



European Geosciences
Union



International Association
of Hydrological Sciences



International Union of
Geodesy and Geophysics



National Technical
University of Athens



FACETS OF UNCERTAINTY

Kos Island, Greece | 17-19 October 2013

- **5th EGU LEONARDO CONFERENCE**
- **HYDROFRACTALS '13**
- **STATISTICAL HYDROLOGY-STAHY '13**

Scientific Programme



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SCIENTIFIC PROGRAMME

Wednesday, 16 October, 2013

15:00-19:00 Registration

19:00-21:00 Welcome Reception

Thursday, 17 October, 2013

Leonardo Conference

Hall I

08:30-09:00 Registration

09:00-09:15 **Welcome Addresses**

D. Koutsoyiannis, Organizing Committee

P. Hubert, IUGG

A. Montanari, EGU/HS

09:15-09:45 **Leonardo Lecture 2013**

Chairperson: **H. Aksoy**

Facets of uncertainty

K. Beven (United Kingdom)

09:45-10:30 **LC – Session I**

Chairperson: **H. Aksoy**

09:45-10:00 **LC-01**-Uncertainty in flood risk assessment

Z.W. Kundzewicz (Germany, Poland)

10:00-10:15 **LC-02**-How likely is the likelihood? A note on parameter estimation for hydrological models

A. Montanari (Italy)

10:15-10:30 **LC-03**-Windows of predictability in dice motion

P. Dimitriadis, K. Tzouka, **D. Koutsoyiannis** (Greece)

10:30-11:00 **Coffee Break**



Thursday, 17 October, 2013

- 11:00-13:00 **LC-Session 2**
Chairperson: **A. Carsteanu**
- 11:00-11:15 **LC-04**-Representing realistic parameter uncertainty in regional (semi-distributed) hydrological modelling for ungauged basins
D. Hughes (South Africa)
- 11:15-11:30 **LC-05**-Stepwise linear and nonlinear regression for groundwater-surface water modelling of a small island water resource system
M. Simpson, A. Butler, N. McIntyre (United Kingdom, Australia)
- 11:30-11:45 **LC-06**-Examination of parameter datasets quality on the results of a distributed catchment model validated with a dense gauging network
S. Ruman, T. Ball (Czech Republic, United Kingdom)
- 11:45-12:00 **LC-07**-Can we profit from ERS-2 and ENVISAT data to reduce uncertainty in hydraulic modelling?
A. Domeneghetti, A. Tarpanelli, S. Barbetta, L. Brocca, T. Moramarco, A. Castellarin, A. Brath (Italy)
- 12:00-12:15 **LC-08**-Constraining the predictive uncertainty of a Central-American water-balance model using regionalised flow-duration curves
I. Westerberg, L. Gong, J. Seibert, K. Beven, A. Semedo, S. Halldin (United Kingdom, Sweden, Switzerland)
- 12:15-12:30 **LC-09**-Baseflow separation model based on topographical and hydrometeorological data for Euphrates river basin
H. Zaifoğlu, **H. Aksoy** (Turkey)
- 12:30-12:45 **LC-10**-Non-stationarity in annual and seasonal series of peak flow and precipitation in the UK
I. Prosdoci, T. Kjeldsen, C. Svensson (United Kingdom)
- 12:45-13:00 **LC-II**-Entropy and reliability of water use via a statistical approach of scarcity
G. Karakatsanis, N. Mamassis, D. Koutsyiannis, A. Efstratiadis (Greece)
- 13:00-14:30 **Lunch Break**
- 14:30-15:00 **Leonardo Young Scientist Invited Lecture**
Chairperson: **A. Montanari**
Dealing with uncertainty in flood-hydrology: Complementary approaches
A. Viglione (Austria)



