

**Inter-Agency Committee on Geomatics
and
Canadian Council on Geomatics**

Canadian Geospatial Data Infrastructure

Workshop on Core Data

**Ottawa
October 15th, 1998**

**Timothy V. Evangelatos
EvangelatosT@dfo-mpo.gc.ca
October 28, 1998**

Canadian Geospatial Data Infrastructure

Workshop on Core Data Ottawa, October 15th, 1998

Participation:

John Turnbull (Sask. Geomatics)	Sylvain Latour (CTI)
Ed Shaw (CCRS)	Denis DeGagne (CTI)
Mark Corey (GC)	Don Vachon (DFO)
Sheila Rambeau (Statistics Canada)	Bob O'Neil (CCRS)
Phyllis Charlesworth (GSC)	Peter Paul (CCRS)
David Viljoen (GSC)	Richard Post (Environment Canada)
Valerie Hume (DIAND)	Dan Racioc Canada Post)
Peter Schut (Agr.)	Jeff Labointe (CGDI Sec.)
David McKellar (DND)	Sandra Mackie (CGDI Sec.)
Jim Sarcinello (DND)	Paula Rojas (CGDI Sec.)
C. Douglas O'Brien (IDON)	Tim Evangelatos (CGDI Sec.)

Introduction:

Tim Evangelatos introduced the object of the workshop by reviewing the status of the Framework Data thrust of CGDI and more specifically the Core Data component of the Framework Data. (Attachment 2). The underlying concepts were developed in IACG Workshops in 1997 and have been very useful in fostering and obtaining national support for the CGDI. Tim also reported on the recent CGDI Roundtables held in Toronto, Victoria, Regina, and St. John's, and the strong support that the provinces are giving to CGDI, but it has become clear that although the current IACG approach to Framework Data might satisfy some federal needs, it was not in a form that could effectively integrate with the existing and evolving provincial data frameworks.. In response to an inquiry from Ed Shaw, John Turnbull confirmed that this was a present concern for the provinces which needed to be addressed at policy, partnering and operational levels. As a primary goal of the CGDI is to provide a national solution incorporating federal, provincial and territorial requirements Tim argued that we need to revisit the IACG Framework Data proposal and also look at some of the tools and processes needed to implement and support the concept. Due to time limitations it was agreed that the scope of the workshop should be limited as much as possible to a discussion of core data. A second workshop on Framework Data is planned for the future. Tim then asked Bob O'Neil to give an update on his Division's activities related to core data.

GeoGratis: In the development of CEONet Bob O'Neil sees many options where his division can contribute to the furthering of the CGDI. Bob described the use of framework data in his division which goes beyond data discovery, to re-useable framework datasets, tools for aggregation and generalization of data, and for simplifying data collection (Attachment 3). One aspect that has evolved is GeoGratis that offers free geospatial for research and education purposes. In his presentation Bob described the technology, the data sets now available and those that will be on-line shortly. The latter are particularly interesting as they include all of NRCan's data at 1/1M and smaller. These data sets are summarized in the following table.

Data Sets Available Now

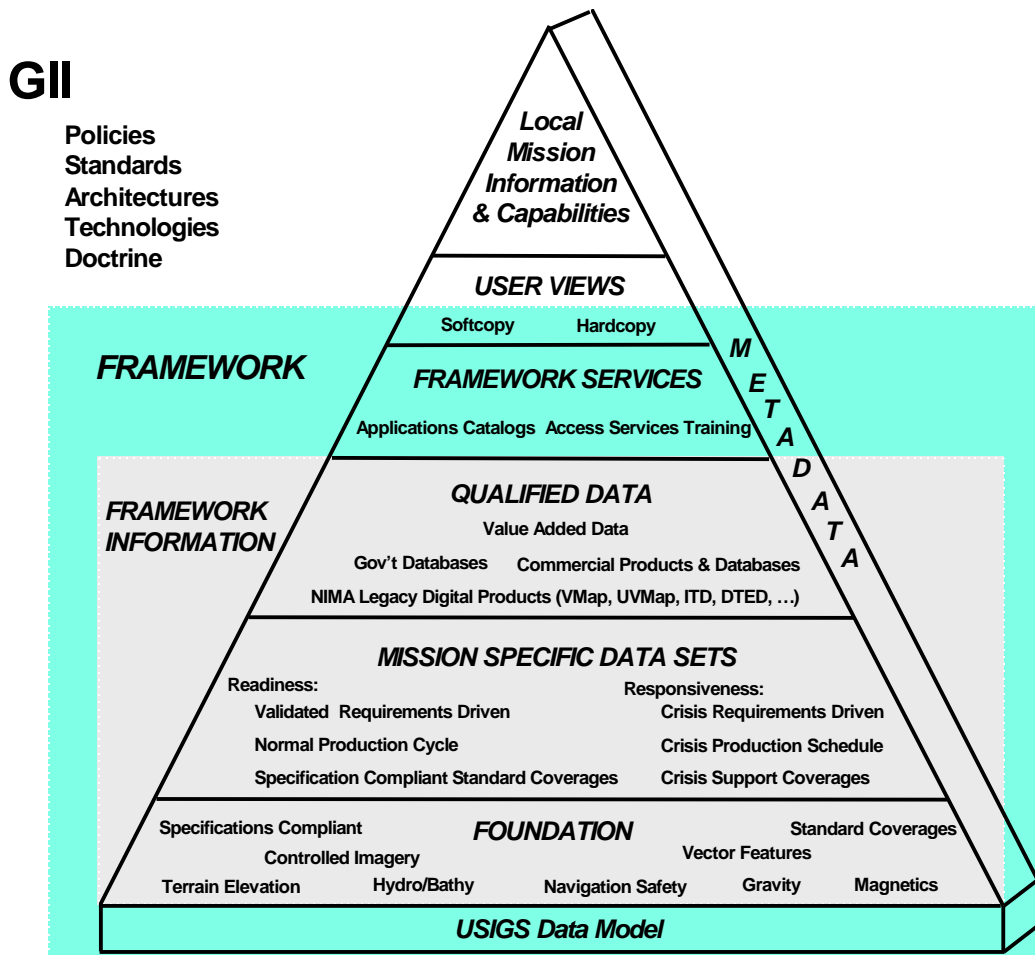
- SPOT images:
- Sherbrooke, Peterborough.
- Great Lakes Landsat MSS mosaic:
- 100m image.

