





## COMPORTAMIENTO Y EVOLUCIÓN ESPACIO-TEMPORAL DEL ARSÉNICO EN AGUAS SUBTERRÁNEAS DE LA REPÚBLICA ARGENTINA

### Datos Curriculares

Barbieri, M., Alcolea, A., Bea, S.A., Carrera, J., Castro, E., 2005. Geostatistical Modelling of a Coastal Aquifer Using the Response to Tidal Fluctuations as Calibration Data. 19th Salt Water Intrusion Meeting, Cagliari, Italy: September 26-29.

Bea, S.A., Carrera J., Batlle F., Ayora C., Saaltink M.W., 2005. Chemical System: An Oriented-Object Framework Applied to Reactive Transport Models. European Geosciences Union General Assembly, Vienna: April 24-29, Geophysical Research Abstracts. Vol. 7, 08955.

Batlle F., L.J. Slooten, Carrera J., Bea, S.A., 2005. An Object-Oriented Structure for Solving Groundwater and other Earth Sciences Problems. European Geosciences Union General Assembly, Vienna: April 24-29, Geophysical Research Abstracts. Vol. 7, 09463.

Bea, S.A., Carrera J., Soler J., M., Ayora C., Saaltink M.W., 2004. Simulation of Remediation Alternatives for a 137Cs Contaminated Soil. The Numerical Modelling as Analysis tool. REWAS'04 (Global Symposium on Recycling, Waste Treatment and Clean Technology) III 2395-2410.

Bea, S.A., Carrera J., Soler J., M., Ayora C., Saaltink M.W., 2003. Numerical Modeling of the Behavior of 137Cs in an Unsaturated Soil. 9th International Conference on Chemistry and Migration Behavior of Actinides and Fission Products on the Geosphere, Gyeongju, Korea.

Bea, S.A., J. M. Soler, C. Ayora, J. Carrera, M. W. Saaltink., 2003. Hidrogeoquímica Modeling of Contaminated Soils. V Meeting I D in Radioactive Waste Management, Tarragona, Spain.

Bea, S.A., Costa, C., Gardini, C., 2000. Mesoscopic Deformation on Rio de Las Peñas Profile (30o 30' S, Precordillera of Mendoza, Argentina). X Meeting on Microtectonic, Buenos Aires: November 9-10.

Costa C., E. González Díaz, M. Murillo, C. Gardini, A. Giaccardi, J. Sequeiros, Bea, S.A., 1999. Neotectonic in the Andean Uplift of Sierra de Comechingones, Province of Cordoba and San Luis. XIV Argentinean Conference on Geology, Salta, Argentina: September: 19-24.

Teaching experience

2000-2001 Teaching Assistance (First Category, Res: 179/00-CD)  
Department of Geology, University of San Luis, San Luis, Argentina

1999-2000 Teaching Assistance (First Category, Res: 159/99-CD)  
Department of Geology, University of San Luis, San Luis, Argentina

1999 Teaching Assistance (First Category, Res: 423/99-D)  
Department of Geology, University of San Luis, San Luis, Argentina

1998-1999 Teaching Assistance (First Category, Res: 174/98-CD)  
Department of Geology, University of San Luis, San Luis, Argentina

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### Formación Académica

Mayor Título Logrado : Postdoctorado

Licenciado en Ciencias Geológicas (Universidad Nacional de San Luis, Argentina)  
Dr. en Geología (Universidad Politécnica de Catalunya, Barcelona, España)  
Postdoctorado (University of British Columbia, Vancouver, Canada)  
Postdoctorado (Lawrence Berkeley National Laboratory, Berkeley, USA)

### Actividades y/o cargos destacados en I+D

#### CURRICULUM VITAE

December 21, 2011

Bea Jofré, Sergio Andrés

Contact Information

Office Address Lawrence Berkeley National Laboratory

Earth Sciences Division

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Berkeley, CA (USA)

Telephone: 1-510-495-2164

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E-mail [sabea@lbl.gov](mailto:sabea@lbl.gov)

[geoandres@yahoo.com.ar](mailto:geoandres@yahoo.com.ar)

Languages Spanish, English

Interest Areas

Reactive Transport Modeling; Hydrogeologic Modeling; Geochemical Modeling; Flow and Transport in Vadose Zone; Numerical Modeling; Object Oriented Programming; Remediation Alternatives in Groundwater and Soil; Reactive Transport of Concentrated Solutions; Pitzer; Acid Mine Drainage; Driven-Density Flow



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### Profession

Programming Languages: Fortran 90, C , Visual Basic, MatLab.

