

# [www.haiticrisismap.org](http://www.haiticrisismap.org)

One perspective on changes in crisis  
response... happening today

Aaron Racicot (Z-Pulley Inc)



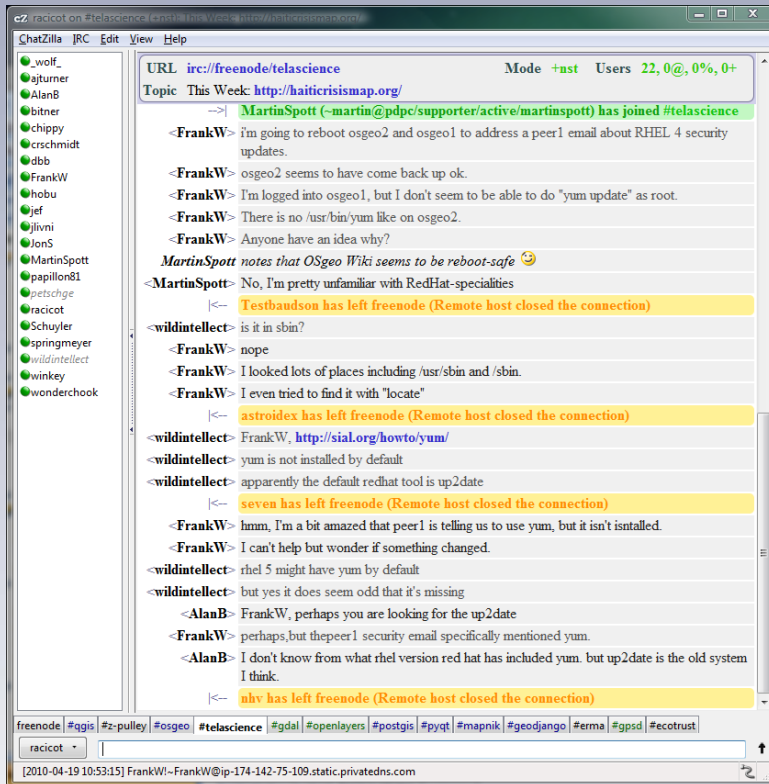
If your technology can help a consumer find a great \$4 latte, that's good for your business.

If it can also help a child find clean water near their village, that's good for the world.

Andrew Turner

# Initial Crisis Notification/Organization (My Experience)

## IRC



# Initial Data Processing

High Res Imagery



Satellite Imagery



First 2 weeks > 4+ TB of processed Imagery

# Initial Data Processing

The screenshot shows the Haiti Crisis Map web application interface. The browser address bar displays <http://haiticrisismap.org/>. The page title is "Haiti Crisis Map - Telarscience".

**Map Navigation:** Includes "Navigate Map", "MGRS PDFs", "Gazetteer by Grid", "Click to Show Location", and "Edit Layer".

**Tools:** Includes an "Address:" field with a "Show" button and the text "(Powered by OSM, can also enter MGRS.)".

**Map Layers:**

- Base Layers
  - Satellite/Aerial Imagery
  - OpenStreetMap (Haiti)
- OSM Overlays
  - OpenStreetEmergencies
  - OpenStreetBugs
  - OSM Roads Overlay
  - Damage/Ref Camps
- Image Overlays
  - WFP Logistics (01-28)
  - 6K Delta State PDFs (Click for link)
- Ushahidi Overlays
  - Latest 100 Incidents
- Sahana Overlays
  - Offices
  - Hospitals
- Drone-style Overlays
  - P-3 (2010/01/20 TT)
  - P-3 (2010/01/19 )
  - P-3 (2010/01/19 ss)
  - P-3 - JE18 (2010/01/18)
  - P-3 - JE17JJ (2010/01/17)
- Topo Maps
  - Hi Res Aerials Image
  - Digital Globe
  - GeoEye
  - CNES/SpotImage
  - Local Drawing Layers

