



U.S. Geological Survey Internal Quarterly Report | Spring 2014

THE STATE OF THE DIGITAL USGS: WEB RE-ENGINEERING EDITION

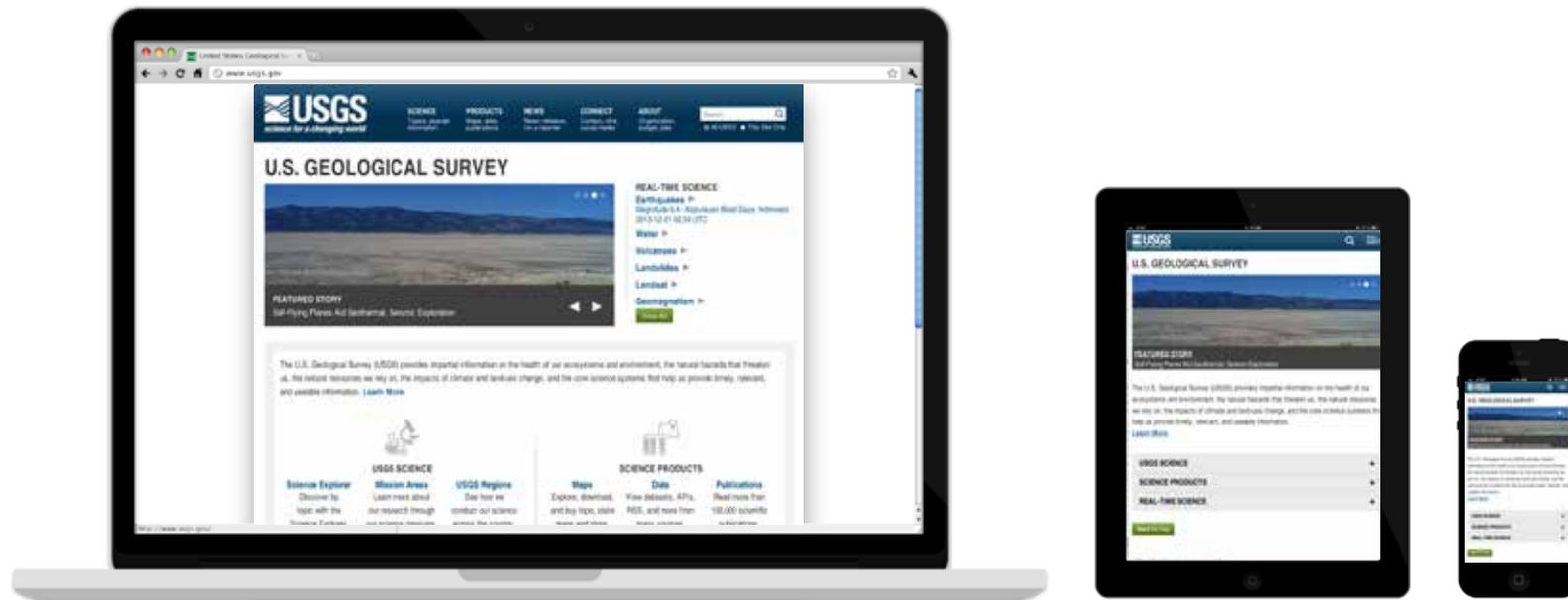


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MESSAGE FROM THE DIRECTOR



I am happy to share with you the second issue of our new internal report series. This series, which started last year with our report on facilities, is designed to give insight into progress made on a variety of topics internal to the USGS that may affect you on a day-to-day basis.

There are a number of major components to the digital existence of the USGS—in this report we will specifically look at the key factors at play in our efforts to re-engineer our web presence.

The digital landscape is changing rapidly, and cloud computing, social tools, the pervasive use of mobile devices, and other trends are creating new opportunities and challenges. As a result, the Administration is directing the Federal Government to put the citizen first and to make data freely available and accessible. This report outlines how important a digital strategy is for USGS and discusses how our web resources are being revitalized to ensure that the Survey's digital presence is equipped for the 21st century.

This report takes you through the external and internal factors that are influencing the future direction of the USGS Web. We talk about the USGS's philosophy of the Web and why the Web Re-Engineering Team (WRET) was set up to help implement critical projects, such as the redesign of the USGS home page and the integration of a new external search engine, and to connect with existing web-related efforts at programs, centers, and offices throughout the USGS. Each project in the Accomplishments & Activities section also offers ways you can get involved.

After reading this report, you'll have a better understanding of what is affecting the development of the USGS's digital strategy, the kinds of web-based projects the USGS will continue to make priorities over the next few years, and how you can contribute.

