

# Juan Carlos SILVA-TAMAYO, PhD

## Marie Curie Postdoctoral Fellow

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## Academic history

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- 2012-present** **Marie Curie Postdoctoral Fellow.** Stanford University (USA) - University of Leeds (U.K.)  
I am using multi-isotope proxies ( $\delta^{44/40}\text{Ca}$ ,  $\delta^{26}\text{Mg}$ ,  $\delta^{238/235}\text{U}$ ,  $\delta^{98/95}\text{Mo}$ ,  $\delta^{34/32}\text{S}$ ,  $\delta^{88}\text{Sr}/\delta^{86}\text{Sr}$ ) in carbonates and black shales to investigate the effects of past ocean acidification and de-oxygenation during periods of high atmospheric  $p\text{CO}_2$  and biologic crises and diversifications; i.e. Ediacaran, Permian-Triassic and Triassic-Jurassic.
- 2010-2011** **Postdoctoral Fellow.** Smithsonian Tropical Research Institute, USA-Panama.  
I applied sequence stratigraphic, chemostratigraphy (Sr-, C- and O- isotopes) and carbonate U-Pb geochronology to date and relate changes in the Cenozoic Caribbean carbonate fabrics to past environmental, tectonic and climatic changes.
- 2005-2009** **Ph.D. in isotope geochemistry.** Universitat Bern, Bern, Switzerland.  
Title of dissertation: Major variations in the global biogeochemical cycles in the aftermath of the Neoproterozoic glaciation: A multi-proxy approach.
- 2000-2004** **M.Sc. in environmental and sedimentary sciences.** Universidade Federal de Pernambuco, Recife, Brazil.  
Title of dissertation: C, O- and Sr-isotope stratigraphy of the Sao Caetano Complex, Borborema Structural Province, NE Brazil.
- 1999** **B.Sc. in Geology.** Universidad EAFIT, Medellin, Colombia.  
Title of dissertation: Sequence stratigraphy and petrography of the Upper Amaga Member of the Coal Amaga Formation-Antioquia.

## Employment history

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### Academic experience

- 2011-present** **Assistant professor in sedimentary and environmental Geology.** Universidad de Caldas, Manizales, Colombia.  
I am teaching courses in stable isotope geochemistry, environmental geology, carbonate sedimentology and geochemistry, and field geology.

**2004-2005** **Teaching Assistant.** University of Tennessee, Knoxville, USA.  
Sedimentary Geology and Stratigraphy.

### **Industrial experience**

- 2013**      **Consultant.** Hocol Petroleum Company.  
Sequence stratigraphy, chemostratigraphy, and paragenetic characterization of Cenozoic Carbonate succession from the northern part of the San Jacinto Folded Belt Basin, northern Colombia.
- 2013**      **Consultant.** Gran Tierra Petroleum Company.  
Sequence stratigraphy, chemostratigraphy and paragenetic characterization of Cretaceous carbonate and siliciclastic successions along the Putumayo Basin, southern Colombia.
- 2012**      **Consultant.** PETROBRAS, REPSOL, Colombian Petroleum Company (consortium).  
Sequence stratigraphy and carbonate characterization (using Petrography, CL, elemental and isotope geochemistry, carbonate U-Pb dating) of Cenozoic carbonate successions along La Guajira Peninsula, northern Colombia and Panama.
- 2011- 2012**    **Consultant.** PETROBRAS, Pacific Rubiales, Colombian Petroleum Company (consortium).  
Sequence stratigraphy and reservoir characterization of Cretaceous carbonates along the Cesar Rancheria Basin, northern Colombia.
- 2010-2011**    **Consultant.** Colombian National Agency of Hydrocarbons (ANH)  
Stratigraphy and carbonate characterization (using Petrography, Cathodoluminescence, elemental and isotope geochemistry) of potential carbonate gas reservoirs along the San Jacinto frontier basin, NW Colombia and the Colombian Pacific.
- 2010-2011**    **Consultant.** Colombian Petroleum Company (ECOPETROL).  
Stratigraphy and carbonate characterization (using Petrography, CL, elemental and isotope geochemistry, carbonate U-Pb dating) of Cenozoic carbonate successions along La Guajira Peninsula, Colombia and Panama.

