



International Scientific Workshop

<http://armspark.msem.univ-montp2.fr/SigMED/>

Title	Relation man /environment and sediment transport : a spatial approach
Dates and venue	7 & 8 June 2011, Algiers, Algeria
Organisation	<p>Gil Mahé <i>HydroSciences Montpellier (HSM)</i></p> <p>Mohamed Meddi <i>Ecole Nationale Supérieure d'Hydraulique de Blida (ENSH)</i></p> <p>The workshop is designed to meet 50 people. Half will be invited by the SIGMED program. People from the Eastern Mediterranean are welcome. A call for abstracts is launched. There will be 24 papers selected and 16 posters. Programmes which support this workshop are SIGMED (AUF) and MEDFRIEND (UNESCO)</p> <p>http://armspark.msem.univ-montp2.fr/sigmed/ http://armspark.msem.univ-montp2.fr/medfriend/</p>
Scientific Committee	<p>Abdelghani Chehbouni - France/Egypte</p> <p>Abdellah Laouina - Maroc</p> <p>Hafzullah Aksoy - Turquie</p> <p>Alain Laraque - France</p> <p>Mohamed Elshamy - Egypte</p> <p>Anas Emran - Maroc</p> <p>Azzedine Mebarki - Algerie</p> <p>Benina Touaibia - Algerie</p> <p>Boualem Remini - Algerie</p> <p>Christian Leduc - France</p> <p>Claudine Dieulin - France</p> <p>Damien Raclot - France</p> <p>Eric Roose - France</p> <p>Gil Mahé - France/Maroc</p> <p>Maria Snoussi - Maroc</p> <p>Mohamed Meddi - Algerie</p> <p>Mohamed Sinan - Maroc</p> <p>Mourad Arabi - Algerie</p> <p>Natasha Carmi - Palestine</p> <p>Eric Servat - France</p> <p>Siegfried Demuth - France/UNESCO</p> <p>Sylvie Coupleux - France</p> <p>Telesphore Brou - France</p> <p>Zoubeida Bargaoui - Tunisie</p>
Languages	French and English
Translation	YES
Participants	50



Relations man / environment and sediment transport: a spatial approach

The overall objective of this workshop is to bring together researchers from the Mediterranean to work for 2 days on a multi-disciplinary topic around the relationship between human activities, water resources, the erosion and sediment transport.

This issue is complex in both space and time. It combines the effects of local agro-pastoral practices on the environment (change in vegetation and soil surface conditions), the runoff processes and infiltration, and global effects that are associated with increased population and the impacts of climate change.

The increase of the agropastoralism pressure and of the hydraulic infrastructures, combined with the climate variability/change have an impact in the long term and at large-scale which require a multidisciplinary approach that must gather demographers, climatologists, geographers, hydrologists, soil scientists, and other disciplines.

This dialogue between disciplines is critical, as it should allow, from a mutual information about variables and quantities involved, and their interactions and impacts at various scales, to identify indicators for environmental monitoring that reflect all interacting factors on the watershed and which, ultimately, have a significant impact on flow production, erosion and sediment transport. This sediment transport is a major problem in Mediterranean countries, because it is increasing since several decades, and causes accelerated siltation of reservoirs, leading to a loss of storage volume of reservoirs, and a reduction of their life use.

This workshop aims to study several specific aspects of the relationships between man, environment, water resources and sediment transport:

- Climate change and sediment transport
- Links between human activities and sediment transport along with the soil types and farming practices
- Modeling of sediment transport
- Multiscale approaches and ways of understanding the geographical realities, spatial extrapolation techniques of information (scale transfer)

The workshop is organized within the framework of the SIGMED program (spatial approach of the impact of agricultural activities in the Maghreb on sediment transport and water resources in large watersheds) supported by the Agence Universitaire de la Francophonie, and is also supported by the MEDFRIEND program from UNESCO.

Important dates	Send the abstracts to gil.mahe@ird.fr or mmeddi@yahoo.fr
10 March 2011	Dead line for the reception of abstracts Abstracts of 2 pages single spaced, figures authorized.
28 March 2011	Selection of communications accepted for the workshop
31 May 2011	Dead line for receiving papers
7 et 8 juin 2011	Scientific workshop
End June 2011	Selection of the papers for the special issue
15 September 2011	Dead line for sending final papers
Submitting these articles to a special issue (Journal of Water Science or Hydrological Sciences Journal).	



