



USGS Streamgaging Program

Recent Improvements

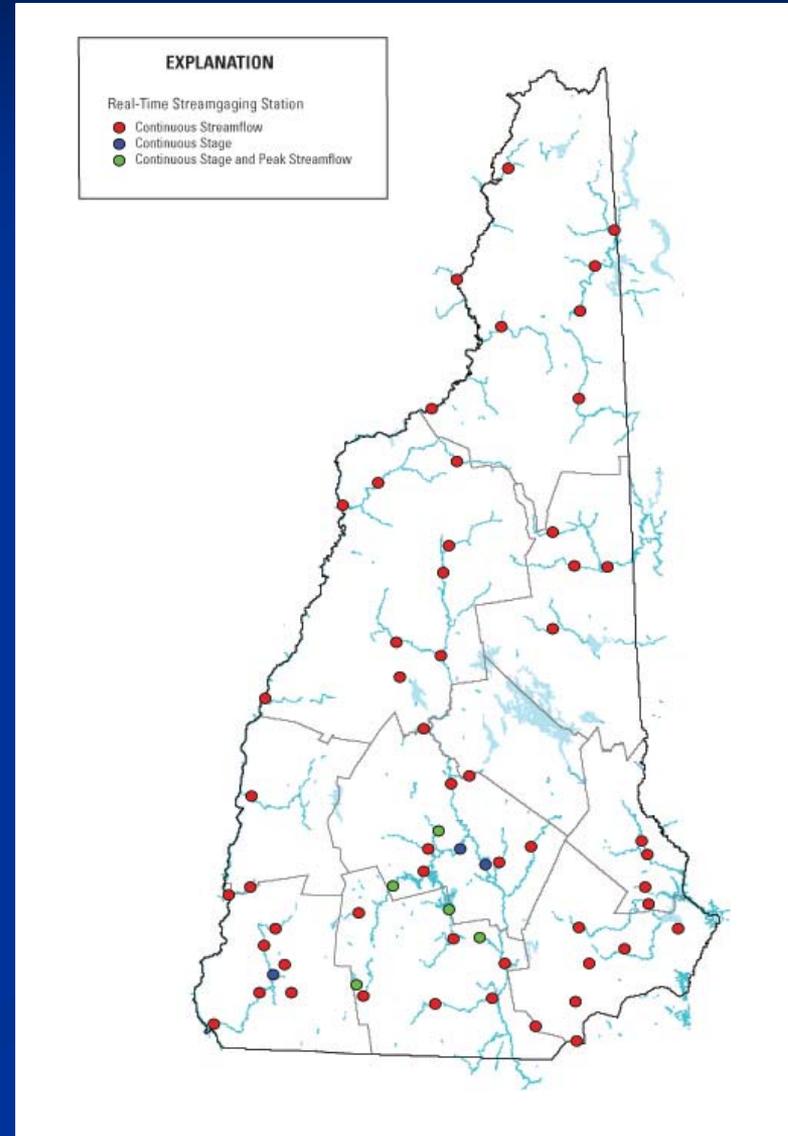
2009 New Hampshire Joint Water and Watershed Conference

November 20 and 21, 2009

Concord, NH

Recent Improvements

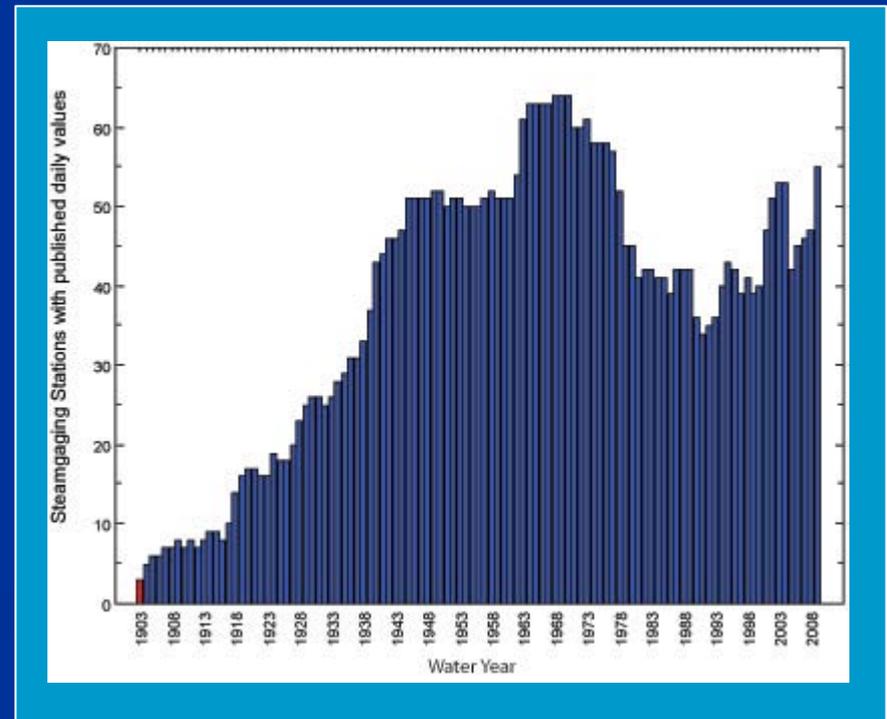
- Streamgage network
- Technical advances
- Improved data dissemination
- Coming soon...



