

CRC 1502  
DETECT

# Newsletter

#IUGG2023

Report on the 28th IUGG  
General Assembly 2023

DETECT Seminar room opens  
New conference facility is  
opening for our Community

The background image shows a large conference hall with a stage. A large screen displays the text 'IUGG BERLIN 2023' in large, bold, blue letters. Below it, in smaller white letters, it says 'THE 28th GENERAL ASSEMBLY'. The stage is lit with blue and green lights. In the foreground, the silhouettes of people sitting in rows of chairs are visible, looking towards the stage.

IUGG  
BERLIN  
2023  
THE 28th GENERAL ASSEMBLY



## Let's talk about it!

Talk about the project work and get to know each other better: In short, these were our main goals for the first DETECT retreat, held on 30 May – 01 June at Hotel Schützenhof in Eitorf. Since CRC1502 has started in January 2022, this was the first in-person meeting of the whole DETECT team. The overall atmosphere and feedback were very positive. Some very welcome suggestions for improvements provided during the Wrap-up session will be considered for the next retreat, which is already being planned. It will take place from 15 – 16 May, 2024, at the Hotel Vier-Jahreszeiten in Bad Breisig. Please save the date in your calendars!

Shortly afterwards, on 21 June, albeit online, the first official General Assembly took place. In this very formal setting, all relevant scientific and administrative results that have been achieved since the constitutional assembly in May 2022 were reported by the speakers' team. The next General Assembly will also take place online on 26 June 2024. Please also save this date in your calendars.

In addition to the internal CRC meetings, this summer offers a number of opportunities for presentation and discussion of research results, plans and strategies at international conferences with strong content related to DETECT. The General Assembly of the International Union of Geodesy and Geophysics (IUGG) took place from July 11-20. Team members from DETECT were involved with their own oral and poster presentations. In this issue, a reflection of the conference is provided. The congress of the European Association of Agricultural Economists (EAAE) 29 August – 01 September will follow the motto "Agri-food systems in a changing world: Connecting science and society". Here, too, DETECT team members are actively involved, including a keynote by Thomas Heckeley on "Probabilistic Programming for Embedding Theory and Quantifying Uncertainty in Data-driven Approaches". Please check the 'Recent and upcoming events' section for more information.

Communication and specifically in-person meetings need space and adequate technique. Recently, the monitors ordered for the seminar room of our Coordination Office have arrived. With this, the technology is complete. The room will be made available for meetings within the DETECT team. More information on our new media technology and room reservation will also be provided in this issue.

**Enjoy reading!**

**Sincerely,**

**Jürgen Kusche**

**Speaker**

**Harry Vereecken**

**Co-Speaker**

**Silke Hüttel**

**Co-Speaker**

**Frank Siegismund**

**Scientific Coordinator**

**Dorothee Berkle-Müller**

**Administrative Coordinator**



## 28<sup>th</sup> IUGG General Assembly 2023

by Benjamin D. Gutknecht

From 11-20 July 2023 about 5000 scientists from more than 100 countries visited the 28<sup>th</sup> General Assembly of the International Union of Geodesy and Geophysics (IUGG). The IUGG GA takes place every four years in varying countries and continents, and brings together scientists from all over the globe, not only to exchange and learn about latest geoscience research results, but also to discuss overarching agreements and pass recommendations to politics and stakeholders.



Participating institutions from >100 countries left their mark on this official 3D #IUGG2023 hash-tag (and yes, DETECT can also be found)

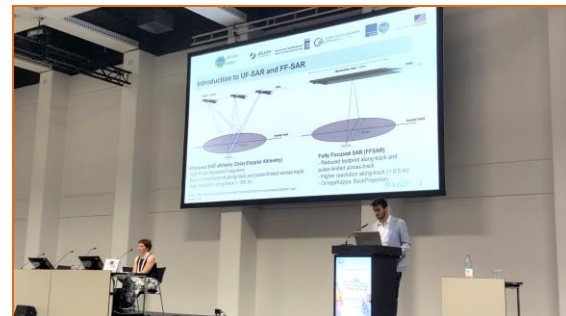
source: Benjamin Gutknecht

The conference saw 1330 poster- and 3109 oral presentations, six of which were contributions from CRC projects B01, C01, C03 and D07. The 640 scientific sessions over eight days covered a wide range of topics related to Earth, planetary and space science in the subdivisions, i.e. cryosphere, geodesy, geomagnetism and aeronomy, hydrology, meteorology and atmospheric sciences, oceanography, seismology and physics of the Earth's interior, and volcanology and chemistry of the Earth's interior.

