

**23<sup>rd</sup> CODATA General Assembly  
4-5 October 2002  
Hotel Delta Centre Ville, Montreal**

**Report of the Canadian Delegate, Dr. G. H. Wood**

**1. Participants**

A complete list of the 45 participants is attached (Appendix A). Altogether there were 26 voting Delegates present, including some with proxy votes, representing National Members, Union Members and Co-opted Organizations.

**2. Financial Matters**

The Accounts for 2000 and 2001, which were approved following the Treasurer's presentation, showed CODATA to be in reasonable financial health. Cash flow appeared to be better managed than in the past as experience is gained with the dues payment practices of some countries. Canada, one is proud to remark, is exemplary in the promptness with which we pay our dues.

Considerable discussion ensued over the failure of some countries to pay their dues. France is the worst offender, having not paid for three years and now almost \$100,000 US behind. Because, according to the CODATA Constitution, this non-payment renders them liable to suspension by the General Assembly, I proposed, and the General Assembly approved, the following resolution that puts France on notice:

“The 23<sup>rd</sup> CODATA General Assembly notes that France is in contravention of Statute 3.1 (b) of the CODATA Constitution. In recognition of France's past and ongoing fiscal and scientific contributions to CODATA, the General Assembly encourages the Delegate of France to resolve the situation before the Opening session of the 24<sup>th</sup> General Assembly in 2004.”

To the best of my knowledge, this is the first time this provision in the Constitution has been invoked but I felt the situation could no longer be ignored. In addition, my assumption that the French Delegate might be able to leverage such a resolution to catch the attention of his funding agency proved accurate as he later thanked me taking action.

With respect to dues, the following motion was approved:

“The 23<sup>rd</sup> General Assembly proposes that the dues for 2003 and 2004 will be adjusted in accordance with the decision made by the 22<sup>nd</sup> General Assembly. That is, this adjustment will be based on the ‘all items’ estimate of inflation for the seven major countries as published by the OECD. This measure of inflation is quoted in the OECD publication *Main Economic Indicators*. The rate of inflation used will be the rate of two years previous.

The value of Membership dues for 2003 will be adjusted by the inflation rate of 2001.  
The value of Membership dues for 2004 will be adjusted by the inflation rate of 2002..”

### **3. Election of Officers and Ordinary Members of Executive Committee**

A copy of the Official Slate is attached as Appendix B. It may be noted that Canada enjoys two positions on the new Executive Committee: Paul Mezey as Secretary General and myself as Ordinary Member.

The Nominating Committee for 2002-2006 will be chaired by J. Rumble, as Past-President, with the other members being Prof. Xu (China), Prof. Tsugita (Japan) and Prof. Dubois (France).

### **4. National Memberships**

The Czech Republic, Thailand and the Ukraine have become National Members of CODATA since the previous General Assembly. It was reported that the status of Germany's membership was uncertain given that the agency which has paid the membership dues in the past has declined to continue. Alternative funding sources are being sought. The UK has still not returned to membership but negotiations continue.

### **5. Constitutional Amendments**

As required by the Constitution, the suggested changes had been duly circulated in advance to the Delegates in the document attached as Appendix C. All the recommended amendments were adopted as distributed, or with minor editorial changes, except for the proposed new Statute 3.5 which was referred back to the Executive Committee for further study.

The most significant amendment was the addition of 'Associate National Member' as a new category of membership in CODATA under Statute 3.1 (d). An 'entry' level of membership, this category is designed to encourage developing nations to join CODATA by lowering the financial barriers and giving them time to develop a suitable infrastructure.

### **6. Report on the 18<sup>th</sup> International Conference**

In my capacity as Chair of the International Scientific Program Committee, I gave a brief report on the Conference held during the four days immediately preceding the General Assembly. Some 190 presentations including plenary and invited lectures along with contributed lectures and posters were given. Attendance was about 240 with some 29 different countries represented, 10 of which are not members of CODATA. In spite of the fact that the attendance goal of 350 was not realized, many positive comments were received on the quality of the content and organization of the scientific program.

A grant from the Quebec Ministry of Research, Science and Technology provided some travel support to francophone scientists from developing countries and facilitated two novel features to CODATA Conferences: three oral sessions in French as part of the regular program and a bilingual, evening session open to the general public without charge.

