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ATC - Latin America

Outlook

- Argentine government plans to spend ARS9.2 billion to procure five new-build RPA-200 radar surveillance systems to be deployed to the cities of Rio Grande, Posadas, Resistencia, Charata and Taco Pozo
- Despite challenges of COVID-19, modernization efforts will continue, especially under numerous, previously awarded contracts and initiatives
- Chile's Dirección General de Aeronáutica Civil (DGAC) deploys Aeronautical Message Handling System (AMHS) from Frequentis Comsoft, increasing its communication capability

Orientation

Description. Composite of Latin American air traffic control modernization programs.

Sponsor. Various.

Status. Continuing development and integration of modern ATC systems, equipment, and methods.

Application. Latin American airspace planning, operation, and control.

Technical Data

Characteristics. For purposes of this report, the Latin American air traffic control region is defined as the network servicing the nations and territories of **Mexico, Central America** (Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, and Panama), **South America** (Argentina, Bolivia, Brazil, Chile, Colombia, Ecuador, the Falklands, French Guiana, Guyana, Paraguay, Peru, Suriname, Uruguay, and Venezuela), and the **Caribbean** (Anguilla, Antigua and Barbuda, Aruba, Bahamas, Barbados, Bermuda, the British Virgin Islands, the Cayman Islands, Cuba, Dominica, the Dominican Republic, Grenada, Guadeloupe, Haiti, Jamaica, Martinique, Montserrat, the Netherlands Antilles, Puerto Rico, St. Kitts and Nevis, St. Lucia, St. Maarten, St. Vincent and the Grenadines, Trinidad and Tobago, Turks and Caicos, and the U.S. Virgin Islands). Currently, no centralized ATC system controls the whole of Latin America or any of the three major subdivisions, though cooperation between a limited number of neighboring states does exist.

Latin America's diverse economic and political structure is reflected in its management of commercial air traffic. A few advanced nations in the region have relatively modern systems, similar in design and capability to those of the United States or Western Europe, but the majority possess systems inadequate for substantial commercial traffic.

The geographic states of Latin America contain approximately 11,800 paved runways. Throughout the 1990s, the U.S. Federal Aviation Administration (FAA), in conjunction with the United Nations technical agency for aviation (the International Civil Aviation Organization), conducted extensive inspections of Latin America's capability to comply with internationally established standards of maintenance and safety. Of the 22 nations inspected, only eight were found to be in compliance. Deficiencies ranged from outdated (or a complete lack of) communications and radar systems to hazardous runways – due either to faulty construction or poor maintenance, or both.

ATC - Latin America

Funding remains a great concern for the majority of Latin American nations. Internal strife has left the economies of several states in disarray, necessitating the prioritization of humanitarian aid and political

restructuring beyond ATC systems. Other nations, dependent upon tourism as a primary source of income, have remedied safety problems.



Brazil will long be a major focus of ATC modernization efforts.

Source: CIA

Program Review

Background. Geography has played a major role in the delayed introduction of updated ATC technology in Latin America. The height of the Andes and the low elevation of the Amazon River Basin have made the establishment and maintenance of ATC centers economically challenging. The Caribbean and Central America are directly in the path of powerful hurricanes, which routinely cause millions of dollars' worth of damage to sensitive systems.

The 1990s saw a tremendous upswing in Latin America's incorporation of ATC technology. The island nations of the Caribbean have for the most part kept pace with Western Europe and the United States. These nations, dependent upon tourism, are greatly impacted by aviation incidents. The NAFTA agreement resulted in huge growth of the Mexican economy, which had a minor ripple effect throughout Central America.

The organization of a centralized agency, the Latin American and Caribbean Air Traffic Advisory Group

(LACATAG), was a significant step forward for the region. It brought the potential for region-wide cooperation in air traffic control. The prosperous nations (as well as commercial airlines), whose aviation safety reputation is adversely affected by accidents in the underdeveloped nations, began talks on funding a single, seamless air traffic management system for the entire region.

