

# War game over Atacama

The skies over the Atacama Desert in Chile's northern region became the playing field for the exercise Salitre IV. **Cees-Jan van der Ende** and **René van Woezik** joined the Latin American forces

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The Chilean Air Force (Fuerza Aérea de Chile – FACH) organised the fourth Salitre event between October 10 and 21 under the command of General de Aviación Leonardo Romanini Gutiérrez ‘Romano’. Along with the series of the Cruzex exercises in Brazil, Salitre is one of Latin America’s most important gathering of air forces practicing their interoperability for a possible crisis, executed following UN and NATO guidelines.

## Multinational exercise

Three weeks before the start of Salitre IV, FACH staff began to transform Cerro Moreno air base where the 5th Air Brigade, commanded by General de Brigada Aérea Pedro Nadeau Pavez, is located. The General commands a large part of Chile’s northern airspace with General Dynamics/ Fokker F-16AM/AM M4 Fighting Falcons of Grupo 7 and Grupo 8, aircraft that were delivered to the FACH under two separate Peace Amstel contacts with the Dutch

Ministry of Defence. Grupo 8 also operates several Bell 412EPs in search and rescue and special operations roles. The enhanced performance Bells first arrived in Chile in 2009. FACH operates 12 Bell 212EPs and four basic variants. These are based in Chile’s north, ranging down to Antarctica.

The first participants from Brazil touched down at Cerro Moreno on Saturday October 8. The six Northrop F-5EM Tigers IIs were accompanied by the Brazilian Air Force’s (Força Aerea Brasileira – FAB) newest assets, the Airbus KC-30 (A330-243, FAB2901) and an Embraer KC-390 Millennium ‘Barão’ (FAB2857). The latter providing the Tigers IIs’ fuel from Canoas air base in Brazil’s south on its first international operational mission. Brazil’s Tigers were equally divided between the 1° Cavca ‘Pif-Paf’ (Grupo de Aviação de Casa – Fighter Aviation Group) based at Santa Cruz air base near Rio de Janeiro, and the 1º/14º GAV ‘Pampa’ (Grupo de Aviação – Aviation Group) originating from Canoas, north of Porto Alegre.

The second batch of combat assets and transports arrived on October 9 from the Argentine Air Force (Fuerza Aérea Argentina – FAA). Three McDonnell Douglas A-4AR Fightinghawks of G5C (Grupo Aérea 5 de Caza – 5th Fighter Group) of the Vº Brigada Aérea based at Villa Reynolds air base in the San Luis province, and three IA-63 Pampa III of G6C Grupo Aérea 6 de Caza of

*Argentina’s McDonnell Douglas A-4AR Fightinghawk first visited Chile during the FIDAE aviation fair at Santiago Los Cerrillos airport in 1999 All images author*

# Exercise Report

VI° Brigada Aérea operating out of Tandil air base in the Buenos Aires province. The Argentine jets were accompanied by a Lockheed C-130H+ Hercules (TC-61) and a Boeing 737-76N (T-99). Both Argentine and Brazilian delegations were subject to local customs and COVID-19 restrictions.

Monday was an instructional day and the start of Salitre IV FAMon at which participants were welcomed by the FACH Combat Commander General Leonardo Romanini Gutierrez and General Pedro Nadeau Pavez of the 5th Air Brigade. The multinational forces first took to the skies over the Atacama for the three-day familiarisation-flight instruction training (FAM-FIT) during which threat identification (TI) and surface attack (SAT) tasks were conducted together with the Vipers of Grupo 7 and 8 as well as three CASA/ENAER A-36 Toquis of Grupo 1 that usually operate out of Los Cóncores air base. The event marked the last operational act for this aircraft as the Spanish-developed trainer is set to retire December 19 after 40 years.

Next to the Bell 412EPs, a Polish-built Sikorsky MH-60M Black Hawk (S-701 H-08) provided SAR and combat search and rescue capabilities to the combat fighter operations.

