

New project: GeoKur



GeoKur – Curation and quality assurance of environmental research data for the use case of global land use data

This project is a collaboration of the TU Dresden, iDiv and the UFZ that aims to support the curation and quality assurance of environmental research data, here specifically global land use data. In particular, recommendations, guidelines and tools for metadata acquisition, data provenance tracking, data quality assurance and data management will be developed and tested.

The project partners at the CLE are mainly responsible to showcase the value of these approaches with several case studies related to large scale land use data.

More information:

<https://geokur.geo.tu-dresden.de/>

Contact at CLE:

- [Lukas Egli](#)
- [Prof. Dr. Ralf Seppelt](#)



Workshop: ARAGOG

A workshop on the topic "**An area of conflict: the effects of agricultural subsidization on conservation goals worldwide**" (ARAGOG) took place from 14 to 18 October 2019 as part of the fifth ESCALATE synthesis project.



An international team of 14 PhD students from the National Socio-Environmental Synthesis Center (SESYNC) in Maryland, the University of Leeds and the UFZ devoted themselves to the work on a publication. An innovation of this year's synthesis project is the high degree of self-organization and personal responsibility of the doctoral students. The team will meet for a third and final workshop in Annapolis in May 2020.

More information on ESCALATE:

<https://www.ufz.de/escalate>

Contact at CLE:

- [Dr. Michael Beckmann](#)

IPBES General Assessment



This year's perhaps most relevant event with respect to supporting policy with research findings and the current status of our environment, its land use and biodiversity was the approval of the Global Assessment Report of IPBES in April in Paris. This was the endpoint of two years of hard work of more than 150 experts. From UFZ Ralf Seppelt and Joseph Settele took part in a week of negotiations with the countries delegates. The resulting media response was overwhelming. Presenting and discussing results to various people outside academia (e.g. Deutscher Bundestag, "Mitteldeutsche Medientage", interview

in "Die Zeit") were incredible opportunities. Media interest however, dropped quickly. What remains are important experiences in communication but also a citation in the „Faktencheck“ of the „Heute show“



Project BESTMAP: Kick-Off Meeting



Nearly half of the EU land is farmland. The livelihood of over ten million farmers and the sustainability of agro-ecosystems, including food, bioenergy, water, carbon storage and biodiversity, are directly affected by EU policy instruments. These policies have, so far, failed to stop environmental degradation. BESTMAP (Behavioural, Ecological and Socio-economic Tools for Modelling Agricultural Policy) aims to develop a new flexible, interoperable and customisable framework that will take account of farmers' needs and effectively monitor policy impacts on natural, social and cultural assets in rural areas.

BESTMAP will develop and analyse the outcomes of a behavioural theoretical modelling framework that takes account of the complexity of farmers' decision-making. Additionally, computer models will help build up an operational framework.

BESTMAP will implement the newly developed framework in five regions across Europe, holding diverse agricultural, socio-economic and political backgrounds: Humber Catchment (UK), Mulde River Basin (DE), South Moravia (CZ), Bačka Region (RS), Catalonia (ES). BESTMAP specialists will develop a simple-to-use web-tool, helping policymakers analyse the adoption of various agri-environmental schemes, and scale up the innovative approach in the project to model agricultural policy impacts on a regional and national level.

"BESTMAP will transform existing the existing system to assess policy impacts and will help to enhance the sustainability of agricultural landscapes," comments project coordinator Guy Ziv from the University of Leeds. "In the long run, our mission is to improve the effectiveness of EU policies and transform European policy design, impact assessment and monitoring."

The project held its official kick-off meeting from 23 to 25 September in Brussels, Belgium, where partners meet for the start of the four-year research and innovation action. Twelve partner organisations from seven European countries gathered to discuss the first steps towards developing behavioural, ecological and socio-economic tools for modelling agricultural policy.

More information: <http://www.bestmap.eu/>

Contact at CLE: [Dr. Anna Cord](#), [Dr. Michael Beckmann](#)



Congratulations!

Christophe Dominik, finished his Ph.D. and graduated at Martin-Luther-University Halle-Wittenberg in January 2019 under the supervision of Prof. Dr. Ralf Seppelt. He is now working in the Department of Community Ecology (BZF) as Postdoctoral Researcher.



