Barcelona Airport has a new control tower.
Air Navigation
Introduction

The concept of navigation requires, on the one hand, the provision of necessary references to pilots, via the various radio-electric systems, in order to determine their position and follow the scheduled flight route and, on the other, that air transit services order air traffic where aircraft move simultaneously in an orderly, efficient and economical way.

In accordance with Aena’s Bylaws, the functions entrusted to Air Navigation management are:

→ Regulation, direction, coordination, operation, management and administration of air-transit services, communications and air-space information, as well as infrastructures, installations and communication networks in the air-navigation system.

→ Drafting and approval of projects, execution and control of investments.

→ Assessment and approval of projects, execution and control of investments.

→ Assessment of needs and proposals concerning new infrastructures.

→ Participation in aeronautical teaching.

Currently, Air Navigation Management is committed to the development of the CNS/ATM concept within the European Region and the important air corridor to Latin America. In addition, it actively takes part in international programmes concerning system harmonisation and air-space unification; the European Single Sky Programme can be highlighted, having obtained certification as a provider of air navigation services in the national air space and other internationally delegated air spaces.

These services are delivered from the five regional directorates for Air Navigation: Centre-North, East, Canary Islands, South and Balearic Islands, whose headquarters are respectively located in Madrid-Torrejón, Barcelona-Gavà, Gran Canaria-Telde, Seville-San Pablo and Palma de Mallorca-Son Sant Juan.

The headquarters of the Eastern Region Air Navigation Directorate are located at the Air Traffic Control Centre in Barcelona-Gavà.
Evolution of air traffic is shown in statistical data on the level of demand, referring to the volume of air movements registered by the Regional Directorates, which takes into account that a single flight may produce several movements when passing through the various Spanish air space divisions. This demand has generated an increase of 6.3% in movements in the air space of the Spanish peninsula in 2006 (including the Balearic region) with respect to 2005, with a total of 1,783,168 movements, while the Canary Islands air space has seen an increase of 5.48% with a total of 322,022 movements.

To follow, we show a description of the main programmes, projects and actions carried out in 2006.

**Air Traffic Service (ATS)**

**Organisation and management of Air Space**

- Air Control Centre in Seville and Balearics Area Control Terminal
  – A new sector division of the Control Centre in Seville has been carried out in April and in the Balearics in May.

- Air Control Centre for the Area Terminal in Levante (Valencia)
  – A reorganisation of the centre was carried out in May.

- Area Terminal in Barcelona
  – Commissioning of the new TMA (change of runway roles) on October 26.

- Area Terminal in Madrid
  – Commissioning of the new restructuring of the Area Terminal on September 30.

- West Control Tower in Barajas
  – Commissioning of the tower was performed on February 5.

- Final landing manoeuvres based on ILS
  – Entry into operation in June of the landing manoeuvres in Madrid 15R and 33L, Pamplona, Zaragoza, Girona, Granada, Palma, A Coruña, Jerez, Reus, Málaga and Seville.
Communications, Navigation and Security (CNS)

**Automation**

**Control Centres**

➔ New air-traffic control simulator equipment at the Control Centre in Barcelona-Gavà.

➔ Migration and substitution of the current remote platform of the Automated Air Traffic Control System (SACTA®) and substitution of the Sectro Control Unit (UCS) computers in Area Control Centre (ACC)-Madrid.

➔ Transfer of the building, extension and commissioning of the SACTA® dynamic simulation system in ACC-Madrid.

➔ Transition to SACTA® version 3.5 at Control Centres in the Canary Islands, Madrid, Barcelona, Seville and Palma de Mallorca, on September 20.

**Control Towers**

➔ SACTA® III equipment for the new towers at Barcelona Airport.

➔ Extension and improvement of SACTA®-Integrated Control Tower Visualisation (VICTOR) equipment at the Control Tower in the Madrid-Barajas Airport (Barajas Air Navigation Extension, ABANA Programme).

➔ Supply in operational state of SACTA® equipment in the towers of Madrid-Barajas.

