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Abstract:

Rapid changes in geoinformation management, such as development of national geospatial data infrastructures, have the potential to change how GIS is used in the earth sciences. Data are now routinely available in digital form and, increasingly, via the Internet; however, data sources continue to utilize disparate standards and protocols, complicating the data integration. Technology is now available to develop distributed geolibraries, or knowledge networks, that can deliver consistent interoperable data from distributed data sources.

Within Canada, the National Geological Surveys Committee is developing a Canadian Geoscience Knowledge Network (CGKN) which will become the geoscience component of the Canadian Geospatial Data Infrastructure and link geoscience data from the 12 Canadian government geoscience agencies. In 1998, the first component of CGKN went online. The Canadian Geoscience Publications Directory (<http://ntserc.gis.nrcan.gc.ca/>) provides one-window graphical access to distributed metadata describing all Canadian government geoscience publications. From this successful proof of concept, a CGKN architecture has been designed that will provide access to geospatial geoscience data. Dynamic translation of native format data maintained locally by the custodians into a standard CGKN geoscience data model will be used to allow delivery of consistent interoperable data.

The coming availability of networked interoperable data opens the possibility for development of server-based on-line GIS, customized to the user's skill level and application, which will allow the user to discover, visualize, and interpret data through their browser. While GIS specialists will likely continue to download data for local use, non-specialists will increasingly rely on on-line GIS tools to access and interpret leased data delivered on demand.