### **Research grants**

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- 2012**      **Marie Curie IOF program grant (European Union).**  
Investigating the effects of past and recent ocean acidification using multi-proxy geochemical indicators.  
PI: Juan Carlos Silva-Tamayo  
Grant Amount: € 400.000.
- UNESCO Man and Biosphere grant program.**  
Holocene paleoclimatic reconstruction of the northwest of Latin America: a multi-proxy and multi-scale approach.

P.I. Juan Carlos Silva-Tamayo

Grant Amount: US\$ 5000

**2005**

***Universitat de Bern- Swiss National Science Foundation scholarship.***

Project: Mo and Ca- isotopes in carbonates.

PI: Thomas F. Nagler

Grant amount CHF\$ 120.000

***Sigma-Xi research grant.***

Project: Modeling changes in global oxygenation levels during the lower Paleozoic explosion of animal life.

PI: Juan Carlos Siva-Tamayo

Grant amount US\$ 1000

***Society of paleontologist and sedimentologists (SEPM) research grant.***

Project: investigating changes in global oxygenation levels during the Ediacaran.

PI: Juan Carlos Siva-Tamayo

Grant amount US\$ 1.500

***Geological Society of America (GSA) research grant.***

Project: Major fluctuation in global biogeochemical cycles associated to the Neoproterozoic global glaciations.

PI: Juan Carlos Siva-Tamayo

Grant amount US\$ 1.500

***University of Tennessee Travel Grant.***

PI: Juan Carlos Siva-Tamayo

Grant amount US\$ 1000

**2010-2011**

***-Colombian Agency for the Advance of Culture and Science, COLFUTURO Research Grant.***

Project: Stable isotope stratigraphy as a correlation tool of Mesoproterozoic Carbonate sequences.

PI: Juan Carlos Siva-Tamayo

Grant amount US\$ 50.000

## **Teaching and Advising**

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### **Teaching**

**2011-**

***Universidad de Caldas, Manizales, Colombia***

**Present**

Environmental Geology, instrumental analysis, Carbonate geochemistry, stable isotopes geochemistry, Colombian geology, field geology.

**2010**

***Universidad Nacional de Colombia, Medellin, Colombia***

Traditional and non-traditional stable isotopes, analytical techniques and applications.

**2010**      **14<sup>th</sup> Latin American Geological Congress**  
Traditional and non-traditional stable isotopes, analytical techniques and applications.

**2004-2005**    **University of Tennessee, Knoxville, Tennessee, USA.**  
Sedimentary geology  
Introductory Geology

### Advising

**Graduate students**    - Juan Sebastian Rosero (MSc, Universidad de Caldas). Graduated in May 2013)  
- Veronica Ramirez (MSc, Universidade de Sao Paulo). Expected graduation in December 2013)  
- Jimena Jiraldo (MSc, Universidad de Caldas). Expected graduation in March 2014)

**Undergraduate students**    - Annika Bruetske (Leipzig Universitat Hannover). Graduated in March 2013)  
- Veronica Ramirez (Universidad EAFIT). Graduated in October 2012  
- Natalia Ocampo (Universidad de Caldas). Graduated in March 2013  
- Marcela Montealegre (Universidad de Caldas). Graduated in March 2013  
- Cataliana Ramirez (Universidad de Caldas). Graduated in May 2013  
- David Trujillo (Universidad de Caldas). Graduated in May 2013  
- Efer Nomeski (Universidad de Caldas). Expected graduation in November 2013  
- Carolina Bedoya (Universidad de Caldas). Expected graduation in November 2013  
- Ana Osorio (Universidad de Caldas). Expected graduation in January 2014  
- Leidy Rojas (Universidad de Caldas) Expected graduation in January 2014  
- Juan Camilo Gomez (Universidad de Caldas) Expected graduation in March 2014

## Public and Professional Service

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### Invited and keynote Talks

**2013**      **Invited Speaker Colombian Association of Petroleum Geologist (Bogota, Colombia).** Precise U-Pb dating of Cenozoic tropical reef carbonates: Linking the evolution of Caribbean reef carbonates to Cenozoic climate, environmental changes and oil reservoirs.

**2012**      **Invited speaker, Helmholtz Center for ocean Research, Geomar (Kiel, Germany).** Mo and Ca isotope evidence of ocean de-oxygenation and acidification leading to the end Permian biologic catastrophe.