Several DETECT projects presented their work in the joint inter-divisional session "Geodesy for Climate Research": B01 PhD candidate Hakan Uyanik presented first results from different SAR altimetry techniques used to monitor river discharge. And B01 PI Luciana Fenoglio followed directly after to show discharge measurements and model simulations for the Rhine river. Amongst others, she showed for the first time a systematic phase shift in the river's annual amplitude.

In the same session, which was spread over several days, A01 PhD candidate Yorck Ewerdwalbesloh presented "Insights from GRACE data assimilation in the presence of heatwaves using two different hydrological models over Europe" and his A01 project partner Visakh

Sivaprasad gave a presentation about "choosing the best pre-processing method for soil moisture data assimilation" in hydrology session H02d: Detecting the Impacts of Water Management on Spatio-temporal Pattern of Natural Water Resources via Observations, Models and Remote Sensing.



Hakan Uyanik explains principles of different SAR altimetry methods used to monitor river discharge

source: Benjamin Gutknecht

C01 PhD candidate Charlotte Hacker had a poster in session G03p: Time-variable Gravity Fields, that shows GRACE-like terrestrial water storage (TWS) reconstructions, where she combines a data-driven method with time variable gravity fields from satellite laser ranging analyses from 1990 onward in order to estimate TWS anomalies also in the pre-GRACE domain.

D07 project scientist Benjamin Gutknecht presented parts of the CRC's central objectives and water mass budget validation strategies in the extremely well attended "Geodesy for Climate Research" poster session. "Often during poster sessions, one gets time to discover the work of colleagues presenting next to you", Ben reports, "but here, similar to our experience at the EGU assembly earlier this year, so many people from different institutions like GFZ, KIT and JPL showed up and discussed different items."

He continues: “Gaining from one of our colleagues’ work we might make a significant step forward towards a solution to an increasingly big challenge, which is the (non-)availability of recent river discharge data – it will be very interesting to compare and maybe combine their results with altimetry snapshots and data-driven models from within the CRC.”



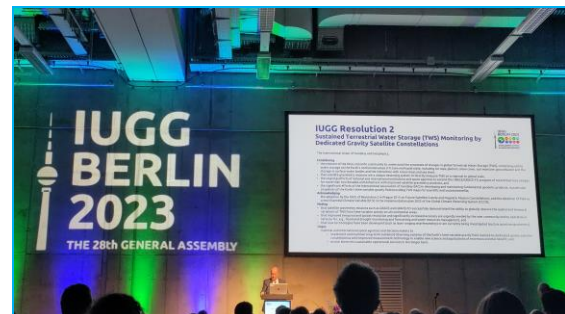
Research discussions continued outside after 9 p.m., even after the event closed  
source: Benjamin Gutknecht

Notably, the International Association of Geodesy (IAG, an IUGG association) awarded DETECT member Jan Martin Brockmann with the first ever “best reviewer” prize for Journal of Geodesy, for promotion and recognition of good reviewing practice. Congratulations Jan Martin!

The Geo.X Early Career Scientists Section social event on Saturday, 15 July brought together the newest minds in academic science and those which are most likely to fill full-time research positions in the future, regardless of affiliation to IUGG. Alexander Rudloff Secretary General of IUGG led the very interesting session which was aimed to discuss and share research thoughts among the early career scientists at IUGG.

Visakh Sivaprasad

Furthermore, during the assembly in Berlin, IUGG passed several notable resolutions, one of which is much related to the CRC’s objectives: In IUGG Resolution 2 about “Sustained Terrestrial Water Storage (TWS) Monitoring by Dedicated Gravity Satellite Constellations”, the IUGG “urges national and international space agencies and decision makers to [1] implement and maintain long-term sustained observing systems of the Earth’s time-variable gravity field realized by dedicated gravity satellite constellations with improved measurement technology to enable new science and applications of enormous societal benefit; and [2] evolve them into sustainable operational services in the longer term”.