Operative systems: Windows, Linux.

### Membership

AGU (American Geophysical Union), membership number: 11257501

### Education

2011 at present Post-Doc

Lawrence Berkeley National Laboratory, Berkeley, USA

Advisor: Dr. Carl Steefel

2009 Post-Doc

University of British Columbia, Vancouver, Canada

Advisors: Dr. Ulrich Mayer, Dr. Kerry T. B. MacQuarrie (University of New Brunswick)

2008 Ph.D. in Geology

Technical University of Catalonia, Barcelona, Spain

Thesis Title: 'An Object-Oriented Module for Geochemical and Reactive Transport Modeling'

Advisor: Dr. Jesús Carrera Ramírez

Co-Advisor: Dr. Carlos Ayora Ibáñez

2004 Certificate of Advanced Studies on Geotechnical Engineering

Technical University of Catalonia, Barcelona, Spain

2000 Diploma Thesis in Geology

University of San Luis, San Luis, Argentina

1999 Degree in Geology

University of San Luis, San Luis, Argentina

### Fellowships

2011 to Present Post-Doctoral Fellowship

Earth Sciences Division, Lawrence Berkeley National Laboratory, CA, Berkeley, USA

2009 Post-Doctoral Fellowship

Department of Earth and Ocean Sciences, University of British Columbia, BC, Vancouver, Canada

2008 Post-Doctoral Fellowship

Technical University of Catalonia, Barcelona, Spain

2008 Pre-Doctoral Fellowship

Technical University of Catalonia, Barcelona, Spain

2002-2006 FPU Pre-Doctoral Fellowship

Reference: AP2001-3754 BOE 01-09-2001

Ministry of Education, Culture and Sports, Spain

2001-2002 Pre-Doctoral Fellowship

Technical University of Catalonia, Barcelona, Spain

2000-2001 Fellowship-Award for Introduction to Research

University of San Luis, San Luis, Argentina

1999 Fellowship-For ResearchWork

Chemical Kinetic Group, Institute 'Balseiro'