Increasing Traffic Means New Demand for Modern ATC

Various airlines jockeyed for new routes into the fast-growing region, significantly impacting ATC demand in 2000. Continental Airlines increased services to the various nations, adding more flights to Chihuahua and Tampico, Mexico; Santiago, Chile; and Santa Cruz, Bolivia, to name a few. The SkyTeam alliance (consisting of Aeromexico, Air France, Delta, and

ATC - Latin America

Korean Airlines) expanded into the area as well, with much of the focus centered on the Mexico City hub.

While demand grew, so too did the strain on those countries that had been unable to catch up with their richer neighbors. In an effort to alleviate this situation, a new organization was formed. The International Air Transport Association (IATA) and International Civil Aviation Organization (ICAO) joined forces to create the Pan American Aviation Safety Team (PAAST).

Indra Emerges as Major Market Player

Spain's Indra Systems announced in April 2001 that it had won a major ATC contract. The information technologies company signed a contract with Central America's COCESNA, which oversees ATC for the entire Central American area, to manage all air traffic in the region. With this order, Indra was put in charge of modernization of the CENAMER Air Traffic Control Center in Honduras. This center controls all air traffic over the Pacific within the COCESNA area and installed Indra Systems' Aircon 2000 ATC system. COCESNA is an international agency comprising Belize, Costa Rica, El Salvador, Guatemala, Honduras, and Nicaragua.

Renewed Support from the U.S.

Demonstrating that there was still commitment to the effort, the U.S. company Innovative Solutions International won a contract in October 2001 to undertake a study funded by the U.S. Trade and Development Agency of the feasibility of implementing a communication, navigation, and surveillance/air traffic management (CNS/ATM) system in Venezuela over the following 10 to 15 years.

Then, in November 2001, a major contract was awarded to Thales from Brazil to upgrade 79 primary and secondary radar stations throughout the country. Under the EUR137 million (\$121 million) order, the French company was expected to extend the lifespan of the existing radars (which were acquired by Brazil almost 20 years earlier) by about 15 years. The work was completed in 2004.

In July 2002, the FAA announced that Argentina was in noncompliance with international safety standards set by the ICAO and consequently had been given a negative rating. This came on the heels of a reassessment by the FAA of the nation's civil aviation authority.

Thales Strengthens Presence as Major Supplier of ATC Systems to the Region

Two contracts were awarded in April 2002 by Mexico's Air Navigation Authority, Servicios a la Navegacion en

El Espacio Aereo Mexicano (SENEAM), to Thales Air Traffic Management for ATC modernization. Under the terms of the contracts, the French company would produce four additional RSM 970 monopulse secondary surveillance radars for installation in Mexico at Tabasco, Guanajuato, and Tampico, and in Baja, California.

Almost a year later, in March 2003, Thales was awarded another contract from SENEAM, this time to supply the Mexico City International Airport with the Advanced Surface Movement Guidance Control System (A-SMGCS). The airport needed this system, as it reportedly handled over 20 million passengers a year and traffic was only expected to grow in the coming years.

In April 2003, Thales ATM announced that Brazil's radar improvement program had successfully completed several key milestones. Specifically, the RSM 970 radar had been integrated into the Brazilian ATC detection system at its regional center, and 15 secondary radars had passed factory acceptance tests and were ready to be installed.

Reinforcing its status as one of the leading ATC specialists in Central America, Indra announced in August 2003 that it would undertake a program to renew ATM in Nicaragua. Under a \$7 million contract, Indra would implement systems to provide coverage of the Atlantic coast region. A new control center, radar, and associated communications systems will be involved.

Two months later, in October 2003, Indra was chosen by the Airport and Air Navigation Services Administration of Bolivia to modernize ATM systems for the Central American country. Upgrading the navigation, surveillance, and communications systems was the primary thrust of the \$6 million contract.

In January 2004, Panama was added to the long and growing list of Indra's Latin American clients, apparently beating out some major U.S. and European competitors. The Spanish company would be placed in charge of modernizing the Balboa control center, as well as supplying system upgrades at Tocumen and Marcos A. Gelabert international airports. The company's Aircon 2000 system was to be installed at Balboa, as was an SDC-2000 digital communications system.

In October 2005, Mexico's SENEAM awarded Thales a contract for the supply of two Eurocat ATM systems, including one area control system.

ATC - Latin America

FAA Upgrades Safety Ratings of Several Latin American Nations

From April to October 2005, the FAA raised the safety ratings of Venezuela, Argentina, and Trinidad and Tobago following a reassessment by the various civil aviation authorities involved. For all countries, the rating was raised from Category 2 to Category 1.

