

# Training on Space Cooperation for Global Health



Remote sensing technology can continuously monitor large-scale surface, obtain environmental factors related to spread of disease, and improve the accessibility of environment-related elements in public health domain. GIS can be used not only to analyze the geographical distribution of public health status, disaster-affected populations, locations of diseases, but also to study the rational allocation of health care facilities and medical geography, emergency control measures to provide emergency decision support.

With the rapid development of space technology and applications, UNOOSA (United Nations Office For Outer Space Affairs) has attached increasing importance to “space cooperation for global health” and listed it as one of the thematic priorities of UNISPACE+50 Preparatory Activities in 2016 (thematic priority 5: Strengthened space cooperation for global health). In response to the implementation of the Belt and Road Initiative and UNISPACE+50, Chinese Academy of Sciences (CAS) and China National Space Administration (CNSA) will support the organization of a training program on how to use Remote Sensing (RS) and Geographic Information System (GIS) for monitoring and assessing environmental public health. It is expected to improve space application capacity in global health and promote international space cooperation in developing countries, especially the Belt and Road countries. The training, focusing on environmental public health, has been finalized as “Training on Space Cooperation for Global Health”.

## Expected Participants

Opportunities are expected to provide for professional researchers, managers (including local space officers) working in the fields of public health and space technology applications.

## Objective

- ✧ To improve the use of space technologies and space-based information and systems in the global health domain.
- ✧ To promote enhanced cooperation and sharing of information in emergencies, epidemics and early warning events, as well as on environmental parameters.
- ✧ To enhance capability in integrating health data in disaster management plans.
- ✧ To strengthen capacity-building in advancing space technologies in global health efforts.

## Content

It will cover various fields including the application of RS&GIS in public health, theory and

model; environment and health big data; ARCGIS and Supermap software latest features and applications; GIS development for Emergency management and decision-making support in public health field, etc. The training will be divided into two sessions: lecture session and hands-on practice session.

A professional visit to Harbin will be arranged after the training courses. At the same time, A Forum on Space and Global Health will be held in Harbin during the time to celebrate the China Space Day (April 24, 2018). All the participants will be invited to the Forum and give some introduction on their practices or requirements on Global Health using space technology. Keynote speeches on space cooperation for global health will be invited among the participants.

### **Session 1: The application of remote sensing and geographic information system in public health**

A comprehensive, systematic and in-depth introduction of the latest remote sensing data sources and remote sensing technologies, together with the role and application of geographic information technologies in public health and health, popularization of relevant theories, methods, technology and China's relevant policy and management experience, will be involved. The exploration of the application and development prospects in other countries in specific circumstances will also be addressed.

### **Session 2: Theory and model**

Include introduction to the principles and application of spatio-temporal propagation models for infectious diseases; warehouse model, meta-population model, generalized linear model, differential auto-regressive moving average model, agent model, niche model and network agent model Construction; spatio-temporal dynamic monitoring of disease outbreak and model simulation and forecasting; geography detector principle and model.

### **Session 3: Environment and health big data**

Introduce some large and medium-scale resource and environment datasets, including water resources, land cover, ecological environment and their change, infrastructure, etc., learn their data production standards and procedures, data quality control processes, data inspection and storage, also data dynamic update method, and how to deal with humanistic data (population, economy, disease), which are usually displayed in administrative statistics unit, in geographical statistics units (rule geographic grid), how to construct a spatio-temporal data base for the integration of humanistic data and natural data

### **Session 4: Latest features of leading GIS software and applications**

Introduce the latest ArcGIS features in aspects of geographic statistics, mapping, data processing, and extension modules. Focus on ArcGIS GeoAnalytics Server, ArcGIS Image Server, ArcGIS Server and ArcGIS Online. SuperMap, as the leading GIS software package, its desktop platform

(SuperMap Viewer, SuperMap Express and SuperMap Deskpro) and application products (SuperMap SGS, SNE, SuperMap D) will also be included mainly by introducing application examples of new software features.

### **Session 5: Emergency management and decision-making system in public health field based on GIS**

According to the tasks of the public health and safety emergency management system, the outbreak analysis and decision-making system can be constructed based on the GIS platform to increase efficiency of emergency response and decision-making. The construction of basic geographic database, remote sensing image database, public health event database and material and drug reserve database will be included. The essential function of GIS & GPS for dispatching ambulances and monitoring vehicle status based on urban geographical vector data, and general and specific analysis capabilities for applications in health domain.

## Experts

Members of Expert Group on Space and Global Health of the Scientific and Technical Subcommittee (STSC) and related international experts in the fields of Global Health and Public Health will be invited to give lectures. Some experts are listed here.



