



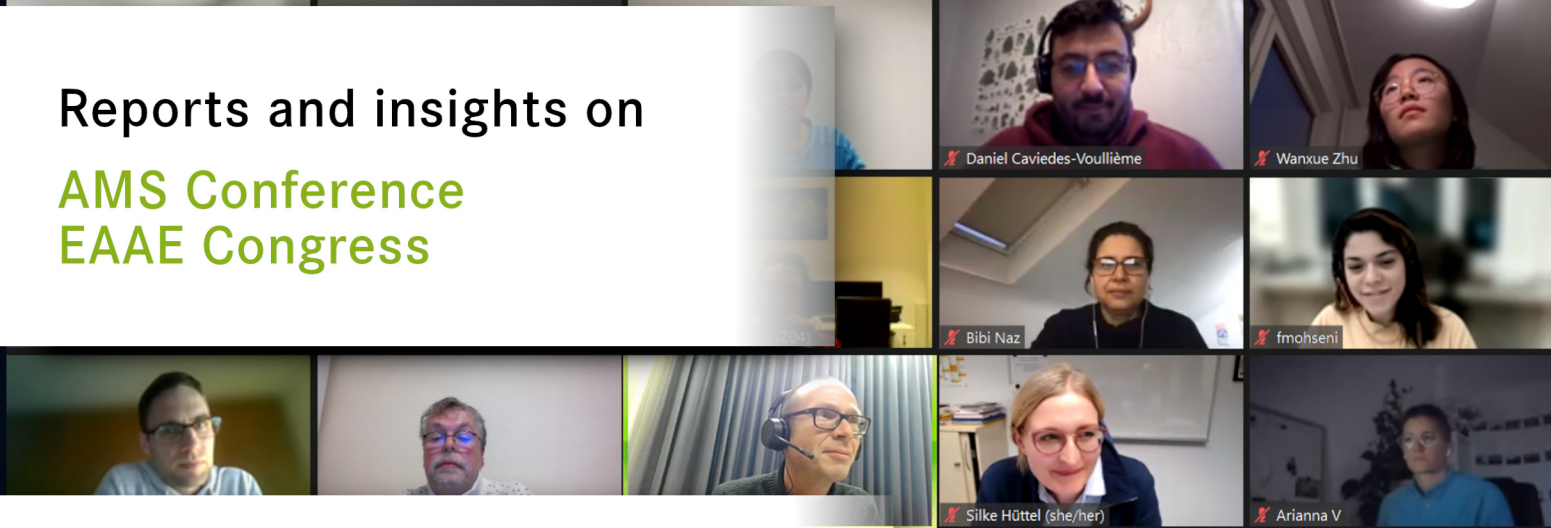
CRC 1502 DETECT

Newsletter



Reports and insights on

AMS Conference EAAE Congress



SWOT Science Team Meeting Presenting first results and shaping the validation process





Right in the middle

The work in the CRC DETECT is in a constantly changing process of metamorphosis. Based on the impression from the all-cluster status meeting on November 30, one could say that the CRC butterfly is just emerging from its cocoon and will soon unfold.

The shape of the CRC butterfly is thus reflected in first results of the project work, which have been presented at international scientific conferences by members of the DETECT Community. In this issue, we will report on the 40th Conference on Radar Meteorology, the 17th Congress of the European Association of Agricultural Economists (EAAE) and the SWOT science team meeting in Toulouse.

Please also read our report on the kickoff of the PostDoc Mentoring. Regarding DETECT's IRTG offers, new research profile descriptors R1 to R4 will help us to communicate more specifically courses, actions and offers, see [here](#).

With great pleasure we announce the first DE-I-TECT lecture which will be held by Marieke van den Brink on 18 January 2024.

In this issue, Z03 PostDoc Farzane Mohseni, who works with all DETECT data sets thus ensuring availability for cross-project work in DETECT and the public according to FAIR principles, will introduce herself.

The butterfly's lifespan is short and it must slowly prepare for its next life. This image could be applied symbolically to the preparation of the next DETECT project phase. Thus, the planning for the follow-up proposal of project phase two is now beginning. Defining the scientific objectives for the 2nd phase proposal will be one major issue on the agenda of our second DETECT Retreat, which is scheduled for May 15-16, 2024 (check also announcements).