Brazil's new KC-390 Millennium of the Primeiro Ecquadrão do Primeiro Grupo do Transporte (1º/1ºGT) 'Ecquadrão Gordo' operated out of Cerro Moreno, for the FAM-FIT and live field (LIVEX) phase, providing the FAB Tigers its 'service' in the Chilean skies. The commander, Major Flávio Diniz Pereira said: "Each COMAO [combined air operation] has well defined schedules and tactics to achieve. In this context, the air-to air refuelling ensures greater flexibility in combat planning for our F-5Ms. The KC-390 behaved exceptionally in this environment and its systems proved to be extremely reliable throughout the whole exercise."

"The Força Aérea Brasileira ended its participation in Salitre IV with the satisfaction of a duty fulfilled. With over 50 combat sorties flown, following all security protocols that were set out," the Detachment Commander Lt Colonel Davi de Abreu added.

"For the Argentine Air Force, Salitre IV was an important exercise as their last International multinational operation was Salitre III in 2014. A lot has changed since



*Brazil's new Embraer Millennium medium transport aircraft refuelled six FAB's Tiger IIs from Canoas in the south of Brazil to Chile*



**Above:** For Salitre IV, the FAB operated upgraded Northrop F-5M Tigers at Manaus air base in the Amazon and at Anapolis air base, east of the capital Brasilia, where it replaced the Dassault F-2000C/B in the 1st Air Defense Group

**Left:** A 'Peace Amstel' updated Fokker F-16 Fighting Falcon approaches a KC-135E for fuel

**Right:** The FAdeA IA-63 Pampa III of 6th air brigade, Tandil military air base made its first appearance in an international exercise at Salitre IV

**Below:** A mix formation of a variety of aircraft during exercise SALITRE in Chile



## History and organisation

The first peace enforcing Salitre exercise was organised by FACH in 2004. As with the latest event, the Blue/Yellow forces operated out of Base Aérea Cerro Moreno, north of Antofagasta and the Red opposing forces out of Base Aérea Los Cóndores, located south of Iquique. The guidelines were established in 2002 by the Chilean Government's defence policy institute.

Legends of military aviation like Fuerza Aérea Argentina's (FAA) Mirage IIIs and a Fokker F-27 Friendship, FACH Mirage 5 Elkans and Mirage 50 Panteras and the Boeing/IAI EB-707 Cóndor AWACS platform were some of the participants in 2004. The other two Salitre events, in 2009 and 2014, also used locations in Chile's northern desert regions.

Salitre IV was hampered by the COVID-19 pandemic. Deputy Director of the exercise, General de Brigada Aérea Máximo Venegas Raggio 'Vudu' and FACH Director of Operations noted that planning for the fourth edition of the multinational gathering had begun in 2019 and consequently halted. The General's staff, headed by Colonel Alejandro Arevalo Alegria 'Asterix' – a former Block-50 driver – picked up the plans for the event around the second quarter of 2021. This led to the initial planning conference in November, 2021 with the air forces of Argentina, Brazil, the US and Uruguay listed as LIVEX participants. The Air Force of Colombia (FAC) had to decline the FACH invitation due to budget constraints, according to FAC's Operations Commander.

Salitre's final planning conference concluded on July 10 with the Fuerza Aérea Uruguayaya (FAU) still on board as LIVEX participant with its Cessna A-37 Dragonflies and a former Spanish Lockheed KC-130H Hercules. Sadly, the FAU dropped out shortly after one of their KC-130Hs was damaged in a runway excursion. The Uruguayans also informed the FACH that they encountered spare part issues with their fleet of aircraft. Canada, Mexico, Peru and Uruguay attended as observers.

Incidentally, the name salitre or saltpetre is a commodity found in the deserts of Peru and Chile. It is a form of potassium nitrate with various applications including rocket propellant, fertilisers and gunpowder.

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then as a many things have been done to raise the level of our pilots. It was a good opportunity to see if the Pampa III and Fightinghawk crews were up to task and that they were 'talking the same language' as the other air forces," an FAA officer said.

