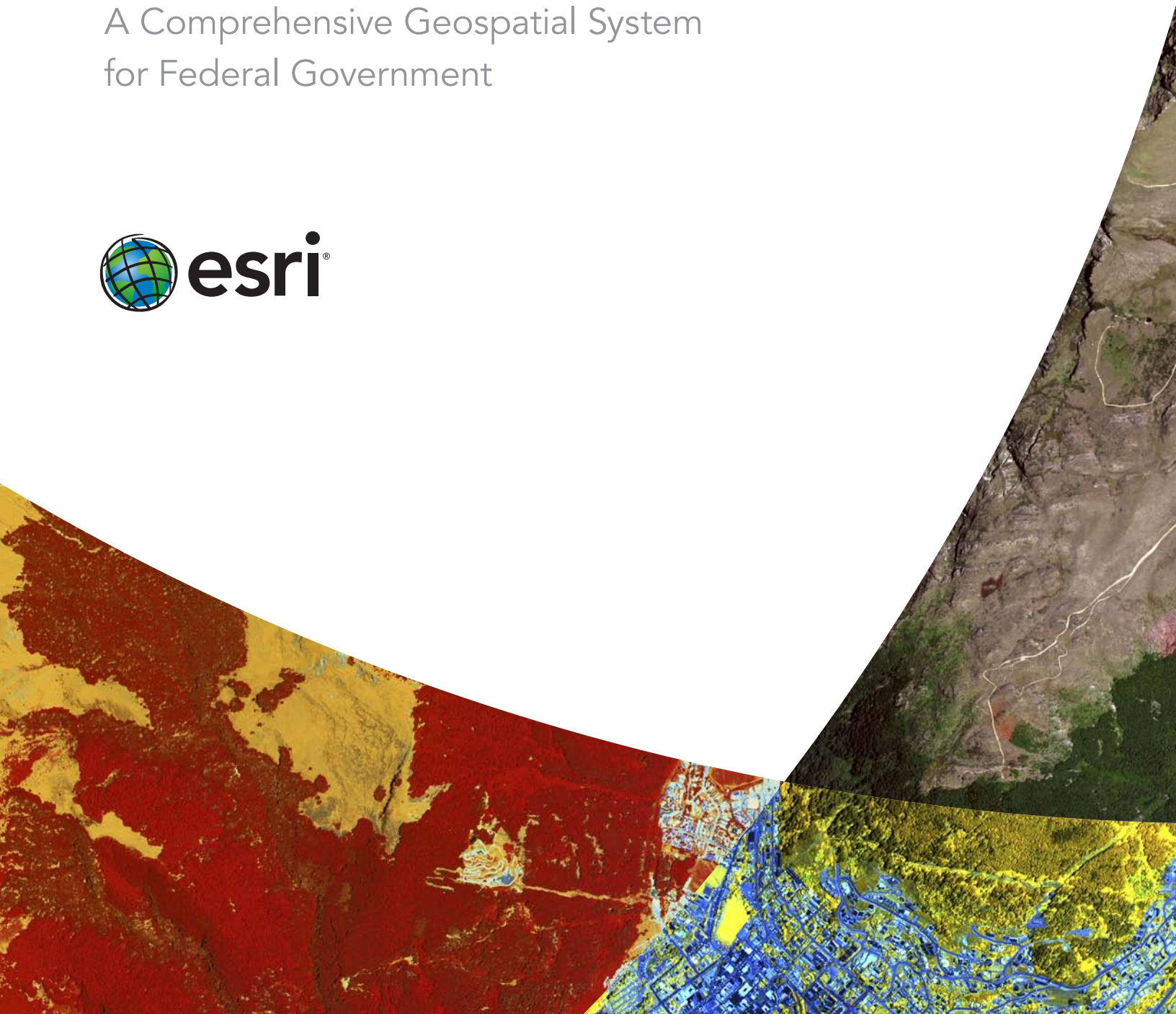
Maximize Imagery Data in ArcGIS®

A Comprehensive Geospatial System for Federal Government

esri®

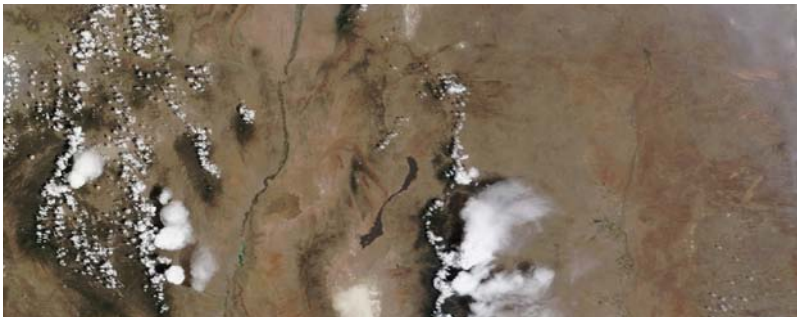


Imagery is much more than a picture.

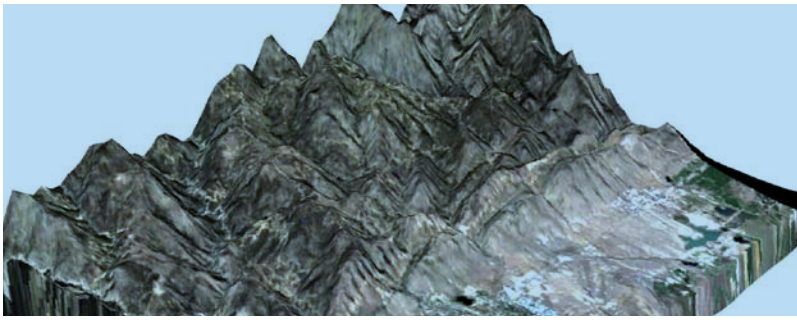
It's some of the most informative geographic data available. Beyond depicting the complex features of our world, it reveals missing factors, exposes areas that require further analysis, and illustrates change over time.

When combined, geographic information system (GIS) technology and imagery inform each other in remarkable ways. Once available only to scientists and specially trained technicians, imagery is now an essential part of GIS.

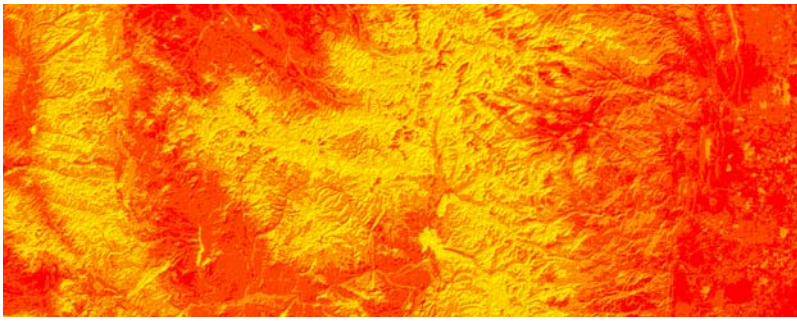
