

# Newsletter No 4 December 2013

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## 1. Editor`s note

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Thanks to all contributors and readers of the GOAL's Newsletter for their support throughout the year. This marks the final issue of 2013 and we look forward to keeping you informed on GOAL in the New Year.

*Merry Christmas and a very happy New Year!*

*Ein frohes Weihnachtsfest und alles Gute zum neuen Jahr!*

## 2. GOAL, 11 years and many more ...

Prof. Reinaldo García, GOAL's Regional Coordinator, [rgarcia1945@yahoo.es](mailto:rgarcia1945@yahoo.es).

It may be said that GOAL has reached the age of "maturity", if we apply the analogy of the stages of human life. It is revealed in its growth, not only in terms of the number of members (almost thirty at the time of its foundation to a hundred nowadays), but also in promoting continuing education programs, consolidating its objectives, and strengthening the links between Latinamerican geoscientists and German geoscientific communities.

A pillar of the development of the ongoing program of training and vocational education was, undoubtedly, the achievement of a series of workshops, both in Latin America and Germany, almost without interruption since 2006. Such events, connected to the Latin American Colloquium of Geosciences (LAK) when held on the German side, have shown largely the reason for the Network, from which it has shaped its course, exhibited in the thematic focus, the concentration of efforts, the definition of tasks, the selection of knowledge dissemination channels, and the like.

For those who were founders of GOAL, it is quite possible that it may seem incredible now that we have achieved such a significant progress. A review of the dynamic of events that GOAL has done, leads us to mention the following:

-Lima, 2002 (July 5-7), **GOAL foundation** under the professional meeting of *GeoRecursos y Medio Ambiente-GREMIO*;



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- Freiberg, 2003 (April 2), **coordinators' meeting**, coincident with LAK-18;
- Santiago, 2004 (April 21-22), symposium on **Mining Market Development in Latinamerica**, in the context of a small-scale mining exposition;
- Quito, 2006 (30 January-3 February) workshop on **Volcanic Sequences Recognition**, as part of the international program about Cities on Volcanoes;
- Berlin, 2007 (April 2-9), workshop on **Geothermal Technologies and Hydrothermal Systems**, and LAK-20 (April 10-13) in Kiel;
- Costa Rica, 2008 (July 6-13), workshop on **Volcanism and Associated Geothermal Energy**;
- Freiberg, 2009 (March 30-April 6), workshop on **Sustainable Mining and the Environment**, and LAK-21 (April 7-9) in Göttingen;
- Brazil, 2010 (July 14-24), workshop on **Sustainable Mining and Environment: A Latinamerican-German Perspective**;
- Heidelberg, 2011 (April 2-7), workshop on **Geo-Risk Management: A German-Latinamerican Perspective**, coming after LAK-22 (March 30-April 1); and
- Managua, 2012 (October 27-November 3), workshop on **Implementation of new technologies in virtual learning (E-learning)**, and seminar on geological aspects of Argentina and Nicaragua.

At present we get ready to attend the workshop on **Geoparks**, which will take place after LAK-2014 (LAK-23) in Heidelberg, at the end of March. This GOAL meeting is particularly important to the extend that it reactivates the dynamism of our Network.

We have been well aware, also with those who have joined us after 2002, that our action does not end here but, on the contrary, we can not do otherwise than validating the "maturity", in terms of empowering GOAL as head of professionals networks with Latinamerica-Germany ties.

The title of this note, then, is the expression of the optimistic future of our Network.

On a personal level, this is perhaps the last time I address you in the Newsletter as Regional Coordinator. This is to acknowlegde the decision made at the meeting in Brazil (Pirapora), in the sense of assigning such a role for a period of two years. Given that in the previous year (2012) we had not held the GOAL meeting in Mexico, with the acquiescence of the National and Germans Coordinators the appointment was postponed until the meeting of Heidelberg-2014.

I can say with certainty that the Regional Coordination has been my "second job", in the sense of having honored my tasks with greater dedication. I hope I have lived up to the expectations of each GOALista; if so, the feeling of satisfaction is my greatest reward.