## 7. Approval of Task Groups for 2002-2004

As usual, considerable time was given to this important process whereby CODATA plans and approves its scientific program for the next biennium. Each proposal for renewal or for initial approval was presented by its champion along with reports of the referees. Of the 14 proposals, the 8 Task Groups approved by secret ballot were:

### *Continuing*

- Data, Information and Visualization
- Data Management and Virtual Laboratories
- Data on Natural Gas Hydrates
- Data Sources in Asian-Oceanic Countries
- Fundamental Constants
- Global Species Data Network

### *New*

- Biological Collection Data Access
- Preservation and Archiving of Scientific and Technical Data

This transparent process, wherein CODATA's Task Groups are accountable to the General Assembly, helps make room for new areas to be explored and prevents existing efforts from continuing past their productive time.

## 8. National, Union and Co-opted Members Reports

The full agenda provided no opportunity for each Delegate to highlight their report or to cite new information, all the reports being taken as read with no discussion. The report from Canada is attached as Appendix D.

## 9. Future CODATA Conferences

No bid has yet been received for 2004 but Germany is being considered. Russia (Moscow) and the People's Republic of China (Beijing) have been proposed for 2006 and 2008 respectively.

## 10. Publications

In his written report, Dr. H. Behrens, Chair of the Publications Committee stated that most of the Publications Committee's efforts had gone into renegotiating the monograph publishing contract with Springer-Verlag. A pilot project is in place for 2 volumes per year. The policy of requiring publishable output from all Task Groups, Working Groups, workshops and conferences continues.

The first issue of the electronic CODATA *Data Science Journal* was launched in April 2002. Containing papers about data and databases, but not publishing the data themselves, the Journal will cover all the disciplines addressed by CODATA. Details on the journal and the first papers may be found at: <http://www.datasciencejournal.org/>. In accordance with well know international scientific journals, all papers are refereed by at

least two referees. At this time, there are no subscription fees; Journal costs are paid from the CODATA budget.

No changes are planned for the Newsletter.

### **11. CODATA's Interactions with ICSU**

With respect to the ICSU Large Grant Program, it was reported the Gas Hydrates Task Group had received 100k\$, a very significant vote of confidence. In addition, 45k\$ has been granted to support a Workshop on Open Access in March 2003, with an additional 15k\$ given for an intern to assist with the Workshop.

Respectfully submitted  
Gordon Wood

## Appendix A

### List of Participants at 23rd CODATA General Assembly Delta Centre Ville Hotel, Montreal 4/5 October 2002

#### OFFICERS

Dr. John Rumble Jr (USA)  
Prof. Akira Tsugita (Japan)  
Dr. Paul G. Mezey (Canada)  
Dr. Jean-Jacques Royer (USA)

President  
Vice-President  
Secretary General  
Treasurer

#### VOTING DELEGATES

Australia  
Canada  
China:  
    Chinese Academy of Sciences, Beijing  
    Academy of Sciences located in Taipei  
France  
Germany  
India  
Indonesia  
Japan  
Korea  
Nigeria  
Poland  
Republic of South Africa  
Russia  
Senegal  
Thailand  
Ukraine  
U.S.A.

Prof Ray Norris  
Dr. Gordon H. Wood  
  
Prof. Zhihong Xu  
Dr. Jong-Ching Su  
Prof. Jacques Octave Dubois  
Prof Werner Martienssen  
Prof. Krishan Lal  
Ms. Rukasih Dardjat  
Dr. Akira Tsugita  
Dr. Hyung-Seon (Howard) Park  
Dr. Kingsley Oise Momodu  
Prof. Juliusz Kulikowski  
Prof Steve Rossouw  
Prof. Fedor Kuznetsov  
Dr. Abdoulaye Gaye  
Prof. Micah I. Krichevsky  
Prof. Mikhail Z Zgurovsky  
Prof. Goetz Oertel

#### UNION VOTING DELEGATES

International Astronomical Union (IAU)  
International Union of Pure and Applied Chemistry  
(IUPAC)  
International Union of Pure and Applied Biophysics  
(IUPAB)  
International Union of Crystallography (IUCr)  
International Union of Psychological Societies  
(IUPsys)  
International Union of Geological Sciences (IUGS)

Prof. Ray P. Norris  
  
Dr. Henry V. Kehiaian  
Prof. Jean Garnier  
  
Mr. Brian McMahon  
  
Prof. Michel Sabourin  
Dr. Jean-Jacques Royer

#### CO-OPTED VOTING DELEGATES

ICSU Panel on World Data Centers  
World Federation for Culture Collections -

Prof. Alexei Gvishiani  
Prof. Krichevsky

**INVITED OBSERVERS**

Mr Chuntharpurgat Avinash  
Prof. Jacques Emile Dubois  
Ms Julie Easnu  
Prof. Marcelle Gaune-Escard  
Prof. SUN Honglie  
Prof. Shuichi Iwata  
Dr. Horst Kremers  
Dr Lulama Makhubela