Data Sets Coming Soon

- National Atlas of Canada:
- January 1, 1999.
- Land cover map of Canada.
- VMAP level 0 (aka DCW):

- ERS-1 mosaics:
- Vancouver Island.
- southern B.C.
- AVHRR mosaics:
- land cover classification.
- Canada Land Inventory:
- land capacity - 6 layers.
- 25% of Canada - 1:250k scale.
- no coastline.
- 1:1M scale.
- Canadian ADRC:
- raster maps.
- GTOPO30
- elevations on 1km postings.
- World Vector Shoreline:
- 1:250k scale

Global Geospatial Information Infrastructure: The military has developed an advanced geospatial data framework to support their requirements as they move into a completely digital data based environment. Led by NIMA, with the cooperation of its allies, it provides an integrated view of the “battle-space”. As Jim Sarcinello explained in his presentation (Attachment 4) the military’s approach could provide many ideas for many several aspects of the CGDI. The following diagram from Jim’s presentation illustrates the key elements of the GGII Framework.



SaskGIS: John Turbull was asked to give an summary of his group’s activities in building a geospatial data infrastructure in Saskatchewan and specifically those aspect bearing on the goals of this workshop. Saskatchewan has been working on a provincial infrastructure for many years. The SaskGIS initiative is now almost complete and is being used by all sectors of the province as the foundation for building a modernized land information infrastructure. The SaskGIS Model consists of a basic spatial framework, property, topographic, and other multi-user databases; standards for data exchange; and collaborative financial and operational relationships between key stakeholders. The SGDI has become a capital asset of

\$35M. It is important that the SGDI principles, partnerships and products that have been developed with Saskatchewan stakeholders remain effective, and the CGDI should be careful to preserve and compliment these. This is true for other provinces as well. Within this context, Saskatchewan supports the concept of the CGDI and John sees that it can help the country save a lot of money if we can bring "it" all together. Saskatchewan is prepared to help build the national/provincial GDI as a collaborative initiative.

Data Alignment Layer: Denis De Gagné reported on the status of CDAL. The first version has been prepared from the most current NTDB data sets and is compliant with the approved specifications. The first data set is a flat ASCII file that is now available at "<http://www.ctis.nrcan.gc.ca/~cdal>," but it can also be reached through the CGDI web site "<http://cgdi.gc.ca>". A contract to develop the database to manage CDAL has been prepared and it is planned to have this work completed by March 31, 1999. The CTI plan to work with provinces and other interested organizations to develop and improve the tools needed to use and maintain CDAL.

Mark Corey asked John Turnbull to report on the evaluations that Saskatchewan had done on the data alignment points. John's staff had done a comparison of points extracted from the CDAL and compared them with more accurate Saskatchewan data at larger scales and demonstrated that the points were within the specified accuracy of the 1/50K NTDB data but did indicate significant discrepancies with the detailed provincial data sets.. Sylvain Latour noted that when the more accurate data is obtained from Saskatchewan it would be made available in CDAL. David McKellar wondered if CDAL would be made compliant to the developing TC211 standards. Sylvain reminded Dave that TC211 has developed a set of rules for describing features but is not creating standard feature catalogues. Although it was agreed that CDAL should comply with TC211 standards, it was not entirely clear what parts of the CDAL specification would be affected. Mark also asked about the relationship between CDAL and TC204, which is supported by the Road Transportation Association of Canada. Following some discussion on standards it was recommended that the experts meet later and review the status of CDAL with regard to the TC211 work (**Action: Tim Evangelatos, David McKellar, C. Douglas O'Brien, Denis De Gagné, and Sylvain Latour**).