**Invited speaker, faculty seminar, University of California Santa Cruz ( Santa Cruz, USA).** Precise U-Pb dating of Cenozoic tropical reef carbonates: Linking the evolution of Caribbean reef carbonates to Cenozoic climate

**Invited speaker, Leipzig Universitat Hanoover (Hannover, Germany).** Multi-proxy evidence of changes in the global biogeochemical cycles along the Permian-Triassic biologic crises.

**Keynote Speaker, VII South American Symposium on Isotope Geology (Medellin, Colombia).** Precise U-Pb dating of Cenozoic tropical reef carbonates: Linking the evolution of Caribbean reef carbonates to Cenozoic climate, environmental changes and oil reservoirs.

**Invited speaker, Repsol, Ecopetrol, Petrobras consortium (Bogota, Colombia).** Carbonate sequence stratigraphy and reservoir characterization of Cenozoic carbonate successions along northern South America.

**Invited speaker, Italian Hydrocarbon Company, ENI, (Milan, Italy).** Precise U-Pb dating of Cenozoic Carbonates along the SE Circum-Caribbean.

**2011** **Invited speaker, Smithsonian Tropical Research Institute (Panama, Panama).** Multiproxy evidences of past ocean acidification: Clues for the 21<sup>st</sup> Century Earth.

**2010** **Invited speaker, Universidad EAFIT (Medellin, Colombia).** Mo-isotopes as a proxy of past oceanic oxygenation.

**2007-2006** **Invited speaker, Geological Sciences Seminar, ETH-Zurich (Zurich, Switzerland).** Changes in the geochemistry of Neoproterozoic Postglacial Oceans: A Multi-Proxy approach

**Invited speaker, University of Sao Paulo (Sao Paulo, Brazil).** Ca- and Mo-isotope stratigraphy of Neoproterozoic cap-carbonate successions

**Keynote speaker Annual meeting Brazilian Academy of Sciences (Recife, Brazil).** Mo- and Ca-isotopes in carbonates as tracers of changes in the global biogeochemical cycles: Applications, preliminary results and perspectives.

### **Conference and congresses organization**

**2012** **Member of the organizing and Scientific Committees** "VII South American Symposium on Isotope Geology "(Medellin, Colombia)

**2011** **Director Scientific workshop** "exploring scientific prospectus of the International Continental Drilling Program (ICDP) in NW South America" (Medellin, Colombia)

**Convener** "1st Symposium on traditional and non-traditional stable isotopes". 14<sup>th</sup> Latin American Geological Congress (Medellin, Colombia)

### **Peer reviews for scientific journals**

-Journal of South American Earth Sciences, Elsevier.

-Revista Biológica Tropical

-Anais da Academia Brasileira de Ciencias, Academia Brasileira de Ciencias

-Boletín de Ciencias de la Tierra, Universidad Nacional de Colombia  
-Boletín de Geología, Universidad industrial de Santander

## **Publication record**

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### **Publication in peer-reviewed journals**

- 2010**
- Silva-Tamayo J.C., Nägler T, Newton R, Wignall P, Grice K & Böttcher M. 2010 Global Shallow Marine Euxinia Triggering the Latest Permian Mass Extinction: Evidence from Mo-Isotopes. Editor Choice, *Science*
  - Silva-Tamayo, J.C., Nägler, T.F., Nogueira, A., Kyser, K., Villa Igor, Riccomini, C., Sial, A.N., Narbonne, G.M., James, N.P. 2010. Global perturbation of the marine Ca-isotopic composition in the aftermath of the Marinoan global glaciation. *Precambrian Research*, 182, 373-381
  - Silva-Tamayo, J.C., Nägler, T.F., Villa, I.M., Kyser, K., Vieira, L.C., Sial, A.N., Narbonne, G.M., and James, N.P. 2010. Global Ca isotope variations in Post-Sturtian carbonate successions *Terra Nova* 22, 188-194
- 2008**
- Silva-Tamayo, J.C., Sierra, G.M., Correa, L.G., 2008. Tectonic and climate driven fluctuations in the stratigraphic base level of a Cenozoic continental coal basin, northwestern Andes, *Journal of South American Earth Sciences*, 26, 3869-382
- 2005**
- Silva-Tamayo, J.C., Sial, A.N., Ferreira, V.P., Pimentel, M.M., 2005, C- and Sr-isotope stratigraphy of the São Caetano Complex, northeastern Brazil: a Contribution to the study of the Meso-Neoproterozoic seawater geochemistry. *Brazilian Academy of Science*, 35, 137-155.
- 2004**
- Marques, W., Silva-Tamayo, J.C., Sial, A.N., Menor, A., 2004, Análises de  $\delta^{13}\text{C}$  e  $\delta^{18}\text{O}$  em foraminíferos da margem continental do Nordeste Brasileiro entre os estados do Ceará e Pernambuco. *Boletim de Geologia* UFC, v. 30, 1-25.
  - Sierra, G., Silva-Tamayo, J. C., Correa, L., 2004. Estratigrafía Secuencial de la Formación A maga. *Bol. Cien. Tierra*, 15, 9-22.

