

9Th INTERNATIONAL MINE WATER CONGRESS (IMWA 2005) September 5th to the 7th in Oviedo (Asturias – Spain)

Congress Venue “Auditorio Príncipe Felipe”

GENERAL PROGRAMME

5th of September, 2005 (Monday)

- 08.00 – 09.30. Accreditation and documentation collection. Place of posters.
- 09.30 – 10.00. Opening Ceremony (Sala de Cámara).
- 10.00 – 11.40. Two parallel Technical Sessions in Rooms 1 and 2.
- 11.40 – 12.00. Coffee break. Time for posters review and discussion.
- 12.00 – 14.00. Two parallel Technical Sessions in Rooms 1 and 2.
- 14.00 – 16.00. Lunch. Time for posters review and discussion.
- 16.00 – 18.30. Two parallel Technical Sessions in Rooms 1 and 2.
- 18.30- IMWA EC MEETING
- 20.30- Reception offered by the Mayor of the city of Oviedo in “Plaza Trascorrales” (Oviedo).

6th of September, 2005 (Tuesday)

- 08.30 – 10.30. Two parallel Technical Sessions in Rooms 1 and 2.
- 10.30 – 11.00. Coffee break. Time for posters review and discussion.
- 11.00 – 13.00. Two parallel Technical Sessions in Rooms 1 and 2.
- 13.00 – 14.00. Lunch. Time for posters review and discussion.
- 14.00. Leaving to the technical visits: Río Narcea Gold Mines, HUNOSA, and Mining Museum.
- 18.30. PLENARY MEETING of the INTERNATIONAL MINE WATER ASSOCIATION in the Mining Engineer School of Oviedo University.
- 21.00. Typical Asturian dinner. Lagar “El Trole” (Gijón).

7th of September, 2005 (Wednesday)

- 08.30 – 11.30. Two parallel Technical Sessions in Rooms 1 and 2.
- 11.30 – 12.00. Coffee break. Time for posters review and discussion.
- 12.00 – 14.00. Two parallel Technical Sessions in Rooms 1 and 2.
- 14.00 – 15.30. Lunch. Time for posters review and discussion.
- 15.30 – 16.50. Two parallel Technical Sessions in Rooms 1 and 2.
- 17.00 – 17.45. Plenary Conference (**Sala de Cámara**):

“Meeting the sustainability challenge: Trends and Developments in Biological Treatment of mine drainage in South Africa”

Peter Rose. Environmental Biotechnology Research Unit. Rhodes University. Grahamstown, South Africa.

17.45 – 18.15. Conclusions.

18.15 – 18.45. Closure Ceremony.

18.45 – 19.00. Mining chorus concert.

21.30. Official dinner at Hotel Reconquista (Oviedo) (*)

(*) Students Registration fee does not include the attendance to the Official dinner. Tickets at the price of 60€ will be available at the Secretariat of the Congress.

POST-CONGRESS FIELD TRIP

Thursday 8th of September:

08.00h: Leaving Oviedo.

11.00h: Visit to As Pontes Lignite Mine (La Coruña).

14.00h: Lunch.

18.00h: Expected time for arrival to Santiago de Compostela. Overnight in Santiago.

22.00h: Dinner

Friday 9th of September

8.00h: Leaving Santiago de Compostela.

11.30h: Visit to the Roman Gold Mine of “Las Médulas”

14.00h: Lunch

21.00h: Expected time for arrival to Oviedo

TECHNICAL SESSIONS PROGRAM

MONDAY 5TH SEPTEMBER

ROOM 1: 10.00-11.30 h. *Geochemical processes controlling mine water pollution (I)*

- 10.00-10.20h: “Natural isotope tracers for assessing the mechanisms of heavy metal mobilization in copper ore tailings”
Kay Knoeller, Michael Schubert, Karsten Osenbrueck, Stephan M. Weise.
UFZ-Centre for Environmental Research. Germany.
- 10.20-10.40h: “The use of alkaline residues for the inhibition of acid drainage processes in sulphide-rich mining wastes”
R. Pérez-López, J.M. Nieto, G.R. Almodóvar.
Universidad de Huelva. Spain.
- 10.40-11.00h: “Barium carbonate process for sulphate and metal removal from mine water”
Patrick Hlabela, J.P. Maree, O.S.L. Bruinsma, J. Barnard.
CSIR. Pretoria, South Africa.
North-West University. Potchefsbroom. South Africa.
- 11.00-11.20h: “Relation between chemical variables in acid mine drainage process: an application of Fuzzy Clustering algorithms to the characterization”
J.A. Grande, J.M. Andújar, J. Aroba, M.L. de la Torre, A. Jiménez, R. Beltrán.
Escuela Politécnica Superior. Universidad de Huelva.
Facultad de Ciencias. Universidad de Huelva. Spain.
- 11.20-11.40h: “Observations on the groundwater chemistry in and below a pyritic tailings piles and microbiology”
M. Kalin, A. Fyson, G. Meinrath.
Boojum Research Ltd. Toronto, Canada.
RER – Consultants, Passau, Germany.

