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DiveCropS
—
Contributions by
Geodesy and Geoinformatics
at Rostock University


Prof. Dr.-Ing. Ralf Bill
Rostock University
Faculty for Agricultural and Environmental Sciences
Professorship for Geodesy and Geoinformatics

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**PROFESSORSHIP FOR GEODESY
AND GEOINFORMATICS**

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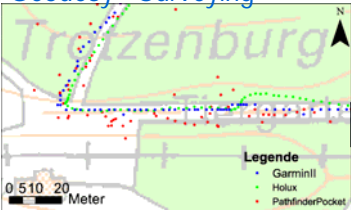
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Geodesy and Geoinformatics


- Founded as independent institute in April 1994.
- Interdisciplinary team of Geodesists, Geoinformaticians, Computer scientists, Geographers, and Environmental Engineers.
- In average around 15 collaborators (thereby 6 funded by the University).

⇒ Our Mission


Geodesy - Surveying




ubiquitous



Geoinformatics



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Presenters

- Prof. Dr.-Ing. Ralf Bill
 - Head of the institute
 - Studied Geodesy
 - Dr.-Ing. 1983 (Karlsruhe)
 - Professor since 1994

- Dr.-Ing. Görres Grenzdörffer
 - Head of research unit Photogrammetry and Remote Sensing
 - Studied Geography
 - Dr.-Ing. 2001 (Rostock)


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TEACHING

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GG-Teaching
(P-Mandatory, WP-Elective)


Study programme	Winter term (WS)	Summer term (SS)
Uni Rostock		
B.Sc. Agricultural Sciences	Precision Farming (P)	
M.Sc. Aquaculture		Geoinformatics (WP)
B.Sc. Environmental Engineering Sciences as well as external: Computer science, Biology ...	Introduction to Environmental Engineering Sciences (P) Cartography & Remote Sensing (WP)	Geodesy (P) Geoinformatics (P)
M.Sc. Environmental Engineering Sciences	Environmental Informatics (P) GeoProcessing (WP) Research project (WP) Open geodata (online) (WP)	Research seminar (P) Geolmaging (WP) Geoinformatics and Landscape Change (WP) Open geodata (online) (WP)
WINGS (HS Wismar)		
Remote study course M.Sc. Integrated development or peri-urban regions (ISLE)	Geoinformatics (WP)	

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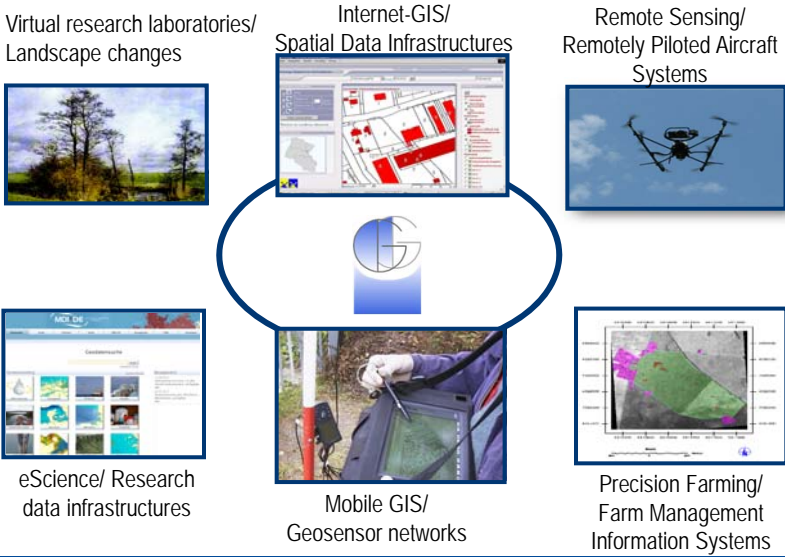
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RESEARCH

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Research in Geodesy and Geoinformatics



- Virtual research laboratories/
Landscape changes
- Internet-GIS/
Spatial Data Infrastructures
- Remote Sensing/
Remotely Piloted Aircraft
Systems
- eScience/ Research
data infrastructures
- Mobile GIS/
Geosensor networks
- Precision Farming/
Farm Management
Information Systems

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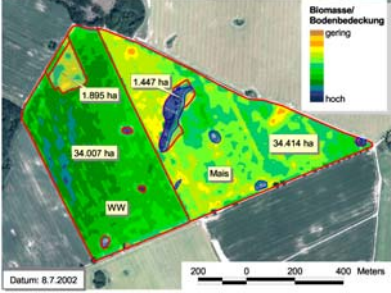
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Two major application areas

- Municipalities and counties
 - 3D, Augmented and Virtual Reality
 - Internet GIS
 - Spatial data infrastructures
 - Mobile GIS
 - Land use/land change

- Agriculture/Precision Farming
 - Remote Sensing
 - Digital terrain models
 - Geosensor networks
 - Spatial data infrastructures
 - Farm Management Systems