Mr. T. Mohoto

Prof. Pierre Ritchie  
Dr. Paul Uhler

Prof. Shang-Shyng Yang  
Prof. Xiao YUN

National Research Foundation, South Africa  
CODATA Committee, France  
US National Committee for CODATA  
IUSTI Marseille, France  
Chinese Academy of Sciences  
University of Tokyo  
Berlin, Germany  
National Research  
Foundation South Africa  
South Africa Data Archive,  
National Research Foundation  
Sec. General IUPSY  
Executive Director, US National Committee  
for CODATA  
Academy located in Taipei  
Chinese National Committee for CODATA

**SECRETARIAT**

Ms Kathleen Cass, Executive Director  
Ms Loraine Cannon, assistant to the Executive Director

## Appendix B

### ***CODATA Officers and Ordinary Members elected by the General Assembly***

#### **CODATA Officers**

President:	Iwata, Shuichi (Japan)	(2002-2006)
Past-President:	Rumble, Jr, John (USA)	(2002-2004)
Vice-Presidents:	Gvishiani, Alexei (Russia)	(2002-2006)
	Sun Honglie, (China)	(2002-2006)
Secretary General:	Mezey Paul, (Canada)	(2002-2004)
Treasurer:	Royer, Jean-Jacques (France)	(2000-2004)

#### **Ordinary members of the Executive Committee (2002-2004)**

1 CHEN, Robert	USA	(Environmental Geography)
2 GARNIER, Jean	IUPAB	(Biology/Bioinformatics)
3 KREMERS, Horst	Germany	(Information Theory)
4. KUNISAWA, Takashi	Japan	(Biophysics/Molecular Biology)
5. LAL, Krishan	India	(Metrology)
6. ROSSOUW, Steve	South Africa	(Communications)
7. WOOD, Gordon	Canada	(Physics)
8. YUNGMAN, Vladimir	Russia	(Thermodynamics)

## Appendix C

### **Constitutional Amendments**

The following constitutional amendments, as outlined in red, were approved:

#### CODATA Constitution (Statutes and By-Laws)

As approved by the 17th CODATA General Assembly Columbus, Ohio, July 1990 and modified by the 18th CODATA General Assembly Beijing China, October 1992 and modified by the 19th CODATA General Assembly Chambéry, France, September 1994 and modified by the 21st CODATA General Assembly, New Delhi, India, November 1998 and modified at the 22<sup>nd</sup> CODATA General Assembly, Stresa, Italy, October 2000.

#### **Statute 2 - Objectives**

2.1 CODATA, working on an interdisciplinary basis, shall seek to improve the quality, reliability, processing, management and accessibility of data of importance to **science, technology and society**, including all scientific fields covered by ICSU.

2.1 To achieve the above objectives, CODATA shall include, among others, the following goals in its mission:

- a) The promotion of the evaluation and, in general, the quality control of data as well as the improvement of the methods by which data are acquired, managed, analyzed, validated, disseminated **and archived.**
- b) The facilitation of cooperation among those **performing these activities.**
- c) **The development of national and International data policies commensurate with the needs of the scientific and technical research communities as well as society as a whole**
- d) An increase in awareness of the importance of these activities.

2.3 Specifically, CODATA will:

- a) Compile and critically evaluate, or encourage compilation and critical evaluation of, key sets of scientific data of special importance.
- b) Study methodologies for evaluation, management, analysis and dissemination of data, including means of maximizing the compatibility of databases from different sources.
- c) Enhance coordination of data projects in order to provide consistent formats, maintain standards or facilitate conduct of the work and encourage standard interchange formats for data.
- d) Establish and/or maintain directories on sources of data.
- e) Undertake pilot projects to evaluate the feasibility of building databases or data systems.



- f) Stimulate experimental determinations, theoretical calculations or correlations, and observations which are crucial to completion of evaluations of data sets.
- g) Encourage usage of symbols, units, nomenclature, terminology, constants, etc., that are advocated by the responsible Unions.
- h) Foster exchange of relevant information and ideas by meetings, publications, training courses and other appropriate means.
- i) Monitor all aspects of data policies, including commenting on proposed national and international policy changes that affect the scientific and technical community, and promoting those policies that advance the potential utility of scientific and technical data
- j) Provide advice to ICSU, to its Unions, and, as appropriate, to other international bodies. Collaborate with such bodies in carrying out projects of mutual interest.