**Data Popup Window:**

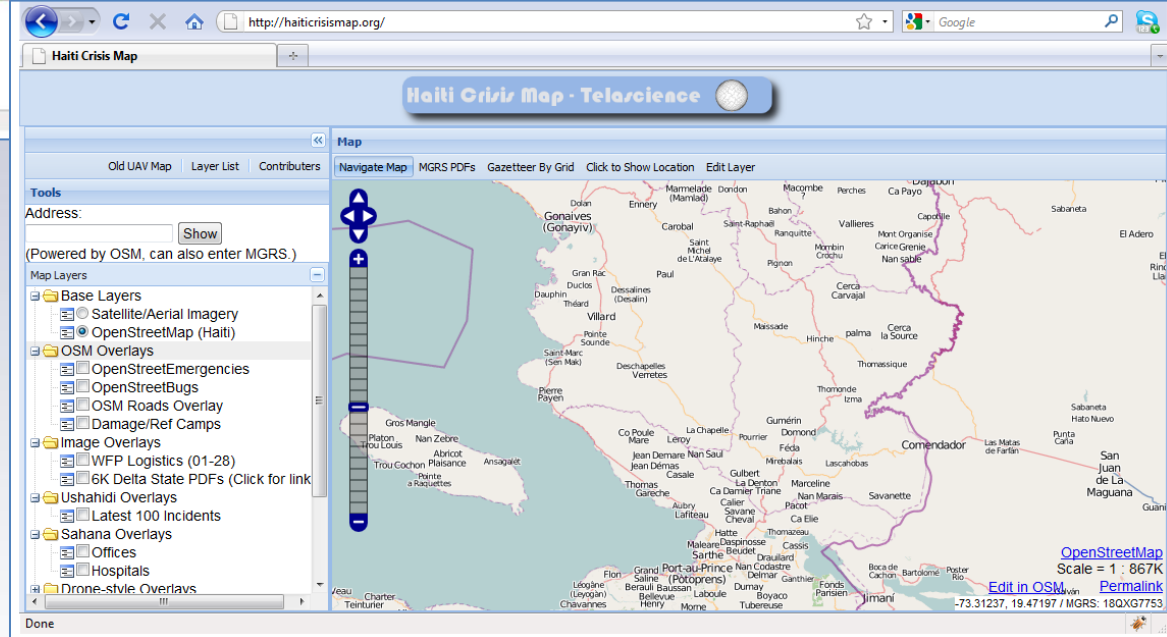
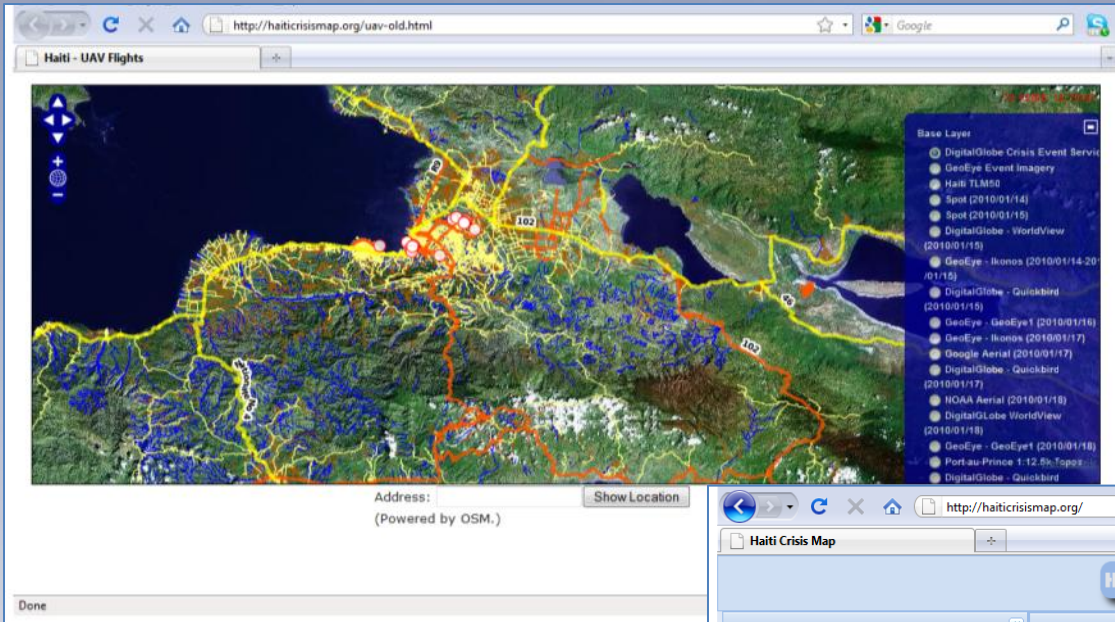
- DOI: 20JAN10
- ToT: 1311Z
- Lat/Long: 183205N 721737W

The popup window displays a satellite image of a road intersection. At the bottom right of the popup, it shows "OpenStreetMap Scale = 1 : 108K", "Edit in OSM", and "Permalink".