See atmospheric conditions.



Account for all three dimensions.



Expose energy concentrations.



Measure change over time.

Get real-world context.

Top: NASA image courtesy Jeff Schmaltz, MODIS Rapid Response Team, Goddard Space Flight Center.

Images of Boulder, Colorado, courtesy of Exelis Visual Information Solutions. Data provided by Landsat and SPOT Image.

Manage all your geospatial resources in one place.

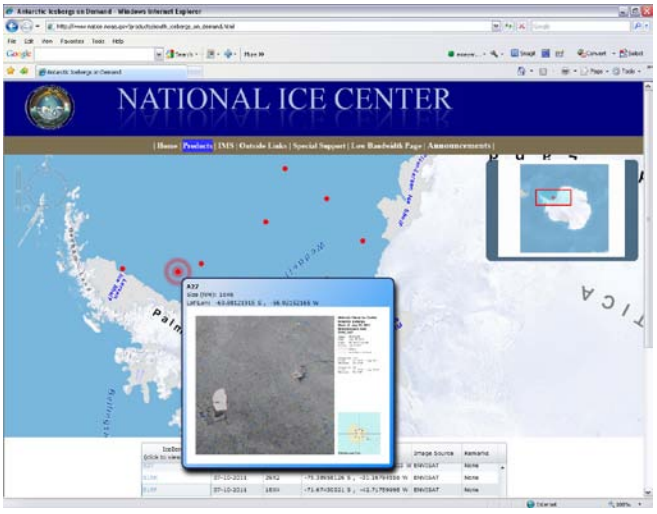
As the source of the most accurate, authoritative imagery in the world, the US federal government is uniquely equipped to use and share these valuable resources. By leveraging imagery in GIS, agencies can manage, visualize, analyze, and disseminate all geospatial information from one comprehensive platform.