Thursday, 17 October, 2013

- 15:00-16:30 **LC-Session 3**
Chairperson: **A. Montanari**
- 15:00-15:15 **LC-12**-*The seventh facet of uncertainty*
L. Brandimarte, G. Di Baldassarre (*The Netherlands*)
- 15:15-15:30 **LC-13**-*A stochastic simulation framework for flood engineering*
A. Efstratiadis, A. Koukouvinos, P. Dimitriadis, A. Tegos, N. Mamassis, D. Koutsoyiannis (*Greece*)
- 15:30-15:45 **LC-14**-*Effect of observation errors on the uncertainty of design floods*
G. Di Baldassarre, F. Laio, A. Montanari (*The Netherlands, Italy*)
- 15:45-16:00 **LC-15**-*Significance of the Nash-Sutcliffe efficiency measure for event based flood models taking into account uncertainty on data*
R. Moussa (*France*)
- 16:00-16:15 **LC-16**-*Flood level spatial uncertainty simulation from expert knowledge: Methods, limits and impacts*
J-S. Bailly, N. Saint-Geours, F. Grelot, T. Langer (*France*)
- 16:15-16:30 **LC-17**-*Do we still need the rational formula? Some remarks on its subjectivity and on an alternative procedure for small and ungauged basins*
S. Grimaldi, A. Petroselli (*Italy*)
- 16:30-17:00 **Coffee Break**
- 17:00-19:00 **LC – Session 4**
Chairperson: **G. Di Baldassarre**
- 17:00-17:15 **LC-18**-*Design-flood estimation using integrated GIS-based catchment modelling tools and Monte Carlo sampling method: A case study for Upper-Tisza basin*
J.A. Szabo, G. Reti (*Hungary*)
- 17:15-17:30 **LC-19**-*Can we use SRTM topographic data for large river flood modelling under uncertainty?*
K. Yan, G. Di Baldassarre, D. Solomatine (*The Netherlands*)
- 17:30-17:45 **LC-20**-*Performance assessment of a Bayesian Forecasting System (BFS) for real-time flood forecasting*
D. Biondi, **D.-L. De Luca** (*Italy*)
- 17:45-18:00 **LC-21**-*Variability in extreme extratropical storms in the Euro-Atlantic region*
M.L.R. Liberato, J.G. Pinto, I.F. Trigo, R.M. Trigo (*Portugal, Germany, United Kingdom*)

Thursday, 17 October, 2013

- 18:00-18:15 **LC-22**-Boundary condition and parameter uncertainty in 1D hydraulic models
M. Mukolwe, G. Di Baldassarre, M. Werner, D. Solomatine (The Netherlands)
- 18:15-18:30 **LC-23**-Effects of extreme rainfall events on pollutant transport in the Alta Murgia karstic system (Italy)
M.D. Fidelibus, G. Balacco, A. Gioia, V. Iacobellis (Italy)
- 18:30-18:45 **LC-24**-Can we use a single hydrological event for hydraulic structure design?
E. Volpi, A. Fiori (Italy)
- 18:45-19:00 **LC-25**-Study of scale factors and type of precipitation in the estimated amount of precipitation through the relationship between reflectivity and intensity in Bogota
 J. Copete, **E. Herrera**, N.P. Obregon (Colombia)

