



International Conference WATER ENERGY & CLIMATE CHANGE

WECC2016

TECHNICAL PROGRAM



1-4 June 2016 Marrakech

Morocco

International Conference on Water, Energy & Climate Change (WECC'2016)

01-04 June, 2016

Cadi Ayyad University, Marrakech, Morocco

<http://wecc.uca.ma/>

Wednesday 01 June 2016 (Morning session)	
08h30 – 09h30	Registration
09h30 – 10h00	Official Opening Ceremony
10h00 – 11h00	Opening Keynote 1: Mr. Philippe Benoit, Head of Energy Environment Division, International Energy Agency, France ENERGY AND CLIMATE CHANGE: A KEY TO OUR FUTURE
11h00 – 11h30	Coffee break and Poster session
11h30 – 12h30	Opening Keynote 2: Dr. Ghani Chehbouni, Director, Research and Development Institute (IRD), France-Morocco ON THE USE OF REMOTE SENSING IN WATER CYCLE IN SEMI-ARID REGION IN THE CONTEXT OF CLIMATE CHANGE: RECENT ADVANCES AND FUTURES CHALLENGES
13h00 – 14h00	Lunch break
Wednesday 01 June 2016 (Afternoon session)	
ORAL SESSION I: Water sustainability and climate change <i>Chairs: L. Mandi and V. Simonneaux</i>	
14h30 – 14h45	Water Resources in Algeria: Scenarios, Projected Strategies on 2030-2050 in view of Climatic Changes <i>A. Kettab and S. Djaffar (Algeria)</i>
14h45 – 15h00	Assessment of climate variability and impacts on hydro-climate parameters (Rainfall variation in Grombalia basin, Tunisia) <i>S. Chargui, H. Gharbi, F. Lachaal, A. Mlayah, and M. Slimani (Tunisia)</i>
15h00 – 15h15	Modeling of permeability in a semi-arid region in the choice of the best sites suitable for the placement of artificial underground tanks: Application to the plain of Saïss (Northern Morocco) <i>A. El Ibrahimy and A. Baali (Morocco)</i>
15h15 – 15h30	The Dam reservoir of Bin El Ouidane (Azilal, Morocco) face to climate change <i>A. Ahbari, L. Stour, and A. Agoumi (Morocco)</i>
15h30 – 15h45	Use of remote sensing for regional estimation of evapotranspiration in the Kairouan plain, Comparison with Large Aperture Scintillometer measurements <i>S. Saadi, V. Simonneaux, G. Boulet, B. Mougnot, Z. and L. Chabaane (Tunisia, France)</i>
15h45 – 16h00	Soil Moisture and Drought monitoring in Morocco during the Two last year's using remote sensing <i>H. Sairi, A. Samraoui, A. Fadil, H. Rhinane, and A. Hilali (Morocco)</i>
16h00 – 16h15	Net Change: Harvesting Fog for Resilience in Southwest Morocco <i>J. Bargach, L. Dodson and R.L. Farnum (Morocco, USA, UK)</i>
16h30 – 17h00	Coffee break and Poster session
ORAL SESSION I: Water sustainability and climate change <i>Chairs: A. Benkaddour and M. Mul</i>	
17h00 – 17h15	Climate Change Impacts on the Hydrology of Mediterranean Basins – Quantifying Uncertainty and Risk <i>R. Ludwig, D. Gampe, S. Meyer (Germany)</i>
17h15 – 17h30	Adaptation of a Mediterranean Coastal Urban River Basin to Precipitation Patterns Changes: A Socio-Economic Approach <i>A. Alarcon, A. Díaz, F.J. Martin-Vide, B. Noguera and M. Salgot (Spain)</i>
17h30 – 17h45	Sustainable water management system: the case of Doha <i>R. Green, S. Renukappa and S. Suresh (UK)</i>
17h45 – 18h00	Assessment of the Sustainability of the Water Sector Management system in Bahrain <i>W.K Al-Zubari, A. A El-Sadek, M. Al-Arabi and H. Al-Mahal (Bahrain)</i>
18h00 – 18h15	Climate Change Vulnerability: Shared Aquifers Case Study: GCC Dammam Shared Groundwater Aquifer <i>M. Abdulrazzak, M. Radwan, W. Al Zubari and A. Sadiq (Saudi Arabia)</i>
18h15 – 18h30	Mapping Spatial distribution of Chemical Elements of Groundwater in a Semi-arid Zone <i>S. Bekkoussa and B. Bekkoussa (Algeria)</i>
18h30 – 18h45	Water Sector Management Via-Integrated Water Resources Management Approach and Adaptation to Climate Change Impact in the Arabian Peninsula Region <i>M. J. Abdulrazzak, P. D. Oikonomou, N. AlAmeri and A. Larabi (Saudi Arabia, Morocco)</i>