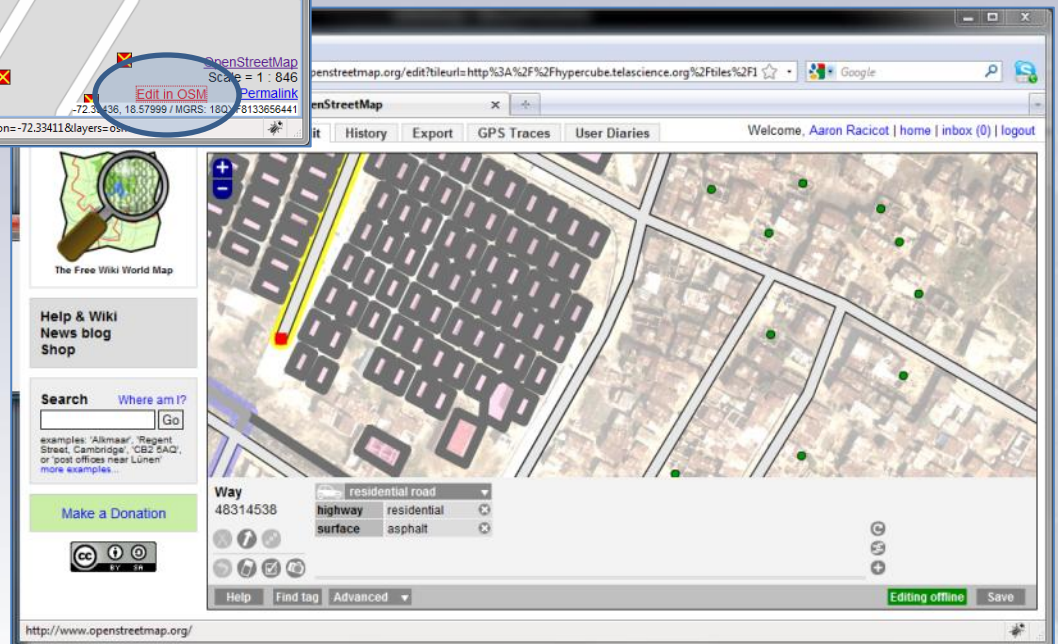
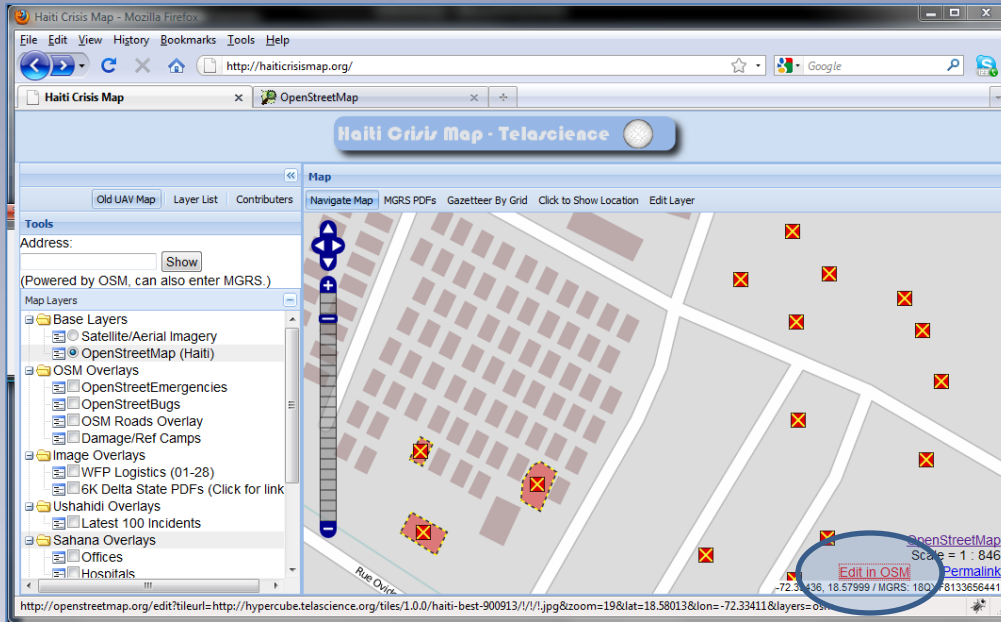
**Map Coordinates:** -72.39638, 18.53564 / MGRS: 18QYF748514



