

# Dr. Fernando J. Gomez

CICTERRA-CONICET-Universidad Nacional de Córdoba

Centro de Investigaciones en Ciencias de la Tierra

LAC-Laboratorio de Análisis de Cuencas

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## ACADEMIC POSITION

- Staff Researcher, 2010 CICTERRA-CONICET-UNC.  
Centro de Investigaciones en Ciencias de la Tierra (Earth Sciences Research Center).
- CONICET Research Fellow, 2010 (Consejo Nacional de Investigaciones Científicas y Técnicas (Argentina Research Council)).

## EDUCATION

- Geo/Exobiology Research Scholar, Department of Earth and Planetary Sciences, University of Tennessee, Knoxville, Tennessee, (2009).
- Post-doctorate CONICET-LAC-Laboratorio de Analisis de Cuencas (Basin Analysis Lab)-CICTERRA-CONICET-UNC, (2008).
- Ph.D. Geology, Facultad de Ciencias Exactas, Físicas y Naturales, Universidad Nacional de Cordoba, (2008).
- B.S. Geology, Facultad de Ciencias Exactas, Físicas y Naturales, Universidad Nacional de Cordoba, (2003).

## TEACHING EXPERIENCE

- Training Instructor, PETROBRAS Field School. I organize and lead a 10 day field based training course for geologists employed by PETROBRAS twice a year (2010-Current) including designing field guides, giving lectures and fieldwork on selected locations.
- Lead Organizer, Mid-level education program fostering for interactions between high-schools of the Cordoba province with the Universidad Nacional de Cordoba (2009-Current).
- Stratigraphy Lab Assistant, Stratigraphy and Historical Geology Course, National University of Cordoba, (2000-2005). My teaching activities included: giving lectures for Stratigraphy, Sedimentology and Basin Analysis; directing students in field based exercises and regional synthesis, designing and preparing laboratory exercise and advising undergraduate students.

## GRANTS AND FELLOWSHIPS

- NASA Planetary Biology Internship, Department of Geosciences University of Massachusetts, the National American Space Agency (NASA) and National Science Foundation (NSF). Project: “Stromatolites in High-Altitude Andean Lakes of the Catamarca, Argentina: An Analogue for

Early Earth Microbial Life.” Sponsor: Dr. Linda C. Kah (Department of Earth & Planetary Sciences University of Tennessee Knoxville) (2008-2009).

- Earth and Planetary Sciences Department Fellowship, University of Tennessee. As a Geo/Exobiology Research Scholar at UT. Project: “Stromatolites in High-Altitude Andean Lakes of Catamarca, Argentina: An Analogue for Early Earth Microbial Life.” Sponsor: Dr. Linda C. Kah (Department of Earth & Planetary Sciences University of Tennessee Knoxville) (2008-2009).
- Wrigley Institute for Environmental Studies Fellowship, Grant from University of Southern California, and National Science Foundation (NSF) to attend to the International Geobiology Course, June 11-July 10 2008, University of Southern California (USA).
- CONICET Postdoctoral Fellowship, Project: “Sedimentology, Paleoenvironmental and Diagenetic Evolution of the Los Hornos Dolostones, Guandacol, La Rioja Precordillera, Argentina” Advisor: Dr. Ricardo A. Astini, (2008).
- CONICET Ph.D. Fellowship, Project: “Sedimentology and Paleoenvironmental Evolution of the La Laja Formation, Early to Middle Cambrian, Eastern Precordillera, San Juan.” Advisor: Dr. Ricardo A. Astini, (2003).

