hearing at headquarters BFS with top officials attending and asked ANSA to dissolve itself, being unable to quote any negative causes for doing so. ANSA members naturally refused to do so. Key persons met were Heer, Engel, Felgentreu, Voss, Philipp, Nagel, Paul, Breidenbach, Platz, Kolle and Flentje.

As soon as ANSA began to conduct its first commercial project with AEG-TELEFUNKEN on the Libyan air navigation project LANS, unjustified disciplinary action was started by BFS on ANSA's members, which were

employees or officials of BFS. These fully unjustified disciplinary actions were stopped by BFS as soon as ANSA announced its decision to call the president of BFS to public court for unjustified accusations,

### 20.3 EUROPEAN ORGANIZATION FOR THE SAFETY OF AIR NAVIGATION / EUROCONTROL

With ANSA continuing to follow the development of the Rhein UAC from an analogue ATS system of BFS into a digital ATS system of EUROCONTROL, ANSA's members noticed a number of grave technical shortcomings of the new "KARLDAP" system to be implemented and protested against its commissioning at the new joint civil/military Karlsruhe upper airspace centre, into which Rhein UAC was planned to move in spring 1975. With these serious shortcomings of the radar and flight data processing software program problems not being corrected ANSA's president complained to BFS.

After half a year without any corrective action by BFS and the missing reply to the complaint, the complaint was repeated directly to the ministry of transport in the interest of flight safety. This finally caused official hostile reactions on behalf of BFS. The MOT's secretary of state, then Mr. Ruhnau, forced the BFS vice president to report to F. W. Fischer the corrective measures taken.

When the vice president finally joined EUROCONTROL a few years later, this situation overshadowed all relations with ANSA and ANSA EUROCONTROL officials successfully managed to influence also the European Commission's directorate general VII not to award a winning project on RNAV application of ANSA members for employment ANSA clients asked EURO-CONTROL for these officials reacted with negative response. This situation deteriorated even further influenced other international aviation organizations, like ICAO.

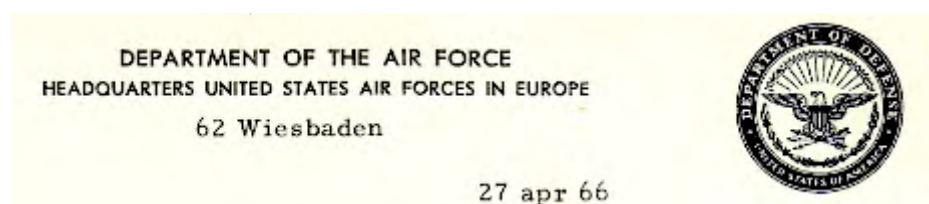


became the declared enemy. Some successfully managed to influence also the European not to award a winning project on RNAV application of ANSA members for employment ANSA clients asked EURO-CONTROL for these officials reacted with negative response. in BFS, and EUROCONTROL also negatively

The original cause was never properly clarified. It died silently, but the Karlsruhe UAC commissioning was delayed for two years and finally started its operations in spring 1977. Shortly afterwards BFS had to admit in writing that all shortcomings brought forward by ANSA's president had indeed been justified.

## 21 Concerned Aviation Organizations and external Contacts

### 21.1 The Relations to US AIR FORCE EUROPE / USAFE



Due to the involvement of ANSE's members as air traffic controllers with USAFE's RHEIN UAC a most positive relation developed soon and extensive contacts were established with headquarters USAFE and their flying squadrons at the US air bases in South Germany. ANSE received military aviation journals and US military ATC documentation for free, arranged for pilot/controller meetings, set up a military jet passenger licence training program for all Rhein controllers at Wiesbaden AB, coordinated familiarization flights with T-33, T-39, C-121, C-130, KC-97, F-102, F-105 and F-4 aircraft without cost for a joint ANSE/USAFE project on the reduction of high altitude holding patterns for fighter type aircraft operation in 1968/69. At this time additional contact could be established with the US air defence organization in Germany, which operated the 412L and 407L air defence systems. Visits were made to sector operations centre - 3 (SOC) of 4 ATAF at Börfink and to the military traffic flow coordination unit TACC at Sembach AB.

USAFE's air defence liaison to ANSE was Major Barinowski and during the same time three more USAFE officers joined ANSE as members; Col. R. Heath, chief Frankfurt Flight Service, Major Lee Waters, commander BASOPS at Rhein Main AB, a C-141 check-pilot, and Col. R. Coulter, a C-130 pilot and chief operations of USAF's 7th Special Operations Squadron (SOS) at Rhein Main AB, which operated a fleet of HC-130 aircraft.

Briefings for USAF pilots were conducted by ANSE at Spangdahlem, Hahn and Ramstein as well as to headquarters USAFE representatives at Rhein Main airbase. Close cooperation was achieved with Col. Eberts, commander of USAF's Air Force Communication Service (AFCS) at Wiesbaden and the group's members published air traffic controller contributions irregularly in USAFE's ATC - Digest, the AIRSCOOP journal and the Frankfurt Flight Service Bulletin.

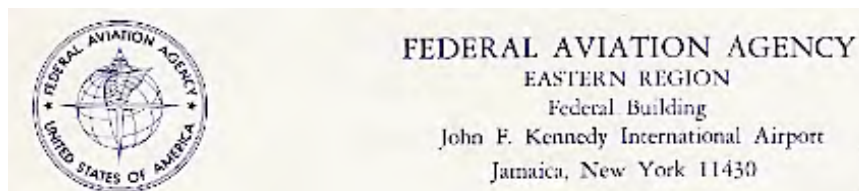
These positive relations to USAFE led to an ANSA internal project in 1968 on the possible reduction of the navigational inaccuracy area of high altitude holding patterns for military jet aircraft. Mr. Bowitz of ANSA successfully designed a modified holding procedure with the effect of a 30 % reduction in the required holding pattern airspace area at altitudes above flight level 260;

ANSA managed to arrange for flight tests with USAFE F4 aircraft to evaluate this procedure during live flight tests, which proved successful. ANSA's members L. Abelshauser and F. Fischer participated in the flights as crew members. As a consequence hereto, BFS and USAFE drafted agreements on air defence training areas, so-called temporary reserved airspaces (TRA), and holding procedure for three such areas within the Rhein UIR.

USAFE in recognizing the ANSE/ANSA effort on the improvement of the flight safety level and on the knowledge of controllers on military aircraft performances and emergency situations conducted many familiarization flights in USAF aircraft, which ANSE and ANSA arranged for its civil and military members.

Another positive effect of these relations was the support of USAFE, USAREUR, CAF and RAF in the 1969 military traffic survey of the FRG, which was conducted by F. Fischer on behalf of BFS. It was found that about 40 % of all military traffic had to be considered unknown traffic, because flight plans on these flights were either not filed or not available to ATC. The results of this extensive 14-day survey were incorporated by EUROCONTROL into the sector layout of the Karlsruhe UAC to cater for sufficient capacity to be able to also handle such additional traffic in the future.

## **21.2 US FEDERAL AVIATION ADMINISTRATION / FAA**



Beginning with the attendance of the 1964 IFATCA conference in Brussels Rhein Controllers established good contact with the FAA representative for the EAME area (Europe, Africa and the Middle East) at the US embassy in Brussels. This good contact initiated by Mr. George Waller, extended over all the years also with his successor Mr. Waldin until about 1985 and proved beneficial for ANSE & ANSA, because it opened the doors to FAA ATC related documentation in wide scope. ANSA then subscribed as a user to the US Government Printing Office and even opened a user account there for the payment of purchased documents.

This relation led to three visits to FAA headquarters in Washington/DC and to various ATC units in the country, such as Chicago TRACON, Oakland ARTCC, New York CIFRR, Leesburg ARTCC, Washington TRACON and in 1975 to air defence units at Tyndall AFB at Panama City / Florida (BUIC III system) and to Syracuse / New York (SAGE system). These contacts had developed in hand with contacts to the US Air Traffic Control Association (ATCA), in which F. Fischer became member for many years to come during which he and M. Bowitz attended the 1965, 1968 and 1990 ATCA conferences in St. Pauls, San Francisco and Boston. As good relations developed with the US Air Force in Germany. Altogether, a very fruitful relation for all parties evolved.

Many personal contacts were established over time and proved valuable for the exchange of experience on the ATC development in the USA and the FRG, such as with Messrs. Waldin 1966 – 72, Cary 1968, Waller 1969, Helfert 1967-70, Kehoe 1970, Hopper 1965, De Balzo 1975, Martin 1965, Tigner 1975, Pozesky 1982, and Hurst 1979.

### 21.3 EUROPEAN ORGANIZATION FOR THE SAFETY OF AIR NAVIGATION / EUROCONTROL

Personal contact with EUROCONTROL general directors was maintained by correspondence, except for a few personal meetings. This acquaintance and later-on ANSA-project related communication started with Mr. Bulin (France), Flentje (Germany), followed by and finally McMillan (UK) in 2010. Other negative rather than positive, were Mr. program and Mr. Krug (Germany), director being maintained with EUROCONTROL's communication with EUROCONTROL such as "RNAV" with CEC DG VII, "ESTEEM" with CEC DG VII, "ATSA" Financial Feasibility Study Bulgaria with the EIB, "Inter Airport Exhibitions Frankfurt" and the "CEATS" location study with WC&P. Altogether, a not really successful and cooperative relationship. They were actually not interested in specific operational solutions and improvements, but in defending the UK's and France's interests in the upper airspace.



Mack (UK, Lambert (France) and Aguado (Spain) directors having had an influence, and that was often Philipp (Germany), director of the EATCHIP of INSTILUX in Luxembourg. Regular contact is still Permanent Review Commission. Subject-wise became necessary due to pending or realized projects,

### 21.4 INTERNATIONAL CIVIL AVIATION ORGANIZATION / ICAO

The establishment of contact with ICAO headquarters in Montreal began in 1968 with ANSE's announcement on its foundation. That contact was potential air navigation services projects with UNDP funding in incorporated into ICAO's technical ICAO's regional office for Europe in Eigl (Austria) proved detrimental to representatives of the ICAO Europe aviation authorities, i.e. CAAs. Like with EUROCONTROL, too much defamation on behalf of the german administration played a role in these re-lations. Anyhow, the relation to Montreal resulted in F.W.Fischer's assignment as project leader to the ICAO/UNDP one-year project with Anadolu University in Eskisehir (Turkey) in 1989. A very positive contact, however, was started and maintained with the director of ICAO's russian language section, Mr. Korneyev.



positive in that ICAO accepted ANSE as a consultancy group for ICAO sponsored ATC various ICAO member states. ANSE was assistance roster. The contact to the directors of Paris, such as to Mr. Berger (Germany) and Mr. ANSE and ANSA due to the attitude of these two Office in only accepting input from national

Technical proposals of ANSA to ICAO were "The Implementation of the Chinese (Mandarin) language as an official aviation language in ATS Operations", "The Introduction of a 121,5 MHz VHF Emergency Frequency Override for all Civil Aircraft", and the "Implementation of Computerized Aeronautical Information Data Systems".

Key persons met were Korneyev 1982, Galotti 2003, Berger 1970, Lewis 1967, Duba 1981, Oérnek 1981, LaFond 1979-81, Vivian 1980, Lambert on CAIDS in 1980, Hill on OFIS 1979 and Gaustad on AZAL in 1997. ANSA published three articles in the ICAO Journal; see publications.

### 21.5 INTERNATIONAL FEDERATION OF AIR TRAFFIC CONTROLLER ASSOCIATIONS / IFATCA

ANSE's and ANSA's positive IFATCA in the years until when ANSA considered member association, but only dependent on the exchange of organizations on the ongoing navigation, ANSA in 1977 corporate membership with the Traffic Controller Associations in 1978, however meeting with members in IFATCA.



relation and cooperation with 1975 deteriorated significantly, joining IFATCA, not as a national as a corporate member. Being information with other professional development in aviation and air finally decided to apply for International Federation of Air (IFATCA) and was accepted as such stiff opposition from German ATCA

ANSA's board members had already attended IFATCA's conferences in Brussels 1964), Vienna (1965), Rome (1966), Geneva (1967), München (1968), Beograd (1969), Dublin (1972), Tel Aviv (1974), Lyon (1976) and Copenhagen (1978) before representing ANSA as an organization thereafter in Brussels in 1979, Toronto in 1980, Cairo in 1981, Amsterdam in 1982, Lisbon in 1984, Athens in 1985, Frankfurt/Main in 1989, Stock-holm in 1992 and finally Christchurch in 1993, besides IFATCA regional conferences in Taipei in 1986, Strasbourg in 1972, Stock-holm in 1990, Bournemouth in 1992 and Christchurch in 1993.

ANSA's contributions to the technical work programs of IFATCA related to



- a) Automation in ATC
- b) Area Navigation Procedures - RNAV
- c) Radar Digitalization Effects
- d) Radar Control Procedures
- e) Air Traffic Flow Control - ATFC
- f) Use of 121.5 MHz VHF Emergency Frequency Override in Civil Aircraft
- g) Jordan's Air Navigation System - NTS
- h) ATC related Incident Investigation
- i) Flight Safety Committees
- j) Computerized Aeronautical Information Data Systems - CAIDS
- k) Assistance to FATCU (Russia) for their Acceptance into IFATCA
- l) Assistance to THTKC (Turkey) on their Membership in IFATCA
- m) Presentations on CAIDS and "What Do We Owe The Paying Passenger"

In its early years and before its establishment close contact had been maintained with the IFATCA executive board members and the technical committees, mostly with president Tekstra, executive secretaries G. Monk and T. Harrison, as well as with Mr. Saker of the technical committee, later on also with the new president A. Field. After ANSA's accession as a corporate member the communication mainly related to aspects associated with the CAIDS development and related operational requirements.

ANSA, from the day of its accession to IFATCA as a corporate member, being hampered by defamation and opposition of the German ATCA, canceled its membership with the federation again in 1988. Thereafter ANSA participated in a number of following IFATCA conferences, but only in the function of observer. It was never possible to establish a real positive relationship again between the federation's succeeding representatives and to achieve effective technical cooperation. There were too few ATC experts interested in specific problem solutions. The main interest was the improvement of social conditions and remuneration, pension schemes, etc. practical flight safety came last.

Highlights were the 1969 (Belgrade), 1972 (Dublin), 1974 (Tel Aviv), 1979 (Brussels), 1980 (Toronto), 1981 (Cairo), 1985 (Athens), 1986 Taipei and 1992 Bournemouth conferences. In Belgrade ANSA managed to get the first east-european ATC association (Hungary) accepted as member. In Dublin ANSA demanded the ICAO representative to the conference be excluded due to his derogatory statements on German controllers. In Tel Aviv ANSA acted as the Turkish association's (THTKD) liaison and managed to avoid the expulsion of THTKD from IFATCA. In Brussels ANSA joined IFATCA as a corporate member and presented its CAIDS project. In Toronto ANSA gave a presentation during the technical committee session on the subject of "It's a Man System!" In Cairo ANSA demonstrated the CAIDS system together with company PTI. In Athens the group gave a presentation on the obligation of the air traffic services to the paying passenger. In Taipei ANSA presented its ATC loss of licence insurance scheme. And at Bournemouth ANSA presented the possible use of area navigation (RNAV) by regional airline types of aircraft.



IFATCA Conference 1993 Christchurch / New Zealand  
Mr. Therdovleb, Mrs. Fischer (FSB), Mr. Konussenko (FATCU), Viktor (ROSAIR), MR. Rüthy (ANSA)

## 21.6 External Contacts

It seems worthwhile at this point to mention some of the many external contacts, which ANSE and ANSA established over time to show the variety of administrations, companies, institutes, etc. which had been in contact with the group.