Session 1

Climate change and sediment transport (Chair Prof. Mohamed Meddi, ENSH, Algeria)

In the Mediterranean basin, soils are fragile and vulnerable against aggressive climate, low vegetation cover and human activities. Climate change induced changes in rainfall patterns in terms of number of days of rain intensity and spatial distribution, and increased temperatures. This has a direct impact on erosion.

Climate models predict a decrease in rainfall and an increase in extreme events, which, combined with an increase in evapotranspiration due to higher temperatures, will have a negative impact on the vegetation cover.

This degradation of natural vegetation, combined with the degradation induced by the expansion of cultivated land and pasture, weaken the soil and make it more vulnerable to erosion.

Heavy rainfall in recent years, arriving after a long period of reduced rainfall and temperatures rise, have major impacts on erosion

Interventions must address the issues inherent in assessing the impact of climate change on land use and erosion, on a field observations or climate model output. To adopt appropriate measures and prevent land degradation and its negative consequences on agriculture and engineering structures, assessing the impact of climate change on erosion in the Mediterranean is essential.

Session 2

Links between human activities and sediment transport along the soil types and farming practices (Chair Eric Roose, IRD, France)

Human activities such as agriculture and pastoralism, modify the soil land cover and vegetation. The construction of hydraulic infrastructures also modifies sediment transport, trapping sediment in reservoirs of dams, thus depriving downstream reaches of sediment that should maintain the fertility of the banks. Soils and vegetation change have an impact on vulnerability to soil erosion. These relationships are also dependent on soil type and the local morphology. The expected contributions should help clarify the relationship between the morphological information, soil and sediment transport.

Session 3

Modelling of sediment transport (Chair Prof Hafzullah Aksoy, Istanbul Tech. Univ., Turkey)

The measurement of soil erosion is important to characterize the sediment supply of different types of surfaces, and the contributions of different environments. We measure the quantities of suspended fluxes in streams to estimate the tonnages of materials exported by water, which then settle either naturally in estuaries and coasts, or artificially in reservoirs. However, direct measurement of erosion and sediment transport is long and tedious. It is rarely possible to multiply the measures as it would be desirable to obtain a good quantification of sediment transport, especially for large basins areas. The model is then a method that can allow to extrapolate point measurements on large environments. Whatever the kind of modeling, from statistical correlations or coupled with hydrological models, this method should allow the optimal use of knowledge acquired by occasional research teams for several decades in the Mediterranean.

Session 4

Multiscale approaches and modes of apprehension geographical realities (Chair Prof Téléphore Brou Yao, Univ. Artois, France)

One difficulty in studies of past climate / men / land cover is the diversity of spatial and temporal scales to consider. And the scales which characterize climate variability are often incompatible with the scales of agro-pastoral and demographic dynamic. Indeed, the regional and / or domestic scale is often preferred to understand the behavior of rainfall regimes and their effect on the distribution of major vegetation types. But to understand the effect of climate variability on land cover and societies, the local scale is no longer appropriate, if we want to reflect the heterogeneity of environments.

The climatic variability is most often characterised at small geographical scale, while the dynamics of the agrarian environments including production systems and farming practices, are visible at the level of the village, so at large scale. In addition, tools and representation techniques are varied and are often not suited for the treatment of all the diversity of geographical objects. For example, in statistics, the spatial information is often missing and the problems of scales are often mismanaged, that is why we use remote sensing and GIS methods including geostatistics and spatial analysis.



Monday, June 6

**Welcome at the Algiers' airport and transfer by bus to the Grand Bleu
Registering and common meal**

Tuesday, June 7

08:00 - 09:00 : Welcome

09:00 - 10:00 : Opening ceremony of the workshop by
*the Director of the ENSH
 the IRD Representative for the Algeria and Tunisia
 the Representative of the French Cooperation
 the AUF Representative
 the Regional Coordinator of MEDFRIEND/UNESCO
 the SIGMED Programme Manager
 the deputy director of the MISTRALS program*

10:00 - 10:30 : Tea break

10:30 - 12:30 : Session 1

Climate change and sediment transport (Chair Mohamed Meddi)