#### AWARDS

- Best Contribution Award, Educative publication *Cordobensis 2006*. Teaching in Science Program, Cordoba Science Agency, Cordoba Province Education Office and Center of Development of Advanced Projects in Pediatrics, Title: “The Early Earth and Life, How Earth Became a Habitable Planet: Evidences From the Geological Record (Rocks and Minerals)”.
- Best Contribution Award, Book “Exploratory Frontiers in Argentina: Precordillera Region Basins” VI Exploration and Development in Hydrocarbons Meeting, Mar del Plata, November 2005. Authors: Astini, R., Dávila, F.M., Lopez Gamundi, O., Gomez, F.J., Collo, G., Ezpeleta, M., Martina, F., Ortiz, A., Pages 115-145.
- Award Dr. Adrián Mario Iñiguez Outstanding work: “Unusual intraclastic rudstones in the Cambrian of Precordillera: Origin and paleoenvironmental meaning, X Argentina Sedimentology Meeting, 2004, San Luis (Argentina).

#### RESEARCH INTERESTS

- Carbonate Sedimentology (microfacies, diagenesis, geochemistry)
- Large and small-scale cycles in carbonate and mixed (carbonate-siliciclastic) deposits
- Stratigraphy and Basin Analysis
- Geochemical evolution in carbonate systems through time
- Geobiology and biogeochemistry of modern and ancient microbial systems
- Biogeochemistry of microbial life in extreme environments and its astrobiological potential

## RESEARCH STATEMENT

“I seek to enhance our understanding of interactions between Geosphere and Biosphere and to unravel how the earth system behaves integrating geobiology, biogeochemistry, surface processes, sedimentology, stratigraphy, and basin analysis.”

## PUBLICATIONS

### Journals

- Gomez, F.J., Ogle, N., Astini, R.A., and Kalin, R.M., 2007. Paleoenvironmental and Carbon-Oxygen Isotope Record of Middle Cambrian Carbonates (La Laja Formation) in the Argentine Precordillera. *Journal of Sedimentary Research* 77:826-842.
- Gomez, F.J. and Astini R.A., 2006. Sedimentología y Paleoambientes de la Formación La Laja, Quebrada La Laja, Sierra Chica de Zonda, San Juan. *Revista Geológica de Chile* 33(1):19-46. (Sedimentology and Paleoenvironments of the La Laja Formation, La Laja Creek, Chica de Zonda Ranges, San Juan).
- Gomez, F.J., and Astini, R., 2005. Cianobacterias Renalciformes en el Cámbrico Medio de la Precordillera Argentina: Morfología, Posición Estratigráfica y Significado Paleoambiental. *Ameghiniana*, (Asociación Paleontológica Argentina), 42(1):221-232. (Renalcis-Like Cyanobacteria in the Middle Cambrian of the Argentine Precordillera: Morphology, Stratigraphic Position and Paleoenvironmental Meaning).

### Book Chapters

- Astini, R., Dávila, F.M., Lopez Gamundi, O., Gomez, F.J., Collo, G., Ezpeleta, M., Martina, F., and Ortiz, A., 2005. “Cuencas de la Región Precordillerana.” (Precordillera Region Basins). VI Congreso de Desarrollo y Exploración de Hidrocarburos, Pages 115-145.).

### Educational publications

- Gomez, F.J., 2006. “The Early Earth and Life, How Earth Became a Habitable Planet: Evidences From the Geological Record (Rocks and Minerals).” *Cordobensis Award 2006*, Cordoba Science Agency. 32 páginas, ISBN: 978-987-1353-05-7. Publication distributed to all high-schools of the Cordoba Province, Argentina.

### Manuscripts in preparation

- Gomez, F.J., Kah, L.C., Bartley, J., and Astini, R.A., in prep. “Microbialites in High-Altitude Andean Lakes of Catamarca Province (Argentina): a Natural Analogue for Early Life on Earth and Mars.” To be submitted to Nature-Nature Geoscience.
- Gomez, F.J., and Astini, in prep. “Sedimentology and Sequence Stratigraphy of a Mixed (Carbonate-Siliciclastic) Carbonate Platform in a Rift to Passive Margin Transition: Early to Middle Cambrian Argentina Precordillera.” To be submitted to Sedimentology.
- Gomez, F.J., and Astini, in prep. “Unusual Intraclastic Rudstones in the Middle Cambrian of the Argentine Precordillera: Paleoenvironmental Meaning.” To be submitted to Geology.

