

**GEO-NETWORK OF
LATINAMERICAN-GERMAN ALUMNI
(GOAL)**

Newsletter No 1 June 2017

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1. Mexico's Coordinator note

THE ROLE OF GEOSCIENCES TO SOCIETAL DEVELOPMENT: A GERMAN - LATIN AMERICAN PERSPECTIVE

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El Taller GOAL 2017 “THE ROLE OF GEOSCIENCES TO SOCIETAL DEVELOPMENT: A GERMAN - LATIN AMERICAN PERSPECTIVE” se llevó a cabo en México del 8 al 15 de mayo, con la generosa ayuda financiera del Servicio Alemán de Intercambio Académico-DAAD. La sede fue la Universidad Autónoma de Nuevo León, en la Facultad de Ingeniería Civil (Monterrey) y la Facultad de Ciencias de la Tierra (Linares).

El taller constó de un ciclo de conferencias, reuniones internas y trabajo de campo en los estados de Nuevo León, Coahuila y San Luis Potosí, celebrando el XV Aniversario de GOAL. Recibimos el apoyo de la empresa Industrial Mining Solutions (<http://www.inmso.com/>) y el Servicio Geológico Mexicano (<https://www.gob.mx/sgm>).

El **ciclo de conferencias** se llevó a cabo en el Auditorio Ing. Manuel Martínez Carranza de la Facultad de Ingeniería Civil de la UANL. Ahí se presentaron 29 conferencias de Goalistas, 6 de Profesores Investigadores y 2 de Invitados Especiales. Los temas de las charlas fueron: a) Georesursos y Sociedad, b) Geociencias y Medio Ambiente, c) Desarrollo Sustentable de los Recursos del Agua, d) Georiesgos y Mitigación, e) Sismicidad y su Impacto Urbano y f) Geología y Climatología.

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Durante las **actividades de campo** se desarrollaron los siguientes temas.

- a) Visita a la planta Ramos Arizpe, Coahuila, de la empresa Lafarge-Holcim. Después de ver un video institucional, el Ing. Juan Raúl Martínez Martínez nos guio en el centro de control, donde se nos explicó el proceso de elaboración del cemento. Mas tarde hicimos un recorrido por las instalaciones de la empresa.
- b) Cañón Huasteca. En esta interesante localidad de la Curvatura de Monterrey, nos guio el Dr. Uwe Jenchen (Fac. de Ciencias de la Tierra - UANL) explicando la geología y estratigrafía de la región. Observamos en particular rocas calcáreas del Cretácico. Visitamos además un pozo de aprovechamiento de agua, para su distribución para Monterrey. Mas tarde se hizo un recorrido a la Presa Rompecicos, construida para controlar avenidas extraordinarias que pudiesen afectar el área metropolitana de Monterrey, sobre todo durante huracanes.
- c) Transecto Cañón de Santa Rosa, Linares – Galeana. Se pudo observar la secuencia mesozoica de la Sierra Madre Oriental, y los problemas relacionados a la estabilidad de taludes. Además se reconoció la base de la secuencia de transgresión, en los lechos rojos del Triásico.
- d) Pozo del Gavilán y Laguna de Labradores. Magníficos ejemplos de estructuras kársticas desarrolladas en rocas y suelos sulfáticos, y sus riesgos asociados.
- e) Incendios subterráneos, Catarino Rodríguez. Depósitos de turbas, de edad Cuaternaria en ignición natural, y sus riesgos asociados.
- f) Visita a la mina Santa María de la Paz, en Matehuala, San Luis Potosí. Nos recibió el Ing. José Manuel González Ochoa, quien nos explicó que el yacimiento es del tipo de skarn de contacto, con mineralización económica de cobre. Una parte del grupo tuvo la oportunidad de visitar la frente de explotación en la mina subterránea.
- g) Visita a Real de Catorce, S.L.P., ciudad minera histórica, ahora Pueblo Mágico. Se expuso la geología de la Sierra de Catorce, además se explicaron las costumbres del pueblo Huichol. Ellos desarrollan importantes y ancestrales actividades ceremoniales en esta zona.
- h) Visita al centro histórico de la ciudad de San Luis Potosí, guiada por el Dr. Rubén López Doncel (Instituto de Geología, UASLP). En el recorrido se mostraron los efectos del deterioro en las rocas volcánicas, que son la materia prima de los edificios históricos de esta ciudad colonial, patrimonio de la humanidad por la UNESCO. Además se pudo constatar el efecto de la tectónica actual, en fracturas y fallas de los mismos edificios.