# Flood of Requests → Scaling



# Flood of Requests → Scaling

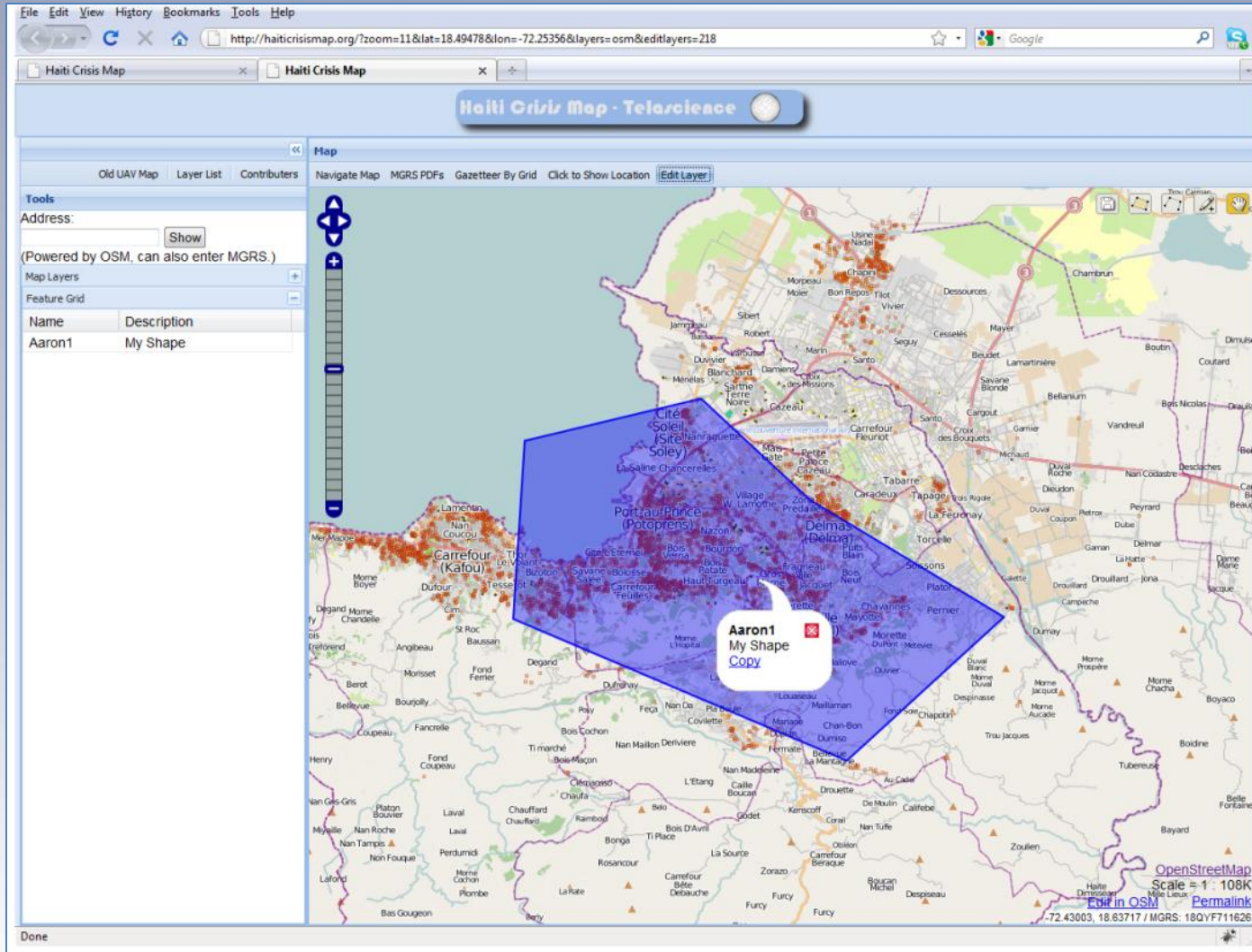








# Integration of Custom Tools



# Stand Alone Packaging



# Lessons Learned For Next Response



- Speed is critical
  - Typical turnaround for new data < 36 hrs
- Providing technology to communities on the ground helping is key
  - Integration with OSM
  - Delta State PDF viewer
- Flexibility of tools makes all the difference
  - Open Source Tools are like ingredients to any recipe you want to make
  - Production/consumption of standardized services (like WMS/GeoRSS/etc.)