Streamgage Network

History of USGS in NH

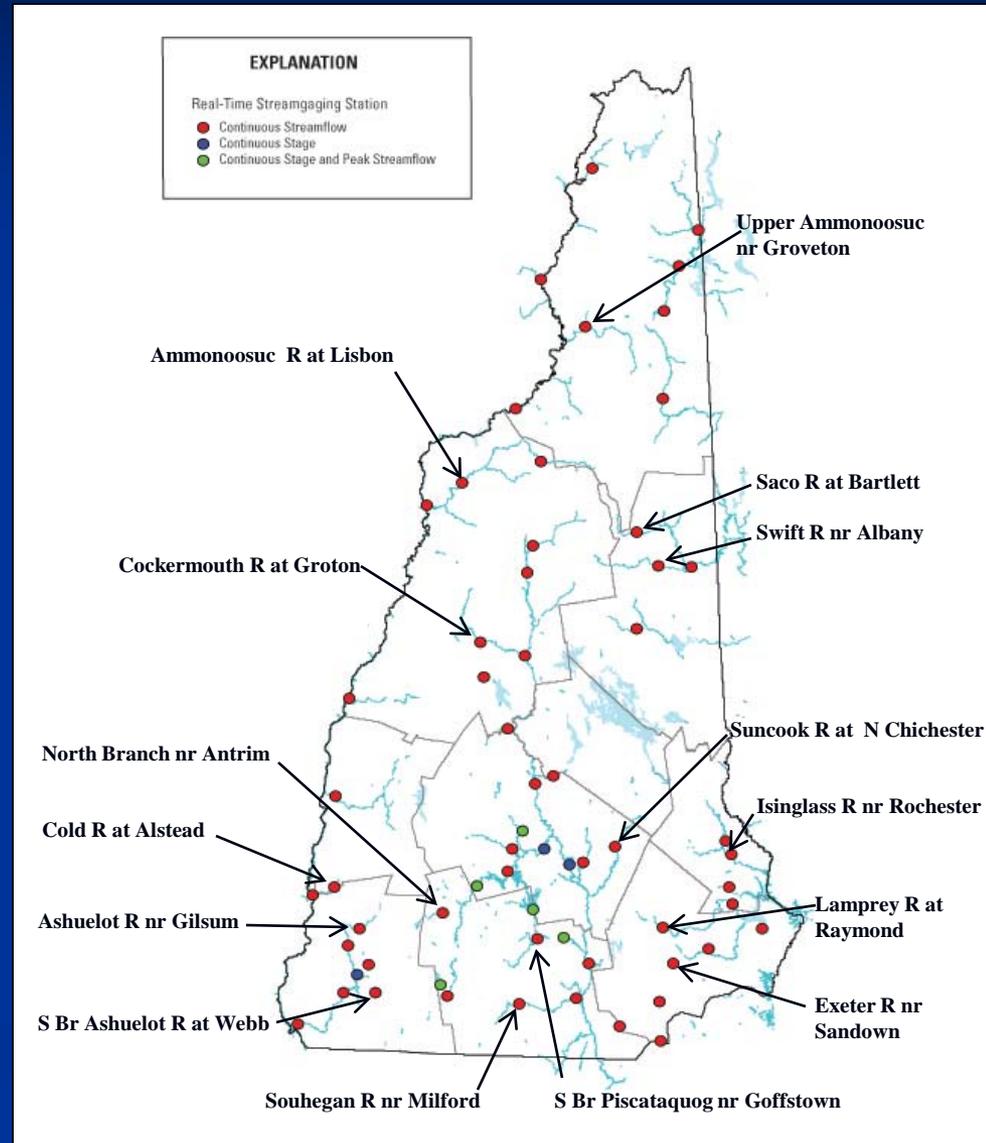
- 1886 Gage established at Pemigewasset R at Plymouth
- 1927 Flooding led to interest in reservoirs/hydropower
- 1936, 1938 Flooding led to involvement of USACOE and need for more data
- 1960's Interest in small watersheds
- 1970's, 2004 Decline due to lack of State and Federal funding