Durante las **juntas internas de trabajo** se discutieron entre otras cosas, los planes para los talleres GOAL en Freiberg 2018 y Paraguay 2019. Además se presentaron las actualizaciones a la página web de la red (<https://geonetwork-goal.org/en/home>). Por otra parte se busca incentivar la colaboración entre los goalistas en los temas de hidrogeología, contaminación ambiental, petrología y geodinámica, preservación de edificios históricos, entre otros. Abiertamente se propuso invitar a los colegas Dr. Rubén López Doncel y Dr. Uwe Jenchen a incorporarse a la red GOAL.

Este documento no representa la minuta de los acuerdos tomados en las reuniones de los Goalistas.

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The GOAL 2017 Workshop "THE ROLE OF GEOSCIENCES TO SOCIAL DEVELOPMENT: A GERMAN - LATIN AMERICAN PERSPECTIVE" was held in Mexico from 8 to 15 May, with the generous financial support of the German Academic Exchange Service-DAAD. The headquarters was the Universidad Autónoma de Nuevo León, in Civil Engineering School (Monterrey) and the Earth Sciences School (Linares).

The workshop consisted of a series of conferences, internal meetings and fieldwork in the states of Nuevo Leon, Coahuila and San Luis Potosí, celebrating the 15th Anniversary of GOAL. We received the support of the company Industrial Mining Solutions (<http://www.inmso.com/>) and the Mexican Geological Survey (<https://www.gob.mx/sgm>).

The **conferences** were presented at the Auditorium Ing. Manuel Martínez Carranza of the Civil Engineering School of UANL. There were 29 lectures of Goalistas, 6 of invited Researchers and 2 of special guests. The themes of the talks were: a) Georesources and Society, b) Geosciences and Environment, c) Sustainable Development of Water Resources, d) Georisks and Mitigation, e) Seismicity and its Urban Impact, and f) Geology and Climatology.

During the **field activities** the following topics were developed.

A) Visita to the plant Ramos Arizpe, Coahuila, of the company Lafarge-Holcim. After seeing an institutional video, Ing. Juan Raúl Martínez Martínez led us to the control center, where the process of cement production was explained. Later we took a tour of the company's facilities

B) Huasteca Canyon. In this interesting locality of the Curvature of Monterrey, we were led by Dr. Uwe Jenchen (Earth Sciences School - UANL) explaining the geology and stratigraphy of the region. We observed in particular calcareous Cretaceous rocks. We also visited a water well, for distribution to Monterrey. Later, a tour was made to the Rompecicos Dam, built to control extraordinary avenues that could affect the metropolitan area of Monterrey, especially during hurricanes.

C) Transect Santa Rosa Canyon, Linares - Galeana. It was possible to observe the Mesozoic sequence of the Sierra Madre Oriental, and the problems related to slope stability. In addition, the base of the transgression sequence was recognized in the Triassic red beds

D) Pozo del Gavilán and Laguna de Labradores. Magnificent examples of karst structures developed in sulphatic Jurassic rocks and related soils, and their associated risks.

E) Underground fires, Catarino Rodríguez. Quaternary peat deposits in natural ignition, and associated risks.

F) Visit to the Santa María de la Paz mine in Matehuala, San Luis Potosí. Ing. José Manuel González Ochoa explained that the ore deposit is a skarn type, with economic copper mineralization. One part of the group had the opportunity to visit the exploitation front in the underground mine.

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G) Visit to Real de Catorce, S.L.P., historic mining town, now Pueblo Mágico. The geology of the Sierra de Catorce was exposed, as well as the customs of the Huichol people. They develop important and ancient ceremonial activities in this area.

H) Visit to the historical center of the city of San Luis Potosí, guided by Dr. Rubén López Doncel (Institute of Geology, UASLP). The tour showed the effects of the deterioration in the volcanic rocks, which are the raw material of the historic buildings of this colonial city, a UNESCO World Heritage Site. In addition it was possible to verify the effect of the neotectonics, in fractures and faults of the same buildings.