### Meetings, symposiums and congresses

- Gomez, F.J., Kah, L.C., Bartley, J. and Astini R.A., 2010. Modern Microbialites in High-Altitude Andean Lakes of Catamarca Province (Argentina): An Analogue to Precambrian Aedimentary Environments and Carbonate Microfabrics. 18<sup>th</sup> International Sedimentological Congress: Sedimentology at the foot of the Andes, International Association of Sedimentologists Meeting, Mendoza (Argentina).
- Gomez, F.J., Kah, L.C., Bartley, J., and Astini, R.A., 2009. Microbial Mats and Stromatolites in High-Altitude Andean Lakes of Catamarca (Argentina): Microbe-Mineral Interactions in an Environmental Analogue to Early Earth and Mars. XII Congreso Geológico Chileno, November 22-26, Santiago (Chile).
- Gomez F.J., and Astini, R.A., 2008. Comparison Between Early to Middle Cambrian Stratigraphy of the Argentine Precordillera and the Apalachian Margin. 2008 Joint Meeting of the Geological Society of America, Soil Science Society of America, American Society of Agronomy, Crop Science Society of America, Gulf Coast Association of Geological Societies with the Gulf Coast Section of SEPM.
- Gomez, F.J., Kah, L.C. and Astini, R.A., 2008. Stromatolites in High-Altitude Andean Lakes of Catamarca Province (Argentina): An Astrobiological Analogue to Life in eExtreme Environments? 2008 Joint Meeting of the Geological Society of America, Soil Science Society of America, American Society of Agronomy, Crop Science Society of America, Gulf Coast Association of Geological Societies with the Gulf Coast Section of SEPM.
- Thankyakoop, C, Zargar, K., Gomez, F.J., Eydal, H., Berelson, W., Dawson, S., Corsetti, F., Hanselmann, K., Johnson, H., Spear, J., Stevenson, B.S., de la Torre, J., and GeoBio2008. A Ssilica bBudget Reveals Much About How Bacteria Might Regulate the Formation of Silica Stromatolites in YNP Hot Springs. AGU Meeting 2008.
- Gomez, F.J., and Astini, R.A., 2008. Estratigrafía Secuencial de la Formacion La Laja (Cambrico Inferior y Medio), Precordillera Oriental, San Juan. (Sequence Stratigraphy of the La Laja Formation (Early to Middle Cambrian), Eastern Precordillera, San Juan). Congreso Geológico Argentino 2008, Jujuy (Argentina).
- Gomez, F.J., Martini, M., and Astini, R.A., 2006. Ciclos Perimareales y Estructuras Microbialíticas en el Miembro Las Torres, Extremo Norte de la Sierra Chica de Zonda, San Juan, Argentina. (Peritidal Cycles and Microbialites in the Las Torres Member, Sierra Chica de Zonda, San Juan). IV Congreso Latinoamericano de Sedimentología y XI Reunión Argentina de Sedimentología, Bariloche, Argentina. Page 115.
- Gomez, F.J., Ogle, N., Astini, R.A., and Kalin, R.M., 2006. Paleoenvironmental and Carbon-Oxygen Isotope Record of Middle Cambrian Carbonates (La Laja Formation) in the Argentine Precordillera. IV Congreso Latinoamericano de Sedimentología y XI Reunión Argentina de Sedimentología, Bariloche, Argentina. Page 116.
- Astini, R.A., Ezpeleta, M., and Gomez, F.J., 2006. Intervalo Carbonático en la Base del Paleozoico Superior en la Región de Guandacol-Gualcamayo. (Carbonate Interval at the Base of the Upper Paleozoic in the Guandacol-Gualcamayo region). IX Congreso Argentino de Paleontología y Bioestratigrafía, September 18-23, Córdoba, Argentina. Page 175.
- Gomez, F.J., Ogle, N., Astini, R., and Kalin, R., 2005. Carbon and Oxygen Isotope Record of Early to Middle Cambrian Carbonates (La Laja Formation) from the Precordillera Terrane, Argentine. Gondwana 12 (Geological and Biological Heritage of Gondwana) November 6-11, 2005, Mendoza, Argentina. Page 177.
- Gomez, F.J., and Astini, R., 2005. Niveles Dolomíticos y Mixtos en la Formación La Laja (Cámbrico), Sierra de Villicúm, Precordillera de San Juan: Implicancias Estratigráfico-Secuenciales. (Mixed and Dolomitic Levels in the La Laja Formation (Cambrian): Sequence

