International Council for Science (ICSU)

CODATA

Newsletter 93

Committee on Data for Science and Technology

CODATA Congratulates Dr. Krishan Lal

CODATA congratulates Dr. Krishan Lal on his election as President of CODATA at the 25th CODATA General Assembly in Beijing in October 2006. Dr. Lal is INSA Senior Scientist, Former Director of the National Physical Laboratory, New Delhi, India. He has made significant contributions in research and development, scientific leadership, and developing international collaboration. For more information see http://www.geocities.com/klalnpl/

January 2007
Highlights

The Committee on Data for Science and Technology (CODATA) was established in 1966 by the International Council for Science (ICSU). The mission of CODATA is to strengthen international science for the benefit of society by promoting improved scientific and technical data management and use.

http://www.codata.org
http://dsj.codataweb.org

Message from the President, Dr. Krishan Lal

As the newly elected President of CODATA I welcome the opportunity to share with you some of my thoughts and aspirations for CODATA as we start 2007.

We all are experiencing an unprecedented rate of advancement in science and technology as well as in their applications for wider usage by common man. Scientific data have been one of the key components that have propelled the growth of science and technology. The International Council for Science (ICSU), realizing its vital importance, established in 1966 a multi-disciplinary Committee on Data for Science and Technology (CODATA). Recent spectacular achievements in information technology have changed the way scientific research is being carried out. Similarly, modes of storage, dissemination, archiving and management of data have undergone much change. It is now possible to network with research groups located anywhere in the world through internet and to transfer huge amount of data and other information practically without loss of time. It is hoped that the possibility of networking of a large number of research groups together with possibilities of grid computing and other recent developments will be instrumental in taking science to new heights. Technological developments are expected to transform human society.

CODATA has been actively involved in communicating the aspirations and viewpoint of the scientific community as a stakeholder to the recently held UN sponsored World Summit on Information Society. A new initiative on Global Information Commons for Science has been launched by CODATA and its collaborating partners. CODATA aspires to reach out to scientists in all regions of the world, particularly in regions that have not gained adequately from international cooperation. We are deeply concerned about lack of infrastructure in most of the developing world, which is hampering their efforts to take full benefit of the IT revolution, particularly for the applications of internet in improving education, health, environmental protection and efficiency of administration. It has taken initiatives to help bridge the digital divide.

Message from the President,
Dr. Krishan Lal *(continued)*

Also, CODATA is working on new schemes for young and budding scientists all over the world. Efforts are on to enhance collaboration with the industrial sector for partnership in development of new areas of science and technology. Of course, the main challenge before CODATA is to enhance and encourage activities that support high science and high technology together with their applications for societal development.

CODATA wishes to establish even stronger working relationships with ICSU and its Unions and other bodies like INASP and ICSTI as well as international organizations like UNESCO, UNIDO, UNDP and the World Bank.

CODATA has an ambitious vision and challenging goals, which can only be realized through cooperation and collaboration at global scale. Therefore, we welcome participation of scientific communities from all parts of the world and from organized sectors like scientific unions, international organizations and industrial establishments to achieve targeted results.

2006-2010 promises to be an exciting period for CODATA as we embark on formalizing our Strategic Plan as discussed in Beijing and initiate steps to implement it. As President of CODATA, I would like to convey my sincere appreciation to the entire CODATA family for valuable contributions and strong support. I sincerely look forward to working with our members, associates, and the greater scientific data community over the coming years to scale greater heights.

It gives me immense pleasure to acknowledge the hard work and dedication of the outgoing President, Professor Shuichi Iwata over the last four years. It is thanks to his work and that of the out-going Executive Committee that CODATA is what it is today.

Finally, I would like to wish each one of you a happy, healthy, harmonious and prosperous 2007.

Sincerely,
Krishan Lal ◉

CODATA Prize Award Winner,
Dr. John Rumble

The 2006 CODATA Prize has been awarded to Dr. John Rumble, Technical Director for Information International Associates. Rumble received the prize in Beijing, China, on 22 October 2006. The prize is awarded biennially for outstanding achievement in scientific and technical data.