### Statute 3 - Membership

3.1 CODATA shall be composed of five kinds of members:

- a) Union Members. Each Scientific Union federated in ICSU which expresses an interest in the scientific data program and a desire to participate in the work of CODATA may become a Member by communicating its intention to CODATA.
- b) National Members. A National Member shall be a scientific academy, research council, scientific institution or association of such institutions which has activities in scientific data evaluation and compilation. Institutions effectively representing the range of such activities in a definite territory may be accepted as National Members, provided they can be listed under a name that will avoid any misunderstanding about the territory represented. Each National Member will pay annual dues in accordance with the category of membership approved by the General Assembly. Failure to do so by more than two years following December 31 of the year in which the dues become payable will render the National Member liable to suspension of its right to vote and to other privileges of membership, if so decided by the General Assembly. Applicants for National Membership must be approved by the General Assembly and must pay their first year's dues before receiving voting rights and other privileges of membership. Each National Member is expected to establish an appropriate committee for maintaining liaison with CODATA.
- c) Regional Members. An international body, representing a group of nations on the basis of some regional or other relationship and having an interest in the work of CODATA, may become a Regional Member of CODATA. Each Regional Member will pay annual dues at a scale to be established by the General Assembly. Failure to do so by more than two years following December 31 of the year in which the dues become payable will render the Regional Member liable to suspension of its right to vote and to other privileges of membership, if so decided by the General Assembly. Such Regional Members may regain their voting rights and privileges by paying dues in arrears as assessed by the General Assembly. Applicants for Regional Membership must be approved by the General Assembly and must pay their first year's dues before receiving voting rights and other privileges of membership. Each Regional Member is expected to establish an appropriate mechanism for maintaining liaison with CODATA.
- d) Associate National Member.  
An Associate National Member shall be a scientific academy, research council, scientific institution or association of such institutions, which has activities in scientific data evaluation and

compilation. Institutions effectively representing the range of such activities in a definite territory may be accepted as Associate National Members, provided they can be listed under a name that will avoid any misunderstanding about the territory represented. Associate National Members shall have all rights of National Members subject to the following:

- ❑ They do not have the right to approve Task Groups
- ❑ They do not have the right to vote in elections for Officers or Ordinary Members of the Executive Committee
- ❑ They do not have the right to vote on financial issues.

The Associate National Member category is designed to encourage countries with limited resources to join and participate in CODATA on terms appropriate to their economic status.

Dues to be paid by an Associate National Member shall be set at one-fifth of the lowest category of National Member dues as approved by the General Assembly.

Failure to pay these dues by more than two years following December 31 of the year in which the dues become payable will render the Associate National Member liable to suspension of its right to vote and to other privileges of membership. If so decided by the General Assembly Applicants for Associate National Membership must be approved by the General Assembly and must pay their first year's dues before receiving voting rights and other privileges of membership. Each Associate National Member is expected to establish an appropriate committee for maintaining liaison with CODATA. Associate members shall normally be expected to apply for full membership after 6 years in this category.

- e) Co-opted Members. An international organization involved wholly or predominantly in work covered by the objectives of CODATA and which is associated with or affiliated to ICSU or one of its Unions may become, with approval of the ICSU Executive Board, a Co-opted Member of CODATA.
- 3.2 Each Union, National, Associate National, Regional or Co-opted Member shall designate a Delegate to represent it on CODATA. These Delegates shall seek advice from the organizations they represent.
  - 3.3 A Delegate may serve CODATA in more than one capacity; the President, Secretary General and Treasurer may not, however, serve CODATA in any other capacity during their term of office (see Statute 7.2 (a)).
  - 3.4 Members are encouraged to designate Delegates for a term of four years but not for more than one renewal.

## By-Laws

- 2 The following procedures will be used by the Executive Committee in conducting postal ballots:
  - 2.1 In order to give Delegates time to consult their Members, the deadline stipulated for the receipt of the returned ballot papers shall be not less than 8 weeks after the date of their dispatch. If necessary to meet the deadline, ballots may be returned by e-mail, or telefacsimile. In such cases the signed original ballot must be sent subsequently in confirmation.
  - 2.2 On the ballot paper the Delegates will be given the opportunity to object to the issue being decided by the Executive Committee and to request that the decision be made at the subsequent General Assembly.

