



***CODATA International Training Workshop in Big Data for Science,  
for Researchers from Countries with Developing or Emerging Economies  
Beijing, China; 4-17 July 2016***

**Applications are invited from early career researchers as well as from research leaders and managers of research institutes from countries with developing or emerging economies to participate in the CODATA International Training Workshop in *Big Data for Science*, Beijing, 4-17 July 2016. Participation for successful applicants will be financially supported, thanks to a grant from the Chinese Academy of Sciences (CAS). The deadline for applications is 18 April.**

### **Workshop Objectives**

In today's data-rich world, streams of digital data are being generated from science facilities and myriad sensors (telescopes, video cameras, traffic monitors, magnetic resonance imaging machines, and biological and chemical sensors monitoring the environment etc). Combined with the increasing ability for large-scale storage, communication and analysis, the Data Revolution presents major opportunities for science. The [Science International Accord on 'Open Data in a Big Data World'](#) highlights the most important issues to be addressed if these benefits are to be realized. These include the Open Data imperative, the need to maintain the scientific self-correction and the ethical constraints which must be respected. Equally important is the need for open global participation in the benefits of the Data Revolution. Systemic capacity building and targeted training in Big Data and data science are essential if this is to be achieved in countries with emerging or developing economies.

The mission of [CODATA \(Committee on Data for Science and Technology\)](#) is to strengthen international science for the benefit of society by promoting improved scientific and technical data management and use. Building data science capacity in countries with developing and emerging economies (in part through promoting technical training in data science, in data management and in the implications of Big Data for science) is an important part of CODATA's strategy.

The training program offered aims to engage participants with a number of facets of data science and data management in the Big Data age. Topics include, but are not limited to, interdisciplinary applications of open research data, data intensive research, data management policies, cloud computing, visualization, analytics and data infrastructure development in the Big Data Age. Through a mix of theoretical study, workshop and practical sessions as well as field visits, the organizers aim to help participants develop a deeper expertise in the latest Big Data technologies for scientific discovery.

The CODATA International Training Workshop in Big Data for Science shares the objectives and much of the content of the [CODATA-RDA Research Data Science Summer Schools](#) and is partnering with that initiative. Applications are invited from 1) early career researchers with an interest in data science, and 2) research leaders and managers of research organisations who are interested in putting on a similar short course at their home institution or with partners in their country.



A number of activities will be organized involving elite Chinese scientists, in order to promote knowledge sharing and to develop opportunities for future exchanges and collaboration. Participants will benefit also from visits to a number of leading research institutes of the Chinese Academy of Sciences (CAS). In these visits, participants will have the opportunity to learn from the scientific approach, management expertise, knowledge development and practical application that characterize activities at CAS institutes working at the frontiers of research. Furthermore, the program will promote interaction and exchange of knowledge between experts and participants and among participants who will benefit greatly from exchanges with colleagues for a variety of academic and national backgrounds.

On 7-8 July, the [International Society for Digital Earth](#) is convening the [6th Digital Earth Summit](#), a major event involving many international experts and in which CODATA is playing an important role. Participants in the training workshop will also benefit from participation in the Digital Earth Summit.

## Course Content

The Training Workshop curriculum will include an overview of international development in Open Data and Big Data (including the Science International Accord, the strategic Initiatives and activities of international coordinating bodies like [CODATA](#), the [ICSU World Data System](#) and the [Research Data Alliance](#)), the principles and practice of Open Science and research data management and curation, the principles and practice of software development and the use of research applications, the development of a range of data platforms and infrastructures, the techniques of large scale analysis, statistics, visualisation and modelling techniques, case studies and best practice of research in the Big Data Age.

## Training methods and activities

The program will take a comprehensive approach, including intensive theoretical lectures, advanced seminars as well as workshops and practical sessions. Trainees will also benefit from visits to prominent CAS research institutes, involving meetings with elite Chinese scientists.

## Participants

The target participants are researchers from countries with developing or emerging economies.<sup>1</sup> Applications are invited from:

- 1) early career researchers with an interest in data science and Big Data; and,
- 2) research leaders and managers of research organisations who are interested in putting on a similar short course at their home institution or with partners in their country.

The total number of participants will not exceed twenty.

## Program Language

English. Participants must have good command of English.

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<sup>1</sup> The working definition of countries with developing or emerging economies is that used by the International Monetary Fund: 'Emerging and Developing Economies' <https://www.imf.org/external/pubs/ft/weo/2015/02/weodata/groups.htm#oem> - researchers from countries defined here as having emerging or developing economies are eligible to apply.



## Participants Qualifications and Requirements For Admissions

1. Although not an absolute requirement, it will be considered an advantage in the selection process for participants to be nominated by his/her National Committee of CODATA by a CODATA Task Group, or to be otherwise involved in CODATA, ICSU-WDS or RDA activities or in an ICSU sponsored programme;
2. Applicants selected for the CODATA International Training Workshop in Big Data for Science in Beijing, 4-17 July, will not be eligible for the first CODATA-RDA Research Data Science Summer School at ICTP, Trieste, 1-12 August;
3. Applicants should be under 50 years old and meet the requirements set in 'Participants' above;
4. Applicants must be proficient in English reading, listening, speaking and writing and must indicate appropriate qualifications or similar to demonstrate this in their applications and/or CV;
5. Applicants agree to prepare a review paper on the development of data science, Open Science and Big Data in her/his respective country and research;
6. Applicants must pledge to observe all the laws and regulations of the P.R. China and respect local customs during the training period in China;
7. Applicants must declare that they are in good health, with no infectious disease, and physically capable to fulfill all course activities.

## Training Expenses

1. The expenditure of training, international travel costs, board and lodging, local transportation for the purpose of training during the training period in China for the participants is to be funded by Chinese Academy of Sciences.
2. All the other possible expenses, such as insurance, cost of medical care, and telephone fee during the training period will be borne by the participants
3. The program organizer will buy Personal Accident Insurance for all participants during their training.

## Examination and Certificate

When the program is completed, trainees will be awarded the Certificate of Program Completion. Participants will be required to write a paper and make a presentation on Open Science, Big Data and other data for science issues in their own country.

## Date and Duration

The training program will take place from 4-17 July 2016.



## Venue

Computer Network Information Center, Chinese Academy of Sciences  
Address: No.4, Nan 4th, Zhongguancun, Haidian District, Beijing, CHINA

## Sponsors

Committee on Data for Science and Technology (CODATA)  
Chinese Academy of Sciences (CAS)

## Organizers

CODATA International Secretariat  
Chinese National Committee for CODATA  
Computer Network Information Center, Chinese Academy of Sciences

## Application Procedure and Deadline

Applications should be completed on the designated form, providing all the requested information and an academic CV. Completed applications should be submitted **to the addresses below by the deadline of 00.00 UTC on 18 April 2014:**

Dr. Simon Hodson, Executive Director, CODATA

E-mail: [simon@codata.org](mailto:simon@codata.org)

Ms. LI Chang, CODATA-China Secretariat

E-mail: [lichang@cnic.cn](mailto:lichang@cnic.cn)