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|--------------------|---------------------------------|---|
| 10:30-10:50 | LOUAMRI Abdelaziz | <i>Interannual and intra-annual variability of solid transports of the oued Bouhamdane, upstream of Debagh Hammam dam (Eastern Algeria)</i> |
| 10:50-11:10 | MEDJBER Abdallah. | <i>Influence of climate variability (precipitations) on the sedimentation rate in some Algerian dams</i> |
| 11:10-11:30 | MEGNOUNIF
Abdesselam | <i>Study of the climate change effect on the sediment production: case of the high Tafna basin</i> |
| 11:30-11:50 | HALLOUZ Faiza | <i>Analysis of ruptures in the rainfall time series in the wadi Mina basin (North West of Algeria)</i> |
| 11:50-12:10 | ELSHAMY Mohamed | <i>Assessing the impacts of climate change on Atbara flows using bias-corrected GCM scenarios</i> |
| 12:10-12:30 | BOUKRIM Siham | <i>Study of climate change in the Ouergha basin (Rif-Morocco)</i> |
| 12:30-12:45 | CHEHBOUNI
Abdelghani | <i>Presentation of the MISTRALS research program for the Mediterranean</i> |

12:30 - 14:00 : Lunch

14:00 - 15:00 : Session 1 Discussion

15:00 - 15:20 : Tea break and posters

BOUGHALEM Mostafia *Impact of hydric erosion on the carbon cycle and global warming in the region of Tlemcen*

MEDDI Hind *Study of solid transport in the Kebir Rhumel basin - Eastern Algeria*



BENFETTA Hassen	<i>Impact of climate change on water resources of the Bouguirat syncline, W. Mostaganem-Algeria</i>
SALOUI Abdelmalik	<i>Climate change and urban flooding: the case of the “great Casablanca”</i>
BERRHAZI Ridouane	<i>Assessment of the impact of the farmers’ participation in hydro-agricultural development (case of training programs for strengthening the participatory approach)</i>
REBAI Houda	<i>Determinism of gullying and the role of water management structures in the Tunisian dorsal (case of the El Hnach basin, Siliana)</i>
MATHLOUTHI Majid	<i>Impact of extreme rainfall on the genesis and amplification of landslides in northern Tunisia</i>
FAHMY M. Hussein	<i>Texture, PF curves and structure stability of fine-textured Nile sediments in the southern sector of the Nile delta, Egypt</i>
CHAKER Miloud	<i>Degradation of dry mountains and their steppic piedmonts in north-eastern of oriental Morocco</i>
KOURI Lakhdar	<i>Quantitative approach of the hydric erosion processes in the marly lands of the Tell region of Oran, Algeria</i>
MAZOUR Mohamed	<i>Effectiveness of some traditional techniques after exceptional rainfall events</i>
KHOUAKHI Abdou	<i>Evolution of the coastline of Al Hoceima bay</i>
RACLOT Damien	<i>Factors and processes of permanent gully evolution in a Mediterranean marly environment (Cape Bon, Tunisia).</i>
TAIBI Sabrina	<i>Statistical Analysis of rainfall trends in the North of Algeria during the years 1936-2009</i>

15:20 - 17:20 : Session 2

Links between human activities and sediment transport along the soil types and farming practices (Chair Eric Roose)

15:20 - 15:40	LAOUINA Abdellah	<i>Land use and solid transport in the Sehoul region, Bouregreg basin, Morocco</i>
15:40 - 16:00	BEN SLIMANE Abir	<i>Gullies roles in the sediments’ flow at the scale of small river basins</i>
16:00 - 16:20	BENSAFIA Djillali	<i>Effects of siltation on the water quality of dams: experimental study</i>
16:20 - 16:40	MORSLI Boutkhil	<i>Erosion dynamic at the slope scale in Algerian mediterranean zones: factors that explain variation in runoff and erosion under different land uses</i>
16:40 - 17:00	HARKAT Samra	<i>Impacts of anthropogenic activities on hydric erosion and pollution of surface water in the Chelif basin -Algeria</i>
17:00 - 17:20	ÖNSOY Hizir	<i>The effects of hydraulics structures on suspended sediment transport: a case study in the stream Harsit, eastern Black sea basin, Turkey</i>



17:20 - 18:30 : Session 2 Discussion

19 :00 - 20:30 : Diner

20:30 - 22:00 : Special session : Presentation of the functioning of the map server of the SIGMED program, by Claudine Dieulin, and discussions.