- 2.3 Delegates who object will be requested to state their reason for doing so in writing to the Executive Director or Executive Secretary. These replies shall be circulated to the Delegates with the request for additional comments.
- 6.9 The term of office of the Task Group and Commission Chairman will be two years and may be renewed for two additional terms of two years each. He or she may continue to serve as a member of the Task Group. **No Officer or Ordinary member of the Executive Committee shall be eligible to be Chairman of a CODATA Task Group or CODATA Commission or Working Group. Any conflict of this nature must be resolved within 30 days of the conflict being arising either by resignation as Task Group, Commission or Working Group Chairman or by resignation as Officer or Ordinary Member of the Executive Committee.**
- 6.10 The Executive Committee or the General Assembly may set up Working Groups to explore the need for CODATA action on specific issues. Only in exceptional circumstances shall a Working Group continue for more than two years. If a Working Group recommends the establishment of a CODATA project, the Executive Committee may propose to the General Assembly the creation of a Task Group to carry out that project.
- 6.11 The Executive Committee may establish advisory committees as needed.

***The addition of Statute 3.5 (see below) also came before the Assembly for consideration. It was decided that this should be brought before the Executive Committee for further study and review***

***3.5 To promote the fiscal responsibility of CODATA, a Member shall pay their assigned dues promptly and in the year assigned. At each General Assembly, the Treasurer shall present a list of all Members in payment arrears, which is defined as non-payment for two calendar years. The list shall include all Members who will be in arrears for non-payment of two years if they do not complete payment between the time of the General Assembly and the end of the present calendar year. Upon review of the list, the Secretary General will notify the country of its suspension and the country may appeal to the General Assembly. If appealed, the General Assembly shall propose one of three actions: 1) confirm immediate suspension; 2) confirm suspension on the first day of the next calendar year if no payment is received by that date; 3) confirm suspension as of June 30<sup>th</sup> of the next calendar year if no payment is received by that date. Suspension shall include loss of voting privileges and forfeit of all positions as Officers and Ordinary Members of the Executive Committee. The General Assembly may waive these suspension options only upon majority vote of all Members eligible to vote for Officers.***

## Appendix D

### 23<sup>rd</sup> CODATA General Assembly, 4-5 October 2002, Montreal

#### National Member Report – Canada

##### 1. Activities of the Canadian National Committee for CODATA (CNC/CODATA)

CNC/CODATA continued its practice of annual meetings with one in November 2001 and the next in September 2002. Both were held in Ottawa, the capital of Canada.

In co-operation with the Ottawa Centre for Research and Innovation and with the sponsorship of a number of corporations, the Committee organized the *Second Workshop on Information Visualization* in May 2001. With its theme of 'Visual data exploration – Access and Analysis', the Workshop's focus was the new technologies necessary to meet the needs of today's information and knowledge-based society through the medium of computing and user interfaces. Keynote speaker Professor Ben Shneiderman, a noted expert in the field from the University of Maryland, inspired and challenged the 113 participants with his knowledge and zeal. The one-day gathering drew computer scientists, information specialists and software developers, primarily from 8 government departments, 5 universities and 46 companies in the greater Ottawa area. A copy of the full report is attached (Appendix A).

Because CNC/CODATA is joint sponsor with the USNC/CODATA for the CODATA 2002 Conference in Montreal, some members have been heavily involved in organizational matters. M. Sabourin serves on the Conference Oversight/Finance Committee; J. Rodgers and G. Newton serve on the International Scientific Program Committee and have organized sessions; G. Wood serves as co-chair of the International Scientific Program Committee.

##### 2. Representations to outside organizations

For the two most recent annual meetings of CNC/CODATA, all the Scientific Unions to which Canada adheres were invited to send representatives. At each meeting about six representatives attended the meeting, presenting their data issues and learning more about what is going on in other disciplines. In one particular case, an individual learned of a database activity of which he had been unaware but which has great potential benefit to his work. As this innovation has proven mutually beneficial, it is our intention to continue the practice.

##### 3. Publicity

One of the chief products of the Committee is the preparation and production of its biannual *Report on Data Activities in Canada*. A snapshot, rather than an exhaustive survey, of data-related activities, the report is distributed in hard copy to

the CODATA General Assembly as well as to all Canadian recipients of the CODATA Newsletter. The report for 2002 will be posted, along with previous reports, on the CNC/CODATA web site at (<http://www.codata.org/canada/>).