PATCO USA	Meyer	ATFM	1972
Japan ATCA	Mori	Info Exchange	1972
ERA, Europe	Ambrose. Dose	RNAV	1992/93
AOPA USA	Sanfelici	ATCOs	1982
AOPA FRG	Trinkaus	CAIDS	1979
DoC USA	Tancredi	Documents	1968
FATCU Russia	Konussenko, Evsiukov, Moiseev	Cooperation	1992/93
AIAA USA	Mulally	Membership	2003
ATCA S. Africa	Thomas, Richardson	Info Exchange	1967/85
IFALPA	Brewer, Jackson	ATS Requirements	1970/71
ATCA Belgium	Sadet	ATS Training	1966
ATCA NL Antilles	Goedhart	ATS Requirements	1972
APCA France	Edon, Gorin, Oudin	Cooperation	1973
IFATSEA	Alamaniotis, Brett, Myers	Cooperation	1985/87/91
ANACNA Italy	Mercuri	Cooperation	1969/79
JUKL Yugoslavia	MrKonjic	Visit + Exchange	1970
V. Cockpit FRG	Gades, Montjoi, Wouterse	Cooperation	1971-79
IFAPA/IAPA	Lipman	Cooperation	1985/88
DRF FRG	Köhler	Membership	1985
ATCA USA	Kriske, Vickers, Burton	Memembership	1964-82
Flugrevue FRG	Weidenhammer	Publications	1982
HANSA FRG	Leemreijze	Publications	1987
Flight Intern.	Ramsden,	Publications	1978+
CAA Saudi Arab.	Estanbouli	Publications	1993
GdF FRG	Bockstahler	Publications	2004
NZZ CH		Publication	2004
SHELL NL	Wense	Publications	1959/70
Hess. Radio FRG	Sackenheim	TV Film	1970
Flugwelt FRG	Müller	Publications	1966/68
Mr. Niemeyer		Publications	1971
EGATS	Faesen	Cooperation	1973/85
BAC UK	Worrall	Products	1968
ITA France	Jodeau	Documents	1970

Uni Riga		Cooperation	1998
Mr. Gunny USA	Gunny	SSR	1988
JAL Japan	Nagano	Exchange Info	1968-71
Uni Berlin	Rössger	Info Exchange	1969
Air India	Shukla	Documents	1964+
BOAC UK	Tanner	HPAAs	1969
PBL FAG FRG	Kohnen	Contracts	1988
THTKD Turkey	Gür, Akkökler, Durace	Membership	1964+
Assoc. Flight	Instructors Belgium	Info Exchange	1986
ATCA Tanzania	Bondo	Membership	1986+
CAL ROC Taiwan	Tai	Info Exchange	1987
ROCATCA Taiwan	Liu, Wang, Hsu, Chang	Cooperation	1984/87
IFATCA	Field Thau Cerf Tekstra, Sermijn, Monk, Harrison, Bradshaw, Green, Monin, Avgoustis, McKlusky	Membership Cooperation Documents Proposals	1964 - 93
RLP CZ	Synak	Publication	1994
MoD Saudi Arab.	Gen. Ghani	Publications	1993
AFSBw	Pingel, Nollmann	Membership	1971
ATSA Bulgaria	Zoumpalov	Project	1994
Embassy PRC	BingZiang	ATC System Mod.	1982
MoT Israel	Wachtel	Cooperation	1967
FTZ FRG		Radio Callsigns	1975
DWD FRG		VOLMETs	1975
LBA FRG	Pollit	Documents	1975
DBP FRG	Matthes	Radio Licences	1968-77
AFCAC	Lomboulu	CAIDS	1982
EC EU	Pandolfi	SES	1995
CEC DG XIII	Pascal	ATLAS Contract	1993
NIVR NL	Droste	Research	2002
DFVLR	Hardegen, Winter	Research	1977+
ECAC, Europe	Kneeland	APATSI	1994
EIB Luxembg.	Pels	Contracts ACP	1994
EASA FRG	Probst	ATSOMs	2005
FPK FRG	Gering	LRNZ ATFM	1972-73
CAA Cyprus	Panayiotides	Mediation + CAIDS	1973 + 1982
CAA Turk. Cyprus	Güclü	Support	1978
BDLI FRG	Baumeister, Reinert	Industry Support	1978
ANS/CR CZ	Materna, Uhler, Fajtl	Coop, Contracts, TRG	1992-2009
DVL FRG	Zetzmann	Info Exchange	1968
ILO CH	Gil	Info Exchange	1985
NTSB USA	Burnett	Documents	1987
RTCA USA	Wuerker, McLeod	Documents	1967-90
ADV FRG	Treibel	CAIDS	1969-84
DVWG FRG	Wolf	Moderation	1988
LPC FRG	Pletschacher	Membership	1987+
RSAG CH	Sprenger, Rüthy	Cooperation	1980+
BAZL CH	Candrian	Info Exchange	1980
Aeron.Mil. Italy	Gen Canipari	Info Exchange	1970
MoT Italy	Passatore	Info Exchange	1989
CAA Tanzania	Seif	CAIDS	1980
SAL UK	Shrives	Partnership	1980
CAAC China	Ten Shu, DGCA	CAIDS	1982
CAA ROC Taiwan	General Chen, DGCA	CAIDS	1983
Transport Canada	P. Proulx, Gen. Dir.	ATS Procedures	1985
SENEAM	Zapata, DGCA, + Olmos	CAIDS	1980
MoI, Kuwait	Sheikh Jaber Al Ahmed	CAIDS	1981
ICAO	Hill	OFIS	1980
RADA	Babychuk, President	CNS Operations	2006
IDRF, FRG	Baumbach, President	SES Certification	2006/7
AEA, Europe	Neumeister, Director	RNAV	1993
NATA, Albania	Zuna, Dir. + Methay, DGCA	ATS Proc. Manual	2003
Nat. Library	Späth, Dept. Dir.	RUAC Story	2010
Det. Museum	Dr. Füssl, Dir. Aviation	RUAC Story	2010

Uni. Bielefeld	Dr. Ladkin	RUAC Story	2009
Uni. Rhein-Main	Dr. Mensen	RUAC Story	2009
Uni. Tübingen	Dr. Ronellenfitsch	RUAC Story	2009
Uni. Eskisehir	Dr. Cavcar	RUAC Story	2009
Eurocontrol	McMillan	RUAC Story	2010
CEC DG VII	Pandolfi	SES	????
CEC DG VII	Calleja	ANSE Recognition	2006
BAN	Wolf, MD	Cooperation	1993
AEG/TFK Argentina	Hennig	AFTN Marketing	1978
SDL UK	Dyche	AFTN Marketing	1980
COSSOR UK	Peachey	RADAR Project BFS	1986/7
CONRAC CCS	Hundertmark	ODIN Proj.Scandi.	1983
HSA NL	Kampman	Borneo Project	1978
Aeron. Consultg.	Baumeister	VDU Study	1980

For abbreviations see the Attachment.

## 22 Cooperation with other Organizations and Agreements

### 22.1 FLUGSICHERUNG SYSEM BERATUNGS-GESELLSCHAFT / FSB GmbH

Resulting from the discrepancies with BFS, ANSA decided in 1978 to establish a separate business company for the conduct of commercial business projects in air navigation, evolving from ANSA's non-profit activities. This became private company FSB under unlimited personal liability of H. Fischer. FSB, then, stood for "Flugsicherung-System-Beratung / H. Fischer".

A cooperation agreement was signed with ANSA on the joint conduct of projects, the provision of required air navigation specialists and experts as well as technical knowledge. Helga Fischer until that time had been working for BFS as a government official with aeronautical information service (AIS) and aeronautical telecommunication services (COM) licences as well as ATC flight data specialist at Frankfurt aerodrome control tower (TWR), approach control unit (APP) and area control center (ACC).

<p><b>FRANK W. FISCHER</b> Dipl.-Verw.-Betriebswirt Technical Director</p> <p><b>FSB</b> FLUGSICHERUNGSSYSTEM-BERATUNGS-GMBH Air Navigation Services Systems Consultants</p> <p>Haus 35, Wetzelsberg D 8441 STALLWANG West Germany</p> <p>Tel.: +49- (0) 9964-699 Tel.: +49- (0) 9964-1411</p>	<p><b>HELGA FISCHER</b> Managing Director</p> <p><b>FSB</b> FLUGSICHERUNGSSYSTEM - BERATUNGS - GMBH Air Navigation Services Consultants</p> <p>Wetzelsberg, Haus 35 D 8441 STALLWANG West Germany</p> <p>Telefon + 49 - (0) 9964 - 1411</p>
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Frank and Helga Fischer's Functions in FSB 1978 - 2004

Intensive cooperation began with the involvement of ANSA and FSB in the Hollandse Signaal and especially PHILIPS Telecommunicatie Industrie (PTI) projects on the future extension of their AEROPP message switching system to accommodate CAIDS functions. This resulted in an FSB/PTI contract in 1979 over a planned 12-year period and PTI's offer to employ all of the involved technical FSB & ANSA staff.

With such move being impossible, the project matured into 1982, when PTI suddenly faced a take-over by AT&T of the USA, which meant a sudden stop of all AEROPP/CAIDS development activities of the PTI data telecommunication group (DTG) of PTI. AT&T, however, wanted FSB to take over and complete a pending CAIDS functions description project and then cancel the current PTI/FSB contract.

# F S B

## AIR TRAFFIC CONTROL & MANAGEMENT ADVISERS

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**Flugsicherungs-System-Beratungs-GmbH**  
**Air Navigation Services Systems Consultants**  
**Consultores Servicios y Sistemas de Navegación Aérea**  
**Consultants Services et Systèmes de Navigation Aérienne**

FSB's Letter Head

FSB in successfully trying to avoid this plan, decided to change its status into a double-ownership company within one weeks time in December 1982 and canceled the PTI contract itself. Earlier on and in order to avoid unlimited liability FSB over time had already decided to change its status into a limited liability company, i.e. GmbH under German law, with H. Fischer as the only share holder. Doing so, also the company's name was changed to read "Flugsicherungs-System-Beratungs-Gesellschaft or Air Navigation Services Systems Consultants, respectively later on Air Traffic Control & Management Advisors". H. Fischer remained as managing director and F. W. Fischer became technical director.

As a result of this step follow-on contracts were concluded with company CONRAC Communications Software (CCS) and with Elektronik-System-Gesellschaft (ESG). With both being unsuccessful the CAIDS development came to a stand-still until 1987, when the Danish civil aviation administration (SLV) asked for support on their INFO-87 CAIDS project for the Danish air navigation services organization. This then resulted in a contract with company ISS-Videotex of Denmark for the joint completion of the INFO-87 project with Copenhagen ACC being the first to receive the system, which is now being employed all over Denmark, with the EUROCONTROL ATC centre at Maastricht and with DFS in Germany.

All further projects of ANSA & FSB were from then on being conducted jointly until the day, when FSB was turned over to its new owners in Berlin in 2004, who are the managing directors of CNS service provision company BAN-2000.

### 22.2 ALFA CIVIL AVIATION & TRAINING / ACAS Ltd Türkiye

Following the good advice of the clients and in trying to overcome some of these problems, ANSA founded its second independently acting commercial company with limited liability under Turkish law. Despite its complicated currency conversion rules Turkey was chosen as the least restrictive and cheapest solution. The company with its long English name of "**Alfa Civil Industry and Trade Ltd**" due to abbreviated as **ACAS** was a 100 2000 and fully controlled by presiding the company's board of



**Aviation & Specific Training Services** the Turkish commercial regulations and % ANSA owned entity, was established in ANSA, with the president of ANSA directors.

As managing director ANSA University in Eskisehir, Turkey, was previously acting as managing director of company "Alpata Aviation", which was sold to Sikorski Helicopter company. Dr. Cavcar is a long-time member of ANSA, and the group's regional representative for the Mediterranean & Middle East region. The appointment of Dr. Cavcar also makes the university's "Civil Aviation School" with a Eurocat 200 based ATC simulator available to ANSA and its clients. This school provides theoretical and practical training in all fields of civil aviation and operates its own airfield.

The business objectives of ACAS exactly matched those of ANSA and both cooperated as full partners in projects with ANSA guaranteeing the good performance as in the past. Together with company FSB GmbH (Air Traffic Control & Management Advisers) of Germany, which cooperates with ANSA since 1978 on the basis of a permanent agreement this group now consisted of three partners. It was for this reason that these three partners, when cooperating in joint projects, did so under the name of "The ANSA Group" and when doing

business alone, carried the note "Member of the ANSA Group". ACAS as a dependent company was dissolved in 2004 due to lack of business.

### 22.3 BERLINER ANLAGENBAU & NAVIGATION / BAN 2000 GmbH

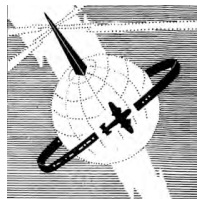
22 years after the foundation of ANSE in West Germany suddenly the Iron Curtain opened and the wall between East and West Germany fell. A suddenly opened for West German business ANSA made the called BAN 2000, a former established during the 1991 Inter contact led to support of BAN Virgin Islands, for which ANSA elaborated a complete ATS operations manual, Armenia, Georgia and the Ukraine. It finally resulted in ANSA preparing BAN 2000 for their CNS-certification under the EU's SES regulation 2096/2005 in 1007 and 2009.



formerly hidden market, Central & East Europe, companies. In the wake of now "curtain crossing" acquaintance of company BAN of Berlin, now INTERFLUG service provider. First contact was Airport Exhibition at Frankfurt Main airport. This business in EBRD projects in Azerbaijan, the

With ANSA beginning to increase its activities again in 2005 with the implementation of the European Union's Single European Sky (SES) regulations, which had a significant impact especially on the operation of the 23 regional airports in Germany, BAN became its client for CNS certification. This became the first SES certification project of this kind for CNS, Communications, Navigation and Surveillance service provision, to be followed by four regional airports on ATS provision (aerodrome control).

### 22.4 AERONAUTICAL RADIO & AIR TRAFFIC CONTROL ADVISORS / AIRADIO



**AIRADIO** **AIRADIO**  
AERONAUTICAL RADIO & AIR TRAFFIC CONTROL ADVISORS  
a professional non-profit organization

Under the name of AIRADIO, established as a private company in 1972 in Germany, ANSA instructors trained some 230 private pilots on air navigation theory, radio navigation, radiotelephony procedures, aerodrome control and the like. With the company being dissolved in 1977, it was reopened as a charitable, non-profit association again in the year 2000 for the purpose of outsourcing ANSA part-projects. Its seat as an ANSA subsidiary, originally at Stallwang (Bavaria), then at Memmingen (Bavaria) is now at Ursberg (Bavaria) and F. W. Fischer also acts as its president, Mr. H. Ladurner as its secretary.

### 22.5 MERICON und AIDS GmbH i.G.

ANSA's most weird cooperation project was undertaken between 1981 and 1983, when company MERICON i.G. of München, formed by Mr. Mittermayer (owner of company ELOMEX and previously TELEMITE), Mr. Reinert (a former GAF officer) and Mr. Koueider von Heydebrand, approached ANSA and FSB in offering sales opportunities for the CAIDS system, worldwide. Mr. Koueider was a Palestinian and one of Mr. Gaddafi's agents for foreign projects.

MERICON was residing in the offices of Mr. Mittermayer's ELOMEX in very large luxurious rooms and outfit downtown München. MERICON and FSB with partnership and support of ANSA intended to form the AIDS company (GmbH), which however never came off the ground, since only FSB had fulfilled its obligations towards the foundation.



MERICON's Office – ANSA's Subsidiary Office in München

ELOMEX itself was mainly dealing in fighter type aircraft used replacement parts, such as the F-104, which had been bought from the German state company VEBEG. Their customers were Turkey, Taiwan and other states still using the F-104. Mr. Reinert pursued the development and business for holographic products. And Mr. Koueider acted as worldwide project broker, such as for barter trade with oil against cotton, and the like. The business guests of ELOMEX and MERICON in the jointly used offices were unusually varied and high ranking.

To ANSA it was always a surprise when unexpected guests rang the door bell such as the Indian minister for commerce, or the phone rang and Mr. Kashoggi wanted to talk to one of the partners, who held business meetings there with the chancellor Helmut Schmidt or the president of the Boeing company. It was at that time that an agreement was concluded with company ESG of München on the development of a CAIDS demonstration model for civil and military purposes, which was then presented to the public during the ILA 82 exhibition at Hannover with great success; see the ILA 82' results report for details. Unfortunately, the MERICON partners finally disagreed on their roles and shares in the company and its establishment was stopped.

It was in autumn the year before when the top management of PTI (PHILIPS Company) met there with ANSA, FSB and MERICON for a presentation of the forerunner demonstration model of CAIDS, which had been developed with PTI and FSB/ANSA during 1980 and was exhibited in Dubai and Cairo in 1981. When AT&T of the USA acquired PTI, this cooperation was canceled by FSB and the further development then took place with ESG only.

But also ESG, despite overwhelming interest of USAFE and the GAF did not spend enough effort in the development of a prototype for the German Armed Forces; and to the disappointment of FSB and ANSA, lost interest in the project, apparently due to lack of knowledge in the subject. So, two large scale projects were lost, one with PTI for Kuwait (25 million USD) and one with ESG for the German Forces (mainly GAF), an estimated 15 million DEM. The whole effort was costly and resulted in a great loss for FSB and ANSA due to the inability of these project partners.

## 22.6 AIR TRAFFIC & AVIATION MANAGEMENT CONSULTANTS – SHRIVES ASSOCIATES

In 1980 ANSA joined company SAL of the UK as a partner for the performance of jointly undertaken air navigation and especially ATC projects.

A major and successful project accident reports on the 1980 Tenerife North for the Spanish but only the flight crew had some 10 million GBP. A second B747 at Madrid a few years later, then responsible for the provision

The two cases were administered London, who later on elaborated software programs liability and projects.

The European Investment Bank experience with ANSA as a offered that ANSA and SAL with CO-CESNA in Latin to SAL's failure. After such was abandoned.



awarded to ANSA was the review of the aircraft accident of DANAIR 1008 at Court. ANSA was able to prove that not ATC caused the accident, saving the reinsurers accident involved the crash of the VARIG in which the Spanish Ministry for Defence, of ATS had to be defended.

by Barlow, Lyde & Gilbert, solicitors of a commentary for ANSA on the subject of forthcoming consequential liability in ATC

(EIB) in Luxembourg, having had positive consultancy group and contractor later on perform a major ATC modernization project America. This project did not materialize due negative experience cooperation with SAL

## 23 The ANSA Group

In 2000, ANSA, being founded in 1967 and permanently engaged in technical assistance and consultancy in the field of air navigation to government and industry with its multi-national membership had taken a new step in enhancing its business capability to the benefit of its clients.

ANSA's members from 18 different countries had so far been engaged in a remarkable number of non-profit national, supra-national and international projects over the years, resulting in well deserved recognition and reputation as a professional, multi-national team.

