



University of Stuttgart  
Germany

# The DAAD Thematic Network Modern Geodetic Space Techniques for Global Change Monitoring



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## The Thematic Network

The Thematic Network for Modern Geodetic Space Techniques for Global Change Monitoring, coordinated by the University of Stuttgart, is an international network consisting of six universities and research institutions.

University of Stuttgart, Germany

Wuhan University, Wuhan, China

Tongji University, Shanghai, China

German Geodetic Research Institute, Technical University Munich, Germany

University of Luxembourg, Luxembourg

Chinese Academy of Surveying and Mapping, Beijing, China

The project is funded within the “Strategic Partnership and Thematic Networks” Funding Scheme of the German Academic Exchange Service (DAAD) for the duration of three years (2015-2018).

The University of Stuttgart and Wuhan University look back on a two-decade history of collaboration, both in teaching and in research. By establishing the Thematic Network, this partnership extends to a veritable network with four more partners in China and in Europe.

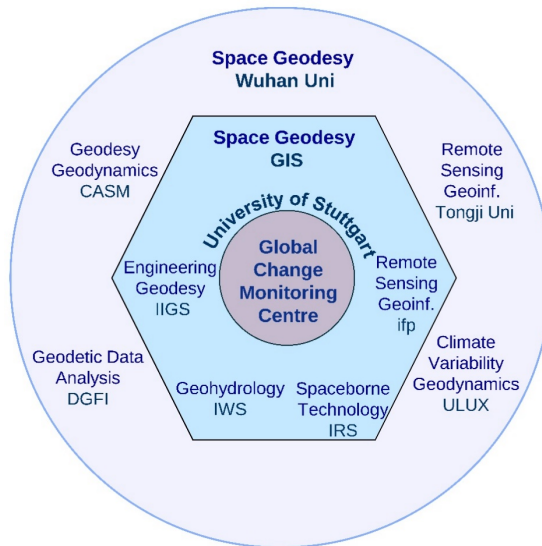
Two objectives will be achieved by the proposed measures.

1. In the education sector, both students (at all levels) and teachers enjoy increased international exchange options to and from Stuttgart.
2. In research, the network acts as a platform for more intense collaboration and for new joint projects.

Both objectives support the internationalization strategy of the University of Stuttgart aiming at improving the quality of teaching and research.



## The Theme



The aggregated network's expertise in spaceborne geodetic technology, in satellite data analysis and in monitoring and modeling of global change phenomena provides the disciplinary basis of the Thematic Network. Satellite geodesy plays a major role in the long-term monitoring of essential climate variables. Notable examples are:

- sea-level rise, from satellite altimetry
- melting of the Greenland and West-Antarctica ice sheets, from spaceborne gravimetry
- tectonic deformations of the Earth's crust, from global networks of GPS stations.

Overall, geodetic techniques provide the metrological means to monitor global change. Satellite techniques, due to their synoptic view and global homogeneity, are key information providers to many agencies, e.g. the reports of the Intergovernmental Panel on Climate Change (IPCC).

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## Mobility

The network supports mobility in both directions and gives students, researchers and teaching staff the opportunity for gaining experience and knowledge abroad. To that purpose the network intensifies the joint supervision of MSc and PhD students.

## Scholarships and Research Stays

The network provides scholarships to master students and post-graduate junior researchers, consisting of a full scholarship and a travel allowance. In addition, the collaboration offers a joint Chinese-German supervision of MSc and PhD thesis. For more information on the scholarship program visit <http://themnet.gis.uni-stuttgart.de/scholarships/>.

The University of Stuttgart and its partner institutions organize a successful exchange of university personnel, researchers and students between their departments. In 2016 the network supported 9 students, 3 PhD students, 4 Post-Docs and 7 researchers in the exchange program and plans to extend the number of incomings and outgoings in the future.



Exchange students and Prof. Grafarend



Christmas party 2015

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## Joint Research Projects

Researchers of the network are working together on various projects. The project Dragon-3: “Current and Future Geodetic Satellite Missions for Global Change Monitoring” (2013-2016) was completed and final results were presented at a symposium at Wuhan University in July 2016.

The follow-on project Dragon-4: „Monitoring Lake Level Variations over the Qinghai-Tibet Plateau by Consistent Multi-Satellite Altimetry” had its kick-off in 2016 and is running until 2020.

The latest proposed major project „Joint International Research Laboratory on Modern Geodesy and Geodynamics” is an exchange between the Wuhan University and the University of Stuttgart and is funded by the Chinese Ministry of Education (MoE). It addresses the long-term prospects of the Thematic Network and runs until 2020, with the option of extension.



Final Results Dragon-3 and Kick-off Dragon-4



Final Results Dragon-3 and Kick-off Dragon-4

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## Network Meetings and Delegation Visits

During the first Kick-off Meeting in Stuttgart in November 2015, delegates of the network came together to discuss the strategies and the organization of the Thematic Network.

In May 2016, scientists from all European partner institutions participated in a delegation visit to China. Cooperative research and international exchange were at the center of this one-week delegation mission. In addition, strategy meetings, lectures and presentations on topics such as geodesy, hydrology, climate change, and geodynamics were held in order to deepen academic exchange.



Network meeting in Stuttgart, November 2015



Delegation visit to CASM, Beijing, May 2016

The Second Network meeting took place in Stuttgart in March 2017. Delegates from the Chinese partner Universities exchanged information about the current status and upcoming events such as the Summer School in Wuhan in July 2017.

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## Workshops

The first Thematic Network Workshop in Stuttgart in July 2016 was one of the highlights. 44 professors, researchers and students from all partner institutions in China, Luxembourg and Germany joined the three-day meeting. A number of lectures, presentations and discussions led to an extensive and successful academic exchange. The Thematic Network supplies funds for conference participation of researchers from our partner Universities.



Poster presentations at the Workshop



Workshop in Stuttgart, July 2016

## Summer School

The Thematic Network organizes a Summer School on Geodetic Techniques for Global Change Monitoring for MSc and PhD students in Wuhan, China in July 2017. The program of the one-week event consists of lectures, laboratories and a social program.

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