Presentation of a TWS-related IUGG resolution  
source: Benjamin Gutknecht

Other passed resolutions concerned (R1) electromagnetic spectrum management; (R3) sharing of geophysical data across borders; (R4) weather and climate intervention actions based on aerosol particles (“geo-engineering”) not being an acceptable complement to green-house gas reduction or enhanced resilience against global warming; and (R5) analogue data recovery, preservation, digitization, and open distribution using established standards. The IUGG 2023 Berlin resolutions can be found at [https://iugg.org/wp-content/uploads/2023/07/2023\\_IUGG-GA-Resolutions.pdf](https://iugg.org/wp-content/uploads/2023/07/2023_IUGG-GA-Resolutions.pdf).

The 29<sup>th</sup> IUGG General Assembly 12–22 July 2027 will take place in Incheon, Republic of Korea.



## Notes from the DETECT coordination office

### DFG Review Board Election 2023

Deutsche Forschungsgemeinschaft (DFG, German Research Foundation), which is also providing funds for CRC1502 DETECT, is the central self-governing research funding organization in Germany. Within DFG, researchers make funding decisions and other decisions on a self-organized basis – as members elected by the academic community to the DFG's statutory bodies.

The direct election of review board members every four years is an important element in the system of scientific self-governance with regard to the distribution of grants by the DFG.

By voting you have the opportunity to choose individuals to represent your academic subject area and set the course for the distribution of grants by the DFG.

The online voting is open from 23 October, 2pm, to 20 November, 2pm. The distribution of the voting documentation will start end of September. Please [check here](#) for more information on the voting procedure.

Use your chance to vote in the review board election 2023 because your vote matters!

### Your publications – rules and opportunities

Within the CRC's project progress, we are awaiting eagerly your publications of expected results from your project work. This is the time to refer to some basic rules to follow, and opportunities to make your publication available to the scientific community and the public.

#### 1. DFG Funding must be acknowledged

DFG funding must be acknowledged in the form „Funded by the Deutsche Forschungsgemeinschaft (DFG, German Research Foundation) – SFB 1502/1–2022 – Projektnummer: 450058266“

#### 2. Compliance with CRC1502 Publication Guidelines

Please check the CRC1502 Publication Guidelines available on sciebo at ...CRC1502 Community > Media > Publication Guidelines. Please note, that e.g. results achieved by multiple groups or projects must be published jointly. Special rules apply if your paper uses unpublished data or results by other groups of DETECT. In this case authors must, prior to submitting, explicitly consult the providing groups

whether co-authorship or acknowledgement is appropriate.

Please, after journal submission of your final draft, provide a copy of your paper to the coordination office ([siegismund@geod.uni-bonn.de](mailto:siegismund@geod.uni-bonn.de)) for documentation. It will be provided on sciebo at CRC1502 Community > Media > Preprints.

#### 3. Make your publication as visible as possible

Once the publisher has accepted your paper, it becomes important to reach out to the readership. We recommend two approaches to reach the broadest possible audience:

a) Get in contact with Johannes Seiler ([j.seiler@uni-bonn.de](mailto:j.seiler@uni-bonn.de)). He is working as Science Editor at the Press Service of Bonn University. If you contact him in-time after acceptance of your paper, and if the paper fits, he might try to publish a press release simultaneous to the publication of your paper.

b) Get in contact with Mats Liedhegener ([digitalisierung@lwf.uni-bonn.de](mailto:digitalisierung@lwf.uni-bonn.de)). With his assistance you can then explain the key issues and results of your paper in a video clip applying the greenbox. This device was purchased for this very purpose of outreach. Your video will then be published on the DETECT website.

Please be furthermore informed that your publication may be subsidised by DETECT funds up to €750, provided that CRC is mentioned in the acknowledgments and certain prerequisites are complied with. The respective application documents will be published in short. Please contact Dorothee Berkle-Müller – [dberklem@uni-bonn.de](mailto:dberklem@uni-bonn.de) – for further information.

### DETECT's-Diversity Website has launched.

DETECT's Diversity, Equity and Inclusion Programme, in short DE-I-TECT, provides the framework to promote Equal Opportunities within our CRC, based on the three DE-I-TECT pillars DE-I-TECT Funds, DE-I-TECT Lecture and DE-I-TECT Networking.

