

Curriculum Vitae

Personal details



Prof. Dr. Matthias Langensiepen
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As an environmental scientist and agronomist, I have many years of international research experience in a wide range of fields, from environmental physics, plant ecology and crop science to environmental policy and environmental psychology. I enjoy using this experience to explore the relationships between technical-scientific and socio-ecological aspects in environmental systems, and to develop solutions to the pressing issues of climate change, agriculture and the environment. Recently, I have developed a new approach to wetland policy design in East Africa, a new approach to integrated plant physiology, and a new theory for studying farmer-land relationships. I have extensive methodological skills in modelling, data processing and environmental measurement techniques.

The collaborative research projects I was working on have ended. I am currently looking for new employment.

Experience

Senior Environmental Scientist

The University of Bonn, Institute of Crop Science and Resource Conservation

2010 – Present

From 2013 to 2021, I coordinated research activities in two collaborative research projects "Wetlands in East Africa" (2013-2018) and "Future Rural Africa" (2019-2021).

From 2010 to 2018, together with environmental physicists from the Forschungszentrum Jülich and meteorologists from the University of Bonn, I was PI of the Transregional Collaborative Research Centre 32 "Patterns in Soil-Vegetation-Atmosphere Systems" and partly responsible for creating interfaces between soil, vegetation and atmosphere research.

From 2014 to 2020, I also contributed to integrated plant physiology as PI in the collaborative research project 'Prediction and Modelling of Hybrid Performance and Yield Gain in Oilseed Rape by Systems Biology'.

Finally, from 2007 to 2013, I co-led a collaborative research project 'Small Wetlands in East Africa'.

While working on collaborative research projects in Africa, I was strongly confronted with the problem of reconciling scientific and humanistic research methods. Based on these experiences, I developed concepts and theories on environmental policy, environmental psychology and integrated plant physiology in collaboration with colleagues from different disciplines and environmental policy makers in East Africa between 2020 and 2023.

Over the past 8 months I have been certified as an Artificial Intelligence Developer and Data Scientist, bringing my modelling skills up to date.

Senior Environmental Scientist

Wageningen Plant Research

2009 - 2010

Agroecological scenario modeling and expert report for private industry. Confidential

Juniorprofessor

Humboldt-University of Berlin

2003 - 2009

A junior professorship is a permanent teaching and research position for young scientists with an excellent doctorate, based on the American tenure-track model. I was selected for a junior professorship in 'Modelling of Plant Systems' and, after a positive review, was awarded the title of tenured professor in 2005. Due to cost-cutting measures and the closure of the Faculty of Agricultural and Horticultural Sciences, the position was not made permanent despite a positive final review of my tenure track.

My work focused on growth modelling in the collaborative research centre 'preagro' with 26 partners from Germany, coordination of the joint research project 'Small Wetlands in East Africa' (University of Bonn, National Museums of Kenya, University of Dar-es-Salaam) and development of nature-based solutions for agriculture as a visiting scientist at the School of Plant Science at the University of Western-Australia.

In teaching, I have developed two new master courses: 'Modelling Plant Systems' and 'Fundamentals of Quantitative Modelling'. Teaching content in the context of the students' experience was a particular concern of mine.

Associate Professor

Leibniz University of Hannover

2001 - 2002

Student exercises 'Systems Analysis'. Writing grants applications.

Postdoctoral Researcher

Christian Albrecht University Kiel

1998 - 2000

Modeller in the Collaborative Research Center 192 "Optimization of plant production systems with regard to performance and ecological effects". Support of the speaker Prof. Herbert Hanus.

Education

University of Kassel

Doctor of Philosophy - Cultural Engineering and Water Management

Grade: With distinction

1997

As part of my doctoral thesis, I supervised a trilateral project on the application of the Penman-Monteith energy balance method under different climatic conditions in Israel, Brazil and Germany. After validation with the thermoelectric method for measuring sap flow in plants, the model was adopted in the agrometeorological network of the southern Brazilian state of Rio Grande do Sul.