We are also pleased to announce that we have found six leading scientists from DETECT-related disciplines who, inter alia will support the the entire CRC this follow-up challenge as Scientific Advisory Board (SAB). The SAB will be officially established in the constitutional meeting at the end of the retreat on 16 May 2024. We will report in more detail about the members of the SAB in a later newsletter issue.

Last but not least, the DETECT Management Team would like to thank the entire Community for your great work and commitment to the DETECT project at both scientific and administrative levels. We wish you all a joyful and healthy holiday season and a good start into the New Year. See you in 2024!

Enjoy reading!

Sincerely,

Jürgen Kusche

Speaker

Silke Hüttel

Co-Speaker

Harry Vereecken

Co-Speaker

Frank Siegismund

Scientific Coordinator

Dorothee Berkle-Müller

Administrative Coordinator



40th AMS Conference on Radar Meteorology

by Julián Giles

From 28 August to 1 September 2023, the American Meteorological Society held the 40th edition of the Conference on Radar Meteorology in Minneapolis, USA.



More than 400 participants from different countries and diverse sectors of society (universities, industry, national weather services, etc.) joined the event to share and discuss the latest advancements in their research field. This conference is held every two years, alternating with the European Conference on Radar in Meteorology and Hydrology (ERAD).

The event started on Sunday 27 August by offering two parallel short courses. Julian Alberto Giles, PostDoc researcher from CRC project A04, contributed to the Open Radar Short Course, which presented introductory hands-on lessons of open-source packages for processing weather-radar data.



Julian Giles presenting

source: Julián Giles

He gave a short tutorial on `wradlib`, a Python-based package maintained amongst others by Kai Mühlbauer, colleague from the radar group at the University of Bonn.

During the conference, Julian presented his progress with regards to the A04 project on a poster entitled “Six years of polarimetric C-band radar data from three sites in Germany and five sites in Türkiye”. The presentation included statistical analyses of the radar data acquired by the CRC to study precipitation-generating processes. “The presentation got a nice amount of attention and it was very nice to hear feedback from colleagues, especially suggestions on how to continue exploring the data”, “I was so into the conversation that I completely forgot to take a picture next to the poster!”, Julian adds. People interested can find the poster [here](#).

PI of project A04 Silke Trömel also participated in the conference. She chaired Session 15A

“Use of Radar Data for Numerical Weather Prediction and Analysis II: Innovations in Radar Data Assimilation” and gave a presentation in Session 12A titled “Polarimetric Radar Observations Meet Atmospheric Modelling (PROM) - A Research Initiative in Germany”, where she gave an overview on the [DFG funded Special Priority Programme](#) currently in the second funding phase. Many results from this project set the basis for the theoretical framework and techniques that are used within A04.

The conference represents an important platform to meet scientists from other institutions, and to make new connections. “Coming from a background different from radar meteorology, I greatly appreciated the opportunity to travel to this conference. It is really enriching to be able to talk to colleagues in person and share our ideas. This kind of bonding can lead to further collaborative developments in the future”, Julian says.



Silke Trömel presenting

source: Julián Giles

17th EAAE Congress

by Silke Hüttel

DETECT was represented with several contributions at this year's congress of the European Association of Agricultural Economists (EAAE) in Rennes, France.



The conference brought together over 1000 agricultural and environmental economists from all over the world to discuss the topic “Agri-food systems in a changing world: Connecting science and society”. Of the more than 400 paper contributions many dealt with improving the understanding of the interactions between climate change and land use management decisions, related to the DETECT vision.



Petr Havlik and Jan Börner

source: Silke Hüttel

PI Thomas Heckeley (A06, B04 and Z02) was invited to give a keynote speech on “Probabilistic Programming for Embedding Theory and Quantifying Uncertainty in Data-driven Approaches”, in which he pointed out the various opportunities for applying novel Bayesian methods in agricultural economics. The quantification and communication of uncertainty is a challenge faced by all disciplines in the collaborative research centre. While the implementation of probabilistic reasoning systems in agricultural economics faced many challenges in the past,

tools like probabilistic programming allow to easier estimate and more intuitively interpret theory-based, probabilistic models.