For more information, please visit our website at: <https://sfb1502.de/diversity>



### Consultation hour of the DETECT scientific coordinator

We are happy to announce the establishment of the consultation hour of the DETECT scientific coordinator every Wednesday at 11:00-12:00 on the following link:

<https://uni-bonn.zoom.us/j/64872582245?pwd=OWo2WXpDMBUMXgyZzVBL0xNNUxEdz09>

The consultation hour serves as an open door for anyone in the DETECT team who is looking for support for their own project work or has suggestions for coordinating the entire CRC in

general or for specific upcoming challenges, or those who just want to talk about the exciting work in and for the CRC.

A waiting room is established, which means that meetings will be kept private by your request.

Please contact Frank Siegismund – [siegismund@geod.uni-bonn.de](mailto:siegismund@geod.uni-bonn.de) - for further information.

### DETECT's first Community photo

Finally the time had come: after almost 1.5 years since the SFB1502 was launched, the whole community met for the first time in person at their Retreat from 30.05. - 01.06.23 in Eitorf. Mood and weather were great, the programme was diverse an intense and exchange was going on all around the clock.



source: Mats Liedhegener „DETECT's first Community photo“

## Seminar room at the DETECT Coordination office

It is our great pleasure to announce that the wait is finally over!

After almost half a year our display and conferencing systems have arrived at our central Coordination Office in Kekulestr. 39a in Bonn.

Two 75-inch displays and one 85-inch state-of-the-art screens offer 4K visual representation and offer a lot of features that elevate our presentations and video conferences. Whether showcasing high-definition images, videos, or presentations, these displays enhance content beautifully.

All our displays come equipped with subwoofers, providing dynamic audio quality. The powerful bass and clear sound are creating an impressive audio ambiance complementing the high-definition visuals perfectly, offering a comprehensive multimedia experience.

Two of our displays have been enhanced with a video conferencing system, enabling efficient and smooth communication.

Our largest 85-inch display is mounted on an electrically height-adjustable rolling cart, providing mobility and adaptability. You can easily move it and adjust the screen's height to ensure optimal viewing for all participants.

The cart mounted 85-inch display is located in our conference room which accommodates up to 12 individuals (10 if you are using the display). It's the perfect space for workshops, meetings, and online gatherings. Plus, the added convenience of being close to the kitchen ensures a timely supply of refreshing beverages, keeping everyone fueled and energized throughout the sessions.

On **September 6, 2023 at 2pm** there will be an introductory session conducted by the supplier to familiarize everyone with the operation of the new systems. All interested colleagues are warmly invited to participate.

The seminar room is open for use by the DETECT community. Please get in contact with Sandra Juraga ([sjuraga@uni-bonn.de](mailto:sjuraga@uni-bonn.de)) to check for availability and make a reservation



source: Sascha Wüst

## Recent and Upcoming Events

29 August – 01 September 2023

### XVII Congress of the European Association of Agricultural Economists (EAAE)

**“Agri-food systems in a changing world: Connecting science and society”**



Agri-food systems have an important role to play in a changing world. The consequences of climate change are increasingly tangible and our planetary boundaries increasingly at risk of being crossed. As scientists, we need to create and share insights on how to transform agri-food systems into sustainable and resilient systems that increase prosperity in Europe and across the globe. Connecting science and society implies that agricultural economists push the boundaries of science and research to create societal impact. Congresses are triennial events that bring together the whole Association Membership, providing an important occasion for the exchange of innovative ideas on research and teaching in the field of Agricultural Economics and related ones. The XVII EAAE Congress will be held in Rennes from August 29 to September 1, 2023.

More info [here](#).

4–5 September 2023

### Workshop on Large-scale deep learning for the Earth system

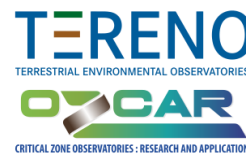
**Uniclub Bonn**

The last year has seen tremendous progress on large scale machine learning for numerical weather prediction. In the workshop we will take stock of the developments and discuss possible next steps and open research frontiers. For this, the workshop will bring together researchers from industry, modeling centers and academia and provide a forum for detailed discussions on the subject.