University of Kassel

German Diplom - Ecological Environmental Protection (Focus: Limnology)

1995

Three years of university education in all areas of environmental ecological protection. The experimental work of my diploma thesis dealt with light extinction and microclimate at forest streams, which strongly influence the behaviour of stream organisms.

University of Kassel

German Diplom - International Agriculture (Focus: Agronomy)

1992

Four-year university education in international agriculture. My thesis was on the experimental characterization and modelling of the crop water balance of cotton.

Chamber of Agriculture Westphalia-Lippe, Germany

Farmer Journeyman

1987

Two-year dual education. 1st year: Teaching, demonstration and experimental farm of the North Rhine-Westphalian Agricultural Extension Service at Haus Düsse near Soest: Full range of common cattle and pig rearing systems, feeding methods, milking systems, field cultivation methods, plant and animal breeding trials, slaughter and egg laying performance trials. 2nd year: Farm work on a mixed farm in the Haar hills near Soest.

Teaching Experience

Introduction to Crop Modeling, Modeling Plant Systems, Quantitative Basis of Modeling, Applied Mathematics, Agricultural Meteorology, Irrigation Science, Crop Science, Software Engineering, Systems Analysis, Physics for Agriculturists

Foreign Experience

Australia, Brazil, France, Israel, Indonesia, Malaysia, Kenya, Netherlands, Palestine Authorities, Rwanda, Russia, Tanzania, Turkey, Uganda

Selected publications

Langensiepen M., Omwandho Opiyo E., Kaudia A.K., Rugege D., Richard K., Akotsi E., Ashitiva D., Ningu J.K., Munyazikwiye F., Ngaboyamahina T., Urassa J.K., Ugen M., Sebashongore D., Oyieke H., Misana S., Kammesheidt L., Becker M. (2023) Reconciling East-African wetland conservation with human needs: Managing uncertainties in environmental policy design. *Wetlands* 43, 36

Grotelüschen K., Gaydon D.S., **Langensiepen M.**, Ziegler S., Kwesiga J., Senthilkumar K., Whitbread A.M., Becker M. (2021) Assessing the effects of management and hydro-edaphic conditions on rice in contrasting East African wetlands using experimental and modelling approaches. *Agricultural Water Management* 258, 107146

Langensiepen M., Jansen M.A.K., Wingler A., Demmig-Adams B., Adams W. W., Dodd Ian C., Fotopoulos V., Snowdon R., Fenollosa E., de Tullio M. C., Buck-Sorlin G., Munné-Bosch S. (2020) Linking integrative plant physiology with agronomy to sustain future plant production. *Environmental and Experimental Botany* 178: 104125

Vila-Guerau de Arellano J., Ney P., Hartogensis O., de Boer H., van Diepen K., Emin D., de Groot G., Klosterhalfen A., **Langensiepen M.**, Matveeva M., Miranda G., Moene A., Rascher U., Röckmann T., Adnew G., Graf A. (2020): CloudRoots: Integration of advanced instrumental techniques and process modelling of sub-hourly and sub-kilometre land-atmosphere interactions. *Geosciences* 17: 4375-4404

Simmer C., Masbou M., Thiele-Eich I., Amelung W., Bogena H., Crewell S., Diekkrüger B., Ewert F., Hendricks Franssen H.J., Huisman J.A., Kemna A., Klitzsch N., Kollet S., **Langensiepen M.**, Löhnert U., Rahman A.S.M., Rascher U., Schneider K., Schween J., Shao Y., Shrestha P., Stiebler M., Sulis M., Vanderborght J., Vereecken H., van der Kruk J., Waldhoff G., Zerenner T. (2015) Monitoring and Modeling the Terrestrial System from Pores to Catchments – The Transregional Collaborative Research Center on Patterns in the Soil-Vegetation-Atmosphere System. *Bulletin of the American Meteorological Society* 96: 1765-1787