Stefan Schmidt finished his Ph.D. and graduated at Martin-Luther-University Halle-Wittenberg in April 2019 under the supervision of Prof. Dr. Ralf Seppelt. He is now working as scientist in the research group "PlanSmart" at Leibniz University Hannover.



Karla Estela Locher Krause, team member of the research group „Integrated Modelling and Optimization (IMOP)“, finished her Ph.D. and graduated successfully at the University of Bonn in November under the supervision of Prof. Dr. Martin Volk.



Maximilian Lange, team member of the research group „Remote Sensing“, finished his Ph.D. and graduated successfully at the University of Leipzig in December under the supervision of Dr. Daniel Doktor.



Veronika Liebelt, team member of the former research group „Urban Forms“, finished her Ph.D. and graduated successfully right now in December at the University of Leipzig under the supervision of Dr. Nina Schwarz (University of Twente).



Dr. Anna Cord, Head of research group "Biodiversity and Ecosystem Services (BIOECOS)", was appointed for Young Academy at Leopoldina Academy of Science in April. Recently, she accepted a call for professorship on "Model-based Landscape Ecology" to the TU Dresden. She will leave us in February 2020.



Publications "Editor's Choice"

Strauch, M., A.F. Cord, C. Pätzold, S. Lautenbach, A. Kaim, C. Schweitzer, R. Seppelt, M. Volk (2019): Constraints in multi-objective optimization of land use allocation – repair or penalize? *Environmental Modelling & Software*. DOI 10.1016/j.envsoft.2019.05.003

Combining simulation models and multi-objective optimization can help solving complex land use allocation problems by considering multiple, often competing demands on landscapes, such as agriculture, (drinking) water provision, or biodiversity conservation. The search for optimal land use allocations has to result in feasible solutions satisfying "real-world" constraints. We here introduce a generic and readily applicable tool to integrate user-specific spatial models (e.g. assessing different ecosystem services) for a Constrained Multi-objective Optimization of Land use Allocation (CoMOLA). The tool can handle basic land use conversion constraints by either a newly and specifically developed method to repair infeasible solutions or by penalizing constraint violation. CoMOLA was systematically tested for different levels of complexity using a virtual landscape and simple ecosystem service and biodiversity models. Our study shows that using repair mechanisms seems to be more effective in exploring the feasible solution space while penalizing constraint violation likely results in infeasible solutions.

CoMOLA is a product of the POF III program: It has been successfully applied within our EU BiodivERSa project TALE to optimize the allocation of land use and agri-environmental measures (Verhagen 2018 et al.) It is a core element of ongoing integrated research within IP12 (e.g. core project "Multi-objective agent-based land use allocation") and will also be applied in upcoming projects, such as OPTAIN (EU H2020).

Beckmann, M. et al. (2019): Conventional land-use intensification reduces species richness and increases production: A global meta-analysis. *Global Change Biology* DOI 10.1111/gcb.14606

The exploitation of farmland is being intensified with a focus to raising yields. The degree to which yields actually increase as a result and the extent of the simultaneous loss of biological diversity have to date been under-researched factors. An international team of scientists led by the UFZ has now evaluated data from worldwide research in which both yield and biodiversity were examined before and after intensification measures.

Schröter, M., A. Bonn, S. Klotz, R. Seppelt, C. Baessler (eds., 2019): Atlas of Ecosystem Services: Drivers, Risks, and Societal Responses. *Springer*, New York, 414 pages. <https://link.springer.com/book/10.1007%2F978-3-319-96229-0>

The "Atlas of Ecosystem Services" contains 60 succinct chapters which deliver a comprehensive overview on the risks to sustained provision of ecosystem services. More than 260 authors, among them UFZ colleagues from 16 departments, have contributed to the book. Global and regional case studies shed light on the impacts of land use change, climate change and socio-economic drivers on ecosystem services, and their related (land use) conflicts. Furthermore, policy instruments and management options to address these risks are presented.

The last year was full of events, changes as well as many highlights, reporting all of them would extend the newsletter by far beyond two pages. This, though is our idiosyncratic summary of the most exciting items. Much more and a comprehensive summary can be found at our Department website. What remains, is to wish you all a happy Christmas and a successful, great and peaceful new year 2020.

Imprint

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