The CODATA Newsletter continued to be sent by the Committee to some 350 addresses in Canada. Furthermore, the Committee maintained a general web site which contains not only items of Canadian interest but links to the main CODATA site.

Canada continued to host the main CODATA web site as it has done since the site's inception. It may be seen at <http://www.codata.org>.

#### 4. Organization

CNC/CODATA is sponsored by the Canada Institute for Scientific and Technical Information (CISTI), part of the National Research Council of Canada (NRC). Sponsorship includes the provision of a small secretariat, including the part time services of an Executive Secretary and Secretary, costs for the annual meetings and postage charges for the Newsletter. Dues for Canadian membership in CODATA are paid by the International Relations directorate of NRC's Corporate Services.

The Committee's mandated six regular members are selected from the Canadian scientific and technical community to represent as broadly as possible the disciplines served by CODATA as well the geographic expanse and linguistic diversity of our country. Travel and subsistence expenses to the annual meeting are provided by CISTI to regular members from the non-profit sector. In addition, the Committee is fortunate to be able to expand its influence and input by drawing upon a number of observers, currently seven, living in the greater Ottawa area. (Appendix B is a listing of the current roster of regular members and observers.) The official Delegate to CODATA is usually, although not necessarily, the Chair of the Committee.

Liaison with CODATA's scientific program and activities is assisted by enlisting Canadian members of CODATA Task Groups, Commissions and Committees to take part in the annual meetings of CNC/CODATA. Current involvement in these groups is summarized in the following table:

<b>Task Group/Commission/Committee</b>	<b>Representative</b>	<b>Participation level</b>
Data, Information and Visualization	Prof. P. Mezey	Member
Data on Natural Gas Hydrates	Dr. J. Ripmeester	Member
Fundamental Constants	Dr. B. H. Wood	Member
Journal	Dr. G. H. Wood	Member

## 5. Issues of Importance

CNC/CODATA is pleased to note the emphasis on data archiving evident in the program for CODATA 2002 and trusts that the Working Group on Archiving Scientific Data will be elevated to Task Group status at the forthcoming General Assembly.

Access to data for non-commercial use continues to be a concern and we applaud the efforts CODATA is making in this area.

The impact of CODATA in Canada could be enhanced by CODATA implementing a process whereby scientists from Canada and other less populous countries might more readily participate in CODATA's Task Groups and Commissions. Well-intentioned scientifically as it is, the current practice of Chairs of these bodies essentially naming their members from known associates and colleagues has the effect of shutting out those not in the respective 'inner circles'.

An additional means of CODATA assisting Canada would be to provide more assistance and tools to CNC/CODATA for raising the national profile of data activities. CODATA's practice of granting seed funds to projects such as the *Second Workshop on Information Visualization* is much appreciated. We understand that, because data tend to be taken for granted as part of the infrastructure of science, CODATA has problems with its international profile and the problem is just as difficult at the national level.

Respectfully submitted,

Dr. G. H. Wood  
Canadian Delegate to CODATA

## Appendix A

### 2nd Workshop on Information Visualization

Wednesday, May 23, 2001  
Chateau Laurier Hotel, Ottawa

#### Report<sup>1</sup>

**The 2nd Workshop on Information Visualization** was a unique opportunity for some 113 participants from 8 government agencies, 5 universities and some 46 companies and organizations to exchange ideas and learn more about the leading-edge trends in this domain. The program consisted of a keynote address by Ben Shneiderman, a well-known leader in the field, followed by seven invited, more specialized talks and a panel discussion.

**Professor Ben Shneiderman**, University of Maryland, HCIL  
*The Eyes Have It: User Interfaces for Information Visualization*

Ben is the Founding Director (1983-2000) of the University of Maryland, Human-Computer Interaction Laboratory. He set the stage for the workshop with an enthusiastic and lively description of the impressive progress achieved and of the challenges lying ahead. Starting with an overview of the User Interface Design Goals, he emphasized the importance of a scientific approach centered on users and based on actual measures. He then introduced Information Visualization as one of the key opportunities that human visual perception enabled. With a rich set of examples, he brushed a portrait of several existing information visualization approaches and their various applications. He explained how the visualization task flow “Overview, zoom & filters, details-on-demand” could be found in all of these. In conclusion, citing the example of *Spotfire*, now used by 25 of the 25 top pharmaceutical companies around the world, he described how today’s information visualization applications are becoming common and almost indispensable tools in domains where maintaining finely tuned knowledge is a determining success factor.