Rumble, former Director of the Standard Reference Data Program at the National Institute of Standards and Technology (NIST), was honored for being "an innovator in the world of scientific and technical data." He has been instrumental in extending data evaluation techniques in new disciplines, including engineering, materials, and biotechnology. Rumble has long been a leader in using advanced information technology for developing computerized databases, online data networks, and data exchange standards. For more information, visit http://www.codata.org/06conf/prize.html. ◉

CODATA Conference Proceedings

Thanks to everyone who has submitted their paper for inclusion in the 2006 CODATA Conference Proceedings. The full paper proceedings will be published as a special section in the CODATA *Data Science Journal.*

The papers will all be reviewed and edited to conform to the style of the CODATA *Journal.* Because the number of submissions was large, this will take some time. Please visit http://dsj.codata.org for more information on the *Journal*.

Additionally, the slide presentation files will be made available in PDF and PPT formats on the CODATA website. This is also a work in progress and will be completed by the end of January 2007. The complete set of presentations will be available at http://www.codata.org/06conf/index.html.

Again, our sincerest thanks to all who participated and submitted their papers and/or presentations. Your participation helped make CODATA 2006 the most successful CODATA Conference in its 40-year history. ◉

CODATA 2006 Conference a Success

The 20th International CODATA conference, "*Scientific Data and Knowledge within the Information Society*," took place in Beijing on 22-25 October 2006. It was without a doubt the most successful and largest conference in CODATA's 40 year history. It attracted more than 600 participants from approximately 30 countries.

Professor Xu Guanhua

The opening ceremony took place on Monday evening, 23 October, and was presided over by **Academician Lu Yongxiang**, Vice-Chairman of the Standing Committee of the National People's Congress, President of Chinese Academy of Sciences; **Academician Zhou Guangzhao**, Vice-Chairman of the 9th Standing Committee of the National People's Congress, former President of Chinese Academy of Sciences, 1st President of Chinese National Committee for CODATA, Honorary President of China Association for Science and Technology; **Minister Nikolajenko**, Minister of Education and Science of the Ukraine; **Professor Shuichi Iwata**, President of CODATA; **Academician Chen Yiyu**, President of National Natural Science Foundation of China, 3rd President of Chinese National Committee for CODATA;

Professor Jane Lubchenco

Professor Jane Lubchenco, Past-President of the International Council for Science, ICSU; **Academician Li Jiayang**, Vice President of the Chinese Academy of Sciences, President of the Chinese National Committee for CODATA; **Professor Alexei Gvishiani** and **Professor Krishan Lal**, Vice Presidents of CODATA.

Dr. Tony Hey

The Conference reflected the full richness of data-centric activities in science and technology in which CODATA members and their scientific communities are involved. The event included four outstanding keynote lectures presented by **Professor Xu Guanhua**, President of Ministry of Science and Technology, China; **Professor Jane Lubchenco**, Wayne and Gladys Valley Professor of Marine Biology and Distinguished Professor of Zoology, Oregon State University and Past President of the International Council for Science, ICSU; **Dr. Tony Hey**, Vice President for Technical Computing, Microsoft; and **Professor Liu Depei**, President, Chinese Academy of Medical Sciences.

Professor Liu Depei

CODATA 2006 Conference a Success
(continued)

The Conference continued the emphasis on CODATA's role in the Information Society expressed by the title of the previous conference ("The Information Society: New Horizons for Science," Berlin, 2004) and the organisation's involvement in the World Summit on the Information Society and related activities over the past two years. Also running through the programme was a sense of CODATA's evaluation of its own purpose, reflected in a retrospective view of its past 40 years of existence, and a session looking to its future directions.

One of the many sessions at the Conference. Prof. Tangis Golashvili, shown here in the right foreground, was recognized for his participation in all 20 CODATA conferences.

Session topics covered a diversity of topics, such as: Disaster Data; Computational Informatics; Data Role in Promoting Public Understanding of Science; Solar-Terrestrial Data; e-Science; Virtual Observatories in the Geosciences; International Polar Year Activities; Chemical and Physical Data; Bioinformatics/ Biodiversity; and Social Science Data Issues.