ROOM 2: 10.00-11.30 h. *Pollution from abandoned mine sites (I)*

- 10.00-10.20h: “Arsenic and trace metals in groundwater of abandoned Au-Ag Freixeda Mine (Portugal NE)”
Maria Rosario Pereira, Carlos Costa Almeida, Ricardo Montes.
Universidade de Tras-os-Montes e Alto Douro. Universidade da Lisboa / Instituto Nacional Engenharia Tecnologia e Inovacao. Lisboa. Portugal.
- 10.20-10.40h: “The impact of acid mine drainage on the water quality of the Odiel river (Huelva, SW Spain): geochemical and mineralogical constraints”
Javier Sánchez España, Enrique López Pamo, Esther Santofimia, Jesús Reyes, Juan Antonio Martí Rubí.
Instituto Geológico y Minero de España. Madrid. Spain.

- 10.40-11.00h: “Environmental impact of mining activities in the Odiel watershed (SW Spain)”
A.M. Sarmiento, J.M. Nieto, M. Olías, C.R. Cánovas.
Universidad de Huelva. Spain.
- 11.00-11.20h: “Hydrology, mineralogy and management effects on the hydrochemistry of a sulphide tailings pond (Troja mine, Spain)”
V. Iribar, F. Izco, P. Tamés, F. Velasco, I. Yusta.
Universidad del País Vasco. Spain.
- 11.20-11.40h: “PAHs Behaviour associated to coal mining environments”
C. Fernández-Arrojo, J.F. Llamas, L. Canoira
E.T.S. Ingenieros de Minas Madrid . Spain

ROOM 1: 12.00-14.00 h. *Geochemical processes controlling mine water pollution (II)*

- 12.00-12.20h: “Geochemical processes in the Río Tinto, SW Spain: Evidence from stable isotopes and aqueous geochemistry”
C. Hubbard, S. Black, M.L. Coleman.
University of Reading, United Kingdom.
Jet Propulsion Laboratory (JPL), Caltech, Pasadena, California, USA.
- 12.20-12.40h: “Evaluation of potential release of toxic elements from gold ores and cyanidation tailings in a high sulfidation mining district”
Stefania da Pelo, **Rosa Cidu**, Rafaele Caboi, Elodia Musu, Pierfranco Lattanzi.
University of Cagliari. Italy.
- 12.40-13.00h: “Bioextraction of selenium-A case study – A case study”
R. Marandi, F. Doulati Ardejani, A. Marandi, R.N. Singh.
Islamic Azad University. Iran.
Shahrood University of Technology. Iran.
University of Wollongong. Australia.
- 13.00-13.20h: “Effects of pH and biomass concentrations in the removal of selenite from acid mine drainage by *Aspergillus niger* as biosorbent in Sarcheshmeh porphyry copper mine”
Doulati Ardejani Faramarz , Marandi Reza, Marandi Amid , Mirhabibi Ali Reza , Baafi Ernest.
Shahrood University of Technology. Iran.
Islamic Azad University. Iran.
Iran Colour Research Centre. Iran.
University of Wollongong. Australia.
- 13.20-13.40h: “Predominant chemical kinetics in laboratory prediction of ARD”
D.J. Sapsford, K.P. Williams.
Cardiff University. U.K.
- 13.40-14.00h: “Effect of the schwertmannite-goethite transformation in Acid Mine Drainage”

Patricia Acero, Clara Torrentó, Carlos Ayora.
Institut de Ciències de la Terra Jaime Almera. CSIC. Barcelona. Spain.

