

## EDITORIAL

# Ciencia y Poder Aéreo Journal

VOLUME 14 NO. 1

The *Ciencia y Poder Aéreo* Journal commemorates in this edition a historical date for military aviation in the country, the celebration of 100 years of the Colombian Air Force, a century 'Protecting the Nation', as the motto reads, which identifies this significant event.

Many things have changed since that December 31<sup>st</sup>, 1919, when the then-president Marco Fidel Suárez, issued the Law 126 with which the Colombian Air Force was created, called by the time "Arma de Aviación" (Aviation Force). We have seen it defending our sovereignty as it occurred in the War with Peru, through the action that took place in Güepí, on March 26<sup>th</sup>, 1933, where it was present in the area with 11 attack aircraft.

The work of the Colombian Air Force, in its multipurpose mission, currently covers aspects as diverse as necessary, from social assistance with the Development Support Sessions, which include medical care to marginal populations, including also attention to forest fires in different areas of



our complex national geography, with the "bambi bucket" system, coordinated operations to subdue criminal structures causing their disappearance, to the deepening of academic work with the Post-graduate School of the Colombian Air Force, which aims to lead the work of the institution to new levels of competitiveness.

This is where *Ciencia y Poder Aéreo* acquires relevance in this historical date since it is established as the

pioneering scientific journal in this field and symbol of the Colombian aeronautical and aerospace sector for Latin America and the world.

This volume includes a selection of ten articles for the first edition of 2019, where we highlight the great effort of the academic and scientific community to advance and generate a significant contribution in different areas of knowledge. For this reason, in the following pages, you will find from the centennial



celebration of achievements of our Air Force heroes, researches on air transport, to interesting proposals of innovation and technology.

We begin with the section of Management and Strategy, which includes four writings. The first one, of commemorative nature, not only highlights the great feat of these one hundred years but also describes the professional evolution and military training with transnational objectives, in conjunction with the development of knowledge in the Colombian Air Force, all of this from the research perspective of historian Abraham Ortiz Miranda. The second one is an article that highlights the progress towards an optimization of the technological tools in the coordinated operations of the Colombian Air Forces (FAC) with the National Police (PONAL); in this research, María Carolina Vásquez Ruiz provides the route for secure communications and a model that in the future can be used by other entities, including non-military ones. The section continues with a manuscript by Magister Fabio Baquero, who

emphasizes the importance of air power in a progressive, contemporary and geostrategic concept that contributes to sovereignty, territorial security, projected to future state strengthening. The section closes with an article of reflection in which engineers Abdón Estibenson Uribe Taborda and Leonardo de Jesús Mesa Palacio analyze the most relevant aspects of how South Korea and Japan changed from being war-torn countries to successful nations after managing the technological factor in their favor during the post-conflict period. And how this constitutes favorable learning for Colombia at this stage of national history.

In this way, we proceed to the section of Operational Safety and Aeronautical Logistics, which includes two writings. The first one, by researchers Juan José Delgado Morán, Jonnathan Jiménez Reina and Roger Jiménez Reina, discusses the subject of air transport, analyzing it as a strategic element with two purposes: first, to mitigate threats to security, and second, as a contribution to ope-

rational and tactical activities of the Armed Forces in Europe and Colombia. The following is an article of reflection, that ventures into a scientific application as a contribution in the design and manufacture of lightweight aircraft for agricultural purposes in Colombia, teaching the process of obtaining the drag polar of the aircraft; a research by Andrés Palomino, mechanical and aeronautical engineer, for World Aircraft Company South America S.A.S

And we close the edition with four articles from the Technology and Innovation section. We start from a writing by the Magisters in Space Technology and Engineering, Luis Carlos Roldán Torres and Daimer Ospina Contreras, who introduce the conceptual design of the structure of a three-stage rocket capable of transporting 200 kg to low Earth orbits. We continue with an article of reflection that brings us a STEM learning strategy based on aircraft design, with the purpose of promoting the development of aeronautical science in Colombia, developed by specialized instructors

