

## **Satellite Data-based Modelling of Forest Eco-system Services of Forest Areas in China**

### **European PI(s)**

Prof. Barbara KOCH,  
barbara.koch@felis.uni-freiburg.de

### **Chinese PI(s)**

Dr. WANG Yunsheng,  
yunsheng.wang@giz.de

Forest regions often face particular challenges and fulfill many functions and as such have complex inter-relationships with other ecosystem services. Forests are central to the economies of the local mountain communities, yet they also play an important role beyond that, as they provide the extended region with water storage, nutrients, prevention of landslides and also commercial forest products such as timber or herbs. Timber harvest is the main contributing factor to the economy but in many regions also non-wood products are also highly important which may be followed by the effect of cultural sector (leisure/tourism) in some other areas. This mixture of functions can often lead to trade-offs in forest planning between the harvesting of timber and other functions.

The project will build a methodological base for modelling of forest eco-services using satellite data. The audience for this are stakeholders from the public and private sector including, communities and national policies. For the modelling the technology of remote sensing and existing spatial geo-data will be used to establish or/and enhance forest, land cover and landform information and to use this information for modelling of forest area characteristics in forest management level (stand and later up-scaled to watershed level). This information will then be used to provide input for modelling ecosystem services. The models will be tested, improved and regionally adapted during the project. This allows the comparison of competing services for future planning. In order to focus the research, a representative demonstration site (Sanming) is defined in China.

# 基于卫星数据建立中国森林区域森林生态系统生态服务模型

European PI(s) Prof. Barbara KOCH, barbara.koch@felis.uni-freiburg.de

Chinese PI(s) 王韵晟 博士 yunsheng.wang@giz.de

森林通常负有多重生态服务功能，并与其它生态系统的生态服务之间有着复杂的相关关系，因此，森林区域的规划管理往往面临特殊的挑战。对于森林周边的山区居民，森林既是当地经济的核心，又承担着其它诸如水源及营养涵养，水土保持等等重要的生态功能。一般情况下，木材是林区的主要经济来源，但在许多地区，非木材产品如旅游休闲、天然药材、天然食材等等同样占据重要经济地位。这些复杂的生态功能使木材砍伐和其它生态功能之间产生冲突，给森林规划造成困难。

本项目旨在开发一系列基于卫星数据的森林生态系统生态服务模型的建立方法。项目的目标群体涉及公共及私有领域的重要参与方，包括相关政府管理机构和社区区民。借助遥感和现有空间地理数据建立或增进森林、土地覆盖及地形等相关信息，并使用这些信息在森林管理单元级别（林份，并进一步扩大至分水岭）建立森林地区特征模型，最终，以这些森林特征模型为基础，建立生态系统服务模型。在项目执行期间，对这些模型进行测试、改进并根据不同地区情况进行调整。这些模型可在森林各类生态服务之间进行比较和损益分析，为森林规划提供决策支持。项目选取福建省三明市为试点地区。