This recognition on the one part was based on the group's regional representation by ANSA's appointed members to specific geographical regions of the world, such as NAM, SAM & CAR, AFI, SEA & PAC, the MED & MEA and EUR. The group's reputation on the other part was based on the quality of ANSA's services and the always timely completion of assigned tasks and projects. Due to ANSA's legal status as a non-profit organisation under Swiss law it, fortunately, was possible to keep ANSA's man/rates at a very competitive low level.

With some of the projects ranging more into the normal field of commercial business and with the business spreading out more and more over Central Europe, the different legal systems of our clients' home countries let ANSA face sometimes difficult governmental legal formalities on such non-private projects to be conducted; and a subsidiary office was opened at Gardony near Budapest in Hungary in 1995. This subsidiary was given up in 2011 and only the office in Switzerland is being maintained at Kreuzlingen.

The ANSA Group still exists, with its members now being ANSA as a Swiss non-profit association, FSB as a German limited liability company and AIRADIO as a German non-profit association. Especially ANSA and AIRADIO cooperate nowadays closely on flight safety issues of the air navigation services systems and on the preservation of historical documents relating to the development of the air navigation services system in Germany as of 1919 and ending in 1956.

## **24 Activities, Elaborations and Publications**

### **24.1 Public Presentations and Conference Moderation**

Over all these years ANSA actively participated in a number of aviation related events, such as exhibitions, trade fairs, conferences and congresses, during which presentations were given, conferences arranged and conducted and exhibitor support provided. The major ones are listed here.

Deutsche Gesellschaft für Ortung und Navigation

Deutsche Verkehrswissenschaftliche Gesellschaft

DGON / DVWG MÜNCHEN on Possible Solutions to existing Problems of the German ATC System in 1988

International Federation of Air Traffic Controller Associations

IFATCA ATHENS in 1985 on "What do we owe the Paying Passenger?"

BRÜSSEL in 1979 on "Aeronautical Information Data Systems"

TORONTO in 1980 on "Automation in ATC"

CAIRO in 1981 on "Computerized Aeronautical Information Data Systems"

INTER AIRPORT Trade Fair Frankfurt

IAP on RNAV and SCPA in 1989, as exhibitor with CONRAC-CCS on CAIDS and as conference arranger and moderator in 1989, 1991 and 1993 with the AIRNAVCOM conference themes of "Airspace and ATC System Capacity" in 1989, "Rebuilding the European ATC System" in 1991 and "Europe's Regional Airports & Eastern Europe's ATM/ATC Markets" in 1993

Internationale Luftfahrt Ausstellung

ILA HANNOVER 1982 ON CAIDS with ESG

OnLINE Telekommunikations-Messe

ONLINE MESSE DÜSSELDORF on AFTN and CIDIN in 1981

Deutsche Forschungsanstalt für Luft- und Raumfahrt

DFVLR KÖLN on CAIDS in 1982

Luftfahrt Presse Club

LPC, the German Aviation Press Club, in FRANKFURT on the functioning of the air traffic services system and conference moderation in 1988

European Regional Airlines Association

ERA NICE on RNAV in 1992 and BRUSSELS on RNAV in 1993

Guild of Air Traffic Controllers UK

GATCO BOURNEMOUTH on RNAV in 1993

Bundesanstalt für Flugsicherung

BFS FRANKFURT on GATC-80 in 1976

Berlin Brandenburg Flughafen Holding Gesellschaft

BBF BERLIN in 1993 on BBI Airport Project – Airspace Demand

Philips Telecommunicatie Industrie

PTI HILVERSUM and HSA Appeldoorn in 1981

European Scientific Corporation

ESC in London 1988 (Farnborough Airshow)

Regional Air Navigation Services Development Association

RADA BERLIN as conference program arranger and moderator, in 2006

Review of the Ukrainian Aviation Law in 2008

Recommendation to UkATSE on the privatization of CNS service provision

Anadolu University, Eskisehir, Turkey

Presentation on the ATC Training Requirements in accordance with ICAO standards for all air navigation units in Turkey – Ulusal Havacilik Sempozyumu, 1989

## 24.2 Publications

During the many years of its existence, ANSA published articles and contributions in a number of German and foreign aviation publications, journals and also compiled a few voluminous studies, which were related to then awarded and ongoing projects. Most of these contributions were written in English, as were all project related studies and documents. German publications used were Flugwelt, Flugrevue, Luftfahrt International, Südkurier, Handelsblatt, DFVLR, DVWG, Kristall, Stern, SDR TV, Der Spiegel and der Flugleiter.

The foreign publications were Interavia, IIR, IFATCA's The Controller, South African ATCA Journal, IFATSEA's Navaire journal, airport forum, ATM journal UK, Turkish Daily News, Airport Technology UK, Civil Aviation Saudi Arabia, The International Journal of Aviation Safety, ICAO Bulletin / Journal, ESC UK, GATCO Transmit UK, Commonwealth Aviation News, ERA, PATCO News USA, ATCA Journal USA, Jane's Airport Review.



CAMRUS Publishers & ANSA at the Maastricht ATC Expo

Between 1984 and 1987 articles were published regularly in the international airport forum journal of Bau-Verlag, Germany, an English language journal which primarily served the airport construction and operations sector. Euromoney's ATM journal also published ANSA contributions regularly under contract.

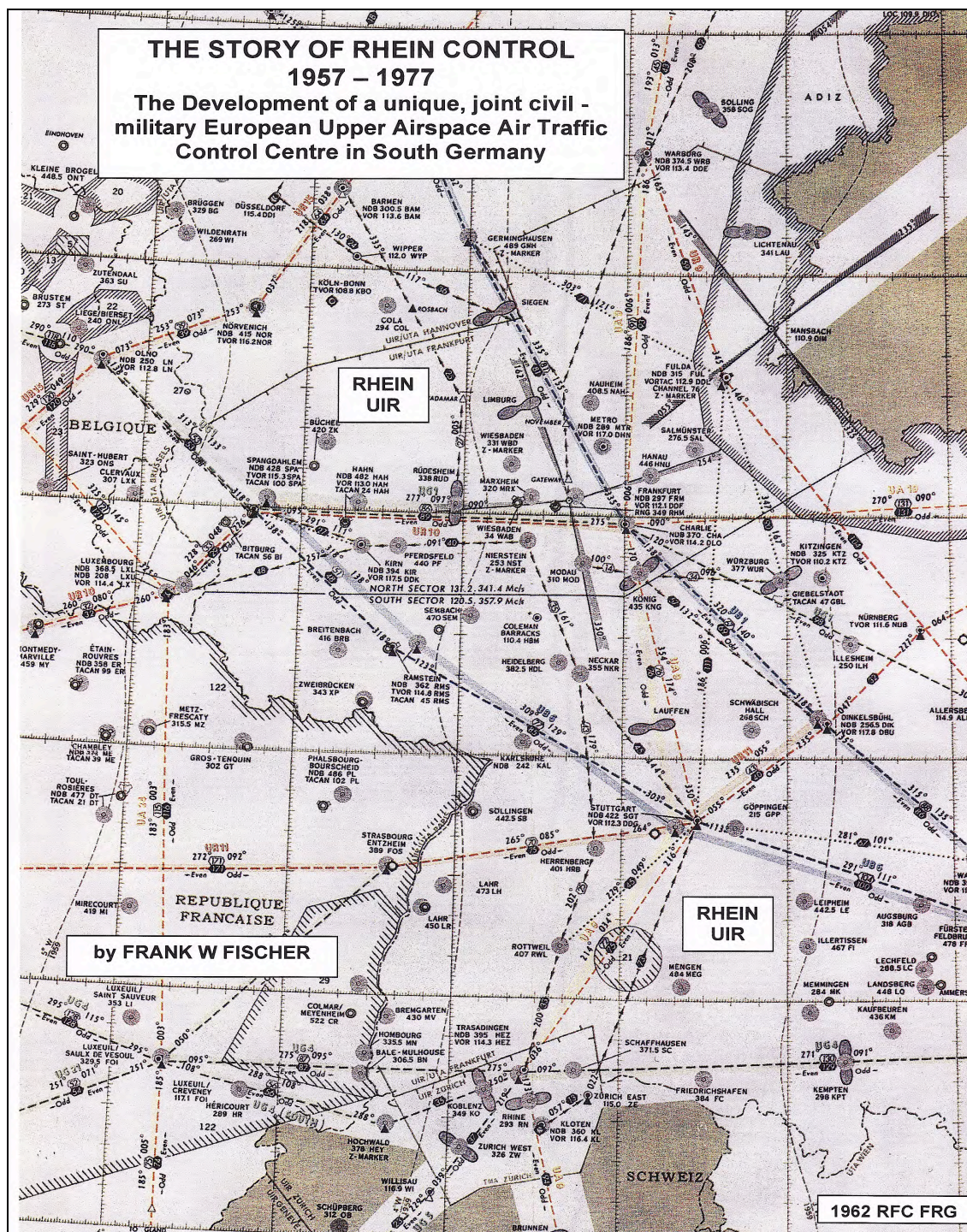
## 24.3 THE STORY OF "RHEIN CONTROL"

### **Air Traffic Control in Germany's Upper Airspace by Frank W Fischer**

In June 2007 history struck ANSA, when the ATC centre of Rhein Control, now Karlsruhe UAC, celebrated its 50th anniversary. The inefficient operations of this upper area control centre, founded by USAFE in 1957 had caused the foundation of ANSE and the president of ANSA, founder of ANSE, was therefore asked to participate in the celebrations and their preparation, having previously spent 17 years with Rhein Control as an air traffic controller.

ANSA managed to locate the UAC's first chief controller, Mr. O. B. Teel, near Chicago, provided old photos, wrote a contribution to the anniversary brochure for the 1960's and gave an interview on 19 June 2007. An unexpected result was the recommendation of DFS, the present ANS provider of Germany, to have someone write down the history and development of this centre for all the years up to and including 1977, when it was relocated to the city of Karlsruhe. With hundreds of old source documents ANSA became the only candidate to take-up this effort. And

during the following two years ANSA's president elaborated a 560 page report about this most unique Western European ATC centre.



The Rhein Control Story

In 2009 this critical evaluation report on Germany's handling of civil and military air traffic in the upper airspace between 1957 and 1977 was published with the title "The Story of Rhein Control", constituting a detailed description of the air traffic services (ATS) as provided in Germany's upper airspace during the 1957 to 1977 period. It covers the establishment, development, environment, the conditions and the former operation of this centre during the first 20 years of its existence. The chapters contain the legal, technical, operational and infrastructural shortcomings and the many resulting incidents, which endangered many flights over the years. Copies were sold to DFS, the Czech ANS provider RLP, Anadolu University in Turkey, DLR, EUROCONTROL,

the universities of Tübingen and Rhein-Main, and a good number of interested individuals and the German state library.

The report permits a deeper look into the fundamental problems of air traffic control (ATC) and their consequences on the handling of flights and the resulting effects on the pilots. In its introduction the study comments on the creation of the new German air navigation system in the early years after 1945 under the command of the Allied Forces and the control of the High Commissioner of the US Forces for Germany (HICOG) with the establishment of the German Federal Administration for Air Navigation Services (BFS) in 1953, the regaining of partial air sovereignty in 1955 and the establishment of the Rhein Control centre as part of and under the command of the US Air Force Europe in 1957; a 560 page report.

## 25 Industry Contacts and Cooperation

The following list of company names and their representatives, with whom ANSE and ANSA conducted business and/or exchange of information, joint venture projects, etc. proves, how active the group was in acquisition and communication.

Partner	Representative/s	Subject	when	Country
AEG	Cipa, v.Wrangel, Jäger, Söneke	Libya	1977/78	FRG
British Relay	Conway	Data Comm	1979	UK
AEG Olympia	Parthier	WIAS Coop	1989	FRG
ISS Videotex	Sonne	INFO-87	1987-89	DK
Krupp Atlas	Niemeyer	CAIDS	1979	FRG
SEAB	Williams	ATC Autom.	1976	S
Dollman Electr.	Parker	RNAV	1971/72	UK
UNIVAC	Babcock	ZKSD	1979	USA
AWYs New Zealand	Mooney	Russia ATC	1993	NZ
CSID	Nährig, Piske	ATFM	1979	FRG
CSE	Rade	ATFM	1979	B
HSA	Kampman, Weijts, Pribee	ATC Autom.	1978/81	NL
PTI	Nieland, Vonk, Hommersen	CAIDS AEROPP	1978-83	NL
Beck Verlag	Dietl	Terminology	1987	FRG
DIEBOLD	Schwab	ATC Planning	1971	FRG
JEPPESEN	HORNBERG, HARRINGTON	NAV Info	1966	FRG
FAG Frankfurt	---	Offices	1970	FRG
WINTERTHUR	Farner	Licence Ins.	1988-91	CH
Flight Data Eng.	Fekkes	Flight Data	2001	UK
SOFREAVIA	Cech	Cooperation	2001	F
Cat Sud	Bresson	Cooperation	1989+	F
Delair	Ramm	Products	2005	FRG
SWEDAVIA	Nilsson	ADS/B	1998	S
CRI	Sonne	ATCISS	1997	DK
SELENIA	Brown	Info Exchg.	1971	I
PLESSEY	Wheeler	SSR	1966-68	UK
ALES	Reichstätter	Support	2004	CZ
SEL	Ott	Info Exchg.	1968	FRG
SRT	Norling, Hansson	ATC Autom.	1967	S
AIV	Erbach	ATFM	1972	FRG
Mitsubishi	Yoshioka	Support	1988	JP
Tele-Suisse	Stingelin, Langhart	Cooperation	1983	CH
DECCA UK	Groves, King, Reaveley	Coop. RNAV	1967-71	UK
DECCA USA	Vickers	Coop. RNAV	1966-68	USA

For abbreviations see the Attachment

## 26 Clients and performed Projects

### 26.1 Clients

Over the many years ANSA was either contracted by or performed joint projects with some 60 companies and organizations, which mostly performed public projects of national or international aviation organizations or banks, such as the European Investment Bank (EIB) in Luxembourg or the European Bank for Reconstruction and

Development (EBRD) in London, respectively the German „Kreditanstalt für Wiederaufbau“ (KfW) in Frankfurt/Main, airport companies, exhibition organizers, national civil aviation administrations (CAA), institutes (DLR), and industry associations (ERA, ACI, IDRF) or airlines. The following list constitutes an overview on ANSA's clients of its early years of activity and the recent past.

#### CLIENTS & PROJECT PARTNERS

Philips Telecommunicatie Industrie (PTI) of The Netherlands  
 Elektronik System Gesellschaft (ESG) of Germany  
 Conrac Communications Software (CCS) of Germany  
 TELEMAT GmbH of Germany  
 Allgemeine Elektrizitäts Gesellschaft (AEG) of Germany  
 International Construction Partners (ICP) of Germany for Aruba and Baku  
 HECKMANN GmbH and BLENHEIM AG of Germany for InterAirport  
 Mack Brooks Exhibitions (MBE) of England for InterAirport  
 EXPOCONSULT of Germany for Almaty  
 Association Airport of Germany  
 Federation of Air Traffic Controller Unions of the CIS for the US TDA and Russia  
 Luftfahrt Personal Gesellschaft (LUPEG) of Germany for airline support  
 Statens Luchtvaart Vaesen (SLV / CAA) of Denmark for the INFO-87 Project  
 ISS Videotex of Denmark for the INFO-87 Project  
 Dorsch Consult of Germany For NTS Jordan and BBI Berlin  
 Hughes Economic Planning of England for NTS Jordan  
 AIRPLAN Airport Planners of Germany for NTS Jordan and BBI Berlin  
 Landrum & Brown Airport Planners of the USA for ATSA Bulgaria and BBI  
 Institute for Air Transport (IVT) of Bulgaria for the EIB  
 Air Traffic Services Authority (ATSA) of Bulgaria for the EIB  
 European Investment Bank (EIB) in Luxembourg for ATSA Bulgaria  
 Barlow, Lyde & Gilbert Solicitors of England for the DA 1008 Accident  
 Shrivs Associates Limited of England (ANSA Membership)  
 Anadolu University of Turkey for the ICAO TUR/86 Project  
 Weidleplan Consult of Germany for Ethiopia  
 Berlin Brandenburg Flughafen Holding of Germany for BBI  
 Commission of the European Communities (CEC) in Belgium for ATLAS & ESTEEM Projects  
 Frankfurt Airport Airconsult of Germany for Aruba  
 LITTON Germany and LITTON AMECOM of the USA for BFS SVS Project and RNAV  
 SOLARTRON of England for the BFS ASIM Project  
 European Regional Airlines Association (ERA) for RNAV  
 SWISSCONTROL of Switzerland for Cooperation on LANS Project  
 Krupp Atlas Elektronik of Germany for Display Development  
 Hollandse Signaal Apparaten (HSA) of The Netherlands for AEROPP Development  
 United States Air Force Europe (USAFE)  
 Cologne Airport Germany for Apron Extension  
 Cossor Electronics of England for BFS Radar Project  
 System Designers Limited of England for AFTN Finland  
 Trade and Development Agency of the USA for Russia  
 Eurocontrol for CEATS Location  
 Rosaeronavigatsia of Russia for Moscow & Khabarovsk System Modernization  
 Orthogon System and ISA GmbH of Germany for CEC Projects  
 British Aerospace - SEMA of England for CEC Projects  
 Wilmer, Cutler & Pickering of Belgium for Baku and CEATS Projects  
 European Bank for Reconstruction and Development (EBRD) for Azerbaijan  
 Air Traffic Control & Management Advisers (FSB) of Germany  
 Aruba International Airport of the Netherlands Antilles  
 Civil Aviation Authorities of Jordan, Libya, Russia, Denmark, Azerbaijan and Czech Republic  
 Standard Elektrik Lorenz (SEL) of Germany  
 Inter Airport Trade Fair Frankfurt, Germany for Conferences and Exhibitors  
 Almaty Aerospace Exhibition of Kazakhstan for Exhibitors  
 Kuwait Airlines for FRAPORT Court Representation  
 Arthur D Little - Cambridge Consultants, England for ESTEEM Cooperation  
 Commission of the European Communities (CEC DG VII + XIII) for ATLAS + ESTEEM Projects  
 Azerbaijan Air Navigation Services Enterprise (AZAL / AZANS) for EBRD  
 Air Navigation Services of the Czech Republic (ANS/CR) for ESTEEM, Training + ATS Manual + SES  
 National Air Traffic Agency of Albania (NATA) for ATS Manual  
 Interessengemeinschaft Deutscher Regional-Flughäfen (IDRF), Germany for SES/ATS Support  
 Regional Air Navigation Services Development Association (RADA), Ukraine for Air Law Review +  
 2006 Conference Arrangements Berlin  
 CAA Georgia on DME Coverage  
 BAN – 2000 GmbH, Germany for SES CNS Certification + Baku Cooperation  
 AIRBUS Plant Hamburg Finkenwerder, Germany for SES ATS Certification  
 Mannheim, Lahr and Zweibrücken Regional Airports, Germany for SES ATS Certification

Deutsches Museum, Germany for ATS Archives  
 Federation of ATC Unions in CiS – FATCU on Union Support  
 C.Mer (Israel) for AZAL Project

## 26.2 Performed Projects

Due to the variety in the types of projects, which ANSA had either performed alone or in cooperation with other companies, it seems advisable to list them here. Except for a very few, most of the projects were „new“, one-time activities and therefore required a lot of effort in preparation, but as stated earlier, all of them were completed on-time and without cost-overrun. Many involved multi-national participation for performance in over ten different countries. **Attachment 11** contains a short description on each one, its volume and key-persons involved.

