



FACULTY OF SCIENCE
Charles University

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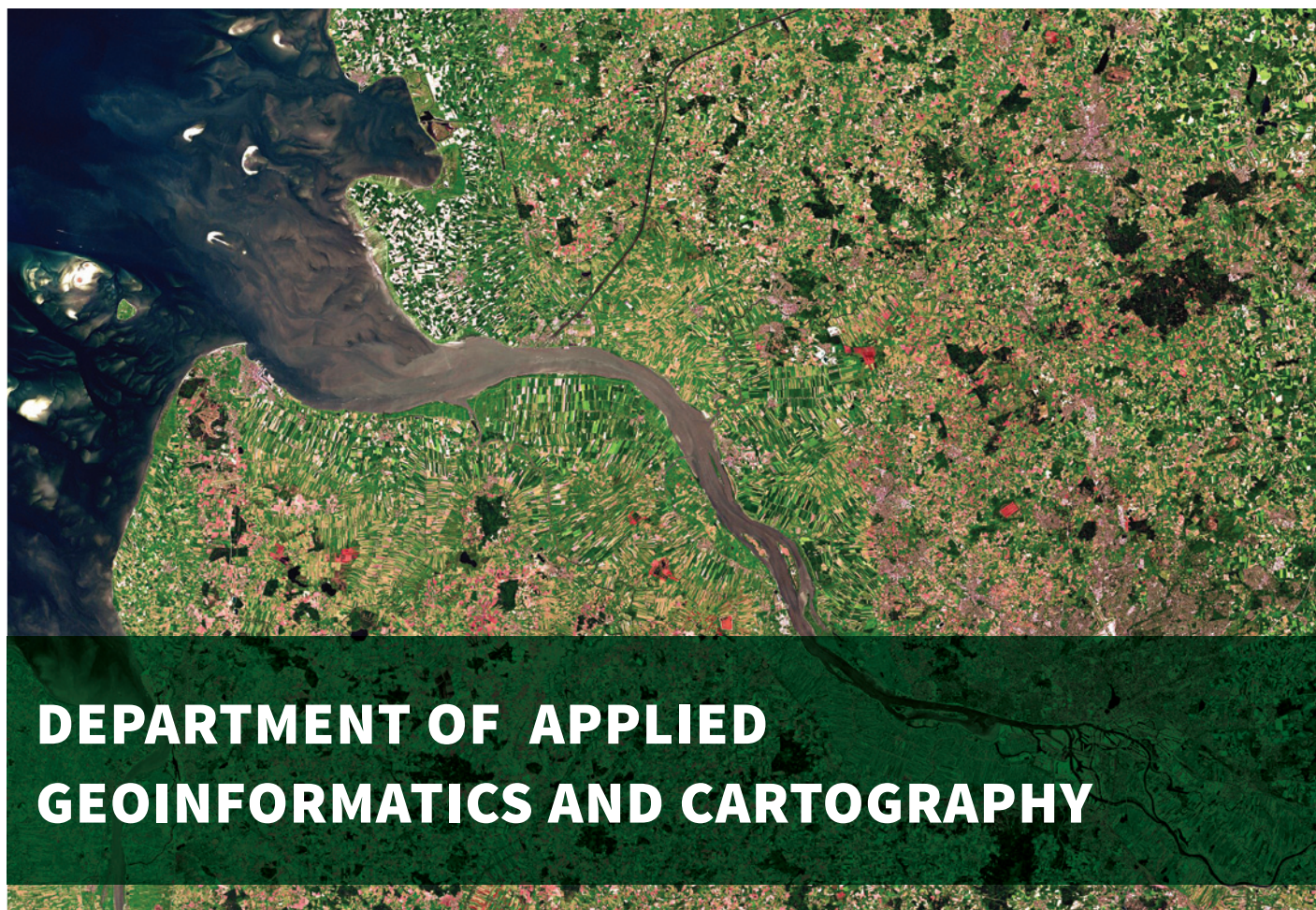
Department of Applied Geoinformatics and Cartography

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DEPARTMENT OF APPLIED GEOINFORMATICS AND CARTOGRAPHY

OFFER

- We can offer to our partner maps creation, programming in GIS and 3D, spatial analysis and creation of Spatial Data Infrastructure (SDI).
- We are looking for cooperation with academic partners, private and public institutions, and non-governmental organizations in the fields of geoinformatics, cartography and remote sensing.

