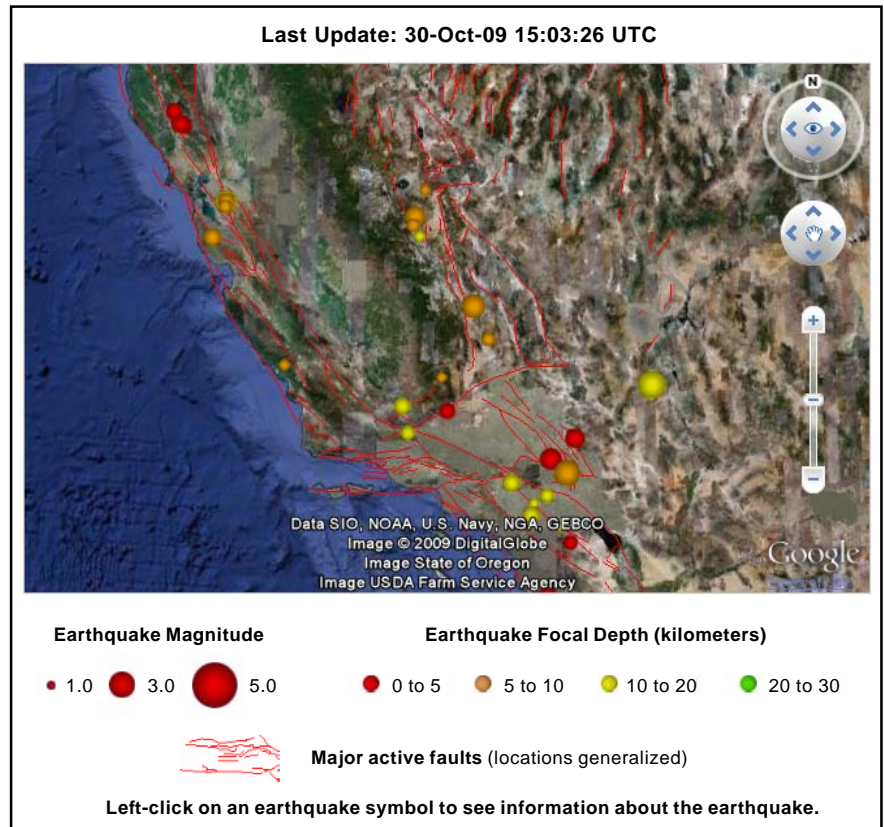


# Today's Earthquakes in California and Nevada

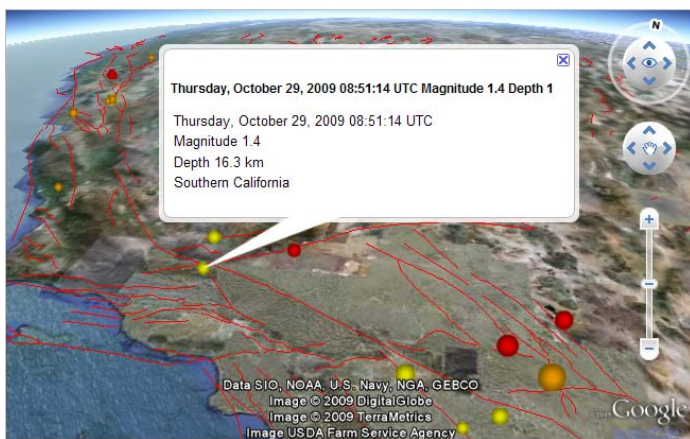
<http://www.geoprovisioning.com/canvquakes/>

The Internet is increasingly becoming a source for publicly available, regularly-updated geospatial data that capture manmade and natural phenomena that vary with time. Examples include satellite and aerial imagery, natural hazards data (wildfires, earthquakes, ...), and weather and climate data. At the same time, free web geoviewers and local geoviewer applications such as Google Maps, Google Earth, and Microsoft Bing Maps now allow anyone to mashup their geodata with the native global maps and images in these viewers, providing an enriched geospatial context. These developments set the stage for automated applications to harvest time-sensitive data, process and/or combine it with other pertinent geospatial data, and present the results locally or on a web page in one of these geoviewers.

The Geospatial Scripting Language (SML) and Job Processing System in TNTmips Pro allow you to design and implement such an automated application. MicroImages has developed an example that can be found at the web address shown at the top of this page. This web page uses the Google Earth browser plug-in to show earthquake epicenter locations for the past 24 hours for the U.S. states of California and Nevada. The earthquake data (points) and reference faults (lines) are contained in a small KML file that is overlaid on the global imagery provided via the web by Google. This KML file is recreated hourly using a TNT geospatial



Google Earth plugin and legend from the MicroImages' demonstration California-Nevada Earthquake web page. The earthquake epicenters (colored spheres) and fault lines are in a KML file that is created once per hour using a TNT geospatial script (SML) that is run automatically by the TNT Job Processing System.



The standard view controls in the Google Earth browser plugin on the California-Nevada earthquake web page allow changing the viewpoint from the initial overhead view to a lower-angle 3D perspective view in any direction from any viewpoint. Left-clicking on an earthquake symbol opens a Google Earth info balloon with the date, time, magnitude, and depth of that earthquake.

script run automatically by the TNT Job Processing system. When the web page is accessed, embedded JavaScript code automatically loads this KML file in the Google Earth browser plug-in and zooms to the extents of the map data in the KML file. The Google Earth browser plugin provides standard controls that allow any visitor to the web page to zoom in and change the viewpoint to examine the earthquake overlay and background imagery in 3D perspective view from any viewpoint and any direction. A static legend in the web page provides an explanation of the earthquake symbols and fault lines. Left-clicking on an earthquake symbol opens a Google Earth placemark balloon with detailed information about that earthquake.

Details on the TNT geospatial script used to download the earthquake data and create the KML file are provided in the Technical Guide entitled *Sample Script: Building Dynamic Web Geomashups*. This script accesses the global earthquake epicenter locations and related data posted and continuously updated by the U.S. Geological Survey Earthquake Hazards Program (<http://earthquakes.usgs.gov/eqcenter/catalogs/>) as the source for this demonstration application. (over)

The TNT geospatial script that downloads and processes the earthquake data is run on a computer with direct access to the web space where the sample web page is posted. The hourly KML file can thus be written directly to the resource directory referenced by this web page. In addition to the KML file, this script creates a small text file containing the date and time when the KML was last updated, which is referenced as an include file by the sample web page. The computer hosting this web page has PHP processing available, so one line of PHP code in the page is used to read the date-time text file and include its text in the page. (As a result, this web page has a .php file extension rather than .htm). A server-side include within a standard HTML page could also be used to accomplish this task.

All of the files necessary for this sample web application are packaged in a Zip file that is available at MicroImages.com: <http://www.microimages.com/downloads/smlscripts.htm>

This package includes the sample TNT geospatial script and all of the resources necessary to run it; a scheduled job file that repetitively runs this SML script; an example KML file created by the SML script; and the sample web page and its referenced graphics files. You can use these items as a reference in developing your own on-line geospatial applications.

The JavaScript code used in the sample web page uses functions provided in the Google Earth Application Program Interface (API) to set up the Google Earth Browser plug-in and load the sample KML file. Documentation on the Google Earth API can be found at <http://code.google.com/apis/earth/>. Use of the Google Earth Browser plug-in also requires a Google Account and a Google Maps API key for the web domain (see <http://code.google.com/apis/maps/signup.html>). Similar on-line documentation is available for the JavaScript APIs for Google Maps and Microsoft Bing Maps if you choose to develop an application for one of these web geoviewers.