COCESNA, in August 2006, awarded Indra a contract for eight radar systems. The objective of the contract, valued at \$23 million, was to unify all of the agency's air traffic systems using the Spanish company's technology. COCESNA would use the radar systems to manage the airspace of Costa Rica, El Salvador, Guatemala, Honduras, and Nicaragua. The Spanish company would deliver eight secondary Mode S radars.

COCESNA selected the Indra radar to cope with increased air traffic between North and South America; Central America's airspace is a main corridor between these routes. COCESNA would have 16 radars at its disposal, controlled by ATC centers in El Salvador and Honduras (Tegucigalpa). Indra had already designed and put into operation approach control centers in Belize, Guatemala (two centers), Honduras, and Nicaragua (two centers).

Accident Highlights Need for Improvements

A midair collision high over the Amazon jungle in September 2006 brought more attention to the need for improved ATC in the region. Several months after the accident, in which a Legacy 600 business jet and a GOL Airlines 737-800 flew into each other, a breakdown in Brazil's ATC system was tagged as the cause. The cost of this lesson was the lives of the 154 passengers and crew.

Two months after the incident, the International Federation of Air Traffic Controllers' Associations placed the blame entirely on Brazil's outmoded ATC equipment. According to *Aviation Week*, the organization stated that the aircraft and pilots "fell victim to unacceptable systems traps brought on by the non-error-tolerant and bad system design of ATC."

In early 2007, Thales announced plans to expand its operations in Brazil to include the production of radars for the local and export markets. Thales estimated that between 2007 and 2010, it had a potential market for 45 radars in Brazil, valued at about \$224 million. Thales aimed to double the sales of its Brazilian operation in five years from the 2006 level of \$120 million.

Argentine Government Takes Control of ATC System

Argentine President Néstor Kirchner formally removed control of the national ATC system from the military on March 17, 2007. The decision came in the wake of a strike by pilots protesting the unreliability of the radars at Ezeiza International Airport, the country's main gateway. This move came after growing criticism from Argentines of the nation's decrepit and unreliable ATC system.

A new civil agency, the Administración Nacional de Aviación Civil (ANAC), was created to take control of the country's ATC system. The agency is controlled by the Transportation Secretariat, which is in turn subordinate to the Ministry of Federal Planning.

Regional Activity

SELEX Sistemi Integrati signed an \$18.5 million contract with the Trinidad and Tobago Civil Aviation Authority (TTCAA) to provide a complete control center for air traffic management.

In March 2009, Northrop Grumman announced that its Europe-based air traffic control system subsidiary Park Air Systems had been awarded a \$19 million contract from the Brazilian Airspace Control System Implementation Commission (CISCEA) to supply and install complete UHF/VHF T6 extended-range communication stations at multiple sites across southern Brazil.

Israel Aerospace Industries was awarded a contract worth \$24 million in January 2010 to supply an ATC system to an unidentified Latin American country. Under the contract, Elta Systems would supply its EL/M-2082 long-range 3D air surveillance radar and several EL/M-2106NG (New Generation) 3D tactical air surveillance radars as gapfillers.

Also in January 2010, Thales reported that the Chilean Civil Aviation Authority (Dirección General de Aeronáutica Civil, or DGAC) had inaugurated a new air traffic control center in Santiago. For the ATC center, Thales supplied, installed, and commissioned its Eurocat ATM system, the AERMAC aeronautical message switching system, and a voice communication system.

At the request of the Haitian government, after the major earthquake of 2010, the U.S. FAA dispatched a portable, temporary control tower to Haiti to help assist with aircraft operations at Port-au-Prince International Airport. The FAA would use this tower and others like it to support airports where existing towers were out of service after the disaster. Tower controllers provided service to arriving and departing flights in the

ATC - Latin America

immediate area of the airport and served as ground controllers for movements on the airport surface.

In February 2010, the ICAO awarded Indra a contract to support Peru's ATC initiatives. The company would start up a new ATC center in Lima and deploy a secondary surveillance radar (SSR) network that would cover most of the country's airspace.