I hope you find this report useful and informative. As always, I am open to feedback and discussion about ways the USGS's senior leadership can continue to communicate with you about the Bureau's current issues in a timely and reliable manner.

A handwritten signature in black ink that reads "Suzette M. Kimball". The signature is written in a cursive, flowing style.

Suzette Kimball
U.S. Geological Survey Director

OVERVIEW

What Is Shaping the USGS Digital Strategy?

Web-enabled mobility and technology, real-time access, social media and collaborative tools, including cloud-based technology, and extensive mobile and tablet device use are just a few of the many shifts transforming the Web and changing the Government’s digital landscape. Along with these technological trends, consumer trends are also evolving quickly and making immediate demands on information. Web users want content to be short, concise, compressed, personalized, and delivered faster. These changes present challenges, but also opportunities.

Mobile access trends are influencing the future of the USGS Web. It is expected that the mobile web will be bigger than desktop Internet use by 2015. Real-time technology and location-based services are expected to drive mobile retail. Currently, 17 percent of traffic to USGS web pages is mobile.

MOBILE TRENDS

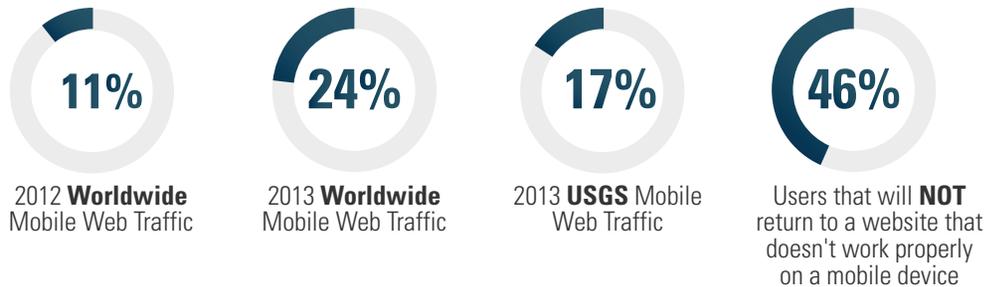


Figure 1. This graphic compares the worldwide mobile trend percentages for 2012 (11%), 2013 (24%), and the 2013 USGS mobile web traffic, which is 17%. Studies have found that 46% of users will not return to a website that doesn't work properly on a mobile device. These trends show how the web traffic is moving toward mobile and the drive that is shaping part of the USGS digital strategy. Sources: [Marketing Profs](#), [Nielsen](#), [TechCrunch](#), and [Mashable](#).



“I want us to ask ourselves every day, how are we using technology to make a real difference in people’s lives.”

President Barack Obama

Trends provide rationale for the development of the White House’s 2012 [Digital Government Strategy](#), which sets baseline requirements for standardizing digital assets Government-wide. The Strategy also provides Government agencies with a directive to adjust how they connect with and provide service to the American people. In addition to these external influences, USGS managers are also prioritizing projects and making decisions about USGS IT resources based on internal influences—the DOI IT Transformation, the reality of declining budgets, and the ongoing need to invest in cybersecurity.

The following is a brief overview of how each of these factors is shaping the USGS digital strategy.

OVERVIEW

External Factors: Digital Government Strategy

The National Dialogue on Improving Federal Websites was an online crowd-sourcing activity sponsored by the White House to bring together web experts, policymakers, and citizens to submit, discuss, and vote on ideas. The Federal Government received rich stakeholder feedback to drive reform, and this feedback was integrated into the Digital Government Strategy.

The Digital Government Strategy is perhaps the largest influence on the USGS's vision of the Web. Put simply, the Strategy's goal is to improve the way the Government does business by providing open data to the public and improving customer service. This strategy is based on [four principles](#): Information Centric, Customer Centric, Shared Platform, and Security Privacy.

An information-centric approach to manage data instead of documents, a customer-centric approach to enable customers to access information whenever and however they want, a shared platform to streamline development and reduce costs, and an emphasis on security and privacy in the delivery of information.

Government agencies are required to apply these principles to web planning, so users of Federal web pages will notice that future web architecture and design will be aligned with the goals above. The Strategy not only outlines standards that agencies must comply with, but it also sets the tone for digital innovation throughout the Government and encourages all agencies to employ best practices and industry standards in web operations.

The USGS's Web Re-Engineering Team is already making strides in accomplishing many of the Digital Government Strategy's benchmark requirements. See the Accomplishments and Activities section for more.

