# What is "The GeoWeb"?

"The **GeoWeb** or Geospatial Web refers to the ability to locally/ globally integrate and share geospatial information via the Internet."
GeoWeb Conference 2008

Unstated, but implied, in this definition is a requirement that tools and technologies exist to provide these abilities. While this definition is fairly succinct and uses relatively common language, it is probably worth examining some of the key terms and concepts in more detail.

## Geospatial Information

"**Geospatial** is a term widely used to describe the combination of spatial software and analytical methods with terrestrial or geographic datasets."
full entry

At a more basic level, we consider geospatial information (also known as geodata) to be any information that refers to a location on the Earth. It includes everything from a street address to satellite imagery. In this broader sense, nearly all data is geodata.

## Integration (Mashups)

Integration refers to the ability to combine information from multiple sources. Why is this important? With the GeoWeb, it should be possible for even novice users to quickly combine geospatial data sources to help provide answers to specific questions. Imagine being able to sit at your desk and combine the data from satellite images, maps, or a list of features with their geographic coordinates. Certainly this is among the most exciting aspects of the emerging GeoWeb!

> Map mashups, which are evidence of the GeoWeb, are applications that enable content from multiple sources to be combined in a way that is seamless to the user.
>
> ESRI: The GeoWeb: Spatially Enabling the Next Generation Web

## Sharing, Accessing and Participating

The ability to share information is a key principle for the GeoWeb. In the same way that providing access to information set the stage for the explosive growth and popularity

of the World Wide Web, providing fast, secure, and reliable access to geodata is considered essential for the GeoWeb. Like the World Wide Web, the GeoWeb has many participants, each with their own priorities. While many organizations (such as governmental agencies) have a mandate to provide free access to information, there are also some who need to generate revenue to support their businesses. As a result, some information is supported through advertising, purchase, or subscription. By supporting a variety of different business models, the GeoWeb invites everyone to participate.

## Analysis

Traditionally GIS tools have taken input data and processed it to create more valuable information content. This analysis includes a wide range of operations such as simulation and modelling. Many of these analysis and modelling operations are available through data services, and in many cases the output of these data services look just like more geodata.

## Significant Participants

The GeoWeb opens up many exciting possibilities, and not surprisingly this has attracted a great deal of interest from both large private corporations (such as Google, Microsoft, Oracle, and ESRI) and non-profit organizations (such as the Open Geospatial Consortium). Some of the more significant technologies being actively pursued within the GeoWeb include virtual globes, spatial databases, and web mapping services. Others are investigating how peripheral devices, such as GPS devices and cell phones, can participate in the GeoWeb.

## Challenges

- **Geodata can be hard to find, especially for non-experts.**
  There is lots of geodata available, but it can take time and patience to find the information you want. We expect the situation will improve with the emergence of geobrowsers (web browsers equipped with search engines designed to look specifically for geodata).

- **Some data sources are very large, measured in terabytes, and much of it is changing rapidly.**
  The size of data sources presents a special challenge for the GeoWeb. Users have become accustomed to clicking a hyperlink on a Web page and having the target of the link (typically another web page) retrieved and displayed instantly in their browser. Will it be possible to achieve that same level of response when retrieving and loading geodata?

- **Accessing geodata can be difficult. Many datasets are only available under license.**
  The GeoWeb supports different business models, meaning that some of the geodata will be licensed. To protect the investment of the data providers the

GeoWeb must support these licenses, while at the same time ensuring that the management of the licensing does not become a burden to the end user.

- **Combining data from multiple sources can be difficult, and most integration and analysis packages demand a great deal of expertise.**
  Historically, with geodata existing in many different formats, and varying in such things as data type, scale, datum, and projection, integration has been a major obstacle in realizing the potential of the GeoWeb. Data sources with different characteristics must be translated before they can be integrated, and this requires expertise and access to sophisticated tools. However, new tools are emerging that should greatly simplify the process, enabling regular users to perform their own data integration. PYXIS is among those actively working on this challenge.