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## 3. International Training Courses Seismology and Seismic Hazard Assessment

*Dr. Claus Milkereit, GFZ German Research Centre for Geosciences, Section 2.1 "Physics of Earthquakes and Volcanoes", Telegrafenberg, D 14473 Potsdam, <http://www.gfz-potsdam.de>.*

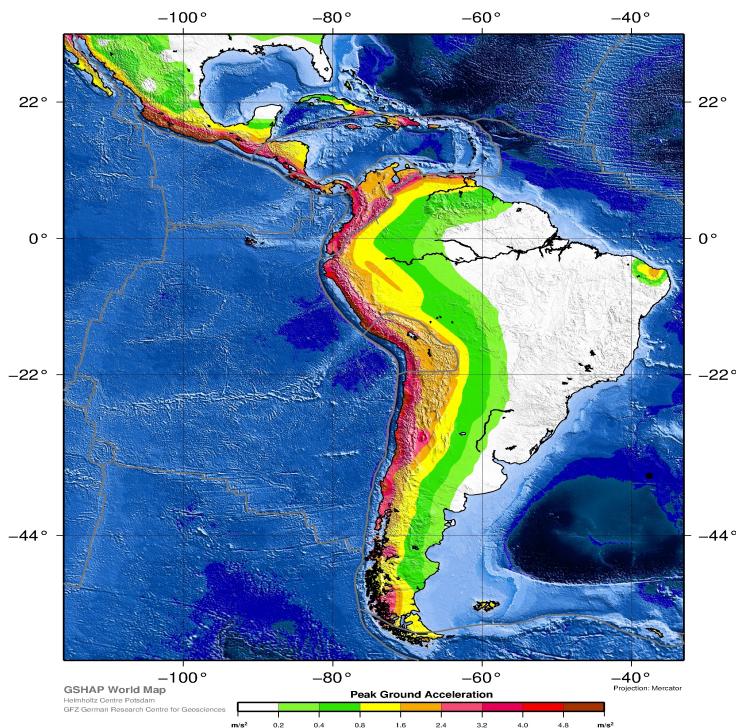
The disastrous consequences of destructive earthquakes place a heavy burden on many societies and their economies, particularly in developing countries. In order to avoid or at least to mitigate the negative effects of such events a thorough scientific knowledge of their geological and geophysical causes, their structural, kinematics and dynamic characteristics and destructive effects as well as a developed capability to monitor and analyse them is indispensable. The vulnerability of human societies and the related human and economic losses due to earthquakes are steadily growing as a consequence of rapid population growth and urbanization. Accordingly, improved risk assessment and effective disaster mitigation measures are prerequisites to ensure sustainable development in earthquake-prone countries.

The GFZ German Research Centre for Geosciences conducts an annual four weeks international training course in the field of seismology and seismic hazard assessment. This training course is part of related programs of the United Nations (OCHA and UNESCO) aimed at promoting training and know-how transfer, especially to nationals from developing countries. In 2014, the GFZ will organize and conduct the course as regional course for participants from South America. The training courses are co-sponsored by the Federal Foreign Office (FFO) of Germany (Berlin). It is also supported by the United Nations Educational, Scientific and Cultural Organization (UNESCO, Paris).

The course is arranged for the benefit of participants from earthquake-prone countries. To make the training effective, the number of participants is limited to about 26. Preference is given to young candidates engaged in seismology, seismic monitoring and zonation, earthquake data analysis, hazard, vulnerability and/or risk assessment. They should have active interest and obligations in these fields. Applicants with background and duties in earthquake engineering and disaster management who want to deepen their understanding of seismological phenomena, methods and data products are also considered, as are researchers or university lecturers in geosciences who may act as conveyors of the knowledge acquired in the course.

