

Compass: Our first-year plan for improving the discoverability of online Earth education resources



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INTRO

The Science Education Resource Center (SERC) currently hosts materials from over 120 geoscience education projects. The majority of geoscience faculty report using these materials to support their teaching. However, the project-focused nature of the SERC website means that information is siloed and users have difficulty navigating the full breadth of the collections.

OUR APPROACH

- Build an understanding of how visitors interact with our sites through a variety of research methods
- Use that understanding to identify and prioritize improvements to discovery tools and site organization.
- Make discovery improvements, assess their effectiveness and iterate.

RESULTS

We have pulled together our existing site use data and, with community input, identified:

- an initial research and evaluation strategy
- a set of initial discovery improvements

Work in both areas is underway based on this year 1 plan.

GET INVOLVED

If you are an Earth educator we'd love to hear from you. You can share your ideas for improving discovery of SERC-hosted materials or volunteer to be involved as a tester.

https://serc.carleton.edu/compass/get_involved.html

The Compass project is working to help visitors to SERC-hosted websites more effectively discover the Earth education materials and information they need.



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Compass Year 1 Plan

<https://serc.carleton.edu/compass/plan.html>

Supporting Improved Discovery for SERC Visitors

Scaffolding Users to Expert Exploration Behaviors
A core challenge to SERC visitors is the way in which content is distributed across distinct project websites. We will be exploring and expanding the deployment of a number of tools designed to help visitors more easily and effectively understand and navigate across project boundaries.

- A new "where I've been" overlay will provide visitors with a view of pages/projects they have recently visited. This will provide a degree of 'breadcrumbing' that will give visitors more confidence and sense of orientation especially as they move across project boundaries.
- The existing 'Pages you might like feature' provides visitors with automatic recommendations for content relevant to the current page. We will evaluate how the current implementation is impacting users exploration and look to expand it's deployment across more of the relevant SERC-hosted sites.
- Current project website navigation elements (menus, breadcrumbs, next/previous) all reflect a conceptual model that the current project website is self-contained and isolated. We will enhance these navigation options, to allow visibility into levels conceptually 'above' the current project, or to parallel projects on similar topics.
- We will explore providing information to new users, via pop-ups and other mechanisms that provide direct guidance and orientation on the multi-project nature of SERC-hosted content.
- We will engage in usability testing and subsequent enhancement of the existing Teach the Earth portal site which is designed to help users explore across all of our Earth education materials.
- We will make adjustments to the look and feel and presentation within individual project sites to promote consistency in user experience across SERC-hosted content.

Improved Search Result

SERC hosted site provide over 1000 distinct search interfaces all driven by a common underpinning set of tools. We will improve these tools in two ways:

- We will develop an initial set of interfaces to track and display aggregate information about user searches performed on each interface include search terms used, facets selected, and search results followed.
- We will improve the search results returned by more accurately reflecting what we know about our resources in the search indexes and by applying a number of modernizations to the underlying toolset that will help relevance ranking.

Promote Discovery around Important Community Priorities

An important characteristic of our broad collections is the opportunity to promote serendipitous discovery; especially in ways that direct visitors to resources that advance key Earth education themes. By giving focused attention to the way a particular theme is curated and displayed across our sites we can make the related materials more visible and more likely to engage our visitors. We will start our exploration of this tactic by looking at the resources we host that support Earth educators in addressing issues of diversity, equity and inclusion in their classrooms and across their campuses. We will curate our current collections, promote the contribution of additional resources and develop frameworks for organizing and making these materials more visible to all visitors. This will set the stage both for growing our collections around this particular theme, but also for better understanding how we can promote future themes.

Enhance Accessibility

Our core challenge in making SERC-hosted materials as broadly accessible and usable as possible is educating and supporting our contributing authors in following the key best practices. We will work to incorporate the guidance from the [STEM OER accessibility framework](#) into our authoring environment and continue development of our administrative tools for tracking the accessibility status of materials across our sites.

External Partnerships

One of Compass's core goals is to allow SERC visitors to be exposed to high-quality resources hosted outside SERC. We'll begin this work by identifying key partners in the community who hold their own collections of Earth education resources, and identifying elements in their collection that will serve as our first targets for shared discovery.

Supporting Infrastructure Changes

To support the work above we'll be engaged in some key infrastructure work. We will develop a SERC-wide website inventory for tracking the key characteristics of all our hosted websites. This will allow us to target to the search improvement above to where they can be most impactful. We will also revamp our internal analytics tools. The new system will give us a more detailed understanding of what particular in-page navigation elements our visitors engage with. The higher precision information will be key to developing a nuanced understanding of how visitors use our site and how the changes we make impact their success.

Research and Evaluation

Implementation Evaluation
We will monitor and provide ongoing feedback within the project to propagate successful strategies and identify challenges. This will allow the project to document progress and pivot as needed to succeed. The implementation evaluation will focus on improvements along five key facets highlighted above, 1) Scaffolding Users to Expert Exploration Behaviors, 2) Improve search results, 3) Enhance Accessibility, 4) External Partnerships, and 5) Supporting Infrastructure Changes.

Change over Time Evaluation

Measuring change in how visitors interact with the site over the course of the project will be important to understand success of the infrastructure improvements. Various methods will help support our understanding of success over time, including 1) surveys gauging users' satisfaction with the site and/or tools, 2) key web analytics collected at baseline after changes, and 3) pre and post usability tests to observe how the changes impact user experience and success.

Novice and Expert Behavior Research

By studying the range of user behaviors and characteristics, on a spectrum from novice to expert, we can identify key skills, behaviors and knowledge that lead some users to greater success in using the site. This in turn can inform the improvements we make to the site that scaffold user success: removing hurdles and supporting more effective discovery experiences for both groups.

Community Formative Input and Design Tests

Formative input and design tests involving the community to assess discovery improvements will facilitate user input to create designs, to test those designs once they exist, and to understand user behavior related to those designs (e.g., to characterize current movement of visitors across project boundaries, to examine the effectiveness of Teach the Earth pages). Design tests combined with analytics throughout will help identify successes and challenges as improvements are developed.