**Martin Nilsson**, Spotfire, Inc.  
*Analytical Applications for Networked Decision Making*

Martin presented Spotfire. This visualization tool is based on the *Starfield* approach initially developed at University of Maryland, HCIL. Martin described how the ability to easily import data makes it possible to build large unified databases of unstructured data from multiple disparate sources. Using networked role-based access, various teams inside the organization can then explore these data to extract relevant knowledge using interactive information visualization tools. The ability to work in parallel the database and extract knowledge is an essential asset as it greatly accelerates the process.

**Ramana Rao**, Inxight, Inc.  
*See and Go Wide Widgets for Navigation and Exploration*

Ramana described how visualization tools can harvest the power of a user’s pre-attentive visual cognition abilities and how they greatly surpassed classic “windows-icons-menus and pointing” graphical user interfaces. He then demonstrated with multiple examples how the “Star-Tree” (Hyperbolic Tree) and the “Table Lens” visualization approaches enabled efficient, quick and easy navigation and exploration of data sets following a simple “See and Go” task flow.

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<sup>1</sup> Prepared by Dr. L. Beaudoin, formerly Nortel Networks, and Dr. G. Wood, NRC.

**Jeff Saffer**, OmniViz, Inc.

*A Cognitive Analytical Environment for Integrated Decision Support with Multiple Data Types*

Using the example of complex chemical data represented via various approaches (Galaxy maps, Isoplots, etc), Jeff talked about the exploration of data based on the creative visualization of data sets composed of integrated information from different sources. He stressed that no single view is sufficient to really understand the data and that classic 2D graphs are useless when thousands of items comprise the data set. Using various views or coupled visualization approaches to explore the data greatly eases the detection of trends, clusters or outliers.

**Eser Kandogan**, IBM, San Jose

*Visualizing Multi-dimensional data: Challenges and Opportunities*

Eser compared Scatter Plots, Parallel Coordinates and Tables Lens views to Star Coordinate representations to demonstrate the superior flexibility of data massaging enabled by the latter approach. Using the example of a Telecom Churn Analysis, he focused his talk on the process of massaging data sets by methods such as filtering and progressive systematic sub-setting of the data to visualize trends, clusters or outliers.

**Pierre Boulanger**, NRC, IIT

*How to Solve real World Problem Using Virtualized Reality*

Pierre described how virtual models of real objects can be studied using Virtual Reality Visualization to analyze their behavior and monitor and control their interaction in their environment. As an example, he also showed how Virtual Reality Visualization can be used to represent a real object in order to study it and optimize an aluminum die-casting process to reproduce it.

**Stephen Eick**, Visual Insights, Inc.

*Visualizing Website Activity*

Stephen first described the problems of collecting data about Website activity due to the varied nature of the information and to the variety of sources. He demonstrated how this aggregated information could be efficiently explored with various information visualization approaches to discover trends and relations visually and to measure activity according to metrics like 'Sessionization' or 'Repeat visitors'. Finally, he underlined the importance of generating various sorts of reports going from detailed analysis to executive overview.

**Michael Kopko**, SGI/FISC

*Visual Data Mining in Finance*

Michael outlined how visualization techniques could be used to explore and comprehend complex interactions among risk components in portfolios in a way that is meaningful for finance experts. He stressed the complexity of the data by describing the many dimensions: the sheer number of portfolios, the number of trades per day, the tens of hundreds of positions, etc. Once aggregated, this is displayed and explored using various visualization techniques. The trends, correlations, outliers and anomalies detected, plus the ability to check assumptions and hypotheses, represent an invaluable intelligence that has made strategic the visual mining of risk data in many areas of finance.

**Panel Discussion**, Chaired by Martin Brooks, NRC, IIT

Martin's opening comments set the stage for clarifications of topics that had been discussed by the panellists in their presentations as well as for an interesting exchange relating to other information visualization issues from the audience.



Program and other arrangements were cared for by the Organizing Committee listed below. The assistance of the following sponsors, is gratefully acknowledged:

- CODATA, Committee on Data for Science and Technology of the International Council for Science;
- National Research Council of Canada, VP for Technology and Industry Support;
- Nortel Networks;
- Spotfire;
- Apple Canada;
- Allegra Solutions;
- CiriLab;
- Toth Information Systems;
- OCRI, Ottawa Centre for Research and Innovation;
- IEEE Ottawa Section.