Stratigraphy Implications). XV Congreso Geológico Argentino, September 20-23, 2005, La Plata, Pages 139-146.

- Gomez, F.J., and Astini, R., 2004. Rudstones Intraclásticos Inusuales en el Cámbrico de la Precordillera: Posible Origen y Significado Paleoambiental. (Unusual Intraclastic Rudstones in the Cambrian of Precordillera: Possible Origin and Paleoenvironmental Meaning). X Reunión Argentina de Sedimentología, San Luis, September 1-3, 2004. Pages 75-77.
- Gomez, F.J., Foglia, R., and Astini, R., 2003. Renalcys in the Laurentian Derived Middle Cambrian Rocks of the Argentine Precordillera: Morphologies, Distribution and Stratigraphic position. 3<sup>rd</sup> Latin American Congress of Sedimentology, June 8-11, 2003, Belém (Brasil). Pages 209-210.
- Gomez, F.J., Foglia, R., and Astini, R., 2002. Litofacies del Peripo de la Formación La Laja y Su Transición con la Formación Zonda, Precordillera Oriental de San Juan. (Lithofacies in the Type section of the La Laja and Zonda Formation, Eastern Precordillera, San Juan). IX Reunión Argentina de Sedimentología, May 21-23, 2002. Page 25.
- Gomez, F.J., and Astini, R., 2001. Ichnofabric Patterns in Shallow-Marine Carbonate Tidal Flats of the Middle Cambrian in the Precordillera. IV Reunión Argentina de Icnología y II Reunión de Icnología del Mercosur, September 24-28, 2001, San Miguel de Tucumán. Page 49.

#### **Unpublished work**

- Gomez, F.J., 2008. Sedimentología y Evolución Paleoambiental de la Formación La Laja, Cámbrico Inferior y Medio de la Precordillera Oriental, San Juan. (Sedimentology and Paleoenvironmental Evolution of the La Laja Formation, Early to Middle Cambrian of Eastern Precordillera, San Juan). PhD Thesis, 380 pages. Universidad Nacional de Córdoba 2008.
- Gomez, F.J., 2003. Sedimentología y Paleoambientes del Estratotipo de la Formación La Laja (Cámbrico), Aflorante en la Sierra Chica de Zonda, San Juan. (Sedimentology and Paleoenvironments of the Type Section of La Laja Formation, Sierra Chica de Zonda, San Juan). B.S. Final Project, Advisor: Dr. Ricardo Astini (Cátedra de Estratigrafía y Geología Histórica). May 2003.

#### **PEER REVIEW**

- Latin American Journal of Sedimentology and Sedimentary Basin Analysis (Asociacion Argentina de Sedimentologia Journal), (2008-2010.)
- International Sedimentology Meeting 2010, Mendoza (Argentina), (2010).
- 18th Congreso Geologico Argentino, Neuquen, (2010-2011).