In July 2011, Indra completed the implementation of the new ATC center at Jorge Chávez International Airport in Lima. The new center would be equipped with Indra's Aircon automated ATM system.

In January 2012, Thales announced that SENEAM had selected Thales' technology for its air navigation renovation program for the second consecutive year. The Thales instrumental landing system (ILS), associated with distance measuring equipment (DME), provided for safer landings, and the VHF Omnidirectional Radio Range (VOR) and DME would provide navigation capability at various airports.

Thales was awarded three new contracts in March 2012 to supply the Colombian Civil Aviation Authority with air traffic management systems. Thales would also provide an ATC center, which would be located on the island of San Andres. In Cerro Verde, near Medellín, Thales would install, deploy, and commission STAR 2000/RSM 970 S co-mounted radars with a range of 200 nautical miles together with another RSM 970 S radar station in Flandes (southwest of Bogotá).

In June 2012, Thales announced that it would provide the Civil Aviation Authority of Panama (AAC) with a brand-new ATC center that will house 12 Control Working Positions capable of managing the entirety of the route and approach segments of Panama's airspace.

Northrop Grumman's U.K.-based air traffic management subsidiary Park Air Systems was awarded a contract in July 2012 by the civil aviation authority of Chile, DGAC, to supply complete ground-to-air communication systems at multiple sites across the country.

In April 2013, a consortium of Saab subsidiary HITT Traffic, Ambriex, and RRJ Engenharia won a contract from Brazilian airport operator Infraero to provide an A3000 Advanced Surface Movement Guidance and Control System (A-SMGCS) at two of its international airports.

In February 2013, airlines operating in the Central American Flight Information Region (covering Costa Rica, El Salvador, Guatemala, Honduras, and Nicaragua) gained the support of datalink technology for aircraft surveillance and communications between pilots and air traffic control. This followed an

agreement between air transport communications specialist SITA and COCESNA.

In October 2013, Indra announced it had rolled out an airspace surveillance network in Ecuador that enabled the Civil Aviation Authority to expand from covering 30 percent of its skies to more than 90 percent. The new system is composed of MSSR Mode S radar systems and multilateration systems. The company also installed its air traffic management systems at the Shell approach center, and it was finalizing the renewal of the systems at the Quito and Manta centers. In 2012, Indra modernized the Guayaquil route control center. The modernization of Ecuador's air infrastructures was estimated to cost \$30 million.

In December 2013, the CISCEA selected Northrop Grumman to upgrade the air traffic communication systems for the entire Integrated Center for Air Defense and Air Traffic Control 3 (CINDACTA3) airspace region of Brazil. Under the contract, Northrop Grumman's Park Air Systems subsidiary would upgrade the existing communication system to a full Internet Protocol (IP)-based system. This would encompass the supply of the Park Air T6 UHF/VHF range of ground-to-air communication equipment as a turnkey system.

In March 2014, Indra announced it would implement its ATC system at two air route traffic management centers and three local air control centers of the Chilean Civil Aviation Department. The air traffic control centers for the Puerto Montt and Punta Arenas route would use Indra's automated air traffic management system.

In October 2014, Indra signed a contract with Brazilian airport infrastructure company Infraero for the modernization of the nation's air navigation system. The contract is valued at \$23 million and included the installation of 24 radio navigation Doppler VHF Omnidirectional Radio Range/distance measuring equipment (DVOR/DME) stations throughout the country.

In March 2015, the IATA, Airbus ProSky and Haiti's Office National de L'Aviation Civile (OFNAC) completed a joint project to modernize the airspace of Port-au-Prince and Cap-Haïtien international airports.

Also in March 2015, Indra was selected to modernize three ATC centers in Argentina. The contract was awarded through Argentina's International Civil Aviation Organization (OACI). Indra would install its ATC automation system at Governor Francisco Gabrielli International Airport in Mendoza, José de San Martín Airport in Resistencia, and General Enrique Mosconi Airport in Comodoro Rivadavia.

In June 2015, Rohde & Schwarz was chosen to provide a range of products and services for a turnkey project in

ATC - Latin America

Colombia. The country's nationwide ATC infrastructure would be modernized based on equipment such as R&S Series 4200 radios for towers, area control centers, and remote radio sites. The contract called for the modernization of 106 radio sites, including ATC towers.