➔ SACTA® equipment at the new Control Tower in the Madrid-Barajas Air Base (ABANA Programme).

➔ Supply of SACTA® III equipment in operational status for the new Control Tower at the Murcia-San Javier Air Base.

➔ Installation and commissioning of SACTA® version 3.4 in the towers of the La Rioja Airport and the Armilla Air Base and update of SACTA® III equipment to make the towers’ system architecture compatible with the changes to version V.3.5 of the SACTA® system.

➔ Updating and modernisation of SACTA® III equipment to make the architecture of tower systems compatible with the evolution of version V.3.5 of the SACTA® System in the El Hierro Tower.

➔ Transition to SACTA® version 3.5 at Control Centres in the Las Palmas de Gran Canaria Airport on July 19.

**Regional Directorates**

➔ Supply in operational state of pseudopilots in SACTA® simulators and equipment for Geodesys systems.

➔ Supply in operational state of equipment for the Operational System ICARO XXI, and adaptation of current software and the System in Centre for Research & Development (CED) –phase III.

**Senasa**

➔ Execution of the procedures “Supply in operation status of new SACTA® III servers for Centre for Aeronautical Studies and Air Navigation (CEANA) –Phase II”.

*Control Tower, Alicante Airport.*
Communications

→ Ground Air (T/A) Communication Stations: transmitter centres in Alicante and Pamplona airports; new equipment at the Paracuellos Communication Centre for Madrid’s new Terminal Manoeuvring Area (TMA); HF transmissions and broad-range equipment in Gran Canaria; new VHF Data Link (VDL) mode2/Aircraft Communications Addressing & Reporting System (ACARS) stations in the Vitoria, Zaragoza, Almería, Menorca and Tenerife North Airports.

→ Aerodrome Control Tower (TWR) voice-communication systems: new TWR at the Torrejón Air Base; commissioning of TWR equipment in the North and West of the Madrid-Barajas airport; recording and reproduction systems at the airports in Fuerteventura, Gran Canaria, Lanzarote, La Gomera, La Palma and Tenerife Norte. Voice-communication system for the simulation-contingency room in the Barcelona-Gavà Area Control Centre (ACC).

→ Development of Air Navigation Data Network (REDAN) Infrastructure: network nodes in Pamplona, San Sebastián, Santander, A Coruña, Vigo, Jerez, Barcelona, Reus, Gran Canaria, the Torrejón Air Base and in Centralised Systems.

→ Infrastructure to integrate civil radar sites in REDAN (Taborno, Erillas, Alicante, Fuerteventura and Málaga) as well as military sites (Inoges and Sierra Espuña).

→ Fibre-optic communications systems: Albacete Airport, Barcelona Airport, for the commissioning of new TWR.

→ Radio-links: Tenerife – Gran Canaria; VHF Omnidirectional Range (VOR) – Vigo Airport.


→ Most notable communication agreements:
  – Aena-Aeronautical Radio Incorporated (ARINC) for the installation and operation of VDL stations in Spain.
  – Aena-Société International de Telecommunications (SITA) for the supply of VDL mode2/ACARS in Spain.

Navigation and Monitoring


→ Advanced Surface Monitoring Systems: Palma de Mallorca (SMR and multilateralisation); the SMR extractors in the Madrid-Barajas SMRs have been updated.

→ Installation of a Phase IV extractor in the Military Radars: Aitana (Alicante), Inoges (Zaragoza), Sierra Espuña (Murcia).

→ The Instrument Landing System (ILS)-Distance Mesearument Equipment (DME) has been substituted at the following airports: Jerez runway 21, Seville runway 27 (operation CAT III), Valladolid runway 23 (operation CAT III), Valencia runway 30.

→ New ILD-DME installation: Seville runway 09; Ibiza, runway 06; Barcelona runway 02.
Annual Report 2006

➔ The Glide Path (GP)-DME installations have been carried out on runway 07L and LLZ and runway 25R in Barcelona at new sites for the setback of the 07L threshold as a consequence of the construction of the 07L header bypass.

