

# IFU HISTORIE

## 2023

### Participation in the “BMWK SME Innovation Day” on June 15, 2023 in Berlin

Together with the company Wuttke Ingenieure GmbH, we presented our joint research project “Automatic Land Surveying 5.0” at the BMWK’s SME Innovation Day in Berlin on June 15, 2023. About the project: Services for terrain surveying are carried out almost exclusively according to the classic principle of determining the measuring points with the help of laser measuring systems and the appropriate deployment of personnel. In the project, this process was automated by using carriages with attached surveying systems to carry out the entire survey automatically. As part of the project, a digital measurement based on Industry 4.0 was carried out for the first time. Furthermore, parallel to the creation of the survey points, a digital surface relief or geometric arrangements (trees, houses, etc.) were digitally recorded and assigned to the survey points.



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### Project start GREENER – “Single photon source and detector based on novel materials for the detection of endocrine disruptors”

On the 25th/26th The kick-off meeting to kick off the EU project GREENER took place in Brussels in January 2023.

About the project: Environmental monitoring of potentially dangerous substances such as chemicals or pharmaceuticals is of great social interest, especially in the areas of aquaponics or fishing, as excessive supply of hormones can lead to reproductive disorders. Nevertheless, a comprehensive measurement e.g. B. in rivers, wastewater and sewage treatment plants is a major challenge and is therefore only carried out in suspected cases.

The measurement technology necessary to detect such substances in concentrations of ng/L is currently only available in laboratories. There is therefore a great need for easy-to-use measurement technology to detect potential pollutants in the atmosphere, water, etc.

The GREENER project is the first to develop and provide a non-dispersive technology for a spectrometer as a nano-(opto-)electronic system with an electrically pumped single-photon source and a highly efficient single-photon detector.

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# 2022

## URMIT Environmental Heat Symposium Central Germany September 8th, 2022, Weimar

On 8. September 2022 the ZIM network "URMIT" on environmental heat for Central Germany will be presented for the first time public and offers an opportunity for exchange and networking. That by the Federal Ministry of Economics and climate protection funded innovation network is already developing approaches for research and development projects in the areas of heat storage, heat pumps, river, sea and geothermal energy and is still open to new partners, especially SMEs in central Germany.



Further information about the event: <https://urmit.de>.

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## Progress in the EU project Greenpeg

The part of the IFU within the GREENPEG project is the geophysical surveying and drone-based data acquisition. In the first period of the project, partner IFU was focusing on developing, setting up and testing the hardware for ground- and drone-based hyperspectral data acquisition. This includes the heavy-duty drone system and the acousto-optical monochromator for hyperspectral imaging. A detailed report on the project works can be found [here](#).



The video of our flights and results can be downloaded [here](#).  
[file size ~250 MB]

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## D-A-CH Meteorology Conference || March 21 - 25, 2022, Leipzig

At the D-A-CH meteorological conference, the specialist and advanced training conference for meteorology in German-speaking countries, we presented the latest developments in the temperature profiler product family at the accompanying exhibition.

We were very pleased about the lively interest and the pleasant conversations!



# 2021

## 2. Status workshop of the BMBF growth core HIPS: "Silicon meets ceramics"

On November 24, 2021, 9:00 to 16:30, the 2nd status workshop takes place (online). IfU GmbH presents the current project status on a poster titled "Use of Sicer sensors for optimizing photochemical and photobiological processes in a novel hybrid reactor".



Further information and registration: [www.sicer.de](http://www.sicer.de).

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## Greenpeg meeting in Leinster/Ireland

In the week from 18 to 22 October 2021, the 2nd Leinster Field Site Progress + Think Tank Meeting (Ireland) took place as part of the EU project Greenpeg. IfU GmbH participated in this meeting and presents the results of the ground- and drone-based geophysical data, which can be used to explore lithium-containing pegmatite occurrences.



Further information on the project can be found at: [www.greenpeg.eu/](http://www.greenpeg.eu/)

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## 3rd Workshop „Methods for measuring and forecasting air quality“

On 16 th September 2021 the workshop “Methods for measuring and forecasting air quality” took place for the third time - this year as online conference.

The workshop offered a platform for the exchange of experience with national and European players, taking into account already existing scientific and entrepreneurial activities and competences. The workshop was divided into the three topics:

- » measurement technology and innovations
- » models and forecasting methods
- » urban networks

You can download the current lecture program [here](#) as a PDF.

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## 1. Public status workshop of the growth core HIPS

The 1st public status workshop of the regional [growth core HIPS](#) took place as an online conference on 7th April 2021.

In the growth core HIPS, industrial companies and research institutions work together to bring the already patented SiCer technology, a unique combination of silicon technology (Si) with ceramic multilayer technology (Cer), to maturity. The common goal of the partners is to develop new high-performance sensors based on SiCer technology and to market them jointly in the future.

You can find our poster for download [here](#).