In January 2016, El Salvador and the United States signed an agreement to integrate El Salvador's ATC radar system into a network operated by U.S. Southern Command (SOUTHCOM). The new system includes a primary radar, a secondary radar, and a control room with three operator stations and radar displays.

On February 16, 2016, U.S. Transportation Secretary Anthony Foxx signed an arrangement with the Cuban government that opened the way for scheduled air service between the two countries, after a hiatus of more than 50 years. This new arrangement facilitated visits for travelers that fell under one of 12 categories authorized by the U.S. Department of the Treasury's Office of Foreign Assets Control (OFAC).

Under the arrangement, each country's airlines could operate up to 20 daily roundtrip flights between the U.S. and Havana. The arrangement also provided each country's airlines with the opportunity to operate up to 10 daily roundtrip flights between the U.S. and each of Cuba's nine international airports, other than Havana, for a total of 90 daily roundtrips.

In August 2016, as part of the effort to normalize relations with Cuba, Secretary Foxx arrived in Cuba on the first scheduled flight to the island in over 50 years. In addition, the U.S. Department of Transportation finalized its selection of eight U.S. airlines to begin scheduled flights to Havana.

In April 2017, Brazil's Departamento de Controle do Espaço Aéreo (DECEA) took steps to support Argentina in upgrading its air navigation procedures and restructuring its airspace.

Hurricanes Bring Death, Damage, and Critical Repair Efforts

The 2017 hurricane season brought a completely new set of challenges to the ATC modernization and repair efforts at multiple locations in the region.

Hurricanes Irma and Maria, extremely powerful Cape Verde storms, struck the region within two weeks of each other in September. Irma caused widespread and catastrophic damage, particularly in the northeastern Caribbean and Florida Keys. Barbuda, Saint Barthélemy, Saint Maarten, Anguilla, and the Virgin Islands were all particularly ravaged by the hurricane.

Soon after the storm ended, members of the U.S. 14th and 15th Airlift Squadrons delivered an FAA air traffic control mobile tower from Mountain Home Air Force

Base, Idaho, to the hard-hit Cyril E. King Airport in St. Thomas, Virgin Islands.

Air traffic controllers were also brought in from Puerto Rico to assist. Delivering the tower allowed airport operations to resume and helped provide an extra level of support to those affected by the storm.

Hurricane Maria was the deadliest storm of the 2017 Atlantic hurricane season, bringing further catastrophic damage across the northeastern Caribbean. Puerto Rico suffered especially devastating damage, including the destruction of its previously damaged electrical grid.

In March 2018, Saint Maarten called on Thales to supply its TopSky-ATC and STAR NG primary radar co-mounted with the Thales RSM 970 S secondary radar for the island's crippled Princess Juliana International Airport.

In April 2018, Panama announced it would tender the \$8 million design of its airspace. Among the companies to compete for the contract were Boeing, Lufthansa, and Spain's Indra.

In November 2018, at the Latin America and Caribbean Conference in Buenos Aires, representatives of the Civil Air Navigation Services Organization (CANSO) outlined the steps that states and air navigation service providers (ANSPs) could take to improve the safety and efficiency of ATM in the Latin America and Caribbean region.

According to CANSO director general Jeff Poole, "States should encourage investments in new ATM infrastructure to ensure that ANSPs are able to embrace and exploit these new technologies." Cited examples of technologies transforming ATM performance included space-based ADS-B that enables surveillance in oceanic and remote areas not currently covered, Voice over Internet Protocol (VoIP) via satellites that enables communications in remote and oceanic airspace, automation in ATM that enables planes to fly closer together, and artificial intelligence (AI) to progressively replace unique human input in dynamic decision-making.

In January 2019, COCESNA reported that an agreement between the area control center of Panama and CENAMER signed in December had already begun to demonstrate benefits.

CENAMER is a combination of Central American countries that work together as one ATC service. Controllers are located in Tegucigalpa, Honduras, and control the airspace of Belize, Costa Rica, El Salvador, Guatemala, Honduras and Nicaragua. The controlling Authority is COCESNA.