The officer continued: "Most importantly for the younger pilots, it is their first experience in an international environment with other assets. For them, it had the most benefit – flying together with other other aircraft, flying in other scenarios and the opportunity to fly with other other combat controllers. We have a lot of exchanges with other air forces but it is different when you have to perform as a squadron."

Weeks prior to Salitre IV, the FAA had been preparing with a large local exercise 'Integrador délado' targeting standardisation to large force deployment with up to 15 aircraft at a time.

## Opposing forces

On Salitre's first FAM-FIT day, the Blue Forces immediately started to encounter the first assets of the Opposing Forces (OPFOR) aka Red Forces. OPFOR leader, Lt Colonel and Grupo 3 Commander



**Above:** The Casa/ENAER A-36 Toqui operating in the Los Cóndores-based Grupo de Aviación 1 is set to be retired on December 19, 2022 after 40 years  
**Below:** For standard search and rescue, as well as Special Forces missions, Los Cóndores air base, south of Iquique, operates a pair of Bell 212EPs in Grupo de Aviación 2. As well as Bell 412EPs, the group also has Casa 212-100s/300 and Cirrus SR22T in its inventory.



Dabor Arbunic 'Arsenal' had 12 combat aircraft at his disposal: four Embraer A-29B Super Tucanos of Grupo 1, four Lockheed Martin Block-50 Vipers of his own Group as well as four Northrop F-5E/F Tiger III belonging to Grupo 12, the 'Tigres Australes' based at Punta Arenas in Chile's far south. During the initial days of the exercise, the pilots used two F-5Fs, taking the opportunity to refamiliarise in taking fuel from the newly upgraded Grupo 10 Lockheed KC-130R Hercules (992). Three F-5E Tiger IIIs arrived during late afternoon of October 11 at Los Cóndores.

The Santiago IAP-based Grupo de Aviación 10 also supported Salitre's Blue and Red forces with a recently delivered Boeing E-3D Sentry operating out of its home





After Salitre's first COMAO, the FACH's recently acquired Boeing E-3D from the RAF dropped in for touch-and-goes. It was the first appearance of 906 since it arrived. The FACH will operate two E-3D Sentry aircraft, doubling its AWACS capability as Grupo 10 prior had just one Boeing/IAI EB-707 C6ndor

base, as well as one of the world's last remaining Boeing KC-135E Stratotanker 'Gremlin' (982). The Stratotanker operated out of Los C6ndores and fed Vipers belonging to Grupo 3, 7 and 8, aiming for two daily missions using a 'tanker track' over the desert. Technical staff worked hard between the missions to get the bird with its ageing four TF33-PW 102 turbofan engines up again.

The LIVEX phase, starting on Friday, October 14 brought some relief as missions would be flown in one single COMAO. Descending down from the skies over the Atacama, the 14th was 'Sentry 906' making two touch-and-goes at Cerro Moreno. Overseeing the excitement on the Chilean side

that day, the FACH seemed eager to show the participating countries its new 'eye in the sky'.

### Chile's aircraft

The scheduled retirement of the A-36 Toqui will leave the FACH without a jet trainer for the foreseeable future. From 2008 to 2018, the Chilean Air Force received 18 Embraer EMB-314/A-29B Super Tucanos originating from two separate orders with the Brazilian aircraft builder. The last order of six A-29Bs dates back to 2017 with the PT-6 powered 'Super-Ts' arriving in a new grey scheme to Grupo 1 in 2018. The FACH operates the Brazilian turbo prop for tactical and advanced training, as well as light attack

and intelligence, surveillance and reconnaissance (ISR) missions. Recently, new combat pilots for the Tiger III, MLU Falcons of Block-50 Vipers transferred directly from the Super Tucano, surpassing the classic A-36 Toqui.