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## **Relocation of the MTP-5s from Erfurt to Jena**

After a multi-year measurement campaign in Erfurt, the MTP-5 of the climate agency of the Thuringian State Office for the Environment, Mining and Nature Conservation is again stationed in Jena. The first results on the urban climate in Erfurt can be seen on the [TLUBN website](#).

# 2020

## Successful installation of the MTP-5 together with the Czech Hydrometeorological Institute (CHMI)

On the roof of the observatory Tusimice in Kadan (CZ), a MTP-5-HE was installed on Oct. 19th 2020.

The CHMI needs high-resolution temperature profiles for e.g. ecological tasks such as air quality monitoring and forecasting. Also, an intercomparison of the data with the 80 m tower, radiosondes as well as RASS is planned.

In the future, the MTP-5 will be used as mobile measurement equipment for various sites.



## Registered practice partner of the University of Cooperative Education Saxony

Since 01.08.2020, IfU GmbH has been a registered practice partner of the University of Cooperative Education Saxony in the Information Technology - Information Technology course. The state study academies award their practice partners the seal of quality as a sign of appreciation and recognition of the often long-term trusting cooperation. This seal distinguishes us for the fact that we take responsibility for the next generation and actively participate in the academic and at the same time practical training of future specialists and managers.

Curious? If you are interested or have any questions, please do not hesitate to contact us.



## Experiment of SOFOG3D measurement campaign

In June 2020, the measurement campaign in the south of France ended after about 8 months of measurement. The data is currently being viewed and evaluated by the various research groups.

There are various publications planned, e.g. on the topic of fog prediction and forecast as well as a master thesis comparing the MTP-5 data with the conventional weather balloon and multi-channel radiometer.



## Start of the project Greenpeg – “New Exploration Tools for European Pegmatite Green-Tech Resources”

The manufacture of devices for green energy production and storage in Europe is a strategic, fast-growing sector which is essential in ensuring that the EU meets its energy and climate targets for 2030. A major limitation to this is that 95% of the key raw materials for green energy devices are currently imported from outside the EU. Geologically, lithium-caesium-tantalum (LCT) and niobium-yttrium-fluorine (NYF) pegmatites are relatively common in Europe, enriched in many CRM needed for energy technologies but difficult to explore because most are buried, small and clustered..



The GREENPEG approach will develop and test a set of high-level exploration technologies and algorithms to be integrated and upscaled into flexible, ready-to-use (TRL 7) toolsets for the identification of buried pegmatite ores. Validation of the new approach will be ensured from industry-led trials at locations in Austria, Ireland and Norway, while application studies will also be done in Finland, Portugal and Spain. The data acquired will enhance European databases, e.g. adding new petrophysical properties for pegmatite ores, making the toolsets also important for geological surveys and increasing the competitiveness of EU companies.

The project is funded by the European Commission under Grant Agreement No. 869274.

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### New equipment

In order to be able to respond even better to the wishes of our customers, we have expanded our "fleet" with the new large drone DJI S1000+.

The drone can hold up to 5 kg of measuring instruments and has a maximum flight time of 30 min. We are currently equipping the drone with a combined unit consisting of a multispectral camera, infrared camera and high-resolution aerial camera.

The drone made its first successful flight on an agricultural area in Saxony-Anhalt. Soil and tree structures were recorded using a multispectral camera, which provide nutrient-relevant data and are compared with the growth level of the crops.

The next use of the drone will be to survey old mining areas in Bavaria, in which a high-resolution magnetic sensor is used in conjunction with IR recordings to locate old shafts. The first test measurements have already been carried out and are very promising.



## Member of the Freiberg Geocompetence Center

We have been pleased to be an official member of the [Freiberg Geocompetence Center \(GCZ\)](#) since May 2020.

GCZ is actively involved in the implementation of the Saxon and European Raw Materials Strategy and, in particular, in the important issues of improving raw material awareness and R & D. GCZ supports the optimization of the framework conditions for responsible sourcing and the promotion of metallurgy as the "key enabler" of a circular economy.

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## Start of NiDroCherry project

Together with the project partners Lebosol, Senorics, Zaft e. V., Obsthof Schwitzky and Eurofins are researching the development of effective foliar fertilizers and a NIR measuring device for the convenient determination of foliar nutrients for optimal and sustainable plant nutrition in fruit growing. The project is funded by the Federal Ministry for Economic Affairs and Energy (BMWi) as part of the ZIM program.

An overview of the project consortium and the project goals using the example of the sweet cherry can be found [here](#).

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## 2. Workshop "Methods for measuring and forecasting the air quality"

On March 10th, 2020 our second workshop "Methods for measuring and forecasting the air quality (especially in metropolitan areas)" took place at the BEST WESTERN Hotel am Schlosspark in 09577 Lichtenwalde.



The workshop offers a platform for the exchange of experience with national and European players, taking into account already existing scientific and entrepreneurial activities and competences. The workshop is divided into the three topics: measuring technology, models and prediction as well as drone measurements.

This measure is co-financed with tax funds based on the budget approved by the Saxon State Parliament.