As part of a GIS, imagery becomes prevalent and collaborative throughout your organization. The ArcGIS® platform provides a central place to keep it up-to-date along with the rest of your geographic data. Current and historic imagery can be accessed along with any other dataset.

Imagery in action.

The National Ice Center, operated by the National Oceanic and Atmospheric Administration (NOAA), the US Navy, and the US Army, processes huge amounts of imagery each day to provide detailed snow and ice coverage reports that are vital to safe maritime passage for government and commercial vessels. The center previously employed a variety of systems to manage and analyze imagery but streamlined its workflows and cut costs by migrating nearly all its processes into ArcGIS, which also supports the online sharing of geospatial data products for its many end users.

In winter, Great Lakes snow and ice extent reports are published online daily.



Details on current icebergs across Antarctica are available on demand.

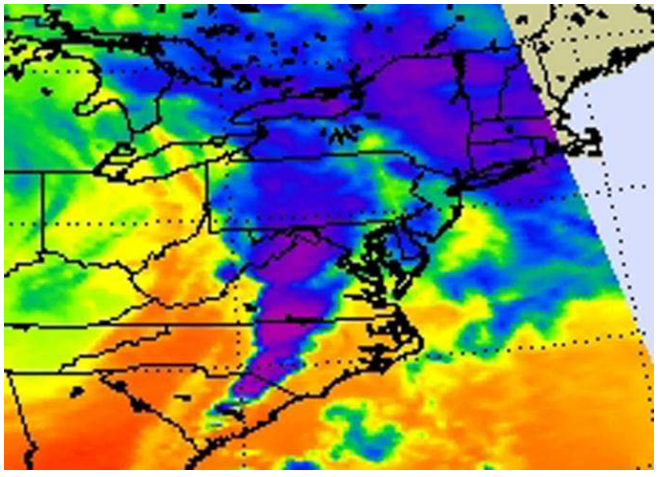
Enhance visualization.

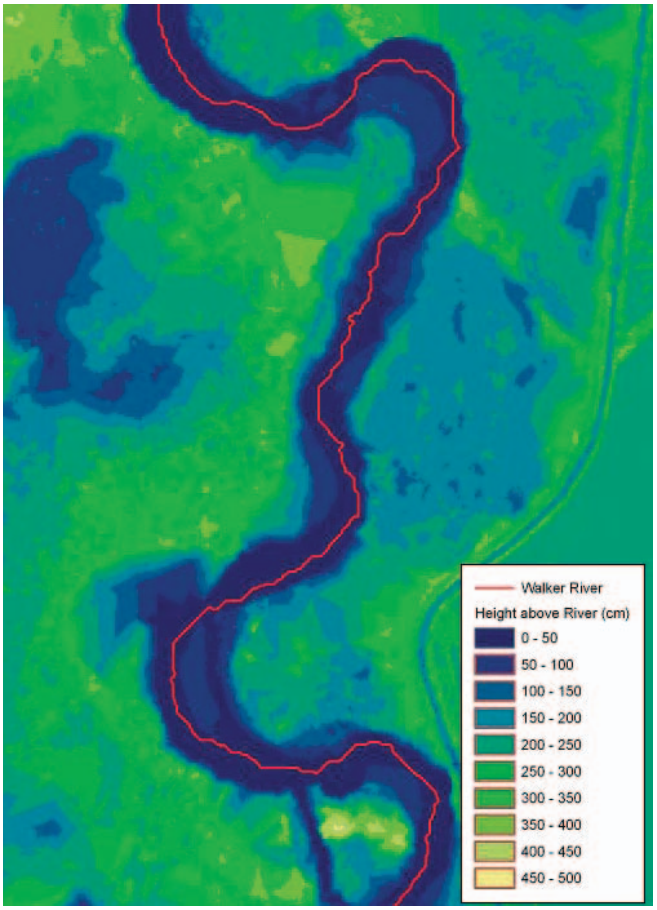
GIS brings essential, organized awareness to static imagery. Relying on imagery without access to a population density map, for example, would misallocate services after a disaster. Imagery, in turn, brings information-rich context to GIS work. Better geographic information can be accessed quickly, providing more meaningful results.