Thursday 02 June 2016 (Morning session)	
ORAL SESSION 1: Water sustainability and climate change <i>Chairs: A. Kettab and R. Rodriguez-Clemente</i>	
09h00 – 09h30	Keynote speaker: Prof. Mohammed Said Karrouk, Climatology Research Centre (CEREC), University Hassan II, Morocco GLOBAL WARMING, NEW CLIMATE, NEW ATMOSPHERIC CIRCULATION AND NEW WATER CYCLE IN THE NORTH ATLANTIC OCEAN
09h30 – 09h45	Development of integrated scenarios to assess future conditions of aquatic ecosystems under water scarcity in the Mediterranean – perspectives from the GLOBAQUA project <i>V.H. García, D. Gampe, S.Meyer and R.Ludwig (Germany)</i>
09h45 – 10h00	Trade-offs between ecosystem services and hydropower generation, case of the Akosombo and Kpong dams, Ghana <i>M. Mul, F. Annor, M. Boateng-Gyimah, E. Oforu-Antwi, B. Ampomah, and C. Addo (Ghana)</i>
10h00 – 10h15	Impact of Climate Change on Groundwater Resources in Morocco : The case of the Loukkos basin <i>M.J. Elhamidi, A. Larabi, M. Faouzi (Morocco)</i>
10h15 – 10h30	Hydrogeological characterization by the MRS survey of the fissured Bleida aquifer (Anti-Atlas – Morocco) <i>M. Snineh, N. Laftouhi, A. Hejjaj, L. Mandi and A. El Mandour (Morocco)</i>
10h30 – 10h45	Contribution of GIS and geo-statistical tools in the readaptation of estimating flood peaks' methods to current climate situation <i>J. Ahattab, N. Serhir and L. El Khadir (Morocco)</i>
10h45 – 11h00	Estimation of evapotranspiration of irrigated crops in Mediterranean semi-arid area: Remote sensing and Modelisation <i>A. Diarra, S.Er-Raki, L.Jarlan, M. Le Page and S.Khabba (Morocco, France)</i>
11h00 – 11h30	Coffee break and Poster session
ORAL SESSION 2: Advances in Water treatment, recycling and reuse <i>Chairs: N. Ouazzani and S. Chiron</i>	
11h30 – 12h00	Keynote speaker: Prof. Mongi Seffen, High School of Sciences and Technology of Hammam Sousse, Sousse University(Tunisia) FOSTERING PARTNERSHIPS FOR THE IMPLEMENTATION OF BEST AVAILABLE TECHNOLOGIES FOR WATER TREATMENT AND MANAGEMENT IN THE MEDITERRANEAN
12h00 – 12h15	Constructed wetlands: A tool for different strength wastewater treatment <i>A. Torrens, M. Folch, M. Garcia, M. Gallinas, M. Aulinas and M. Salgot (Spain)</i>
12h15 – 12h30	Long term treatment performance of constructed wetlands for wastewater treatment in mountain areas: case study from the Tidili <i>S. El Fanssi, N. Ouazzani, L. Latrach and L. Mandi (Morocco)</i>
12h30 – 12h45	Experimental analysis and process of wastewater treatment plant <i>G. Leonzio (Italy)</i>
12h45 – 13h00	Testing protocol for assessment of technologies for greywater treatment <i>G. Bulteau, L. Cuadrado and M. Pidou (UK, France)</i>
13h00 – 14h00	Lunch break
Thursday 02 June 2016 (Afternoon session)	
ORAL SESSION 2: Advances in Water treatment, recycling and reuse <i>Chairs: O. Cherifi and M. Seffen</i>	
14h30 – 14h45	An insight in water decontamination by photocatalysis of ZnFe ₂ O ₄ elaborated by sol-gel process <i>S. Briche and M. Belaiche (Morocco)</i>
14h45 – 15h00	Modified ZnO Nanoparticles Thin Films as Visible Light Photocatalysts for Wastewater Treatment <i>M. A. Barakat, J. Rashid and N. Salah (Saudi Arabia)</i>
15h00 – 15h15	Structure influence of PbO ₂ films on water depollution: Adhesion, Kinetics and oxidation capability <i>I. Elaissaoui, H. Akrouf, S. Grassini, D. Fulginiti and L. Bousselmi (Tunisia)</i>
15h15 – 15h30	Combining micelle-clay sorption to solar photo-fenton for wastewater treatment <i>M. Brienza, V. Goetz and S. Chiron (France)</i>
15h30 – 15h45	The <i>Opuntia ficus indica</i> juice an eco-friendly alternative to chemical coagulants and flocculants used in physicochemical treatment of industrial waste and surface treatment of textile <i>A.Abid, Ch. Belhajjia, H. Oukani and A. Zouhri (Morocco)</i>
15h45 – 16h00	Synthesis and characterization of chitosan-stevensite nanocomposite : Application in removing heavy Metals from aqueous media <i>K. Hnana, M. Ahrouch, M. Hadri, M. Hamdaoui, A. Barhoun and K. Draoui (Morocco)</i>
16h00 – 16h15	Eggshell adsorption process coupled with electrocoagulation for improvement of chromium removal from tanning wastewater <i>S. Elabbas, N. Adjeroud, L. Mandi, F. Berrekhis, J.P. Leclerc and N. Ouazzani (Morocco, France)</i>
16h15 – 16h30	Comparison of Olive mill wastewater treatment by membrane bioreactor and conventional activated sludge <i>Y. Jaouad, B. Marrot, L. Mandi and N. Ouazzani (Morocco, France)</i>
16h30 – 17h00	Coffee break and Poster session

