

Exploring Multi-Faceted Search in 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 educational 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	Data Source
Broadly accessible	Observational Data
Basic scientific background required	Real-Time Data
Advanced geoscience background required	Synthetic/Model Data

For Data-Rich Activities

Inquiry Level	Special Interest
Step-by-step Instruction	Student Selected Problem
Guided Inquiry	Local Issue
Open-Ended Exploration	Global/National Issue
	Real-Time Data
	Small Group
	Quantitative
	Computer-Based

Quantitative Skills

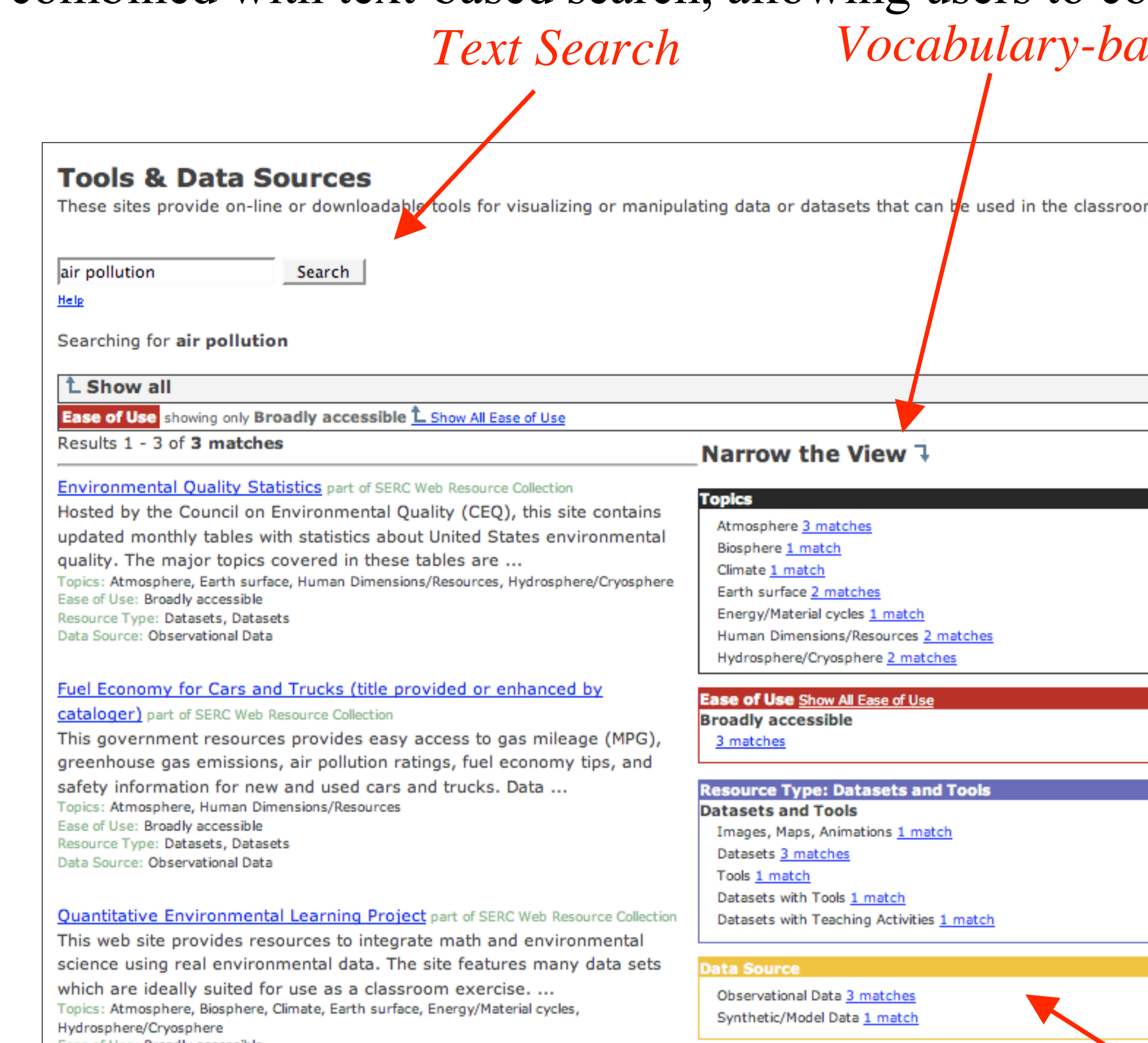
- Basic Skills
- Geometry and Trigonometry
- Graphs
- Functions
- Calculus and Analysis
- Linear Mathematics
- Probability and Statistics
- Interdisciplinary Concepts
- Technology
- Higher Order Skills

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

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.

Feedback on current search provided within the vocabulary lists

For More on Faceted Search
Finding the Flow in Web Site Search, Marti Hearst, Jennifer English, Rashmi Sinha, Kirsten Swearingen, and Ping Yee, Communications of the ACM, 46 (9), September 2002, pp.42-49 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>