CODATA thanks all of the volunteers at the Closing Ceremony.

Abstracts of the presentations are available on the Web at http://www.codataweb.org/06conf/prog-glance.html. An excellent report on the conference, written by the CODATA IUCr Delegate, Mr. Brian McMahon, is also available on the CODATA website at http://www.codata.org/06conf/conference-report-mcmahon.html. Many papers based on Conference presentations will also be published in the *Data Science Journal* (http://dsj.codataweb.org) over the coming months.

Outgoing CODATA President Shuichi Iwata

CODATA takes this opportunity to recall the Special Resolution unanimously approved by the 25th CODATA General Assembly: *"The 25th CODATA General Assembly acknowledges its gratitude and sincere thanks for the tremendous work and the kind hospitality offered by CODATA China in its hosting and organization of the 20th International CODATA Conference and 25th CODATA General Assembly. It further acknowledges that this Conference was the best attended Conference in CODATA's 40-year history."*

25th CODATA General Assembly, Beijing 2006

Immediately following its very successful International Conference, CODATA held its 25th General Assembly on 26-27 October 2006. Many major decisions were made by the delegates including the approval of the CODATA Task Groups for 2006-2008, election of some new Officers and eight Ordinary Members. Very lively discussions were held on the draft CODATA Strategic Plan 2007-2012, that was presented to the delegates. One outcome from these discussions was the approval of a newly worded CODATA Mission Statement:

> *The mission of CODATA is to strengthen international science for the benefit of society by promoting improved scientific and technical data management and use.*

CODATA looks forward to the challenging years ahead with the aim of implementing key elements of the plan in 2007.

A more extensive article on the Strategic Plan and the way forward will be available in the next edition of the CODATA Newsletter. ◉

CODATA Executive Committee
Elected by the 25th CODATA General Assembly on 26-27 October 2006, Beijing

OFFICERS:
President: Krishan Lal (India) (2006-2010)*

Secretary General: Robert Chen (USA) (2004-2008)

Treasurer: Jean Jacques Royer (France) (2004-2008)

Vice Presidents:
Steve Rossouw (South Africa) (2006-2010)*
Gordon Wood (Canada) (2006-2010)*

Past President: Shuichi Iwata (Japan) (2006-2008)

ORDINARY MEMBERS: 2006-2008*

Garnier	Jean	IUPAB	Bioinformatics
Graves	Sara	USA	Geoinformatics
Guo	Huadong	China	Earth Science
Kuznetzov	Fedor	Russia	Materials Science
Norris	Ray	IAU	Astronomy
Nowakowski	Antoni	Poland	Biomedical Engineering
Sabourin	Michel	IUPsyS, Canada	Psychology
Zgurovsky	Mikhail	Ukraine	Mathematics

* These were newly elected at the meeting in Beijing. ◉

The 2006-2008 CODATA Officers and Ordinary Members are, from left to right: Robert Chen (Secretary General), Gordon Wood (Vice President), Shuichi Iwata (Past President), Jean-Jacques Royer (Treasurer), Ray Norris (Ordinary Member), Fedor Kuznetsov (Ordinary Member), Michel Sabourin (Ordinary Member), Jean Garnier (Ordinary Member), Steve Rossouw (Vice President), Antoni Nowakowski (Ordinary Member), Mikhail Zgurovsky (Ordinary Member), Krishan Lal (President). Not pictured: Huadong GUO (Ordinary Member) and Sara Graves (Ordinary Member).