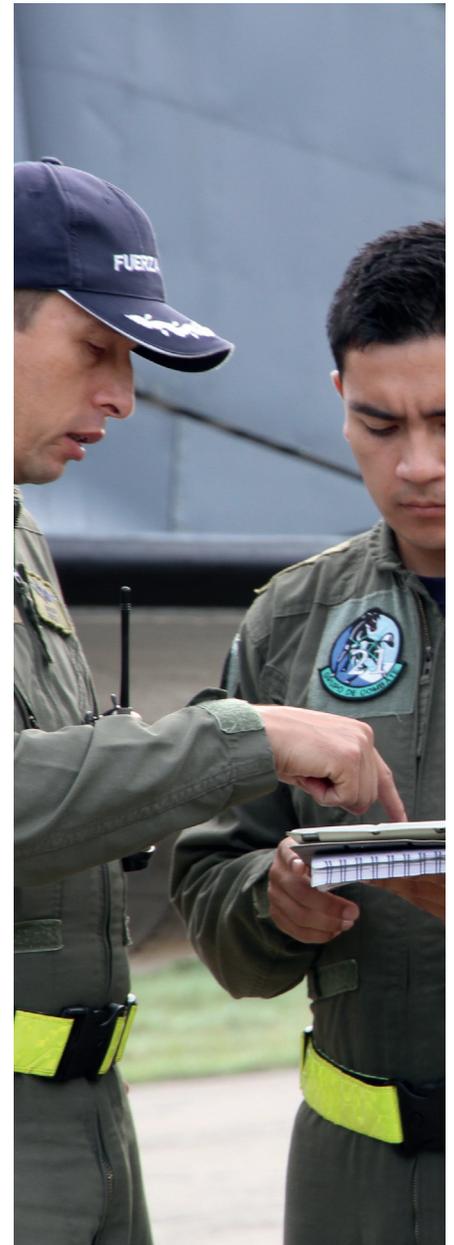
of the Science Clubs Colombia program (Clubes de Ciencia Colombia) for young people, based on the research of Pedro David Bravo-Mosquera, Nelson David Cisneros-Insuasti, Bryan Avendaño-Uribe and Fabiola Mosquera-Rivadeneira, professionals in different areas of knowledge that integrated their expertise in this vital application of scientific knowledge.

The following is a new contribution by authors Abdón Estivenson Uribe Taborda and Leonardo de Jesús Mesa Palacio, who together with researcher Diego Alexander Muñoz Morales propose the development of the electromechanical system for the process of installation and transport of the missiles of the AH60L Harpy IV BLACK HAWK equipment. And we end with a study that evaluates the feasibility of implementing a meteorological laboratory with reused equipment, in the facilities of the Center for Aeronautical Studies (CEA, by its Spanish acronym), in order to use it as a tool that reinforces the learning process of students who take academic programs that involve meteorological issues and result in a benefit for the Air Navigation Services. An article by Ingrid Tatiana Sierra Giraldo, Civil Aeronautics re-

searcher; Edgar Leonardo Gómez Gómez and Jonathan Fernando Varón Castro, from the Centro de Estudios Aeronáuticos en Colombia.

We are convinced that the articles that make up the first edition of the fourteenth volume of the *Ciencia y Poder Aéreo* Journal, are a contribution to readers of the scientific community, which in this opportunity will find contributions to education, applications in the military, industrial, and commercial sector, geostrategic analysis and the venture into aerospace projects.

The foregoing allows us to offer these pages and put them at the service of scientific, technological and innovation development of our country, in addition, to provide useful tools at a global level, so that researchers and the other community know the advances in knowledge. For this reason, the publication *Ciencia y Poder Aéreo* is pleased to introduce its content working increasingly to achieve higher standards of scientific and editorial quality, visibility, and impact. Without leaving aside the scientific integrity that protects the rights of the prestigious editorial, scientific, professional, and technical team that is part of it.



**TC. Wilson Augusto Jaramillo García, Director**  
**Erika Juliana Estrada Villa, Editor**