➔ The ILS-DME has been substituted at the following airports: Maella (VOR for DVOR); Yeste (VOR for DVOR).

➔ New VOR-DME installation: Monflorite-Huesca (DVOR).

➔ The following NDB have been replaced: El Hierro and La Palma.

➔ Area Navigation (RNAV):
  – The first phase of the cooperation agreement with the Carlos III University has been finalised.
  – P-RNAV procedures have been validated for the TMAs in Madrid and Barcelona.
  – The building of a SAFETY CASE has been completed for P-RNAV in Spain.

Research and Development (R&D)

➔ Simulation Projects: Madrid-Barajas (take-offs with lower acoustic impact), Barcelona (change of runway roles), Málaga Airport (taxiway of the future airport), NSAM (compatibility of the air space between Madrid-Barajas and Campo Real), New CANARY ISLANDS TMA (restructuring of the TMA in the Canaries), Analysis of the ICAO Europe Region (EUR) / ICAO South America Region (SAM) Ocean Corridor (restructuring of Ocean routes in the Canary Islands).

➔ Operational pre-validation of the 3-5 SACTA® version, configuration in phase 1 (from March 8 to 17). Operational pre-validation of the 3-5 SACTA® version, configuration in phase 1 (from April 3 to 4). Demonstration of the advanced functionality of the Route-TMA SACTA® 3.5 Phase 2 in the Senasa simulator on July 27.

➔ New Installations and Systems: Integrated Tool for Simulation Data Processing Operation and Analysis (PITOT) (version V1 of PITOT has been implemented), HY-SIM and TRAFGEN.

➔ R&D Actions: SESAR, RESET, GATE TO GATE, SOURDINE II.

Maintenance

➔ Technical Air Navigation System Inspections at 14 sites.


➔ Implementation of the CAL-Regional Spare-Part Management Tool.


➔ Management of 1,318 repairs of the SNA equipment.

➔ A biannual contract with the company Flight Precision Ltd. has been signed in 2006 for the in-flight calibration of Air Navigation systems.

Satellite

➔ Installation and set up of the Ground-based Augmentation System (GBAS) station PSP configuration at Málaga Airport.

➔ In October 2006, for the first time in Europe, an Air Nostrum plane carried out instrument landing systems using the European Geostationary Navigation Overlay System (EGNOS).

➔ In 2006, test operations of the EGNOS system continued. This Operation is in the framework of ESSP’s contract with ESA whose aim is to certify EGNOS operations. Aena takes part in the operation as an ESSP subcontractor. Within this Initial Operation contract, continuous monitoring of the performance of EGNOS signals has been carried out in 2006 with the final aim of contributing both to the validation of the operations model as well as that of final performance scheduled by the system.

➔ In September 2006, the Reviewed Declaration of the ARTES-9/EGNOS Programme was approved, agreeing the extension of the EGNOS programme by an extra year (from April 2007 to April 2008), prior to the future transfer of the ESA system to GSA. The Industrial Technology Development Centre (CDTI) will contribute to financing this extension with €3 million.
ICAO Project RLA/03/902, called SACCSA (SBAS augmentation solution of the Caribbean, Central and South America). It has been launched formally, initiating its activities with the approval of the six states integrated in COCESNA, Colombia and Cuba.

4,080 GJU Project called CELESTE, a consortium lead by Aena. The aim of this Project is to develop a study on the implementation of the Galileo programme in the CAR-SAM regions, as well as the evolution of the current Satellite Based Augmentation System (SBAS) to Galileo, being the regional component of the same for Safety of Life (SoL) applications on different transport modes.

In February 2006 a new Declaration of the GalileoSat Programme was approved which included the overhead costs of the IOV phase (In Orbit Validation) for the development of the Galileo programme.

Aena representation in the Galileo Concession: Aena has been appointed in four key posts (GJU Negotiation Team; Coordinators of institutional relationships of the Concessionaire; Coordinators of the EGNOS Group; Selection Committee for the GOC CEO).

