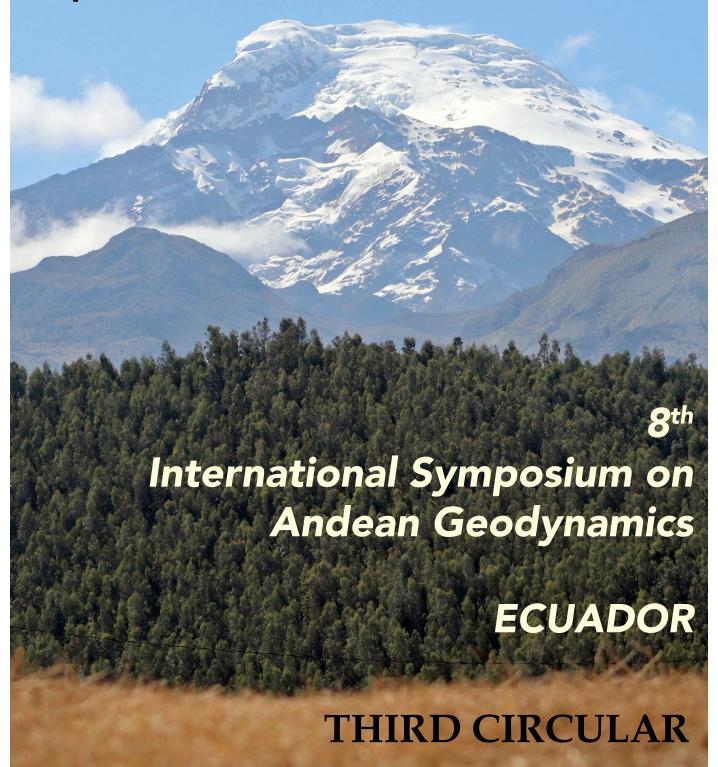








24th - 26th September 2019



Organizers

Instituto Geofísico de la Escuela Politécnica Nacional (IG-EPN)
(www.igepn.edu.ec)
Institut de Recherche pour le Développement (IRD)
(www.ird.fr)

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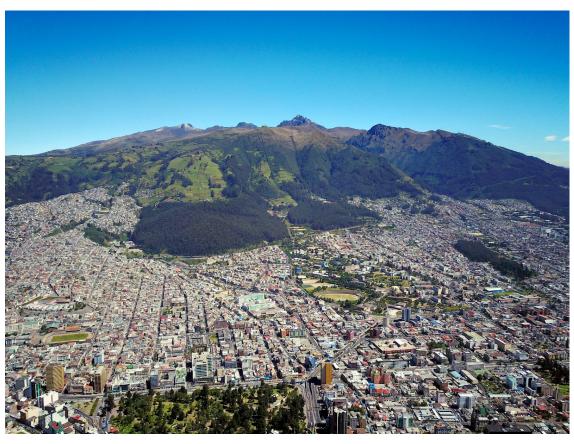
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Quito city and Pichincha volcanic complex. Photo by B. Bernard.

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With the academic and financial support of:













With the financial support of:















Correspondence and enquiries

Please send a message to isag@igepn.edu.ec or contact the local organizers

For more information, you can check the updates on our webpage: www.igepn.edu.ec/8isag

PRESENTATION

The +6000 km-long Andean Cordillera represents a unique natural laboratory for studying the geological and geodynamical process associated with the construction and development of a continental mountain range. A decade after the last ISAG in Nice, we have decided to revive this unique symposium on Andean geology and geodynamics but also its related economical and social issues. Because these topics are of major importance for Andean countries, the 8th International Symposium on Andean Geodynamics (ISAG) will be held in Quito, Ecuador on September 24-26th, 2019.

The next ISAG is being organized by the Instituto Geofísico, Escuela Politécnica Nacional (IG-EPN, www.igepn.edu.ec) of Quito (Ecuador) and the French Institut de Recherche pour le Développement (IRD, www.ird.fr), and will be held on the **Hotel Mercure Alameda Quito** (www.mercurequito.com.ec/en-gb), the official hotel for the ISAG.

We expect that ~250 earth scientists will attend the conference. Given the number of submitted abstracts and the current level of registrations, we are confident that this symposium will be an exciting forum for scientific exchange between Earth scientists from South America, Europe, and North America.



Chimborazo volcano. Photo by A. Vásconez Müller.