Streamgauge Network

Recent Network Expansion

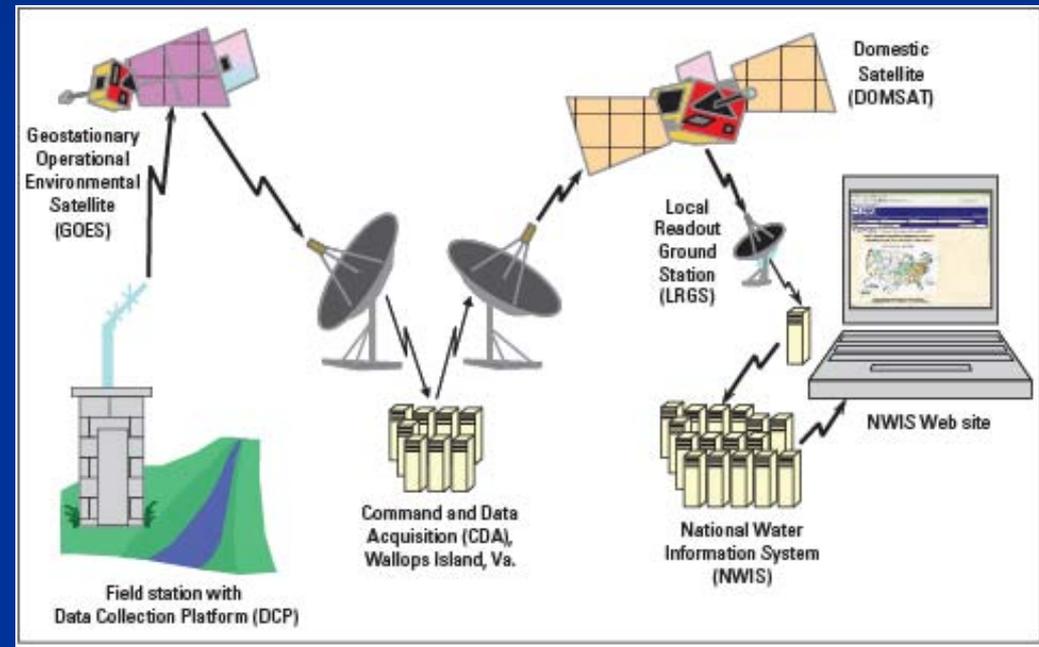
- USGS-NHDES Cooperative
- 15 gages added to network in 2008-2009
- Response to recommendations by NH Rivers Management and Advisory Committee and prioritized by the Stream Gage Task Force
- Stage, Streamflow, Water and Air Temperature



Technical Advances

Data Collection Platforms

- Entire NH network uses GOES Telemetry
- Mandated change of DCP's from 100 to 300 baud by 2013
- NH network currently 80% compliant
- Data broadcast hourly



Technical Advances

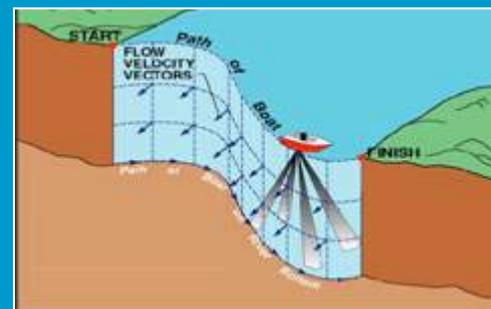
Hydroacoustic's

- ADCP's rapidly replacing current meters
- ADCP's monitor velocity magnitude and river depth
- Index velocity gages in adverse environments
- Estimates of suspended sediment

