U.S. Geological Survey: CLEANER WORKSHOP

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on behalf of Robert M. Hirsch

U.S. Geological Survey
Biological Resources Discipline
Geological Discipline
National Mapping Discipline
Water Resources Discipline
Mission: Provide hydrologic information and understanding

Focus: Quantity, quality, and use of the Nation's water resources

Methods: Basic and problem-oriented hydrologic and related research

Programs: Local cooperative and Federal
Almost all hydrological research needs a spatial and historical context.

CLEANER efforts could ‘dovetail’ with WRD.

CLEANER can ‘exploit’ WRD infrastructure,
- historical USGS records,
- current USGS activities (add-on to studies).

USGS/WRD not funding source.
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WRD Federal Programs

Toxic Substances Hydrology Program
Water, Energy, and Biogeochemical Budgets
Hydrologic Benchmark Network
National Streamflow Information Program
Nation Water-Quality Assessment Program
National Stream Stream Quality Accounting Network
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Toxic Substances Hydrology Program
(Toxics; since 1982)

→ provides objective scientific information to improve characterization and management of contaminated sites, environmental health, and to reduce potential future contamination problems.
The Toxics Program conducts:

1) intensive field investigations of representative cases of subsurface contamination at local releases,

2) watershed- and regional-scale investigations of contamination affecting aquatic ecosystems from non-point and distributed point sources.
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Water, Energy, and Biogeochemical Budgets (WEBB; since 1991)

→ understand the processes controlling water, energy, and biogeochemical fluxes over a range of temporal and spatial scales
→ to understand the interactions of these processes, including the effect of atmospheric and climatic variables.

Five small, research watersheds: CO, GA, PR, VT, WI
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Hydrologic Benchmark Network
(HBN; since 1963)

→ to provide long-term measurements of streamflow and water quality in areas that are minimally affected by human activities.

58 drainage basins in 39 States; 13 discontinued
National Streamflow Information Program (NSIP; some rivers since the 1800s)

→ new approach to the acquisition and delivery of streamflow information.

Approximately 7,000 streamgages with 850,000 station years of time-series data
National Streamflow Information Program (NSIP; some rivers since the 1800s)

Water Watch
⇒ "Real-time streamflow" map tracks short-term changes (over several hours) in rivers and streams.
National Stream Quality Accounting Network (NASQAN; since 1974, revised 1996)

provides ongoing characterization of the concentrations and flux of sediment and chemicals in the Nation's largest rivers

Mississippi (including the Missouri and Ohio), Columbia, Colorado, Yukon and Rio Grande
Nation Water-Quality Assessment Program
(NAWQA; since 1991)

→ assess historical, current, and future water-quality conditions in representative river basins and aquifers nationwide.

42 Study Units on a decadal cycle with a 3-year rotation (14 active Study Units at any given time.)
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Nation Water-Quality Assessment Program
(NAWQA; since 1991)

Components: Study Units, National Synthesis

Goals:  
→ Status (30%)
→ Trends (35%)
→ Understanding (35%)

1. Effects of Urbanization on water quality
2. Bioaccumulation of Mercury
3. Transport of Contaminants to Water Supply Wells
4. Nutrient Enrichment Effects
5. Agricultural Chemicals: Sources, Transport, and Fate
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Nation Water-Quality Assessment Program
(NAWQA; since 1991)
WRD-CLEANER
Interaction in Education

→ Many WRD Districts have been collaborating with universities in teaching field methods courses.

→ Are there needs / possibilities for expansion of this type of educational interactions through CLEANER ??