ORAL SESSION 2: Advances in Water treatment, recycling and reuse	
Chairs: F. Berrekhis and M. Nakib	
17h00 – 17h15	Assessing the chemical/microbiological contamination and productivity in the agricultural production chain of model fruit species grown under irrigation with different kinds of reclaimed wastewater: Presentation of the “IRRIGATIO” Project <i>N. Ouazzani, M. Del Bubba, M.C. Bruzzoniti, E. Coppini, L. Mandi, E. Al-Karablieh, A. Kettab and N. Boujelben (Morocco, Italy, Jordan, Tunisia, Algeria)</i>
17h15 – 17h30	Agricultural reuse opportunity of Mediouna treated wastewater (Casablanca) <i>A. Nahli, C. Brand, S. Hebabaze, R. Hmimidi, N. Sakhraoui and M. Chlaida (Morocco)</i>
17h30 – 17h45	Urban wastewater treatment by a conventional and modified activated sludge pilot system <i>T. El Moussaoui, N. Ouazzani, L. Mandi, S. Wahbi and S. Masi (Morocco, Italy)</i>
17h45 – 18h00	Multi-Soil-Layering (MSL) system: novel technology for efficient treatment of decentralized domestic wastewater in Morocco <i>L. Latrach, T. Masunaga, K. Sato, N. Ouazzani, A. Hejjaj, M. Mahi and L. Mandi (Morocco, Japan)</i>
18h00 – 18h15	Performances and modeling by WEST program of wastewater stabilization ponds treatment plant in the area of Chichaoua (Marrakech- Morocco) <i>H. Haddani, F. Zouhir, H. Jupsin, M. Sadani, L. Mandi and N. Ouazzani (Morocco, Belgium)</i>
18h15 – 18h30	New approach for expanding access to sanitation in Morocco <i>K. Lamzouri, M. Mahi, L. Latrach, L. Mandi, T. Masunaga, S. Ouatar and E.H. Bartali (Morocco, Japan)</i>
18h30 – 18h45	Integrated Approach for Decentralized Wastewater Management in Jordan: Encompassing Social, Technical and Economical Aspects <i>M. Saidam, A. Assayed, T. Qotaish and M. Mashatleh (Jordan)</i>
20h30 – 23h00	Social Event
Friday 03 June 2016 (Morning session)	
ORAL SESSION 3: Food security, sustainable agriculture and forestry	
Chairs: M.T. Chaibi and S. Er-raki	
08h30 – 09h00	Keynote speaker: Prof. Rafael Rodriguez-Clemente, Presidential Delegate in CSIC, Spain SCENARIOS FRAMING THE WATER-ENERGY-FOOD NEXUS CHALLENGES IN THE MEDITERRANEAN REGION
09h00 – 09h15	Does biofuel threaten food security? <i>L. F.Z. Alami Talbi (Morocco)</i>
09h15 – 09h30	Strategies and Options of Improving Land and Water Productivities of Cereals in North Africa in the Context of Climate Change <i>M. Karrou (Morocco)</i>
09h30 – 09h45	Climatic challenges and water storage options for agriculture in West Africa <i>M. Mul, D. Kadyampakeni, F. Salifu, S. Haruna and J. Barron (Ghana)</i>
09h45 – 10h00	Groundwater governance in a public irrigated perimeter (Haouaria-Tunisia) <i>H. Leghrissi (Tunisia)</i>
10h00 – 10h15	A Smart irrigation system based on solar energy and wireless sensor networks <i>H. Lazrag and R. Saadane (Morocco)</i>
10h15 – 10h30	Development of a low cost and sustainable protected agriculture structure and substrate under GCC conditions <i>A. Hirich and C.A. Redouane (Dubai, UAE)</i>
10h30 – 10h45	Improved water use efficiency by deficit-irrigation: Implications for economizing water use in <i>Medicago sativa</i> L genotypes <i>M. Mouradi, A. Bouizgaren and C. Ghoullam (Morocco)</i>
10h45 – 11h00	Coffee break and Poster session
ORAL SESSION 4: Energy and climate change	
Chairs: B. Benhamou and H. Hamdi	
11h00 – 11h30	Keynote speaker: Dr. Badr Ikken, General Manager of IRESEN, Morocco THE POTENTIALS AND CHALLENGES OF PHOTOVOLTAICS IN THE DESERT REGIONS
11h30 – 11h45	Contribution to the Study of the Desalination of Brackish Water by Membrane Distillation Coupled with Solar Energy: Projet pilot AquaSolar (Benguerir-Morocco) <i>K. Allam, K. Gourai, A. El Bouari, B. Belhorma and L. Bih (Morocco)</i>
11h45 – 12h00	Some lessons learned from 26 years experience using solar energy in desalination and wastewater treatment <i>M. J. Safi (Tunisia)</i>
12h00 – 12h15	Assessment of the first year operating data of a RO brackish water desalination unit, Khenifra plant, Morocco <i>H. Boulahfa, H. Hassani, L. Hasnaoui and A. El Midaoui (Morocco)</i>
12h15 – 12h30	A single chamber microbial fuel cell for energy generation and wastewater treatment using a new membrane <i>Z. Baicha, M.J. Salar-García, V. M. Ortíz-Martínez, F.J. Hernández-Fernández, L. Latrach, N. Labjar, E.M. Lotfi and M. El Mahi (Spain, Morocco)</i>