Midsection method and current meters



Hydroacoustics and ADCP's

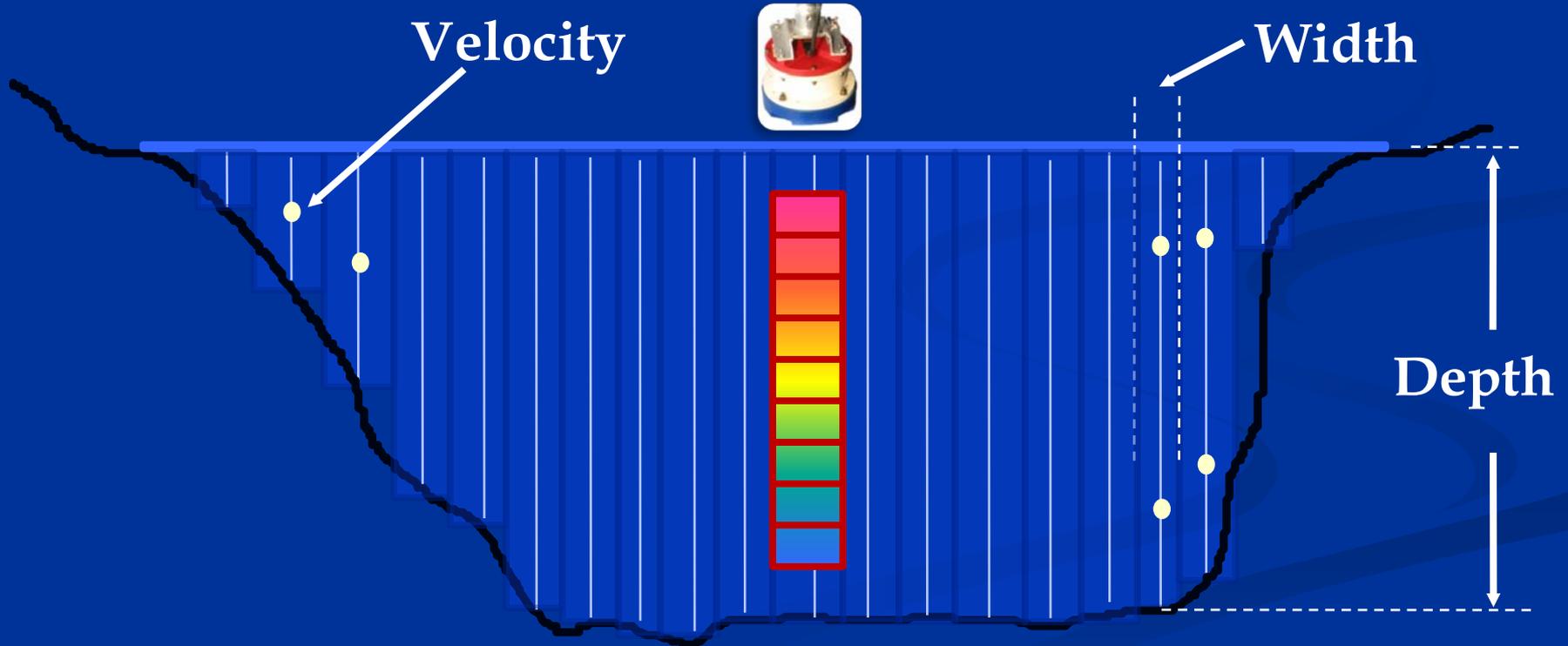


Technical Advances

- Mid-section method and current meters



- Hydroacoustics

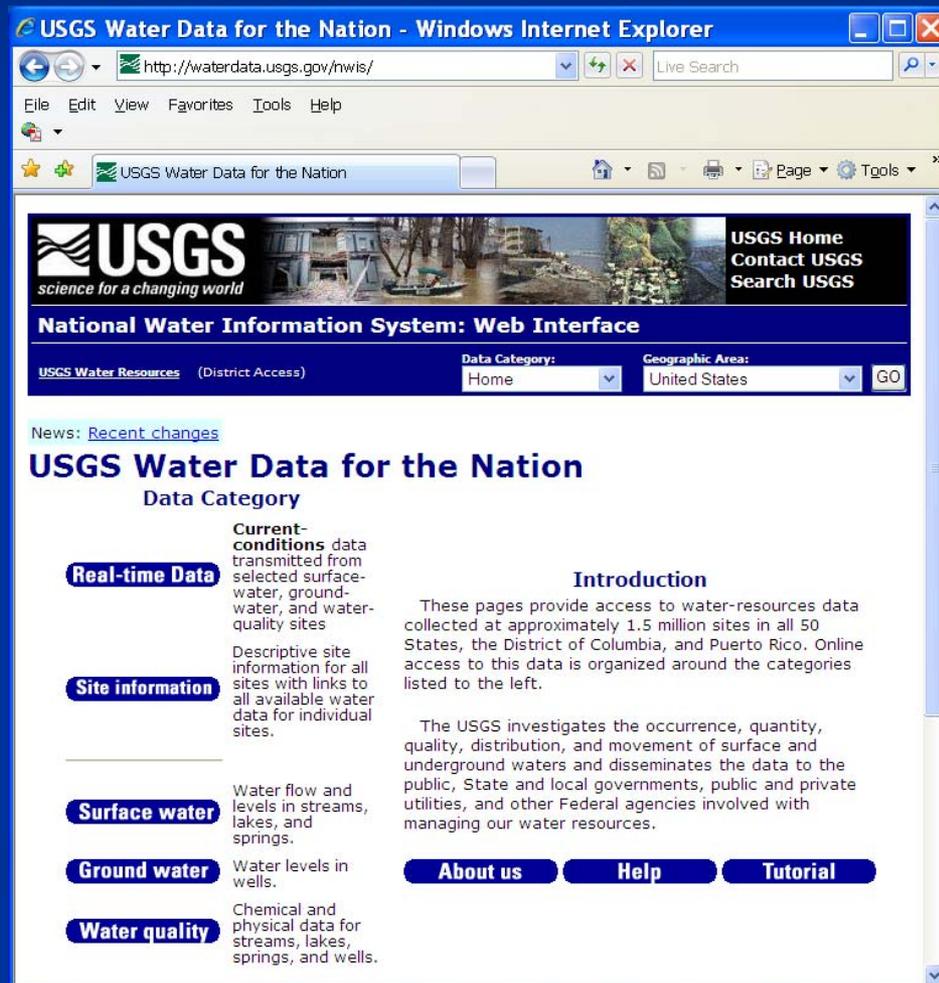


Improved Data Dissemination

NWIS Database

- 1.58 million sites
- 21,200 streamflow sites (188 in NH-VT WSC)
- 181 million daily streamflow values
- 623,710 flood peak discharges
- 8,943 real-time sites (62 in NH)
- 135,054 water-quality sites
- 62.8 million chemical analyses
- 7.8 million ground-water levels (3 real-time in NH)

<http://waterdata.usgs.gov/nwis/>



The screenshot shows a Windows Internet Explorer browser window displaying the USGS Water Data for the Nation website. The browser's address bar shows the URL <http://waterdata.usgs.gov/nwis/>. The website header features the USGS logo and navigation links: "USGS Home", "Contact USGS", and "Search USGS". Below the header is the "National Water Information System: Web Interface" section, which includes a "Data Category" dropdown menu set to "Home" and a "Geographic Area" dropdown menu set to "United States", with a "GO" button. The main content area is titled "USGS Water Data for the Nation" and lists several data categories with brief descriptions:

- Real-time Data**: Current-conditions data transmitted from selected surface-water, ground-water, and water-quality sites.
- Site information**: Descriptive site information for all sites with links to all available water data for individual sites.
- Surface water**: Water flow and levels in streams, lakes, and springs.
- Ground water**: Water levels in wells.
- Water quality**: Chemical and physical data for streams, lakes, springs, and wells.