During the **internal work meetings**, the plans for the GOAL workshops in Freiberg 2018 and Paraguay 2019 were discussed, among other things. Updates to the web page were also presented (<https://geonetwork-goal.org/en/home>). On the other hand, collaboration between the goalkeepers in the areas of hydrogeology, environmental pollution, petrology and geodynamics, preservation of historical buildings, among others, is highly encouraged. It was openly proposed to invite the colleagues Dr. Rubén López Doncel and Dr. Uwe Jenchen to join the GOAL network.

This document does not represent the minutes of the agreements taken in the meetings of the Goalistas.

Participantes GOAL Mexico 2017

1	Matschullat, Jörg	Germany
2	Stanek, Klaus	Germany
3	Becchio, Raúl	Argentina
4	Rubiolo, Daniel	Argentina
5	Dávila, Rene Alberto	Bolivia
6	Ramos, Wilfredo	Bolivia
7	Baggio, Hernando	Brasil
8	Horn, Heinrich	Brasil
9	Mathis, Armin	Brasil

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10	Oliveira, Juliana	Brasil
11	Osterkamp, Isa Carla	Brasil
12	Veloso, Elizene	Brasil
13	Cisternas, María Eugenia	Chile
14	Frutos, José	Chile
15	García, Reinaldo	Colombia
16	Mora, Héctor	Colombia
17	Campos, Lolita	Costa Rica
18	López Allan	Costa Rica
19	Pierra Conde, Allan	Cuba
20	Bojorque, Jaime	Ecuador
21	Cáceres, Bolivar	Ecuador
22	Lopez, Katthy	Ecuador
23	Vásconez, Fabián	Ecuador
24	De León, Héctor	Mexico
25	Ramirez, Alonso	Mexico
26	Vargas, María Elena	Mexico
27	Alvarez, María del Carmen	Paraguay
28	Benitez, Juan Carlos	Paraguay
29	Rodriguez, María del Pilar	Peru
30	Rosas, Silva	Peru
31	Ellis, Jorge	Uruguay

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Foto frente a la fachada de la Facultad de Ingeniería Civil, el día de la inauguración del Taller Goal. 8 de mayo de 2017.

Photo in front of the facade of the Civil Engineering School, the day of the inauguration of the Goal Workshop. May 8, 2017.



Goalistas en la Laguna de Labradores, Galeana, N.L. 12 de mayo de 2017.

Goalistas in Laguna de Labradores, Galeana, N.L. May 12, 2017

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Goalistas fundadores. Presa Rompepicos, Santa Catarina, N.L. Arriba de izq. a der.: Héctor de León, Jorge Ellis, Reinaldo García, Alonso Ramírez, Juliana Oliveira, Raúl Becchio. Abajo: Jaime Bojorque, Fabián Vasconez, Silvia Rosas. 10 de mayo de 2017.

Goal founders. Presa Rompepicos, Santa Catarina, N.L. Top left To the left: Héctor de León, Jorge Ellis, Reinaldo García, Alonso Ramírez, Juliana Oliveira, Raúl Becchio. Bottom: Jaime Bojorque, Fabián Vasconez, Silvia Rosas. May 10, 2017.

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2. Recent publication in Medical Geology

Medical geology in the framework of the sustainable development goals

Sci. Total Environ, 581-582:87, pp. 87-105, doi: 10.1016/j.scitotenv.2016.11.208. Epub 2017 Jan 3.