WHITE HOUSE DIGITAL STRATEGY

- 1 Information Centric
- 2 Customer Centric
- 3 Shared Platform
- 4 Security Privacy

NATIONAL DIALOGUE ON IMPROVING FEDERAL WEBSITES

- 1 Change to a culture of customer service—Put the customer first
- 2 Provide high quality content that is focused on the user
- 3 Promote greater efficiency and simplicity in federal websites, especially transactions
- 4 Build in usability and accessibility during the design phase prior to launch
- 5 Phase out use of proprietary technology
- 6 Adopt, share, and enforce best practices across all agencies
- 7 Increase mobile access through standardized language and scripting
- 8 Commit adequate resources to enhancing the federal web presence
- 9 Integrate content into the larger information ecosystem—Go where people are
- 10 Archive content proactively to keep it accessible but out of the way
- 11 Improve search through standardized metadata and better search engine optimization
- 12 Enhance the universal cross-governmental search function
- 13 Strengthen USA.gov
- 14 Standardize and use web analytics to better understand customers' needs
- 15 Allow more opportunities for the public to discuss and vote on government information
- 16 Improve quality of non-English content
- 17 Improve the findability, navigation and presentation of non-English content
- 18 Improve access to government data sets to facilitate innovation

Figure 2. Priorities identified in the National Dialogue on Improving Federal Websites by Taskforce.gov.

OVERVIEW

External Factors: Department of the Interior IT Transformation

What is IT Transformation (ITT)?

Bernie Mazer, DOI's Chief Information Officer (CIO), [describes the point of ITT this way](#): "The IT Transformation Strategic Plan is a high-level road map to transform the Interior's IT operation for the 21st century, using advances in technology to provide better services for less cost."

Formalized by Secretarial Order 3309 in 2010, ITT requires DOI bureaus to realign their information resource and IT programs under the DOI Office of the CIO. The ITT also requires immediate attention be given to 25 service areas that align with the OMB's "25 Point Implementation Plan to Reform Federal Information Technology Management."

The DOI ITT works to consolidate IT activities, including web services, into technologies that are better managed and served from cost effective and centralized locations.

What Does ITT Mean for the USGS?

Internally, the ITT aims for more efficient use of technology, less dependence on local services, and more collaborative integration of USGS assets. The ITT looks to shift and improve the way the USGS manages all its digital assets, including its websites and databases, from more than 50 current locations to a more consolidated and less costly environment that focuses on citizens.

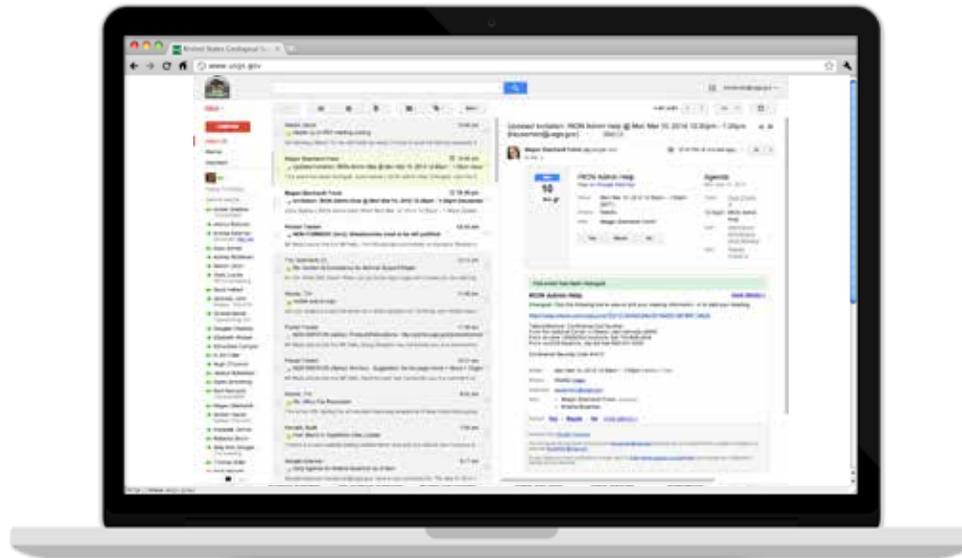


Figure 3. Example: BisonConnect.

Previously, the DOI operated eight different email systems across Interior bureaus. By converting all bureaus to Google Apps for Government, the DOI was able to dramatically reduce the need for duplicate support staff, hardware, and software, and increase the efficiency of interagency communications using email. Bison Connect is the first ITT initiative that has been fully implemented.