1	1968	<b>Reduced Holding Pattern Airspace Area Design</b> HPAA for military application in Germany
2	1969/72	<b>Recommendations to Aviation Organizations</b> ICAO, EUROCONTROL and national Administrations on ATFC, use of 121.5 Emergency Frequency, RNAV, ATS Routing, ATS Operations Manuals
3	1969/87	<b>Expert Advice on Air Traffic Services</b> To lawyers in court on accident causes involving ATS, briefings,
4	1972/96	<b>Support Services</b> Marketing assistance, project and proposal preparation, translations, document review, seminars, production of training material
5	1975/83	<b>Computerized Aeronautical Information + Data System</b> CAIDS Conceptual Design +civil and military Demonstration Models, conceptual design of civil and military CAID systems and production of three different demonstration models
6	1977	<b>Libyan Air Navigation Services System Concept</b> LANS Libya for AEG-Telefunken, conceptual design of the technical civil ANS system for Libya including all required documentation, such as PSD, SOR and SCD
7	1978	<b>Radio Navigation Aids Study Libya</b> for SEL, a country-wise radio navigation aids system study on navaid requirements
8	1980	<b>Air Traffic Control Training Simulator Tender</b> BFS ASIM Project Tender Translation for SOLARTRON (UK)
9	1980/81	<b>Aeronautical Information + Data Study</b> AID Study for PTI, a world-wide study on civil and military AID requirements
10	1981	<b>Air Navigation Services Training Program</b> AID + ANS Training Program for PTI, preparation and conduct of a half-year air navigation / air traffic control services training program for PTI engineers
11	1981	<b>AID + ANS Management Training</b> PTI, a separate ANS, AID and ATC technical training program for PTI's top management personnel in preparation of CAIDS/AEROPP marketing
12	1981	<b>Aeronautical Information Services Study</b> AIS Study for PTI, a world-wide study on civil and military AIS requirements
13	1982	<b>Visual Display Units Study</b> AID VDU Study for PTI, a study on tabular electronic displays for use in ATC
14	1982/83	<b>National Transport Study Jordan</b> NTS Jordan, performance of the air navigation services and system related part of the overall transport study
15	1983	<b>LANS Equipment Installation, Integration &amp; Implementation Project</b> LANS EIII Libya with TELEMITE, the set-up of an ATC system concept and equipment installation program for two Libyan ACCs and formation of a 12-company consortium

- |    |         |  |
|----|---------|--|
| 16 | 1983/84 | <b>Voice Communication System Project Tender</b><br>BFS SVS Project Support to LITEF, technical support on the preparation of LITTON's proposal to BFS, preparation of their presentations, commercial tender document translation   |
| 17 | 1984    | <b>Air Traffic Control Training Program Turkey</b><br>ATC Training Program Turkey for ELEKLUF, elaboration of a complete syllabus and course programs  |
| 18 | 1965/87 | <b>Publication of Aviation Articles</b><br>for AIRPORT FORUM of Bauverlag + others; regular publication of ATC related articles, such as „ATC and the EC“ over four issues or „MLS“ over three issues, „ATC in the Pacific“ and „ATC in Africa“ over the three year period as ATC editor   |
| 19 | 1987    | <b>Aruba Airport Airside Equipment Project of the CEC</b><br>with AirConsult of FAG + ICP, a technical airport facilities extension project, involving RWY and TWY lighting, UPS systems, cabling, etc.  |
| 20 | 1987/88 | <b>INFO-87 (ATCISS) Project of SLV Denmark</b><br>ATCISS system development and implementation with ISS-Videotex, specification of all operational functions for ACC, APP and TWR on the basis of ANSA's design concept of the overall system, constituting a CAIDS, a one year activity   |
| 21 | 1989    | <b>Air Traffic Control Training Program Project Turkey</b><br>for ICAO TUR 003/86, provision of the project leader under ICAO contract for the elaboration of the Turkish ATS training program with syllabus and curriculum for civil and military ATS training at Anadolu University in Eskisehir, a one year activity  |
| 22 | 1989    | <b>Re-Investigation of the DANAIR 1008 Accident</b><br>for Barlow Lyde & Gilbert successful legal expert advice to Spanish courts on the real cause of the accident at Tenerife North in 1980, saving the re-insurers 10 million £, elaboration of a counter-statement on the basis of three accident reports of ICAO, Spain and UK  |
| 23 | 1989/94 | <b>Preparation + Organization of Airport Exhibitions and Air Navigation Conferences</b><br>3 InterAirport Exhibitions, Moscow ATC Product Seminar, Aeroporta Moscow, Almaty Aviation Exhibition and 5 AirNavCom Conferences at Frankfurt, Sales Agent IAP Exhibitions  |
| 24 | 1990    | <b>Air Traffic Services and Air Traffic Flow Management Training Program</b><br>for LUPEG, conduct of three ATS and ATFM training courses at the Lufthansa school in Bremen and production of all student and lecturing material; a one year activity  |
| 25 | 1992/93 | <b>Semi-Automated Air Traffic Control System for Europe Concept</b><br>SAATCEUR Project Preparation, Design of SCPA/FCB and RNAV for EU DG XIII + VII, submission of a proposal to the CEC in cooperation with ECI (USA)   |
| 26 | 1993/94 | <b>ATLAS (Air Traffic Land and Airborne) Study Review</b><br>for EU DG XIII, assignment as assessor for the review of the ATLAS project documentation of PA Consultants (UK) in preparation for the EC's claim in court  |
| 27 | 1993    | <b>Berlin Brandenburg International Airport Project (Airspace Requirements)</b><br>BBI Project - Airspace Requirements with L&B, AP and Dorsch Consult for BBF, including assistance to Landrum & Brown on the design of optimum instrument departure and arrival routes for a new German international airport, and calculation of the required TMA airspace areas up to FL 245 |
| 28 | 1994/95 | <b>Air Traffic Services Financing Feasibility + Reorganization Study Bulgaria</b><br>ATSA Bulgaria for EIB, performance of a financial feasibility and re-organization study for Bulgaria in cooperation with Landrum & Brown (USA) and elaboration of a technical ATC equipment requirements manual; a one year activity  |
| 29 | 1995    | <b>Central European Air Traffic Services Center Location Study</b><br>CEATS UAC Location Selection Study with WC&P for Eurocontrol, participation in the WCP project with three ANSA members in comparing the suitability of locations in the seven CEATS countries  |
| 30 | 1995/96 | <b>Azerbaijan Air Navigation Services System Project</b><br>AZAL ANS System Upgrading Project with WC&P for EBRD, participation in the WCP project on the modernization of the ANS system with three ANSA members, including financing calculations and re-organization of the system and elaboration of the technical tender document; a one year activity                      |

31	1996	<b>Air Traffic Control Technical Block Selection + Architecture</b> for AZAL under contract of EBRD, performance of a follow-on contract for the location study for the future TWR/APP/ACC technical block at Baku airport
32	1997/98	<b>Technical Services Consultancy to AZAL Azerbaijan</b> for AZAL TSC Project with Integra Consult under contract of EBRD, joint-venture project with INTEGRA of Denmark and BAN of Germany on the preparation of the procurement and technical tender with ANSA evaluating six industry proposals on the project; a one year activity
33	1998/99	<b>EATCHIP III to EATMS Integration Study</b> ESTEEM Study of EU DG VII with ADL / Cambridge Consultants, participation in the joint-venture project for elaboration of a transition strategy for the EATCHIP III ATM system plans to the future uniform European ATM system (EATMS); a one year activity
34	1999/2000	<b>Practical Air Traffic Services Training</b> for ANS/CR of the Czech Republic, TWR, APP and ACC procedural courses to Czech, Slovenian, Macedonian and Albanian controllers including class-room lecturing and practical simulator training
35	2000/01	<b>Provision of Air Traffic Control Instructors</b> to ANS/CR, contractor on the provision of 10 ATC instructors from 8 different countries for 1,5 years at Prague
36	2000/01	<b>Air Traffic Services Operations Manual</b> Production of an ATS OPM for ANS/CR, contractor on the specification and production of the 900-pages ATS procedures, rules & regulation operations manual for the Czech Republic in English and Czech language, involving 10 experts over 1,5 years, and assessing all Czech legal air navigation documents and the air law on its correctness and conformity with ICAO SARPs
37	2002	<b>Air Traffic Services Operations Manual</b> Production of an ATS OPM for ANTA Albania, contractor on the specification and production of the 900-pages ATS procedures, rules & regulation operations manual for Albania in English language, involving 3 experts over 1 year, and assessing all Albanian legal air navigation documents and the air law on its correctness and conformity with ICAO SARPs
38	2003/4	<b>DHX611 + BTC2937 Mid-Air Collision at Überlingen</b> Commentary on the Causes of the Accident, elaboration of a commentary in cooperation with AIRADIO on the adherence or non-adherence to all applicable German, Swiss and ICAO SARPs as cause of the accident for the German and Swiss courts
39	2006/7+9	<b>CNS Provider SES Certification</b> Certification Assistance to Company BAN 2000 GmbH, assisting the company in its efforts for CNS certification in Germany and the EU in paving the ground for the previously not foreseen procedure with the MOT and its CAA; a lengthy but successful activity
40	2006/7	<b>ATS Operations Manuals under EU SES Requirements</b> Production of ATS Operations Manuals for Lahr, Mannheim, Zweibrücken, Finkenwerder (AIRBUS Industries) regional airports in assisting them in their SES certification process with the MOT
41	2005/6	<b>RADA Air Navigation Conference Berlin 2006</b> Arrangement, organization and conduct of the conference including all presentations of ICAO, IATA, EUROCONTROL, BAN-2000, Universities Kiev and Eskisehir, INDRA etc., plus conference moderation
42	2007/8	<b>Elaboration of The Story of Rhein Control</b> The Description and Development of Rhein UAC up to 1977, elaboration of a historic report on this UACs development, operation and problems for the first 20 years of its existence; a 560 page report in English; a two-year activity in assessing some 3000 source documents
43	2009	<b>The ANS/CR ATS Proposal &amp; Contract to German Regional Airports</b> Support to ANS/CR for Offer to 10 Regional Airports in elaborating a proposal to 10 German regional airports and drafting a corresponding contract in English and German
44	2005	<b>PATA ATSOM Proposal Poland</b> Proposal to the Polish ANS provider on the elaboration of a national ATS Operations Manual for marketing through BAN-2000; an unsuccessful project

- |    |        |   |
|----|--------|---|
| 45 | 2006   | <b>UKATSE CNS Service Provision Proposal</b><br>Elaboration of Ukrainian CNS Service Provision Concept and SES – conform Rules for initiation of privatization of the Ukrainian CNS government services   |
| 46 | 2007   | <b>Ukraine Civil Aviation Code Revision</b><br>Revision of the Ukrainian Civil Aviation Code for ICAO and EU/SES conformance  |
| 47 | 1993/4 | <b>European Regional Airlines Association</b><br>Support on the Implementation of RNAV Procedures under contract of ERA in preparing presentations to the ERA member airlines and giving presentation on the subject during three ERA conferences in Brussels, Nice and Bournemouth |

## 27 Contracts

### 27.1 AEG/Telefunken

ANSA's first major client in a commercial project was company AEG-Telefunken of Ulm, Germany, which had developed and manufactured Germany's first digital radar data processing and display system, DERD. With ANSA's president being deeply involved in the DERD's system evaluation, testing and commissioning and the GATC-80 system planning effort for BFS members to follow AEG's request for support in their LANS project for Libya. The company had already established the libyan air defence system in employing DERD technology and equipment, but was not able to do so for a civil, countrywide, ATC system due to lack of knowledge in ATC system planning.

**AEG-TELEFUNKEN**

This situation led to a contract between AEG and ANSA and to the group's on-site involvement in Libya. A 7-man strong team produced a present system description (PSD), system requirements document (SRD) and system concept document (SCD). The Libyan Air Navigation Services project finally failed due to political quarrel between Germany and Libya. Meanwhile Libya purchased all the required equipment from company Thomson-CSF in France on the basis of ANSA's project documents and specifications, but due to similar problems kept the whole shipment in the ports of Tripoli and Benghazi for over three years. Then, in 1983 the libyan owned german telecommunication company TELEMAT was charged with the unloading, testing and assembling of these two complete area control systems. TELEMAT, unexperienced in such type of work, contracted ANSA to form a 12-company consortium for this task with ANSA preparing the necessary project implementation, equipment installation and integration plan and associated work breakdown structures, and selecting the twelve companies. The project was finally successfully completed in 1984.

### 27.2 PHILIPS – PTI

The group's second and largest client was Philips Telecommunicatie Industrie of the Netherlands. During 1978 to 1980 ANSA had already internally developed a concept on the handling of computerized aeronautical information and data handling. This concept, being explained to the management of Hollandse Signaal and PTI led to a large cooperation contract with FSB for the development of a computerized aeronautical information and data handling system (CAIDS) on the basis of PTI's message switching system AEROPP. Two worldwide extensive and unique studies (AID the first and AIS the second) were elaborated by ANSA and FSB in preparation for this project.

**Philips' Telecommunicatie Industrie B.V.**

Hilversum  
The Netherlands



**PHILIPS**

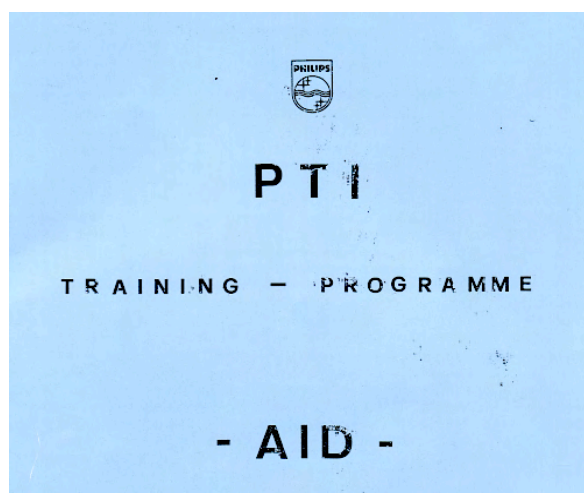
An 11-person strong ANSA team from four countries was formed in supporting PTI in this project over the following four years. These covered the expertise in air navigation (aeronautical information services) planning, message switching, civil and military AIS operations, automated data processing, visual display unit requirements

and the like. Its members were H. Fischer, A. Avgoustis, R. Coulter, L. Abelshauser, B. Mohrhard, E. Bick, K. Brünning, J.A. Martin, A. Brown, A. Hasanat and F.W. Fischer.

PTI produced a demonstration model, which was shown to the public in 1981 during international aviation exhibitions and conferences in Dubai and Cairo. The whole project came to a sudden stop, when US company AT&T acquired PTI and closed the project in 1982 in support of similar developments in the USA.

### ANSA & FSB – The PTI Training Program

In 1978 business information visits to the Hollandse Signaal (HSA) and Philips Telecommunicatie Industrie (PTI) plants in the Netherlands had resulted in the cooperation agreements with FSB for the elaboration of two worldwide studies on Aeronautical Information Services (AIS) and Aeronautical Information Data (AID) in preparation for the conceptual design and specification of a Computerized Aeronautical information Data System (CAIDS) on the basis of PTI's under a long term contract. A produced and shown during Dubai and Cairo, as well as conferences. A half-year long Philips engineers and conducted by ANSA's whole palette of air navigation 1981, filling some 2000 pages covering all aspects of ANS equipment and operation, Training were FSB & projects conducted.