Chile's Stratotanker force consisted of three aircraft (981 to 983) – of which the first arrived in the country in February 2010. The 982 – formerly 57-2594 and the oldest flying operational hardware in Chile – recently returned from maintenance in the US that lasted for nearly a year. Reportedly, the 982 flew straight from its US-delivery flight into a training operation for the 'Parada Militar', escorted by two Vipers last September. It is currently

unknown what the FACH plans are for the other two Stratotankers that have been parked for several years at Pudahuel air base near Santiago. There's a rumour, within FACH sources, that the USAF is willing to sell Chile some of the 'R' variants that it will be sidelining with the arrival of its Boeing KC-46A Pegasus.

The newly fitted Collins NP2000 propellers on the Lockheed KC-130R Hercules (992) is currently the sole military aircraft operating in this configuration in Latin America. The eight-bladed propeller will reduce maintenance and fuel cost, increase reliability, as well as enhance the Hercules in its performance. The crew, however, noted that the aircraft is slower



Above: The Polish-built Sikorsky S-70i Black Hawks are the most recent rotary wing assets acquired by the FACH. The first three out of an order of six helicopters arrived in the belly of a Ukrainian Antonov An-124 Ruslan in July 2018  
Left: Two Fighting Falcons dropping in at Cerro Moreno's runway after their first COMAO sortie on October 14. The backdrop is the coastal edge of the Atacama, the world's driest desert



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*Above: Besides contributing four Embraer A-29B Super Tucanos to Salitre IV's Red forces, Grupo 1 is the FACH's combat pilot school operating 18 aircraft, six of which have been delivered to Los C6ndores air base since 2018. The new grey scheme needs a little attention as the Pratt &Whitney PT-6 oil trace along the fuselage is very visible*

during its cruise flight. The full fleet of FACH (K)C-130s will receive the NP2000 propellers, the Logistic Commander confirmed.

The biggest deal for FACH in years began in mid-January last year. The RAF acknowledged that Chile had purchased three Boeing E-3D Sentry airborne early warning Mk 1 (AEW1) aircraft. Two of the Sentrys (formerly RAF ZH-103 to 905 and RAF ZH-106 to 906) are destined to patrol the 4200km-plus long country. One airframe will serve as a welcome source for spare parts. The first public appearance of the FACH 905 was during the annual Military Parade celebrating Chile's independence. Cerro Moreno

was chosen for the 906 to go public. Both Boeing E-3Ds have replaced the sole Boeing-IAI EB-707 C6ndor (904) that has been seen flying for some two years. Built in 1965, it served as Boeing's demonstrator and testbed before being sold in 1969 to LAN Chile airline and then to FACH in 1990.

In July 2020, the US Defense Security Co-operation Agency notified the Congress of a possible sale of equipment and related services for F-16 modernisation to the government of Chile for an estimated cost of US\$600+ million. However, shortly after an upgrade plan for the Chilean Air Force F-16 fighter jets was approved by the US Department of State, the

Chilean government revealed the project had been postponed due to COVID-19. No details are known on the current status of this project.

## On the edge

Chile's neighbour to the west has had soaring inflation, dating back to 2001, resulting in the year-on-year decline in Argentina's defence budget. It saw a wave of retiring aircraft and a reduction in its ability to patrol what is the second largest country in Latin America. Recent reports in the Clar6n newspaper caused a huge political uproar. Staff working on Salitre feared they might miss out on this year's exercise due to continuing budgetary issues, as happened during CRUZEX 2008. At the time the Argentine Senate

voted not to sign an agreement for the Fuerza A6rea Argentina (FAA) combat aircraft to leave the country. This year's political uproar prompted the Minister for Defense Jorge Taiana, to sign off on all exercises of his military branches, paving the way for participation in Salitre IV.

Along with the three legendary McDonnell Douglas A-4AR Fightinghawk of G5C, the FAA brought three FAdeA IA-63 Pampa IIIs of the former IAI Finger and Mirage III, G6C. Also there was the new little combat jet that has recently been integrated in with G6C based at Tandil. The current variant – strongly derived from basic IA-63 that first flew in October 1984 – is in the Block II configuration that features a state-of-the-art technological update, which significantly improves flight analysis capabilities through the incorporation of virtual training software and a communication system between aircraft. The IA-63 Pampa III Block II aircraft features a digital cockpit and data links with embedded virtual avionics (EVA) that enable simulation of various flight scenarios including that of fourth and fifth generation aircraft.