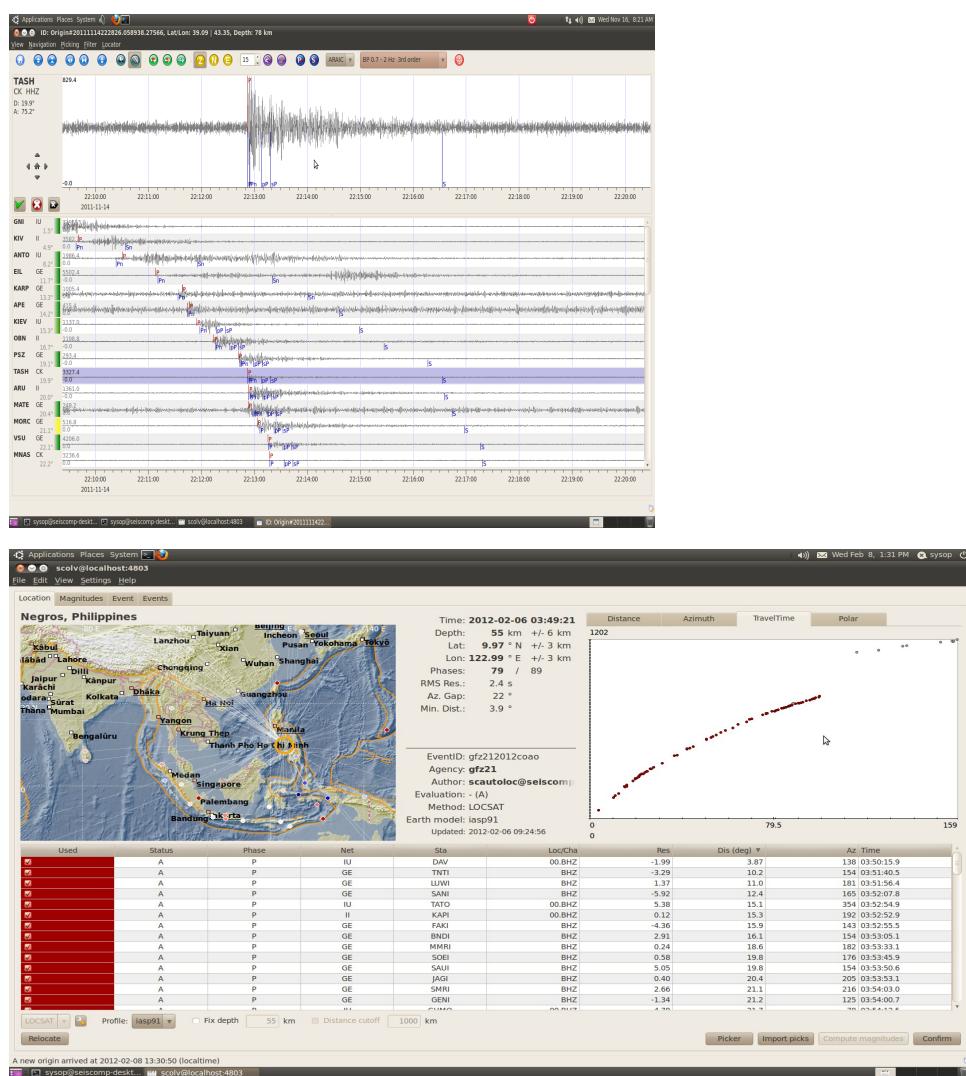
The course content covers the fields: Fundamentals of Seismology, Instrumentation, Seismogram Analysis, Earthquake Source Parameter, Seismic Networking, Introduction to Microzonation and Risk Assessment, Satellite Remote Sensing and Monitoring, Strong Ground Motion Data Analysis, Tsunami Early Warning and Earthquake Hazard Assessment (see Figure, the results of the Probabilistic Seismic Hazard Assessment, PSHA for South America). Until now more than 120 scientists and engineers from South and Latin America have participated at these courses which are offered by the GFZ Potsdam since 1992. Since that time the course visited Nicaragua (1995), Chile (2001), and Costa Rica (2008).

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Giardini, D., Grünthal, G., Shedlock, K. M. and Zhang, P.: *The GSHAP Global Seismic Hazard Map*. In: Lee, W., Kanamori, H., Jennings, P. and Kisslinger, C. (eds.): *International Handbook of Earthquake & Engineering Seismology, International Geophysics Series 81 B*, Academic Press, Amsterdam, 1233-1239, 2003.



Examples of seismogram analysis with the software SeisComp3 which offers data collection and earthquake location and magnitude determination in nearly real-time.

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## 4. Exploración de recursos geológicos en áreas protegidas

*Geol. MS.c. Celso Velázquez, Paraguay, Representante Técnico de la Sociedad Estudio de la Tierra-SETI, Paraguay,  
[vcelso10@gmail.com](mailto:vcelso10@gmail.com).*

En el Paraguay las sustancias pétreas, terrosas y calcáreas se pueden considerar materiales de gran valor estratégicos, su utilización dinamiza el sector de la construcción, la industria, y el comercio, su abundancia relativa, la disponibilidad cerca de los centros de consumos permite un equilibrio en la oferta y demanda. Sin embargo, es un bien considerado como recurso natural no renovable, cuya explotación debe ser sustentable y su aprovechamiento debería de contemplar el máximo de beneficios para el país.

La Constitución Nacional del Paraguay establece que el corresponde al Estado el dominio de los hidrocarburos, minerales sólidos, líquidos y gaseosos que se encuentre en estado natural en el territorio de la República, con excepción de las sustancias pétreas, terrosas y calcáreas. La Ley 3180/07 “De Minería” establece que las sustancias pétreas, terrosas y calcáreas no están sujetas a concesión por Ley, pero sí al permiso, control y fiscalización por las autoridades mineras.