AEROPP message switches demonstration model was aeronautics expositions in during various air navigation training program for 14 managers was set-up and lecturers, which covered the systems in use since 1935 to of student handouts and system organization, structure, worldwide, CAIDS and PTI ANSA's largest single pro-

ANSA's 1981 PHILIPS Aeronautical Information Training Program

### 27.3 CEC DG XIII ATLAS



In 1993 Directorate General XIII of the Commission of the European Community (CEC) in Brussels asked for ANSA's assistance in the assessment of the earlier produced European ATM / ATS system concept and specification draft, called ATLAS, as performed by PA Consultants of the UK. This involvement lasted over one year and served the formulation of arguments on behalf of the CEC against PA Consultants for its claim in court on non-performance of the project. ANSA's contribution was successful, the project stopped and PA Consultants were ordered to pay back 6.5 million ECU to the CEC.

A second project was ESTEEM, an integration concept's project for the transition from EUROCONTROL's EATCHIP (European ATC Harmonized Implementation Program) planning to the specification of a common and uniform European Air Traffic Management System – EATMS. This project constituted a joint-venture with industry companies and was conducted in 1998.

## 27.4 EIB – ATSA Bulgaria



AIR TRAFFIC SERVICES AUTHORITY

1540 SOFIA, SOFIA AIRPORT, BULGARIA.

In 1994 FSB was invited by the European Investment Bank (EIB) to bid for a financial feasibility study project of Bulgaria. Among 13 bidders, among them the CAA of the UK, Aeroport de Paris and Sofreavia of France, Airconsult (FRAPORT) of Germany, Wilmer, Cutler & Pickering of Brussels, Simat, Hellisen & Eichner of the USA, FSB won the project for a 100% responsive technical offer and the lowest price. The project, which was then performed as a joint-venture together with ANSA and the US airport planners Landrum & Brown” and the Bulgarian Institute for Air Transport (IVT) lasted one year and was completed within schedule and budget. This EIB modernization program involved 79 million USD for a complete new ATS system and the operational technical facilities (ACC and APP, etc.).

## 27.5 EBRD – AZAL Azerbaijan

From 1995 to 1998 three projects were conducted for the European Bank for Reconstruction and Development (EBRD) of London for the Azerbaijan State Concern for Aviation (AZAL). The first was conducted with Wilmer, Cutler & Pickering and the UK Civil Aviation Authority encompassing the determination of the present situation of the air navigation system, modernization requirements, traffic financing and forecasting and the financial project feasibility.



ANSA covered all organizational, operational and technical aspects and elaborated the technical specification document (TSD) for the final project. The second project involved only ANSA with its sister company ACAS of Turkey and asked for a technical proposal on the ideal new technical air navigation block location and layout at Baku airport.

The third project was won against stiff competition of Deutsche Flugsicherung GmbH. This time ANSA teamed with INTEGRA of Denmark for the project tender process and evaluation of all technical proposals. Integra covered the pure commercial aspects of the project, whereas ANSA wrote the final technical tender document and performed the evaluation of all project proposals by NAVIA of Scandinavia, RAYTHEON and WESTINGHOUSE of the USA, VNIIRA of Russia, SIEMENS ATM of Germany and the UK and C.MER of Israel.



Baku-Bina TWR & ACC



AZANS new ATS Logo



Baku-Bina Terminal Construction



The P-35 Metsch PSR+SSR Radar



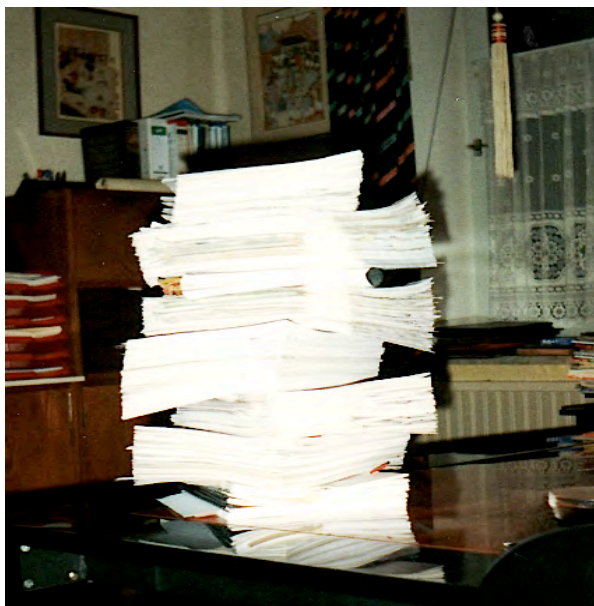
Baku Area Control Sector



Baku Approach Control Position

The evaluation of the international technical proposals as conducted by ANSA proved to be an enormous effort with thousands of papers, lasting for months in which Siemens – ATM became the winner.

All project activities relating to the EBRD financing of this 15.5 million USD project were finally and successfully completed in 1998 by FSB, ANSA and BAN.



The Result of the AZANS Project Bids Evaluation

## 27.6 EUROCONTROL – WC&P CEATS Location Study

In 1995 Wilmer, Cutler & Pickering were asked by EUROCONTROL to bid on the site location survey project for a future Central European ATS Centre (CEATS). WCP teamed with ANSA for this project and won. In performing this project ANSA's project members toured the air navigation facilities in Italy, Macedonia, Slovenia, Croatia, Czech Republic, Hungary and Austria. This half-year project was completed with Vienna being selected as the ideal location.

## 27.7 INTER AIRPORT Exhibitions & AirNavCom Conferences, Frankfurt/Main 1989, 91, 93

Another activity involving tremendous effort was the arrangement of three Inter Airport Exhibition conferences in 1989, 1991 and 1993 at Frankfurt/Main and the canvassing of exhibitors for a newly formed AIRNAVCOM exposition sector for companies Heckmann at Wiesbaden, Blenheim in Stuttgart and Mack Brooks in the UK.



Messrs. Fischer, Platz, Dr. Winter, Paulson



The Major of Frankfurt opening the IAP 91



The 1991 Inter Airport AirNavCom Conferences at Frankfurt/Main

ANSA determined the conference presentation to be given as well as organizations, corporations and EIB, the EBRD, ROSAERO-FAA, ICAO, BFS, EURO-Gilbert (solicitors), Raytheon, SEL, Hughes, Unisys, IBM, DLR, DASA, Marconi, the US FAA, and president functioned as moderator performed all the required arrangements were audio and video recorded and among the industry companies and canvass many of the world leaders of exhibitors, such as Alenia of Italy, the USA, Hughes Canada, Siemens Spain, Stansaab of Sweden, Cossor smaller European companies.

With the selection of the conference was possible to motivate a variety of companies, banks and governmental their subjects of interest to the Inter visitors, among them US FAA, port Canada, UK CAA, BFS, Swiss-AIRNAVIGATION, the EIB, Russian industry companies. ANSA's members, who assisted and participated were Mr. R.A.Coulter of the USA, M. C. Olmos of Mexico, Mr. R. Eckstein and Mrs. H. Fischer of Germany, Dr. M. Cavcar of Turkey, Mr. D. Alamaniotis of Greece, Mr. E. Chu from Hong Kong and Mr. Geli from the Philippines.



themes and the subjects for the selection of the companies to present them. The NAVIGATISIA, The Russian CONTROL, Barlow, Lyde & Westinghouse, Norcontrol, Thomson-CSF, Siemens, the like participated. ANSA's for the conferences and meetings. All these conferences received widespread response the media. ANSA was able to this industry sector as ex-Westinghouse and Raytheon of UK and Germany, Indra of Electronics UK, and a dozen

themes being left to ANSA it speakers from organizations, aviation authorities to present Airport exhibitors and their EUROCAE, the CEC. Trans-control, Eurocontrol, Russian FAA, EBRD and many



ANSA's IAP 91 Exhibition Booth



1991 IAP Conference Companies

## 27.8 HEP & DORSCH – NTS Jordan



In 1982 AIRPLAN asked for ANSA's participation in the Jordan National Transport Study project of Dorsch Consult, Airplan and the british Hughes Economic Planning company. This project lasted into 1983 and covered a complete assessment by ANSA on the overall air traffic services (ATS) system of Jordan and a review of the air navigation aspects of the new Amman Queen Alia airport under construction at the time.

## 27.9 BBF – DORSCH / BBI Berlin

In 1993 ANSA was approached by airport planning company AIRPLAN of Germany for support on the new Berlin Brandenburg International airport project BBI for determination and elaboration of the airspace requirements for a 4- and a 6-runway airport in selecting the best site among 16 predetermined locations, which resulted in choosing the Berlin-Schönefeld airport area for the project. AIRPLAN's chief planner for this project was Mr. Zehender, who also is an ANSA member.

ANSA, in performing this one-year project in teaming again with company Landrum & Brown of the USA reported to AIRPLAN, Dorsch Consult, Weidlepan and Wilmer, Cutler & Pickering. Ideal approach and departure procedures were elaborated with Landrum & Brown for the final three possible sites (Berlin-Schönefeld, Sperenberg and Jüterbog-Ost, and airspace requirements laid out for four initial approach fixes (IAF) up to 24.500 feet of altitude to 45 NM away in a 90 x 90 NM large TMA.

## 27.10 LUPEG – ATS Training Bremen

In 1990 Deutsche Lufthansa had established a "Lufthansa Personnel" Company, called LUPEG and entered into an agreement with the then still existing German Federal Administration for Air Navigation Services – BFS (Bundesanstalt für Flugsicherung) for the basic training of ATS personnel and air traffic flow control operators. This training was conducted at the Lufthansa school in Bremen over three courses, of three months duration each. FSB with ANSA's support was awarded a one year contract to prepare all teaching and learning material in following the LUPEG syllabus and to conduct the three courses. The project was successfully completed and about 100 students were released to the various ATS units and the ATMC for further OJT.

## 27.11 CEC DG VII – ESTEEM Study

In 1998 the CEC called for proposals on the EC's EATCHIP III to EATMS concept study, called ESTEEM. ANSA teamed with SIEMENS ATM, THOMSON-CSF, Arthur D Little – Cambridge Consultants, the Czech ANS/CR and CRI of Denmark. This two year project involved great effort by ANSA's members B.

Rüthy and F. Fischer in reviewing all previously conducted European ATS project documentation for a recommendation on a proper integration procedure to be applied with the EATCHIP III (Eurocontrol) results into the future European ATM project objectives; a forerunner of the EC's SESAR project definition.

### 27.12 FATCU – ATS Seminar and Exhibition Moscow

In 1992 ANSA invited a three-man delegation of ROSAERONAVIGATSIA (new ATS Ministry) and FATCU (ATC Union) of Russia for a one-week seminar and visit to ANSA in Bavaria, in which also K. Dilks from the USA and R. Eckstein of Germany participated. As a result ANSA was invited to arrange for an Air Navigation Systems & Equipment Exhibition in Moscow with international participation. ANSA pursued this project together with company Helbig Industrie Messen of Germany. After one year long negotiations with the Russian Airports Association and Rosairnavigation the project was canceled due to HIM's disability.

### 27.13 ROSAIR – US TDA, Dilks ECI & ANSA ATM Project Proposal

Another project evolving from the good relation to Rosairnavigation and FATCU in 1992 was related to the necessary modernization of the Moscow and Khabarovsk area control centres (ACC). For this project ANSA teamed with company ECI of the USA (K. Dilks) and acted as mediator for the US Trade & Development Agency (TDA) in offering Rosairnavigation 1,5 million USD worth of free US support in preparing for this project. The project, prepared by H. Fischer, K. Dilks and F. Fischer during two visits to Moscow finally failed in 1993 due to Rosairnavigation's refusal to accept the US support.

### 27.14 ANS/CR – ATC Training, Czech Republic

Another long term activity of ANSA was the arrangement and conduct of ATC training courses for foreign students from Macedonia, Albania, Slovenia and of the Czech Republic at the training institute of the Czech air navigation services provider ANS/CR at Prague airport between 1999 and 2002. Five courses were given and ten instructors hired from Finland, Ireland, England, Germany, and Macedonia.



The ANS/CR Prague ATC Training Centre

This project required almost continuous presence at the air navigation training centre of the Czech Air Navigation Services Organization RLP, lengthy preparations in Germany for the compilation of classroom teaching and practical simulator instruction outlines, the creation of the simulation programmes for individual runs in applying Slovenian, Macedonian, Albanian and Czech airspace environments. The ATC instructors of ANS/CR, Messrs. W. Bubalu and D. Milanowski also became ANSA members. Upon the

conclusion of the courses student assessment rules had to be elaborated and a corresponding procedure to be applied for each individual student covering also personal attributes.



The first Albanian ATC Course of ANSA in 1999

## 27.15 ANS/CR – ATS Operations Manual

**Řízení letového provozu České republiky, s.p.**  
**Air Navigation Services of the Czech Republic**



In 2000 ANSA was awarded a contract by the Czech ANS/CR to elaborate a complete ATS Operations, Regulations & Procedures Manual for all ATS units in the country, to be written in English and Czech and to cover all international, supranational and national ATS regulations of ICAO, EUROCONTROL, ITU, ISO, WMO and the Czech Republic. This two-year project involved many project meetings in the Czech Republic, Germany and Switzerland with six swiss (B. Rüthy), german (G. Melzer, F. Fischer, H. Fischer), czech (J. Racek) and hungarian ANSA members being involved in the elaboration and production, which included a data base and application program for the continuous updating of the manual.



Czech ATSOM



Albanian ATSOM

### 27.16 RADA – Air Navigation Conference Berlin 2006

In 2005 company BAN-2000 of Berlin asked ANSA to arrange the 2006 Annual Conference of the East European Regional Air Navigation Development Association RADA in Berlin, to select the themes for presentation and subjects referring to the EU's SES concepts and consequences, as well as corresponding organizations to actively participate. The conference took place in national Air Show ILA with ICAO, -2000, Qantas, ENAV, FSB, INDRA of Turkey and Kiev University of the participating. ANSA moderated the be a busy year with RADA. 11 presentations were given and ANSA also acted as conference moderator. RADA, accredited with ICAO, EUROCONTROL, the European Commission as well as the European Bank for Reconstruction and Development (EBRD) and the European Investment Bank (EIB), is formed by the ANS providers of Georgia, Moldova, the Ukraine, Armenia and Azerbaijan.



### 27.17 UkATSE – Review of the Ukrainian Air Law

In 2006 ANSA was asked to review the complete Civil Aviation Code draft of the Ukraine for conformity with international rules and regulations and its suitability for future outsourcing of ATS and CNS service provision under the EU's Single European Sky legislation by the Ukrainian ATS Enterprise – UkATSE. The Ukrainian Air Navigation Services provider considered to also undergo European Union "Single European Sky" legislation procedures for certification as ATS, COM, CNS and AIS provider to increase its border-crossing competitiveness with other ANS providers in the EU. This positive and farsighted intention was not realized due to national elections, which stopped this process until further.

### 27.18 NATA – ATS Operations Manual



In 2002 also the National Air Traffic Agency NATA of Albania followed with a contract for the elaboration of their ATS Operations Manual. This project lasted 18 months and was produced by four swiss, german, albanian ANSA members in English language only.



The second Albanian NATA ATC Course Participants with Instructors Duda and Fischer 1999

## **27.19 SES – Single European Sky ATS & CNS Certifications Germany**

During 2006 ANSA compiled and reviewed all documents of the European Commission and of EUROCONTROL on the forthcoming “Single European Sky – SES” legislation for all member states of the EU. As a result various suggestions were addressed to German regional airports, handling instrument flight operations (IFR) within their designated control zones (CTR).

In order to do so basic clarification became required with the civil aviation authority (CAA) of the ministry of transport at Bonn, causing extensive investigation into the details of all SES regulation documents and those of EUROCONTROL. But ANSA's support to certification applicants proved to be successful in 2006.

In parallel hereto ANSA supported the German Association of Regional Airports (IDRF) in their necessary preparations during 2006 and 2007 for air traffic services (ATS) provision certification. In a February 2007 IDRF meeting at Zweibrücken ANSA, unsuccessfully, tried to convince these airport operators to self-certify their ATS provision for SES certification. Only Lahr, Mannheim, Zweibrücken and AIRBUS Hamburg decided to accept ANSA's assistance and self-certified successfully. As a consequence, ANSA had to compile new ATS operations manuals for aerodrome control service for each one of these airports.

The only CNS service provider, which asked for ANSA support on the certification was company BAN-2000. In opposing the German DFS company's TTC efforts ANSA called “Austrocontrol” of Austria into Germany to sign similar ATS provision contracts with ten regional airports, whereas TTC (The Tower Company) concluded contracts with the remaining other ten airports. This process was completed end of June 2007 by the EU's deadline.

Over 2008/9 a clarification process evolved over SES terminology with the EU's directorate TREN, the German CAA, the German national ANS supervisory authority BAF, trade associations Gdf (Germany) and SATTA (Switzerland) plus IFATSEA due to the inconsistent definitions on SES related air navigation terms in EC, ICAO and EUROCONTROL documents. This is a still ongoing activity and relates mainly to ATS and CNS, but also MET and SAR.

