Exploring Multi-Faceted Search in DLESE Specialized Collections

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The Science Education Resource Center is developing websites to support faculty in improving geoscience education. An integral part of this work is the development of thematic collections of DLESE resources. We have developed a multi-faceted search tool which allows exploration of these collections along multiple conceptual axes (e.g. earth system topic, level of inquiry, easy of use, resource type). The tool integrates text search with browsing, supports specialized vocabularies tuned to specific collections, and facilitates exploration across multiple collections.

Controlled Vocabularies for Specialized Collections

The projects on the SERC site include a variety of specialized web resource collections. To support exploration of these collections we are developing several controlled vocabularies. Web resources are tagged with terms from these vocabularies allowing us to provide a faceted search through the topic with easy exploration along axes of interest.

Terms in these vocabularies need to:
- **have a meaning that educators will immediately grasp: be evocative and resonant**
- **highlight ideas of greatest interest to educators.**

Teaching with Data

For Tools and Data Sources

Ease of Use
Easily explored
Some time to understand
Further background required
For experts only

Data Source
Observational Data
Real-Time Data
Synthetic/Model Data

For Data-Rich Activities

Use
Illustrating Concepts and Ideas
Enabling Student Investigation
- Collect and Interpret data
- Analyze Published Data
- Analyze Model Behavior

Inquiry Level
Self-Contained Guided Inquiry
Open Guided Inquiry
Scaffolded Exploration
Student Driven Exploration

Special Interest

Student Selected Problem
Local Issue
Global/National Issue
Real-Time Data

Small Group
Quantitative
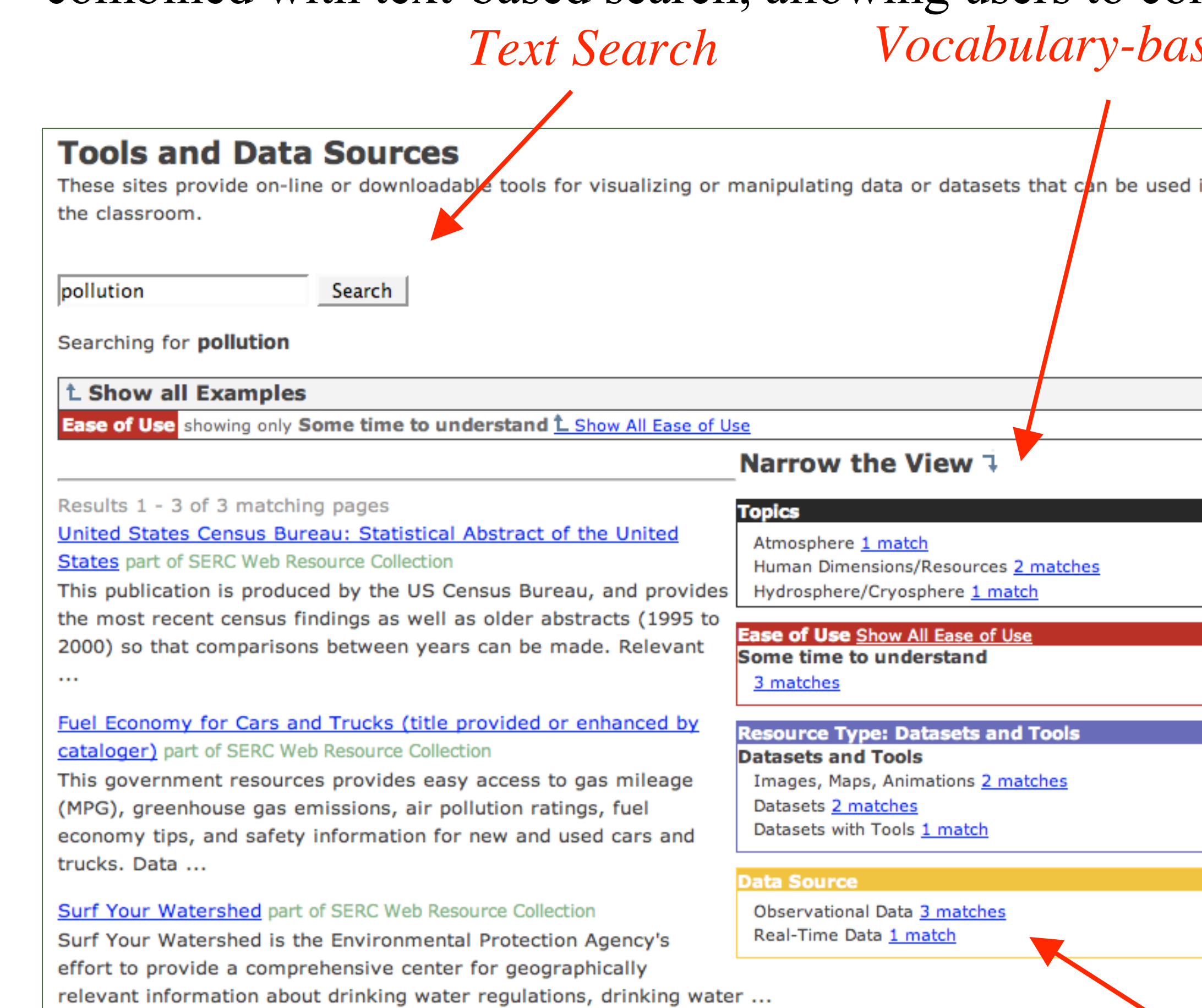Computer-Based

Quantitative Skills

Basic Skills
Geometry and Trigonometry
Graphs
Functions
Calculus and Analysis
Linear Mathematics
Probability and Statistics
Interdisciplinary Concepts
Technology
Higher Order Skills

Earth System Science

Atmosphere
Biosphere
Climate
Earth surface
Energy/Material cycles
Human
Dimensions/Resources
Hydrosphere/Cryosphere
Ocean
Solar system
Solid Earth
Time/Earth History

Faceted Search

Resources in SERC specialized collections can be explored through a *faceted search* interface. The collection is categorized into multiple *facets*--each controlled vocabulary providing refinement along a different axis. Browsing through these *facets* (vocabularies) can be freely combined with text-based search, allowing users to control their view of the collection.

Text Search   *Vocabulary-based Hierarchical Browse*

On the right half of the screen each controlled vocabulary term is displayed along with the number of resources matching it. This display updates dynamically, reflecting the users' current search text and browse choices. This provides immediate feedback about the scope of each search as well as providing direct access to deeper browsing. The vocabularies can be hierarchical with a single level of the hierarchy shown at one time. This allows for fine grained browsing with a manageable set of choices at each step

Feedback on current search provided within the vocabulary lists

The user can refine the search results easily along multiple axes--through the provided vocabularies as well as text search. The controlled vocabularies serve double-duty--a browse interface and a feedback tool for search scope.

For More on Faceted Search
Hierarchical Faceted Metadata in Site Search Interfaces Jennifer English, Marti Hearst, Rashmi Sinha, Kirsten Swearingen, and Ping Yee, in the CHI 2002 Conference Companion and other references at **http://bailando.sims.berkeley.edu/flamenco.html**

We Need Your Feedback

We are looking for feedback from educators about how well the vocabularies and search tool work for you. Do these terms address your top criteria in evaluating teaching materials? Do you understand (at first glance) where each term might lead you? Does the search interface work in ways that aren't surprising? Does it lead you toward resources in a transparent way? Please fill out one of our review forms or get in touch at http://serc.carleton.edu/serc/review.html