ROOM 2: 12.00-14.00 h. *Pollution from abandoned mine sites (II)*

- 12.00-12.20h: “The abandoned mine openings mapping on Santa Catarina-Brazil Coal Mining reclamation program”
Roberto Romano Neto, Cleber José Baldoni Gomes, Tiago Meis Amboni, José Eduardo Amaral, Antonio Silvio Jornada Krebs, Lindomar Santos.
Sindicato das Industrias da Extração do Estado de Santa Catarina. Brazil.
CPRM. Companhia de Pesquisa de Recursos Minerais. Porto Alegre. Brazil
- 12.20-12.40h: “Comparative of acid drainage process types between two streams of the Cobica river in the environment of the Iberian Pyrite Belt (Huelva, Spain) and impact on the Andévalo Dam”
J.A. Grande, A. Jiménez, R. Beltrán, A. Sainz, J.C. Santos, M.L. de la Torre, J. Borrego.
Escuela Politécnica Superior. Universidad de Huelva. Spain.
Facultad de Ciencias. Universidad de Huelva. Spain.
- 12.40-13.00h: “Iron isotopes in acid stream waters and stromatolites from abandoned mining areas along Tinto and Odiel watersheds”
C. Casiot, A.M. Sarmiento, M. Motelica-Heino, J.M. Nieto, F. Elbaz-Poulichet.
Université de Montpellier. France.
Universidad de Huelva. Spain.
BRGM. Orléans. France.
- 13.00-13.20h: “Using helicopter electromagnetic surveys to identify potential hazards at mine waste impoundments”
Hammack Richard W., Kaminskiy Vladislav, Warner Kevin, and **Kleinmann Robert L.**
National Energy Technology Laboratory, Pittsburgh, Pennsylvania. USA.
West Virginia Water Research Institute, Morgantown, West Virginia, USA.
University of Pittsburgh. USA.
- 13.20-13.40h: “Water quality variations in the Tinto River, AW Spain, during high-flow events”
C.R. Cánovas, C. Hubbard, M. Olías, J.M. Nieto, S. Black, M. Coleman.
Universidad de Huelva. España.
University of Reading. U.K.
Jet Propulsion Laboratory, California Institute of Technology, Pasadena, California, USA.
- 13.40-14.00h: “Seasonal variations in toxic metals concentrations in the drainage waters of abandoned metal mines in Mid-Wales”
S. Hartley, N.J.G. Pearce, W.T. Perkins, R.G.J. Edyvean, G. Priestman, E. Dinelli.
University of Wales. United Kingdom.
University of Sheffield. United Kingdom.

ROOM 1: 16.00-18.30 h. *Case Studies*

- 16.00-16.20h: “A preliminary study of the relative contributions of diffuse and point sources of pollution arising from gold mining activity in a Witwatersrand Goldfield”
G.M. Ntsume, T.S. McCarthy.
Council for Geoscience and University of Witswatersrand. South Africa.
- 16.20-16.40h: “State of the art of the passive treatment technologies for the abatement of cyanides from the mining industry: Experiences in Asturias (Spain)”
R. Álvarez, A. Ordóñez, T. Martínez, J. Loredó, F. Pendás.
Mining Engineering School. University of Oviedo. Spain.
Río Narcea Gold Mines. Spain.
- 16.40-17.00h: “The flooded Freiberg/Sachsen Mining District – Hydrogeochemistry, Hydrodynamics and Environmental Impacts”
Christian Wolkersdorfer, Broder Merkel.
University of Freiberg. Germany.
- 17.00-17.20h: “Origin of sulphate in water inflows to “Pomorzany” Zn-Pb mine (Olkusz Zn-Pb ore district, S. Poland)”
Mariusz Czop, Jacek Motyka.
University of Science and Technology of Cracow, Poland.
- 17.20-17.40h: “Anthropogenic reservoirs in sand pits in the area of Upper Silesia Coal Basin (Southern Poland)”
Janusz Kropka
University of Silesia. Poland.
- 17.40-18.00h: “The Brukunga Pyrite Mine – South Australia. A review of developments since closure in 1972”
Don Armstrong, Ray Cox.
Lisdon Associates. Minerals, Australia.
Energy Division, PIRSA. Australia.
- 18.00-18.20h: “Mining problems caused by the presence of underground water in a mining site and possible solutions: An example from Iran”
Abolghasem Kamkar-Rouhani.
Shahrood University of Technology. Iran.

ROOM 2: 16.00-18.30 h. *Pollution from abandoned mine sites (III)*

- 16.00-16.20h: “Is minewater a source of hazardous gas?”
Jean Hall, Stephanie Glendinning, Paul L. Younger.
University of Newcastle. U.K.
- 16.20-16.40h: “Chemical plugging of contaminated underground mine discharge”
Adrian Brown.
Adrian Brown Consultants, Inc. Denver, Colorado, USA.

- 16.40-17.00h: “Mercury contents in waters from the Valdeazogues watershed (Almadén, Spain)”
José María Esbrí, **Pablo Higuera**s.
Universidad de Castilla – La Mancha. Spain.
- 17.00-17.20h: “Monitoring of acidic water discharges in the Libiola mining area (northern Italy)”
E. Dinelli, W.T. Perkins, N.J.G. Pearce, S. Hartley.
University of Bologna. Italy.
University of Wales. U.K.
- 17.20-17.40h: “An object-oriented particle tracking approach to modelling pyrite oxidation and pollutant transport in mine spoil heaps”
Catherine J. Gandy.
Institute for Research on the Environment and Sustainability. University of Newcastle. UK.