Scientific Programme

As usual for this conference, we are planning a "plenary session" during the morning of the three symposium's days, whereas the afternoon will be devoted to oral presentations in two simultaneous "thematic sessions". The poster presentations will take place at the end of each day. In addition, four 45-min-long Keynote talks are scheduled and covers different aspect of the Andean geology. The organizing committee kindly thank Ms. S. Mahlburg Kay, and M. P. Molnar, V.A. Ramos and E. Calais for accepting to give a keynote talk during the next ISAG.

We kindly ask you to check the ISAG webpage (www.igepn.edu.ec/images/portal/eventos/8isag/ISAG2019-Programme.pdf) in order to access the full programme and other additional information.

We also invite you to check the accepted abstracts at the following link: www.igepn.edu.ec/8isag-abstracts

	24 th	25 th	26 th	
	Colon I			
	Salon I			
8h00-8h30	Opening ceremony			
8h30-8h45 8h45-9h00 9h00-9h15 9h15-9h30 9h30-9h45 9h45-10h00	Plenary session	Plenary session	Plenary session	
10h00-10h30	Coffee-break	Coffee-break	Coffee-break	
10h30-11h15	Keynote: V.A. Ramos	Keynote: P. Molnar	Keynote: S. Mahlburg Kay	
11h15-11h30 11h30-11h45 11h45-12h00 12h00-12h15	Plenary session	Plenary session	Plenary session	
12h15-14h00	Lunch	Lunch	Lunch	
	September 24 th	September 25 th	September 26 th	
	Salon I			
14h00-14h15 14h15-14h30 14h30-14h45	Active Tectonics &	Keynote: E. Calais	Magmatism	
14h45-15h00 15h00-15h15 15h15-15h30	Deformation I	Tectonics & Basins I		
15h30-16h00	Coffee-break	Coffee-break	Coffee-break	
16h00-16h15 16h15-16h30 16h30-16h45 16h45-17h00	Active Tectonics & Deformation II	Tectonics & Basins II	Tectonics & Basins III	

17h00-18h30

18h30-19h00

Poster session

Poster session

Poster session

Closing ceremony

September September September

	September	September	September	
	24 th	25 th	26 th	
	Salon II			
14h00-14h15				
14h15-14h30		Keynote: E. Calais		
14h30-14h45	Andean structure		Seismology I	
14h45-15h00 15h00-15h15		\/alaamalaan, TT	3,	
15h15-15h30		Volcanology II		
131113-131130				
15h30-16h00	Coffee-break	Coffee-break	Coffee-break	
16h00-16h15 16h15-16h30 16h30-16h45 16h45-17h00	Volcanology I	Volcanology III	Seismology II	
17h00-18h30	Poster session	Poster session	Poster session	

We received more than 250 abstracts for the 8th ISAG. The organizing committee distributed the oral and poster presentations based in the author's preference as well as in the abstracts contents. The accepted abstracts concern most aspects of Andean geodynamics. Some editing was performed by the Organising Committee, however, we would underline the fact that authors are responsible for the quality of their abstract. The final distribution has been revised and accepted by the ISAG scientific advisory board. Final instructions and updates will be e-mailed to registered participants a few weeks before beginning of the symposium and posted on the ISAG webpage (www.igepn.edu.ec/8isag).

Plenary session

The Organizing committee choose a group of abstracts to be presented as oral communications during the morning's Plenary talks. These abstracts was selected following different criteria such as their broad implications on Andean geodynamics, as well as trying to respect a regional equilibrium.

Thematic Sessions

Based on the received abstracts, the organizing committee organize them in several thematic sessions that include:

- (1) Andean structure imaged by geophysical studies
- (2) Tectonics and Basins
- (3) Andean magmatism
- (4) Active tectonics and deformation
- (5) Seismology
- (6) Andean volcanism

Oral and poster presentations

Talks will last **12 minutes each**, and will be followed by 3 minutes of discussion. For oral and poster sessions, the preferred language is English, although Spanish is also accepted. However, there will be no facilities for simultaneous translation. We request that your presentation will be uploaded in two formats (pptx and pdf) the day before the talk. The organizing committee will install a technical desk close to the conference rooms.

In order to prepare the final program and avoid the potential "no-shows", we kindly ask that the authors to check the tentative program, and report to us in the case that you cannot attend the meeting.

