

Gil MAHE



Date of birth: September 17 1963.
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Languages: French (mother tongue), English (fluent), Dioula (basic – language spoken in Mali, Guinea, Ivory Coast, Burkina-Faso), Wolof (basic - language spoken in Senegal, The Gambia, Mauritania)

CURRENT POSITION

Research Director at the Research Institute for Development, HydroSciences Montpellier Laboratory

EDUCATIONAL QUALIFICATIONS

2006 Accreditation to supervise research (HDR) at University of Montpellier II, Faculty of Science and Technology of Languedoc. "Rainfall-runoff variability in West and Central Africa during the 20th century: hydro-climatic changes, land use/land cover and hydrological modelling".

1992 PhD thesis at University Paris XI-Orsay. "Hydro-climatic variability in the Atlantic side of Africa in regard to the West African monsoon parameters". **Awarded the scientific prize** « Georges Hachette » by the "Société de Géographie de Paris".

RESEARCH SPECIALIZATION

Rainfall-runoff modelling – Large catchments hydrology – African hydrology – African climate – Water resources – Climatic scenarios – Land use/land cover changes – Impact of actual and future climatic and anthropogenic changes on runoff regimes and water resources – Suspended sediment fluxes – Sediment cores analysis

CURRENT DUTIES

- **UNESCO – International Hydrological Program** - President of the FIGCC (2015-) FRIEND (Flow Regimes) Inter Group Coordination Committee
- **UNESCO – International Hydrological Program** - General Coordinator of the MEDFRIEND Program (2009-) / The Mediterranean area
- **IAHS – International Commission of Surface Water** President Elect (2017-2021)
- Member of the **Scientific Committee of the International Sediment Initiative** (UNESCO-IHP) and of the **World Large River Initiative** (UNESCO-IHP) (2015-date)
- Member of the **Scientific Commission** of the **Congo River Network** (CB-HYDRONET/PNUE) (2012-date)
- **PI of the program SICMED INSU-CNRS**, Continental Surface and interface in the Mediterranean (2017-2020)
- **Associate Editor**: IAHS Hydrological Sciences Journal (2006-2012); Climatologie (2007-date); Water (2018-date); Ecohydrology and Hydrobiology (2016-date); La Météorologie (2017-date)
- **PI of a PHC program in Algeria**, ENSH Blida, (2018-2020)
- **Co-PI of a National program in Morocco**, "Hydrosedimentary balance of the dam's reservoir of the SMBA dam, Bouregreg, Morocco (2016-2020)
- **Co-Director of the International Joint Laboratory COSYMED, Tunis** (2019-2022)
- **Co-director of the Young Research Team Associated to IRD, JEENS, ENSH Blida, Algeria** (2019-2021)
- **Member of the International Laboratory DYCOFAC (Congo, Cameroon, Gabon, France, Belgium)**, on the erosion and hydrology of the Central African rivers (2018-2022), and **responsible for the research axis on hydroclimatology**
- **Course of "Hydrology and climatology"**, Master, at the Mohammed V University, **Rabat, Morocco** (2011-date)
- **Elected member of the Commission of specialized experts** in Earth Sciences, University of Montpellier (2018-date)

PAST EXPERIENCE IN RESEARCH AND INTERNATIONAL ORGANISATIONS

- **Research in Cooperation** for 33 years, including **Senegal/CRODT** (87-91), **Mali/ORSTOM** (94-98), **Burkina-Faso/2IE** (99-03), **Morocco/University Mohamed V** (10-14), and **England/Climatic Research Unit of Norwich** (98-99)
- **UNESCO** - Executive Coordinator of the FRIEND-AOC Program (1999-2003), and Regional Coordinator of the MEDFRIEND Program (2009-date): Int. workshops and training
- **UNESCO** - Expert Group Member on "Climate variability and land cover change impact on flooding and low flows" (2006-2010)
- **IGCP Geosciences Water Cycle Group** theme leader (2012-2016) (**UNESCO**)
- **IGCP- Int. Geological Program (UNESCO)**, scientific committee of the Abandoned Mines program (2016-2018)
- Member of the **Scientific Committee of the National Research Commission of Ivory Coast** (2017-2019)
- **World Climate Program – Water** - Invited member at the steering committee 2003 and 2005
- **Organisation of International Conferences**: *Envirowater*, 2IE, Ouagadougou, Burkina-Faso, 2002; *FRIEND UNESCO*, Montpellier, France, 2005; *Climate-Society in Africa*, British Council, Paris, France, 2006; *Water resources and global change*, UNESCO, Rabat, Morocco, 2009; *Man-Environnement relationships in water/sediment related issues*, UNESCO, Tipaza, Algeria, 2011; *Sediment transport modelling*, UNESCO, Istanbul, Turkey, 2012; AUF, Hammamet, Tunisia, 2014, 2017; *AGU-Congo*, Washington, USA, 2018; UNESCO, Beijing, China, 2018. Bangui 2019
- **Responsible for the cycle of conferences on the Hydrology of Large African rivers** (FRIEND/UNESCO/IHP-IAHS): Hammamet, Tunisia, 2015; Dakar, Senegal, 2016; Algiers, Algeria, 2018; Cotonou, Benin, 2020.
- **Scientific Director** or Adviser for 34 PhDs and 2 "Accreditation to Supervise Research"

