

Ecuador engagement with CERN in the mid-2010s

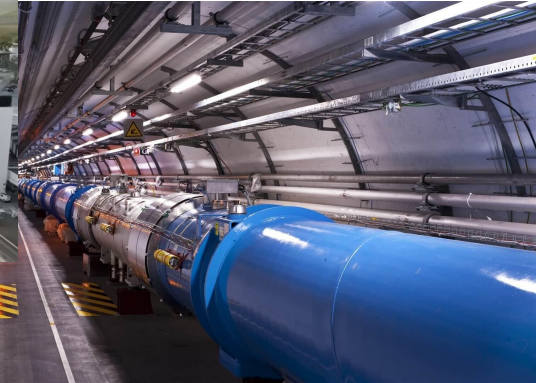
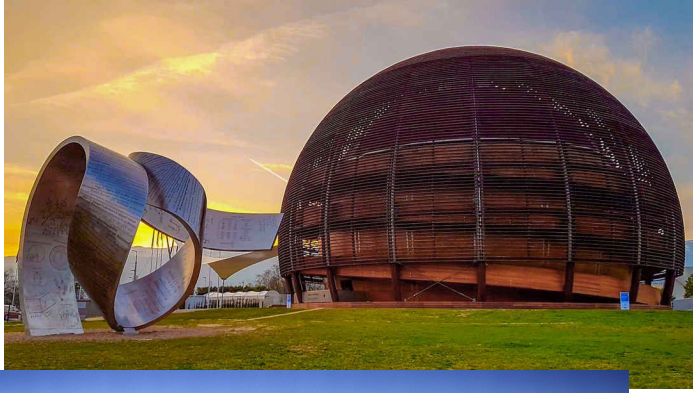
Latin America at CERN
XV SILAFEA, México

Edgar F. Carrera
Universidad San Francisco de Quito, Ecuador



November 4, 2024

2024 A Splendid Place Called CERN: home of the LHC



How did I get involved with CERN?

2004-2010 My Journey Through High-Energy Physics: From Tevatron to LHC

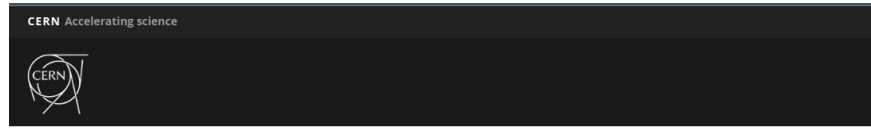


- Graduate Start (2004) began at FSU aiming to join CMS with Yuri Gershtein
- Transition to D0 (2006) joined D0 at Fermilab due to LHC delays
- USFQ Contribution supported D0 at Fermilab from 1992-2017
- Bruce Hoeneisen pioneering work at D0, later helped secure my role at USFQ
- D0 Work (2006-2008) gained experience, met Hoeneisen
- Graduation & Postdoc (2009) graduated, joined CMS as postdoc with Boston University
- LHC Start-Up contributed to CMS HLT as LHC launched
- Key Connections Larry Sulak, linked to Hoeneisen and USFQ founders, championed Ecuador in CMS

How did Ecuadorian HEP groups initiated participation in CERN activities?

1999 Collaboration on Hold: Ecuador-CERN Agreement

- While I was finishing my first year of college at Escuela Politecnica Nacional (EPN), a [Cooperation Agreement](#) between CERN and Ecuador was being signed
- I would be on standby, not really utilized, for more than a decade



News · Press release · Topic: At CERN

Voir en [français](#)

Ecuador signs Co-operation Agreement with CERN

15 JUNE, 1999



H.E. Ambassador Luis Gallegos Chiriboga of the Permanent Mission of Ecuador in Geneva and Prof. Luciano Maiani, Director General of CERN.

Geneva, 15 June 1999. A new Scientific and Technological Co-operation Agreement was formally signed on June 15th 1999 in Geneva by H.E. Ambassador Luis Gallegos Chiriboga of the Permanent Mission of Ecuador in Geneva and Prof. Luciano Maiani, Director General of CERN¹. Prof. Maiani said, "This agreement marks an important step forward in the development of our Laboratory's relationship with physicists in Latin America. We are delighted to formalize our contacts with the scientific community in Ecuador."

Physicists from Ecuador have already worked on CERN experiments, notably L3, and following this agreement will continue to contribute to the CERN scientific programme. Currently, physicists and engineers from various Centres and Universities from Ecuador are creating a joint platform to strengthen collaboration with CERN. The further development of these relationships will be to everyone's advantage. CERN will benefit from the participation of Ecuadorian Particle Physics community in its scientific programme and scientists and engineers from Ecuador will benefit from the unique training opportunities of working with the most advanced technologies on groundbreaking experiments.