Aena’s participation in the offer of the Network of European Space Centres for the initial operation of the Galileo System. A Preliminary Authorisation To Proceed (PATP) has been authorised, giving the green light to the launch of certain critical work packages for OPS&ILS.
Aeronautic Information System (AIS)

➔ VFR manual letter automation (visual charts and aerodrome maps).

➔ Agreement between the General Staff and Aena for the integrated publication of information – civil and military aerospace data in the publication on aerospace information on Spain.

➔ INO Migration: Migration to Eurocontrol’s European AIS Database (EAD) as far as dynamic data is concerned, as DATA USER and DATA PROVIDER.

➔ Implementation of the new Notice To Airmen (NOTAM) VILMA in the Ícaro System for the presentation on control screens of the real geography of areas activated in real time, as well as the provision of aeronautical weather information.

Air Navigation (AN) successfully faced the challenge as a Provider of Air Navigation Services in 2006. To achieve this, among many activities, the System for Air Navigation Security Management (SGSNA) was developed and implemented and a personnel structure dedicated specifically to security management activities was created in central services and DRNAS.

During the second half of 2006, this Security Management System and its dissemination and implementation level were subjected to an audit by the Generate Directorate for Civil Aviation (GDCA), as an essential requirement to obtain a service provider certificate. As a result of these audits and the observations and non-conformities detected, a review process started at the end of 2006 with the edition of several improved versions of some of its procedures, while at the same time an intensive work plan has been developed for 2007 which aims to boost the performance of this plan in the following activity areas:

2006 saw an increase in air movements of 6.3% in peninsular air space and of 5.4% in Canary Island air space.
‘Quality Management and Environment’ System

As far as quality is concerned, several activities have been carried out aimed at the implementation of the Quality Management System ISO 9001, among others, the drafting of procedures, visits for implementation, or seminars for its dissemination.

As a part of the actions for the implementation of the ISO 14001 Environmental Management System, Central Services has edited documents and distributed the “best practice” policy and leaflets.

As in previous years, the “Study on Perceived Quality by Clients on Air Navigation (PLQ)” has been carried out, with the results shown below (assessment over 100):

<table>
<thead>
<tr>
<th>Segment</th>
<th>Global perception of Air Navigation</th>
<th>Communication</th>
<th>Systems, Facilities and Maintenance</th>
<th>Aeronautical Information</th>
<th>Air Traffic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Airports</td>
<td>69.85</td>
<td>70.07</td>
<td>67.35</td>
<td>77.04</td>
<td>70.24</td>
</tr>
<tr>
<td>Large Operators</td>
<td>69.67</td>
<td>62.03</td>
<td>70.41</td>
<td>78.79</td>
<td>66.83</td>
</tr>
<tr>
<td>Small Operators</td>
<td>65.63</td>
<td>63.59</td>
<td>76.16</td>
<td>71.78</td>
<td>69.39</td>
</tr>
<tr>
<td>Commercial Pilots</td>
<td>52.83</td>
<td>52.89</td>
<td>59.16</td>
<td>59.49</td>
<td>55.37</td>
</tr>
<tr>
<td>General Aviation Pilots</td>
<td>53.87</td>
<td>54.88</td>
<td>55.51</td>
<td>61.09</td>
<td>61.99</td>
</tr>
<tr>
<td>Aeronautical Information</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Service (AIS) Offices</td>
<td>93.18</td>
<td>92.39</td>
<td>84.02</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Perceived Level of Quality (by segments)</th>
<th>70.95</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceived Level of Quality (by area)</td>
<td>66.67</td>
</tr>
<tr>
<td></td>
<td>64.99</td>
</tr>
<tr>
<td></td>
<td>66.07</td>
</tr>
<tr>
<td></td>
<td>72.38</td>
</tr>
<tr>
<td></td>
<td>64.80</td>
</tr>
</tbody>
</table>