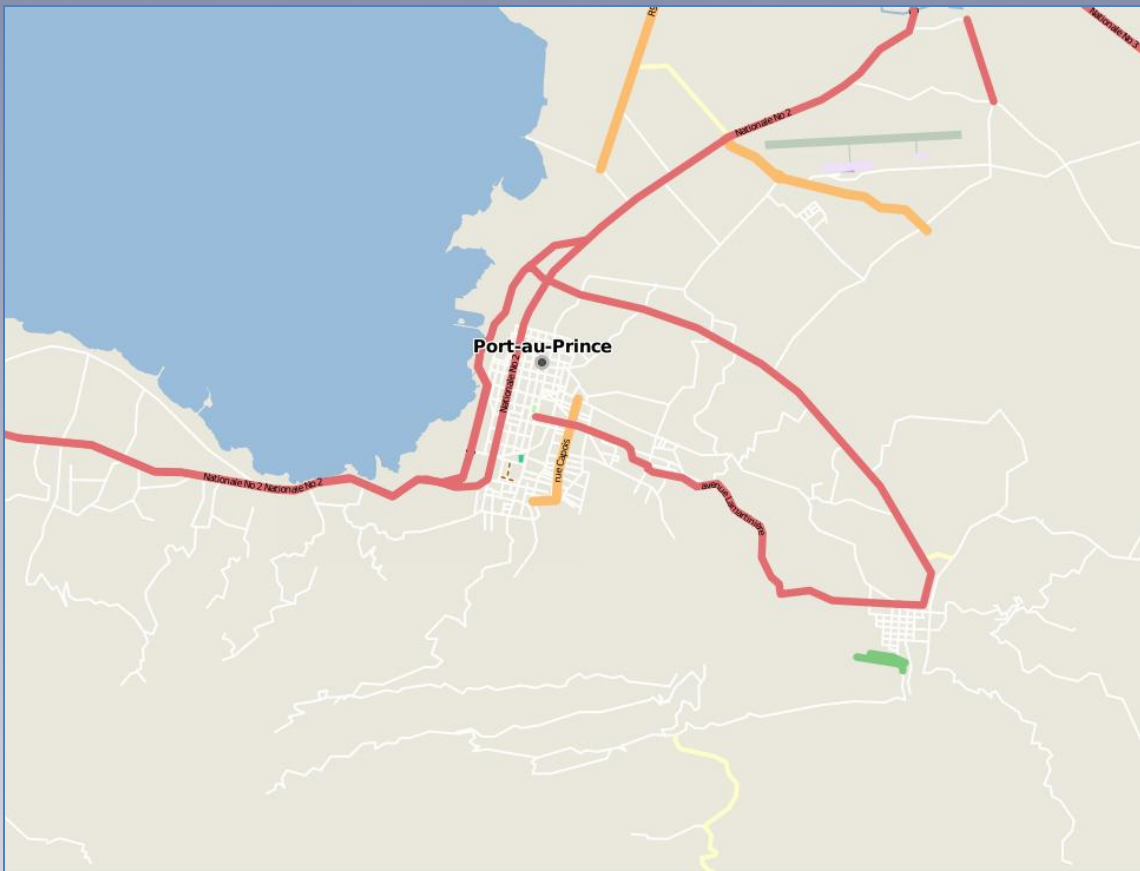


# Signs of progress...

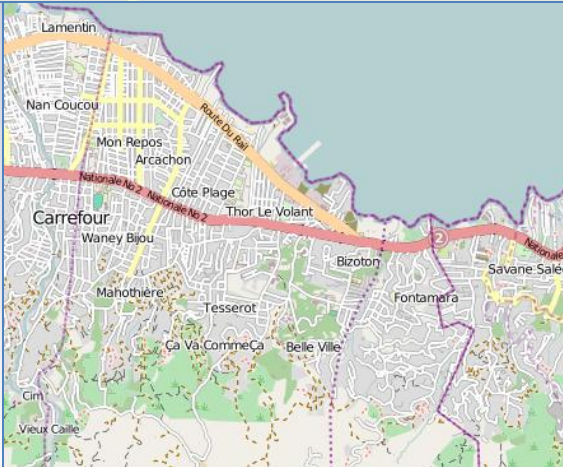
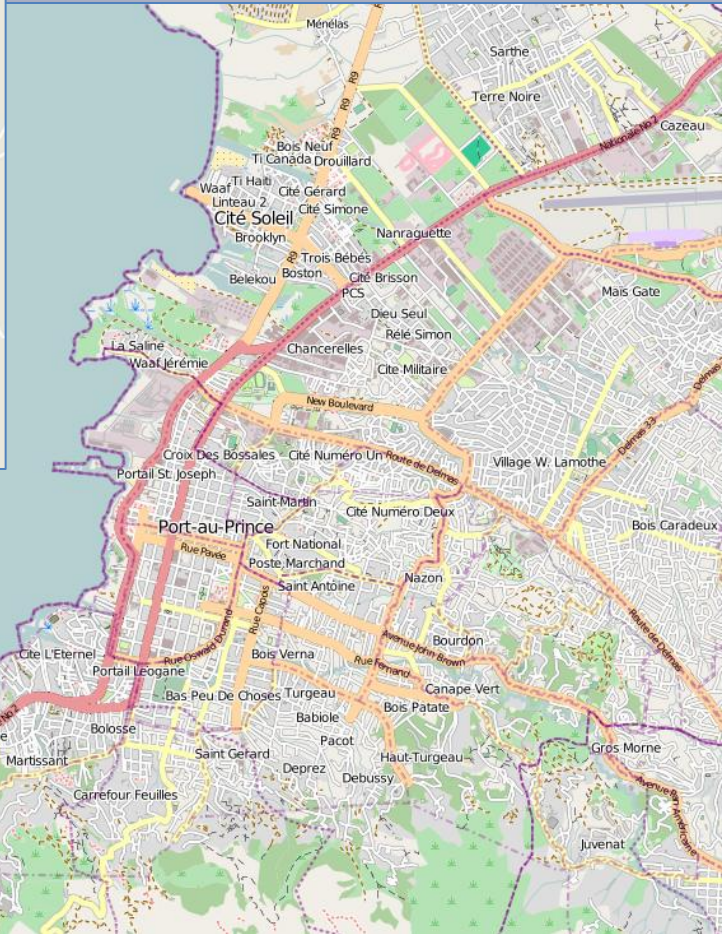