ATC - Latin America

In November 2019, the Dutch Caribbean Air Navigation Service Provider (DC-ANSP) deployed Aireon's space-based ADS-B surveillance service in the Curacao Flight Information Region (FIR). This milestone followed years of collaboration between the two organizations since the signing of the data services agreement in October 2015.

The action resulted in DC-ANSP having 100 percent air traffic surveillance over the 300,000 square kilometers that make up Curacao's FIR. Adjacent to Venezuela, Puerto Rico, the Dominican Republic, Haiti, Jamaica, and Colombia, the majority of this FIR is oceanic.

In January 2020, L3Harris Technologies began implementing its first Orthogon Coupled AMAN/DMAN solution for DGAC in Latin America to help enhance aviation flexibility and efficiency in Chile.

The software-based solution optimizes the flow and sequencing of aircraft operating to and from Arturo Merino Benítez (AMB) International Airport in the Santiago traffic management agency (TMA) and adjacent sectors.

COVID-19 Pandemic Puts New Stress on Modernization Efforts

The COVID-19 pandemic that emerged in early 2020 had a never-before-seen impact on air travel. From March to April, the aviation industry saw the erosion of traffic from a daily average of approximately 100,000 flights to just 32,000 flights, with travel between many countries tightly restricted.

In April 2020, CANSO and the U.S.-based Aireon company announced an initiative to produce data-driven insights and analysis to understand better how COVID-19 was impacting a broad range of stakeholders within

the aviation industry, with a particular emphasis on how the pandemic was impacting ATM and the flow of essential goods and services.

In July 2020, Chile's DGAC deployed the Aeronautical Message Handling System from Frequentis Comsoft, increasing its communication capability and fully supporting the ICAO basic and extended AMHS service profiles. The solution consisted of one complete operational, redundant system and one training system at two DGAC sites in Santiago de Chile.

By September 2020, CANSO was reporting that the near-total shutdown of world air travel over the past several months, as well as the stop/start nature of the reopening, meant that the sector would not be able to recover to pre-COVID levels until around 2024.

In March 2021, the Argentine government announced plans to spend ARS9.2 billion to procure five new-build RPA-200 radar surveillance systems from Argentine industrial-electronics company INVAP. The new radars will be used to buttress Argentina's National Surveillance and Aerospace Control System (SINVICA) and will be deployed to the cities of Rio Grande, Posadas, Resistencia, Charata and Taco Pozo.

In July 2021, the International Air Transport Association (IATA) announced that both international and domestic travel demand showed marginal improvements compared to the prior months, but traffic remained well below pre-pandemic levels. The group further reported that recovery in international traffic continued to be stymied by extensive government travel restrictions. Latin American airlines saw a 75.1 percent drop in demand in May compared to the same month in 2019, notably improved over the 80.9 percent decline in April compared to April 2019.

Contracts/Orders & Options

<u>Contractor</u>	<u>Award (\$ millions)</u>	<u>Date/Description</u>
Alenia Marconi Systems	Unknown	Jul 2001 – Contract from Brazil for 40 ATC radars to be integrated into Brazilian ATC system.
Thales	121.0	Nov 2001 – Contract from Brazilian Air Force for modernization of 79 radars to extend their lifespan by 15 years using the latest ATM technology. Involved modernization of 16 primary approach radars, 10 primary long-range radars, 13 3D radars, and 40 secondary radars. Work was completed in late 2004.
Thales	Unknown	Apr 2002 – Contract from Mexico's SENEAM for ATC modernization. Work was to entail production of four additional RSM 970 radars for installation in Mexico at Tabasco, Guanajuato, and Tampico, and in Baja, California.
Thales	Unknown	Mar 2003 – Contract from SENEAM to supply Mexico City International Airport with the Thales Surface Movement Guidance Control System.