Global Perceived Level of Quality 68.02

<table>
<thead>
<tr>
<th>Segment</th>
<th>Global perception of Air Navigation</th>
<th>Communication</th>
<th>Systems, Facilities and Maintenance</th>
<th>Aeronautical Information</th>
<th>Air Traffic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Airports</td>
<td>80.10</td>
<td>82.21</td>
<td>81.49</td>
<td>84.55</td>
<td>85.26</td>
</tr>
<tr>
<td>Large Operators</td>
<td>90.00</td>
<td>88.75</td>
<td>88.00</td>
<td>94.83</td>
<td>88.33</td>
</tr>
<tr>
<td>Small Operators</td>
<td>74.44</td>
<td>75.00</td>
<td>75.67</td>
<td>75.97</td>
<td>81.80</td>
</tr>
<tr>
<td>Commercial Pilots</td>
<td>84.72</td>
<td>81.17</td>
<td>93.22</td>
<td>82.70</td>
<td>86.04</td>
</tr>
<tr>
<td>General Aviation Pilots</td>
<td>85.66</td>
<td>81.93</td>
<td>92.23</td>
<td>83.96</td>
<td>84.50</td>
</tr>
<tr>
<td>Aeronautical Information</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Service (AIS) Offices</td>
<td>82.50</td>
<td>83.57</td>
<td>80.41</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Importance (by area)         | 82.90     | 82.11     | 86.12     | 83.74     | 85.19     |
The relationship among attributes which had lower grading points and which, at the same time, were more important to clients, will be taken as a basis for improvement.

**Cooperation Agreements**

As far as cooperation agreements are concerned, in July 2006, a cooperation agreement was signed between the Universidad Politécnica de Madrid [Madrid Polytechnic University] and INECO for the development of a feasibility study for the creation of a research centre and validation in Air Traffic Management (ATM).

In December, a cooperation agreement was signed between the Ministry for Development and the Ministry of Defence concerning the integrated publication of information on civil and military aeronautic data at the AIP in Spain.

**‘Security Management’ System**

Air Navigation has promoted the culture of notification and the dissemination of lessons learned which allow for improvement and also to forecast possible faults in the future, as well as research and classification of such faults as an effective measurement tool for security services.

**Analysis and Mitigation of Risks**

The implementation of the operational security methodology known as Safety Assessment Methodology (SAM) has been ensured, for the performance of risk analysis and mitigation on Air Navigation functional system changes.

Likewise, the development of detection and risk assessment exercises has been ensured for all Air Navigation centres with the aim of guaranteeing that possible risks for the operation have been assessed and duly mitigated.

We have implemented specific training for this aim which trains a greater number of Air Navigation personnel in the practical application of these techniques and methodologies.

**Security Control**

We have developed internal security audits and gained assurance that the possible observations or non-conformities observed by the General Directorate for Civil Aviation will be solved.

**Security Dissemination and Training for Employees**

We have carried out dissemination activities and taught customised courses for Air Navigation staff depending on the relevance of their work to service security, boosting the development of the Web area for security and promoting mechanisms and actions involving dissemination with users and workers: conferences, publications, exchange forums.

**Economic Efficiency and Financial Visibility**

➔ We have adapted the Accounting System to the Requirements of the Single European Sky.

**International**

**Eurocontrol**

Aena’s participation in matters concerning Eurocontrol can be separated into the institutional part and the part concerning convergence:

➔ Signing of the Local Spanish Plan involving Convergence and Implementation (LCIP) on February 9, 2006, at the headquarters of the Air General Staff. The formal act of approval of the Plan for the years 2006-2010 was carried out. The document was signed by the General Manager in charge of the Operations Division for the Air General Staff, the Deputy General Manager for Air Navigation Systems and Airports of the General Directorate for Civil Aviation and Aena’s Air Navigation Director.

➔ In the area concerning international convergence, the degree of convergence for Aena in the Local International Convergence Plan (LCIP) was 95% at December 31, 2006.

**ICAO**

➔ Aena continues its active participation in the International Civil Aviation Organisation (ICAO) forums, and here we can highlight development and implementation activities in the EUR-SAM corridor uniting Europe with South America and the Caribbean as well as GREPECAS, the Planning and Implementation Group for the Caribbean and South America.

