# 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

Scaffolded Exploration

Student Driven Exploration

Use Inquiry Level

Illustrating Concepts and Ideas Self-Contained Guided Inquiry Enabling Student Investigation Open Guided Inquiry

- Collect and Interpret dataAnalyze Published Data
- •Analyze Model Behavior

#### **Special Interest**

Student Selected Problem
Local Issue
Global/National Issue
Computer-Based
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**

Surf Your Watershed is the Environmental Protection Agency's

relevant information about drinking water regulations, drinking water .

effort to provide a comprehensive center for geographically

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.

Vocabulary-based Hierarchical Browse

**Tools and Data Sources** the classroom. Searching for pollution **↑** Show all Examples Ease of Use showing only Some time to understand L Show All Ease of Use Narrow the View 3 Results 1 - 3 of 3 matching pages nited States Census Bureau: Statistical Abstract of the United Atmosphere 1 match Human Dimensions/Resources 2 matches This publication is produced by the US Census Bureau, and provides Hydrosphere/Cryosphere 1 match Ease of Use Show All Ease of Use Some time to understand 000) so that comparisons between years can be made. Relevant uel Economy for Cars and Trucks (title provided or enhanced by Resource Type: Datasets and Tools This government resources provides easy access to gas mileage mages, Maps, Animations 2 matches (MPG), greenhouse gas emissions, air pollution ratings, fuel Datasets with Tools 1 match economy tips, and safety information for new and used cars and Observational Data 3 matches

Text Search

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.

Real-Time Data 1 match

Feedback on current search provided within the vocabulary lists

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