Tools and the Integration of Framework Data. Sylvain Latour was responsible for the initial development of the Data Alignment Layer and he has been thinking about the how the DAL will be used, the tools needed to support its use and any other related tools needed to provide and use framework data sets. As Sylvain explained in his presentation (Attachment 6) the CGDI Data Framework is more than data. Using a practical example Sylvain illustrated that the following sorts of tools would be required for a user to complete his/her task:

- Planimetric correction (Accuracy will vary)
- Horizontal Integration (Edge alignment and object matching)
- Conflation (More than one representation of the data)
- Vertical Integration (More than one representation in a given space)

According to Sylvain the DAL is one of the tools but as various databases at different levels of government are linked several new kinds of tools will be needed. He suggested that a Special Interest Group (SPG) be formed to further refine the CGDI Framework from the tools and processes perspective. He concluded by once again emphasizing the need to disassociate the data from the tools.

Discussion:

David McKellar reminded the group that the Mercator Alliance has been looking at the tools needed to create the CGDI. A Mercator Alliance Proposal was tabled at the May 98 IACG Meeting and was circulated with the Minutes of that meeting. Further both Bob O'Neil and David McKellar are looking at tools as part of their task of leading the Data Access thrust. C. Doug O'Brien also noted that the OGD Research Institute is looking at these issues and a CGDI Special Interest Group would need to look at all these related activities. Bob added that CEONet also has a lot of the tools that will be required.

Sylvain clarified that he was not suggesting that the SPG develop any tools but provide a focus for the definition of what is needed. We need to consider all levels of users, enabling them to deal with a wide

variety of interoperability issues. It was agreed that the tools themselves should be developed by the private sector.

Ed Shaw summarized the discussion. As he understood it there are real issues that Sylvain is trying to get defined and then resolved. Ed suggested that if we focus on concrete examples it would help us bring people together from the various levels of government. Ed felt that this could be accomplished in a workshop that focused on the integration of data. Peter Schut agreed; in his view we need to show people how the data sets come together, not just alignment point by alignment point but through an automated process. He sees it as a big job and we need a lot of tools.

David McKellar wondered about the problems of using DAL to align small scale data sets, like DCW. He felt that it might not be feasible. Bob said that they were tackling this problem in the National Atlas. It has been proposed that this data will be part of the CGDI Data Framework and that it will be maintained and made freely available. His group will also require generalization tools to provide linked data at different scales, 1/1M and smaller. This precipitated a discussion of the need to generalize not only from 1/50K to smaller scales but to also consider provincial data at 1/20K and larger. Fortunately the GeoAccess Division will be investigating the use of CDAL to correct the DCW and will be able to provide feedback on the feasibility and process of doing it. **(Action: Bob O'Neil and Peter Paul)**

David Viljoen described a unique situation in GSC. He felt that the CDAL was not useful to his agency since they are now aligning their geological products with the NTDB but do not include any of the NTDB data in the distributed product in order to avoid licensing costs and issues. However the group suggested that the GSC should include an overlay of the CDAL points in the GSC products as this would make it easier for other users to integrate other data. David also expressed the need geologists have for generating base map or other working documents showing the data alignment points.

John Turnbull noted that there are growing sets of users who need current, dependable data sets that are easy to combine. He recommended that a workshop on data integration should be convened to investigate what is possible. This idea was accepted and was developed later, but first the group decided to identify the issues related to core data and to the integration of such data. This list follows:

Core Data Issues:

- “grabbag” vs structured layers (This reflected the existing IACG view which was subsequently modified)
- terminology and definitions (An issue that will slowly be resolved)
- organizations to commit to core data (A proposed workshop will deal with data integration tools and processes and should lead to greater commitment)
- perspectives: national + provincial + federal (A second proposed workshop will help bring these together)
- data that has fundamental uses (part of the definition of core data)
- policies and costs (crucial issue if core data is to be made easily accessible)
- content of core data by level (part of the definition of core data)
- generalization and compatibility
- standards
- economic model for core data (Suggested by C. Douglas O'Brien the economic model would help define and support the principle of core data)
- GeoGratis – what is free?
- other models
- viewing and visualization of data (CGDI Tools)
- full integration with other levels of data in framework (CGDI Tools)
- time frame? – preparing for the future (John Turnbull stressed that we need to identify what can be done in various time frames, e.g. 5 years, 10 years)

A discussion of “core data,” as it was defined in a previous IACG Workshop (Attachment 2), was initiated by Mark Corey. As the IACG view was not compatible with that emerging from the provinces he suggested

that we discard it and develop a new one. This was agreed. Denis De Gagné suggested that everything on the surface of the earth is important, the data is there, and we just need appropriate tools to use it. This led to a discussion of potential economic models and technical views of the data. It is clear that the provinces will have the most accurate data and the smaller scale national data sets must be created from them. John Turnbull suggested that the CGDI would provide the overall framework that will enable us to get to that kind of a national solution. There will be a need for different data sets at different levels. From the data side we need to work from the bottom up (i.e. from large-scale provincial data to smaller scale national products).

Both Peter Schut and Mark Corey agreed with John and Mark further suggested that we consider looking at new ways of supplying topographic data to the federal agencies and at the same time work towards a single agreement with the provinces. This may be a step toward the “open skies” idea proposed by OMNR’s Glenn Holder.

A similar set of issues were identified with respect to the Data Alignment Layer. The first six issues were identified as being those with the highest priority for discussion and action.