National Commission of Atomic Energy, Argentina

1991 Stimulus Fellowship-Award

University of San Luis, San Luis, Argentina

Stays in Research Institutes

2004 Hydrogeochemistry Group

Utrecht University, Utrecht, The Netherlands

1999 Chemical Kinetic Group

'Balseiro' Institute, Bariloche Atomic Center, Río Negro, Argentina

Doctoral and Postgraduate Courses

2006 Numerical Methods to Solve the Transport Equation

Technical University of Catalonia, Barcelona, Spain

2005 Application of the Analytic Element Method to the Modeling of Regional Groundwater Flow

Technical University of Catalonia, Barcelona, Spain

Environmental Isotopic Technics in Groundwater: Water

Technical University of Catalonia, Barcelona, Spain

2004 Reactive Transport Modeling

Technical University of Catalonia, Barcelona, Spain

Pumping and Tracer Tests in Aquifers

Technical University of Catalonia, Barcelona, Spain

2003 Heat and Water Flow in Deformable Porous Media

Technical University of Catalonia, Barcelona, Spain

Hydrostratigraphy: Benchmark papers

Technical University of Catalonia, Barcelona, Spain

Recovery of Aquifers and Contaminated Soils

International University Menéndez Pelayo, Valencia, Spain

## PROYECTO ENVIADO



## COMPORTAMIENTO Y EVOLUCIÓN ESPACIO-TEMPORAL DEL ARSÉNICO EN AGUAS SUBTERRÁNEAS DE LA REPÚBLICA ARGENTINA

2002 CODE-BRIGHT: A 3-D Program for Thermo-Hydro-Mechanical Analysis in Geological Media. Short Course  
Technical University of Catalonia, Barcelona, Spain  
Aquifer Mechanics  
Technical University of Catalonia  
Barcelona, Spain  
Groundwater contamination: Transport Mechanics, Natural Attenuation and Risk Evaluation  
The Waterloo Training Course Series, Madrid, Spain  
Finite Elements Method  
Technical University of Catalonia, Barcelona, Spain  
Non-Linear Systems and Optimization  
Technical University of Catalonia, Barcelona, Spain  
Soil Mechanics Laboratory  
Technical University of Catalonia, Barcelona, Spain  
Quaternary Geology  
Technical University of Catalonia, Barcelona, Spain  
Geochemistry and Environmental Problems  
Technical University of Catalonia, Barcelona, Spain  
2001 Finite Differences Method  
Technical University of Catalonia, Barcelona, Spain  
Applied Geostatistic  
Technical University of Catalonia, Barcelona, Spain  
Hydrogeochemistry Modeling  
Technical University of Catalonia, Barcelona, Spain  
2000 Preparation of Balanced Profiles. Interpretation of Seismic Profiles  
University of Tucumán, Tucumán, Argentina  
Microtectonic Technics  
University of Buenos Aires, Buenos Aires, Argentina  
1998 Remote Sensing Applied to Neotectonic  
University of La Pampa, La Pampa, Argentina  
Modern Technics in Structural Geology: Application to Geologic Maps Elaboration  
Geological and Mining Survey, Buenos Aires, Argentina  
Fundamentals of Active Tectonics  
University of San Juan, San Juan, Argentina  
Oral Communications  
2011 Reactive transport modeling of an acidic-U(VI) plume. Subsurface Environmental Simulation Benchmarking Workshop, Lawrence Berkeley National Laboratory, Berkeley, CA, USA: November 16-18.  
Reactive transport modeling of natural carbon sequestration in ultramafic tailings.  
Goldschmidt Conference, Czech Republic: August 14-19.  
2010 Hydromechanical and geochemical coupling within an intercratonic sedimentary basin affected by glaciation/deglaciation events.  
Lawrence Berkeley National Laboratory. Earth Sciences Division, 10th August, Berkeley, CA, USA.  
Reactive transport modeling as an essential tool for the Earth sciences: Two application cases.  
University of Chile, 22th June, Santiago de Chile, Chile.  
Reactive Transport Modeling in Sedimentary Rock Environments: Recent MIN3P model developments.  
NWMO Geoscience Seminar, 7-9th June, Toronto, Canada.  
2009 Regional groundwater flow and geochemical processes within an intercratonic sedimentary basin affected by long-term episodes of freshwater recharge.  
AGU Fall Meeting, 14th December, San Francisco, USA.  
Reactive transport modeling for efflorescences formation on mining tailings.  
XII Chilean Geological Conference, 22th November, Santiago de Chile, Chile.  
Reactive transport modeling of sedimentary basins affected by long-term glaciation-deglaciation events.  
GSA Meeting, 21th October, Portland, Oregon, USA.  
Reactive Transport Modeling in Sedimentary Rock Environments.  
NWMO Geoscience Seminar, 10th June, Toronto, Canada.  
Geochemical and Environmental Controls on the Genesis of Soluble Efflorescent Salts in Coastal Mine Tailings: A Discussion Based on Reactive Transport Modeling.  
University of British Columbia, 30th April, Vancouver, BC, Canada.

### PROYECTO ENVIADO



## COMPORTAMIENTO Y EVOLUCIÓN ESPACIO-TEMPORAL DEL ARSÉNICO EN AGUAS SUBTERRÁNEAS DE LA REPÚBLICA ARGENTINA

2008 Geochemical and Environmental Controls on the Genesis of Eriochalcite ( $\text{CuCl}_2\cdot 2\text{H}_2\text{O}$ ) Efflorescences on Coastal Mine Tailings Deposits: A Discussion Based on Reactive Transport Modeling. University of Concepción, 28th August, Concepción, Chile. Reactive Transport models using CHEPROO. M30 RTDC4 Meeting-FUNMIG, 26th June, Madrid, Spain.

2007 Reactive Transport Modeling in Marine Shore Mine Tailings Deposits (Chañaral, Chile) Technical University of Catalonia, Barcelona, Spain. CHEPROO: A Tool to Implement Geochemical Processes in Hydrogeological Models V Hydrogeological Argentinean Conference, 16th-19th June, Paraná, Argentina

CHEPROO: An Object-Oriented Organization for to Solve Chemical Processes in Geochemical and Reactive Transport Models M30 RTDC4 Meeting-FUNMIG, 27th June, Madrid, Spain

2006 CHEPROO: Object-Oriented Organization to Solve Geochemical and Reactive Transport Problems 2nd Workshop for the FUNMIG, 21th-23th November, Stockholm, Sweden