### **Submitted in peer-reviewed journals**

- Silva-Tamayo, J.C., Rosero, J.S., Sial, A.N., Machado, A., Pardo, A., Montes, C., Cardona, A., Zapata-Ramírez, P.A., Zapata, V., Ramirez, V., Nino H. Changes in the Eocene-Miocene marine carbonate factories along the tropical SE Circum-Caribbean Region follow major regional and global environmental and tectonic events, *Paleogeography, Paleoceanography, Paleoclimatology, Paleoecology* (2013).
- Rosero, S., Silva-Tamayo, J.C., Alcides N. Sial, A.N., Borrero, C. Pardo, A. Sr chemostratigraphy of some Eocene-Miocene successions of northern Colombia. *Journal of South American Earth Sciences* (2013).
- Silva-Tamayo, J.C., Weyer, S., Payne, J.L., Wignal, P.B., Newton, R., Bruetzke, A., Neubert, N., Maher, K., Lau, K. Mo- and U-isotopes suggest widespread ocean euxinia triggering the latest Permian mass extinction. *Proceeding*

National Academy of Science of the USA (2013)

-Silva-Tamayo J.C., Payne J.L., Eisenhauer, A , Wignall P. B., Newton R. J. Global perturbation of the Marine Ca isotope cycle during the Permian-Triassic transition. Geological Society of America Bulletin (2013)

### **In preparation for peer-reviewed journals**

- Silva-Tamayo, J.C., Weyer, Wignall, P., Newton. R., More evidence of rapid enhancement of marine euxina as triggering the latest Permian mass extinction: Evidences from Mo-isotopes.
- Silva-Tamayo, J.C., Weyer, S. Sial, A.N., Raiswell, R., Nogueira, A., Ricomini, C. Mo and U isotope evidences of changing local and global oceanic redox conditions in the aftermath of the Marinoan global glaciation.
- Silva-Tamayo, J.C., Coccionni, R., Scopelletti, G. Mo-isotopes evidence for increased anoxia during OAE-2, distinguishing local from global signals.
- Silva-Tamayo, J.C., Payne, J.L., Wignall P.B., Newton R.J., Neubert, N, Brueske, A., Eisenhauer A., Weyer, S, Fietzke, J., Maher, K. Ca, Mo and U isotopes suggest Neoproterozoic-like ocean conditions during the Late Permian Mass Extinction.
- Silva-Tamayo, J.C., Rise, Justin, Eisenhauer, A., Paytan, A. Major perturbations in the Ediacaran marine Ca and Sr stable isotope cycle reflect profound changes in ocean chemistry during the advent of biomineralization.