Data Alignment Layer Issues:

- Use of CDAL and demonstration projects need to be fostered and initiated
- Expand to other federal departments as well as the provinces and territories
- Identify user tools and processes; prepare a user manual
- Identify maintenance and densification processes
- Conduct tests using different types of data at different scales with CDAL
- Category of tools integrating framework data
 - i) user interface for access
 - ii) visualization of alignment points
 - iii) insertion of DAL points into layers
 - iv) use in commercial software
 - v) interface for updating DAL points
- Metadata to be included in CEONet (Support for Discovery and distribution)
- Interfacing CDAL to OGD’s data
- Common communication
- COTS S/W
- Levels of metadata in CEONet
- Support for discovery and distribution (extraction and partitioning)
- RFP for development of DAL database
- Design of CDAL feature catalogue
 - Who is driving it?
 - Definitions/attribution/evolution?
 - TC211 standards?
- Scale/levels?
- Time stamping for updates
- Archiving of the data alignment points

Conclusions:

The workshop ended up focusing on the aspects of dealing with the data integration, the issues identified above for the data alignment layer, and on the revision of the definition of CGDI “core data”. Many of these data integration issues are independent of data as suggested by Sylvain Latour in his presentation

.It was decided to organize a technical workshop to deal with data integration and the tools needed to support that task. Denis De Gagné offered to host such a workshop at the Center for Topographical Data in Sherbrooke on November 4th and 5th, 1998. An announcement will be prepared by Sylvain Latour and Paula Rojas and will be circulated to IACG, CCOG, GIAC, and Mercator Alliance members. Industry will be encouraged to participate since the tools will eventually be provided by them.

It was also decided to revise the specification of “core data” in order to be compatible with those that have been developed in the provinces. The “core data” will be divided into a number of basic themes that in turn will be sub-divided into “levels” reflecting the different uses of the data at provincial, territorial and federal levels. The CGDI Secretariat was tasked to develop a revised definition of CGDO ‘core data’ based upon the workshop discussions that will be circulated and then reviewed again at a national CCOG/IACG workshop on Framework Data to be held in Ottawa in January 1999. It is planned to hold this workshop the day preceding a second joint IACG/CCOG meeting that will be convened to discuss distribution policies.
(Action: CGDI Secretariat/CCOG Secretariat)

Attachments:

1. Agenda
2. Tim Evangelatos: CGDI Framework Data
3. Robert O’Neil: Framework Data in the GeoAccess Division
4. Robert O’Neil: GeoGratis – a CGDI/CEONet Component
5. Jim Sarcinello: Global Geospatial Information Infrastructure – The Military Perspective
6. Denis De Gagné: The CGDI Data Alignment Layer
7. Slides Sylvain: Framework is More Than Data

IACG Workshop on Core Data

The Boulton Room
(CHS Boardroom, 3rd Floor)
615 Booth St., Ottawa

Proposed Agenda:

09:00

Welcome and Agenda Review
Update on the CGDI Core Data
GeoGratis
Global Geospatial Information Infrastructure
Brief Provincial Perspectives:
 Ontario
 Saskatchewan
Other Related Projects
Update on the Data Alignment layer

10:30 Coffee Break

Core Data: Thoughts on Data Integration and User Tools
Discussion: Core Data; Core data Use; User Tool Needs;
 Data Integration; etc.

Conclusions, Recommendations and Actions

12:15 Working Lunch (Provided)

Review Recommendation and Actions and
Develop an Agenda for the Afternoon Session
Execute the Workshop's Recommendations and Actions