# 2019

## Installation at the Poprad-Tatry Airport, Slovakia

On Nov.20th 2019, we successfully installed our MTP-5 at the Poprad-Tatry International Airport. Together with MicroStep-MIS spol. s r.o., a fog forecast project for aviation will be started. The goal is to collect data in the winter season 2019/20. Thanks to Duzan Mazurek for the organization of the project and the support during installation.



Successful installation of the MTP-5 together with the Czech Hydrometeorological Institute (CHMI)

On the roof of the observatory Tusimice in Kadan (CZ), test measurements with the MTP-5 will be performed in August, 2019.

There will be an intercomparison of the data with the 80 m tower as well as RASS. The CHMI needs high-resolution temperature profiles for e.g. ecological tasks such as air quality monitoring and forecasting.

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## Installation of the MTP-5 at the SOFOG3D project in France

We successfully installed our device on top of the measurement trailer of MeteoFrance south of Bordeaux on 24th September 2019. It will take part in the SOFOG3D campaign during the winter 2019/2020. The progress of the works at the different sites is shown here.



You can find detailed information about the project on the SOFOG3D website as well as in an overview PDF.

Thanks to Vinciane Unger and Pauline Martinet of MeteoFrance for the possibility to participate!

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## “Workshop on microwave radiometer operation and calibration” || 28. -

### 30. August, Jülich

Zum von der Universität Köln am Jülich Observatory for Cloud Evolution (JOYCE) organisierten Workshop wurden verschiedene Beiträge zum Handling und der Nutzung der verschiedenen Radiometer präsentiert. Dazu haben wir unser MTP-5 auf dem Dach installiert und eine kurze Vergleichsmessung mit dem 120 m Mast und dem HATPRO durchgeführt.

Vielen Dank an die Organisatoren Dr. B. Pospichal und Dr. U. Löhnert.





Participation in exhibition MeteoExpo 2019 || 5. - 7. Juni 2019, Genf, Suisse

Worldwide the largest meteorological exhibition! In addition to many other exhibitors, we presented our latest products and the latest developments in the field of microwave radiometers at booth no. 6052.

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## **Abstract at DACH Conference|| 18. - 22. March 2019, Garmisch-Partenkirchen**

For the DACH Meteorological Conference, the specialist and advanced training conference for meteorology in German-speaking countries, a lecture was registered. At the accompanying exhibition we present you the latest developments of the product family of temperature profilers.



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## **1. Workshop "Methoden zur Messung und Vorhersage der Luftqualität"**

Our first workshop on the topic took place on February 7, 2019 "Methods for measuring and predicting air quality (especially in metropolitan areas)" took place at the BEST WESTERN Hotel am Schlosspark, August-Bebel-Straße 1 in 09577 Lichtenwalde.



Taking into account existing scientific and entrepreneurial activities and competencies, the workshop offered a platform for exchanging experiences with national and international actors.

We will be happy to provide the conference proceedings upon request.

# 2018

## MTP at exhibition || 9. - 11. October 2018, Amsterdam

Together with our partner Attex, we presented the new thermodynamic profiler MTP-7 at the Meteorological Technology World Expo in Amsterdam and provided information about the latest news about the MTP-5.



## Lecture: 19. International Symposium to promote boundary surface remote sensing || 22.- 25. May 2018, Cologne

As part of our partner network with the Russian company Attex, we presented a lecture entitled "Short-term forecasting of the temperature stratification in the ABL by using blending technology based on" during the 19th International Symposium for the Advancement of Boundary-Layer Remote Sensing in Cologne ground-based remote sensing and atmospheric modeling."



## Lecture: 11th German Climate Conference || March 5th - 8th, 2018, Frankfurt/Main

Together with our partner Attex we presented at the 11th German Climate Conference in Frankfurt/Main the measurement results of the new multi-channel radiometer MTP-7+.

In addition to vertical temperature profiles, this system also measures water vapor and humidity profiles up to 10 km altitude. In the lecture, the data from the self-calibrating system will also be compared with conventional measurements using radiosondes.

### 11. Deutsche Klimatagung

05.-08. März 2018

Frankfurt am Main



## Installation des MTP-5 in Mainz

On January 24, 2018, the meteorological temperature profiler MTP-5s was installed on the roof of the Rhineland-Palatinate State Environmental Institute in Mainz.

The Climate Change/Environmental Meteorology Department examines the urban climate here with a focus on air pollution control at various locations.

The vertical temperature profile data from the measuring device will soon be posted online on the state institute's website.



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## Installation of MTP-5 in Ratibor, Poland

On December 19, 2017, as part of a Polish-Czech research project of the Institute for Meteorology and Water Management - National Research Institute (IMGW-PIB) on the subject of air quality (monitoring and forecasting), a device was set up on the roof of the weather station in Ratibor/Poland. In the region there are major problems with poor air quality, especially in winter, due to the predominantly use of coal heating.

The measuring device provides important data on the vertical temperature stratification in the atmosphere in order to better predict air pollution and thus improve air quality in the long term through countermeasures.