DOI intends to replicate the successes of Bison Connect by establishing hosting services and data center/cloud consolidations as the second offering to USGS locations. This effort will allow the Survey to host web resources at a lower cost and with less management needed for equipment.

OVERVIEW

Internal Factors

A Complicated Web Presence

Today's USGS Web—which is made up of hundreds of websites, web applications, and databases that are publicly available on the Internet—is the largest presence in the DOI. This is because the Survey has not consistently governed its own web development while producing tremendous amounts of data.

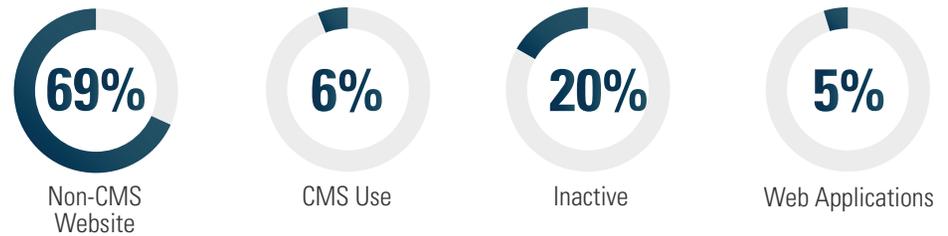
Even though our websites consistently receive high marks for quality of content from years of customer feedback, we rate very poorly on search and navigational features. Through DOI ITT, Web Re-Engineering, and related future efforts the USGS is creating a web presence that reflects the way our mission is supposed to be carried out.

Security

With more than 1,700 points of public access, the USGS must continually revisit, test, and address issues with its investment in cybersecurity. Ensuring that the latest software updates, patches, and remediation scanning tools are installed and properly licensed is an expensive and time-consuming task. The USGS is facing increased pressure to find ways to manage evolving web security needs and requirements.

In 2013, the Department of Homeland Security sent more than 5,000 notices to government agencies about security breaches and threats. Recently, the USGS web presence has been victim to security intrusion, due to our complicated and decentralized structure. This makes the integrity of our data and our mission itself vulnerable. A better managed, consolidated, and efficient web presence is the goal of USGS Web Re-Engineering.

WHERE WE ARE TODAY... USGS has 409 .gov domains = 3.2 million webpages.



CONSISTENCY AND COMPLIANCE with federal standards. Out of 327 active websites.

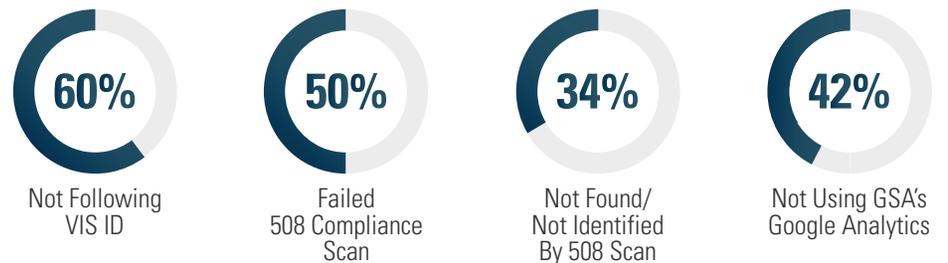


Figure 4. This graphic represents the current state of the USGS website which consists of 409 .gov domains equaling 3.2 million webpages. Out of our 327 active websites, most do not comply with federal standards or our bureau policies.

USGS WEB PHILOSOPHY

Using Web Re-Engineering to Create Great Websites

The USGS's web presence is one of its most important and strategic business assets. Because the Internet is the primary vehicle through which most of the world interacts with us, the appearance and quality of USGS websites strongly influences the public perceptions of the quality and integrity of the USGS as a whole.

Establishment of the Web Re-Engineering Team (WRET)

In 2010, the Executive Leadership Team assembled the WRET to apply industry best practices and Federal regulations in a consistent and logical manner across the USGS Web to ensure ease of use for customers, partners, and employees. The WRET's strategy is designed to fulfill the goals in Figure 5 to the right. The WRET has already begun to update and standardize several USGS websites using a newly developed digital strategy, that dictates that we identify our users' top tasks and build our websites to serve them.