Chair

Tim Evangelatos

Bob O'Neil

Jim Sarcinello

Tom Malone

John Turnbull

Roundtable

Denis DeGagne

Sylvain Latour

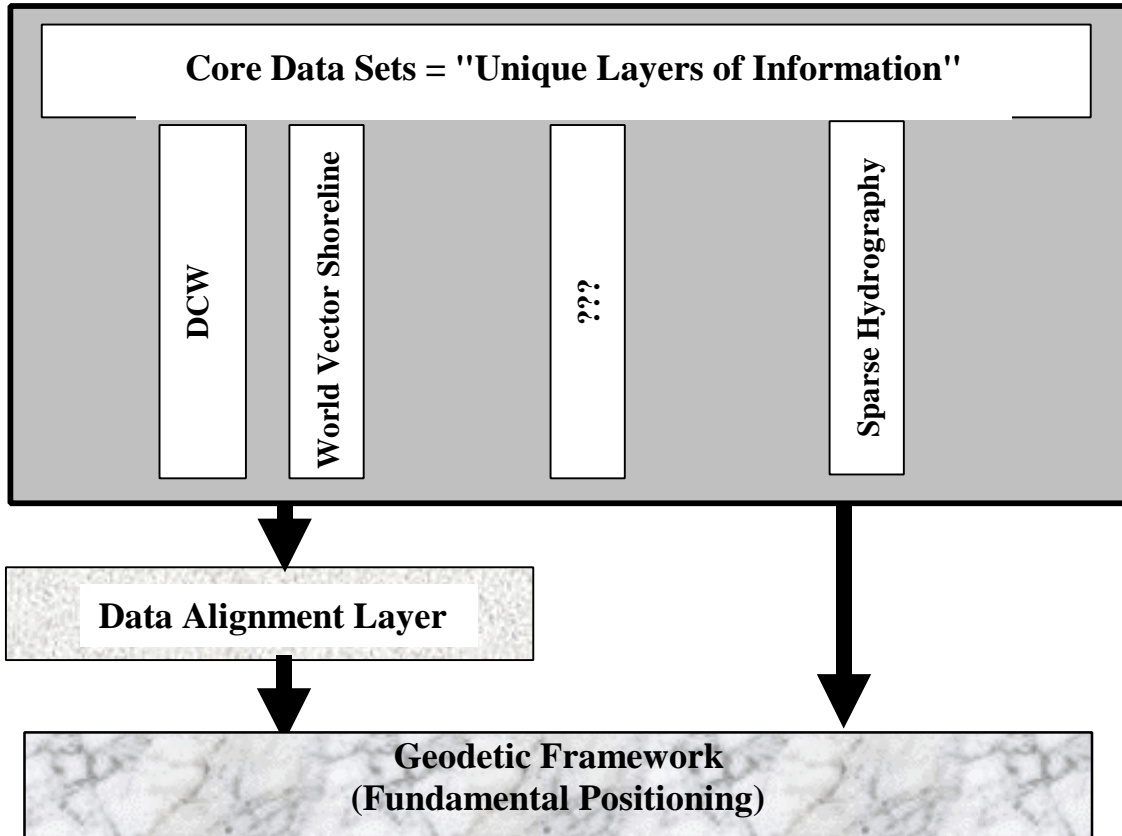
All

Participation (As of Oct 14th, 1998)

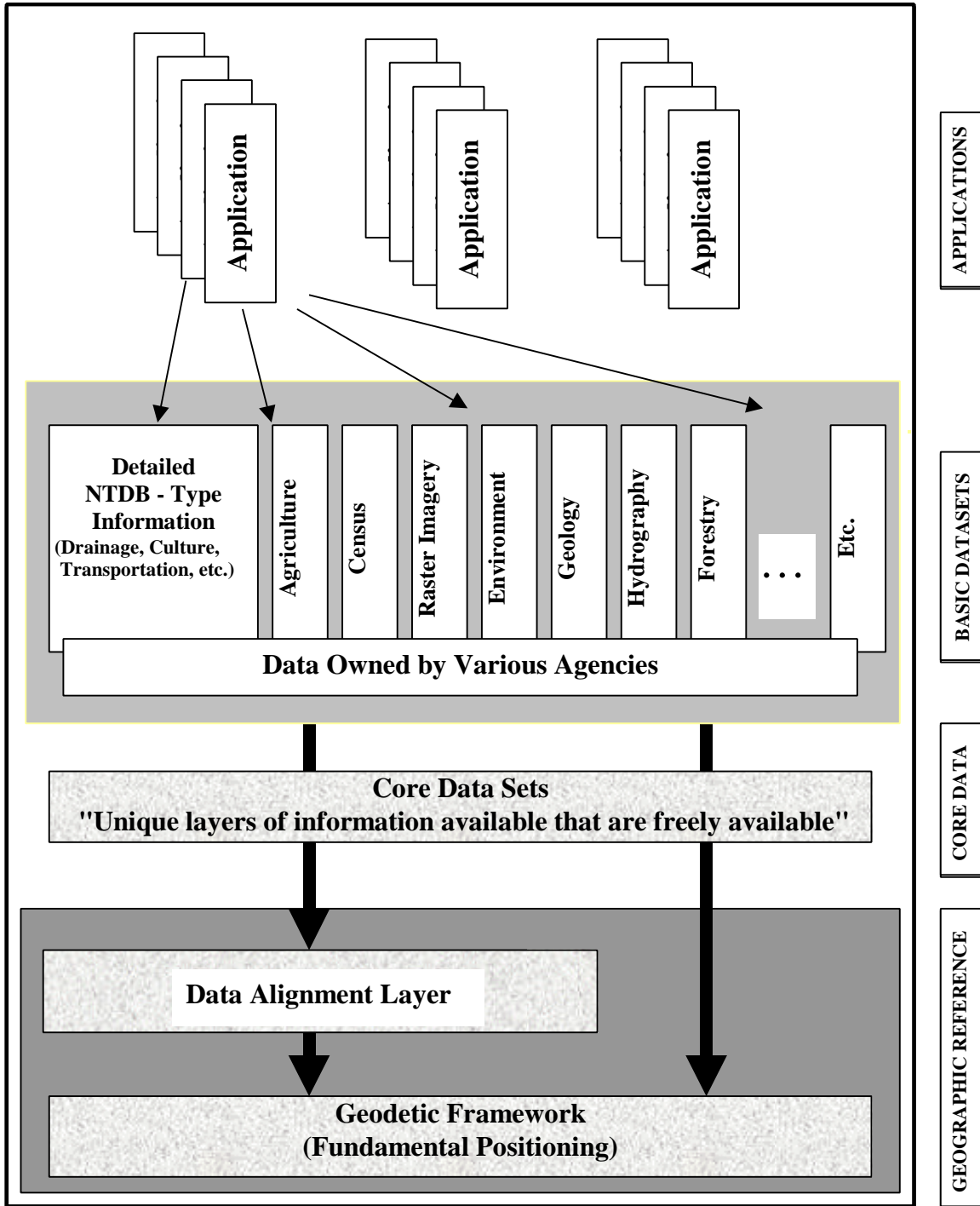
Tom Malone (OMNR)
Nancy Prout (OMNR)
John Turnbull (Sask. Geomatics)
Sheila Rambeau (S.C.)
Gordon Garrard (GSD)
Phyllis Charlesworthe (GSC)
David Viljoen (GSC)
Brian Haddon (CFS)
Valerie Hume (DIAND)
Peter Schut (Agr.)
Adriam Camfield (CCOG)
David McKellar (DND)
Jim Sarcinello (DND)
C. Douglas O'Brien (IDON)
Sylvain Latour (CTI)
Denis DeGagne (CTI)
Don Vachon (DFO)
Bob O'Neil (CCRS)
Peter Paul (CCRS)
Jeff Labointe (CGDI Sec.)
Sandra Mackie (CGDI Sec.)
Paula Rojas (CGDI Sec.)
Tim Evangelatos (CGDI Sec.)
Heather Kinsley (TBC)