There will be a poster session each day (from 17h00 until 18h30). Posters will remain on display all day long. Maximum dimensions for posters are 80 cm in width (horizontal) and 110 cm in height (vertical). Each poster will be numbered (please see the final programme) and must be hung at its corresponding place before 8h30 in the morning of the day planned for it.

INFORMATION 8th ISAG 2019

Registration

Registration for the ISAG Symposium will be in the lobby of the official Conference Hotel Mercure. Registration schedule will be the following:

Sept. 23rd: 13:00-18:00 Sept. 24th: 08:00-13:00

All participants must register and collect their ISAG ID to participate in the symposium.

Note that the late bird registration fee is 230 USD, excepting for students (100 USD). Registration fees include the conference registration and materials, the ice-breaker welcoming cocktail on September 23th, six coffee breaks, and the conference closing cocktail on September 26th. The ice-breaker welcoming cocktail will be take place at the conference Hotel at 18:00.

Registration fees do not include regular meals, lodging, or transportation.

Cancellation and refunds

Given that we are less than 1 month from the symposium, no refunds will be made.

Special grants

The IG-EPN and IRD are pleased to inform that an important number of special grants were preferentially allocated to scientists and students from South America, and will include registration fees and lodging (in double room) at the conference hotel (Hotel Mercure Alameda Quito). Recipients of these Special Grants were communicated in the previous weeks.

Airport Transfer

Your airport **Transfer IN** to symposium Hotel Mercure is included. If you would like to take advantage of the free airport transfer to the Hotel, please send us your complete flight information (Airline and Flight number, arrival and departure info) as soon as you can.

Airport transfer will only be provided to those who send their flight information and only between the nights of the 22nd and until the morning of the 24th of September.

Look for the sign "ISAG 8th Symposium Ecuador"

We require this information by **September 10**th. Send your flight information to isag-payments@igepn.edu.ec. Resend just to be sure your flight information was received. In the case you have any flight delays or flight cancellations, please let us know by **Email or Whatsapp/ Text to +593 999 800 438** so we can coordinate a new Pick up time for you.

Hotel accommodation

Given that the official hotel is fully booked, we are not accepting additional reservations. Participants are invited to contact the organizing committee (isag-payments@igepn.edu.ec) which may provide other interesting options.

Setting and Climatic Conditions. Quito, located on the Ecuadorian Andes at 2800 meters in elevation, is blessed with a spring-like climate most of the year. September is usually sunny, but afternoon thunderstorms can happen. Daytime temperatures of 20-25°C, and 10-20°C during the night are expected. Participant should be aware with the high altitude of the Quito. Travellers to the Amazon basin or the Pacific coastal area are might be surprised by the warm, but not hot daytime temperatures (25-35°C), thanks to the frequent cloud cover. It is recommended that everyone bring a rain/wind breaker for daily use, especially for those thinking to attend the fieldtrips.

Currency. The local currency in Ecuador is the US dollar. Many exchange houses exist in Quito and credit cards are accepted in ATM.

Transportation from the Airport. Participants with reservations at the proposed hotels will benefit of free transportation from the airport (September 22th and 23th). Please contact the organizing committee **until September 10th** (isag-payments@igepn.edu.ec) in order to arrange this service. Otherwise, there are numerous taxis available at the airport. Quito facilities and most hotels sit roughly 45 minutes away from the airport (one way main rate of 25-30 USD).

Insurance. All medical attention in Ecuador is on a cash basis. You are encouraged to come to Ecuador with adequate insurance coverage. Participants who will be attending certain field trips should be aware of the high elevations that might be reached, and should take the necessary precautions.



Field trips

Different groups working in Ecuador proposed several pre-symposium fieldtrips. The logistics of these fieldtrips is being assured by our local logistics team following the requests from each field-trip leader. We should stress that the scientific part of these fieldtrips is also under the responsibility of the fieldtrip leaders.

The cost of each field trip includes bus and/or air transport, lodging in double occupancy rooms, breakfast, box-lunch, and field guides. These prices do not include dinners. All taxes are included. Given that there are logistic limitations, the number of participants will be restricted.

Field trips will start from the official Hotel Mercure. Please be ready to go 20 minutes before departure time.

Note: Participants are advised that we will be at high elevations, up to 4500 m above sea level (asl). Please be sure that your health is compatible with being at these altitudes. Above 3000 m asl, temperatures will generally be between $5 - 20^{\circ}$ C; driving rain and strong winds are possible. Sunscreen, hats, and adequate clothing are necessities. Water and lunch will be provided in the field. The organizing committee will not be responsible for any accidents that might occur during the trip. Participants are recommended to have their own health and travel insurance.