Friday, 18 October, 2013

Leonardo Conference

Hall 2

- 11:00-13:00 **LC-Session 5**
 Chairperson: **C. Cudennec**
- 11:00-11:15 **LC-26**-Monte Carlo simulation for the derived seasonal flood frequency curves
 V. Chiarello, **E. Caporali**, G. Rossi, G. Galeati (Italy)
- 11:15-11:30 **LC-27**-Flood awareness: Insights from socio-hydrology modelling
 A. Viglione, G. Di Baldassarre, L. Brandimarte, **G. Carr**, L. Kuil, J.-L. Salinas, A. Scolobig, G. Bloeschl (The Netherlands, Austria)
- 11:30-11:45 **LC-28**-Incorporating structural uncertainty of hydrological models in likelihood functions
C. Tyralla, A. Schumann (Germany)
- 11:45-12:00 **LC-29**-A benchmark comparison of conceptual hydrological models for runoff simulation
 E. Gklimanakis, **L. Vasiliades**, A. Loukas, P. Willems (Greece, Belgium)
- 12:00-12:15 **LC-30**-Managing degraded groundwater resources under uncertainty: The effect on the restoration Scheme's optimization
N. Mylopoulos (Greece)
- 12:15-12:30 **LC-31**-Hydrological drought assessment in Dobrogea region
C. Maftei (Romania)
- 12:30-12:45 **LC-32**-The long term changes of lake hydrological cycle: A case study of lake usma in Latvia
I. Grinfelde, A. Kuduma, K. Steinberga, A. Rituma, K. Valujeva (Latvia)
- 12:45-13:00 **LC-33**-A high-resolution distributed analysis of climate and anthropogenic changes on the hydrology of an alpine catchment
P. Burlando, S. Fatichi, S. Rimkus, R. Bordoy, P. Molnar (Switzerland)
- 13:00-14:30 **Lunch Break**



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Friday, 18 October, 2013

Hydrofractals '13

Hall I

- 09:00-09:15 **Welcome Addresses**
G. Young, IAHS
S. Lovejoy, EGU/NP
- 09:15-09:45 **Hydrofractals Invited Lecture:**
Chairperson: **P. Burlando**
Scale invariance in time and space-time rainfall data
R. Rosso, C. De Michele (Italy)
- 09:45-10:30 **HF-Session I**
Chairperson: **P. Burlando**
- 09:45-10:00 **HF-01-A** climate model intercomparison at the dynamics level
A. Tsonis (USA)
- 10:00-10:15 **HF-02-Emergent space-time scaling laws in precipitation: Weather, macroweather and climate regimes**
S. Lovejoy (Canada)
- 10:15-10:30 **HF-03-The distribution of interarrival times in multifractal rainfall**
A.A. Carsteanu, A. Langousis, R. Deidda (Mexico, Greece, Italy)
- 10:30-11:00 **Coffee Break**
- 11:00-13:00 **HF-Session 2**
Chairperson: **S. Lovejoy**
- 11:00-11:15 **HF-04-Quantification of partial cutting effect on streamflow record in an evergreen broad-leaved catchment using a non-linear approach**
N. Kabeya, N.A. Chappell, W. Tych, A. Shimizu, S. Asano, H. Hagino (Japan, United Kingdom)
- 11:15-11:30 **HF-05-Climacogram-based modelling of isotropic turbulence**
P. Dimitriadis, D. Koutsoyiannis, P. Papanicolaou (Greece)
- 11:30-11:45 **HF-06-A multiple-response validation approach to estimate the modeling uncertainty in data-scarce lake basins, Tibet**
S. Biskop, M. Fink, P. Krause (Germany)
- 11:45-12:00 **HF-07-Scaling comparison of the rainfall outputs of two different disdrometers**
A. Gires, I. Tchiguirinskaia, D. Schertzer, S. Lovejoy (France, Canada)
- 12:00-12:15 **HF-08-Natural flood management as an ecosystem based adaptation option for climate change**
O. Iacob, J. Rowan, I. Brown, C. Ellis (United Kingdom)