USGS DIGITAL CONTENT STRATEGY

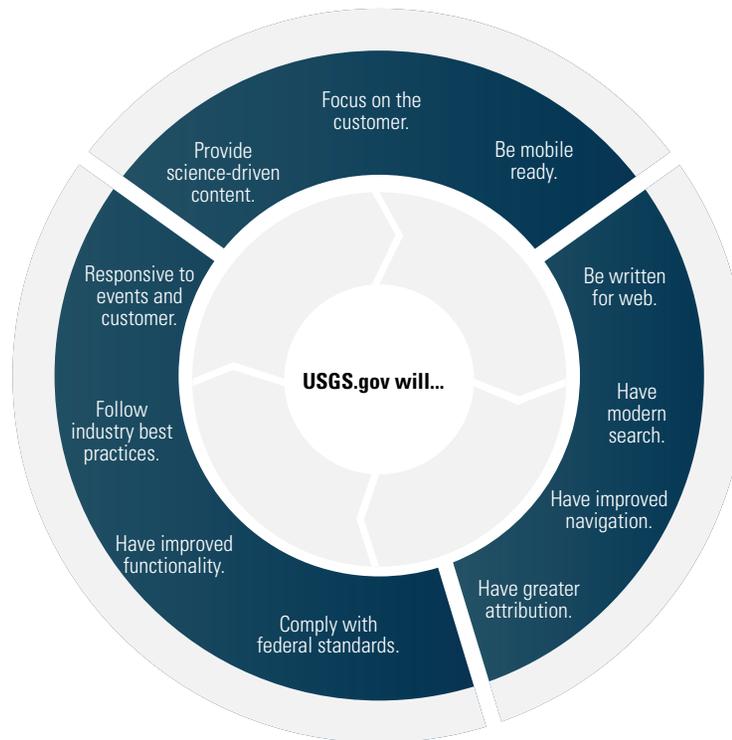


Figure 5. The goal of the USGS Digital Content Strategy is to achieve an excellent Web-user experience by making USGS science and information available, usable, and accessible. In achieving this goal USGS.gov will focus on the customer, be mobile ready, be written for the web, have modern search, have improved navigation, and more.

How Are Top Tasks Built Into New USGS Websites?

The structure of each website—what content is included on the page and where—is designed with what the WRET calls “top tasks”: that is, those foundational usability and navigational elements that will enhance the user's experience on the page.

When top tasks have been implemented on an updated web page, users will be able to:

- 1** Find the science content they seek in three clicks or less.
- 2** Use “search” to look for the content they seek on any USGS Web page.
- 3** Understand, through structure and design, how they arrived at the web page they are currently viewing so that the process can be easily replicated in the future.
- 4** See consistent top-level navigation across all USGS websites, which allows for a streamlined appearance and enhances website functionality.

Together, these top tasks standardize a user's experience with USGS websites. Content, instead of the USGS's organizational structure, drives the website's design.

ACCOMPLISHMENTS AND ACTIVITIES

The New USGS Search Engine: USASearch

Prior to the launch of the new website, a first goal was to improve the USGS's search capability—a persistent complaint from customers and employees alike.

In June 2013, the WRET launched a new search engine, USASearch, on www.usgs.gov and search.usgs.gov, replacing the Google Custom Search Engine. USASearch vastly improves our search functionality by increasing users' ability to customize results by sections or enabling the display of images, video, and social media in results. Although USASearch helps deliver fast and relevant searches, it is only half of the solution to a better search tool across the USGS. Every website manager is responsible for ensuring their websites are optimized for search.

Search engine optimization (SEO) is the process of improving the visibility of a website in search results. This is a purposeful task with several layers of activity. The WRET is currently working through the SEO process; learn more about what you can do below.

What You Can Do?

Encourage your Web site managers to learn more and transition your websites to USASearch. Send an email to search@usgs.gov to set up an appointment. Account information is provided to web managers through the USGS Search Team. (Website managers should NOT sign up for an account using the USASearch website.) Learn more from our [USASearch FAQs](#) and [SEO Checklist and Guide](#).