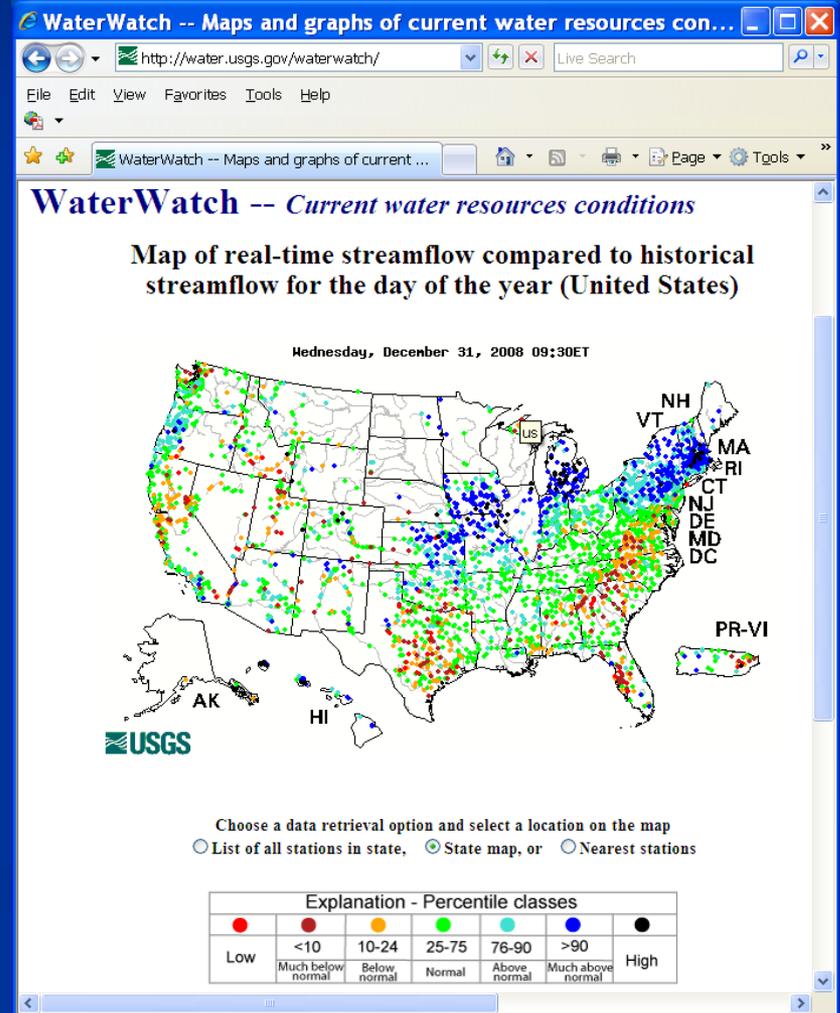
An "Introduction" section on the right explains that the pages provide access to water-resources data collected at approximately 1.5 million sites in all 50 States, the District of Columbia, and Puerto Rico. It also notes that the USGS investigates the occurrence, quantity, quality, distribution, and movement of surface and underground waters and disseminates the data to the public, State and local governments, public and private utilities, and other Federal agencies involved with managing our water resources. At the bottom of the page, there are three buttons: "About us", "Help", and "Tutorial".

Improved Data Dissemination

WaterWatch

<http://water.usgs.gov/waterwatch/>

- Graphical interface
- Real-time, flood watch, drought watch, animation
- Current streamflow shown relative to historic data
- Summary tables
- Flow-duration curves



Improved Data Dissemination

GroundWaterWatch

- Graphical interface
- Real-time and recent data
- Water levels shown relative to historic data
- Summary tables

<http://groundwaterwatch.usgs.gov/>



The screenshot shows a web browser window titled "USGS -- Water Resources of the United States - Windows Internet Explorer". The address bar displays "http://groundwaterwatch.usgs.gov/". The page content includes the USGS logo and tagline, a navigation menu with "USGS Home", "Contact USGS", and "Search USGS", and a section titled "Groundwater Watch".

USGS Groundwater Networks

The USGS has a distributed water database that is locally managed. Surface water, groundwater, and water quality data are rolled up from these local, distributed databases into a national information system. The groundwater database contains records from about 850,000 wells that have been compiled during the course of groundwater hydrology studies over the past 100 years. Information from these wells is served via the Internet through NWISWeb, the National Water Information System Web Interface. NWISWeb provides all USGS groundwater data that are approved for public release. This large number of sites is excellent for some uses, but complicates retrievals when the user is interested in specific networks, or wells in an active water-level measurement program.

These web sites group related wells and data from these active well networks, and provide basic statistics about the water-level data collected by USGS water science centers for Cooperative Program, Federal Program, and supplied to us by our customers through cooperative agreements.