Friday, 18 October, 2013

- 12:15-12:30 **HF-09**-*Nonlinearities and uncertainties in extreme precipitation for observed and simulated future climates*
D. Panagoulia, E.I. Vlahogianni (Greece)
- 12:30-12:45 **HF-10**-*High-resolution rainfall field reconstruction based upon kriging and local singularity analysis*
L.-P. Wang, C. Onof (United Kingdom)
- 12:45-13:00 **HF-II**-*Drought forecasting using SPI & ARIMA models*
C.A. Karavitis, C.G. Vasilakou, D.E. Tsesmelis, S.G. Alexandris, V.P. Fassouli, D.V. Stamatakos, N.A. Skondras (Greece)
- 13:00-14:30 **Lunch Break**
- 14:30-15:00 **Hydrofractals Invited Lecture**
 Chairperson: **P. Hubert**
Multiscale variability in river bed topography, flow turbulence, and sediment transport: New results in extending classical sediment transport formulations
E. Foufoula-Georgiou (USA)
- 15:00-16:30 **HF-Session 3**
 Chairperson: **P. Hubert**
- 15:00-15:15 **HF-12**-*Hydrogeomorphological scaling emergence and robustness through the systematic nesting analysis of a heterogeneous river network*
C. Cudennec, H. Boudhraa, J.-C. Pouget (France, Tunisia, France)
- 15:15-15:30 **HF-13**-*Uncertainty evaluation of permeable area ratio inherent in grid based models*
T. Koga, A. Kawamura, H. Amaguchi (Japan)
- 15:30-15:45 **HF-14**-*Propagation of input and parameter uncertainty and dynamical nonlinearities in random self-similar networks*
R. Mantilla, W.F. Krajewski, V.K. Gupta (USA)
- 15:45-16:00 **HF-15**-*Use of generalized additive models in regional flood frequency analysis*
T.B.M.J. Ouarda, F. Chebana, C. Charron, B. Martel (UAE, Canada)
- 16:00-16:15 **HF-16**-*Multifractal facets of uncertainty and predictability: From the butterfly effect to ensemble and multifractal predictions*
D. Schertzer, I. Tchiguirinskaia, S. Lovejoy (France, Canada)
- 16:15-16:30 **Announcement of next events**
G. Laaga (Leonardo), **A. Carsteanu** (Hydrofractals), **T.B.M.J. Ouarda** (STAHY)
- 16:30-17:00 Transportation to the poster area
 The poster area is the Archaeological site of **Asclepion**
- 17:00-19:00 **Poster Session** (See page 19)
- 20:30-23:00 **Dinner**



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Saturday, 19 October, 2013

STAHY '13

Hall I

STAHY

- 09:00-09:15 **Welcome Addresses**
H. Savenije, IAHS
C. Cudennec, IAHS
S. Grimaldi, IAHS, ICSH
- 09:15-11:00 **Round Table for Harold Edwin Hurst**
Chairperson: **J. Sutcliffe**
- 09:15-09:35 *Harold Hurst as engineer and master craftsman*
S. Hurst (United Kingdom)
- 09:35-09:55 *Harold Hurst: His career and legacy*
J. Sutcliffe, E. Brown (United Kingdom)
- 09:55-10:15 *Hurst, climate variability and sustainable Nile water management*
E. O'Connell, G. Parkin, G. O'Donnell (United Kingdom)
- 10:15-10:35 *I would not have seen it if I had not believed it*
T.A. Cohn, D. Koutsoyiannis, H.F. Lins, A. Montanari (USA, Greece, Italy)
- 10:35-10:55 *Hurst: an influential figure in water history, management practices and research orientations in Egypt*
A.G. Awadallah (Egypt)
- 10:55-11:10 Discussion
- 11:10-11:30 **Coffee Break**
- 11:30-13:00 **ST-Session I**
Chairperson: **E. Eris**
- 11:30-11:45 **ST-01**-The value of uncertainty in practice: I. Hydrologic design in a river section
A. Botto, D. Ganora, F. Laio, P. Claps (Italy)
- 11:45-12:00 **ST-02**-Is there a pan-European flood frequency distribution?
J.L. Salinas, A. Castellarin, S. Kohnov, T.R. Kjeldsen (Austria, Italy, Slovak Republic, United Kingdom)
- 12:00-12:15 **ST-03**-Flood frequency analysis using the greatest flood of unsystematic observation period
W.G. Strupczewski, K. Kochanek, E. Bogdanowicz, I. Markiewicz (Poland)
- 12:15-12:30 **ST-04**-Information flows in multi-objective calibration
S.V. Weijjs, M.B. Parlange (Switzerland)