Jochen Bundschuh, Jyoti Prakash Maity , Shahbaz Mushtaq, Meththika Vithanage  Saman Seneweera , Jerusa Schneider , Prosun Bhattacharya , Nasreen Islam Khan , Ihsan Hamawand , Luiz R.G. Guilherme , Kathryn Reardon-Smith, Faruque Parvez, Nury MoralesSimfors , Sara Ghaze , Christa Pudmenzky, Louis Kouadio, Chien-Yen Chen

Abstract

Exposure to geogenic contaminants (GCs) such as metal(lloid)s, radioactive metals and isotopes as well as trans- uranisms occurring naturally in geogenic sources (rocks, minerals) can negatively impact on environmental and human health. The GCs are released into the environment by natural biogeochemical processes within the near-surface environments and/or by anthropogenic activities such as mining and hydrocarbon exploitation as well as exploitation of geothermal resources. They can contaminate soil, water, air and biota and subsequently enter the food chain with often serious health impacts which are mostly underestimated and poorly recognized. Global population explosion and economic growth and the associated increase in demand for water, energy, food, and mineral resources result in accelerated release of GCs globally. The emerging science of “medical geology” assesses the complex relationships between geo-environmental factors and their impacts on humans and environments and is related to the majority of the 17 Sustainable Development Goals in the 2030 Agenda of the United Nations for Sustainable Development. In this paper, we identify multiple lines of evidence for the role of GCs in the incidence of diseases with as yet unknown etiology (causation). Integrated medical geology promises a more holistic understanding of the occurrence, mobility, bioavailability, bio-accessibility, exposure and transfer mechanisms of GCs to the food-chain and humans, and the related ecotoxicological impacts and health effects. Scientific evidence based on this approach will support adaptive solutions for prevention, preparedness and response regarding human and environmental health impacts originating from exposure to GCs.

3. New GOAL's members

Welcome to our new members from Colombia and Mexico who have recently joined GOAL.

Dr. Gloria Prieto Rincón (gprieto@sgc.gov.co) got a doctoral degree at Universidad Federal de Pará and the Martin Luther Universität, Halle - Wittenberg, Germany. Currently, she is working at Colombian Geological Survey, Colombia.

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Dr. Uwe Jenchen (uwe.jenchen@gmail.com) got a master degree in Geology/Paleontology (Dipl.-Geol.) at the Geologisch-Paläontologisches Institut und Museum and a doctoral degree (Dr. rer. nat.) at the Mathematisch-Naturwissenschaftliche Fakultät, Westfälische Wilhelms-Universität zu Münster, Germany. Currently, he is working at the Facultad de Ciencias de la Tierra, Universidad Autónoma de Nuevo León, Mexico.



Dr. Rubén Alfonso López-Doncel (rlopez@uaslp.mx) got a MSc. and a doctoral degree (Dr. rer. nat) at the Technical University Clausthal, Germany. Currently, he is working at Geological Institute of the Autonomous University of San Luis Potosí, Mexico.



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4. International Scientific Events

XVI Congreso Colombiano de Geología y III Simposio de Exploradores, Agosto 28 y Septiembre 01 de 2017, Santa Marta. <http://sociedadcolombianadegeologia.org/congreso-colombiano-degeologia/>

Course on Seismology, Seismic Data Analysis, Hazard Assessment and Risk Mitigation, in Potsdam, Germany, 4 September to 29 September 2017. <http://www.gfz-potsdam.de/en/centre/education-and-training/seismology/>

5th International Tsunami Field Symposium, 3-7 September 2017, Lisbon, Portugal. <http://itfs.campus.ciencias.ulisboa.pt>

5th International Colloquium Historical Earthquakes, Paleoseismology, Neotectonics and Seismic Hazard, 11-13 October, Hannover, Germany. https://www.bgr.bund.de/DE/Themen/ErdbebenGefahrungsanalysen/Veranstaltungen/HistEarth_Paleoseis_Okt2017/_histEarth_paleoseis_2017_node.html

4rd International Conference on Earthquake Engineering and Seismology, 11- 13 Oct 2017, Eskişehir, Turkey. <http://www.tmd.org.tr/TR/Genel/KonferansAnaSayfaEN.aspx?F6E10F8892433CFFAAF6AA849816B2EFFB0FF6CAD6E83E4E>

8th International Workshop on Paleoseismology, Active Tectonics and Archeoseismology, 13-16 November, Blenheim, New Zealand. <https://www.gns.cri.nz/Home/News-and-Events/Events/PATA/> Welcome

Our homepage is <https://geonetwork-goal.org>.

If you have any question or comments about our Newsletter, please contact Dr. Nury Morales-Simfors, simforsmoralesnury@outlook.com

Reviewed by: Prof. Reinaldo García, GOAL Regional Coordinator

