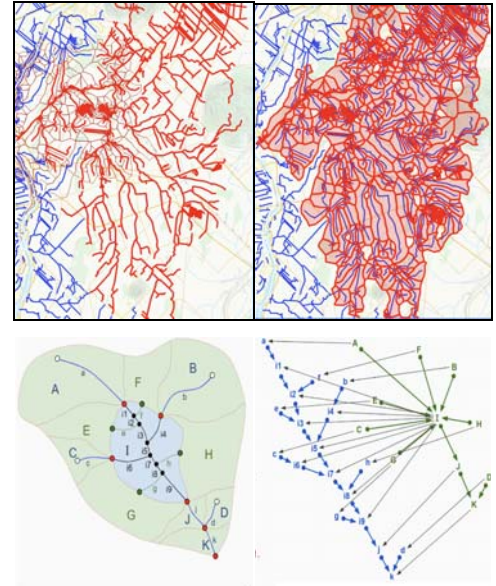


Request for Participation

Natural Resources Canada (NRCan) has created the National Hydro Network (NHN) based on a specification written in 2004. It is time for an update. We are interested in obtaining input from various user communities pertaining to what an NHNv2 should provide. To that end NRCan will be running a series of workshops, at least one of which will target hydrologic applications.

Over the last two years, work has proceeded on CHyF (the Common Hydrology Features model), which is intended to support hydrologic analysis. The new data model is based on graph theory and is consistent with international standards. This development has gone well; its functionality will be briefly demonstrated at the workshop.

One option is to make the NHNv2 compliant with CHyF, which would then allow for a number of web services to be implemented (two of which are shown in the upper diagrams). In this case, the NHNv2 would consist of data, tools and services. The differences between NHNv1 and a CHyF-compliant NHNv2 are summarized in the table below.



The goal of these NRCan-hosted workshops is to solicit input from practitioners and academics on the specific capabilities of this data model, the potential for extension, and to identify additional applications for use that may inform further development.

Criteria	NHNv1	NHNv2 (if CHyF compliant)
Compliance		
Compliant with current international standards	Compliant in part. The linear flowpath network in NHNv1 is compliant	Fully compliant. CHyF is a profile of the HY_Features conceptual model, underwritten by the Open Geospatial Consortium and the World Meteorological Organization.
Compliant with federal direction related to provision of web services	Yes, a WMS service exists to serve map images over the web	Yes. A variety of services implemented through a web API will be available to support end-user applications. (see below)
Contents		
Lakes, streams	Yes	Yes
Wetlands, glaciers/snowfields	No	Included in the data model. How best to use them with catchments, flowpaths and elevation data is under consideration.
Flowpath networks - for (predefined) sub-sub-drainages	Yes	Yes

Flowpath networks - from arbitrary points	No	Yes. Upstream and downstream networks from arbitrary points are supported using web services (see below).
Catchments - predefined	No	Yes. Elementary (i.e. incremental) catchments are defined for stream segments and waterbodies. Major drainage basins are also specified.
Catchments - from arbitrary locations (pour points)	No	Yes. Through web services (see below), pour points can be chosen at arbitrary locations, with their corresponding catchments returned.
Services		
Data download services	Yes; all data for a sub-sub-drainage	Yes. Very specific types of data can be downloaded such as single catchments or sections of stream networks determined on the fly. Complete data sets can also be downloaded.
Flowpath related services	No	Yes. Through a web API, upstream and downstream from an arbitrary point along a flowpath can be identified and returned.
Catchment related services	No	Yes. Catchments may be very small or very large, and can be returned along with statistics about distance to water, elevation, slope, aspect, land cover, etc.
Location services	No	Yes. Point and linear sections along the flowpath network can be identified based on GPS positions.
Integration with modelling frameworks	No	Not tested yet, but should be practical to use services with vector-based routing models, general R routines, etc.
Scaleable	No	Services will support queries that cover small areas or quite large areas.