- **Program Manager:** PNRH program “*Climate scenarios and hydrological modelling*”, French funding (2001-2002); “*Cameroon hydrology and climate*”, funding Ministry of Foreign Affairs (2002-2005); *SIGMED Maghreb*, funding AUF-Europe (2010-2014). PHC program, Morocco (2016-2018), Tunisia (2016-2018), financed by African countries and France.
- **WP leader (Hydro-climatology) in programs:** EQUANIS (Niger river Hydro-climatology and Water Quality, 1994-1998); GIHREX (Niger river Integrated Water Resources Management, 1997-2000), Bamako, Mali; EUWI-ERANET SPLASH (EU support to water research in Africa, 2007-2011); ICCE-BF/AMMA program, (2005-2009) EU funding, thematic leader “Relationships between man, climate, environment and water resources in the Sahel”
- **Creation and Coordination** of the Laboratory of Continental Waters in Bamako, Mali, (1996-1998)
- **IRD Scientific Commission -CSS1**, Elected member (2003-2007) and (2012-2015)
- **IRD grant commission** (2007-2010)
- **Course of “Climatology”**, Master 2, at the 2IE University, **Ouagadougou, Burkina-Faso** (2007-2014)

PAST EXPERIENCE IN CONSULTING

- **WMO CREWS program Mali**, “Assistance in preparing and reviewing the tor for the call for experts”, 2020, 5 days.
- **WMO CREWS program Burkina-Faso**, “Country Assessment on Capability for Flood Forecasting and Warning”, Burkina-Faso, 2019, 30 days.
- **Agence Française de Développement Mali**, Identify the major issues related to the question of the future of the river Niger”, 2017-2018, 60 days.
- **BRLi France, pour la DNH du Mali**, “Etude d’impact des changements climatiques sur la quantité et la qualité des ressources en eau et leurs usages », 2017, 10 days.
- **Ministry of Research of Kazakhstan, National Centre of Science and Technology Evaluation**, Evaluation of National Research Programs, 2014, 5 days