Attachment 2

Proposed CGDI Core Data



Proposed CGDI Data Framework



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Attachment #3

Framework Data in GeoAccess Division Data Frameworks Simplify

- ◆ data collection.
- ◆ data base building.
- ◆ analysis.
- ◆ reporting.

Two kinds of Data Frameworks

- ◆ features, geometry.
- ◆ thematic.

Characteristics of Data Frameworks

- ◆ points, lines, polygons, raster, and some attributes
- ◆ local, regional, provincial, national and global.
- ◆ complete meta-information on each feature.
- ◆ vary with time.
- ◆ maintained.
- ◆ re-usable:
 - demanding.
 - depends on client - one size may not fit all.

Tools to Work with Data Frameworks

- ◆ aggregation.
- ◆ apportionment of attributes.
- ◆ generalization.

Data Frameworks in GeoAccess

- ◆ assist in the search and discovery in CEONet:
 - indexing of data by suppliers.
- ◆ National Atlas of Canada:
 - small scale base maps.
 - thematic frameworks fitted to these.

Atlas Frameworks

- ◆ CGDI focus.
- ◆ reference maps (World, NA, Canada).
- ◆ hydrography, political boundaries, elevation.
- ◆ "fitting" secondary references (ecozones, census divisions, postal codes).
- ◆ base map generalization from DCW (GLOBE project).
- ◆ cartographic and geospatial data base quality control.

Framework Data

- ◆ National Atlas base maps and themes provide a framework for reporting at national scale.
- ◆ initially add secondary reference systems:
 - national and political boundaries.
 - election ridings.
 - census sub-divisions.
 - ecozones.
 - postal codes.
 - and more.
- ◆ free distribution encourages use
 - fewer versions of base maps in use.
 - easier integration

Base Map Maintenance

- ◆ re-assume responsibility for 1:1M and smaller scales (but not aerochart bases).
- ◆ generalize Atlas scales from V-Map level 0 (DCW 1:1M scale).
- ◆ fit secondary reference systems to 1:2M scale.
- ◆ seek contract from NIMA for maintenance of V-Map level 0.

DCW as Base Map

- ◆ source data is maintained by NIMA.
 - ◆ free distribution - fewer base maps for Canada:
 - better chance that data will fit together.
 - ◆ base maps of Canada fit the World.
 - World maps fit Canada.
 - ◆ traceable transformation from (provincial to) national to global scale.
 - ◆ GeoAccess can contribute Canadian data to global mapping projects.
- © GeoConnections 1998.

Attachment #4

GeoGratis

a CGDI/CEONet component

GeoGratis - purpose

- ◆ offers free geospatial data sets for research and education purposes.
- ◆ users may:
 - access the data.
 - contribute data.

GeoGratis - technology

- ◆ FTP site.
- ◆ all data indexed through CEONet:
 - inventory level.
- ◆ “format” translation service:
 - FME (Safe Software).
- ◆ GeoBroker viewer:
 - connection to/overlays from the National Atlas of Canada).
- ◆ future:
 - data stored in North American Geospatial Gateway (an OGD I enabled geospatial data warehouse).

GeoGratis - data sets

- ◆ SPOT images:
 - Sherbrooke, Peterborough.
- ◆ Great Lakes Landsat MSS mosaic:
 - 100m image.
- ◆ ERS-1 mosaics:
 - Vancouver Island.
 - southern B.C.
- ◆ AVHRR mosaics:
 - land cover classification.
- ◆ Canada Land Inventory:
 - land capacity - 6 layers.
 - 25% of Canada - 1:250k scale.
 - no coastline.

GeoGratis

- data sets coming soon

- ◆ National Atlas of Canada:
 - January 1, 1999.
- ◆ Land cover map of Canada.
- ◆ VMAP level 0 (aka DCW):
 - 1:1M scale.
- ◆ Canadian ADRC:
 - raster maps.
- ◆ GTOPO30
 - elevations on 1km postings.
- ◆ World Vector Shoreline:
 - 1:250k scale.