13h00 – 14h00	Lunch break
Friday 03 June 2016 (Afternoon session)	
ORAL SESSION 4: Energy and climate change <i>Chairs: A. Idlimam and A. Brakez</i>	
14h30 – 14h45	Renewable Energy Business Models for Developing Countries <i>A. Donastorg, S. Renukappa, S. Suresh and M. Silverio (UK)</i>
14h45 – 15h00	Combining a two source energy balance model, aggregation approach and MODIS data to estimate area-averaged turbulent fluxes during the AMMA experiment <i>B. Aithssaine, J. Ezzahar, L. Jarlan, O. Merlin, S. Khabba and S. Er-Raki (Morocco, France)</i>
15h00 – 15h15	Kinetic solar drying, effective moisture diffusivity and activation energy of Moroccan rosemary leaves <i>S. Mghazli, M. Ouhammou, N. Hidar, L. Lahnine, A. Idlimam and M. Mahrouz (Morocco)</i>
15h15 – 15h30	Energy production by continuous microbial fuel cell using a new membrane based on ionic liquid <i>Z. Baicha, M. J. Salar-García, V. M. Ortíz-Martínez, F.J. Hernández-Fernández, L. Latrach, N. Labjar, E.M. Lotfi and M. El Mahi (Morocco, Spain)</i>
15h30 – 15h45	Public Private Partnership for Improving Energy Efficiency of Wala Lib Pumping Stations in Madaba Governorate – Jordan <i>F. Matar (Jordan)</i>
16h00 – 16h30	Coffee break and Poster session
ORAL SESSION 5: Society and Sustainability <i>Chairs: A. Chehbouni and A. Hejjaj</i>	
16h30 – 17h00	Keynote speaker: Prof M.T. Chaibi, Pan African University Institute of Water and Energy Sciences - (PAUWES) University Abou Bekr Belkaid - Algeria HOW PAUWES COULD CONTRIBUTE TO CAPACITY BUILDING FOR SUSTAINABLE WATER AND ENERGY MANAGEMENT IN HIGHER EDUCATION IN AFRICA
17h00 – 17h15	Role of Non-Governmental Organizations (NGOs) in adaptation and mitigation of climate change impacts: Case of Development Center of Tensift Region (CDRT - Forum of Marrakech) <i>B. Bouali, A. Chehbouni, M. Messouli and B. Oulhadj (Morocco)</i>
17h15 – 17h30	Sustainable development of cities face to the challenges of climate change <i>F. Arib and N. Belhaj (Morocco)</i>
17h30 – 17h45	An Integrated Development of the Water and Energy Sectors to face Climate Change in the Maghreb Countries: Situation and Prospects <i>L. Oualkacha, L. Stour, A. Agoumi and A. Kettab (Morocco, Algeria)</i>
17h45 – 18h00	Urban drainage and Climate change: Toward the Best Management Practices <i>M. Moujahid, L. Stour and A. Agoumi (Morocco)</i>
18h00 – 18h15	Opportunities in the water-energy-food security nexus: exploring novel ways to increase benefit and cooperation in the Eastern Nile Basin <i>A. Nasser and M. Eid (Algeria)</i>
18h15 – 18h30	Models for climate change impacts on the people movement through Morocco toward Europe <i>D. Chinarro, C. Fernández and M-L. Sierra (Spain)</i>
18h30 – 19h00	AWARDS AND CONFERENCE CLOSING CEREMONIES
Saturday 04 June 2016	
Technical Visits: Please, do choose one of the following visits then pay the fees at the conference registration desk	
09h00 – 12h00	Marrakech Wastewater Treatment Plant (WWTP) with biogas recovery for cogeneration
09h00 – 12h00	Green Energy Park at Benguerir city
14h00 – 18h00	Haouz plain around Marrakech with various aspects of water resources and their uses (irrigation, management, experimental set-up for crop water budget monitoring, flood risk...)