PhD candidates Marco Ferro (A06) presented his work on “Climate-Relevant Landscape Composition and Configuration Patterns in Europe” and Wataru Kodama (A05) “Towards an improved understanding of land-scape configuration and composition from the decision-maker’s perspective” as part of the organized session “Climate policy development: how Agricultural Economics can or should contribute” initiated by Silke Hüttel (Z01, A05, A06), Jürgen Kusche (Z01, C03, D07) and Jan Börner (A06). In this session, we heard a prominent mini-keynote by Petr Havlik from IIASA, followed by the talks of Marco Ferro and Wataru Kodama from DETECT, Hermine Mitter from BOKU, Vienna and David Wüpper from Bonn University.

The lively discussion in the notable audience demonstrated the relevance of evidence-based and participatory policy advice for climate policy development. The joint presentation of A05 and A06 demonstrated the importance of theoretical foundations for analysing climate change adaptation, and potential climatic implications of changes in the landscape composition and configuration in Europe.

Wataru presented a generic economic model for climate change adaptation decisions under uncertainty using the real options approach. Using landscape-scale approach, Marco demonstrated a framework for connecting climate model simulations with economic analysis. We believe this denotes a step ahead towards a

better understanding of the land-climate interaction and policies for climate-smart landscapes.

PhD candidate Josef Baumert (B04) gave a presentation with the title “Spatial disaggregation of crop production data – accounting for multiple sources of uncertainty” in the contributed paper session focusing on Big Data & Machine-learning applications. The presented

approach was developed in project B04 to provide a map of cultivated crop types with high spatial resolution for Europe over multiple years – another DETECT output with many applications beyond the scope of the project, as the lively interest by the audience demonstrated.

We look forward to the next EAAE congress 2025 in Bonn with even more results from DETECT upcoming!



SWOT Science Team, Toulouse, October 2023

by Luciana Fenoglio

The 2023 SWOT Science team meeting, organized last October in Toulouse, nine months after the successful launch of the mission, was the first opportunity to present and discuss the early results obtained from SWOT data over all surfaces and prepare for the validation phase planned in the next months. The project teams from NASA and CNES provided a detailed review of the current processing algorithms and on-going working plan for the release of further data. The Science Team members presented their SWOT preparation studies, first results from the initial pre-validated beta-data products and validation plans.

B01 was represented by PHD Hakan Uyanik and PI Luciana Fenoglio. B01 contributed to the meeting with three posters on the surface water types river, lake and estuary, the fourth surface ocean was covered in a fourth poster describing an experiment in the Central Baltic Sea in collaboration with Leibniz-Institut für Ost-seeforschung Warnemünde, in short IOW. Luciana had two oral presentations about nadir altimeters and model comparison in the Elbe estuary and in the Baltic.

Since then, high resolution beta validated products have been made available for rivers. The preliminary results for the Rhine will be shown