More info [here](#).

25–28 September 2023

### TERENO-OZCAR Conference



After the first French OZCAR and German TERENO research networks Joint Conference 2021 in Strasbourg this co-organised international meeting 2023 will take place in Bonn, Germany.

The event will offer keynote lectures oral presentations and poster sessions on scientific research on the Critical Zone, which is the most superficial layer of the planet where all human activities concentrate.

The conference will cover the cutting edge scientific progresses in a variety of disciplines: hydrology, geophysics, soil sciences, geochemistry, ecology, socio-ecology and will highlight interdisciplinary research to address critical zone functioning in the anthropocene. The meeting will also show how the use of multidisciplinary Critical Zone observatories, highly instrumented field sites where these disciplines interact and produce data and models, provide new insight for an integrated understanding of the critical zone.

More info [here](#).

23–27 October 2023

### WCRP Open Science Conference 2023



Every decade the World Climate Research Programme (WCRP) brings together communities from around the world to showcase recent and significant advances in climate science, identify gaps and opportunities, and jointly develop future plans.

The next WCRP Open Science Conference, focusing on “Advancing climate science for a sustainable future”, will be held in Kigali (Rwanda) and online on 23-27 October 2023, with the major goal of bridging science and society.

More info [here](#).





11–15 December 2023

**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](#).

## 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.

12.-14 Sep.	8:00-11:00	<b>Bundled Lectures</b> This will be an in-person event at the Forschungszentrum Jülich. The lectures will take place in building 14.6u, room 241.
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#### DETECT Land & Climate Seminar

Mondays at 10:15 ([zoom-link](#))

- |          |   |
|----------|---|
| 16. Oct. | Hakam Shams Eddin, Jürgen Gall:<br>'Deep generative networks for detecting anomalous events in the water cycle'           |
| 23. Oct. | Hakan Uyanik, Luciana Fenoglio:<br>'Observing river discharge and water storage from space'                               |
| 30. Oct. | Johannes Leonhardt, Ribana Roscher:<br>'Deep learning methods for satellite-based land use and land cover reconstruction' |



**18 – 22 September**

### **HPSC TerrSys Fall School**

This year's Fall School of the Competence Centre High-Performance Scientific Computing in Terrestrial Systems (HPSC TerrSys) on the topic of Terrestrial Modelling and High-Performance Scientific Computing will take place from 18 to 22 September 2023 at the University of Bonn. For a few remaining places registration is still open at:

[www.hpsc-terrsys-fallschool.org](http://www.hpsc-terrsys-fallschool.org)

Here you will also find further information on this course, which is aimed in particular at Master's and PhD students as well as interested postdocs. The **registration deadline** is **15 August 2023**.

The aim of this application-oriented course is to provide the theoretical and technical background of HPSC environments using stand-alone and coupled subsurface, land surface and atmospheric models.

The course is supported by the Geoverbund ABC/J and the Collaborative Research Centre CRC1502 'DETECT'

**30 November**

### **Status-Meeting 2023**

The agenda will follow in due time.

### **Dates already earmarked for 2024:**

Please enter in your calendar!

**15–16 May 2024**

### **Retreat at Hotel Vier-Jahreszeiten in Bad Breisig**

**26 June 2024**

### **General Assembly**

**28 November 2024**

### **Status meeting**

## **Other announcements**

· Dr. Yap Loudi from the National Institute of Cartography of Cameroon has received a SDG fellowship to visit the University of Bonn from January 2024, for 11 months. Yap has a background both in aquifer mapping with hydrogeophysical methods and in satellite geodesy, and his research topic in Bonn will be “monitoring of groundwater recharge in the transboundary aquifers over Tropical West Africa based on joint analysis of remote sensing, in situ and assimilation data”. He will engage with DETECT colleagues and provide a seminar.

· We (Gabrielle de Lannoy/KU Leuven, Matt Rodell/NASA GSFC, Jürgen Kusche/U Bonn) will be organizing an **online workshop** on assimilating GRACE/-FO data into hydrology and land surface models on **18-19 January, 2024**.

## **Publications**

...are published on our website

<https://www.sfb1502.de>



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