### **Abstracts and Extended Abstracts**

**2013**

- Silva-Tamayo, J.C., Payne, J.L., Wignall P.B., Newton R.J., Neubert, N, Brueske, A., Eisenhauer A., Weyer, S, Fietzke, J., Maher, K., Lau, Kim, Ca, Mo and U isotope evidences of ocean acidification and deoxygenation during the Late Permian Mass Extinction. Geological Society of America Annual Meeting, Denver, Colorado, USA
- Ramírez, C., Trujillo, D., Silva-Tamayo, J.C., Sial, A.N., Pardo, A., Salazar, E., Valencia, V. Caracterizacion diagenetica y quimioestratigrafia de sucesiones de carbonatos con potencia de generacion y acumulacion de aceites y gases en el Caribe sur oriental: Miembro Kesima de la Formacion Palanz. Congreso Colombiano de Geologia, Bogota, Colombia
- Silva-Tamayo, J.C., Bayona, G., Sial, A.N., Ocampo, N., Montealegre, M., Álvarez, A., Jiménez, H. International Convention AAPG, Cartagena, Colombia C- And Sr- Isotope Age Constraining Oceanic Anoxia In Northern Colombia: Implications For Dating The Cretaceous Caribbean Oil System
- Silva-Tamayo, J.C., Payne, J.L., Wignall P.B., Newton R.J., Neubert, N, Brueske, A., Eisenhauer A., Weyer, S, Fietzke, J., Maher, K. Ca, Mo and U isotopes suggest Neoproterozoic-like ocean conditions during the Late Permian Mass Extinction. Goldschmidt conference, Florence, Italy.
- Silva-Tamayo, J.C., Rosero, J.S., Sial., A.N.,Pardo, A., Cardona, A. Sr-isotope geochemistry as an alternative provenance and correlation tool of shallow marine carbonates. Environmetal Meeting, Ascona, Switzerland.
- Payne, J.L. Silva-Tamayo, J.C. Maher, K., Hinojosa, J., Jost, A.B., Brown, S., Chen J., , Paytan, A., Shen S., DePaolo, D.J., Eisenhauer, A., Lehrmann D.L., Altiner, D.,

Meiyi Y. Calcium isotope constraints on global carbon cycle dynamics during the end-Permian mass extinction, GSA-GSC joint meeting, Chendou, China

- Silva-Tamayo J.C., Weyer Stefan, Wignall P. B., Payne, J.L., Newton R. J., Neubert N., Brueske, A., Lau K., Maher K. Mo And U Isotope Evidence Of Ocean Euxinia During The End-Permian Mass Extinction, GSA-GSC joint meeting, Chendou, China
- Cardona, A. Montes, C., Bayona, G., Jaramillo, S., Lopez-Martinez, M., Silva-Tamayo, J.C., Valencia, V., Vanegas, J., Zapata, S. Timing tectonic processes associated to the Late Cretaceous to Paleogene transition from collision to subduction in the Northern margin of Colombia. AGU meeting of the Americas, Acapulco, Mexico

## 2012

- Silva-Tamayo, J.C., Rosero, J.S., Sial, A.N., Machado, A., Pardo, A., Montes, C., Cardona, A., Zapata-Ramírez, P.A, Zapata, V., Ramirez, V., Nino H. Precise U-Pb dating of Cenozoic tropical reef carbonates: Linking the evolution of Cenozoic Caribbean reef carbonates to climatic and environmental changes.
- Silva-Tamayo, J.C., Cardona, A., Bayona, G., Pardo, A., Sial, A. N., Valencia, V. Montes, C., Alvarez, A., Jimenez, H., Multi-Proxy Age Constrains Of Lower Cretaceous Marine Extension And Oceanic Anoxia In Northern Colombia: Paleogeographic Implications, GSA Cordilleran Meeting
- Silva-Tamayo, J.C., Cardona, A., Pardo, A., Ducea, M., Rosero, S., Montes, C., Valencia, V. Sr-Isotope Stratigraphy As An Alternative Provenance Tool Of Oligocene And Miocene Sediments Along Nw Colombia: Paleogeographic Implications For The Caribbean Plate- South America Interaction Sr-Isotope Stratigraphy As An Alternative Provenance Tool Of Oligocene And Miocene Sediments Along Nw Colombia: Paleogeographic Implications For The Caribbean Plate- South America Interaction GSA Cordilleran Meeting
- Quiroz, L., Buatois, L., Mangano, M., Cardona, A., Montes, C., Silva-Tamayo, J.C., Jaramillo, C. Miocene Deltaic Sedimentation In The Falcon Basin And Its Relation To Climate And Caribbean Tectonics. GSA Cordilleran Meeting
- Zapata, S., Cardona, A., Bayona, G., Bustamante, C., Silva-Tamayo, J.C., Valencia, V., Tracing Major Changes In Middle Mesozoic Plate Convergence In The Northern Andes: Insights From The Jurassic Magmatic Record Of Southern Colombia, GSA Cordilleran Meeting
- Cardona, A., Bayona, G., Jaramillo, S., Vanegas, J., Silva-Tamayo, J.C., Valencia, V., Quiroz, L., Pardo, A. Reading The Fragmentary Record Of Late Cretaceous To Eocene Arc-Continent Collision And Subduction Initiation In The Southern Margin Of The Caribbean, GSA Cordilleran Meeting