Photo by B Bernard.

FIELD TRIP 2 8th ISAG 2019

Cotopaxi Volcano: rhyolites to andesites from 0.5 Ma to the present

Leaders: P. Mothes and M.L. Hall (IGEPN)

Dates: September 21th and 22th, 2019

Departure: Sept. 21 at 08:00.

Field Trip nights included: Sept. 21

Notes: Nights of Sept. 20 and 22 are included at the Mercure hotel (shared basis)

If you are interested in participate in this fieldtrip, please contact our logistical team at isag-payments@igepn.edu.ec

Cotopaxi volcano is one of the most active and iconic stratovolcanoes of the Ecuadorian Andes. Its history covers more than 0.5 Ma and includes the rhyolitic explosive deposits of its Pleistocene volcanic history, including the young (~200 ka) 100 km3 Chalupas ignimbrite. During this fieldtrip, we will also observe the eruptive products of the last 7000 ka, that includes rhyolitic tephra fallout and pyroclastic flow deposits, debris avalanche and lahar deposits, and the historical scoria flows and debris flows deposits.



Photo by FJ. Vasconez.

FIELD TRIP 3 8th ISAG 2019

Major active faults and historic earthquake surface ruptures in Central Ecuador

Leaders: S. Baize (IRSN), L. Audin (IRD), A. Alvarado (IG-EPN) and H. Jomard (IRSN)

Dates: September 20th to 23th, 2019

Departure: Sept. 20 at 07:30.

Field Trip nights included: Sept. 20, 21 & 22

Notes: Night of Sept. 19 is included at the Mercure hotel (shared basis)

If you are interested in participate in this fieldtrip, please contact our logistical team at isag-payments@igepn.edu.ec

The Chingual-Cosanga-Pallatanga-Puna fault system is a major tectonic feature of the northern Andes, which accommodates the relative displacement (8 mm/a) between the North Andean Sliver and the South America Plate. The fault system imprints are strikingly similar to those of other major continental fault zones in the world. It includes a series of parallel or branching active fault strands, which historical activity is suggested by major and damaging earthquakes since at least the 17th century.

During this 4-days field trip, we plan to present, among other short stops, the most prominent geomorphological and geological evidences of fault activity along this system, including surface ruptures associated with moderate and large magnitude earthquakes. We will have a look at Quito fault zone (Alvarado et al., 2014), then drive to the south in order to know some of the recently studied sites, extending from the Pallatanga fault in Rumipamba where the first trenches in Ecuador were performed to find back the source of 1797 M7.5+ (Baize et al; 2015) to the Pisayambo Laguna area where a M5 earthquake ruptured the fault system up to the surface (Champenois et al., 2017). We will also make a detour to the Igualata volcano summit (4500m) to get a look at the surface rupture associated with the major M7.5+ 1797 Riobamba earthquake (Baize et al., 2019).



Trench studied at Pallatanga Fault. Photo by A. Alvarado.

The geology of the Ecuadorian Eastern Cordillera

Leaders: R.A. Spikings (U. Genève), B. Beate (DG-EPN)

Dates: September 20th to 23th, 2019

Departure: Sept. 20 at 07:00.

Field Trip nights included: Sept. 20, 21 & 22

Notes: Night of Sept. 19 is included at the Mercure hotel (shared basis)

If you are interested in participate in this fieldtrip, please contact our logistical team at isag-payments@igepn.edu.ec

The Eastern Cordillera of Ecuador is an Andean trending magmatic and metamorphic belt that exposes rocks spanning from the Palaeozoic basement to the modern active arc, and records the early disassembly of Pangaea in the Triassic, subsequent prolonged Jurassic - Early Cretaceous active margin magmatism during hyper-extension, and the collision and accretion of the Caribbean Large Igneous Province in the late Cretaceous. The field trip plans to make the following stops: (1) Ammonite bearing quartzites and slates of the Chaucha Block, which is considered to be para-auto-chthonous continental crust that rifted from South America during Early Cretaceous hyper-extension (stop close to the town of Alausi); (2) The Peltetec sequence, which is a tectonic melange that hosts ultra-mafic and mafic lithologies, which range in age from Neoproterozoic to Early Cretaceous, and is considered to have formed during the closure of an Early Cretaceous basin that was floored by a transitional mafic crust; (3) Tungurahua Volcano, which is part of the modern arc and has been continually erupting since 1999 until the mid-2016; (4) A west-to-east traverse across the Cordillera, where we will cross Triassic anatectites that formed during a rift-to-drift transition, and Jurassic-Early Cretaceous arc rocks that formed in a prevailing extensional setting.