Canada Land Inventory

powered by OGD I enabled warehouse

GeoGratis - users

- ◆ University:
 - students.
 - professors.
- ◆ Municipalities:
 - CLI for land use planning.

GeoGratis - Activity

MB downloaded - monthly

Global Geospatial Information Infrastructure: *The Military Perspective*

Jim Sarcinello
Liaison Officer
U.S. National Imagery & Mapping Agency
(613) 992-8214; email: ad314@issc.debbbs.ndhq.dnd.ca

GGII Target State

- ◆ **Integrated view of the battlespace**
- ◆ **Easier access to geospatial data holdings**
- ◆ **Greater coverage at various resolutions**
- ◆ **Paper no longer the dominant media for geospatial info**
- ◆ **COTS solutions fully implemented**
- ◆ **Standardized and/or “transparent” data formats**
- ◆ **Interoperable production and exploitation tools**

GGII - Key Elements

- ◆ **Integrated View of the Mission Space**

GGII - Key Elements

- ◆ **GGII Framework**

GGII - Key Elements

- ◆ **US Imagery & Geospatial Information System (USIGS) Data Model**

GGII - Key Elements

- ◆ **Foundation Data**
 - **World wide/near world wide coverage**
 - **Mission independent**
 - **Stable/maintained for currency**
 - **Std. coverages of known accuracy & quality**
 - **Specs compliant**
 - **Geopositioned to WGS-84 & known vertical datums**
 - **1:50 k - 1:100 k feature density (20-40% of TLM)**

GGII - Key Elements

◆ Mission Specific Data Sets

- Enhanced Foundation data
- Produced IAW individual mission requirements
- May include:
 - ▼ higher resolution controlled imagery
 - ▼ higher resolution elevation
 - ▼ higher resolution hydro info
 - ▼ high density vector data
- Crisis & readiness driven
- Std and non-std coverages

GGII - Key Elements

◆ Qualified Data

- Data sets of known quality & accuracy
- Not integrated/deconflicted with FFD and/or MSDS
- Legacy NIMA/co-produced standard digital products are the core component
 - ▼ VMap Lv. 0, 1, 2, & 3 (UVMMap)
 - ▼ DTED
 - ▼ Interim Terrain Data (ITD)
 - ▼ Digital Feature Analysis Data (DFAD)
 - ▼ etc....
- Other Government data (US & international)
- Commercial products and databases
- Validated Value-added data

GGII - Key Elements

◆ Readiness & Responsiveness Production

GGII - The Military Perspective

- Ability to intensify the Foundation to meet specific mission needs

GGII - The Military Perspective

Attachment #6

The Canadian Geospatial Data Infrastructure (CGDI) Data Alignment Layer

Presentation Overview

- What is the CGDI Data Alignment Layer and How Did It Come About?
- Data Characteristics (Types of Points)
- Tests to Correct Data from CDAL
- First Version of the CDAL
- Database Management System
- What's Next?

How Did It Come About?

- CCOG (Fall of 1996)
- Need for a CGDI: Governments at all levels are working together and with industry to develop the infrastructure to more efficiently collect, integrate, manage, and disseminate geospatial data using the emerging information highway.

The CGDI Initiative

- IACG (December 1996)
- CGDI Initiative
 - Partnerships
 - Supportive Policies
 - Geospatial Standards
 - Geospatial Data Access
 - Framework Data

Framework Data

- Provide a foundation of reliable geospatial data to enable a data framework for value-adding, application development, and more specific detailed data collection

Data Integration Problems

- Existing Data
 - Raster Data
 - Satellite Images
 - Vector Data
 - Different sources and scales
- IACG mandates CTI (Fall 1997)

Resolution 97-9 CCOG (Regina) - Framework Data

- ...
- Be it resolved that Council endorse the concept and testing of a “coherence layer” (later renamed the “data alignment layer”) to provide a comprehensive and efficient geo-referencing capability for multiple applications, and encourage the development of these framework data in each jurisdiction through cooperation among federal and provincial/territorial agencies
- ...

CGDI Data Alignment Layer

- Database containing easy-to-identify georeferenced points
 - To georeference raster and vector data sets from various sources and scales
 - Point accuracy may be improved
 - Point density may be increased
 - Free access on the Internet

Two-fold Project

- Define the DATA (contents)
- Develop the SYSTEM (DBMS on the Internet)

General Characteristics

- Horizontal Datum: NAD83
- Vertical Datum: Mean Sea Level
- Geographic Coordinates (lat, long)
- Multiple CDAL Point Definition

CDAL Feature Types

- Intersection
- Point Feature
 - Originating from a POINT
 - Originating from a LINE
 - Originating from a POLYGON

Intersection

- An intersection is the point where at least three branches meet
 - Highways (HI)
 - Roads (other than highways and access roads) (RO)
 - Access roads (AR)
 - Railways (RA)

Point Feature

- Feature that is easily identifiable in a data set independently of its geometric representation (point, line, polygon) in the originating data set (e.g. tower, lighthouse, dam, lake, island)
 - position of the originating point
 - geometric center of the originating line
 - center of mass of the originating polygon

Point Feature Originating from a Polygon

- Position defined as the mathematical center of mass of a closed polygon (may be located outside the polygon)
 - Islands
 - Lakes
 - Dams
 - ...