Imagery in action.

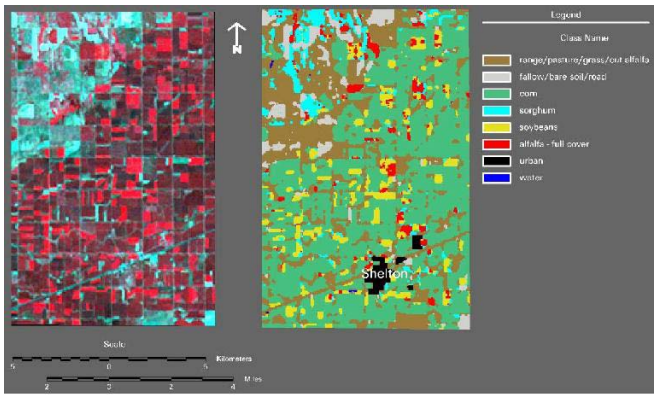
The National Aeronautics and Space Administration (NASA) Jet Propulsion Laboratory collects satellite data on thousands of factors, including vegetation, water vapor, electromagnetic interference, and pollutant levels. Researchers use the resultant images to predict extreme storms and droughts, evaluate earthquakes, model climate change, and much more.

In the smaller image shown below, NASA's Atmospheric Infrared Sounder captured an outbreak of severe storms and tornadoes across the eastern United States. The larger image shows Arizona's largest-ever wildfire as recorded by the Advanced Spaceborne Thermal Emission and Reflection Radiometer (ASTER) instrument on NASA's *Terra* spacecraft.





The US Bureau of Reclamation funded research to inform its restoration efforts in the Walker River Basin of the Sierra Nevada range. By integrating lidar data with imagery in GIS, researchers produced predictive maps that reveal key environmental variables across large areas without lengthy, costly fieldwork.



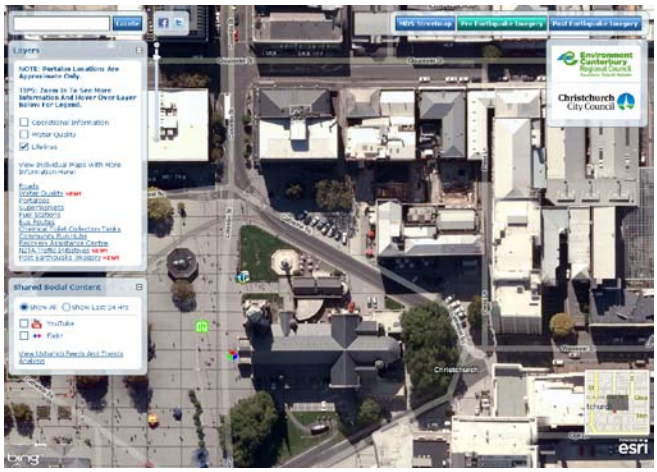
Researchers from the National Institutes of Health (NIH) National Cancer Institute used historical US Department of Agriculture (USDA) Farm Service Agency records and satellite imagery of south central Nebraska to analyze correlations in agricultural pesticide use and instances of non-Hodgkin lymphoma.

Perform richer analyses.

Imagery takes geospatial analysis to a new level. Beyond exposing patterns and relationships, it reveals the reality on the ground, helps confirm or correct data, and directs attention to factors that would otherwise be missed. Comparing imagery from several different eras presents the powerful ability to monitor change over time.

Collaborate and share.