Sheared metasedimentary rocks of the Alao-Paute Arc, unconformably overlain by basaltic lavas of Volcano Tungurahua. (Town of Baños). Photo by R. Spikings.

Ecuadorian Geology Conference

Organizers: R.A. Spikings (U. Genéve) and B. Beate (DG-EPN)

Dates: September 18th and 19th, 2019

The 2nd Workshop on Ecuadorian Geology will directly precede the International Symposium on Andean Geodynamics (ISAG), and will be held on the campus of the Escuela Politécnica National, Quito. The workshop is two days long, and we invite delegates to submit abstracts for oral presentations, which are presented in a single session during the first day, and the morning of the second day. We also encourage delegates to submit an abstract to the ISAG. Abstract are requested on all aspects of Ecuadorian geology, including field studies, structural, magmatic and metamorphic studies, sedimentary, petroleum and ore geology. We also encourage presentations that include the application of innovative analytical methods to Ecuadorian geology. The final afternoon is reserved for discussion groups, who regroup towards the end of the day and present their findings and recommendations to all delegates. The 1st Workshop occurred in September 2017, and was initiated to discuss the Geological Map of Ecuador, which was released by INIGEMM in 2017. Discussion groups during the 1st Workshop included, i) The Alamor-Lancones Basin, ii) Outstanding questions about the geology of the Cordillera Real, and iii) the geology of the Oriente Basin.

REMAKE – Seismic Risk in Ecuador: Mitigation, Anticipation and Knowledge of Earthquakes (2016-2020)

Organizers: Ph. Charvis (Geoazur), A. Alvarado (IGEPN)

Dates: September 27th and 28th, 2019

The aim of this project is to develop a pilot prototype of earthquake forecast model in Ecuador and in Peru where major earthquakes and tsunamis are likely to occur in the future. The novelty of the model is that it will integrate our complete knowledge on faults, including their seismic potential quantitatively evaluated from geodetic, seismological and geological approaches.

The primary deliverable is the anticipation of the location, size, frequency, ground motions of future destructive events. Our project includes a focus on hazards and vulnerability in Quito, and the development of a near real-time seismic response platform.

We will present the state of the art of the program including the deformation and seismic activity before and after the main shock of the Pedernales Mw=7.8 Earthquake which struck Ecuador in 2016. This program is supported by the grant ANR-15-CE04-0004 of the French National Research Agency, by the IG-EPN, IRD and CNRS.

Seventeen years (1999-2016) of eruptive activity at the Tungurahua andesitic volcano

Organizers: S. Vallejo (IG-EPN), B. Bernard (IG-EPN), S. Hidalgo (IG-EPN), P. Samaniego (IRD), P. Mothes (IG-EPN), J.L. Le Pennec (IRD), M. Ruiz (IG-EPN), P. Ramon (IG-EPN), H. Yepes (IG-EPN)

Dates: September 28th to October 1st, 2019

Tungurahua volcano is one of the most active volcanoes of the Ecuadorian Andes. After ~75 years of quiescence, Tungurahua reactivated in Oct 1999 and remain active until the mid 2016. During this time, the volcano experienced low-to-moderate eruptive activity characterised by frequent canon-like explosions, local ash dispersal and frequent lahars. This pattern of activity changed in 2006, when the large subplinian eruptions occurred (July 14th and August 16th) and produced large pyroclastic density currents and regional tephra dispersal. Since then, eruptive activity evolved to short-lived vulcanian-like events followed by smaller explosions and almost frequent ash emissions (February 2008, May 2010, December 2012, July 2013, February and April 2014, February 2016).

The main goal of this workshop is to commemorate the 20th anniversary of the beginning of this eruption by bringing together volcanologists that have worked or still work on Tungurahua, and more broadly researchers interested in how andesitic volcanoes work.

We seek contributions from different approaches, such as physical volcanology, petrology, geophysics and those interested on the social issues associated with this long-lived eruption period.

More information at www.igepn.edu.ec/8isag-other-events/8isag-workshop



OVT and the quiet Tungurahua volcano. Photo by M. Córdova.