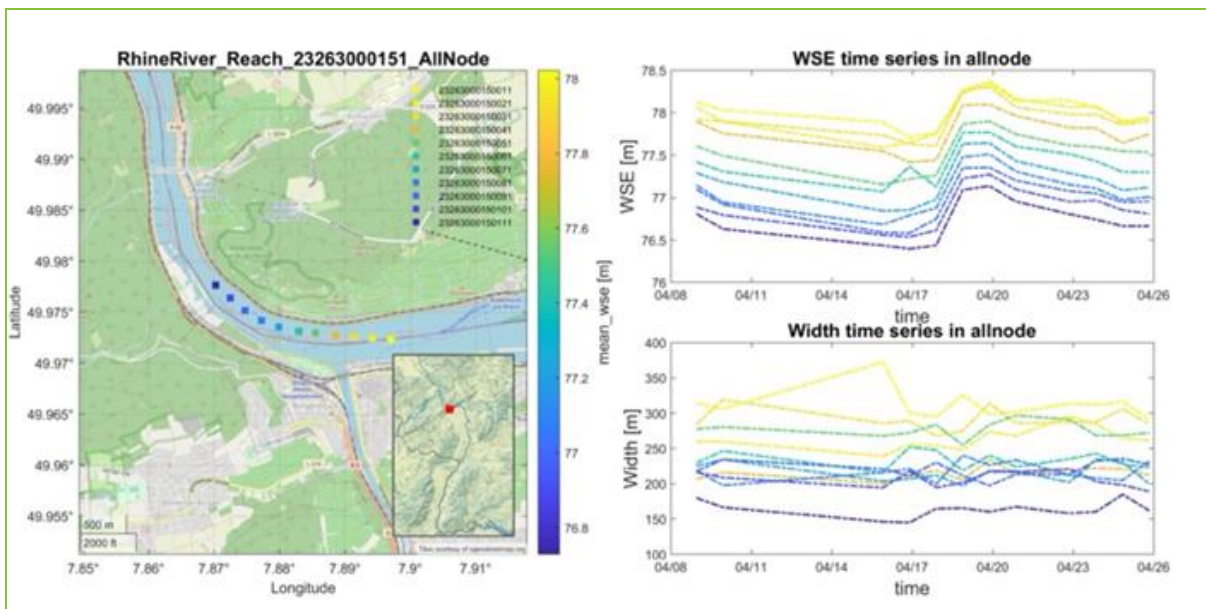
Science team at the meeting in Toulouse

source: Luciana Fenoglio

at the Hydrospace Meeting in Lisbon in two weeks. River height and width of the Rhine look as expected every 200 meters along the river centerlines, and more details come from the pixel clouds data and backscatter coefficient to inform on the surface roughness. We still have to learn to understand how to interpret them in full.

This global, detailed and complete view of water will help us to better describe and predict the water cycle and its deviations from the norms such as floods and droughts. SWOT high resolution view will enable monitoring seas in close proximity to the coasts, dynamic features in the

open ocean, which act like effective engines that transport a large quantity of heat, energy, oxygen, and nutrients. Over land, we see the volume and storage of freshwater resources in lakes and rivers with more clarity and definition. Below the picture of the science team at the meeting in Toulouse and first results showing the dense water surface elevation information in a reach of the Rhine near Bingen.



Contemporaneous water surface

source: *Luciana Fenoglio*

China's satellite gravimetry mission

by Jürgen Kusche

China is planning to launch a space gravimetry mission (TianQin-2) very similar to GRACE-FO in around 2028-2030, as part of its TianQin program, which is meant to culminate later with a LISA-type spaceborne gravitational wave observatory (TianQin-3).

I was recently invited to visit Sun Yat-Sen University (Zhuhai) and Tongji University (Shanghai) where colleagues are involved in orbit planning and mission design, data product definition, and developing the ground processing frameworks.

This is in particular intriguing since if all goes according to plan, TianQin-2 could be flown in parallel with the NASA/DLR and ESA MAGIC

mission pairs (see newsletter issue 2023/1) and enable one to further improve the spatial and temporal resolution of total water storage maps.

The picture below shows the satellite laser tracking station at Zhuhai campus (close to Macao), which was established to support orbit determination for the TianQin satellites.



Satellite laser tracking station at Zhuhai campus

1st DE-I-TECT Lecture in Bonn on 18 January 2024



Thursday, 18 January 2024
“Sponsorship in higher education: gendered effects and possibilities for Early Career Researchers”

by Marieke van den Brink
Professor of Gender and Diversity at the Faculty of Social Sciences,
Scientific Director of Radboud Gender & Diversity Studies, Radboud University, NL

Programme

12:00–01:15 pm: DE-I-TECT Lecture
Venue: Nussallee 17, room 1.003 1st floor, open to everybody

01:15–02:00 pm: Lunch and Networking
Venue: Nussallee 17, room 1.003 1st floor, open to everybody

02:15–03:30 pm: DE-I-TECT Networking
for DETECT members/early-career scientists (R1 to R3 according to EU's classification) that self-identify as members of underrepresented groups (in general) to network and discuss on the topics presented by Marieke, i.e. gender and gender identity
Venue: Meckenheimer Allee 172, room 1.003 "Palazzo"



<https://www.ru.nl/en/people/brink-m-van-den>

Please register by
5 January 2024 at:
<https://terminplaner4.dfn.de/8HZunWSgY7MVQwjX>

The Lecture will be streamed for interested DETECT members and associated members from outside Bonn. Please read more at <https://terminplaner4.dfn.de/8HZunWSgY7MVQwjX>

It is our great pleasure to announce the

1st DE-I-TECT Lecture

with Prof. Marieke van den Brink

“Sponsorship in higher education: gendered effects and possibilities for Early Career Researchers”

On: 18 January 2024, 12.00 – 15:30
at Nussallee 17 and
Meckenheimer Allee 172 in Bonn.