From the desktop to the server and from the field to the cloud, imagery and GIS are everywhere. As part of the ArcGIS system, imagery brings intelligence and context to the many ways geospatial information is conveyed. From interactive online maps that provide citizens with public information to mobile apps that enable situational awareness during an emergency, imagery and GIS are central to effective place-based communication.



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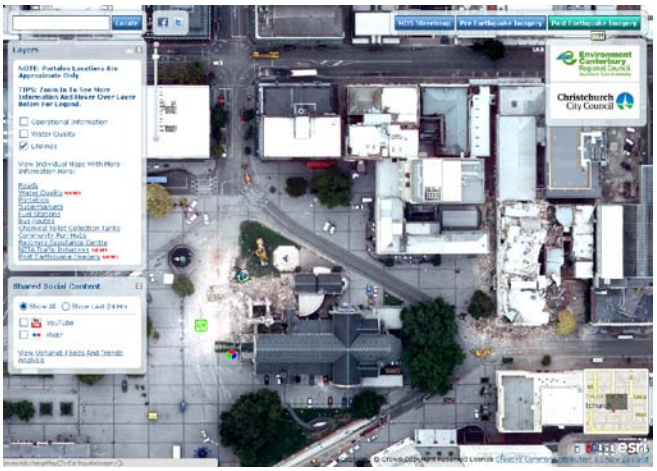
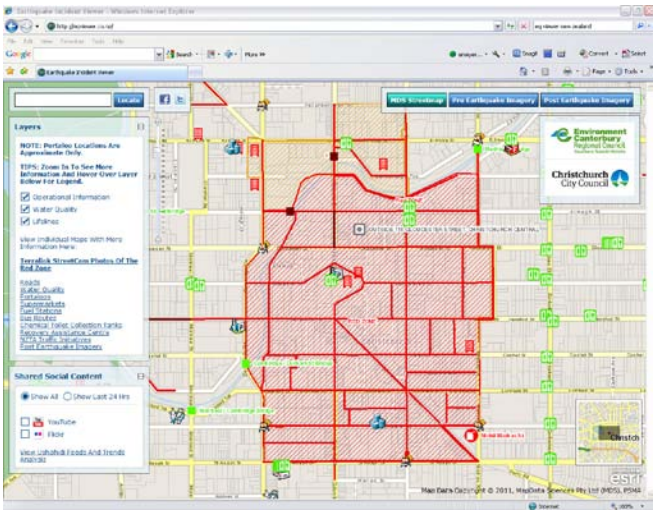