Active Groundwater Level Network
Thursday, November 05, 2009

Climate Response Network
Thursday, November 05, 2009

Real-Time Groundwater Level Network
Thursday, November 05, 2009

High Plains Aquifer Monitoring Network
Thursday, November 05, 2009

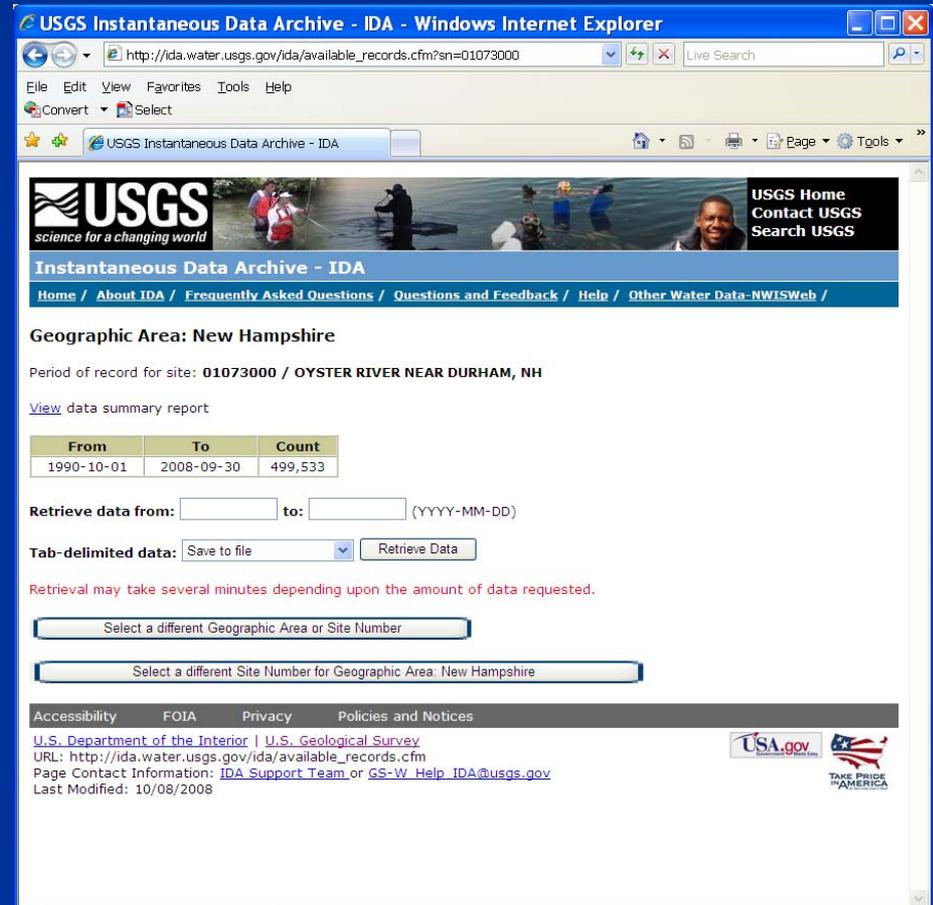
Each of the four maps shows a geographical distribution of wells across the United States, with data points represented by colored dots. The maps are arranged in a 2x2 grid.

Improved Data Dissemination

Instantaneous Data Archive (IDA)

<http://ida.water.usgs.gov/ida/index.cfm>

- Provisional historical unit-value data
- From about 1990 to most recently published daily streamflows (2008)
- Last 60 days available in nwis



The screenshot shows the USGS Instantaneous Data Archive (IDA) website. The browser window title is "USGS Instantaneous Data Archive - IDA - Windows Internet Explorer". The address bar shows the URL: http://ida.water.usgs.gov/ida/available_records.cfm?sn=01073000. The page content includes the USGS logo, navigation links, and specific data for site 01073000 in New Hampshire. A table shows the period of record from 1990-10-01 to 2008-09-30 with a count of 499,533 records. There are input fields for selecting a geographic area and site number, and a "Retrieve Data" button.

USGS Instantaneous Data Archive - IDA - Windows Internet Explorer

http://ida.water.usgs.gov/ida/available_records.cfm?sn=01073000 Live Search

File Edit View Favorites Tools Help

Convert Select

USGS Instantaneous Data Archive - IDA

USGS Home Contact USGS Search USGS

Instantaneous Data Archive - IDA

Home / About IDA / Frequently Asked Questions / Questions and Feedback / Help / Other Water Data-NWISWeb /

Geographic Area: New Hampshire

Period of record for site: 01073000 / OYSTER RIVER NEAR DURHAM, NH

[View](#) data summary report

From	To	Count
1990-10-01	2008-09-30	499,533

Retrieve data from: to: (YYYY-MM-DD)

Tab-delimited data:

Retrieval may take several minutes depending upon the amount of data requested.