Marieke van den Brink will discuss current insights on gender (in)equality in academia, especially the role of informal networking and sponsoring in building academic careers. Research indicates that women researchers receive less sponsorship from senior scholars, for instance co-authoring, creating network contacts, or securing funding. In the talk, Marieke will reflect on the question how to best use sponsoring for early career scientists to advance careers but also to transform the organization into a more gender inclusive environment.

All DETECT **DE-I-TECT** members, interested colleagues and friends are cordially invited to join the following sessions:

1. 12:00 – 13:15 DE-I-TECT Lecture at Nussallee 17, room 1.003, 1st floor, open to everybody
2. 13:15 – 14:00 Lunch and networking, room 1.003, 1st floor, open to everybody
3. 14:15–15:30 DE-I-TECT Networking (venue change to) Meckenheimer Allee 172, Room 1003 "Palazzo", only for DETECT members/early-career scientists (R1 to R3 according to the EU classification) who self-identify as members of underrepresented groups (in general) to network and discuss on the topics presented by Marieke, i.e. gender and gender identity
4. 12:00 – 13:15 DE-I-TECT Lecture online participation, (open to interested DETECT members and associated colleagues from outside Bonn only, Zoom to be submitted on Jan 18)

Please register by 5 JANUARY 2024 [here](https://terminplaner4.dfn.de/8HZunWSgY7MVQwjX).

We look very much forward to Marieke’s talk and to seeing you there!

Best regards

Silke and Dorothee

DETECT scientists

Interview with Farzane Mohseni, scientific researcher of DETECT

Farzane, what attracts you to work in DETECT?

I have accumulated over 7 years of experience as a remote sensing engineer, concurrently with my master and Ph.D. studies. Throughout this period, I have engaged with a diverse range of satellite data at various processing levels, leveraging them to identify and analyze different environmental parameters. As a dedicated researcher, I firmly believe that a robust and comprehensive data service is indispensable for the success of any project. This conviction is particularly heightened when dealing with extensive initiatives like DETECT, where numerous individuals are contributing from various facets, generating diverse data and outputs continuously. The prospect of being part of the data management team for such a substantial project is immensely appealing to me.

What do you see as the big challenge of the CRC?

From my point of view, the challenge of interdisciplinary projects like DETECT relies on cultivating a collaborative environment where specialists with different backgrounds can synergize their expertise. This not only enhances problem-

solving capabilities but also fosters innovation at the intersection of diverse fields. Open-minded collaboration, coupled with supportive management, becomes the cornerstone for overcoming the inherent complexities of interdisciplinary endeavors.

And what do you see as your personal challenge in your role in DETECT?

Traditionally, scientists and engineers follow a trajectory of becoming experts within their specific domains. However, the unique challenge presented by projects like DETECT lies in the need to seamlessly integrate a diverse array of specialists. I am eager to contribute my expertise and play a pivotal role in ensuring the effective organization, accessibility, and utilization of the extensive data generated by DETECT. The dynamic and multifaceted nature of the project aligns perfectly with my background, and I am enthusiastic about the opportunity to contribute to its success. I have enjoyed improving my IT skills in these last few years and hope to help other team members learn how to use the DETECT-Geonetwork service to share their data and outputs with other scientists.

About Farzane Mohseni

Farzane Mohseni is a scientific researcher at the Institute of Geodesy and Geoinformation (Working group Geoinformation) at the University of Bonn since December 2022.

Her research interests include soil hydrology, groundwater estimation, water resource management, disaggregation of coarse-scale radiometric soil moisture products, and land cover mapping.

She received the B.Sc. degrees in geodesy and geomatics in 2015, the M.Sc. degree in remote sensing in 2017, and a doctoral degree in remote sensing in 2022 from the K. N. Toosi University of Technology, Tehran, Iran. Prior to assuming her current position, she had been a visiting researcher at the University of Lund, Sweden.



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[ORCID](#)

[Home Page](#)

Notes from the DETECT coordination office

Your publication – Open access initiatives

University of Bonn has signed agreements/contracts with various publishers and organizations that allow you to publish for free on an open-access basis or give you discounts on your publication fees.

Please check the information and contact data of the [Open Access Service Center](#) and, specifically, the list of [institutional agreements with publishers and initiatives](#).

Seminar room at the DETECT Coordination office

[Instructions](#) have been prepared for the media technology, which we ask you to observe.