CERN Summer Program

2010: The Prometeo Program promoted the idea of collaboration.



- The "Prometeo" program open the door for my return to Ecuador
- It allowed the pursuit of a deeper involvement in experimental HEP

Todos Personal

"Prometeo viejos sabios" en busca de los "cerebros fugados" de Ecuador

Blog de REEM 10 Mayo 2011, 08:08

Con este nuevo programa el Gobierno de Ecuador a través de la Senacyt pretende traer de vuelta a nuestro país a los ecuatorianos que se han formado en el extranjero especialmente en el área de Ciencia y Tecnología para trabajar en las Universidades del país con la finalidad de que contribuyan con sus conocimientos a mejorar la calidad de la educación.



El programa arrancó el año pasado y recibió un estimado de 300 candidaturas, de las cuales se han acogido en el programa «Prometeo» 30 solicitantes.

Edgar Carrera, Físico Especialista en Partículas tiene a su cargo la creación de un equipo de investigación que cuente con el respaldo de la Organización Europea para la Investigación Nuclear (CEARN), con sede en Suiza.

Freud Cáceres se ocupa del rediseño de los servicios de salud públicos de Ecuador.

Santiago Ulloa trabaja en el tratamiento de malezas en los cultivos tropicales

Ricardo Oliva es experto en biotecnología.

2011: The road is not always easy



**10th February
2011-Ambassador
Permanent
Representative of the
Republic of Ecuador to
the United Nations H.E.
Mr Mauricio Montalvo
visiting CMS cavern with
Head of International
Relations F. Pauss**



**1 March 2011 - Ecuadorian
National Secretary of Higher
Education, Science,
Technology and Innovation M.
E. Baldeón signing the guest
book with CERN Head of
International Relations F.
Pauss and Adviser J. Salicio
Diez; visiting the LHC
superconducting magnet test
hall with Technology
Department Head F. Bordry.**

- A [Protocol to the Cooperation Agreement](#) was signed in 2011
- It was an attempt to revive the collaboration effort

CERN Document Server

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New links between Ecuador and CERN

Information Discussion (0) Files

Bulletin Issue: 35/2011 & 36/2011, Mon 29 Aug 2011
>> french version


BUL-NA-2011-209

Also in this Issue:

- New links between Ecuador and CERN
- Are we there yet?
- LHC Report: Good fills but also some technical glitches
- Building a new core website for CERN
- LHCb is trying to crack the Standard Model
- EPLANET: the Europe-Latin America alliance for physics research and education
- CERN at Arles: LHC featured in prestigious photography festival
- SubClones (Alan Parsons) visit CERN – and the subatomic world
- CAST reaches milestone but keeps on searching
- e-FPS News: Light for Development

NEW LINKS BETWEEN ECUADOR AND CERN

A new protocol recently signed in Quito opens the way to stronger links between the Ecuadorian scientific community and CERN. The operational framework provided by the protocol will enable scientists from Ecuador to take part in CERN's projects, supported by the Ecuadorian authorities.



Ecuador's involvement with CERN dates back to 1999 when a first International Co-operation Agreement was signed. However, despite these early beginnings, only a few scientists from Ecuador, affiliated to non-Ecuadorian institutes, have since been directly involved in CERN's projects. In particular the CMS experiment at

2012-2014 Discussions at the highest levels



30 January 2012 - Ecuadorian Ambassador Gallegos Chiriboga, Permanent Representative to the United Nations Office and other International Organisations at Geneva and San Francisco de Quito University Vice Chancellor C. Montúfar visiting CMS surface facilities and underground experimental area with CMS Collaboration L. Sulak and Collaboration Deputy Spokesperson T. Camporesi, throughout accompanied by Head of International Relations F. Pauss.



24 October 2014 - President of the Republic of Ecuador R. Correa Delgado signing the guest book with Vice President L. Moreno and Director for Research and Scientific Computing S. Bertolucci.

2015: Ecuador applies for CMS membership



26 June 2015 - J. Calderón Segovia
Rector Escuela
Politécnica Nacional
Republic of Ecuador
signing the CERN
Guest book with
Director for
Research and
Scientific Computing
S. Bertolucci



EUROPEAN ORGANIZATION FOR NUCLEAR RESEARCH
COMPACT MUON SOLENOID COLLABORATION

URL : <http://cms.cern.ch>



Dr. Tiziano Camporesi
CMS Spokesperson
CERN / PH Department
CH - 1211 GENEVA 23
Switzerland

Tel. +41 22 767 2677
Fax +41 22 766 9476
E-mail Tiziano.Camporesi@cern.ch

Prof. Edy Ayala
Escuela Politécnica Nacional (EPN)

Prof. Edgar Carrera
Universidad San Francisco de Quito
(USFQ)

QUITO-ECUADOR

Geneva, September 17, 2015

Votre référence / Your reference :
Notre référence / Our reference : CMS-20150917/TC/1a

Dear Prof. Ayala and Prof. Carrera,

I am pleased to inform you officially that the applications from the Escuela Politécnica Nacional (EPN) and Universidad San Francisco de Quito (USFQ), Ecuador that were presented during the June 2015 CMS Physics week, were accepted by the CMS Collaboration Board (CB) with an overwhelming majority on 9 September 2015.