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Dr. Gordon Wood, National Research Council (Chair)

Dr. John Rodgers, Toth Information Systems (Chair, Program sub-committee)

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Ms. Kathy Mahoney, OCRI, Local Arrangements

Ms. Terry D'Angelo, OCRI, Local Arrangement and Secretary

Ms. Marilyn Cheek, OCRI, Local Arrangements

**Appendix B**  
**CNC/CODATA - Members and Observers – as of June 30, 2002**

MEMBERS	OBSERVERS
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<p><b>Dr. Andrew W. Hakin</b>            Department of Chemistry            4401 University Drive            Room E870            University of Lethbridge            Lethbridge AB T1K 3M4            Tel: 403-329-2083      Fax: 403-329-5159            E-mail: hakin@uleth.ca</p>	<p><b>Mr. Fred Gault</b>            Director            Science, Innovation and Electronic Information Division            Statistics Canada            RH Coats Building, Floor RHC 7A            Holland Avenue and Scott Street            Tunney's Pasture            Ottawa ON K1A 0T6            Tel: 613-951-2198      Fax:            E-mail: fred.gault@statcan.ca</p>
<p><b>Mr. Jean Paul Lauzon</b>            AGRA Systems            1145 Hunt Club Road            Ottawa ON K1V 0Y3            Tel: 613-526-1661      Fax: 613-526-5326            E-mail: jp.lauzon@amec.com</p>	<p><b>Dr. Hamid Jorjani</b>            Senior Advisor            International Relations Office            National Research Council of Canada            Montreal Road, Building M-58, Room E-309            Ottawa ON K1A 0R6            Tel: 613-991-5457      Fax: 613-952-9696            E-mail: hamid.jorjani@nrc.ca</p>
<p><b>Prof. Paul G. Mezey (ex-Officio)</b>            Department of Chemistry and Mathematics            University of Saskatchewan            Saskatoon SK S7N 0W0            Tel: 306-966-4661      Fax: 306-966-4730            E-mail: mezey@sask.usask.ca</p>	<p><b>Mr. Glen Newton</b>            Internet Project Leader            Canada Institute for Scientific and Technical Information            National Research Council Canada            Montreal Road, Building M-55, Room 275            Ottawa ON K1A 0S2            Tel: 613-990-9163      Fax: 613-952-8246            E-mail: glen.newton@nrc.ca</p>
<p><b>Dr. George T. Needler, FRSC<sup>2</sup></b>            Bedford Institute of Oceanography            P.O. Box 1006            Dartmouth NS B2Y 4A2            Tel: 902-426-3145      Fax: 902-426-7827            E-mail: needlerg@mar.dfo-mpo.gc.ca</p>	<p><b>Dr. John R. Rodgers</b>            President, Toth Information Systems            Montreal Road, Building M-55            Ottawa ON K1A 0S2            Tel: 613-998-9076      Fax: 613-952-8246            E-mail: roddgers@snd.cisti.nrc.ca</p>
<p><b>Dr. Francis Ouellette</b>            Director, Bioinformatics Core Facility            Centre for Molecular Medicine and Therapeutics            University of British Columbia            950 West 28<sup>th</sup> Avenue            Vancouver BC V5Z 4H4            Tel: 604-875-3815      Fax: 604-875-3840            E-mail: francis@cmmt.ubc.ca</p>	<p><b>Dr. James Sangster</b>            Sangster Research Laboratories            P.O. Box 49562            Pharmaprix R.P.O.            5122 Côte des Neiges            Montreal QC H3S 2A5            Tel: 514-694-1215      Fax: 514-340-5840            E-mail: jsangster@mail.polymtl.ca</p>
<p><b>Prof. Michel Sabourin</b>            Department of Psychology            University of Montreal            P.O. Box 6128, Station A            Montreal QC H3C 3J7            Tel: 514-343-5784      Fax: 514-735-3599            E-mail: Michel.Sabourin@UMontreal.ca</p>	<p><b>Dr. Barry M. Wood</b>            Group Leader            Institute for National Measurement Standards            National Research Council Canada            Montreal Road, Building M-36, Room 26            Ottawa ON K1A 0R6            Tel: 613-990-9225      Fax: 613-952-1394            E-mail: barry.wood@nrc.ca</p>
<p><b>Dr. Gordon H. Wood</b>            Group Leader            Canada Institute for Scientific and Technical Information            National Research Council Canada            Montreal Road, Building M-55, Room 274            Ottawa ON K1A 0S2            Tel: 613-993-4165      Fax: 613-952-8246            E-mail: gordon.wood@nrc.ca</p>	

<sup>2</sup> Deceased, 7 June 2002