➔ Here we can highlight the activities of the SAT group in ICAO-African Region, focused on the improvement of services for the South Atlantic corridor and which held its 13th meeting at the ACC in the Canary Islands in 2006, jointly as Future Air Navigation System (FANS) 1/A Implementation Team/1, entrusted with the definition of the FANS 1/A operational handbook for the corridor with the aim of ensuring safe implementation of Automatic Dependent Surveillance by Contract (ADS-C). Likewise, we can highlight the function of the ICAO Monitoring Agency for the South
Atlantic (SATMA) which is managed by Aena and which monitors Reduced Vertical Separation Minimum (RVSM) operations in the corridor.

### AEFMP

→ As far as the harmonisation area is concerned, we can highlight activities developed with the programme Harmonisation Plan for Algeria, Spain, France, Morocco and Portugal (AEFMP), where the five members coordinate and plan common harmonisation initiatives, in such a way that we can note: the replacement of BL lines for R2, structuring of routes between the Iberian Peninsula and the Canary Islands and the development of a cost-profit analysis in the common implementation of a TDM broadband communication network.

### International Development

→ In the Aeronautical Information Service (AIS) area, we have a contract signed in 2006 with Frequentis for the editing of aeronautical charts for NAV CANADA for a total sum of €570,902, whose technical development is being carried out by the AIS division.

→ With Eurocontrol we have managed different contracts in relation to activities developed by the technical units, such as the projects “Do nothing assessment” (for simulation supporting the validation of the SESAR operational concept), “Operational concept for GBAS” (subcontracted to Aena by Sofreavia) and “OATA” (for the development of a comparative study between EUROCONTROL OATA architectures for 2011 and SACTA®).

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**Movements by Area Control Centre (ACC) in the years 2004, 2005 and 2006**

<table>
<thead>
<tr>
<th>Movements</th>
<th>ACC Madrid</th>
<th>ACC Barcelona</th>
<th>ACC Canary Islands</th>
<th>ACC Seville</th>
<th>ACC Palma</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>293,275</td>
<td>244,880</td>
<td>363,363</td>
<td>305,282</td>
<td>424,670</td>
</tr>
<tr>
<td>2005</td>
<td>305,282</td>
<td>250,985</td>
<td>400,951</td>
<td>322,022</td>
<td>273,172</td>
</tr>
<tr>
<td>2006</td>
<td>363,363</td>
<td>424,670</td>
<td>400,951</td>
<td>322,022</td>
<td>273,172</td>
</tr>
</tbody>
</table>
## Acronym List