TUESDAY 6TH SEPTEMBER

ROOM 1: 8.30-10.30 h. *Mine closure in the European Coal Basins*

- 8.30-8.50h: “Changes of hydrogeological conditions in the area of liquidated coal mines in the north-eastern part of Upper Silesia Coal Basin (southern Poland)”
Janusz Kropka, Ewa Janson, Antoni Czapnik.
University of Silesia. Poland.
Central Department of Mine Drainage, Czeladz. Poland.
- 8.50-9.10h: “Groundwater rebound in the South Yorkshire Coalfield: predicting impacts on water quality”
H.A.B. Potter, S.P. Burke, A.P. Jarvis.
Environment Agency. Solihull. U.K.
University of Newcastle. U.K.
- 9.10-9.30h: “Groundwater rebound in the South Yorkshire Coalfield: Implications for Groundwater Quality”
S P Burke and **H A B Potter**
Environmental Agency. United Kingdom.
Institute for Research on the Environment and Sustainability.
University of Newcastle. United Kingdom.
- 9.30-9.50h: “Plug Construction to isolate active zones of inactive zones in coal mine. WATERCHEM Project”
Bárcena, I., LLamas, B., Bueno, J., García- Siñeriz, J.L., Suso, Arduengo. B
Aitemin. Departamento de Ingeniería y Riesgos. Madrid. Spain.
Aitemin. Departamento de Medio Ambiente. Toledo. Spain.
HUNOSA. Oviedo. Spain.
- 9.50-10.10h: “Heterogeneous saturation of lignite mine tailings”
Stefan Wohnlich, Thomas R. Ruede, Stefan Hulmeyer.
Ruhr-University Bochum. Germany.

RWTH Aachen University. Germany.

- 10.10-10.30h: Reserved for **Hunosa**.

ROOM 2: 8.30-10.30 h. Mine closure & Reclamation

- 8.30-8.50h: “Mine closure and reclamation – some practical examples in different climatic settings”
Geoffrey Beale, Mark Anderson.
Water Management Consultants Group. Shrewsbury. United Kingdom
- 8.50-9.10h: “An update of abandoned mine remediation in Wales”
Ben Rees.
SRK Ltd. Cardiff, Wales, U.K.
- 9.10-9.30h: “Closure of the Vado-Malpaso arsenic trioxide deposits, Peru.”
Jorge A. Tovar.
Golder Associates Peru S.A. Peru.
- 9.30-9.50h: “Legacy at abandoned mines: impact of mine wastes on surface waters.”
Rosa Cidu, Ricardo Biddau, Gianpietro Secci.
University of Cagliari. Italy.
- 9.50-10.10h: “Rehabilitation Planning for Abandoned Mines at Silver mines, Tipperary, Ireland”
R. Connelly, B. Rees, R. Howell and L. Farrell
SRK (UK). Cardiff.

ROOM 1: 11.00-13.00 h. Pit Lakes

- 11.00-11.20h: “Application of stable isotopes to assess reductive processes in lignite mining dump sites”
K. Tröger, K. Knöller, G. Strauch.
Center for Environmental Research Leipzig-Halle Ltd. Germany.
- 11.20-11.40h: “Environmental solution to “Puentes de García Rodríguez Mine”
Aréchaga Rodríguez. F, Gil Bueno. A, Menéndez Lolo. J.A., Rivas Ródenas. F, Ibañez Guerra. J. F.
ENDESA S.A. Spain.
- 11.40-12.00h: “Rehabilitation of pit lake of Meirama (Spain)”
M.A. Arias, C. Penche, **J.L. Delgado**
Lignitos de Meirama. Spain.
- 12.00-12.20h: “Introduction of river water as a tool to manage water quality in pit lakes”
Schultze, M., Bohrer, B., Duffek, A., Herzsprung, P., Geller, W.
UFZ-Centre for Environmental Research Leipzig-Halle. Germany.
- 12.20-12.40h: “Westfield pit lake, Fife (Scotland): the evolution and current hydrogeological dynamics of Europe’s largest bituminous coal pit lake”

Paul L. Younger.

Institute for Research on the Environment and Sustainability. University of Newcastle. U.K.

- 12.40-13.00h: “Changes of mine-water balance components based on the Patnow Open-Pit flooding example”
Jerzy Klich, Krzysztof Polak.
AGH University of Science and Technology. Krakow. Poland.