The Reactive Transport Applied to Modeling Closed Basins Technical University of Catalonia, Barcelona, Spain. (Available at [http://www.h2ogeo.upc.es/seminarios/2006/Sergio\\_Bea\\_27\\_10\\_2006.pdf](http://www.h2ogeo.upc.es/seminarios/2006/Sergio_Bea_27_10_2006.pdf))

Flow and Transport Models Applied to Real Case of Contamination in Soil and Aquifer (Tarragona, Spain) University of San Luis, San Luis, Argentina

2005 Reactive transport Modeling of Concentrated Aqueous Solutions: Implementation of Pitzer Algorithm in RETRASO Technical University of Catalonia, Barcelona, Spain. (Available at <http://www.h2ogeo.upc.es/castellano/events.htm>)

2004 Chemical Module: An Object-Oriented Structure to Apply on Reactive Transport Models Technical University of Catalonia, Barcelona, Spain. (Available at [http://www.h2ogeo.upc.es/seminarios/2004/040520\\_SergioBea.pdf](http://www.h2ogeo.upc.es/seminarios/2004/040520_SergioBea.pdf))

Simulation of Remediation Alternatives for  $^{137}\text{Cs}$  Contaminated Soil. The Numerical Modeling as Analysis Tool REWAS'04 (Global Symposium on Recycling, Waste Treatment and Clean Technology), Madrid, Spain

2003 Simulation of Remediation Alternatives for a  $^{137}\text{Cs}$  Contaminated Soil. The Numerical Modeling as Analysis Tool Technical University of Catalonia, Barcelona, Spain. (Available at [www.h2ogeo.upc.es/castellano/events.htm](http://www.h2ogeo.upc.es/castellano/events.htm))

Hydrogeochemistry Modeling of Contaminated Soils V Meeting of Research, Technological Development and Demonstration in the Management of Radioactive Waste, Tarragona, Spain

Evaluation of Remediation Technics in the Nuclear Central Vandellos I Technical University of Catalonia, Barcelona, Spain. (Available at <http://www.h2ogeo.upc.es/castellano/events.htm>)

2002 Reactive Transport: Approach by means of the Object-Oriented Programming Technical University of Catalonia, Barcelona, Spain. (Available at <http://www.h2ogeo.upc.es/castellano/events.htm>)

2001 Effect of the Earth tides on the Effective Molecular Diffusion Coefficient Technical University of Catalonia, Barcelona, Spain. (Available at <http://www.h2ogeo.upc.es/castellano/events.htm>)

Publications

Sassen, D.S., Hubbard, S.S., Spycher, N., Chen, J., Miles E., Denham, M.E., Bea, S.A., 2011. Utilizing geophysics to spatially distribute reactive transport parameters using a reactive facies concept. *Water Resources Research* (in review).

Bea, S.A., Wilson, S.A., Mayer, K.U., Dipple, G.M., Power, I.M., Gamazo, P., 2011. Reactive Transport Modeling of Natural Carbon Sequestration in Ultra-Mafic Mine Tailings. *Vadose Zone Journal* (in press).

Gamazo, P., Saaltink, M.W., Carrera, J., Slooten, L., Ayora, C., Bea, S.A., 2011. A consistent compositional formulation for multiphase reactive transport where chemistry affects hydrodynamics. *Advances in Water Resources* (doi:10.1016/j.advwatres.2011.09.006).

Marica, F., Bea, S.A., Mayer, K.U., Balcoma, B.J., Al, T., 2011. MRI determination of spatially-resolved tracer distributions in porous media: Experiments involving diffusion and advection. *Journal of Contaminant Hydrology* 125, 47-56.