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ABANA</td>
<td>Barajas Air Navigation Extension.</td>
</tr>
<tr>
<td>ACARS</td>
<td>Aircraft Communications Addressing and Reporting System (ARINC System for Communications and Reporting).</td>
</tr>
<tr>
<td>ACC</td>
<td>Area Control Centre.</td>
</tr>
<tr>
<td>ADS-C</td>
<td>Automatic Dependent Surveillance by Contract.</td>
</tr>
<tr>
<td>AEFMP</td>
<td>Harmonisation Plan in Five Neighbouring Countries: Algeria, Spain, France, Morocco and Portugal.</td>
</tr>
<tr>
<td>AFI</td>
<td>ICAO Africa Region.</td>
</tr>
<tr>
<td>AIS</td>
<td>Aeronautical Information Service.</td>
</tr>
<tr>
<td>ARINC</td>
<td>Aeronautical Radio Incorporated (USA).</td>
</tr>
<tr>
<td>ARTES</td>
<td>Advanced Research in Telecommunications Systems.</td>
</tr>
<tr>
<td>ATM</td>
<td>Air Traffic Management.</td>
</tr>
<tr>
<td>ATS</td>
<td>Air Traffic Services.</td>
</tr>
<tr>
<td>CAL</td>
<td>Air Navigation Logistics Support Centre.</td>
</tr>
<tr>
<td>CAL-R</td>
<td>Regional CAL.</td>
</tr>
<tr>
<td>CAR</td>
<td>ICAO Caribbean Region.</td>
</tr>
<tr>
<td>CDTI</td>
<td>Industrial Technology Development Centre.</td>
</tr>
<tr>
<td>CEANA</td>
<td>Centre for Aeronautical Studies and Air Navigation.</td>
</tr>
<tr>
<td>CED</td>
<td>Centre for Research and Development.</td>
</tr>
<tr>
<td>CNS</td>
<td>Communications, Navigation and Surveillance.</td>
</tr>
<tr>
<td>COCESNA</td>
<td>Central American Corporation for Air Navigation Services.</td>
</tr>
<tr>
<td>DGAC</td>
<td>General Civil Aviation Directorate.</td>
</tr>
<tr>
<td>DME</td>
<td>Distance Measurement Equipment.</td>
</tr>
<tr>
<td>DRNA</td>
<td>Aena Regional Air Navigation Regional Directorate.</td>
</tr>
<tr>
<td>DVOR</td>
<td>VOR Doppler.</td>
</tr>
<tr>
<td>EAD</td>
<td>European AIS Database.</td>
</tr>
<tr>
<td>EGNOS</td>
<td>European Geostationary Navigation Overlay System.</td>
</tr>
<tr>
<td>ESA</td>
<td>European Space Agency.</td>
</tr>
<tr>
<td>ESSP</td>
<td>European Satellite Services Provider.</td>
</tr>
<tr>
<td>EUR</td>
<td>ICAO Europe Region.</td>
</tr>
<tr>
<td>FANS</td>
<td>Future Air Navigation System (ICAO).</td>
</tr>
<tr>
<td>GBAS</td>
<td>Ground-Based Augmentation System.</td>
</tr>
<tr>
<td>GP</td>
<td>Glide Path (ILS).</td>
</tr>
<tr>
<td>GPS</td>
<td>Global Positioning System (Satellites).</td>
</tr>
<tr>
<td>GREPECAS</td>
<td>Car/SAM Regional Planning and Implementation Group.</td>
</tr>
<tr>
<td>GSA</td>
<td>General Services Administration.</td>
</tr>
<tr>
<td>ICAO</td>
<td>International Civil Aviation Organisation.</td>
</tr>
<tr>
<td>ILS</td>
<td>Instrument Landing System.</td>
</tr>
<tr>
<td>INO</td>
<td>International NOTAM Operation.</td>
</tr>
<tr>
<td>IOV</td>
<td>In Orbit Validation.</td>
</tr>
<tr>
<td>LCIP</td>
<td>Local Spanish Convergence and Implementation Plan.</td>
</tr>
</tbody>
</table>
LLZ: Localiser (ILS localiser).

MET: Meteorology.


NOTAM: Notice To AirMen.

OPS: Operations.


PATP: Preliminary Authorisation To Proceed.

PITOT: Integrated Tool for Simulation Data Processing, Operation and Analysis. Developed by DDSNA.

REDAN: Air Navigation Data Network.

RESET: Reduced Separation Minimum. VI Framework Programme.

RNAV: Area Navigation.

RVSM: Reduced Vertical Separation Minimum.

SACSA: SBAS augmentation solution of the Caribbean, Central and South America.

SACTA®: Automated Air Traffic Control System.

SAM: ICAO South America Region.

SAM: Safety Assessment Methodology (Operational Safety Assessment Methodology).

SAT: ICAO Group for the South Atlantic.

SATMA: ICAO Monitoring Agency for the South Atlantic.

SBAS: Satellite-Based Augmentation System (An additional system to GPS, based on satellites).

SESAR: Single European Sky ATM Research.

SGS: Operational Safety Management System.

SITA: Société Internationale de Télécommunications Aéronautiques.

SNA: Air Navigation System.

T/A: Ground-Air (communication system).

TMA: Terminal Manoeuvring Area.

TWR: Aerodrome Control Tower.

UCS: Sector Control Unit.

VDL: VHF Data Link.


VHF: Very High Frequency.

VICTOR: Integrated Control Tower Visualisation.

VILMA: Local MET/AIS Visualisation.

VOR: VHF Omnidirectional Range.