POSTERS

Session 1: Water sustainability and climate change

- Assessment of underground water quality in environment adjacent to petrochemical industry zone in Libya.
Adel A. Banana, AA. Al-Gheethi, RMSR. Mohamed, AN. Efaq and AMS. Gadawi (Libya, Malaysia).
- Traditional Knowledge and its innovative use to face water resources scarcity in rural and urban ecosystem.
L. Pietro (Italy).
- Potential environmental impact Of purified wastewater on the ground and the cultures: case of Algeria.
N-M. Chabaca, A. Kettab, M. Nakib, S. Karef, S. Benziaada, S. Benmamar, W. Boumalek, H. Bouanani and Y. Djillali (Algeria).
- Hydrochemical characterization of the Ghriss Plain Aquifer using Multivariate Statistical Analysis.
B. Bekkoussa, S. Bekkoussa and H. Azzaz (Algeria).
- Vulnerability assessment of the alluvial aquifer of Tebessa (Northeast Algeria) by the DRASTIC method for its protection.
L. Gouaidia, O. Guefaifia, N. Defafilia and M. Laid Hemila (Algeria).
- Water scarcity threatens Egypt: driving forces, impacts and control through management programs.
H-T. El Zanfaly (Egypt).
- Analyse de l'effet du fonctionnement hydrologique sur la variabilité spatio-temporelle des exportations de sédiments par le modèle agro hydrologique SWAT dans le bassin versant Nakhla.
R. Boukhari taleb, M. Naimi, M. Chikhaoui et M. Sabir (Morocco).
- The reuse of non conventional water in Algeria: A Source of Struggle against Climatic Changes.
A. Kettab (Algeria)
- Study and physico-chemical characterization of waters of Oued Sakia Elhamra (Morocco).
A. Errich, S. El hajjaji, L. Mandi, M. Fekhaoui, A. Lamhamdi, K. Azzaoui and L. Latrach (Morocco).
- Relationships among land cover, soil texture, soil carbon and soil erodibility in a semi-arid area (Western High Atlas, Morocco).
A. Gourfi and L. Daoudi (Morocco).
- Study of the population of macroinvertebrates families for the Afenourir's Lake.
J. Griba, A. Serghini, M. Fekhaoui, R. Rhafouri, N. Aadel and H. Idrissi (Morocco).
- First monitoring and ecological modeling in an urban drinking water supply Sidi Abderrahman (Safi, Morocco).
W. Belokda, K. Elkalay, K. Khalil and M. Loudiki (Morocco).
- Evaluation of CemaNeige-GR4J model used to simulate streamflow in the Rheraya catchment (High Atlas, Morocco)
Y. Hajhouji, S. Gascoïn, Y. Fakir, G. Chehbouni and R. Bastien (Morocco).
- Contribution of simulation and Geographic Information Systems in the spatialization risk of flooding in the watershed of Wadi Rheraya (High Atlas, Morocco).
El alaoui el fels, A. Bachnou and N. Alaa (Morocco).
- Long and medium-term evolution of a semi sheltered beach (Bay of Agadir, Morocco-Atlantic Ocean).
I. Aouiche and L. Daoudi (Morocco).
- Estimation of groundwater vulnerability and the impact of the anthropogenic activities on the karst systems of Saïda Mountains.
R. Meziane and H. Azzaz (Algeria).
- Drought and Flood, example of Tlemcen city (North-West of Algeria).
A. Djedid and H. Adjim (Algeria).
- Performance Diagnostic and Agricultural Profitability of the WWTP of Kolea-Tipaza (Algerian Coast).