Schuyler Erle





<http://vimeo.com/9182869>

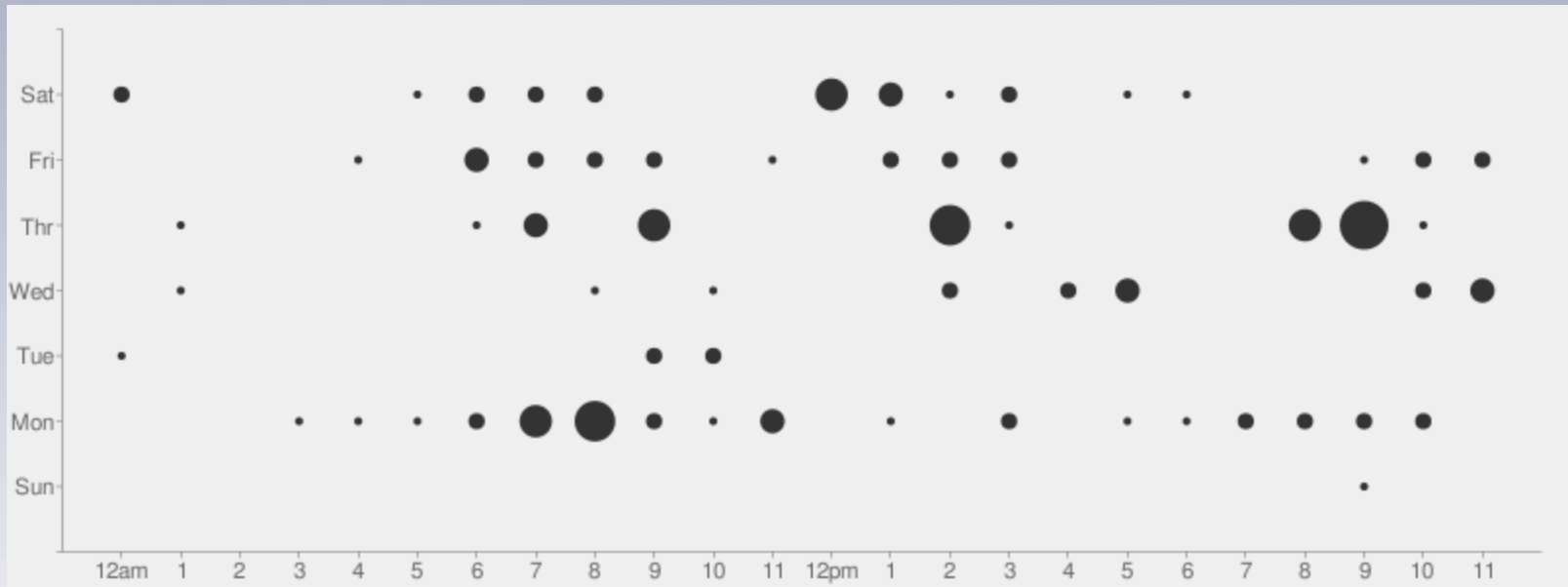


# Code and Data



# CODE

<http://github.com/crschmidt/haitibrowser>



# Data

Name	Credit	Date	Resolution	WMS Endpoint	JOSM WMS URL	Mercator Tiles
<b>Overview Imagery</b>						
We are providing a mosaic of these imagery sources; this mosaic is ideal for newcomers to aerial imagery who just want to edit a map.						
Haiti Mosaic	Pre-Event through the 22nd	Various	Various	<a href="#">WMS</a> , <a href="#">haiti-best-4326 layer</a>	<a href="#">JOSM URL</a>	<a href="#">Paste into Potatch</a> , <a href="#">Edit in Potatch</a>
<b>Individual Layers</b>						
Google Aerial 2010/01/21	Copyright Google 2010 -- "solely for non-commercial use related to emergency relief, credit to Google", <a href="#">source</a> , allowed for OSM tracing, <a href="#">source</a>	2010/01/21	0.15	<a href="#">WMS</a> , <a href="#">google-21-nub10k-4326.google-21-above10k-4326 layers</a>	<a href="#">JOSM URL</a>	<a href="#">Example</a> , <a href="#">Potatch</a>
NOAA 2010/01/24	Copyright NOAA 2010	2010/01/24	0.5	<a href="#">WMS</a> , <a href="#">noaa-20100124-4326 layer</a>	<a href="#">JOSM URL</a>	<a href="#">Potatch</a>
NOAA 2010/01/23	Copyright NOAA 2010	2010/01/23	0.5	<a href="#">WMS</a> , <a href="#">noaa-20100124-4326 layer</a>	<a href="#">JOSM URL</a>	<a href="#">Potatch</a>
World Bank 2010/01/24	Copyright WorldBank 2010 (Collected by RIT, Public Domain)	2010/01/24	0.08	<a href="#">WMS</a> , <a href="#">worldbank-24-4326 layer</a>	<a href="#">JOSM URL</a>	<a href="#">Potatch</a>
World Bank 2010/01/23	Copyright WorldBank 2010 (Collected by RIT, Public Domain)	2010/01/23/2333	0.08	<a href="#">WMS</a> , <a href="#">worldbank-23-4326 layer</a>	<a href="#">JOSM URL</a>	<a href="#">Example</a> , <a href="#">Potatch</a>
NOAA 2010/01/22	Copyright NOAA 2010	2010/01/22	7	<a href="#">WMS</a> , <a href="#">noaa-01-22-4326 layer</a>	<a href="#">JOSM URL</a>	<a href="#">Example</a> , <a href="#">Potatch</a>
World Bank 2010/01/21	Copyright WorldBank 2010 (Collected by RIT, Public Domain)	2010/01/21	0.08	<a href="#">WMS</a> , <a href="#">worldbank-21-4326 layer</a>	<a href="#">JOSM URL</a>	<a href="#">Example</a> , <a href="#">Potatch</a>
Worldview-2 2010/01/19	Copyright DigitalGlobe 2010	2010/01/19	0.5	<a href="#">WMS</a> , <a href="#">worldview-01-19-4326 layer</a>	<a href="#">JOSM URL</a>	<a href="#">Example</a>