## COMPORTAMIENTO Y EVOLUCIÓN ESPACIO-TEMPORAL DEL ARSÉNICO EN AGUAS SUBTERRÁNEAS DE LA REPÚBLICA ARGENTINA

- Gamazo, P., Bea, S.A., Carrera, J., Ayora, C., Saaltink, M.W., 2011. Modeling the interaction between evaporation and chemical composition in a natural saline system. *Journal of Hydrology* 401, 154-164.
- Masue-Slowey, Y., Benjamin D. Kocar, B.D., Bea Jofre, S.A., Mayer, K.U. Fendorf, S., 2010. Transport Implications Resulting from Internal Redistribution of Arsenic and Iron within Constructed Soil Aggregates. *Environmental Science & Technology* 45, 582-588.
- Bea, S.A., Ayora, C., Carrera, J., Saaltink, M.W., Dold, B., 2010a. Geochemical and Environmental Controls on the Genesis of Soluble Efflorescent Salts in Coastal Mine Tailings Deposits: A discussion based on reactive transport modeling. *Journal of Contaminant Hydrology* 111, 65-82.
- Bea, S.A., Carrera, J., Ayora, C., Batlle, F., 2010b. Modeling of concentrated aqueous solutions: Efficient Implementation of Pitzer Equations in Geochemical and Reactive Transport Models. *Computers & Geosciences* 36, 526-538.
- Bea, S.A., Carrera, J., Ayora, C., Batlle, F., Saaltink, M.W., 2009. CHEPROO: A Fortran 90 object-oriented module to solve chemical processes in Earth Science models. *Computers & Geosciences* 35 (6), 1098-1112.
- Bea, S.A., Dold, B., Ayora, C., Carrera, J., Saaltink, M.W., 2009. Geochemical and environmental controls in soluble efflorescences formation on coastal mining tailings: A discussion based on reactive transport modeling. VI Argentinean Conference on Hydrogeology.
- Bea, S.A., Dold, B., Ayora, C., Carrera, J., Saaltink, M.W., 2009. Reactive transport modeling for the formation of soluble efflorescences on coastal mining tailings. VII Chilean Conference on Geology.
- Alcolea, A., Castro, E., Barbieri, M., Carrera, J., Bea, S.A., 2007. Inverse Modeling of Coastal Aquifers Using Tidal Response and Hydraulic Tests. *Groundwater* 45 (6), 711-722(12).
- Bea, S.A., Carrera, J., Ayora, C., 2007. CHEPROO: A tool to implement geochemical processes in hydrogeologic models, 2007. VI Argentinean Conference on Hydrogeology Vol. 1, 367-377.
- Bea, S.A., Carrera, J., Soler, J.M., Ayora, C., Saaltink, M.W., 2004. Simulation of Remediation Alternatives for a <sup>137</sup>Cs Contaminated Soil. *Radiochimica Acta* 92, 827-833.
- Bea, S.A., Soler, J.M., Ayora, C., Carrera, J., Saaltink, M.W., 2004. Hydrogeochemical modeling of contaminated soils. ENRESA Technical Publication 04/2004, 92-103.
- Publications under review and in preparation
- Bea, S.A., Murakami, H., Hubbard, S. On the reactive transport of an acidic-U(VI) plume in the Savannah River Site (in preparation).
- Bea, S.A., Mayer, K.U., MacQuarrie, K.T.B. Modeling the thermal-hydro-mechanical and geochemical coupling in deep environments (in preparation).
- Cavé, L., Bea, S.A., Al, T., Mayer, K.U. Quantification of cation-exchange capacity in fractured porous rock using radiographic detection of cesium (in preparation).
- Bea, S.A., Mayer, K.U. A hybrid method based on Direct Substitution and the Sequential Non-Iterative Approaches for reactive transport modeling (in preparation).
- Abstracts in International Conferences
- Bea, S.A., Murakami, H., Hubbard, S., 2012. Reactive Transport Modeling of an acidic-U(VI) plume with the solid soil materials and the groundwater. II Argentinean Meeting on Surface Geochemistry, Bahia Blanca, Argentina: April 23-27.
- Bea, S.A., 2011. Reactive Transport Modeling of an acidic-U(VI) plume. Subsurface Environmental Simulation Benchmarking Workshop, Lawrence Berkeley National Laboratory, Berkeley, CA, USA: November 16-18.
- Gamazo, P., Bea, S.A., Saaltink M.W., Carrera J., Ayora C., 2011. Modeling the interaction between evaporation and chemical composition in a natural saline systems. VII Argentinean Conference on Hydrogeology, Salta, Argentina: October 18-21.
- Bea, S.A., Mayer, K.U., MacQuarrie, K.T.B., 2011. Modelling of reactive transport in a sedimentary basin affected by a glaciation/deglaciation event. Waste Management, Decommissioning and Environmental Restoration for Canada's Nuclear Activities, Toronto, Ontario, Canada: September:11-14.
- Rasouli, P., Mayer, K.U., Bea, S.A., 2011. The role of multicomponent diffusion and electromigration for reactive transport in porous media. Goldschmidt Conference, Prague, Czech Republic: August 14-19.
- Bea, S.A., Mayer, K.U., Wilson, S.A., Dipple, G., 2011. Reactive transport modeling of natural carbon sequestration in ultramafic tailings. Goldschmidt Conference, Prague, Czech Republic: August 14-19.
- Gamazo, P., Saaltink, M.W., Carrera, J., Slooten, L., Ayora, C., Bea, S.A., 2011. Formulación composicional para el transporte reactivo en la zona no saturada. X Jornadas de Investigación en la Zona No Saturada del Suelo, Salamanca, Spain: October 19-21.
- Dipple, G.M., Wilson, S.A., Bea, S., Mayer, K.U., Power, I.M., Barker, S.L., Southam, G., 2010. Carbon mineralization: insights from field observations, experiments and modeling of accelerated weathering in mine tailings. AGU Fall Meeting, San Francisco, USA: December 13-17.
- Marica, F., Bea, S.A., Mayer, K.U., Balcom, B.J., Al, T., 2010. Diffusion and Advection effects on 3D Tracer Distributions in Heterogeneous Porous Media Magnetic Resonance in Porous Media, Leipzig, Germany: September 12-16.
- Masue-Slowey, Y., Kocar, B., Bea Jofre, S.A., Mayer, K.U., Pallud, C., Fendorf, S., 2010. Fate and Transport of Arsenic from Constructed Soil Aggregates. Goldschmidt Conference, Knoxville, Tennessee, USA: June 13-18.
- Bea, S.A., Mayer, K.U., MacQuarrie, K.T.B., 2010. Hydromechanical and geochemical coupling within an intercratonic sedimentary basin affected by glaciation/deglaciation events. Goldschmidt Conference, Knoxville, Tennessee, USA: June 13-18.
- Cavé, L., Bea, S.A., Al, T., Mayer, K.U., 2010. Measurement of Cation Exchange Capacity in Shale Using Radiographic Detection of Cesium. Goldschmidt Conference, Knoxville, Tennessee, USA: June 13-18.
- Bea, S.A., Mayer, K.U., MacQuarrie, K.T.B., 2009. Regional groundwater flow and geochemical processes within an intercratonic sedimentary basin affected by long-term episodes of freshwater. AGU Fall