If you would like to use the room, please always check availability with Sandra Juraga:

sjuraga@uni-bonn.de

On the day of the (hybrid) event, please schedule about 10-15 minutes of preparation for the technical set-up or arrange a joint preparation appointment with our IT expert Sascha about one week in advance:

swuest@uni-bonn.de



source: Sascha Wüst

PostDoc-Mentoring Programme

Kick Off Meeting on 9 November, 2023 in Bonn

On 9 November, 2023 we finally celebrated the start of the new DETECT PostDoc-Mentoring programme with the first round selected DETECT PostDocs (R2 researchers in the European Framework for Research Careers).

Co-speaker Silke Hüttel used the opportunity for a warm welcome: strengthening our R2 researchers and prepare them in a best possible way for their future is at the core of DETECT, and mentoring forms an important pillar.

Therefore, DETECT gratefully acknowledges the initial efforts for establishing the programme by Dr Susanne Plattes from the Faculty of Agriculture, who devotedly worked to get the programme “on the road”.

Most importantly for our PostDocs, Susanne set-up the mentee-mentor tandems in a professional manner.

The welcome was followed by a professional reflection of the PostDocs’ status quo in their career, led by Dr Wiebke Deimann (Human Resource Development, University of Bonn) and Dr Susanne Plattes (PostDoc Officer, Faculty of Agriculture).

The mentoring programme covers a period of 12 months and is offered once a year, with the next round of applications starting in May 2024. For further information on the programme please contact LWF PostDoc Office (forschung@lwf.uni-bonn.de).



Role Model & Experience

Advisor & Counselor

Supporter & Contacts

SUPPORT
&
EXCHANGE



Career Goals & Realization

Confidence & Self-Reflection

Openness & Esteem

Recent and Upcoming Events

11–15 December 2023

**American Geophysical Union (AGU)
Fall Meeting 2023**



Each year, the American Geophysical Union (AGU)'s Fall Meeting convenes >25,000 attendees from 100+ countries to share research and connect with friends and colleagues. Scientists, educators, policymakers, journalists and communicators attend AGU23 to better understand our planet and environment, opening pathways to discovery, opening greater awareness to address climate change, opening greater collaborations to lead to solutions and opening the fields and professions of science to a whole new age of justice equity, diversity, inclusion and belonging.

More info [here](#).

14-19 April 2024

**European Geosciences Union (EGU)
General Assembly**



The General Assembly 2024 of the EGU is held at the Austria Center Vienna (ACV) in Vienna, Austria and online, from 14 – 19 April 2024. The assembly is open to scientists of all nations. The congress centre is wheelchair accessible.

Please consider: Session 3.2. addresses a central DETECT topic (see below at 'Other announcements').

Abstract submission deadline: 10 January!

More info [here](#).

Announcements – save the date!

Activities within DETECT

IRTG Lecture Series

To introduce the PhD students to interdisciplinary science conducted in the CRC, a lecture series is held twice a year. The series addresses the different disciplines in an introductory fashion, including concepts and techniques relevant for research in modelling and observation of the water cycle, as well as of the land surface and its use, also beyond what is applied in current CRC projects.

The number of participants for specific courses might be limited. Anyone interested to participate in a specific course has to check admission with the responsible lecturer listed in the table of lectures below.

| | | |
|---------|---------------|---|
| 19. Dez | 8:00-11:00 | Wulf Amelung: 'Soils in the water and carbon cycles' |
| 16. Jan | 8:00-11:00 | Carsten Montzka: 'Hydrological remote sensing' |
| 16. Jan | 13:00 – 16:00 | Jürgen Kusche: 'Monitoring the terrestrial water cycle with space geodesy' |
| 13. Feb | 13:00 – 16:00 | Jan-Henrik Haurert: 'Visualization and analysis of spatial data' |
| 12. Mar | 8:00-11:00 | Thomas Heckelei: 'Bayesian data consolidation and model specification techniques' |



| DETECT Land & Climate Seminar | | Mondays at 10:15 (zoom-link) |
|-------------------------------|---|--|
| 22. Jan | Vidya Varma, Stephanie Fiedler: 'Precipitation responses to radiative forcing' | |
| 29. Jan | Lukas Jendges, Jan Martin Brockmann: 'Statistical testing and stochastic processes for the analysis of modeled and observed earth system data' | |

First DE-i-TECT Lecture

18 January 2024

See details in this newsletter issue on page 10

All-cluster meetings scheduled for 2024:

Please enter in your calendar!