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CONTRIBUTIONS TO DIVECROPS

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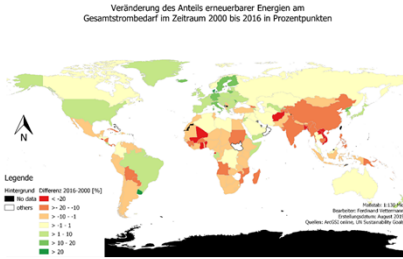
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Outcome 1 – Block 3 - Methodology


- Material preparation on GIS and Remote Sensing
 - Textbook
 - Open online unit:
 - GIS
 - UN Sustainable Development Goals




Veränderung des Anteils erneuerbarer Energien am Gesamtstrombedarf im Zeitraum 2000 bis 2016 in Prozentpunkten

Legende:
Hintergrund: Differenz 2016-2000 (%)
-10 bis -20
-20 bis -10
-10 bis -1
-1 bis 1
1 bis 10
10 bis 20
20 bis 30
30 bis 40
40 bis 50

**Introduction to
spatial information processing**
Ralf Bill (Editor)




Textbook for international GIS courses



Second Edition, Volume 17, 2019
Ralf Bill (Editor)
Faculty of Agricultural and Environmental Sciences
Chair of Geodesy and Geoinformatics

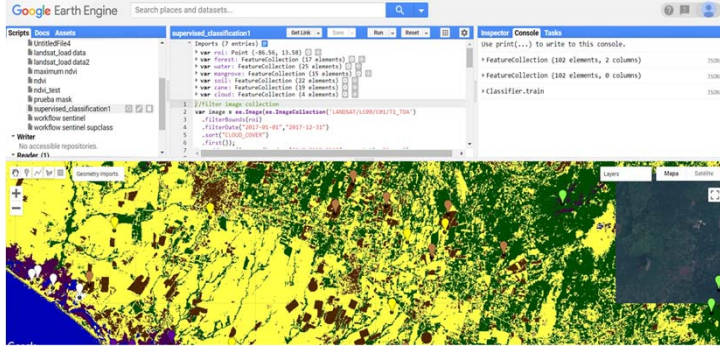
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Outcome 3 - Research themes

- Guest visit Alex M. Castellón Meyrat from Universidad Nacional Agraria (UNA), Faculty of Natural Resources, Department of Watershed Management => **Outcome 3**
 - Remote sensing with Google Earth Engine



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Outcome 4 – Workshop/Ideas for discussion

- Workshop for Ecuador
- Webpage : <https://www.auf.uni-rostock.de/professuren/h-w/pflanzenbau/divecrops/>

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Diversifying Cropping Systems—Traditional Knowledge and Innovative Approaches

Output 1 - Certificate Course on Diversifying Cropping Systems
(Lead: URS, URS/US)

Traditional knowledge and good regional knowledges

Aspects of Agrobiodiversity and results of biodiversity research

Methodology data collection, monitoring, environmental analysis, geo-informatics, statistics

↑

Output 2 – Practical experiences of local farming systems and student work with local farmers in selected regions (Lead: URS, URS/US)

Output 3 – Research themes on biodiversity and student work in research groups (Lead: URS, URS/US)


↑

Output 4 – Dissemination and networking (Workshops, Excursions, project web page) (Lead: URS, URS/US)

↑

Project partners: University of Rostock (URS), University of Applied Sciences (UAS), University of Primorska (UP), Technical University of Braunschweig (TU Braunschweig), National Agricultural University Maraga (UNAM), Wollongong College of

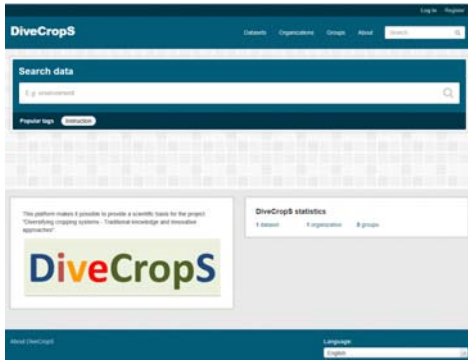
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Outcome 4 – Workshop/Ideas for discussion

- Common data portal
<https://divecrops.auf.uni-rostock.de/>
 - Web interface
- Fact sheet for regions
- Relevant data for the regions







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Table 2 Fact sheet of the Project Regions

Facts/ characteristics	Description
General information	
Country	
Name of the region	
Contact partner	
Description of the site	
Coordinates of center point or surrounding polygon (latitude, longitude in WGS84)	
Topographic information (altitude, ...)	
Climate information	
Soil characteristics	
Information on Land use	
Traditional farming practices (if available)	
Cropping practice (cultivated crops/trees/cropping system)	
Management (fertilizer/pesticide/irrigation etc.)	
Research questions/interests	
current research activities	
Interests and project ideas	
Student work	
participation of students in this region	
Kind of activities	
Student activities part of the curriculum? yes/no	
Available data sets	
Comments	

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- Online learning resources (own and collection of others)
 - Web framework
 - Learning content structure

	Lecture		Test
	Exercise		Additional material