You are kindly requested to send the Institute's official letterhead to cms.people@cern.ch and to fill in and return the CERN Users Office form 'Appointment of Team Leader', which will be sent to you shortly by the CMS Secretariat. Please check/complete the data for your group and communicate to us the composition of the group: to get registered with CMS cms.people@cern.ch should be contacted.

Please note that the total number of Physicists (with PhDs) will be used to calculate the Maintenance and Operations Cat. A (M&O-A) cost sharing for 2017, so please specify for them the M&O-B Sub-detector and /or domain of activity * (for more information you can consult the 'MoU for Maintenance and Operation 2002' available at <http://committees.web.cern.ch/Committees/LHCRRB/CMS/CERN-RRB-2002-033.pdf>).

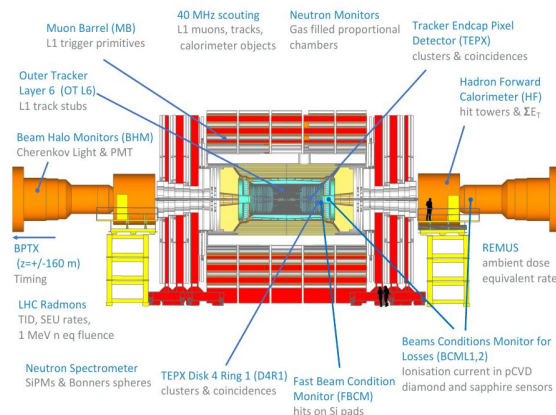
* M&O-B:

Sub-detectors: ECAL/HCAL/Muons/Tracker/Trigger/BRIL
Domain of activity: DAQ, Offline, DI (Det. Integration), GEN (Activity of general interest)

Adresse postale pour le courrier posté en France : CERN - Site de Prévessin, F-01631 CERN Cedex

2015 Signature of CMS MOU

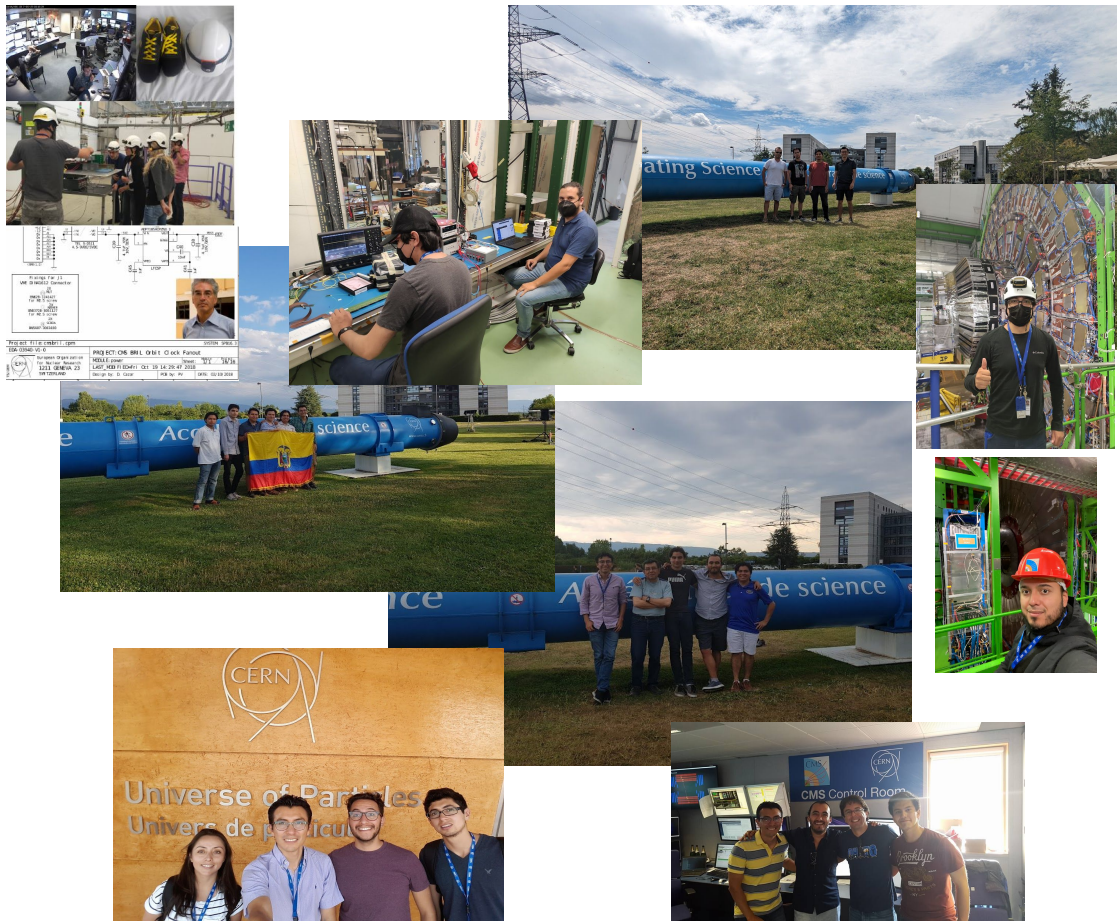
- Ecuador required public university involvement for CERN participation
- USFQ partnered with EPN to secure CMS membership and SENESCYT funding
- Initial involvement focused on the CMS BRIL Subsystem