In 2009, however, the Czech air navigation services provider ANS/CR decided to bid against Austrocontrol for the follow-on contracts and asked ANSA to assist in the preparation of a corresponding offer and to produce a sample contract. ANSA delivered both, but ANS/CR was not successful.

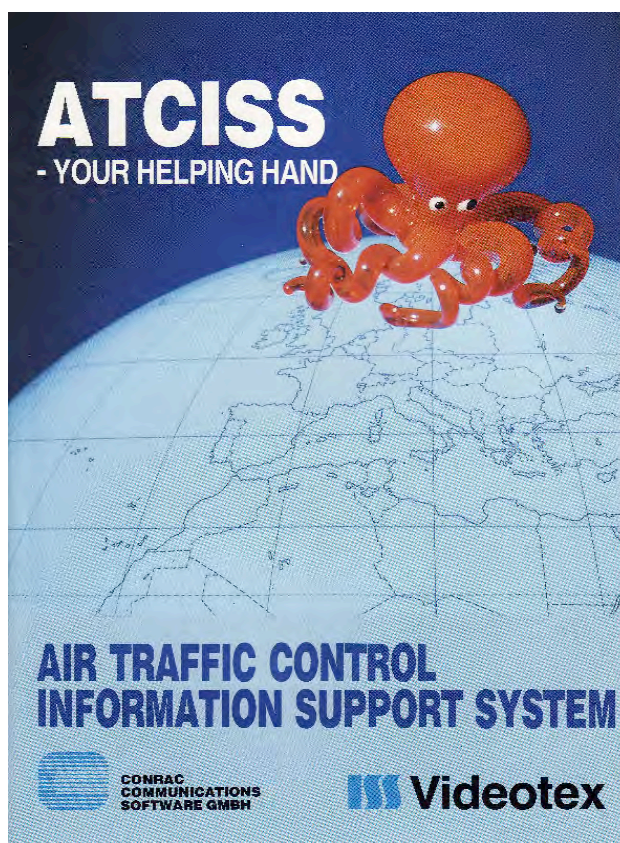
## **27.20 Danish CAA INFO-87 CAIDS Project**



In 1987 a computerized Aeronautical Information & Data System project was conducted by the Danish CAA, which called for the installation of information displays at all working positions in the country. FSB and ANSA were asked by the CAA to amend the technical tender document for inclusion of operational functions as conceptually designed by ANSA.

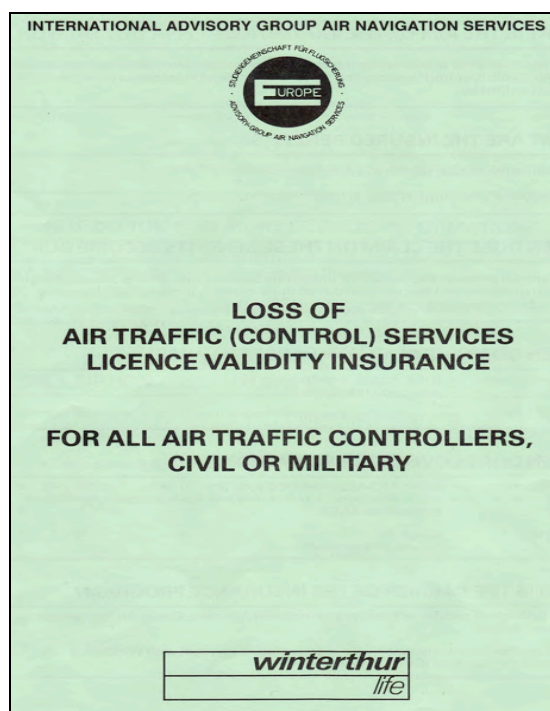
The following tender was won by the consortium of ISS – Videotex and FSB. CONRAC Communications Service delivered the monitors to the project. The 15 – months project was successfully completed and constituted the first realization of ANSA's CAIDS concept in Europe.

It took other air navigation services providers a good number of years to follow-up on this development in implementing aeronautical information & data handling systems with their ATS units with most of them not realizing the requirement of such systems for the timely and complete briefing of their operations personnel. EUROCONTROL was among the first with Maastricht UAC to follow.



## 27.21 Loss of AT(C)S Licence Validity Insurance Program / ANSA - Winterthur

In 1986 ANSA established an international Air Traffic (Control) Services Loss of Licence Validity Insurance Program in cooperation with Winterthur Life Insurance Company of Switzerland for civil and military application worldwide. This program was promulgated also through IFATCA and various air traffic controllers signed up with ANSA for this insurance. Unfortunately and without giving any specific reason Winterthur cancelled this program after half a year.



ANSA's Loss of Licence Insurance



over the Mediterranean. Due to the war activities air traffic control service in the FIR had been abandoned completely, but all international flights together with flights of the Turkish Air Force and USAF aircraft stationed in Turkey all now operated completely uncontrolled in this airspace.

ANSA with the help of naged to get ATC equip-Cypriots so that they could separation between tran-FIR. Both Turkey and accepted ANSA's media-

But relations between the ATCA's deriorated in 1975 demanded dismissal of the bership in IFATCA.



USAF intervention ma-ment be provided to the continue to provide siting flights through the Cyprus had gratefully tion.

Turkish and the Cypriot to the point that Cyprus Turkish ATCA from mem-

The Turkish ATCA's Membership Card

To avoid such step the ANSA president flew to Ankara to talk to the then DGCA of Turkey, Mr. Güngen, convincing him to send a THTKC delegation to the IFATCA Annual Conference in Melbourne that same year to explain the case and avoid the dismissal. This proved successful in the Cyprus ATCA withdrawing their motion. The ANSA president later on became the THTKC's IFATCA liaison officer. Already in 1974 ANSA had paid all THTKC's outstanding membership fees to IFATCA due to THTKC's inability to raise the money. F. W. Fischer was awarded membership in THTKC for lifetime.

### 31.2 Re-Assessment of the Accident Reports on DANAIR 1008

In 1989 ANSA was approached by consultancy company SAL (UK) to accept a contract with Barlow, Lyde & Gilbert, solicitors of London, for the re-assessment of the causes of the DA-1008 accident, which occurred in 1980 at Tenerife North in the Canaries.

Danair 1008 was a Boeing 727 on a tourist flight from London and crashed into a mountain at Tenerife North during holding for approach. Accident reports had been published by the UK-CAA, the Spanish CAA and ICAO, all blaming the approach controller for the accident, who actually was completely innocent. The accident had been solely caused by the cockpit crew, because they flew below minimum safe height and a wrong pattern.

ANSA compared all three accident reports with each other and was able to prove the real cause. The case was finally won in the last instance in court for the re-insurers of the ATC provider and saved them over 10 million £. It had taken ANSA over six months to re-assess this case in cross-checking and comparing about 450 individual facts and statements.

### 31.3 Assessment on the Causes of the Überlingen Aircraft Mid-Air Collision

When the mid-air collision between a TU-154 of Bashkerian Airlines and a B757 of DHL Cargo Airlines occurred in July 2002 at Überlingen, ANSA became interested in the case. This led to a voluntary assessment and commentary on the real causes of this accident. Here, it was tried to blame the TU-154 crew, but ANSA concluded that it was solely ATC's fault at Zürich ACC; see **Attachment 16**.

The 76-page commentary took nine months to prepare and was submitted to the german and swiss state attorneys at Konstanz and Zürich as a joint elaboration of ANSA and AIRADIO for later use during criminal proceedings in the court of Lausanne.

### **31.4 Compilation of a Report on the first 40 German Post-War Air Traffic Controllers**

After enquiries had been received on information about the the first german postwar air traffic controllers ANSA began a widespread search throughout the country with governmental agencies, local communities and aerodrome operators to identify these persons and locate them. 40 were identified with seven still alive.

A corresponding report “The Bremen Boys” was prepared in English and German with their names, addresses, first duty stations and whereabouts. The report was distributed in 2009 to those still alive and to state libraries and archives and published in the ATC union’s magazine.

### **31.5 Compilation of a Report on German Airspace Delegation to Switzerland**

In the aftermath of the Überlingen accident legal questions arose as to the status of that part of the Frankfurt FIR/UIR as german national airspace to Switzerland. After extensive search it was found out that this airspace portion, now part of the Zürich FIR/UIR, had been delegated by the former french military government in 1946, being revoked by the allied civil aviation board of Germany in 1952 and again been delegated to Switzerland in 1954 by the newly formed German Federal Administration for Air Navigation Services (BFS). A state agreement between the two government was never concluded. A corresponding report was published in 2011.

### **31.6 Support to ANS/CR on their Offer on ATS Provision at German Regional Airports**

In 2009 the czech ANS provider ANS/CR asked for support in preparing an offer to ten german regional airports on the provision of ATS (ATC and FIS) in replacing the present provider “austrocontrol”. ANSA prepared the offer and contract proposal.

### **31.7 Documentation of the Development of the German Air Navigation System 1919 to 1956**

In 2011 ANSA decided to compile a documentation on the development of the german air navigation system, beginning in 1919 on the prewar development and after 1945 on the postwar development, ending in 1956. The documentation will cover the involvement and development of the air navigation services between 1945 and 1953, as provided by the british, american, french and russian air forces, in detail. The search for source material in Great Britain, the USA and Germany began in mid 2011 and will be completed by mid 2014. Part I, covering the 1919 to 1945 period was completed in June 2014.

## **32 Retrospect & Outlook**

**What has ANSA seen in changes of the air navigation system occurring over the last 40+ years, changes which had an influence on the group’s activities and performed projects ?**

Regarding ANSA's activities during the last five years the hectic times of the previous 10 to 15 years are over and more time could be spent in concentrating on the accepted tasks than often before. The Iron Curtain had fallen in 1989 and also for the western air navigation industry sector new markets opened in quick succession.

ANSA became significantly involved in East and Central European air navigation projects in Bulgaria, Azerbaijan, Russia, Georgia, Ukraine and Armenia, either under direct contract from EBRD and EIB or as joint venture partner.

A still unsolved problem among the ATC community is the lacking awareness of flight safety related behaviour of the ATS personnel, their corresponding training and working position procedures. Also, a common and separate receiver in aircraft cockpits for the the common emergency frequency 121.500 MHz is still not implemented by ICAO and national aviation administrations as a standard. This ifact will again cause losses of aircraft and ldives in the future.



ANSA's President waiting at Radio 32 for a 50-year late phone call with Mr. Teel to the US and wondering what the future will bring

### **The ATC Development in over 40 Years**

In looking back 40 years when procedural separation was applied between controlled flights in principle, with only analogue primary radar assisting in the identification of flights or mainly for the reduction of separation minima during terminal operations for approach to land, it is interesting to note how long it took until radar control procedures entered area control operations. Secondary radar, stemming from the first military IFF (identification friend foe) systems began to be used in the early 60's and then mainly for enroute application. ICAO had begun to specify the secondary surveillance radar technique (SSR) on the basis of a 4096 code system with four modes, A (identification), B, C (altitude) and D. But only mode A, the equivalent of military mode 3 was implemented with the first aircraft transponders. The military IFF had meanwhile grown into a 64-code mode 3 system, called selective identification feature (SIF).

A good number of area control centres (ACC) now began to apply radar-control operations only, while most approach control units (APP) already operated in this mode for some years. Mode-C followed step by step with still analogue SSR display equipment in ATS units being used. The mid-70's then saw more and more digital radar data processing and display systems entering operations in Europe, such as the German DERD system in 1972/74.

Hand in hand with this development went the implementation of automated data processing based flight data handling and flight progress strip printing. Many of the advantages implied in ADP systems could however not be used to their full potential yet, such as the application of reduced lateral procedural separation minima enroute under Area Navigation (RNAV) principles. Aircraft avionics were not yet ready and radio navigation relied mainly on ADF and VOR navigation methods, while inertial navigation (INS) systems were mostly used as back-up systems only and in assisting long-range flights over water and unpopulated land areas.

Hyperbolic systems, such as CONSOL, GEE, DECCA, LORAN and VLF were phased out and no longer played a significant role in radio navigation and ATC. Giving up the use and further development of hyperbolic navigation systems in favour of VOR/DME and MLS must be regretted even today, because navigation accuracy of +/- 15m was already achieved with DECCA, DECTRA and HARCO, to be compared with triple DME accuracy of today.

### **Unsolved Problems**

The question, whether recommended improvements in ATC systems and procedures have been realized over the last 40+ years can only be partly answered to the positive today. Some improvements happened automatically after many years due to the general development in technology, such as automated flight plan and data processing, flight plan and radar data correlation, display of digital radar data and flight information (flight identification, altitude, speed, course, etc.) and RDP based conflict prediction (look ahead), Conflict Alert (STCA) of the radar subsystem and traffic collision avoidance systems (TCAS) onboard aircraft.

Other safety relevant aspects, such as a VHF emergency frequency receiver override function in aircraft radios or more stringent ATS unit operation rules still lack implementation. With the given modern tools in ATC, like ATFM, STCA, aircraft TCAS and various ADP assist functions having allowed to handle much more traffic today than ever imagined 20 years ago, a new trend has begun to gain ground, if not too much ground, in exercising air traffic control. And this trend is the move away from tactical control by controllers to a more or less monitor function in ATC.

Controllers will in future not be able to stay abreast with increasing numbers of flights simultaneously under their “control”, if they loose routine in “tactical control” intervention, when today’s reduced separation, such as 1000 feet vertically instead of the former 2000 feet above FL 290, for whatever aircraft induced reason is being infringed. It must be doubted that ATFM calculated intervals between flights will always allow for enough room in airspace sectors if something goes wrong.

Proper planning for contingency operations therefore gain significant importance. We have seen ATC units go up in fire in the past, ACCs included. And for controllers to convert from radar separation minima to procedural separation minima under such circumstances will be practically impossible, even so if they had some time ago be trained for. Controllers will have to refuse responsibility in such cases and pilots will be over-tasked to have their aircraft to stay clear of each other, TCAS and cockpit traffic situation displays or not. Also, additional tasks occupying the controller’s attention may be caused by additional displays, monitors and indicators at ATC working positions.

### **Development from ATC to ATFC and ATFM**

When ANSA recommended the implementation of a national air traffic flow control service (ATFC) in 1972, no such service existed yet. Only France operated a CORTA unit, which monitored the developing volume of flights on a daily basis for the french ACCs. Germany finally decided to do the same and opened an air traffic management centre – ATMC in Frankfurt, which partly cooperated with the german flight plan coordinator, who took care that airport capacity rates were not exceeded. It took EUROCONTROL until the beginning of the 90’ies to implement a EUROCONTROL – wide central flight management unit – CFMU in Brussels, which has become the european flight schedules regulator and flight plan approval institution.

This move has led to a reduction in national jurisdiction and delegation to a supra-national body. The overall advantage of the ATFM process is a more regulated flow of air traffic in Europe for all area control centres. It must be seen, how the future EATMS under the SESAR planning will foresee the cooperation between the CFMU and the new regional ACCs.

### **ATC Industry Merging**

In the 60’ies and early 70’ies the german ATC industry was still strong and innovative. Standard Elektrik Lorenz – SEL, the inventors of the VOR, and belonging to ITT of the USA was a major supplier of radio navigation systems like NDB, VOR, ILS, DME and also AFTN. Rhode & Schwarz was a telecommunications market leader in radios and voice switching systems. SIEMENS played a most significant role in switching systems, ATC furniture (ACC, APP and TWR control boards and desks), as well as radio and visual navigation aids. AEG-Telefunken in entering the ATC market with the first german digital radar data processing and display system – DERD gained recognition throughout Europe in parallel to the RDP development of Thomson-CSF in France, SRT in Sweden (one of the very first), Plessey, Marconi and Ferranti in the UK, and Selenia in Italy.

But, contrary to the development in France, the german and swedish companies lost their market influence with british companies to follow. Many began to merge and only a few remain today, such as CECELSA, INDRA and COSSOR now belonging to Raytheon of the USA, AEG-Telefunken being dissolved, and THALES, a new entity, now encompassing SEL, FACE and a few more. East-European ATC companies, such as VNIIRA and NITA of Russia or ALES of the Czech Republic were completely unknown in the west, but now also supply the west- and central-european market. SCHMID Telecommunication of Switzerland for instance has completely disappeared. Apart herefrom, now service companies gained ground, mainly caused

by the growing influence of ADP over ATC, such as ELEKLUFT, BAN-2000, Orthogon, SCS and Comsoft, just to mention a few.

### **The Development of Eurocontrol**

EUROCONTROL, when founded in 1960 as an association for the joint control of border-crossing flights in the upper airspace of their member states, was applauded for its initiative. However, when it entered into force as a new european organization in 1963 it immediately departed from this objective and concentrated on joint upper airspace area control only for Germany, Belgium, Luxembourg and the Netherlands.

It took until 1972 to reach this goal only for North Germany and Belgium with South Germany to follow in 1977 and losing it again in 1986. Altogether, with the original objective never been fulfilled due to national political interests of the members states, especially so France and the UK. It changed its function and role significantly over the years, despite the many states joining the organization as members in the following years, often for reasons of air navigation route charging service – CRCO only.

Having changed into a more or less air navigation rule making body and regulator besides ICAO, it has become the EU's second hand in european air navigation rule making. Its endeavor to construct a common european ATM system occupied it for many years in conducting the European ATC Integration Program (EATCHIP) and drafting the resulting European ATM System (EATMS), both forerunners of the SESAR Joint Undertaking of the EU, EUROCONTROL and the european ATM industry.