H. Bouanani, S. Tebbal, A. Kettab, M. Nakib, W. Boumalek, S. Benziaada, N. M. Chabaca, S. Benmamar, S. Karef and Y. Djillali (Algeria).
- Strategy of adaptation of the water resources in the Hydraulic Basin of Oum Er Rbia to the climate change.
Z. Echakraoui, A. Boukdir, W. Baite, A. Zitouni, S. El mouatassime, V.R. Ekouele mbaki, H. Ikhmerdi, E. Ben-said and L. Alili (Morocco).

- Freezing separation technology for hybrid seawater desalination industry.
I. Baayyad, N. Semlali and A. Hassani (Morocco).
- Sustainable management of water resources in Morocco: Case of irrigation water in the Haouz of Marrakech.
L. Ihyoui and F. Arib (Morocco).
- Application of HYDRUS-1D model on a wheat culture under a semi-arid climate.
O. El mountassir, J. Ezzahar, A. Maslouhi and H. Qanza (Morocco).
- Project of Eco-Hammams: an innovative concept for optimum management of energy and water in hammams (Common of Dar Bouazza).
Chakri, B. El amrani, F. Berrada, K. El falaky and F. Amraoui (Morocco).
- Climate variability impact on groundwater in Zahrez basin (Algeria)
F. Bouteldjaoui, A. Kettab and M. Bessenasse (Algeria).
- The economics of hydrodam reoperation in a changing climate: the case of Akosombo & Kpong dams, Ghana.
B. Balana, M. Mul and Y. Mante (Ghana).
- Application of tritium and carbonate isotopes of the Tlemcen Mountains karstic systems (Algeria) for description of the regional groundwater flow.
H. Azzaz, B. Bekkoussa, A. Hamimed and A. Khaldi (Algeria).
- Influence of climatic conditions on groundwater resources in semi-arid zone, if the plain of Saïss (Northern Morocco).
Elibrahimi and A. Baali (Morocco).
- Climate Change Impacts on the Beni Amir Aquifer, Morocco.
M. El azhari and D. Loudyi (Morocco).
- Statistical analysis of hydrological regime in North-Western Algeria (Macta watershed).
S. Taibi and M.A. Feddal (Algeria).
- Physical and chemical analysis and speciation of Arsenic of water pit lakes from the abandoned mine of Zeida (High Moulouya, Morocco).
E. Benyassine, A. Dekayir, M. Hery, S. Delpoux, A. Desoeuvre, O. Bruneel, M. Rouai and C. Casiot (France, Morocco).
- Variability of annual precipitation in Northwest Algeria.
H. Meddi (Morocco).
- Past and future trends in Temperature and Precipitation in Morocco.
S. Filahi, Y. Trambly and L. Mouhir (Morocco).
- Moroccan artisanal fisheries and climate change Small pelagic resources case.
M. Oumarous, A. Lakhnigie, A. Ben Mhamed, J. Bensbai, M. Malouli Idrissi and M. Bekkali (Morocco).
- Estuarine response during infrequent astronomical events similar to the expected climate change impact: case study of Sebou River Estuary (Morocco).
S. Haddout, M. Igouzal and A. Maslouhi (Morocco).
- Evaluation of the performance of two versions of ISBA model for estimating evapotranspiration over an olive orchard in a semi-arid region of Morocco
G. Aouade, L. Jarlan, J. Ezzahar, S. Er-raki, A. Napoly, A. Benkaddour, S. Khabba, G. Boulet, A. Chehbouni and A. Boone (France, Morocco)