Es importante destacar que la abundancia relativa y su relación a los centros de consumos al presente contrastan con la ubicación de los futuros polos de desarrollos que se proyectan dentro del territorio nacional. Mientras que en la región Oriental se cuenta con rocas aflorantes de todo tipo, con relativa facilidad para las extracciones y en condiciones para ser utilizadas a distancias razonables de los centros de consumo, en la región Occidental, la realidad es otra, debido a la situación geológica de la región que limita enormemente la presencia de materiales señalados como pétreos, sumado a esto la geomorfología de la zona nos indica la escasez de materiales rocosos aflorantes, situación que agrava la explotación.

Por otro lado, los afloramientos de rocas, como también de minerales, se dan en muchos casos en las áreas protegidas. La legislación paraguaya del sector no permite la explotación de rocas ni de minerales dentro de los límites de los parques, zonas protegidas. Esta disposición legal dificulta en muchos casos la obtención de materiales para la construcción en las áreas de demanda.

Los recursos naturales del país y sobre todo los no renovables constituyen riquezas que deben contribuir en el desarrollo del país, en la calidad de vida de la población, en el fortalecimiento de las instituciones al servicio del habitante, por lo que la opinión pública en general es favorable a la habilitación de la explotación de canteras en áreas protegidas bajo criterios de estricto control y en forma sustentable.

Actualmente, en la Cámara de Senadores en el Paraguay, existe un proyecto de Ley cuyo objetivo fundamental es regular la explotación de canteras de materiales pétreos, terrosos y calcáreos, que se espera, entre otros, pueda dar inicio a la utilización racional y de estricta necesidad, de los recursos geológicos existentes en áreas protegidas.

Por otro lado, es importante considerar que el desarrollo geológico-minero en el país tiene sus limitaciones debido fundamentalmente a la escasez de información técnica y científica de los recursos pétreos y mineros existentes en el territorio nacional, que a su vez es consecuencia de una debilidad institucional del sector.

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El Servicio Geológico Nacional creado en virtud de la Ley "De Minería", N° 3180/07, tiene la brillante oportunidad de contar con recursos genuinos a partir de la vigencia de la presente Ley, pues será beneficiado junto a las instituciones ambientales, y municipios de percibir tasas por los servicios y certificaciones de los materiales explotados en todo el país. Se espera que los recursos recaudados puedan ser utilizados en el sector invirtiendo en capacidades, investigaciones geológicas, fortalecimiento institucional, mejor y mayor control y fiscalización de las actividades de canteras. Finalmente, favorecerá el interés y la inversión privada nacional o extranjera de empresas del rubro y mejorará la competitividad del sector.



## 5. Arsenic in the environment - As2014

**Prof. Dr. Jochen Bundschuh:** International Society of Groundwater for Sustainable Development (ISGSD); University of Southern Queensland (USQ), Australia, [jochenbundschuh@yahoo.com](mailto:jochenbundschuh@yahoo.com).

Arsenic has been an issue of concern in last decades because of the serious incidence on human health coming from ingestion of water with small amounts of arsenic for prolonged periods.

The presence of the element in water intended for drinking has caused the spread of arsenicosis (known as HACRE, hidroarsenicismo crónico regional endémico in Spanish), a set of signs and symptoms manifested mainly by dermatological disorders, such as melanodermia, leucodermia and/or palmoplantar keratoderma, which may evolve into more serious pathologies, such as different types of cancer. The affected populations usually live in countries with low-income levels, and the disease largely affects dispersed rural and periurban populations. Around 100 million people are at risk in Asia and it is estimated that in Latin America the population at risk exceeds 14 million people, with high incidence in Argentina (about 4 million people), Chile, El Salvador, Mexico, Nicaragua and Peru. In the rest of the world, the most affected countries are India, China and Bangladesh, although the presence of arsenic in groundwater has been also found in some European countries and in the United States.

Since 2006, four events of International Congress on "Arsenic in the Environment" were held in different countries (Mexico, 2006, Spain, 2008, Taiwan, 2010 and Australia, 2012). In the previous 4th International Congress of Arsenic in the Environment (Australia, 2012), Argentina has been elected to host the next Congress.

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This is consistent with the fact that, in 2014, 100 years of the discovery of HACRE by Dr. Abel Ayerza in the city of Bell Ville, Province of Córdoba, are commemorated. Dr. Ayerza was the first to relate skin disorders with the consumption of groundwater with high concentrations of arsenic. For this reason, the organization of the next 5th International Congress in the Latin American region is considered relevant.