ATC - Latin America

<u>Contractor</u>	<u>Award (\$ millions)</u>	<u>Date/Description</u>
Indra	7.0	Aug 2003 – Contract from International Airports Management Co of Nicaragua to upgrade ATM systems.
Indra	6.0	Oct 2003 – Contract from the Airport and Air Navigation Services Administration of Bolivia to upgrade ATM systems.
Indra	13.6	Jan 2004 – Contract from the United Nations' ICAO to upgrade Panama's ATM systems.
Raytheon	4.6	Jul 2005 – Contract from Consorcio Hardwell Computer of Caracas for ASR systems for Maiquetia International Airport in Venezuela; delivered Dec 2005.
Thales	79.2	Mar 2007 – Two contracts from Brazilian Air Force for the modernization of 26 ATC radars. Thales will provide 17 solid-state S-band transceivers and nine solid-state L-band transceivers. Turnkey contracts are a five-year extension to previous contracts. The new systems will be made in Brazil.
Indra	Unknown	Feb 2010 – Contract from ICAO to support Peru's ATC initiatives.
Thales	Unknown	Mar 2012 – Three contracts to supply the Colombian Civil Aviation Authority with air traffic management systems.
Indra	30.0	Aug 2013 – Contract from Colombia's Aerocivil for the acquisition, installation, and startup of communication, navigation, and surveillance/air traffic management (CNS/ATM) systems for El Dorado International Airport (Bogotá).
Indra	Unknown	Mar 2015 – Indra selected to modernize three ATC centers in Argentina. The contract was awarded through Argentina's International Civil Aviation Organization (OACI). Indra will install its air traffic control automation system at Governor Francisco Gabrielli International Airport in Mendoza, José de San Martín Airport in Resistencia, and General Enrique Mosconi Airport in Comodoro Rivadavia.
Micro Nav	Unknown	Mar 2017 – Contract from GECI Española to upgrade the ATC simulator at the Empresa Cubana de Aeropuertos y Servicios Aeronáuticos (ECASA) training department in Cuba. Installation will provide ECASA's simulator with an increase in training capability.
Indra	Unknown	Mar 2017 – Contract from Peruvian Corporation of Commercial Airports and Aviation (CORPAC) to modernize the Lima ATC center, which controls all of Peru's air traffic. The contract includes the new AMAN and DMAN functionalities that provide automated management of takeoffs and landings, relieving part of the controllers' workload and facilitating greater safety for areas requiring the greatest attention during flights.
Indra	Unknown	Apr 2017 – Contract from COCESNA to upgrade seven air traffic surveillance radars in four countries, in addition to the Cayman Islands. The renewal will focus on radars operating in Monte Crudo and Dixon Hill in Honduras; Grand Cayman, Cayman Islands; Mata de Caña and Poas Volcano in Costa Rica; Puerto Cabezas in Nicaragua; and Cerro Santiago in Guatemala.

ATC - Latin America**Worldwide Distribution/Inventories**

By definition, the scope of this program is restricted to Latin America. The long-range goal of the program is to perform upgrades and integrate with a global ATC/ATM network.

Forecast Rationale

Despite the ongoing effects of the COVID-19 pandemic on air travel worldwide, ATC modernization efforts in the vast Latin American region will likely continue, especially under numerous previously awarded contracts and initiatives.

In April 2020, the Civil Air Navigation Services Organization (CANSO) and the U.S.-based Aireon company announced an initiative to produce data-driven insights and analysis to understand better how COVID-19 was affecting a broad range of stakeholders within the aviation industry, with a particular emphasis on how the pandemic is affecting ATM and the flow of essential goods and services.

In September 2020, CANSO was reporting that the near-total shutdown of world air travel over the past several months, as well as the stop/start nature of the reopening, meant that the sector would not be able to recover to pre-COVID levels until around 2024.

In somewhat better news, in July 2021, the International Air Transport Association (IATA) announced that both international and domestic travel demand showed

marginal improvements compared to the prior months. Latin American airlines saw a 75.1 percent demand drop in May compared to the same month in 2019, a notably improved over the 80.9 percent decline in April compared to April 2019.

Among recent activity, in July 2020, Chile's Dirección General de Aeronáutica Civil (DGAC) deployed the Aeronautical Message Handling System from Frequentis Comsoft, increasing its communication capability and fully supporting the ICAO basic and extended AMHS service profiles. The solution replaces the country's previous AMHS.

In March 2021, the Argentine government announced plans to spend ARS9.2 billion to procure five new-build RPA-200 radar surveillance systems from Argentine industrial-electronics company INVAP. The new radars will be used to buttress Argentina's National Surveillance and Aerospace Control System (SINVICA) and will be deployed to the cities of Rio Grande, Posadas, Resistencia, Charata and Taco Pozo.

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