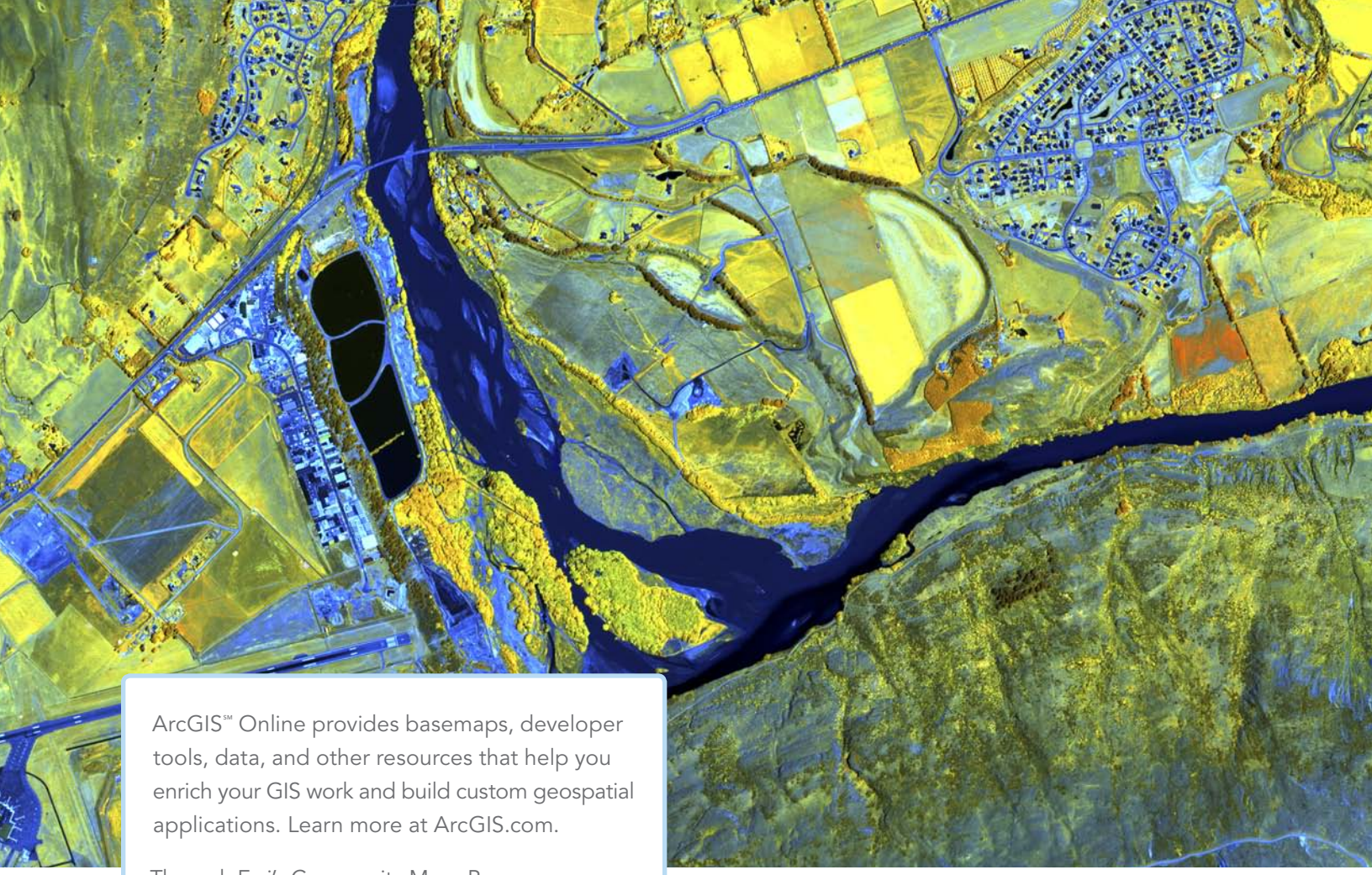
Map Data Copyright © 2011, MapData Sciences Pty Ltd (MDS), PSMA

Imagery in action.

After New Zealand's major earthquake, Environment Canterbury launched an online Earthquake Incident Viewer that incorporated social media updates from the public. This crowdsourced information provided citizens with an up-to-date guide to essential services and recovery operations in their areas.

With access to imagery collected both before and after the disaster, as shown above, emergency personnel and citizens could quickly assess the extent of damage and identify blocked routes.





ArcGIS℠ Online provides basemaps, developer tools, data, and other resources that help you enrich your GIS work and build custom geospatial applications. Learn more at ArcGIS.com.

Through Esri's Community Maps Program, governments share authoritative state, local, and national imagery and geospatial datasets depicting a wide variety of factors. Visit esri.com/communitymaps to access and exchange GIS resources.

ArcGIS: The only geospatial system you need.

The ArcGIS system empowers you to do everything featured here and to explore countless other ways to apply imagery in GIS.

Besides providing sophisticated geospatial tools, ArcGIS connects you with the data you need, including imagery. ArcGIS comes with vast imagery resources, and Esri partners offer additional data and products to meet your agency's specific needs.

Because ArcGIS is compatible with other imagery management platforms, you can begin migrating all your geospatial information into one powerful system today.

Visit esri.com/federalimagery to start making the most of imagery in ArcGIS.

Esri inspires and enables people to positively impact their future through a deeper, geographic understanding of the changing world around them.

Governments, industry leaders, academics, and nongovernmental organizations trust us to connect them with the analytic knowledge they need to make the critical decisions that shape the planet. For more than 40 years, Esri has cultivated collaborative relationships with partners who share our commitment to solving earth's most pressing challenges with geographic expertise and rational resolve. Today, we believe that geography is at the heart of a more resilient and sustainable future. Creating responsible products and solutions drives our passion for improving quality of life everywhere.

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Printed in USA

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