Society of China.

Dr. Wang, Wuyi, Professor of Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, is a senior member of International Geographical Union's Commission on Health and Environment (IGU CHE) and Chairman of Medical Geography Committee of the Geography



Dr. Liu, Chuang, Professor of Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, is the Editor-in-Chief of Global Change Research Data Publishing & Repository and Associate Chief Editor and Director of Journal of Global Change Data & Discovery, Co-Chair of CODATA Sub-group of data publishing in developing countries, Member of GEO (Group of Earth Observation) Data Sharing Working Group and Director of China GEO data publishing center.



Dr. Zhuang, Dafang, Professor of Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, Chinese expert in UNOOSA, is also Chairman of GIS in Health Professional Committee in Chinese Health Information Association, and expert of

Public Health Emergency in Chinese Ministry of Health.



Dr. Juanle Wang, professor of Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, is vice director of Department for Geo-data Science and Sharing, and the director of World Data Center Renewable Resources Environment of ICSU-WDS. He currently interests in: scientific data sharing in resources and environmental field, the space information system of Belt and Road Initiatives, knowledge service system of disaster risk reduction.



Dr. Xiaopeng Qi is an associate professor, Deputy Director of National Center for Public Health Surveillance and Information Services, Chinese Center for Disease Control and Prevention (China CDC). She has worked on system requirements analysis, GIS spatial analysis, and disease surveillance system implementation at the China CDC for more than 10 years and finished two-year public health informatics fellowship program in US CDC from 2009 to 2011. She has involved in several projects, such as WHO Micronutrients Intervention Indicator Inventory System design and requirements analysis, implementation of China Information System for Disease Control and Prevention, spatial pattern study on cancer mortality and environmental pollution. Her current interests are in GIS application in public health, disease surveillance system design and assessment.

## Language

- ✧ English

## Location

- ✧ Beihang University, Beijing, P.R. China
- ✧ Institute of Geographic Sciences and Natural Resources Research, CAS

## Organizers



- ✧ Institute of Geographic Sciences and Natural Resources Research, CAS
- ✧ Regional Centre for Space Science and Technology Education in Asia and the Pacific (China) (Affiliated to the United Nations) (RCSSTEAP)

## Supported by

- ✧ Chinese Academy of Sciences (CAS)
- ✧ China National Space Administration (CNSA)

## Registration

- ✧ The number of participants in the training is limited to a maximum of 40.
- ✧ Selected Applicants from the partners of CAS, RCSSTEAP and early registrants will receive priority for financial support (including expenses for round-trip and local accommodation in China) will be available for some early-birds. Please apply as soon as possible (Self-funded participants will be greatly welcomed).
- ✧ The applicants who want to register are required to complete the application form (please visit [www.rcssteap.org](http://www.rcssteap.org) to download it) and prepare a Curriculum Vitae (CV). Please mail the required documents to the two contacts below before March 9, 2018.

**Dr. Jianfeng He** Email: [hejianfeng@igsnrr.ac.cn](mailto:hejianfeng@igsnrr.ac.cn), Tel: 86-10-64888819

**Ms. Yizhuo Cui** Email: [cuiyizhuo@buaa.com](mailto:cuiyizhuo@buaa.com), Tel: 86-10-82338937

## Important Dates

- ✧ Deadline of the application is **March 9, 2018**.
- ✧ The results of admission will be notified before **March 16, 2018**.
- ✧ The training will be held from **April 12 to 26, 2018**.

**Application Form**  
**(Training on Space Cooperation for Global Health)**

<b>Name</b>	<b>Family Name</b>		<b>Given Name</b>	
<b>Date of Birth</b>	(yyyy/mm/dd)			
<b>Gender</b>	<input type="checkbox"/> Male <input type="checkbox"/> Female			
<b>Passport No.</b>				
<b>Nationality</b>		<b>Mailing Address</b>		
<b>E-mail</b>		<b>Telephone</b>		
<b>Affiliation (Organization Name)</b>				
<b>Division Name</b>				
<b>Job Title</b>				
<b>Necessity of Visa</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No			
<b>Chinese embassy or consulate where you will apply</b>				
<b>Financial Support Required ( Expenses for round-trip and accommodation)</b>	Round trip travel to Beijing, China <input type="checkbox"/> Yes <input type="checkbox"/> No			
	Accommodation for the duration of the training <input type="checkbox"/> Yes <input type="checkbox"/> No			
<b>Title of Suggested Presentation in the training course</b>				
<b>Brief Description of Presentation (max. 600 words)</b>				