

Scientific Research in Tumultuous Times

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This issue marks the 15th volume and my fifth year as editor-in-chief of the journal *ACI Avances en Ciencias e Ingenierías* dedicated to all disciplines of the exact sciences, biology, and engineering. The past few years have been marked by a global pandemic, social unrest and strikes, political instability, soaring crime rates, and various natural disasters, such as mudslides, landslides, earthquakes, and extreme floods. Why, one may ask, should I spend my time and efforts on the promotion of scientific contributions in Ecuador and abroad while all hands are needed outside the ivory tower to address the challenges of the times?

Contrary to what one may think, it is during tumultuous times such as these that the value of scientific research becomes even more evident. Scientific research has always been a key driver of progress, leading to the development of new technologies, innovations, and solutions to complex problems. In times of crisis, such as the ones we are currently experiencing, the value of scientific research becomes even more evident. In the face of natural disasters, scientific research can help us better understand the causes and effects of these events, develop early warning systems, and implement measures to minimize their impact. In the context of political instability and social unrest, scientific research can provide insights into the root causes of these issues and offer evidence-based solutions to address them.

The exact sciences have long been associated with technological advancement and the development of new innovations that have revolutionized the way we live our lives. This has been especially true in recent years, as advances in computing and data science have led to breakthroughs in fields such as artificial intelligence and quantum computing. Our readers may recall the successful dossier of CARLA 2020, highlighting contributions from the Latin America High Performance Computing Conference organized by CEDIA in virtual format in September 2020. The current advances in technology, which rely on the exact sciences and engineering, have an enormous potential for solving some of the most complex problems in society, from climate change to healthcare.

The contributions of the biological sciences in understanding the impact of climate change on ecosystems and species have been instrumental. Scientists are working on solutions for conservation in our unique natural environments, such as in the Galapagos and the Amazon. These efforts will aid in the restoration and preservation of these environments in regions that are crucial to our country. Additionally, environmental scientists have played a critical role in understanding the impact of climate change on natural disasters such as mudslides and landslides and have developed tools for



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mitigating their impact through the study of river behavior, hydrology, and geology. Hopefully, these solutions will become policy, so that we will not see people fall victim to preventable disasters anymore. Moreover, food scientists have been pivotal in the sustainable cultivation of crops like corn and wheat to ensure that the growing population has access to nutritious food while preserving the environment. Key contributions have been highlighted in the dossier related to the generation of technologies in the cultivation of corn in Ibero-America, which took place in 2022 and of which the articles were published during the same year in *ACI Avances en Ciencias e Ingenierías*. Through their collective efforts, the environmental and biological sciences, highlighted in section B of *ACI Avances en Ciencias e Ingenierías*, play a key role in creating a more sustainable and resilient Ecuador.

The third major field of the sciences that is celebrated in *ACI Avances en Ciencias e Ingenierías* is the field of engineering. Engineering is closely tied to the development of new technologies and infrastructure. From the construction of buildings and bridges to the development of new transportation systems and energy sources, engineers play a crucial role in shaping the world we live in and providing hands-on solutions in times of climate crisis. In the context of Ecuador, which is facing a growing need for energy infrastructure development and road infrastructure maintenance, engineering research is particularly valuable.

Despite the challenges of the times, it is important that we continue to promote scientific research in Ecuador and abroad. This is not only because of the potential benefits that such research can bring, but also because science is an essential part of our cultural heritage. Scientific research has been central to human progress for centuries, and it will continue to be so in the years to come.

In conclusion, the value of scientific research in tumultuous times cannot be overstated. The exact sciences, environmental sciences and biology, and engineering all have the potential to provide essential solutions to the challenges facing society today, from climate change to resilient infrastructure. It is essential that we continue to support and promote scientific research in Ecuador and abroad. I would like to take this opportunity to thank all the authors, reviewers, and editors who have made this issue of *ACI Avances en Ciencias e Ingenierías* possible, as well as the staff at USFQ Press who have been indispensable in the daily operations of the journal, and I look forward to continuing to work with you in the years to come.