Saturday, 19 October, 2013

- 12:30-12:45 **ST-05**-*The times—are they a-changin'? A global survey in annual precipitation changes*
S.M. Papalexiou, A. Montanari (Greece, Italy)
- 12:45-13:00 **ST-06**-*Time scales and uncertainty*
R. Van Nooijen, A. Kolechkina (The Netherlands)
- 13:00-14:30 **Lunch Break**
- 14:30-15:00 **STAHY Invited Lecture:**
Chairperson: **E. Gargouri**

A copula-based joint deficit index for droughts
S.-C. Kao, R.S. Govindaraju (USA)
- 15:00-16:30 **ST-Session 2**
Chairperson: **E. Gargouri**
- 15:00-15:15 **ST-07**-*Stochastic modeling of high resolution space-time precipitation fields – The STREAP model*
A. Paschalis, P. Molnar, S. Fatichi, P. Burlando (Switzerland)
- 15:15-15:30 **ST-08**-*Theoretical modeling of daily rainfall occurrence and amount conditional on atmospheric predictors*
A. Langousis, V. Kaleris (Greece)
- 15:30-15:45 **ST-09**-*Bayesian modelling of extreme precipitation events*
J. Picek (Czech Republic)
- 15:45-16:00 **ST-10**-*Spatial regression models for extreme precipitation*
H. Van de Vyver (Belgium)
- 16:00-16:15 **ST-II**-*Areal distribution of extreme short rainfall evaluated using meteorological information*
S. Gabriele (Italy)
- 16:15-16:30 **ST-12**-*Experimental detection of snowfalls vs avalanches synchronization and link to prediction uncertainty*
R. Forclaz, B. Crouzy, B. Sovilla, J.G. Corripio, **P. Perona** (Switzerland, Austria)
- 16:30-17:00 **Coffee Break**



Saturday, 19 October, 2013

- 17:00-18:45 **ST-Session 3**
Chairperson: **S. Weijs**
- 17:00-17:15 **ST-I3**-Downscaling RCM rainfall to gauge networks via CP-Dependent QQ transforms and recorelation in South Africa anticipating climate change
G. Pegram, A. Bardossy (South Africa, Germany)
- 17:15-17:30 **ST-I4**-Trend analysis in frequency and seasonality of high and low flows in Eastern Black Sea region, Turkey
E. Eris, H. Aksoy (Turkey)
- 17:30-17:45 **ST-I5**-Towards improvement of accuracy of hydrologic design flow estimate
I. Markiewicz, E. Bogdanowicz, W.G. Strupczewski, K. Kochanek (Poland)
- 17:45-18:00 **ST-I6**-Geostatistical prediction of flow-duration curves in ungauged catchments
A. Pugliese, **A. Castellarin**, A. Brath (Italy)
- 18:00-18:15 **ST-I7**-Uncertainty estimation of hydrological models using Gaussian-Process-Regression
C. Fischer (Germany)
- 18:15-18:30 **ST-I8**-A quick gap-filling of missing hydrometeorological data
C. Pappas, S.-M. Papalexiou, D. Koutsoyiannis (Switzerland, Greece)
- 18:30-18:45 **ST-I9**-Stochastic-physically based hillslope response modeling for estimation of return period of shallow landslide triggering due to precipitation
D.J. Peres, **A. Cancelliere** (Italy)
- 18:45 **End of the Congress**