15–16 May 2024

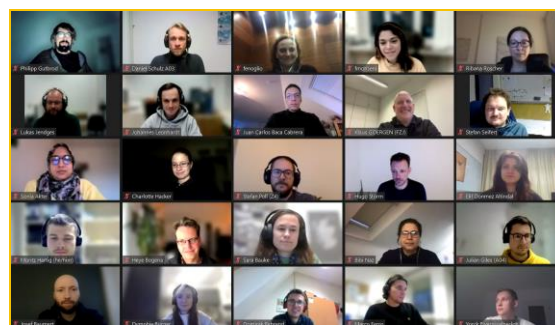
[Retreat at Hotel Vier-Jahreszeiten in Bad Breisig](#)

26 June 2024

[General Assembly](#)

27–28 November 2024

[All Status meeting](#)



DETECT team at the all-cluster status meeting on Nov. 30, 2023

All-cluster meetings scheduled for 2025:

Please enter in your calendar!

14–15 May 2025

[Retreat, venue tbc.](#)

4 June 2025

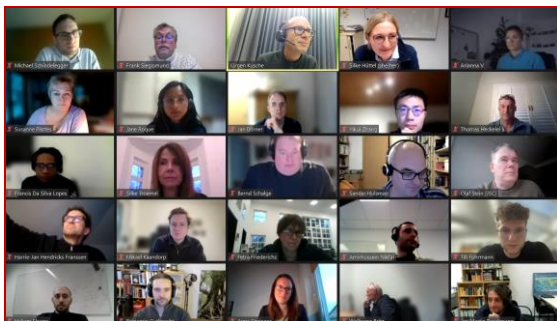
[General Assembly, via Zoom](#)

26 - 27 November 2025

[All Status meeting](#)

Date tbc

[DETECT Conference 2025](#)



DETECT team at the all-cluster status meeting on Nov. 30, 2023

Other announcements

Dear colleagues,

please consider the following session G3.2 at the EGU24 General Assembly

G3.2: Observing and understanding wetting and drying patterns at the continental scale

Co-organized by G and HS sections

Conveners: Juergen Kusche, Arianna Valmassoi, Harrie-Jan Hendricks Franssen, Gabriëlle De Lannoy

Several regions of the world are getting wetter, while others are literally drying out, not only in terms of precipitation but also measured by the increase or decrease in surface water, moisture in soils and plant root zones, and groundwater. Drying and wetting as seen in in-situ measurements and optical, microwave and gravimetric (e.g. GRACE/-FO) remote sensing data are generally attributed to the combined effects of global warming from greenhouse gas forcing, natural variability, land use change, and anthropogenic modification of the water cycle.

However, global climate models that account for these effects cannot adequately explain the observed patterns of hydrological change. Observations also do not support a simple dry-gets-drier and wet-gets-wetter logic. We invite contributions that aim at closing this gap in understanding wetting and drying patterns at the continental scale.

We also solicitate presentations on improving our observing system (e.g. via new retrieval approaches, data assimilation as a way of reducing the gap between observations and modelling, or developing new sensor systems) and on developing modelling frameworks (that explain past observations as realistically as possible, account for potential drivers of change, and predict future changes).

The abstract submission deadline is 10 January 2024, 13:00 CET.

Call: International Climate Protection Fellowship (Application deadline: 1 February 2024)

The Alexander von Humboldt Foundation grants up to 15 International Climate Protection Fellowships to prospective leaders and up to five fellowships to postdoctoral researchers from non-European transition or developing countries.

The climate experts will come to Germany for 12–24 months to work alongside a host of their own choosing on a research-related project or long-term academic research. The project

should focus on combating climate change, adaptation strategies, preserving ecosystems and biodiversity, or on the sustainable use of the seas and oceans. Sustainability topics relating to natural resources, resource-efficient consumption or urban development are also welcome.

Further information, a list of all application requirements and a link to the online application form are available [here](#).

Congratulations

Guillaume Lobet from the Jülich Institute of Agrosphere (IBG3) has been awarded a Consolidator Grant by the European Research Council. Congrats, Guillaume!

Publications

...are published on our website

<https://www.sfb1502.de>



Impressum

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