ROOM 2: 11.00-13.00 h. *Varied Issues*

- 11.00-11.20h: “Water Control using polyurethane resins”
Pro. Óscar, Zamacois. Eduardo
Resinas y Equipos S.L. Spain.
Consolidación de Terrenos, S.A. Spain.
- 11.20-11.40h: “Geochemical and geophysical techniques application to characterize a mining silt pond from Cartagena- Union (Murcia): potential pollution pathways”
Aracil. E, Faz. A, Martínez-Pagán. P, Martínez- Martínez. S Acosta. J.A , Fisher.T, Maruri.U.
Análisis y Gestión del Subsuelo. Madrid. Spain.
Technical University of Cartagena. Spain.
University of Oregon, Eugene. Oregon. USA.
- 11.40-12.00h: “Geochemical composition and geophysical characterization of “El Lirio” mining silt pond (Cartagena, SE Spain)”
Faz. A, **Aracil. E,** Martínez-Pagán. P, Acosta. J.A , Martínez- Martínez. S, Maruri.U,
Martínez-Segura. M.A.
Análisis y Gestión del Subsuelo. Madrid. Spain.
Technical University of Cartagena. Spain.
- 12.00-12.20h: Groundwater management during the construction of underground hydrocarbon storage in rock caverns.
Eric Amantini, Francois Cabon, Anne Moretto.
Géostock, Rueil-Malmaison, France.
- 12.20-12.40h: “Interaction of acid mine drainage with surface waters and sediments at The Corona stream , Lousal Mine (Iberian Pyrite Belt – Southern Portugal)”
E. Ferreira da Silva, **C. Patinha,** P. Reis, E. Cardoso Fonseca, J.X. Matos, J. Barrosinho, J.M. Santos Oliveira.
Universidade de Aveiro. Portugal.
Instituto Geologico e Mineiro. Portugal.
Instituto Superior Técnico. Lisboa. Portugal.
- 12.40-13.00h: “Linking Tailings Seepage Geochemistry to the Performance of Cover System Field Trials for a Tailings Storage Facility at Peak Gold Mine Operations
Meiers, P. Greg. Shaw, Shannon. Overdevest, Noëlle. O’Kane, Mike
Mehling Environmental Management Inc., Vancouver, BC, Canadá.
Wheaton River Minerals Limited, Peak Gold Operations, Cobar, NSW, Australia
O’Kane Consultants Inc., Saskatoon, Sk, Canadá.

WEDNESDAY 7TH SEPTEMBER

ROOM 1: 8.30-11.30 h. *Active and passive mine water treatment technologies (I)*

- **8.30-8.50h:** “Removal rates of iron and manganese in constructed wetlands receiving net-acidic and net-alkaline mine waters”
Daniel P. Hooley, **Lesley C. Batty**.
University of Birmingham. United Kingdom.
- **8.50-9.10h:** “Biological sulphate and metal removal from a copper and nickel mine effluent”
Harma Greben, Jannie Maree.
Division of Water, Environment and Forestry, CSIR, Pretoria, South Africa.
- **9.10-9.30h:** “Hydraulic performance of laboratory PRBs for the decontamination of acidic mine waters”
Kostas Komnitsas, **Georgios Bartzas**, Ioannis Paspaliaris”
Technical University of Crete. Greece.
National Technical University of Athens. Greece.
- **9.30-9.50h:** “Bioabsorption characteristics of Dealginated Seaweed: Results from Laboratory experiments on natural and synthetic metal mine drainage”
W.T. Perkins, S. Hartley, N.J.G. Pearce, R.G.J. Edyvean, G. Priestman, E. Dinelli.
University of Wales. United Kingdom.
University of Sheffield. United Kingdom.
- **9.50-10.10h:** “Treatment of metal mine drainage in mid-Wales using Dealginated seaweed as a bioabsorber: results of field trials”
N.J.G. Pearce, W.T. Perkins, S. Hartley, R.G.J. Edyvean, G. Priestman, E. Dinelli.
University of Wales. United Kingdom.
University of Sheffield. United Kingdom.
- **10.10-10.30h:** “Heavy metal immobilization in groundwater by in situ bioprecipitation: comments and questions about carbon source use, efficiency and sustainability of the process”
L. Diels, J. Geets, W. Dejonghe, S. van Roy, K. Vanbroekhoven, A. Azewezyk, G. Malina.
- **10.30-10.50h:** “Substrate type impacts precipitation and stability of metal sulphides during evaluation of ISBP in column experiments”
Vanbroekhoven, K., Geets, J., Van Roy, S., **Diels, L.**
Flemish Institute for Technological Research. Belgium.
- **10.50-11.10h:** “Passive biological treatment systems of mine waters at WISMUT sites”
Annette Küchler, Gunter Kiessig, Christian Kunze.
WISUTEC Wismut Environmental Technologies GmbH. Chemnitz, Germany.
- **11.10-11.30h:** “Acidophilic sulfate reduction in a pH statted membrane bioreactor”
Bijmans, M.F.M., Lens, P.N.L., Buisman, C.J.N.
Wageningen University. The Netherlands.