CDAL Data Characteristics

- CTI has prepared:
 - Technical specifications for CDAL contents (revised and approved by CCOG and IACG)
 - Examples of CDAL features with their characteristics
- <http://www.ctis.nrcan.gc.ca/~cdal>

Example of a CDAL Feature Description

Tests to Correct Data from CDAL Points

- Statistics Canada
- Agriculture and Agri-Food Canada
- Canada Post Corporation
- Digital Chart of the World
- NTDB 1:250 000 Data Sets

Lindsay Test Area from
Agriculture and Agri-Food Canada
CDAL Points for the

Lindsay Test Area (31D10)

Matching Intersections between CDAL and Lindsay Test Area (31D10)

CDAL: First set of intersections extracted from the NTDB

The characteristics of each point help locate the corresponding intersection in the vector file
Matching Feature Points between CDAL and Lindsay Test Area (31D10)

CDAL: First set of point features from polygons extracted from NTDB

The characteristics of each point help locate the corresponding lake in the vector file
Lindsay Test Area (31D10) before and after Planimetric Correction with CDAL
Points

First Version of the CDAL

- Prepared by CTI from the most current NTDB data sets
- Compliant with approved technical specifications
- Flat ASCII files covering Canada now available
 - <http://www.ctis.nrcan.gc.ca/~cdal>

Database Management System

- Data Visualization
- Data Extraction via the Internet (from user-defined selection criteria)
- Data Modification (addition and/or updating)
 - Authorized users only
 - Data Validation

Database Management System (Cont'd.)

- Searches via:
 - Graphic Representation
 - National Topographic System (NTS) Number
 - Toponym
 - Coordinates (geographic, cartesian)
 - Data Validity Date, Data Accuracy, Data Provider, etc.

The data can be found:

- 1- Via graphic search...
- 2- Using a description...
- 3- or coordinates

Use the maps to narrow your search...

...by clicking on the area you are looking for...

...until you find what you are looking for.

Then you can access the database...

...to extract the data.

Next Steps

- CGDI Workshops (Fall 1998)
- Specifications for system development (Fall 1998)
- Final version of technical specs for CDAL contents prepared according to ISO/TC 211 standard (Fall 1998)

Next Steps (Cont'd.)

- CDAL system in place and accessible by early 1999
- Organizations able to add data to the system by mid 1999

Proposed Provincial/ Territorial Contribution

- Technical Exchanges with CTI-S (Fall 1998)
- Preparation of CDAL Point Extraction Procedure
- Documentation on how to use the CDAL database
- Data transfer to CDAL (mid 1999)

Questions?

- CGDI Data Alignment Layer Web site:
 - <http://www.ctis.nrcan.gc.ca/~cdal>
- Other link to the CDAL Web site:
 - <http://cgdi.gc.ca>

CGDI Data Alignment Layer Team at CTIS

- Jean Huot (819) 564-4830 Technologist/Coordinator/Advisor
- Paul Jolicoeur (819) 564-5598 Project Manager
- Christine Parent (819) 564-4818 Geomatics Specialist
- E-mail icdgcc@ccg.nrcan.gc.ca

Attachment #7

Framework is more than Data

An interesting case !

The project is to ...

- Build the best road network and other informations as park, camping, forest and lake.
- This dataset will be use by traveler to find their way to attraction or accomodation !
- The Ottawa - Outaouais area is needed .

What kind of information do we have ?

Find the available data

Geomatics Canada	100%	90-94	50-10	OK
Province Québec	75%	92-97	10 m.	OK
Ottawa Carleton	10%	94-97	1 m.	Good
Canada post	100%	96-97	100-10	Great

Good - but !

Data analysis

- Conclusion
 - ➡ none of the above product answer this specific need
- Actually, what we need is to build our own !
 - ➡ Use the best geometric / accuracy data available - assemble it like a puzzle
 - ➡ Transfert the attribute value from Canada post data to the new dataset
- What do we need to do that or what kind of problem do we facing of ?

Problem # 1

Various data accuracy

- Accuracy change from product to product and from area to area
- We must put all the information we need at the same level of accuracy.

Planimetric correction

Problem # 2

Edge match

Horizontal integration

Problem # 3

More than 1 representation for the same phenomena

Problem # 4

More than 1 representation use the same space

Users need tools

- For problems such as the example
 - Data Alignment Layer is part of it
- For permanent Data Bases links
 - Department - Department
 - Federal - Provincial / Provincial - Municipal
 - Anybody - Anybody

Proposed action

- I recommend
 - To create a Special Interest Group to further define the framework from the tools and processes perspective.

Benefits of promoting tools and processes in Framework Data

- Its a common problem
 - Federal, Provincial, Municipal and private
- Applicable to all users
- Marketable technologies
- Fosters collaboration
 - Win ... Win ... Win

Why a Special Interest Group

- We need to dissociate Data from Tools
- To create focus and momentum
- There is work to be done
 - To define and frame
- To legitimate the work