USGS LAUNCHED USASEARCH JULY 2013

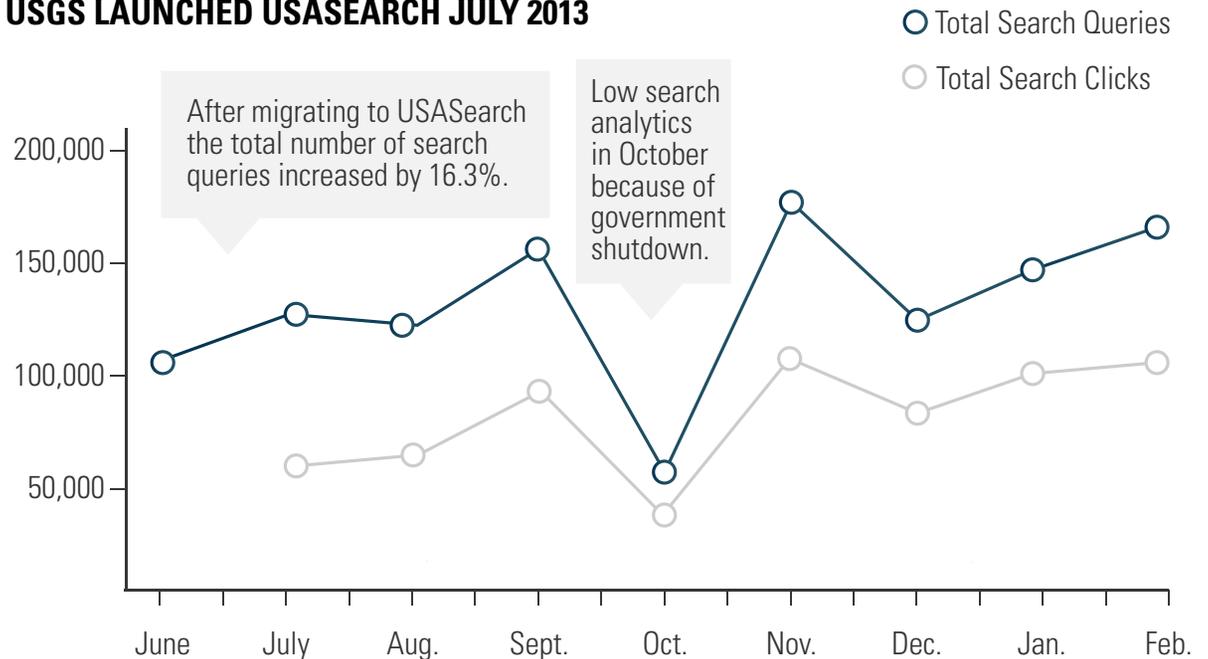


Figure 6. Chart shows the total search queries and total search clicks from USASearch analytics from July 2013 to February 2014.

ACCOMPLISHMENTS AND ACTIVITIES

The New USGS Web Presence

USGS Homepage

This section outlines what we've done, what we are and will be working on, and how you can get involved.

The new USGS homepage was opened for internal review last fall and is currently being readied for public launch this spring. The site was designed with an emphasis on the USGS's strong science content and customers' needs, as identified and evaluated through extensive usability testing and surveys. The site focuses on improving navigation and functionality, tailoring text for the Web, complying with Federal mandates, and working easily on mobile devices.

This effort is also being informed by usage data from Google Analytics code, now a requirement for Federal websites. This code reports on how people are using websites so that continuous improvements can be made.

USGS LAUNCHED ALPHA.USGS.GOV SEPTEMBER 2013



Figure 7. The *alpha.usgs.gov* site features an enhanced user interface, improved website functionality, enhanced science-driven content, improved navigation, improved search, and a mobile ready (responsive) user interface.

ACCOMPLISHMENTS AND ACTIVITIES

The New USGS Web Presence

Mission Areas and Regions

The WRET's digital strategy will bring consistency and structure to USGS Web pages. USGS Mission Area and Region websites will be some of the first to undergo a dramatic transformation to ensure that all have the same layout, labels, structured information, and familiar navigational elements. This will vastly improve user experience and make the website more visually appealing.

What You Can Do?

If your center or office has public web content that you would like to update or if you haven't installed the required Google Analytics code, please contact the WRET at gs_wret_mailbox@usgs.gov.



Figure 8. Laptop representing desktop view of the new Climate and Land Use Change Mission Area Overview page.

ACCOMPLISHMENTS AND ACTIVITIES

The New USGS Web Presence

Organizing Science Data with the Science Explorer

Currently, the USGS supports more than 3.2 million web pages, which provide public access to more than 50 databases of scientific data—such as the Advanced National Seismic System (ANSS) Comprehensive Catalog or USGS US Topo Map Collection—and more than 25 web applications, such as [Did You Feel It?](#) and the [National Water Information System](#). A significant problem with the current architecture of the USGS Web is that these elements are difficult to access from the main USGS website, www.usgs.gov.

Thus, a major undertaking of the WRET is to create a centralized way for the user to browse for USGS science or data by prearranged topics and keywords. This tool is called the Science Explorer, and it actively indexes USGS websites and databases to provide the user with a one-stop shop for USGS content regardless of its location on the Web.

The Science Explorer, which takes cues from the Smithsonian Institution's own topical index, uses the existing [USGS Thesaurus](#) and standardizes content after it looks through all USGS websites, image galleries, databases, and other objects. The user is then able to explore USGS science by topic.