Wednesday, June 8

08:30 -10:30 : Session 3

Modeling of sediment transport (Chair Hafzullah Aksoy)

08:30 - 08:50	BOUHENICHE Salah Eddine	<i>Numerical modeling of solid transport of the system « dam-river- transport - deposition »: case of Sidi Mohamed Ben Aouda dam, on the Wadi Mina, semi arid area.</i>
08:50 - 09:10	BENKHALED Abdelkader	<i>Effects of the sampling of concentrations of suspended sediment on the modeling of solid transport</i>
09:10- 9:30	SALHI Chahrazed	<i>Principal component analysis, multiple regression and neural network: their contribution in the prediction of specific erosion. Case of the Algerois-Hodna-Souman basin (AHS)</i>
9:30- 9:50	BOUANANI Abderrazak	<i>Production and transport of suspended sediments in Sikkak wadi (Tafna – North-West of Algeria)</i>
9:50 - 10:10	BESSENASSE Mohamed	<i>Contribution on the modeling of the silting cycle of dams' reservoirs</i>
10:10 - 10:30	AKSOY Hafzullah	<i>Experimental analysis of sediment transported from a bare soil with rill</i>

10:30 - 11:00: Tea break and posters Sessions 3 and 4

BOUCHELKIA Hamid	<i>Quantification of suspended solid transport by statistical analysis (case the of Wadi Mouillah basin)</i>
TOUAIBIA Imane	<i>Estimation of the biases of the regressive model "concentration-liquid flow" in semi-arid zone: Ksob basin case</i>
ELAROUSSE Omar	<i>The effect of land use change on hydric erosion by using GIS and the remote sensing in the catchment of wadi El Malleh (preRif, Morocco)</i>
DJLOUDAR Dahbia	<i>Classification of the basins of the Mitidja Center and West (Algeria), following the method developed by the Aprona</i>
KHANCHOUL Kamel	<i>Predicting sediment yield in the Kebir drainage basin</i>
HABAIEB Hamadi	<i>Sediment transport modelling. Case study in Tunisia</i>
AL-ALAWI Mutaz	<i>Estimate of soil erosion in Jordan by using GIS</i>



EMRAN Anas

Following of environmental variables by remote sensing, GIS and DEM

11:00 - 12:00: Session 3 Discussion

12:00 - 13:00: Lunch

13:00 - 15:00: Session 4

Multiscale approaches and modes of apprehension geographical realities
(Chair *Télesphore Brou Yao*)

13:00 - 13:20	TOUMI Samir	<i>Application of remote sensing and GIS for erosion mapping in the catchment of the wadi Mina.</i>
13:20 - 13:40	THNEIBAT Ahmed Atallah	<i>Modelling of sediment in the Aqaba road back area, southern Jordan</i>
13:40 - 14:00	BROU Yao Télesphore	<i>Agro-demographic pressure, changes of land cover and vulnerability of soils, in the context of climate variability in the Bouregreg basin in Morocco</i>
14:00 - 14:20	BILAL Ahmad	<i>Characteristics of the hydrographic network in Syria. Implications for the management of water resources</i>
14:20 - 14:40	HARRAK Fama	<i>Quantitative assessment by spatial approach of the water resources in the Bouregreg basin (Morocco)</i>
14:40 - 15:00	ABDELBAKI Amina	<i>GIS contribution to the preparation of a development plan for erosion protection, case of the basin of Oued Bouguedfine, Zahrez Chlef, Algeria</i>

15:00 - 16:00: Session 4 Discussion

16:00 - 16:30: Workshop Conclusions

16:30-18:00 : Visit of the Roman antique site of Tipaza

18:30- : Supper in a town's restaurant and back to the Grand Bleu

Thursday, June 9

Shuttle transfers to the Algiers' airport

Each session has 6 oral presentations of 15 minutes and 5 minutes of discussion, for a total of 24 papers.

The papers issued from the presentations will be published in several Journal (Hydrological Sciences Journal or Journal of Water Sciences, and the Journal of the ENSH).