## 2011

- Silva-Tamayo J.C., Montes C, Cardona A, Jaramillo C, Bayona G, Ramirez V, Nino H, Ducea M, Sial A & Zapata V. The Interaction between Central and South America from Sr-Isotope Chemostratigrphy of Cenozoic Coral Reef Sucessions Goldshmidt conference, Prague
- Silva-Tamayo, J.C. Multi Isotope Tracers Of Oceanic Acidification And Deoxidification During The Precambrian And The Late Permian Biologic Crisis.
- Mantilla, G.; Pardo-Trujillo, A.; Pérez, E.; Borrero, C.; Silva, J.C.; Castillo, H. Distribución De Materia Orgánica Microscópica (Palinofacies) En Los

Sedimentos Recientes De La Bahía De Tumaco (Pacífico Colombiano), Latin American geological Congress.

- Pardo, A.; Cardona, A., Silva-Tamayo, J.C., Borrero, C., John Edison. Geocronología U/Pb En Circones Detriticos Del Complejo Quebradagrande: Nuevos Datos Sobre La Procedencia De Los Sedimentos Cretáceos En La Margen Nw De Suramérica. Latin American geological Congress.
- Restrepo, L.C. Rosero, J.S., Arroyave, C., Borrero, C., Pardo, A., Silva-Tamayo, J.C., Cardona, A., Flores, J.A., Navarrete, R., Gómez, C. Estratigrafía Del Pozo Choco 1-St-S: Neógeno Del Pacífico Colombiano. Latin American geological Congress.
- Rosero, J. S.; Silva-Tamayo, J. C.; Pardo, A.; Ducea, M.; Echeverri, S.; Cardona, A.; Borrero, C.; Castillo, H.; Gómez, C. Cronoestratigrafia Del Tortoniano-Piacenziano Basada En Isotopos De Estroncio (Pozo Tumaco-1-St-S, Pacifico Colombiano). Latin American geological Congress.
- Rosero, J. S.; Borrero, C.; Pardo, A.; Cardona, A.; Silva, J.C.; Flores, A.; Navarrete, R.; Restrepo, L.; Arroyave, C.; Gómez, C. Estratigrafia De La Subcuenca San Jorge A Partir Del Estudio De Pozos Someros (Nw Colombia). Latin American geological Congress.

**2009-2008** -Silva-Tamayo J.C., Nägler T, Newton R, Wignall P, Grice K & Böttcher M. Global Shallow Marine Euxinia Triggering the Latest Permian Mass Extinction: Evidence from Mo-Isotopes. Goldshmidt Conference, Davos.

- Silva-Tamayo, J.C., Nägler, T.F., Nogueira, A., Villa, I., Riccomini, C. Sial, A.N.. More evidences of a short lived global perturbation in the marine Ca-isotope composition in the aftermath of the 0.635 Ga global glaciation. 32<sup>nd</sup> International Geological Congress, Oslo, Norway, Abstracts

**2007-2006** - Silva-Tamayo, J.C., Nägler, T.F., Villa, I.M. Kyser, K., Sial, A.N., da Silva Flho, M.A. Narbone, G.James, N.P. Preservation of the sedimentary Ca-isotope composition in Neoproterozoic post-glacial cap-carbonates, 3<sup>rd</sup> Calcium workshop, Bohum, Germany, Abstracts, p.10

- Silva-Tamayo, J.C.; Nägler, T.F. ; Villa, I.M.; Kyser, K.; Narbonne, G.M.; James, N.P.; Sial, A.N.; da Silva Filho, M.A. The aftermath of Snowball Earth: Ca- and Mo-isotope constraints on post-glacial ocean conditions. European Geoscience Union Annual Meeting, Vienna, Austria, Abstracts CD.