#### **PARTICIPATION IN MEETINGS ORGANIZATION**

- Gondwana 12 (Geological and Biological Heritage of Gondwana) November 6-11, 2005, Mendoza, Argentina. A2 Precordillera Terrane Field Trip, Leaders: Ricardo A. Astini (Universidad Nacional de Córdoba), Fernando J. Gomez (Universidad Nacional de Córdoba), Fernando Cañas (Universidad Nacional de Río Cuarto), Juan P. Milana (Universidad Nacional de San Juan).
- International Association of Sedimentology Meeting 2010, Mendoza (Argentina Workshop Committee Member).

- International Association of Sedimentology Meeting 2010, Mendoza (Argentina), Co-Chairman with Robert Riding and Chris Vasconcelos, Special Session “Microbialites: A geobiological approach to carbonates”.
- Co-Chair of the “I, II and III Jornadas de Ciencias de la Tierra” (Earth sciences week), FCEfyN-UNC, Graduate School, (2000-2007).

### RECENT RESEARCH PROJECTS

- Project CONICET 2010-Geobiological and sedimentological studies of modern and ancient carbonate sedimentary systems. CONICET researcher Career Project. Project Leader: Fernando J. Gomez.
- Project PICT 2008-2010-1306. Modern stromatolites and microbial mats in high-altitude Andean lakes of Catamarca Province (Argentina): An astrobiological analogue for early Earth and Mars. Project Leader: Fernando J. Gomez.
- Project PICT-CONICET 2009-2010 Geobiology and dynamic processes in coastal wetlands and its study in the geological record. Project Leader: Diana G. Cuadrado (Instituto Argentino de Oceanografía).
- Project Department of Earth and Planetary Sciences, University of Tennessee, 2008-2009: Stromatolites in high-altitude Andean lakes of Catamarca (Argentina): An analogue for early Earth microbial life. Project leader: Fernando J. Gomez. Sponsor: Dr. Linda C. Kah (Department of Earth & Planetary Sciences University of Tennessee Knoxville).
- Project NASA Planetary Biology Internship 2008-2009: Stromatolites in high-altitude Andean lakes of Catamarca (Argentina): An analogue for early Earth microbial life. Project leader Fernando J. Gomez. Sponsor: Dr. Linda C. Kah (Department of Earth & Planetary Sciences University of Tennessee Knoxville).
- Project FONCyT 2007-2009. BID 1728/OC-AR -PICT 07-33060. Andean orogen and foreland evolution in the transition region between 26-30 degrees South latitude. Project Leader: Dr. Ricardo A. Astini; UNC.
- Project SECyT-UNC 2008. Stratigraphy and geological evolution of Famatina and neighboring regions, Argentina. Leader: Dr. Ricardo A. Astini.
- Project PIP 5783, 2007. Paleogeographic and tectonic evolution between the Famatina system and neighboring areas”. Leader: Dr. Augusto Rapalini. Co-Leader: Dr. Ricardo A. Astini.
- Project ANCYT (Agencia Nacional de Promoción Científica y Tecnológica) Paleogeographic and tecto-sedimentary evolution of the exotic Precordillera terrane during Cambrian-Ordovician” Leader: Dr. Ricardo A. Astini.
- Project SECYT (Secretaría de Ciencia y Tecnología de la Universidad Nacional de Córdoba). Strtigraphy and evolution of the Famatina región”. Leader: Dr. Ricardo A. Astini.
- Project PIP 02971-2001 CONICET “Tecto-sedimentary evolution and extension stages in the Precordillera exotic terrane”. Leader: Dr. Ricardo A. Astini.

### MEMBERSHIPS

- Asociacion Argentina de Sedimentologia (AAS)
- Asociacion Paleontologica Argentina
- Carbonate Network Member: [www.carbonet.net/Members/members.html](http://www.carbonet.net/Members/members.html)
- International Association of Sedimentologists (IAS)

### LANGUAGES

- English (writing and oral) fluent
- Spanish (native language)
- Portuguese (basic reading and comprehension, examination at Cordoba University)