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Meeting, San Francisco, USA: December 14-18.

Cavé, L., Bea, S.A., Al, T.A., Mayer, K.U., 2009. Quantification of cation exchange capacity in fractured porous rock using radiographic detection of cesium. GSA Annual Meeting, Portland, USA: October 18-21 (Vol. 41, No7, p. 466).

Bea, S.A., Mayer, K.U., MacQuarrie, K.T.B., 2009. Reactive transport modeling of sedimentary basins affected by long-term glaciation-deglaciation events. GSA Annual Meeting, Portland, USA: October 18-21 (Vol. 41, No7).

Bea, S.A., Ayora C., Carrera J., Saaltink M.W., Dold B., 2009. Reactive transport modeling for the formation of efflorescent soluble salts on mine tailings. XII Chilean Conference on Geology, Santiago, Chile: November 22-26.

Bea, S.A., Ayora C., Carrera J., Saaltink M.W., Dold B., 2009. Geochemical and environmental controls on the genesis of efflorescent soluble salts on coastal mine tailings deposits: A discussion based on reactive transport modeling. VI Argentinean Conference on Hydrogeology, La Pampa, Argentina: August 24-28.

Carrera, J., Willman, M., Sanchez-Vila, X., Silva, O., Saaltink, M.W., Bea, S.A. 2009. Non-local in time formulations for reactive transport. European Geosciences Union General Assembly, Vienna: April 19-24, Geophysical Research Abstracts. Vol. 11, 10290.

Bea, S.A., Carrera, J., Batlle, F., Ayora, C., Saaltink, M.W., 2009. CHEPROO: A Fortran 90 object-oriented tool specialized in geochemical processes. TRPro II 2009-Workshop on Modeling of Coupled Reactive Transport Processes, Research Centre Karlsruhe, Karlsruhe: March 18-19.

Bea, S.A., Ayora, C., Carrera, J., Dold, B., 2008. Geochemical Evolution of Marine Shore Mine Tailings in an Hyperarid Climate. *Geochimica et Cosmochimica Acta* 72(12), A61-A61. Goldschmidt Conference, Vancouver, Canada: July 13-18.