In summary, the **community** is making a difference. The tools we develop in WhereCamp, IRC, open-source communities, and from companies are **changing the capabilities** of crisis response and development.

Andrew Turner

UI



# ExtJS

# GeoExt

The screenshot shows the ExtJS website homepage. At the top, there is a navigation menu with links for Home, Products, Support, Job Board, Company, Blog, and Store. The main heading reads "Develop amazing web apps built on web standards." Below this, there are two columns of content. The left column is titled "Ext JS for web developers" and describes building rich, sustainable web applications faster than ever, with a "Download now" button and a link to "Learn more". The right column is titled "Ext GWT for Java developers" and describes leveraging existing enterprise skills with the Google Web Toolkit compiler, also featuring a "Download now" button and a "Learn more" link. A central image shows a screenshot of a web application interface. Below the main content, there is a section titled "Also in the Extware family:" which includes links to Ext Core, Ext Direct, and Ext Designer. The Ext Designer link is highlighted with a red price tag of "\$219 25% off". At the bottom, there are sections for "Community", "From the Blog" (with a link to "Implementation Spotlight: Xero"), and "Companies Running on Ext" (listing various companies like Adobe, Amazon, and Best Buy).

The screenshot shows the GeoExt website homepage. At the top, there is a navigation menu with links for Documentation, Examples, Download, and Development. The main heading reads "JavaScript Toolkit for Rich Web Mapping Applications". Below this, there is a "Download" section with the text "Current release: 0.7-rc1" and a "GeoExt News" section with a link to "Atlas of water and health with GeoExt". The main content area is titled "Using GeoExt" and includes a "See GeoExt in action." section with a code snippet for a window configuration. Below the code, there is a "RunIt" button. The "Using GeoExt" section also includes a link to "Learn more about using GeoExt in your application by reading the documentation." and a "GeoExt is Open Source" section with a link to "GeoExt is available under the BSD license and is supported by a growing community of individuals, businesses and organizations." At the bottom, there is a copyright notice: "© Copyright: 2009-2010, GeoExt Community."

# Rendering





# Mapserver

The screenshot shows the MapServer website homepage in a browser window. The page features the MapServer logo and navigation links for Home, Docs, Issue Tracker, FAQ, and Download. A 'Table of Contents' sidebar lists various announcements and releases from 2008 to 2010. The main content area includes a 'Welcome to MapServer' section with introductory text and a map of the Barcelona region.

**Welcome to MapServer**

MapServer is an **Open Source** platform for publishing spatial data and interactive mapping applications to the web. Originally developed in the mid-1990's at the University of Minnesota, MapServer is released under an **MIT-style license**, and runs on all major platforms (**Windows Linux Mac OS X**).

The MapServer **Project Steering Committee (PSC)**, sanctioned by **OSGeo**, manages and administers the project which is maintained, improved, and supported by developers from around the world. MapServer is not a full-featured **GIS** system, nor does it aspire to be.

[More about MapServer](#)

Barcelona, GP Home of **OSGeo 2010**. Map data by [gpanbestmap](#) ([more](#))

**Announcements**

- 2010-03-22 - MapServer 5.6.3 is released
- 2010-02-20 - MapServer PSC Attend New York Code Sprint
- 2010-01-08 - MapServer 5.6.1 is released
- 2009-12-18 - MapServer 5.6.0 is released
- 2009-07-24 - MapServer 5.4.2 is released
- 2009-06-01 - MapServer 5.4.1 is released
- 2009-04-22 - MapServer 5.4 is released
- 2009-03-26 - MapServer 5.2.2 and 4.10.4 security fixes are released
- 2009-03-08 - MapServer PSC Attend Toronto Code Sprint
- 2008-12-30 - New MapServer website is now live
- 2008-12-16 - MapServer Graduates OSGeo Incubation

# Mapnik

The screenshot shows the Mapnik website homepage in a browser window. The page features the Mapnik logo and navigation links for Home, News, FAQ, Demos, Download, Trac, Documentation, Maps, Contact, and Licence. The main content area includes a 'Welcome' section, 'Support Mapnik' with a 'Donate' button, 'Get Mapnik 0.7.1' with 'Source' and 'win32 binaries' buttons, and 'Getting Started' with links to 'Get source!' and 'Documentation (Trac Wiki)'. A map of the Amsterdam region is displayed at the bottom.