Which were/are the main challenges and opportunities in sustaining and growing this participation at CERN?

Opportunities: Building a Critical Mass

- CERN training gives Ecuadorian students hands-on experience in advanced physics
- Participation in CERN fosters technical skills and global connections
- CERN association boosted USFQ's Physics Master's program launched in 2019
- Collaborations with CERN build valuable networks for Ecuador's research community



Overcoming Barriers to Sustained Participation at CERN

- Limited funding makes sustaining local physics graduate programs challenging
- Persistent lobbying with SENESCYT is needed to secure ongoing support
- Frequent changes in SENESCYT officials make it hard to keep them updated on CERN projects
- Political instability impacts project continuity and student motivation



Ambassador Izquierdo (last visit to CERN on September 8, 2021) gave message on maintaining Ecuador's commitments)

What key lessons have we learned from these challenges? How could things be different?

Lessons Learned and Path Forward

- Developing ways to engage politicians and communicate CERN's value has been crucial, even if results aren't immediate
- Persistent efforts are needed to secure funding, often requiring resilience and multiple attempts
- Navigating slow bureaucratic processes has taught patience and adaptability
- Growing Ecuador's physicist community could shift efforts from individual to collaborative, strengthening long-term support



November 14 -18, 2022



LASF4RI



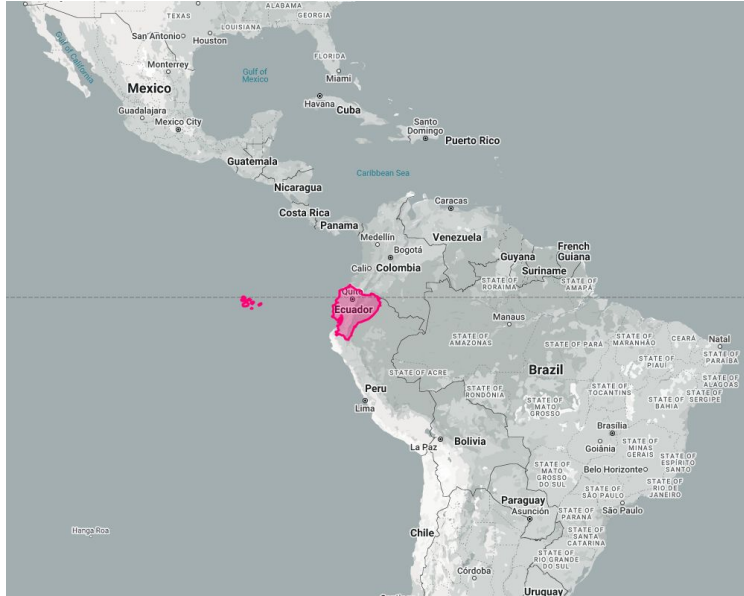
Latin American Strategy Forum for Research I

Developing a strategy to strengthen Latin American Scientific Collaboration

Thanks!

Backup slides

Ecuador: country profile



- Ecuador is one of the smallest countries in South America (SA)
- It is the most densely populated country in SA, with approximately 18 million people.
- Mexico's
 - land area is around 7 times larger than Ecuador's.
 - population is about 7 times that of Ecuador.
 - GDP is roughly 11 times greater than Ecuador's.
 - physics tradition is well established, while Ecuador's community is emerging, focused on growth and global collaboration.