Select a different Geographic Area or Site Number

Select a different Site Number for Geographic Area: New Hampshire

Accessibility FOIA Privacy Policies and Notices

U.S. Department of the Interior | U.S. Geological Survey
URL: http://ida.water.usgs.gov/ida/available_records.cfm
Page Contact Information: [IDA Support Team](#) or GS-W_Help_IDA@usgs.gov
Last Modified: 10/08/2008

USA.gov TAKE PRIDE IN AMERICA

Coming Soon

Automated Notification System

- User defined thresholds entered for each site
- User will be notified via email when real-time data exceeds threshold
- May be available in 3-6 months

Beta Version

NC-HAS - Windows Internet Explorer
http://hc.water.usgs.gov/alert/

Select Type of Alert
 Email: Text Message:

Enter an Email Address
About:

or
Enter a Phone Number:
About:

Carrier: Alltel

Enter the site number or select a station from the map
About:

Data Type
About: Surface Water Precip

Surface Water Data	Precipitation Data
<input type="radio"/> Gage height (Feet)	<input type="radio"/> Precip 1 hr
<input type="radio"/> Flow in CFS	<input type="radio"/> Precip 2 hr
	<input type="radio"/> Precip 4 hr
	<input type="radio"/> Precip 6hr
	<input type="radio"/> Precip 12 hr

Enter the threshold value:
About:

Zoom to the station of interest, click on the station, and the station number will automatically be entered into the site number field to the right. Alternatively, go to the NC Real-Time Streamflow Table and identify the station number of interest and manually enter the value into the site number field. Visit [Streamflow Data on NWIS](#).

Provisional data for North Carolina
Recent data provided by the USGS in North Carolina -- including stream discharge, water levels, precipitation, and measurements from water-quality monitors -- are preliminary and have not received final approval. Real-time data relayed by satellite or other telemetry receive little review, although USGS staff typically review data within 2 days of transmission to remove extremely large errors. Inaccuracies in the data may be present because of instrument malfunctions or physical changes at the measurement site. Subsequent review may result in significant revisions to the data.

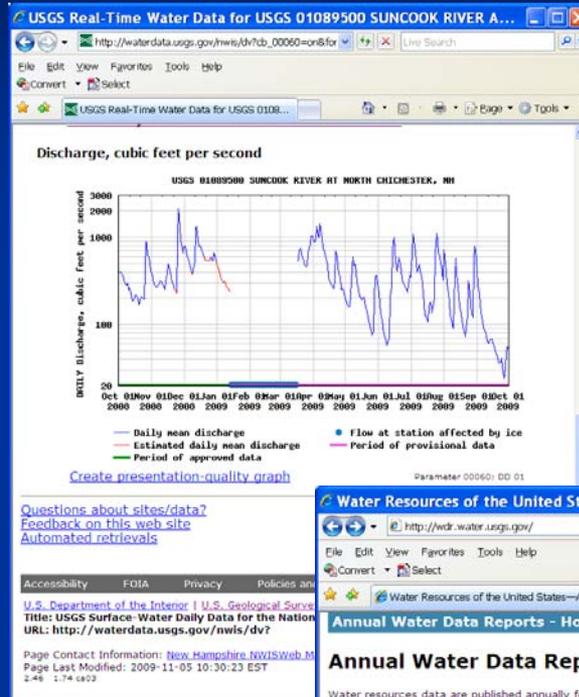
Data users are cautioned to consider carefully the provisional nature of the

Coming Soon

Continuous Records Processing

- Finalized mean daily streamflow data on less than annual basis
- Data driven
- Finalized data will be available through NWIS
- Annual data report will still be end product

<http://wdr.water.usgs.gov/>



The screenshot shows the "Annual Water Data Reports - Home Page" on the website "Water Resources of the United States—Annual Water Data Reports". The page features a navigation menu with "Home Page" selected. The main heading is "Annual Water Data Reports". Below this, there is a paragraph of text explaining that water resources data are published annually for use by engineers, scientists, managers, educators, and the general public. A dropdown menu is set to "2008", and a link "Water Years prior to 2006" is provided. At the bottom of the page, there are links for "Visit the Water-Data Report Mapper", "Documentation", "Related information and publications", and "Document Accessibility".

Questions?

Lamprey River, May 2006



Cold River, October 2005

Photo courtesy of NH State Police Aviation Unit