Alcolea, A., Castro, E., Barbieri, M., Bea, S.A., Carrera, J., 2008. Caracterización de un acuífero costero usando la respuesta a la marea y ensayos de inyección mediante problema inverso geoestadístico. XI Seminario internacional del medio ambiente y desarrollo sostenible, Cartagena, Colombia: October 15-17.

Carrera, J., Bea, S.A., Willmann, M., Silva, O., Slooten, L.J., Dentz, M., Bolster, D., Gamazo, P., 2008. Distinguishing Mixing and Spreading in Multiphase Transport Through Heterogeneous Media. Computational Methods in Water Resources, XVII International Conference, San Francisco, USA: July 6-10.

Carrera, J., Bea, S.A., Willmann, M., Silva, O., Slooten, L.J., Sánchez-Vila, X., Batlle, F., Dentz, M., 2008. Modelling Reactive Transport Through Heterogeneous Media Using Multicontinuum Formulation. International Workshop on Modelling Reactive Transport in Porous Media, Strasbourg, France: January 21-24.

Bea, S.A., Carrera J., Batlle F., Ayora C., Saaltink M.W., 2007. CHEPROO: A Tool to Implement Geochemical Processes in Hydrogeological Models. V Argentinean Conference on Hydrogeology, Paraná, Argentina: June 16-19.

Barbieri, M., Alcolea, A., Bea, S.A., Carrera, J., Castro, E., 2005. Geostatistical Modelling of a Coastal Aquifer Using the Response to Tidal Fluctuations as Calibration Data. 19th Salt Water Intrusion Meeting, Cagliari, Italy: September 26-29.

Bea, S.A., Carrera J., Batlle F., Ayora C., Saaltink M.W., 2005. Chemical System: An Oriented-Object Framework Applied to Reactive Transport Models. European Geosciences Union General Assembly, Vienna: April 24-29, Geophysical Research Abstracts. Vol. 7, 08955.

Batlle F., L.J. Slooten, Carrera J., Bea, S.A., 2005. An Object-Oriented Structure for Solving Groundwater and other Earth Sciences Problems. European Geosciences Union General Assembly, Vienna: April 24-29, Geophysical Research Abstracts. Vol. 7, 09463.

Bea, S.A., Carrera J., Soler J., M., Ayora C., Saaltink M.W., 2004. Simulation of Remediation Alternatives for a 137Cs Contaminated Soil. The Numerical Modelling as Analysis tool. REWAS'04 (Global Symposium on Recycling, Waste Treatment and Clean Technology) III 2395-2410.

Bea, S.A., Carrera J., Soler J., M., Ayora C., Saaltink M.W., 2003. Numerical Modeling of the Behavior of 137Cs in an Unsaturated Soil. 9th International Conference on Chemistry and Migration Behavior of Actinides and Fission Products on the Geosphere, Gyeongju, Korea.

Bea, S.A., J. M. Soler, C. Ayora, J. Carrera, M. W. Saaltink., 2003. Hidrogeoquímica Modeling of Contaminated Soils. V Meeting I D in Radioactive Waste Management, Tarragona, Spain.

Bea, S.A., Costa, C., Gardini, C., 2000. Mesoscopic Deformation on Río de Las Peñas Profile (300 30' S, Precordillera de Mendoza, Argentina). X Meeting on Microtectonic, Buenos Aires: November 9-10.

Costa C., E. González Díaz, M. Murillo, C. Gardini, A. Giaccardi, J. Sequeiros, Bea, S.A., 1999. Neotectonic in the Andean Uplift of Sierra de Comechingones, Province of Cordoba and San Luis. XIV Argentinean Conference on Geology, Salta, Argentina: September: 19-24.

Teaching experience

2000-2001 Teaching Assistance (First Category, Res: 179/00-CD)

Department of Geology, University of San Luis, San Luis, Argentina

1999-2000 Teaching Assistance (First Category, Res: 159/99-CD)

Department of Geology, University of San Luis, San Luis, Argentina

1999 Teaching Assistance (First Category, Res: 423/99-D)

Department of Geology, University of San Luis, San Luis, Argentina

1998-1999 Teaching Assistance (First Category, Res: 174/98-CD)

Department of Geology, University of San Luis, San Luis, Argentina

Report on recharge dynamic and pumping test in the pilot plant

Castro E., Bea, S.A., Carrera, J.

Department of Geotechnical Engineering, Technical University of Catalonia, Barcelona, Spain (2007), 45 pages.

Research on cesium source detected around SR0A pipe