ROOM 2: 8.30-11.30 h. *Modelling and computational methods*

- 8.30-8.50h: “Computational methods for acid mine drainage management: decision-making for post-closure remedial options”
Natalie A.S. Kruse, Paul L. Younger.
University of Newcastle upon Tyne. United Kingdom.
- 8.50-9.10h: “Modelling boundary pillar filtration in systems of pumped abandoned mines”
Grzegorz Gzyl, Adam Frolik.
Central Mining Institute, Katowice, Poland.
- 9.10-9.30h: “The use of multivariate statistical analysis to evaluate spatial and temporal water contamination in Germunde coal mine (Portugal)”
Renata Santos, Luis Ribeiro, Amelia Carvalho Dill.
Instituto Superior Técnico. Lisbon, Portugal.
Instituto Nacional Engenharia, Tecnologia e Inovacao, Porto, Portugal.
- 9.30-9.50h: “A two-dimensional model for non-linear ion exchange processes in acid mine drainage environments”
Doulati Ardejani Faramarz , Shafaei Sied Ziadin, Baafi Ernest , Badii Khashayar , Marandi Reza , **Singh Raghu**
Sharood University of Technology, Iran.
Iran Colour Research Centre. Environmental Department. Iran.
University of Wollongong, Australia.
- 9.50-10.10h: “. Hydrogeologic investigation of the Gold Reserve Incorporated’s BRISAS DEL CUYUNI Concession in Southeast Venezuela”
Philip Brown, **Larry Breckenridge**, Amy Hudson, Mike Henderson, Andres García.
Vector Colorado LC. Golden Colorado. USA.
Gold Reserve Corporation. Golden Colorado. USA
- 10.10-10.30h: “Underground water flow modelling in finite elements with uncertainty propagation: Application to mining”
C. Pelayo, R. Menéndez, **J.M. Cueva**. J. Loredo, F. Pendás.
Mining Engineering School. University of Oviedo. Spain.
- 10.30-10.50h: “Predictive modelling of the creation and hydrological behaviour of waterfowl habitats resulting from sand and gravel extraction”
Catherine J. Gandy, **Paul L. Younger**, Paul Allison.
Institute for Research on the Environment and Sustainability. University of Newcastle. UK.
- 10.50-11.10h: “Modelling of ferric iron complexation and precipitation reactions associated with acid mine drainage environments”
Doulati Ardejani Faramarz , Singh Raghu, Baafi Ernest, Shafaei Sied Ziadin, Marandi Amid.
Sharood University of Technology. Iran.
University of Wollongong, Australia.
- 11.10-11.30h: “Salinity and experience constraints to water reuse in coal mining.”
Chris Moran and Alana Moore.

Centre for Water in the Minerals Industry, University of Queensland. Australia.

ROOM 1: 12.00-14.00 h. *Active and passive mine water treatment technologies (II)*

- 12.00-12.20h: “Desalting of acid mine drainage by reverse osmosis method. Field test”
Vaclav Pisa, Eva Gulikova.
Brown Coal Research Institute. Most. Czech Republic.
- 12.20-12.40h: “Construction of a novel Permeable Reactive Barrier (PRB) at Shilbottle, Northumberland, U.K.: engineering design considerations and preliminary performance assessment”
Bowden Lawrence I, Jarvis Adam, Orme Patrick, Moustafa M, Younger Paul L.
Institute for Research on the Environment and Sustainability. University of Newcastle. U.K.
- 12.40-13.00h: “Geochemical performance of a reducing and alkalinity-producing system (RAPS) for the passive treatment of acidic mine drainage at Bowden Close, United Kingdom”
Daniel Fabian, Andy C. Aplin, Paul L. Younger.
University of Newcastle. Newcastle upon Tyne. UK.
Institute for Research on the Environment and Sustainability. University of Newcastle. UK.
- 13.00-13.20h: “A novel method for passive treatment of mine water using a vertical flow accretion system”
D.J. Sapsford, A. Barnes, M. Dey, L. Liang, K.P. Williams.
Cardiff University. U.K.
Newcastle University. U.K.
Mouchel Parkman. U.K.
- 13.20-13.40h: “Quantifying ochre arising: Output from the UK Coal Authority’s Mine Water treatment Sites”
Sophie Hancock.
ATKINS Environment. Birmingham, U.K.
- 13.40-14.00h: “Biogeochemical interactions in a compost wetland for spoil heap leachate remediation at Quacking Houses, County Durham, UK”
Michelle Morrison
University of Newcastle upon Tyne. U.K.

ROOM 2: 12.00-14.00 h. *Other mine water issues (I)*

- 12.00-12.20h: “Assessing the importance of diffuse mine water pollution: a case study from County Durham, UK.”
Mayes, William M., **Jarvis, Adam P.**, Younger, Paul L
Institute for Research on the Environment and Sustainability. University of Newcastle, U.K.
- 12.20-12.40h: “Fluoride pollution of water streams in Mosconia mine Area”
Roqueñi. N, Ugarte. C, Martínez. G, Álvarez. V
E.T.S.I.minas de Oviedo.Universidad de Oviedo.