**Our mission is to apply
geoinformatics and cartography
know-how and tools to explore
and monitor the environment
and to implement geoinformatics
in interdisciplinary research.**

KNOW-HOW & TECHNOLOGIES

GEOINFORMATICS, CARTOGRAPHY, REMOTE SENSING

- Spatial data modelling
- Application of GIS in environmental systems
- Mathematic cartography
- Photogrammetry
- Remote sensing
- Rock mapping using automation in cartography
- Derivation and application of digital terrain models
- Application of multispectral, hyperspectral and LIDAR data in land cover and vegetation research and in cartography
- Creation of mobile applications accurate 3D models of buildings and vegetation
- Creation of mobile applications

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CONTENT OF RESEARCH

The Department of Applied Geoinformatics and Cartography in Primary and Applied Research focuses on various topics, such as acquiring, processing and analysing geospatial data, geographic information systems, GIS, remote sensing, creation and evaluation of cartographic products, application of modelling and more.

MAIN CAPABILITIES

Analysis, consulting and/or assistance in the following issues:

- GIS
- Environmental modelling
- Cartography
- Remote sensing
- Laser scanning
- 3D
- Education and capacity building in geoinformatics
- Mobile Applications

KEY RESEARCH EQUIPMENT

- Software and hardware for satellite data processing
- Laboratory for hyperspectral and laser scanning data processing
- Field spectroradiometer
- Terrestrial laser scanner
- GIS and Spatial Data Infrastructure (SDI)
- High-quality GPS receivers

PARTNERS AND COLLABORATIONS

ACADEMIC PARTNERS

Humboldt University Berlin | University of Warsaw | Moravian Land Library in Brno | Czech Technical University in Prague | National Institute of Public Health | Space Research Centre of the Polish Academy of Sciences (PL) | South African National Space Agency (RSA) | African Regional Centre for Space Science and Technology in French (FRA) | Aristotle University of Thessaloniki (GR) | Heidelberg University (GER)

PRIVATE AND PUBLIC SECTOR

HCP International | Central European Data Agency, a.s. | Sprinx Systems a.s. | GISAT s.r.o. | Land Survey Office of the Czech Republic | Krkonoše Mountains National Park, Bohemian Switzerland National Park, Low Tatras National Park (Slovakia) | European Space Agency (ESA) | National Aeronautics and Space Administration (NASA) | European Spatial Data Research (EuroSDR)

MAIN PROJECTS

- INASAMP – Innovative tools for the automated management and updating of maps for navigation systems, the EPSILON programme for the support of applied research and experimental development, Technology Agency of the Czech Republic (TACR), 2015–2017.
- Earth Observation Capacity Building for Baltic Countries and Eastern Europe, European Space Agency (ESA), 2014–2018.

- FLOREO (Demonstration of ESA Environments in support to FLOod Risk Earth Observation monitoring) – the creation of a Web service to estimate flood risks through the processing of satellite data and ground measurements, <http://www.floreo.cz>
- EOPOWER (Earth Observation for Economic Empowerment), 2013–2015, Seventh Framework Programme, EU, <http://www.eopower.eu>.
- INMON – Innovation of Methods for Monitoring the State of Health Norway Spruce Stands in the Ore Mountains with the Use of Hyperspectral Data, 2012–2015, Ministry of Education, Youth and Sports.
- TEMAP – Technology for access to Czech map collections: methodology and software for the protection and re-use of national cartographic heritage, 2011–2015, Ministry of Culture: <http://web.natur.cuni.cz/gis/temap>.
- Mapping of natural foci of zoonoses transmissible to humans and evaluation of their adaptation due to climate changes. 2010–2014, Ministry of Health: <http://web.natur.cuni.cz/gis/klistata>.
- Assessment of Mining-related Impacts Based on Utilization of ARES Airborne Hyperspectral Sensor, 2009–2012, Czech Science Foundation.

ACHIEVEMENTS

- Development of the WINKART SW tool for work with different cartographic projections: <http://www.winkart.cz>.
- Development of the Detectproj SW tool for the estimation of unknown cartographic projections and parameters from maps: http://web.natur.cuni.cz/~bayertom/detect-proj/det_sw.html.
- Cooperation on the Georeferencer SW tool for visual integration of historical map layers and overlaying these on aerial imagery and modern base maps: <http://help.georeferencer.org>.
- Geoinformation Mobile Application „DoPřírody!“ – Mobile apps for Android phones. It allows navigation in natural areas: <http://mjakl.cz/doprirody>.