Session 2: Advances in Water treatment, recycling and reuse

- Wastewater treatment by floating macrophytes (*Salvinia natans*) under Algerian semi arid climate.
A. Laabassi, A. FERCHA, A. Boudehane and D. Harzallah (Algeria).
- Nanostructured ZnO for photocatalytic degradation of Methylene Blue: A water organic pollutant.
A. El farrouji, A. Chihab eddin, M. Ait ali, Larbi EL Firdoussi and B. Boualy (Morocco).
- Valorization of sea's waste in the adsorption of heavy metals Environmental conservation and chemical abatement.
E. Ablouh, M. Rhazi and M. Taourirte (Morocco).
- The removal of metals (Cd, Cu and Zn) from the Tensift river using the diatom *Navicula subminuscula* Manguin: a laboratory study.
O. Cherifi, K. Sbihi and M. Bertrand (Morocco, France).
- Use of the freshwater diatom *Navicula subminuscula* Manguin in ecotoxicological tests for the assessment of water quality: a laboratory study.
O. Cherifi, K. Sbihi and M. Bertrand. (Morocco, France).

- Study of the adsorption process of textile dyes RBBR and AG1 by a mixed oxide derivative of an anionic clay.
H. Mourid, S. El Abrid, M. Lakraimi, L. Benaziz and M. Berraho. (Morocco).
- Rétention du remazol bleu brillant R par une apatite phosphocalcique.
E. Mourid, I. Elqor, E. Elkhattabi, M. Lakraimi and L. Benaziz (Morocco).
- Study of the possibility of reusing treated wastewater from the Jijel WWTP (North-Eastern coast of Algeria) in agriculture.
W. Boumalek, A. Kettab, M. Nakib, S. Benziaada, N.M. Chabaca, S. Benmamar, S. Karef, H. Bouanani and Y. Djillali (Algeria).
- Evaluation of the fertilizing Supply of the by-products of the WWTP of Medea (Algeria).
S. Karef, A. Kettab, M. Nakib, S. Benziaada, N-M. Chabaca, S. Benmamar, W. Boumalek, H. Bouanani and Y. Djillali (Algeria).
- Transformation photocatalytique d'une molécule pesticide en solution aqueuse.
H.Azaari, A. Elhourch, M. Elazzouzi and M.Sarakha (France, Morocco).
- Wastewater coloration.
H. Baba, M. Mahrouz and M. Bouchdoug (Morocco).
- Adsorption of Methylene blue from aqueous solutions onto dried and chemically modified biosorbent.
I. Enniya and A. Jourani (Morocco).
- Effective removal of heavy metals from aqueous solution by synthetic ball clay as potential low-cost adsorbent
M. El ouardi, S. Qourzal, A. Assabbane and J. Douch (Morocco).
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- Alternative fuel: impact of burning pomace on temperature profile occurring in the rotary cement kiln.
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- Realization of dye-sensitized solar cell.
M. Debbab, A. Chiali, Z. Bouzid, N. Chabane Sari and N. Ghellai (Algeria).
- In the updating of Algerian maps of solar radiation, and study of it's complimentarily with wind energy in Algeria.
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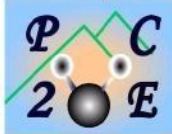


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