Poster Presentations List

Chairman in Chief: **A. Langousis**

LEONARDO CONFERENCE

Chairperson: **A. Efstratiadis**

- P-01** *Drainage behavior towards Amman-Airport Road in Jordan*
O. Dhaimat, M. Al Kayed (Jordan)
- P-02** *Temperature variability over Greece: Links between space and time*
N. Bountas, N. Boboti, E. Feloni, L. Zeikos, Y. Markonis, A. Tegos, N. Mamassis, D. Koutsoyiannis (Greece)
- P-03** *Reducing uncertainty in a hydrological semi-distributed model by means of assimilation of observations of discharge varying in time and space*
M. Mazzoleni, L. Alfonso, J.C. Chacon-Hurtado, G. Di Baldassarre, D. Solomatine (The Netherlands)
- P-04** *Physical model of the erosion of the river bed*
K. Pavlic, R. Zugaj, Z. Andreic (Croatia)
- P-05** *Flood modelling in river basins with highly variable runoff*
E.-M. Michailidi, T. Mastrotheodoros, A. Efstratiadis, A. Koukouvinos, D. Koutsoyiannis (Greece)
- P-06** *Monitoring and Assessment of the December 2010 rapid drawdown on montodoglio dam*
(Italy)
E. Lucoli, E. Caporali, G. Rossi (Italy)
- P-07** *Multivariate fuzzy regression model for predicting potential evapotranspiration*
C.N. Rashmi, A.V. Sriram (India)
- P-08** *A stochastic simulation framework for planning and management of combined hydropower and wind energy systems*
P. Dimas, D. Bouziotas, A. Efstratiadis, D. Koutsoyiannis (Greece)
- P-09** *Analysis of EPS-based hydrological model performance for a mountainous basin in Turkey*
A.A. Sorman, C. Ertas, B. Akkol, A. Sensoy, G. Uysal (Turkey)
- P-10** *Flood risk assessment by remote sensing estimation of spatial proximity of human settlements to river reaches*
S. Ceola, A. Montanari, F. Laio (Italy)
- P-II** *The value of uncertainty in practice: 2. Design-flood validation in a river section*
A. Botto, D. Ganora, F. Laio, P. Claps (Italy)
- P-12** *Assessing the error of flow geometry-based discretizations in groundwater modelling*
E. Rozos, D. Koutsoyiannis (Greece)
- P-13** *Total cumulated rainfall modeling of typhoon by Bayesian Network*
Hwa-Lung Yu, Yuan-Chien Lin (Taiwan)



Poster Presentations List

- P-14** *An evaluation of clustering techniques in flood prone areas mapping using multicriteria analysis*
G. Papaioannou, A. Loukas, L. Vasiliades (Greece)
- P-15** *Improvement and comparison of likelihood functions for uncertainty analysis and calibration of SWAT-WB-VSA model parameters within a Markov Chain Monte Carlo scheme*
Qin-Bo Cheng, Xi Chen, Chong-Yu Xu, Christian Reinhardt, Achim Schulte (Germany, China, Norway, Sweden)
- P-16** *Climate vs Man: variable drivers of changes in water resources illustrated by some examples in semi-arid areas*
C. Leduc, G. Favreau, A. Guero, M. Leblanc, Z. Lili Chabaane, S. Massuel (France, Niger, Tunisia)
- P-17** *Assessment of potential recharge zones in the Diass aquifer system (Senegal) by use of optical remote sensing and GIS tools*
D.H. Madioune, S. Faye, A. Faye, E. Pirard, A. Dassargues (Sénégal, Belgium)

HYDROFRACTALS '13

Chairperson: **E. Volpi**

- P-18** *Analysis of climate variability in Enugu State Nigeria using 30 years rainfall and temperature data*
F. Okorie, A. Nnaji, C. Ezedike (Nigeria)
- P-19** *Scale invariant hydrologic processes as kinematic fractals*
I. Haltas, M.L. Kavvas (Turkey, USA)
- P-20** *Uncertainties in the estimation of talweg network fractal dimension*
N. Thommeret, J.-S. Bailly, J.-M. Bardet, B. Kaiser, C. Puech (France)
- P-21** *The multifractal cascade model: An approach for spatial downscaling of rainfall signals in heterogeneous Terrain*
A. Posadas, C. Yarleque, M. Carbajal, H. Heidinger, L. Carvalho, C. Jones, L. Duffaut, R. Quiroz (Peru, Brazil, USA, Australia)
- P-22** *The variability in scaling properties in spatial precipitation from radar*
P. Molnar, A. Paschalis, S. Fatichi, P. Burlando (Switzerland)
- P-23** *Monitoring snow probability maps to improve runoff predictions in upper Euphrates basin, Turkey*
G. Uysal, A. Sensoy, A.A. Sorman (Turkey)
- P-24** *Regionalization of IDF curves using the property of scale invariance*
H. Ghanmi, Z. Bargaoui, C. Mallet (Tunisia, France)