**mapnik**

Home News FAQ Demos Download Trac Documentation Maps Contact Licence

**Welcome**

Mapnik is a **Free Toolkit** for developing mapping applications. Above all Mapnik is about making beautiful maps. It is easily extensible and suitable for both desktop and web development. [More ...](#)

**Support Mapnik**

[Donate](#)

**Get Mapnik 0.7.1**

[Source](#)

[win32 binaries](#)

**Getting Started**

- [Get source!](#)
- [Documentation \(Trac Wiki\)](#)

Copyright © 2010 Artem Pavlenko

# Processing



# GDAL



The screenshot shows a web browser window displaying the GDAL website. The browser's address bar shows the URL <http://www.gdal.org/>. The page title is "GDAL - Geospatial Data Abstraction Library". Below the title, there is a language selection menu: "Select language: [English][Russian][Portuguese][French/Francais]". The main content area features a paragraph describing GDAL as a translator library for raster geospatial data formats, released under an X/MIT style Open Source license. It lists supported formats like GeoTIFF, Erdas Imagine, SDTS, ECW, MrSID, JPEG2000, DTED, NITF, etc. Below this, there are sections for "User Oriented Documentation" and "Developer Oriented Documentation", each with a bulleted list of links to various resources. A "Conference" section mentions FOSS4G 2010 in Barcelona. At the bottom, there is a "Mailing List" section and a note about finding GDAL/OGR users on IRC.

GDAL - Geospatial Data Abstraction Library

Select language: [English][Russian][Portuguese][French/Francais]

GDAL is a translator library for raster geospatial data formats that is released under an X/MIT style Open Source license by the Open Source Geospatial Foundation. As a library, it presents a **single abstract data model** to the calling application for all supported formats. It also comes with a variety of useful **commandline utilities** for data translation and processing. The NEWS page describes the February 2010 GDAL/OGR 1.7.1 release.

The related OGR library (which lives within the GDAL source tree) provides a similar capability for simple features vector data.

Master: <http://www.gdal.org>  
Download: ftp at [remotesensing.org](http://remotesensing.org), http at [download.osgeo.org](http://download.osgeo.org)

User Oriented Documentation

- Wiki - Various user and developer contributed documentation and hints
- Downloads - Ready to use binaries (executables)
- Supported Formats : GeoTIFF, Erdas Imagine, SDTS, ECW, MrSID, JPEG2000, DTED, NITF, ...
- GDAL Utility Programs : gdalinfo, gdal\_translate, gdaladdo, gdalwarp, ...
- GDAL FAQ
- GDAL Data Model
- GDAL/OGR Governance and Community Participation
- GDAL Service Provider Listings (not vetted)
- Sponsors, Acknowledgements and Credits
- Software Using GDAL

Developer Oriented Documentation

- Building GDAL From Source
- Downloads - source code
- API Reference Documentation
- GDAL API Tutorial
- GDAL Driver Implementation Tutorial
- GDAL Warp API Tutorial
- OGRSpatialReference Tutorial
- GDAL C API
- GDAL Algorithms C API
- GDALDataset C++ API
- GDALRasterBand C++ API
- GDAL for Windows CE

Conference

 FOSS4G 2010 is the leading annual conference for free and open source geospatial software. It will include workshops and presentations related to GDAL/OGR, and some of the GDAL/OGR development community will be attending. It is the event for those interested in GDAL/OGR, other FOSS geospatial technologies and the community around them.

Mailing List

A gdal-announce mailing list subscription is a low volume way of keeping track of major developments with the GDAL/OGR project.

The [gdal-dev@lists.osgeo.org](mailto:gdal-dev@lists.osgeo.org) mailing list can be used for discussion of development and user issues related to GDAL and related technologies. Subscriptions can be done, and archives reviewed on the web. The mailing list is also available in read-only format by NNTP at <news://news.gmane.org/gmane.comp.gis.gdal.devel> and by HTTP at <http://news.gmane.org/gmane.comp.gis.gdal.devel>.

Some GDAL/OGR users and developers can also often be found in the [gdal](http://irc.freenode.net) IRC channel on [irc.freenode.net](http://irc.freenode.net).

# Z-Pulley Inc.

*spatial software solutions consulting...*

(w) 360-221-2441  
(c) 360-941-2757  
(f) 360-221-2447

Aaron Racicot  
President

PO Box 1614  
Langley WA 98260

[www.z-pulley.com](http://www.z-pulley.com)  
[aaronr@z-pulley.com](mailto:aaronr@z-pulley.com)



Blog: [www.reprojected.com](http://www.reprojected.com)  
Twitter: [reprojected](#)  
Skype: [reprojected](#)  
IRC: [#z-pulley](#) User: [racicot](#)