- Silva-Tamayo, J.C.; Nägler, T.F.; Ifrim, C.; Stinnesbeck, W, Mo-isotopes evidence for widespread anoxia during OAE-2. European Geooscience Union Annual metting, Vienna, Austria, Abstracts CD.

- Silva-Tamayo, J.C., Sial, A.N., Ferreira, V.P., Pimentel, M.M., Arenas, J.E., Cediel, F., Jiménez Mejia, D.M., Estrada, J.J. C- AND Sr- isotope stratigraphy of Ediacaran carbonate successions in central and eastern Colombia: remnants of the Iapetus ocean, XI Brasilian Geochemical Congress, Sao Paulo, Brazil, Abstracts CD.

- Silva- Tamayo, J.C., Nägler, T.F., Sial, A. N., Villa, I.M., Da Silva Filho, M.A., Ca- versus C-isotope stratigraphy of two post-Snowball Earth cap-carbonate successions in NE Brazil. XI Brasilian Geochemical Congress, Sao Paulo, Brazil, Abstracts CD.

- Silva-Tamayo, J.C., Nägler, T.F., Villa, I.M. Kyser, K., Sial, A.N., Narbone, G.M, James, N.P, da Silva Filho, M.A. Global Ca-isotope signatures in post-Snowball Earth cap-carbonates. Goldshmidt Conference, Collogne, Germany, Abstracts

CD.

- Silva-Tamayo, J.C., Sial., A.N., Ferreira, V.P., Arenas, J., Jimenez, D., C-isotope stratigraphy of some Ediacaran-Cambrian carbonate successions in NW Gondwana. V South American Symposium on Isotope Geology, Punta del Este, Uruguay, Abstract CD.
- Silva-Tamayo, J.C., Nägler, T., Kyser, K., Narbone, G., James, N.P., Voegelin, A., Villa, I. Mo and Ca- isotopes of carbonate rocks as record of changes in post Snowball Earth oceans. 2<sup>nd</sup> IGCP 512 project, UNESCO, Ascona, Switzerland, p. 40.

## **Scientific Collaborations**

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### **Europe**

*Helmholtz Center of Ocean Research GEOMAR, Kiel, Germany.*

Prof. Anton Eisenhauer and Dr. Jan Fietzke.

*Leibniz University of Hanoover, Hanoover, Germany.*

Prof. Stefan Weyer.

*University of Leeds, Leeds, U.K.*

Prof. Paul Wignall, Dr. Rob Newton and Dr. Rob Raiswell.

*Graz University, Graz, Austria.*

Dr. Sylvain Richoz.

*University of Heidelberg, Heidelberg, Germany*

Prof. Wolfgang Stinnesbeck.

*Univeristy of Urbino, Urbino, Italy.*

Prof. Rodolfo Coccioni.

*University of Munster, Munster, Germany.*

Prof. Harald Strauss.

### **USA-Canada**

*Stanford University, Palo Alto, CA, USA.*

Prof. Jonathan Payne, Prof. Kate Maher.

*University of California- Santa Cruz, Santa Cruz, CA, USA.*

Prof. Adina Paytan.

*University of California- Berkeley, Berkeley, CA, USA.*

Prof. Don DePaolo.

*Queen's University, Kingston, Canada.*

Prof. Kurt Kyser.

### **Asia-Australia**

*Curtin University of Technology, Perth, Australia.*

Prof. Kliti Grice.

*Chinese Academy of Sciences, China.*

Dr Qinjun Guo

### **South America**

*Universidade Federal de Pernambuco, Recife, Brazil*

Prof. Alcides N. Sial.

*Universidade de Sao Paulo, Sao Paulo, Brazil.*

Prof.. Claudio Riccomini, Prof. Francisco Cruz.

*Universidade Federal de Para, Belem, Brazil.*

Prof. Afonso Nogueira.

*Universidade Federal de Rio Grande do Sul, Portoalegre, Brazil.*

Prof. Marcio M. Pimentel.

*Universidad Nacional de Colombia, Medellin, Colombia.*

Dr. Agustin Cardona Molina.

*Universidad de Caldas, Manizales, Colombia.*

Prof. Andres Pardo.

*Universidad de los Andes, Bogota, Colombia.*

Prof. Camilo Montes.