The FAA has been long seeking replacement for its lost 'fighter' capabilities. Many candidates like the IAI Kfir, former Spanish Air Force Mirage F-1Ms, among other passed by. Currently, a



*The other flying refuelling station operating in Chile is the former US Navy Lockheed KC-130Rs. The Collins NP-2000 updated 992 served the Red-Air Tiger IIIs and is one of seven Hercules operating in Grupo 10 based at Pudahuel air base near the capital Santiago*



*The current sole Boeing KC-135E Stratotanker operating in Chile served Red as well as Blue F-16s over the course of Salitre. Next to Colombia's Douglas/Basler AC-47T Fantasmas, it is obvious that the FACH Stratotanker is the oldest aircraft operating in the South American theatre of operations*

new supersonic fighter could be looming on the short-term horizon. The political atmosphere in Argentina could force a choice this December or January. The three contenders are: former Royal Danish Air Force General Dynamics F-16 AM/BM, HAL Tejas Mk1a and the Chengdu JF-17 Block III. In a country like Argentina, that is still plagued embargoes and blockades dating back to the 1982 Falklands War, conditions must match the air force's preference.

**Brazil in transition**

The air force of Latin America's largest nation has entered a transition phase. Brazilian Air Force (FAB) has taken the first deliveries of new SAAB F-39E/F Gripen and Embraer KC-390 Millenniums. Two Gripen arrived at the FAB's main logistic centre at

Rio de Janeiro, Galeão air base last March. Embraer's new pride flew for the first time in February of 2015 with various countries participating in the project. Brazil initially ordered 28 of the new medium-range transport aircraft, but this was later reduced to 22.

Embraer's marketing for the new and unproven KC-390 first gained ground in Europe with the Força Aerea Portuguesa (FAP). The final contact was signed in 2019 for five Millenniums to replace ageing Lockheed C-130s. Unlike the C130s, the Portuguese KC-390s will be based at Base Aerea 11 Beja where new infrastructure is currently under construction. On October 16, FAP took delivery of the PT-ZDK/26901, the first KC-390 delivered outside of Brazil. Hungary (two) and the Netherlands (five) have also joined the ranks with the FAP. Salitre IV

was the Millennium's first international operation.

Brazil's other new asset at Salitre was the Airbus KC-30 FAB-2901 of the Segundo Esquadrão do Segundo Grupo de Transporte (2º/2ºGT), also based at Galeão. The FAB-2901 – together with FAB-2902 – are the largest aircraft in FAB's inventory, recently acquired from Azul SA, a local airline. The initial deal of approximately US\$80 million with Azul is just the start of the aircraft's upgrade program to a full multirole tanker transport (MRTT). Exact details of the Airbus 330's conversion is unknown, except that the full militarised air-to-air refuelling-capable KC-30MRTT should be delivered in 2024. The FAB-2902 was delivered to 2º/2ºGT at Galeão on November 3. The KC-30 returns long-range strategic capabilities to the air force after

the FAB retired its Boeing KC-137s in 2013. The arrival of the KC-30, together with the Embraer KC-390, will mean an significant increase in operability.

**Well executed**

Salitre IV concluded on October 21 with a VIP day led by the Chilean Minister of National Defense, Maya Fernández Allende, with dignitaries from all participating nations in attendance. Overall, some 300+ flights were conducted in the exercise, with a 90% execution rate. The Fuerza Aérea de Chile and all 841 national and international staff can reflect on an exercise well executed. Latin America's next multinational exercise is CRUZEX, due to take place in autumn 2024 at Brazil's Natal air base. **IAFM**

*The ten Fuerza Aérea de Chile F-16C/D-Block 50s have started to to change their 'Peace Puma' scheme for that of the standard USAF Viper, adding the distinct blue rudder. This 855 is one of around six remaining jets using the 'Peace Puma' scheme*