CODATA Takes the Lead on GEO Data Management Task DA-06-01

"Furthering the Practical Application of the Agreed GEOSS Data Sharing Principles"

The Group on Earth Observations has agreed on a strong set of data sharing principles for the planned Global Earth Observing System of Systems (GEOSS):

- *There will be full and open exchange of data, metadata, and products shared within GEOSS, while recognizing relevant international instruments and national policies and legislation.*
- *All shared data, metadata, and products will be made available with minimum time delay and at minimum cost.*
- *All shared data, metadata, and products free of charge or no more than cost of reproduction will be encouraged for research and education.*

Implementation of the principles is a key issue for GEOSS as recognized by 2006 Work Plan task DA-06-01, *"Furthering the practical application of the agreed GEOSS data sharing principles."* CODATA has agreed to lead this task and to this end it organized an experts meeting in conjunction with its 20th International CODATA Conference in Beijing on 22 October 2006. The meeting included more than 35 data experts from around the world. The meeting aimed to identify challenges to further application of the principles, options for addressing these challenges, and possible next steps for this GEO task.

This task is one of the continuing tasks identified in the GEO Work Plan for 2007-2009. CODATA looks forward to working with the GEO Secretariat and all interested stakeholders in the implementation of the Task over the coming years. ◉

The CODATA Hydrate Database
Submitted by E. Dendy Sloan and Tom Smith

The objective of the CODATA Hydrate Database Task Group is to develop an internationally distributed database for Natural Gas Hydrates, which represent an energy resource equal to twice that of the total of all the other hydrocarbon resources. The knowledge base in this area is exploding with publications that more than double each decade.

The CODATA international database is an efficient approach for dealing with the data and knowledge overload. With a number of hydrate databases being developed (e.g., by China, Canada, ICDP, and the USA), our goal is to connect these databases with a specially developed Gas Hydrate Markup Language (GHML) and a Portal (to be developed in 2007) to allow free canvassing of these databases by any user.

When in effect (early 2008) the CODATA Hydrate Database will work according to the concept shown in the figure below. The concept rests on the establishment of the databases which contain the needed information (the DBs at the bottom of the diagram), labeled ICDP (for InterContinental Drilling Program), CNIC (for the Chinese Computer Network Information Center), GSC (for the Geological Survey of Canada), etc. Without the foundation of these underlying databases, there would be no need for linking the communications.

At the top of the figure is a Client who may request some information about hydrates. This client query is sent to a Portal, which communicates with the various databases through a common language – the Gas Hydrate Markup Language (GHML). Thus, the client's query and response are communicated with each participating database, so that a number of data responses are obtained.

By 1 February 2007, the CODATA Hydrate Database Task Group expects to put the GHML on the CODATA website (www.codata.org) for comment by the CODATA and Hydrate community during the first six months of 2007. Please provide your critique through the online suggestions posted at CODATA.org. ◉
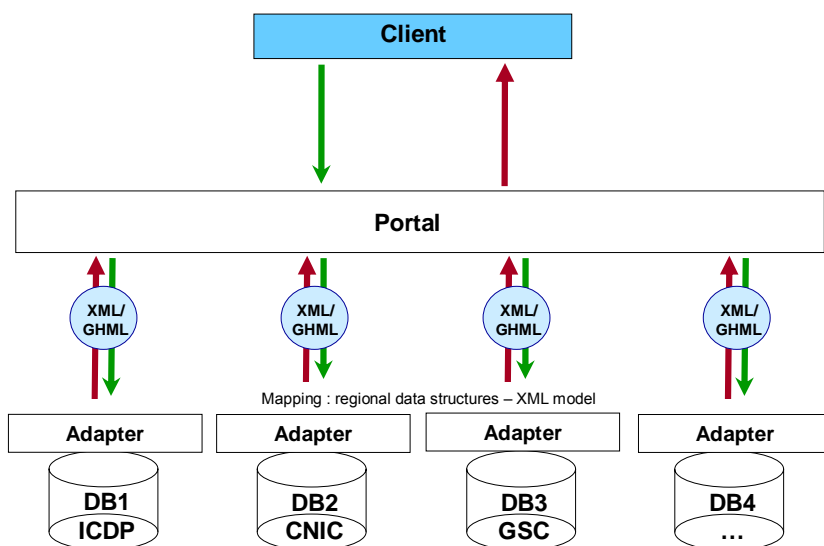
Concept Diagram for the CODATA Hydrate Database