Minerales y Productos derivados, S.A. Ribadesella (Asturias). Spain.

- 12.40-13.00h: “. Rock strength reduction and environmental potential influence due to groundwater rebound”
Zhendong Li, D.J. Reddish
University of Nottingham. U.K.
- 13.00-13.20h: “Application of surface pre-grouting for shaft sinking with freezing in the aquifer formations”
Yang Chunlai , Wang Zongmin.
China Coal Scientific and Research Institute. China.
Oversea Project of Zhenzhou Coal and Electricity Group. China.
- 13.20-13.40h: “Wetland systems associated with mine sites as a source of biodiversity”
Lesley C. Batty.
University of Birmingham. United Kingdom.
- 13.40-14.00h: “Application of national water quality guidelines in mine regulation at Ranger mine, Australia”
Michelle Iles.
Office of the Supervising Scientist. Australian Government Department of the Environment and Heritage.

ROOM 1: 15.30-17.10 h. *Active and passive mine water treatment technologies (III)*

- 15.30-15.50h: “Catalytic photodegradation of polycyclic aromatic hydrocarbons in coal dumps”
M.J. García, I. Da Riva, L. Canoira, J.F. Llamas.
Polytechnic University of Madrid. Spain.
- 15.50-16.10h: “Cadmium, nickel and cobalt removal from water using caustic magnesia: Evidence from column experiments”
Tobias Rotting, Jordi Cama, José Luis Cortina, Joan de Pablo, Carlos Ayora.
Institute of Earth Sciences Jaime Almera, CSIC. Barcelona. Spain.
Technical University of Catalonia. Barcelona. Spain.
- 16.10-16.30h: “Developments of an alternative technology to remove cyanide from mining wastewater”
J.P. Sancho Martínez, **Begoña F. Pérez**, Francisco B. del Rosal.
University of Oviedo. Spain.
- 16.30-16.50h: “Utilization of solid waste products for manganese removal from mine waters”
Bamforth Selina M, Manning David A. C, Johnson.Karen, Younger. Paul, Singleton. Ian
University of Newcastle upon Tyne. U.K.
University of Durham. U.K.

ROOM 2: 15.30-17.10 h. *Other mine water issues (II)*

- 15.30-15.50h: “Environmental impact of past Hg mine activities in tributaries of Caudal River in Mieres district (Northern Spain)”
J. Loredó, **R. Álvarez**, A. Ordóñez, T. Bros
Mining Engineering School. University of Oviedo. Spain.
- 15.50-16.10h: “Evaluation of mine water quality dynamics in complex large coal mine fields”
Agnes Blachere. Michel Metz. Rudolf Rengers. Michael Eckart. **Christoph Klinger**. Werner Unland.
Deutsche Montan Technologie GmbH. Germany.
- 16.10-16.30h: “Assessment of mine waters suitable for metal recovery”
Rob Howell, Linda Broughton and Ben Rees.
SRK Consulting, Cardiff. Wales. U.K.
- 16.30-16.50h: “Tinto River pollution: remediation versus conservation”
A. Sainz, **J. Loredó**.
University of Huelva. Spain.
University of Oviedo. Spain.

17.00-17.45h. Closure conference: “Meeting the sustainability challenge: trends and Developments in Biological Treatment of mine drainage in South Africa”.

Peter Rose.

Environmental Biotechnology Research Unit.
Rhodes University .Grahamstown, South Africa.

POSTERS

“A new field methodology for the stabilization of arsenic species in acid mine drainage”

A.M. Sarmiento, V. Oliveira, J.M. Nieto, J.L. Gómez-Ariza, D. Sánchez-Rodas.
Universidad de Huelva. Spain.

“The role of iron coating in the oxidative dissolution of a pyrite-rich sludge”

R. Pérez-López, J. Cama, J.M. Nieto, C. Ayora.
Universidad de Huelva. Institute of Earth Sciences “Jaime Almera”, CSIC. Barcelona. Spain.

“Geochemistry and mineralogy of hardpan formation processes in the interface between sulphide-rich sludge and fly ash”

R. Pérez-López, J.M. Nieto, G.R. Almodóvar.
Universidad de Huelva. Spain.

“Pollution Associated to artisanal Gold mining in Ayacucho Department , PERÚ”

J. Soto, R. Álvarez, J. Loredó, and J. García Iglesias.
Departamento de Explotación y Prospección de Minas. Universidad de Oviedo.

“Surface Water monitoring in abandoned mercury mine sites in Asturias (Spain): Comparative studies”.