at Montpellier, Friday, 23 October 2020



2020 publications

- Bogning, S., Frappart, F., Paris, A., Blarel, F., Nino, F., Saux Picart, S., Lanert, P., Seyler, F., Mahe, G., Onguene, R., Bricquet, J.P., Etame, J., Paiz, M.C., Braun, J.J. (2020). Hydro-climatology of the Ogooué River basin coupling hydrological modeling and satellite altimetry. **Advances in Space Research**, <https://doi.org/10.1016/j.asr.2020.03.045>
- Chevallier, T., Loireau, M., Courault, R., Chapuis-Lardy, L., Desjardins, T., Gomez, C., Grondin, A., Guérin, F., Orange, D., Pelissier, R., Serpantié, G., Durand, M.H., Derioz, P., Laruelle Goulgen, G., Schwoob, M., Viovy, N., Barrière, O., Blanchart, E., Blanfort, V., Brossard, M., Demenois, J., Fargette, M., Heulin, T., Mahe, G., Manlay, R., Podwojewski, P., Rumpel, C., Sultan, B., Chotte, J.L. (2020). Paris Climate Agreement: Promoting Interdisciplinary Science And Stakeholders’ Approaches For Multi-Scale Implementation Of Continental Carbon Sequestration. **Sustainability**, 12(17), 6715; <https://doi.org/10.3390/Su12176715>
- Descroix, L., Faty, B., Manga, S.P., Diedhiou, A.B., Lamber, L.A., Soumaré, S., Andrieu, J., Ogilvie, A., Fall, A., Mahe, G., Sombily Diallo, F.B., Diallo, A., Diallo, K., Albergel, J., Tanimoun, B.A., Amadou, I., Bader, J.C., Barry, A., Bodian, A., Boulvert, Y., Braquet, N., Couture, J.L., Dacosta, H., Dejacquet, G., Diakité, M., Diallo, K., Gallese, E., Ferry, L., Konaté, L., Nka Nnomo, B., Olivry, J.C., Orange, D., Sakho, Y., Sambou, S., Vandervaere, J.P. (2020). Are The Fouta Djallon Highlands Still The Water Tower Of West Africa? **Water**.
- Ebode V., Mahe, G., Dzana, J.G., Amougou, A. (2020). Anthropisation And Climate Change: Impact On The Discharges Of Forest Watersheds In Central Africa. **Water**, 12, 2718; doi:10.3390/w12102718
- Ebode, V., Mahe, G., Dzana, J.G., Amougou, J.A., Batha, R.A.S. (2020). Changement Climatique Dans Le Bassin Versant De L’ogoué : Évolution Récente Et Impact Sur Les Écoulements. **Afrique Science**, 17, 3, 110-125.
- El Aoula, R., Mahe, G., Mhammdi, N., Ezzahouani, A., Kacimi, I., Khomsi, K. (under press). Evolution of the hydrological regime in relation with climate change: case of the Bouregreg River basin, Morocco. **Geographia Polonica**.
- Ezzaouini, M., Mahe, G., Kacimi, I., Zerouali, A. (2020). Comparison of the MUSLE model and two years of solid transport measurement, in the Bouregreg basin, and impact on the sedimentation in the Sidi Mohamed Ben Abdellah dam, Morocco. **Water**, 12, 7, 1882.
- Ezzaouini, M.A., Mahe, G., Kacimi, I., Zerouali, A. (2020). Analysis of two years of suspended solids transport upstream of Sidi Mohamed Ben Abdellah reservoir, Morocco. **International Journal of Scientific and Technology Research**, 9, 6, 908-913.
- Hadour, A., Meddi, M., Mahe, G. (2020). Effects of climate change and human action on the decrease of sediment discharge to the coast: An example of the largest wadi in the Maghreb. **International Journal of Sediment Research**. <https://doi.org/10.1016/j.ijsrc.2020.07.001>
- Hadour, A., Meddi, M., Mahe, G. (2020). Watershed based hydrological evolution under climate change effect: An example from North Western Algeria. **Journal of Hydrology, Regional studies**, 28, <https://doi.org/10.1016/j.ejrh.2020.100671>
- Hallouz, F., Meddi, M., Mahe, G., Alirahmani, S., Karahacane, H., Brahini, S. (2020). Analysis of meteorological drought sequences at various time scales in semi-arid climate: case of the Cheliff watershed (Northwest of Algeria). **Arabian Journal of Geosciences**, 13(6), <https://doi.org/10.1007/s12517-020-5256-5>
- Hout, R., Maleval, V., Mahe, G., Rouvellac, E., Crouzevialle, R., Cerbelaud, F. (accepté). UAV and LiDAR data in the service of bank gully erosion measurement in Rambla de Algeciras lakeshore. **Water**, 12, 2748; doi:10.3390/w12102748
- Hzami, A., Heggy, E., Amrouni, O., Mahe, G., Maanan, M., Abdeljaouad, S. (2020). Alarming Coastal Vulnerability Of The Arid Deltaic And Sandy Beaches Of North Africa: Origins And Implications. **Nature Scientific Reports**
- Khedimallah, A., Meddi, M., Mahe, G. (2020). Characterization of the interannual variability of precipitation and runoff in the Cheliff and Medjerda basins (Algeria). **Journal of Earth System Science**, 129:134, <https://doi.org/10.1007/s12040-020-01385-1>
- Laraque, A., Moukandi N’kaya, G.D., Orange, D., Tshimanga, R., Tshitenge, J.M., Mahe, G., Nguimalet, C.R., Trigg, M., Yopez, S., Gulemvuga, G. (2020). Recent Budget Of Hydroclimatology And Hydrosedimentology Of The Congo River In Central Africa. **Water**, 12, 2613; doi:10.3390/w12092613.
- Mounirou, L.A., Zoure, C O., Yonaba, R., Patuere, J.E., Mahé, G., Niang, D., Yacouba, H., Karambiri, H. (2020). Multi-scale analysis of runoff from a statistical perspective in a small Sahelian catchment under semi-arid climate. **Arabian Journal of Geosciences**, 2020, 13, 154.
- Toteu, S.F., Mahé, G., Moritz, R., Sracek, O., Davies, T.C., Ramasamy, J. (2020). Environmental, Health and Social legacies of mining activities in Sub-Saharan Africa. **Journal of Geochemical Exploration**, 2020, 209 (Special issue), <https://doi.org/10.1016/j.gexplo.2019.106441>
- Valimba, P., Mahe, G. (2020). Estimating Flood Magnitudes of Ungauged Urban Msimbazi River Catchment in Dar es Salaam, Tanzania. **Tanzania Journal of Engineering and Technology**, 39, 1, 58-71.