Compared with the small number of foundation members the organization now counts over 30 member states in mainly western and central Europe. And with the fall of the Iron Curtain it finally became possible for Europe's ANS provider organizations to more closely cooperate, whereas previously more or less only coordination was possible through ICAO and ECAC. Eastern Europe's ATC systems had to be brought up to the level of western systems due to the rapidly increasing east-west traffic not only from/to East-Europe, but also further into Asia. Many ATC modernization projects were therefore undertaken.

EUROCONTROL's Air Navigation Institute in Luxembourg having been limited to ATC students from mainly western Europe before now was open for everybody in Europe, but soon began to face competition by eastern european ATC training institutes and is now about to close down.

### **What has changed with the Changeover from BFS to DFS in Germany ?**

In Germany the Federal Administration for Air Navigation Services – BFS, operated as a government administration since 1953, was dissolved and changed into a commercial enterprise as a fully state owned limited liability company (GmbH), called Deutsche Flugsicherung – DFS, in 1993 after 40 years existence. This had happened after lengthy industrial action by the german air traffic controllers with their national ATC Association – VDF during the 1970'ies, the so-called "Slow Go". The cause had been the governments decision of 1961/62 to change the employment status of controllers into one of government officials with significant loss of income and career limitations.

All positive development in ATC in Germany therefore was largely hampered for years. A positive effect of the change in 1993 was the integration of civil and military ATC area control operations and finally acceptable collective tariff agreements and remuneration. A negative effect was the blowing-up of administration management, apparently caused by the now given attractive salaries in administration. The now required economic operation of the german ATC system did however cause the combination of ATC units, which had already begun in the 1980'ies, resulting in only three ACC's (Bremen, Frankfurt, München), two UAC's (Karlsruhe of BFS and Maastricht of EUROCONTROL) and a number of colocated APPs remaining only.

Had the two german states operated their air navigation systems before 1989 completely separate this now resulted in the full integration of INTERFLUG's air navigation organization into BFS and of the control over the additional airspace of the Berlin FIR/UIR into Bremen ACC and Rhein UAC, after a few years of

operation under the temporary Berlin ACC/UAC. This step, almost unimaginable in 1990 clearly demonstrates the trend of merging, combining and joint-operation for economic reasons.

### **Air Navigation User Charges**

When airspace users operating under the control of ATC in the 50's and 60'ies did not have to pay air navigation service charges because airline operation and provision of ATS were almost everywhere considered to be the government's task, this situation changed quickly with the establishment of the EUROCONTROL organization. When charges were demanded in the upper airspace first, it quickly spread out into the lower airspace also. All air navigation organizations were glad to charge in reducing the incurred ATS costs of the national budgets.

The negative result on aircraft operators is widely known and must be considered the wrong approach as long as national air navigation systems remain to be government operated. If, however, these systems are all to be privately operated, such as is foreseen under the EU's Single European Sky initiative and legislation, which is considered purely driven by economic consideration, then this charging scheme must become a must. If the outcome is positive in the long run must be doubted, especially so when national air navigation organizations are demanded to join forces and operate their systems in common airspace blocks together, unavoidably competing with each other.

### **ATC Licences, Personnel Shortage, Language Problems, professional Knowledge**

It took almost 50 years before the national licences of air traffic controllers have become mutually accepted by foreign air navigation administrations, at least so within the EU. This development was mainly caused by the shortage of ATS personnel in many european countries. The positive development now allows to also employ foreign controllers, either temporarily or permanently. Up to the 1980'ies the issuance of ATC licences was a national sovereign right and the exercise of the ATC profession limited to ones state own citizens only. This now changed also and also private ATS providers employ national and/or foreign ATC staff. Language problems are, however, to be overcome, because the foreign controller is often not conversant enough in the national language of the new employer, or the native controller is not conversant enough in Aeronautical English, or both is true for both. ICAO's PELA initiative will only partly overcome this problem.

Another issue now and for the future must be the lack of knowledge of many controllers on ATC systems technical knowledge and/or on all applicable rules, regulations and procedures. Considerable change also took place in the fields of flight data handling in ATC with ADP machines taking over this function. The same happened with the aeronautical information service (AIS), whose briefing offices disappeared from the scene with mostly only one AIS and AFTN COM-centre remaining per country. Flight meteorological services are now also and often provided by ATS staff, at least at smaller airports. All in all, economics also had their impact on these services. Due to increased risk of attacks security measures were greatly increased, complicating all operations.

### **Problem Area: Safety Management**

A significant change occurred in the last 20 years regarding the regulation of safety aspects in ATM and especially ATS. Based on ICAO's recommended practices a huge administration effort evolved with the national air navigation service providers. Regulations on the administration of safety matters and the supervision over safety related activities were issued by the dozen. Safety managers were appointed and procedures implemented. It seems, however, that more effort was spent on administration, management and supervision than on actual improvement of safety relevant issues of operations personnel.

### **Airspace Management Development and Functional Airspace Blocks**

When ICAO decided on the suggested modification of the worldwide air navigation system almost two decades ago into an ATM/CNS system (air traffic management / communication, navigation and

surveillance) the meanwhile established terms of ATFM (air traffic flow management) and ASM (airspace management) were categorized together with the ATS (air traffic services) to now form the ATM services.

ASM, initially sought to facilitate airspace coordination between civil ATS units and the military, suddenly grew in importance and now faces the required combination and integration of national control areas into large regional airspace blocks, called FAB, in fulfilling the EU's SES objectives on border-crossing concentration of airspace sectors under combined ATS operations.

This requirement will cause the greatest obstacle to the planned unification of West-Europe's ATS systems into one joint EATMS due to national interests of the EU's member states to be overcome, like in the early 1960's when EUROCONTROL's original objective on joint control in the upper airspace of its member states was soon given up. The same might happen to the FAB's under the SES initiative. If so, then this would constitute a second, but even more expensive, unsuccessful effort in reducing operating costs for aircraft operators.

### **ATC Contingency Planning**

When Europe counted about 53 ACCs in the 1980's, the number grew to about 65 in recent years due to the political development in Europe. It is to be understood that each state wanted to handle and administer its own air navigation matters itself, but this did not necessarily have to result in an area control centre for each small state also. So, the overall cost increased significantly, instead of falling.

It remains to be seen, if the EU's SES legislation will be successful in combining national control areas into bigger blocks of regional airspaces (FABs) and to reduce the number of ACCs correspondingly. Because job advantages and personal income will be at stake and resistance will be great. Economic thinking and demanding of the EU will not be sufficient to achieve this SES goal soon.

### **Development of Airline Flight Operations, Regional Airlines at Regional Airports**

As regards the development of civil and military traffic, a large effect to ATM and ATC was the great reduction in military air traffic due to NATO's changed role and the establishment of the many new charter and cargo airlines. When ATC had to be a government function before due to NATO's command over national air forces, this was no longer necessary. Military traffic almost dropped by 90 %.

Especially regional and low cost airline companies began to use former military aerodromes for their operations resulting in the re-opening of the former military airfields as regional airports for also scheduled, commercial flights under instrument flight rules, requiring controlled airspace and aerodrome control service (TWR).

The resulting and still existing problem is the costly operation of these airports with mandatory AT(C)S and CNS services, requiring expensive ATC personnel and CNS technicians. It must be doubtful, if these airports will be able to survive in the future, if they have to become self-supporting.

### **Future Aspects: Greater Influence of Airlines**

Additional aircraft operator representation groups grew in number over these many years, besides IATA, which had been their major speaker since the mid 50's. But apart from IACA, ERA and LLCAA, for instance, all do not seem to exert enough power against the intentions and plans of the group of the air navigation organizations, be they governmental or privately organized. All their influence on especially the EU will not be strong enough in forcing the air navigation service providers to reduce their operating costs significantly. Especially their administration costs are considered much too high and many administration functions, such as on safety regulators, schools and instructors must be possible to combine with field operations functions, if not now, then in the near future. Otherwise, costs will not come down.

## Monitoring of the SES' CNS and ATS Consequences and their Effect, Privatization and Competition

The EU's legislation on the Single European Sky, having become mandatory for all EU member states, caused unwanted administrative certification effort for all ATS, CNS, AIS and MET providers on the national basis, especially so for Germany. The EU's regulations on the SES and EUROCONTROL's guidelines for the adherence to the new procedures were anything than clear and conclusive.

So, over 2008/9 a clarification process evolved over SES terminology and definitions with the EU's directorate TREN, the German CAA, the German national ANS supervisory authority BAF, trade associations Gdf (Germany) and SATTA (Switzerland) plus IFATSEA due to the inconsistent definitions on SES related air navigation terms in EC, ICAO and EUROCONTROL documents. This is a still ongoing activity and relates mainly to ATC and CNS, but also MET and SAR. Altogether the whole effort seems to be unnecessarily complicated and costly for many providers.

## Clearing of ANSA's Archive and Library

A very useful effort, begun in the beginning of this year, is the resorting of ANSA's archive and library in freeing both from superseded and superfluous documentation. Almost 2000 papers had to be screened, containing books, reports, project specifications, charts and maps, ICAO documents and ATC related publications. This effort is closely connected with the elaboration of "The Story of Rhein Control" and many of the documents will in future be given to public libraries.

At present, ANSA is busy of applied aerodrome German regional airfields, cepted version, resulting insurance regulations, is ICAO standards, nor the gulations. The course of outcome. Another chal-be the considerations on IFR flight operations with small airports under AFIS

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in judging the correctness control procedures of since the officially ac-in consequential liability not in accordance with german air law and re-this year might show the lenging task will probably the possible operation of aircraft over 14t MTOW at only

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## 33 ANSA's Archive and Library

ANSE began to set-up an archive and library with technical documentation already in 1968 and therefore subscribed to technical information with the US government printing office and technical information service in Washington / DC and ICAO in Montreal. The german AIP and NOTAMs were subscribed with BFS. This archive and library now contained over 500 publications and documents in 1986 and was later completely re-arranged due to the then won projects. About a dozen civil and military aviation journals were received regularly. After another 20 years it is now being screened and resorted and the documents listed for future use by any interested party. Both, library and archive were always maintained by working group EoE and the president with the assistance of the treasurer.

## Archive 1 (as used for the Story of Rhein Control)

All source documentation belongs to the archives of the International Advisory Group – Air Navigation Services (ANSA) and constitutes ATS unit reports, the appropriate organizations’ meeting protocols, aeronautical maps and charts, standard operating procedures, letters of agreement between civil and military air navigation organizations and units, reports of professional associations, government agreements, airmiss (near collision) reports of pilots, operational incident reports of controllers, excerpts from Rhein UAC daily logs, excerpts from military air navigation journals, ATS unit inspection reports, correspondence of controllers with their administration, radio and press reports, teletype messages of the US Embassy and civil as well as military air navigation organizations, the national aeronautical information publication (AIP), various articles in the aviation press, air traffic statistics of BFS, EUROCONTROL and USAFE, operational and technical system descriptions, ICAO annexes and documents relating to the ATS, FAA, USAF, BFS and GAF handbooks and manuals relating to the ATS, radio interviews, television reports on ATC, ATS unit internal operations directives and orders, ATC incidents investigation reports, and so forth. This part of the archive contains 40 files with 1238 documents. Most of the remaining documents in ANSA’s archive have been turned over to the Saxonian State & University of Dresden library.

## 34 ATTACHMENTS

Some attachments to this report serve the purpose of highlighting the aforementioned information. They are not included in the electronic version of the report, which will be available on ANSA’s web-site [www.atc-ansa.org](http://www.atc-ansa.org). But all of the following and a few more are included in the printed version.

- 34.0 Abbreviations
- 34.1 The Statutes of ANSE
- 34.2 ANSE/ANSA’s Members since 1967
- 34.3 The Statutes of ANSA
- 34.4 ANSA’s By-Laws
- 34.5 The SCPA Concept
- 34.6 The Role of the German ATC Industry
- 34.7 The Upper Airspace ATS Problems Report of 1972
- 34.8 ANSA’s Proposal to ICAO on the Use of Chinese Language
- 34.9 ANSA’s Publications List
- 34.10 The Information of the “Story of Rhein Control”
- 34.11 Selected ANSE/ANSA Project Descriptions
- 34.12 The Loss of ATC Licence Conditions
- 34.13 Some Annual Reports
- 34.14 Some Letters of Commendation
- 34.15 Selected Correspondence
- 34.16 The Überlingen Aircraft Accident Commentary
- 34.17 The ANSE ATC Safety Committee
- 34.18 The Visit & Exchange Program
- 34.19 Confirmations on the Legal Seat
- 34.20 Confirmations on the Status
- 34.21 Selected Circulars to Members
- 34.22 Selected Publications
- 34.23 Rosairnavigation Project
- 34.24 IIR Conference
- 34.25 ATSOM Circular
- 34.26 LPC Presentation
- 34.27 ESTEEM Project
- 34.28 The Contents of the Archive and Library
- 34.29 ANSA’s Professional Profile
- 34.30 Regional Representatives
- 34.31 Cooperation Agreement FSB / ANSA
- 34.32 ANSA Seminars

- 34.33 Inter Airport Frankfurt/Main
- 34.34 The LANS Project
- 34.35 ANSA's Web-Site
- 34.36 The CAIDS Project

## **35.0 Abbreviations**

AAF	ARMY AIRFIELD (US)
AB	AIR BASE (US)
ACAS	ALFA CIVIL AVIATION LTD. (Turkey)
ACC	AREA CONTROL CENTRE
ACI	AIRPORTS COUNCIL INTERNATIONAL
ADF	AUTOMATIC DIRECTION FINDER
ADP	AUTOMATED DATA PROCESSING
ADV	ARBEITSGEMEINSCHAFT DEUTER VERKEHRSFLUGHÄFEN
AEA	ASSOCIATION OF EUROPEAN AIRLINES
AEG	ALLGEMEINE ELEKTRIZITÄTS GESELLSCHAFT
AEROPP	AERONAUTICAL OPERATIONAL (DATA) PROCESSING SYSTEM
AFB	AIR FORCE BASE
AFN	AMERICAN FORCES NETWORK
AFCAC	AFRICAN CIVIL AVIATION COMMISSION
AFCS	AIR FORCE COMMUNICATION SERVICE (USAF)
AFI	AFRICA
AFIS	AERODROME FLIGHT INFORMATION SERVICE
AFSBW	AMT FLUGSICHERUNG DER BUNDESWEHR
AFTN	AERONAUTICAL FIXED TELECOMMUNICATION NETWORK
AG	AKTIENGESELLSCHAFT
AIAA	AMERICAN INSTITUTE OF AERONAUTICS AND ASTRONAUTICS
AID	AERONAUTICAL INFORMATION DATA
AIDS	AERONAUTICAL INFORMATION DATA SYSTEM
AIP	AERONAUTICAL INFORMATION PUBLICATION
AIRADIO	AERONAUTICAL RADIO & ATC ADVISORS
AIRNAVCOM	AIR TRAFFIC CONTROL / NAVIGATION / COMMUNICATION
AIS	AERONAUTICAL INFORMATION SERVICE
AIV	AUTOMATISCHE INFORMATIONS VERARBEITUNG (Firma)
ANACNA	ASSOCIAZIONE NAZIONALE ASSISTENTI E CONTROLLORI DELLA NAVIGAZIONE AEREA
ANS	AIR NAVIGATION SERVICES
ANS/CR	AIR NAVIGATION SERVICES / CZECH REPUBLIC
ANSA	INTERNATIONAL ADVISORY GROUP AIR NAVIGATION SERVICES
ANSE	EVALUATION GROUP – AIR NAVIGATION SERVICES - EUROPE
ANTA	AGJENCIA NACIONALE TRAFIKUT AJROR (Albania)
AOPA	AIRCRAFT OWNERS AND PILOTS ASSOCIATION
APATSI	AIRPORT AND ATS INTERFACE PROJECT
APCA	ASSOCIATION PROFESSIONELLE DE LA CIRCULATION AERIENNE
APP	APPROACH CONTROL UNIT / SERVICE
ARTCC	AIR ROUTE TRAFFIC CONTROL CENTER (US)
ASC	ATC SAFETY COMMITTEE
ASIM	AUSBILDUNGSSIMULATOR PROJEKT
ASM	AIRSPACE MANAGEMENT
ATAF	ALLIED TACTICAL AIR FORCE (NATO)
ATC	AIR TRAFFIC CONTROL UNIT / SERVICE
ATCA	AIR TRAFFIC CONTROLS ASSOCIATION
ATCISS	ATC INFORMATION SERVICE SYSTEM
ATCO	AIR TRAFFIC CONTROLLER / OFFICER
ATFC	AIR TRAFFIC FLOW CONTROL
ATFM	AIR TRAFFIC FLOW MANAGEMENT
ATM	AIR TRAFFIC MANAGEMENT
ATM/CNS	ATM / COMMUNICATION, NAVIGATION, SURVEILLANCE (System)
ATMC	AIR TRAFFIC MANAGEMENT CENTRE
AT&T	AMERICAN TELEPHONE & TELEGRAPH COMPANY
ATP	AIR TRANSPORT PILOT (Licence)