The topics to be covered in As2014 will be grouped under the following general areas:

Theme 1: Arsenic in environmental matrices (air, water and soil)

Theme 2: Arsenic in food

Theme 3: Arsenic and health

Theme 4: Removal Technologies

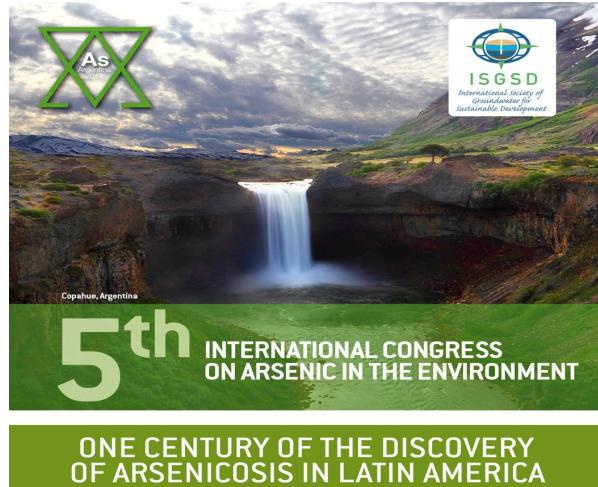
Theme 5: Mitigation Management and Policy

Arsenic has been an issue of concern in last decades because of the serious incidence on human health coming from ingestion of water with small amounts of arsenic for prolonged periods. Around 100 million people are at risk in Asia and 14 million people are potentially affected in Latin America.

In 2014, one century of the discovery of arsenicosis in Bell Ville (Córdoba Province, Argentina) will be commemorated.

For this reason, the organization of the next 5<sup>th</sup> International Congress in the Latin American region is considered relevant, with the title “As2014, One Century of the Discovery of Arsenicosis in America (1914-2014)”.

For up-to-date information on As2014, please visit next the website: [www.as2014.com.ar](http://www.as2014.com.ar).



11-16 May 2014, Buenos Aires, Argentina



## 6. New members 2013

This year three new members have joined GOAL. We welcome them and hope to have the opportunity to meet them in one of the future meetings of GOAL.

**Benjamín Vicente Pistilli Simiano** is a Lic. in Geosciences with specialization on Mineral Resources from the Bundesanstalt für Geowissenschaften und Rohstoffe CDG, Hannover, Germany. He is from Paraguay and has many years experience in the field of Mining.

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**Igor Ishi Rubio Cisneros**, is a PhD. in Geosciences with specialization on Sedimentology/Stratigraphy from the Facultad de Ciencias de la Tierra at the Universidad Autónoma de Nuevo León, México. He was a full year exchange student at the Georg-August Universität Göttingen. Currently, he is working as a Seismic Interpreter at Petroleum Geo-Services (PGS), México.



**Maria Elena Vargas Magaña** studied Geophysics at Universidad Autónoma de Nuevo León, México. She was a full year exchange student at the Georg-August Universität Göttingen. Currently, she is working as a Borehole Geologist at Schlumberger, México..



## 7. International Scientific Events

23rd Latin American Colloquium LAK 2014, March 25-27 2014, Heidelberg, Germany. Information: <http://www.geow.uni-heidelberg.de>tagung/lak2014/>.

General Assembly of *Active Tectonics and Seismic Cycle*, April 27-May 02, 2014, European Geosciences Union Vienna, Austria. Information: [http://www.egu2014.eu/information/general\\_information.html](http://www.egu2014.eu/information/general_information.html).

Internacional Workshop - Symposium and Summer School, *Intervención responsable en el ambiente. Actividades mineras, refinerías, control y estrategias para recuperación del ambiente*, August 24-30, 2014, Pirapora-Minas Gerais, Brasil. Information: <https://www.ufmg.br/>.

6th Internacional UNESCO Conference on *Global Geoparks*, September 19-22, 2014, New Brunswick, Cánada. Information: <http://www.geoparks2014.com/main.html>.

7<sup>th</sup> International Conference on *Uranium Mining and Hydrology*, September 21-25, 2014, Technische Universität Bergakademie Freiberg, Freiberg, Germany. Information: <http://tu-freiberg.de/umh-vii-2014>.

Our homepage is [www.goaldaad.com.ar](http://www.goaldaad.com.ar). If you have any question or comments about our Newsletter, please contact Dr. Nury Morales-Simfors, [nusi0453@gmail.com](mailto:nusi0453@gmail.com).

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