Loredo Jorge, Ordóñez Almudena, Galán María Pilar, Fernández-Martínez Rodolfo, Alvarez Rodrigo, Olay Andrés, Petit-Domínguez María Dolores, Fernández Rosa María, Marín Santiago, González María del Mar, Rucandio María Isabel

Dpto. de Explotación y Prospección de Minas. Universidad de Oviedo. Spain.

Unidad de Espectroscopía, División de Química, Dpto. de Tecnología, CIEMAT. Madrid. Spain

Departamento de Química Analítica y Análisis Instrumental. Facultad de Ciencias. Universidad Autónoma de Madrid. Spain.

“Bentonites as adsorbents of heavy metal ions from mine waste leachates: experimental Data”

J.L. Vega¹, J. Ayala², J. Loredo² and J. García Iglesias².

E.T.S. Ingenieros de Minas. University of Oviedo.

University of Piura. Piura. Peru.

“Consequences of abandoned Cu-Co mining in Northern Spain in surface watercourses”

A. Ordóñez, R. Álvarez, T. Bros, J. Loredo.

Mining Engineering School. University of Oviedo. Spain.

“Permeable reactive barriers for mine water treatment in the UK: lessons from laboratory and full-scale applications”

Emma Gozzard, Lawrence Bowden, Paul L. Younger.

Institute for Research on the Environment and Sustainability. University of Newcastle. UK.

“Coal mine flooding as a cause of methane danger. The case study of Morcinek Mine, Upper Silesian Coal Basin, Poland”

Przemyslaw Bukowski, Ireneusz, Grzybek.

Central Mining Institute. Katowice. Poland.

State Mining Authority. Katowice, Poland.

“Passive treatment of Acid Mine Drainage from metal mines in Southern Spain: Results from experimental treatment tanks”

Tobias Rötting, Carlos Ayora, Jesús Carrera.

Institute of Earth Sciences Jaime Almera, CSIC. Barcelona. Spain.

Technical University of Catalonia. Barcelona. Spain.

“Semi-passive treatment of acid mine drainage from metal mines in Southern Spain: Results from lime and MgO-dosing experiments”

Tobias Rötting, Carlos Ayora, Jose M. Chimenos.

Institute of Earth Sciences Jaime Almera, CSIC. Barcelona. Spain.

University of Barcelona. Barcelona. Spain.

“Adsorption of copper cyanide species from tailings pond on flying ash”

Begoña F. Pérez, Julia A. Espina.

University of Oviedo. Spain.

“A rapid and robust method for the determination of organic mercury fraction in natural waters”
R. Fernández-Martínez, M.P.Galán, M.D. Petit-Domínguez, A.Ordóñez, J. Loredó, M. I. Rucandio.
Unidad de Espectroscopía, División de Química, Dpto. de Tecnología, CIEMAT. Madrid. Spain
Facultad de Ciencias. Universidad Autónoma de Madrid.
E.T.S.I. Minas de Oviedo. Universidad de Oviedo

“Determination of Contamination in Potable Water Supplies in Villages of Babol (one city in Iran) and the Effect of Pseudomonas on E. Coli in the MPN Test”
Issa Gholampour Azizi - Masuod Hashemi
Medical Science Department of Islamic Azad University of Babol, Iran.

“A study on MPN by Clostridium perfringens to determine the fecal contamination in rural potable water supplies”
Masuod Hashemi - Issa Gholampour Azizi
Medical Science Department of Islamic Azad University of Babol, Iran.

“Study of toxic elements in iron ores from the Ojos Negros district (Teruel,Spain)”
A.Galán Saulnier, M.D. Petit Domínguez, M. I. Rucandio Sáez, R.García Jiménez.
Departamento de Arquitectura y Tecnología de Sistemas Informáticos. Facultad de Informática.
Universidad Politécnica de Madrid.
Departamento de Química Analítica y Análisis Instrumental. Facultad de Ciencias.Universidad Autónoma de Madrid.
Departamento de Geología y Geoquímica. Facultad de Ciencias. Universidad Autónoma de Madrid.

“Kriging with external drift using GIS to define spatial patterns of variability and pollution sources for heavy metals at Lousal mine, Portugal”
A.P. Reis, E.F. Silva, A.J. Sousa, C. Patinha, E.C. Fonseca.
University of Aveiro. Portugal.
Technical University of Lisbon, Portugal.

“Epilithic diatom communities in the vicinity of two abandoned mines”
Almeida, S.F.P., Ferreira de Silva, E., Texeira, P., Nunes, M. & Patinha, C.
University of Aveiro, Departament of Biology, 3810-193, Aveiro, Portugal.
University of Aveiro, Departament of Geosciences, 3810-193, Aveiro, Portugal.

“Assessing the risk of groundwater contamination by sulphates in an intensively pumped aquifer”
Andrzej Witkowski (Poland)