Poster Presentations List

- P-25** *Using the graph theory for channel network classification independently from the uncertainty on DEM data*
R. Moussa, F. Colin, M. Rabotin, A. Crabit (France)
- P-26** *The use of discrete wavelet transform for filtering long hydrological time series*
C.-A. Guimarães Santos, P. Karenina de Macedo Machado Freire, R. Marques da Silva (Brasil)

STAHY '13

Chairperson: **S. Papalexiou**

- P-27** *Estimation of radar rainfall uncertainty based upon kriging and analysis of its propagation through urban drainage modelling*
L.-P. Wang, A. Papastergiou, S. Ochoa-Rodriguez, A. Schellart, C. Onof (United Kingdom)
- P-28** *Stochastic modelling of sea waves for simulation of wave energy*
I. Papatsoutsos, S.M. Papalexiou, D. Koutsoyiannis (Greece)
- P-29** *Improving fine-scale stochastic point process models using simulation-based calibration*
W.J. Vanhaute, P. Willems, C. Onof, N. Verhoest (Belgium)
- P-30** *Spatial and temporal rainfall variability over Greece*
E.-C. Moschou, S.-C. Batelis, Y. Dimakos, I. Fountoulakis, Y. Markonis, S.-M. Papalexiou, N. Mamassis, D. Koutsoyiannis (Greece)
- P-31** *Assessment of Bartlett-Lewis type of rainfall models for preserving drought statistics using a copula-based approach*
M.-T. Pham, W.J. Vanhaute, S. Vandenberghe, B. De Baets, N. Verhoest (Belgium)
- P-32** *Predicting reservoir inflows using water balance equations combined with particle filtering and empirical information*
I. Nalbantis (Greece)
- P-33** *Simultaneous use of observations and deterministic model outputs to forecast persistent stochastic processes*
H. Tyralis, D. Koutsoyiannis (Greece)
- P-34** *The choice of the best frequential model for a record of maximum precipitations by minimizing the penalized criteria (AIC and BIC)*
A. Lefkir, A. Bermad, A. Oucherif (Algeria)
- P-35** *Investigation of drought characteristics in different temporal and spatial scales: A case study in the Mediterranean region*
Y. Markonis, A. Efstratiadis, A. Koukouvinos, N. Mamassis, D. Koutsoyiannis (Greece)
- P-36** *Geophysical time series vs. financial time series of agricultural products: Similarities and differences*
V.K. Vasilaki, S. Curceac, S.-M. Papalexiou, D. Koutsoyiannis (Greece)



Poster Presentations List

- P-37** *How to parsimoniously disaggregate rainfall in time*
F. Lombardo, E. Volpi, D. Koutsoyiannis (Italy, Greece)
- P-38** *The use of stochastic objective functions in water resource optimization problems*
P. Kossieris, A. Efstratiadis, D. Koutsoyiannis (Greece)
- P-39** *Coupling the strengths of optimization and simulation for calibrating Poisson cluster models*
P. Kossieris, A. Efstratiadis, D. Koutsoyiannis (Greece)
- P-40** *Construction of ombrian curves using Hydrognomon software system*
S. Kozanis, D. Koutsoyiannis, T. Tsitseli, A. Koukouvinos, N. Mamassis (Greece)
- P-41** *N-Dimensional generalized Hurst-Kolmogorov process and its application to wind fields*
P. Dimitriadis, D. Koutsoyiannis, C. Onof (Greece, United Kingdom)
- P-42** *Evolution and variability of daily rain fall in north east of Algeria*
D. Mrad, S. Dairi, Y. Djebbar (Algeria)
- P-43** *Spatial variability of rainfall in Cotonou, Bénin*
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