ATPL	AIR TRANSPORT PILOT LICENCE
ATS	AIR TRAFFIC SERVICES
ATSA	AIR TRAFFIC SERVICES AGENCY (Bulgaria)
ATSE	AIR TRAFFIC SERVICES EQUIPMENT
ATSOM	ATS OPERATIONS MANUAL
AZAL	AZERBAIJAN HAVA YOLLARI = AZERBAIJAN AERONAVIGATION
AZANS	AZERBAIJAN AIR NAVIGATION SERVICES (Agency)
BAC	BRITISH AIRCRAFT CORPORATION
BAF	BUNDESAMT FÜR FLUGSICHERUNG
BAN	BERLINER ANLAGENBAU (Firma)
BARIG	BOARD OF AIRLINE REPRESENTATIVES GERMANY
BASEOPS	BASE OPERATIONS (NATO)
BAY	BAYREUTH
BBF	BERLIN BRANDENBURGER FLUGHAFEN HOLDING GESELLSCHAFT
BBI	BERLIN BRANDENBURG INTERNATIONAL (Airport)
BDLI	BUND DER DEUTSCHEN LUFT- UND RAUMFAHRT INDUSTRIE
BFS	BUNDESANSTALT FÜR FLUGSICHERUNG
BOAC	BRITISH OVERSEAS AIRLINES CORPORATION
CAA	CIVIL AVIATION AUTHORITY
CAD	CIVIL AVIATION DEPARTMENT
CAF	CANADIAN AIR FORCE
CAIDS	COMPUTERIZED AERONAUTICAL INFORMATION DATA SYSTEM
CAL	CHINA AIRLINES (Taiwan)
CAM	CENTRAL AMERICA
CAR	CARRIBEAN
CCS	CONRAC COMMUNICATION SERVICES (Firma)
Cdr.	Commander
CEATS	CENTRAL EUROPEAN ATS
CEC	COMMISSION OF THE EUROPEAN COMMUNITIES
CEO	CHIEF EXECUTIVE OFFICER
CFMU	CENTRAL FLOW MANAGEMENT UNIT
CIDIN	COMMON INTERNATIONAL DATA INTERCHANGE NETWORK
CIFRR	COMMON IFR ROOM (New York)
CIS	COMMONWEALTH OF INDEPENDENT STATES
civ	CIVIL
CNS	COMMUNICATION, NAVIGATION, SURVEILLANCE
COCESNA	CORPORACION CENTRO-AMERICANA DE SERVICIOS DE NAVEGACION AEREA
Col.	COLONEL
COM	AERONAUTICAL TELECOMMUNICATION
CORTA	CENTRE OPERATIONELLE REGIONALE DU TRAFIC AERIENNE
CPL	CURRENT FLIGHT PLAN
CRCO	CENTRAL ROUTE CHARGES OFFICE (Eurocontrol)
CRI	COMPUTER RESOURCES INTERNATIONAL
CSE	COMPUTER SCIENCE CORPORATION EUROPE
CSID	COMPUTER SCIENCES INTERNATIONAL DEUTSCHLAND
CTR	CONTROL ZONE
CZ	CZECH REPUBLIC
DaeC	DEUTSCHER AERO CLUB
DAG	DEUTSCHE ANGESTELLTEN GEWERKSCHAFT
DASA	DEUTSCHE AEROSPACE AG
DBP	DEUTSCHE BUNDESPOST
DECCA	DECOMETER CHAIN (Navigation System)
DECTRA	DECCA TRACKING NAVIGATION SYSTEM
DEM	DEUTSCHE MARK
DERD	DISPLAY OF EXTRACTED RADAR DATA
DFS	DEUTSCHE FLUGSICHERUNG GmbH
DFVLR	DEUTSCHE VERSUCHSANSTALT FÜR LUFT- UND RAUMFAHRT
DG	DIRECTORATE GENERAL
DGCA	DIRECTOR GENERAL CIVIL AVIATION
DGON	DEUTSCHE GESELLSCHAFT FÜR ORTUNG UND NAVIGATION
DHMI	DEVLET HAVA MEDARLANI ISLETMESI (Turkish ANS Provider)
DLR	DEUTSCHE LUFT- UND RAUMFAHRT AGENTUR

DME	DISTANCE MEASURING EQUIPMENT
Doc.	DOCUMENT
DRF	DEUTSCHE RETUUNGS-FLUGWACHT
DVL	DEUTSCHE VERSUCHSANSTALT FÜR LUFTFAHRT
DVWG	DEUTSCHE VERKEHRSWISSENSCHAFTLICHE GESELLSCVHAFT
DWD	DEUTSCHER WETTERDIENST
EAME	EUROPE, AFRICA & MIDDLE EAST (Region)
EASA	EUROPEAN AVIATION SAFETY AGENCY
EATCHIP	EUROPEAN ATC INTEGRATION PROGRAM
EATMS	EUROPEAN ATM SYSTEM
EBRD	EUROPEAN BAK FOR RECONSTRUCTION AND DEVELOPMENT
EC	EUROPEAN COMMISSION
ECAC	EUROEPAN CIVIL AVIATION CONFERENCE
ECI	EASTERN COMPUTERS INC. (USA)
EGATS	EUROCONTROL GUILD OF ATS PERSONNEL
EIB	EURPEAN INVESTMENT BANK
EIII	EQUIPMENT INSTALLATION INTEGRATION AND IMPLEMENTATION PROJECT
ENAV	ENTE NAZIONALE DI ASSISTENZA AL VOLO (IT)
Eng.	ENGINEER
EoE	EXCHANGE OF EXPERIENCE
ERA	EUROPEAN REGIONAL AIRLINES ASSOCIATION
ESC	EUROPEAN SCIENTIFIC CORPORATION
ESG	ELEKTRONIK SYSTEM GESELLSCHAFT
EU	EUROPEAN UNION
EUR	EUROPE
EUROCAE	EUROPEAN CIVIL AVIATION EQUIPMENT ORGANIZATION
EUROCONTROL	EUROPEAN ORGANISATION FOR THE SAFETY OF AIR NAVIGATION
Ev	EINGETRAGENER VEREIN
FAA	FEDERAL AVIATION ADMINISTRATION (USA)
FAB	FUNCTIONAL AIRSPACE BLOCK
FAG	FLUGHAFEN FRANKFURT AG
FATCU	FEDERATION OF ATC UNIONS OF THE RUSSIAN FEDERATION
FCB	FIX CALCULATION BLOCK
FDP	FLIGHT DATA PROCESSING
FIR	FLIGHT INFORMATION REGION
FL	FLIGHT LEVEL
FPK	FLUGPLAN KOORDINATOR (Germany)
FRG	FEDERAL REPUBLIC OF GERMANY
FSB	FLUGSICHERUNGS-SYSTEM-BERATUNGSGESELLSCHAFT
FTZ	FERNMELDE TECHNISCHES ZENTRALAMT
GAF	GERMAN AIR FORCE
GATC-80	GERMAN ATC SYSTEM FOR THE 1980'IES
GATCA	GERMAN AIR TRAFFIC CONTROL ASSOCIATION
GATCO	GUILD OF AIR TRAFFIC CONTROL OFFICERS (UK)
GBP	BRITISH POUND
GbR	GESELLSCHAFT BÜRGERLICHEN RECHTS
GdF	GEWERKSCHAFT DER FLUGSICHERUNG
GmbH	GESELLSCHAFT MIT BESCHRÄNKTER HAFTUNG
HARCO	HYPERBOLIC AREA COVERAGE NAVIGATION SYSTEM
HEP	HUGHES ECOOMIC PLANNING
HICOG	HIGH COMMISSIONER GERMANY
HIM	HELBIG INDUSTRIE MESSEN
HOC	HOCHWALD
HPAA	HOLDING PATTERN AIRSPACE AREA
HSA	HOLLANDSE SIGNAAL
IACA	INTERNATIONAL AIR CHARTER ASSOCIATION
IAF	INITIAL APPROACH FIX
IAP	INTER AIRPORT EXHIBITIONS
IAPA	INTERNATIONAL AIRLINE PASSENGER ASSOCIATION
IATA	INTERNATIONAL AIR TRANSPORT ASSOCIATION
IBM	INTERNATIONAL BUSINESS MACHINES
ICAO	INTERNATIONAL CIVIL AVIATION ORGANIZATION

IDRF	INTERESSENGEMEINSCHAFT DEUTSCHER REGIONALFLUGHÄFEN
IFAPA	INTERNATIONAL FOUNDATION OF AIRLINE PASSENGER ASSOCIATIONS
IFATCA	INTERNATIONAL FEDERATION OF ATC ASSOCIATIONS
IFATSEA	INTERNATIONAL FEDERATION OF ATS ELECTRONICS ASSOCIATIONS
IFF	IDENTIFICATION FRIEND FOE
IFR	INSTRUMENT FLIGHT RULES
IIR	INTERNATIONAL INSTITUTE FOR RESEARCH (UK)
ILA	INTERNATIONAL LUFTFAHRT AUSSTELLUNG
ILO	INTERNATIONAL LABOUR OFFICE
ILS	INSTRUMENT LANDING SYSTEM
inc.	INCORPORATED
INS	INERTIAL NAVIGATION SYSTEM
INSTILUX	AIR NAVIGATION INSTITUTE LUXEMBOURG
ISO	INTERNATIONAL STANDARDS ORGANIZATION
ISS	INTERNATIONAL SANITARY SERVICES COMPANY
ITA	INSTITUTE DU TRAFIC AERIENNE
ITT	INTERNATIONAL TELEPHONE AND TELEGRAPH
ITU	INTERNATIONAL TELECOMMUNICATION UNION
IVT	INSTITUTE OF AIR TRANSPORT
JUKL	JUGOSLOVENSKO UDRUZENJEI KONTROLORA LETENJA
KARLDAP	KARLSRUHE DATA PROCESSING SYSTEM
KfW	KREDITANSTALT FÜR WIEDERAUFBAU
L&B	LANDRUM & BROWN
LANS	LIBYAN AIR NAVIGATION SERVICES PROJECT
LBA	LUFTFAHRT BUNDESAMT
LCAA	LOW COST AIRLINES ASSOCIATION
LORAN	LONG RANGE NAVIGATION SYSTEM
LPC	LUFTFAHRT PRESSE CLUB
LRNZ	LUFTRAUM NUTZUNGSZENTRALE
LUPEG	LUFTHANSA PERSONALGESELLSCHAFT
MD	MANAGING DIRECTOR
MEA	MIDDLE EAST & ASIA MINOR
MED	MEDITERRANEAN
MET	FLIGHT METEOROLOGY
MHz	MEGAHERTZ
Mil	MILITARY
NIVR	NEDERLANDS INSTITUT VOOR VliegTUIGONTWIKKELING
MLS	MICROWAVE LANDING SYSTEM
MOD	MINISTRY OF DEFENCE
MOT	MINISTRY OF TRANSPORT
MTOW	MAXIMUM TAKE-OFF WEIGHT
NAM	NORTH AMERICA
NATA	NATIONAL AIR TRAFFIC AGENCY (Albania)
NATO	NORTH ATLANTIC TREATY ORGANIZATION
NDB	NON DIRECTIONAL RADIO BEACON
NOTAM	NOTICE TO AIRMEN
NTS	NATIONAL TRANSPORT STUDY (Jordan)
NTSB	NATIONAL TRANSPORTATION SAFETY BOARD
NZZ	NEUE ZÜRCHER ZEITUNG
ODIN	OPERATIONAL DATA INTERCHANGE NETWORK PROJECT
OFIS	OPERATIONAL FLIGHT INFORMATION SERVICE
OJT	ON THE JOB TRAINING
OPM	OPERATIONS MANUAL
ÖTV	GEWERKSCHAFT ÖFFENTLICHE DIENSTE TRANSPORT UND VERKEHR
P.R.	PEOPLES REPUBLIC
PAC	PACIFIC
PANS	PROCEDURES AIR NAVIGATION SERVICES
PATA	POLISH AIR TRAFFIC AGENCY
PATCO	PROFESSIONAL ATC ORGANIZATION
PBL	PLANUNGSBÜRO LUFTRAUMNUTZER
PE	PROFESSIONAL EDUCATION
PELA	PROFICIENCY IN LANGUAGE TESTS

PPL	PRIVATE PILOT LICENCE
PRC	PEOPLES REPUBLIC OF CHINA
PSD	PRESENT SYSTEM DESCRIPTION DOCUMENT
PSR	PROPOSED SYSTEM REQUIREMENTS DOCUMENT
PTI	PHILIPS TELECOMMUNICATIE INDUSTRIE BV
RADA	REGIONAL AIR NAVIGATION DEVELOPMENT ASSOCIATION
RAF	ROYAL AIR FORCE
RDP	RADAR DATA PROCESSING
RF	RUSSIAN FEDERATION
RLP	RIZENI LETOVEHO PROVOZU CSKE REPUBLIKY S.P.
RNAV	AREA NAVIGATION
ROC	REPUBLIC OF CHINA
ROCATCA	ROC AIR TRAFFIC CONTROL ASSOCIATION
ROSAIRNAVIGATION	COMMISSION FOR AIRSPACE USE AND ATC OF THE GOVERNMENT OF THE RF
RSAG	RADIO SCHWEIZ AG
RTCA	RADIO TECHNICAL COMMISSION
RUD	RÜDESHEIM
RWY	RUNWAY
SAATCEUR	SEMI AUTOMATED ATC SYSTEM FOR EUROPE
SAGE	SEMI-AUTOMATED GROUND ENVIRONMENT (Air Defence System)
SAL	SHIVES ASSOCIATES LIMITED
SAM	SOUTH AMERICA
SAR	SEARCH AND RESCUE
SARP	STANDARDS AND RECOMMENDED PRACTICES
SATTA	SWISS AIR TRAFFIC TECHNICIANS ASSOCIATION
SCD	SYSTEM CONCEPT DOCUMENT
SCPA	STRATEGIC CONFLICT POINT AREAS
SCS	SCIENTIFIC CONTROL SYSTEMS
SDL	SYSTEM DESIGNERS LIMITED
SDR	SÜDDEUTSCHER RUNDfunk
SEA	SOUTH EAST ASIA
SEAB	STANSAAB ELECTRONICS AB
SEL	STANDARD ELEKTRIK LORENZ
SENEAM	THE AIR NAVIGATION SERVICES AUTHORITY OF MEXICO
SES	SINGLE EUROPEAN SKY
SESR	SES AIR TRAFFIC MANAGEMENT RESEARCH
SIF	SELECTIVE IDENTIFICATION FEATURE
SLV	STAATENS LUCHTVAART VESEN
SOC	SECTOR OPERATIONS CENTRE
SOS	SPECIAL OPERATIONS SQUADRON
SP	SOCIAL PROBLEMS
SRT	STANDARD RADIO & TELEFON AB
SSR	SECONDARY SURVEILLANCE RADAR
STCA	SHORT TERM CONFLICT ALERT
STR	STRASBOURG
SVS	SPRACH VERMITTLUNGS SYSTEM
TACC	TACTICAL AIR FORCE COORDINATION CENTRE
TCAS	TRAFFIC COLLISION AVOIDANCE SYSTEM
TDA	TRADE AND DEVELOPMENT AGENCY
TFK	TELEFUNKEN
THTKC	TÜRKIYA HAVA KONTROLÖRLERİ CLUB
THTKD	TÜRKIYA HAVA KONTROLÖRLERİ DERNEĞİ
TMA	TERMINAL CONTROL AREA
TRA	TEMPORARY RESERVED AIRSPACE
TRACON	TERMINAL RADAR CONTROL UNIT
TREN	TRAFFIC AND ENERGY DIRECTORATE
TSC	TECHNICAL SERVICES CONSULTANCY PROJECT
TSD	TECHNICAL SPECIFICATION DOCUMENT
TTC	THE TOWER COMPANY
TUR	TURKEY
TURK	TURK COUNTRIES
TV	TELEVISION

TWR	AERODROME CONTROL TOWER
TWY	TAXIWAY
UAC	UPPER AREA CONTROL CENTRE
UHF	ULTRA HIGH FREQUENCY
UIR	UPPER FLIGHT INFORMATION REGION
UK	UNITED KINGDOM
UKATSE	UKRAINE AIR TRAFFIC SERVICES ENTERPRISE
UNDP	UNITED NATIONS DEVELOPMENT PROGRAM
US	UNITED STATES
USA	UNITED STATE OF AMERICA
USAF	UNITED STATES AIR FORCE
USAFE	USAF EUROPE
USAREUR	UNITED STATES ARMY EUROPE
USD	US DOLLAR
VC	VEREINIGUNG COCKPIT
VDF	VERBAND DEUTSCHER FLUGLEITER
VDU	VISUAL DISPLAY UNIT
VEBEG	VERWERTUNGSGESELLSCHAFT VON BUNDESEIGENTUM
VFR	VISUAL FLIGHT RULES
VHF	VERY HIGH FREQUENCY
VLf	VERY LOW FREQUENCY NAVIGATION
VOLMET	ROUTINE AVIATION WEATHER FORECAST
VOR	VHF OMNIDIRECTIONAL RADIO RANGE
VR	VEREINSREGISTER
WCP	WILMER, CUTLER & PICKERING
WIAS	WETTER INFORMATIONEN ANZEIGE SYSTEM
WMO	WORLD METEOROLOGICAL ORGANIZATION
ZGB	ZIVIL GESETZ BUCH
ZKSD	ZENTRALER KONTROLLSTREIFENDRUCK

Current to July 2014

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