Explore By Topic

Filter Search Results By:

Webpages
Data
Publications
Maps
Images

Preview Functionality and Attribution



Figure 9. USGS's New Science Explorer Features include the ability to explore science by topic, related terms, sharing capabilities, preview functionality, and greater attribution. Viewers can filter their search results by webpages, data, publications, images, maps, and FAQs as well as view the site on multiple platforms including desktop, tablet, and mobile.

The Science Explorer centralizes USGS data by topic, not by organizational structure, and uses keywords to reflect a robust set of hot topics and current USGS research activities. The topic themes will be continually added and revised. When a query is made through Science Explorer, relevant articles and datasets are listed along with attribution to the relevant center, author, and research program or mission area.

What You Can Do

The Science Explorer is only useful if the information in it is robust. Please contribute to a special [USGS Idealab](#) forum arranged specifically to gather input on new additions to the Science Explorer.

ACCOMPLISHMENTS AND ACTIVITIES

Feedback From Internal Launch

Thank you so much

Applying practices that follow usability testing results from ForeSEE and other sources, the alpha site was launched and feedback collected—2,955 unique visits were made and more than 300 comments have been collected as of March 2014. While collecting feedback, the WRET is currently working with content experts in Mission Areas, Regions, and science support to enhance science-driven content and add features before the public beta launch. The WRET thanks you again for your feedback and support during this process.

Figure 10. The graphics (right) represents alpha.usgs.gov unique visits (2,955) and pageviews (5,222) along with the top 10 pages and their pageviews. In addition to the Google Analytics results, the WRET is presenting the number of bugs, comments, and feedback that was received during the user testing period.

ALPHA.USGS.GOV TRAFFIC*

2,955
of Unique Visits

5,222
of Pageviews

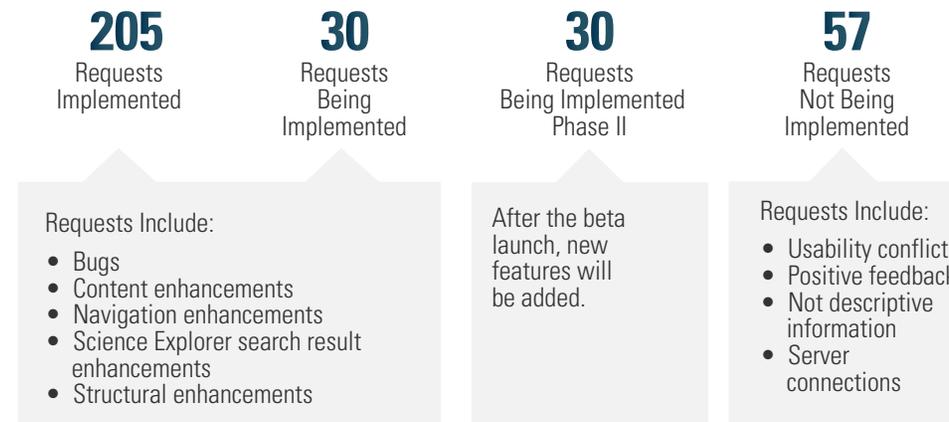
Top 10 Pages

Page	Pageviews
• United States Geological Survey	1,898
• USGS Science Explorer	1,004
• USGS Science	865
• About the USGS	402
• USGS Regions	241
• USGS News	205
• Connect with USGS	176
• USGS Products	149
• USGS Science Support	80
• USGS Multimedia Gallery	70

* Google Analytic results as of March 2014.

ALPHA.USGS.GOV FEEDBACK**

Thank you so much for your feedback. Here is what changes are being implemented:



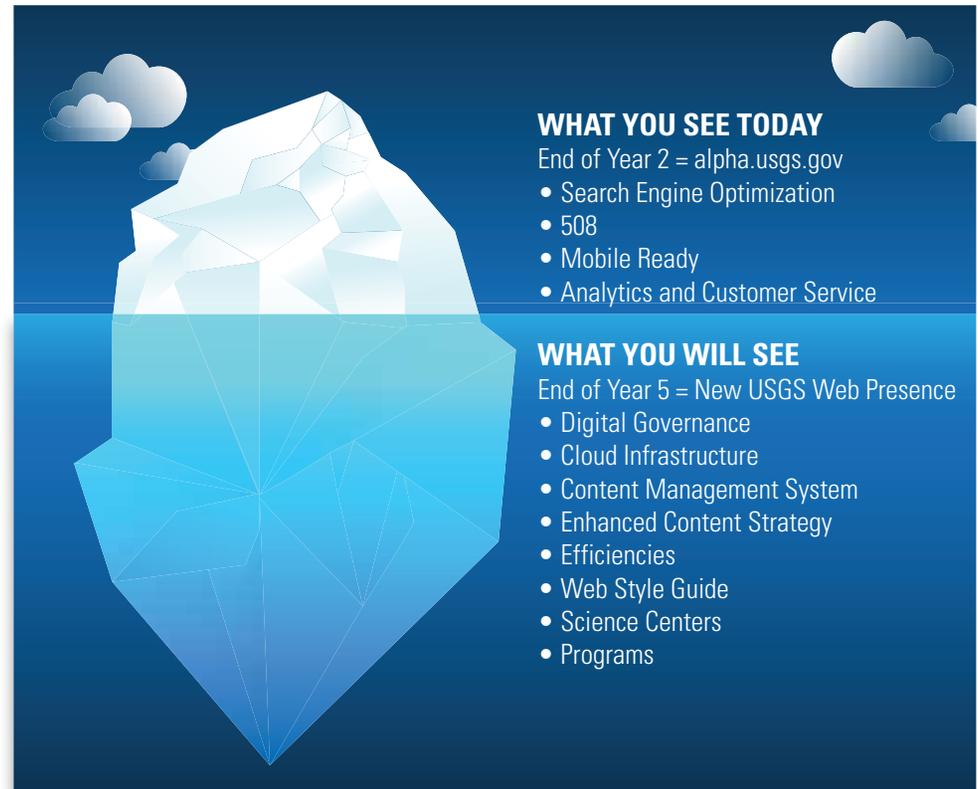
** BugHerd and email feedback results (322 received) as of March 2014.

ACCOMPLISHMENTS AND ACTIVITIES

Web Re-engineering 5-year Plan

The current state of the new web presence is depicted by an iceberg. The top of the iceberg is what the alpha.usgs.gov site includes. The rest of the web that is below the surface is what you will see in the future. This portion of the iceberg includes digital governance, cloud infrastructure, content management system, efficiencies, web style guide, science centers, and programs. More about this next phase is being approved and further communication will be provided in the months to come.

Figure 11. This illustration (right) depicts the current state of the new web presence by showing only a portion of the top of the iceberg and what is below the surface.



WHERE WE ARE GOING...

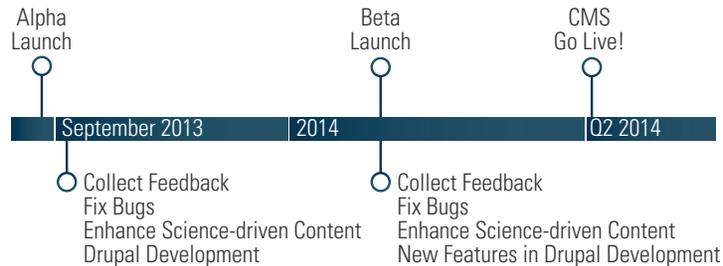


Figure 12. The timeline presents where we are and where we are going.

CLOSING THOUGHTS

Today's digital landscape likely bears little resemblance to the one that will exist in just a few years. Although the USGS cannot predict technical advances far into the future, the developments currently underway will position the USGS Web and IT teams to adapt quickly to the changing landscape for the foreseeable future.

Parallel with the Digital Government Strategy, cloud commuting, data consolidation, and migrating to shared services, such as content management systems, will help reduce Federal IT spending in the future.

INITIATIVES THAT WILL AFFECT FUTURE FEDERAL IT SPENDING



Cloud Computing



Digital Government Strategy



Gov 2.0



Data Center Consolidation



Shared Services

Figure 13. The graphic (above) reflects what initiatives will affect future Federal IT spending. Sources: [GovLoop](#).



Upon taking office, President Barack Obama issued an open government directive requiring agencies to improve transparency, participation, and collaboration. Since then, the White House Office of Science and Technology Policy has also issued mandates on how Federal agencies are to freely share and make data easily accessible. The Administration's direction is clear: We are advised to use web technology to facilitate online data sharing and interaction with the public.

The current fiscal climate and our duty to deliver our mission in the least costly way possible also dictate that Web Re-Engineering enhances functionality and yields savings. The USGS will continue to meet Federal requirements but will also look beyond mandates for additional ways to innovate and take advantage of cost-saving opportunities.

Our digital presence is our most visited location, our most consulted expert, our most read publication, and our most visible face to the rest of the world. Whether we continue to execute and deliver our mission will depend on whether we become an effective digital organization.

Contact the Web Re-Engineering Team at gs_wret_mailbox@usgs.gov to learn more.