Thematic Orientation

The training programme offers:

- technical-methodological skills in handling environmental and remote sensing data by employing geospatial technologies in the field of biodiversity, ecology and conservation
- promoting relevant competencies in the areas of higher education didactics, general academic communication, and professional practices, as well as providing support and guidance.
- interdisciplinary competencies, such as working with complex knowledge, knowledge acquisition management, self-management, the presentation of professional knowledge, academic writing in English, and the ability to work as part of international teams

For more information about the learning outcomes of the GeoTraining programme, please visit our Training Resource System.



The Training Resource System of the summer school GeoTraining 2025 is currently still being worked out.

Overall, the study subject of the GeoTraining programme is an innovative addition to the range of services offered for SPDL-scholarship holders from the German Academic Exchange Service (DAAD). The subject does not only address the group of agricultural, forestry, and environmental sciences, but invites young academics from Natural Sciences, Mathematics, Economics, Social Sciences, Life and Health Sciences.

The following overwiev provides an insight into the ongoing integration of geospatial technology in research and teaching, as well as in our everyday lives.

Geospatial technologies

Through the ongoing development of formerly complex geoinformatics systems towards applications suitable for the general public, the digital processing of environmental and remote sensing data has penetrated an increasing number of scientific, public, as well as social areas of life and work over the last decades. The computer-based applications used for processing environmental and remote sensing data are referred to as geospatial technologies. This encompasses technologies serving to collect, manage, analyze, and present spatial information, so-called geoinformation. The core components of geospatial technologies are geographic information systems (GIS), the area of remote sensing methods, global position, and navigation systems (such as GPS, Galileo) as well as digital globes. Whereas it is possible to present geo-referenced environmental data on different levels of maps via GIS, and thus, for instance, analyze spatial patterns, digital globes are conducive for the map-based communication of information which is linked by a geobrowser (such as Google Earth) to other media, for example, pictures, videos, and texts in Web 2.0.

Production and circulation of environmental and remote

sensing data

The production and circulation of environmental and remote sensing data has changed along with the technological developments throughout the last years. On the one hand, environmental and remote sensing data is provided worldwide by many public and academic organizations via open data initiatives. On the other hand, an increasing amount of environmental and remote sensing data is provided, managed, and made available to the public by volunteers in the context of volunteered geographic information (VGI). Against this background, it is not surprising that citizen science initiatives have increased drastically during recent years. One factor contributing to this is the increasing miniaturization of mobile terminals, such as tablets and smartphones, which allows environmental and remote sensing data in the context of “ubiquitous computing” to be retrievable for almost everyone, almost everywhere, and on almost all scales. The dream of Al Gore’s “Digital Earth” (1998) has come true by now. The information society is also a geoinformation society.

Geospatial technologies and academic research

The significance of the developments described is also reflected in academic research. Throughout the last decades, environmental informatics or geoinformatics as well - established itself as an academic field with its own university institutes, professorial chairs, textbooks, journals, and conventions. Integrative projects between individual scientific disciplines and geoinformatics have become the rule in the areas of agricultural, forestry, and environmental sciences, as the subject-specific research questions can generally only be addressed through an interdisciplinary combination of methods from the scientific disciplines and environmental informatics. This integrative cooperation of other disciplines with environmental informatics is also becoming increasingly common in the natural sciences, economics, social sciences, and life sciences. The interdisciplinary orientation of environmental informatics is also evident within the journals and conventions of this domain of knowledge, which cover a range of topics, including the spatial collection and analysis of the distribution patterns of biodiversity data, climate change data, and other environmental data in natural scientific as well as social scientific contexts from the local to the global scale.

Geospatial technologies and academic teaching

The ongoing inclusion of geospatial technologies into academic as well as social areas of life and work also offers new opportunities for academic teaching. From the point of view of the spatial citizenship approach, geospatial technologies are understood as socio-technical interfaces to the consumption and production of spatial environmental data and offer new opportunities for academic and political participation in academic teaching and learning. This especially refers to involving students in projects in the field of citizen science, in scientific projects, and in influencing how locally and spatially based knowledge is generated through the scientific process. Such learning arrangements also comply with the service-learning approach, that is based on performing a practical social service that is combined with subject specific and personality-shaping learning.

Geospatial technologies and sustainable development

The value of environmental analysis via geospatial technologies though is not only undisputed in research and teaching: In the area of development-related issues, geospatial technologies now play a key role, since the provision and analysis of environmental and remote sensing data via geospatial technologies is a major factor in sustainable development in economically and socially disadvantaged countries. As the United Nations Conference on Trade and Development (UNCTAD) explains, “the scale of the potential benefits of successful application of Geospatial Science and Technology in development means that this investment should be more than worth it” (2012, p. 4). Consequently, the goal of development cooperation should be fostering competences and autonomy in this domain of knowledge to reduce the dependency of private sector and state organizations in the areas of technical knowledge, use and infrastructure.

Case-based, authentic, and problem-based learning environment

The success of an advanced training programme aimed at conveying subject-specific, methodological, as well as interdisciplinary competences depends largely on the degree to which it is possible to create a case-based, authentic, and problem-based learning environment related to the participants’ previous experiences, therefore guaranteeing an orientation towards the work and the living environments. In light of the above, a specific project is the main focus for conveying the professional, research methodological, higher-education didactic, and theoretical educational competences. This project is the BIS-Fogo project, a project fostered and funded by the DAAD within the framework of a subject-related partnership with Cape Verde University in the support area of quality network of biodiversity.

The overall objective of this subject-related partnership is developing a participatory biodiversity information system (BIS) via geospatial technologies as a corpus of knowledge for gathering and managing biodiversity information on Cape Verde for science and civil society. The National Park of Cha das Caldeiras on the island of Fogo serves as a research area for the creation of a prototypical BIS. The project started in 2014 and finished in the end of 2017. Throughout the previous years, extensive environmental and remote sensing data have been collected, analyzed, and incorporated into a web-based digital globe and subject-specific learning resources have been developed.

The work on this case study has advantages in different areas for the GeoTraining programme: The subject-specific themes of biodiversity, ecology, and conservation areas are highly compatible with a lot of subjects and the participants are exposed to an authentic case study, that is, they contribute to a current DAAD project. Additionally, the case study opens links to the fields of citizen science, service learning, academic communication, and education.

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