Free Google Tools for Creating Interactive Mapping “Mashups”

Cary Chadwick
Emily Wilson

Tuesday, May 10, 2011
2pm
Welcome to the CLEAR Webinar Series!

This is the fourth in the 2011 series

- Riparian Corridors, Now Online
- Affordable Housing, Now Online
- Rain Gardens, Now Online
- Google Maps Mashups, May 10
- Brownfields, June 14
- GPS & Smartphone Mapping, July 19
- Permeable Pavements for Stormwater Control, September 13
- Farm-friendly Plans and Regulations, October 18
- CLEAR Web Tools, November 8

Register Now!
http://clear.uconn.edu

Suggestions? Email clear@uconn.edu
CLEAR’s Mission:
To provide information, education and assistance to land use decision makers in support of balancing growth and natural resource protection.
CLEAR’s Geospatial Training Program

Hands-on Short Courses in Geospatial Technologies:

- Geographic Information System (GIS)
- Global Positioning System (GPS)
- “Earth browser” trainings (Google Maps, Google Earth)

Mashup Training!
May 24th
Middlesex County Extension Center
Haddam, CT

http://clear.uconn.edu/geospatial
Webinar Agenda

1. Who’s, Where’s and What’s

2. Introduction to Web Mapping Mashups

3. Techniques for Creating Interactive Web Maps
   - Google Maps My Maps
   - Google Fusion Tables
   - Google Earth
   - KML & the GIS User

4. Techniques for sharing data and web maps

5. Q&A and Helpful Resources
What is a Mashup Anyway?

Mashups combine separate, stand-alone technologies into a novel application, often functioning through an application programming interface (API) which facilitates communication between the technologies without modification of the source code.
The World’s First Mapping Mashup

http://housingmaps.com
Examples of Mashups

Mashups Make Life Easier

http://coffeeseeker.com
http://packagetrackr.com
http://trulia.com
Examples of Mashups

Mashups Educate Us

http://clear.uconn.edu/tools/lidmap

http://marinedebris.noaa.gov
Surveying Your Mashup Experience

✓ Poll Question 1:
Have You Ever Used a Mashup?
✓ Poll Question 2:
Have You Ever Created Your Own Mashup?
The Mashup Scale of Difficulty

Anyone can do it! - Trending Toward the Techies

Range of Techniques

- Google Maps My Maps
- Google Map Maker
- Google Fusion Tables
- MapBuilder
- BatchGeo
- Many More!

- Google Earth
- KML
- API Development
- Map Services
- Mapplets
- GeoRSS

- Programming Mapping APIs, HTML, JavaScript, Database Integration
The Mashup Scale of Difficulty

Anyone can do it! -> Trending Toward the Techies

Range of Techniques:
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- Google Earth
- KML
- API Development
- Map Services
- Mapplets
- GeoRSS
- Programming Mapping APIs, HTML, JavaScript, Database Integration
Why Use Google Tools?

Google, Who?

- Google Maps is ubiquitous
- Google Maps is intuitive
- Google Maps is flexible
- Google Maps is resourceful
- Google Earth is pretty cool.
Google Earth Vs. Google Maps

Google Earth

- 3D Globe
- Shows polar regions
- No login require to create files
- Can create KML and KMZ, import data from GPS receiver
- Google Sky, Moon, Mars and Ocean
- Wow factor?

http://earth.google.com/

Google Maps

- 2D Map (3D with Plug-in)
- Does not include polar regions
- Wow factor?

http://maps.google.com/
Google Maps My Maps

http://maps.google.com

- My Maps is embedded in Google Maps
- Free method for personalizing Google Maps
- WYSIWYG editor
- Allows a user to add data, import KML
- Create customized popup windows using plain text, rich text and HTML
- Add photos, videos and hyperlinks within information bubbles
- Collaborate with other map editors, email URL link to your Google Map, embed in website or blog
Google Maps My Maps Interface

- **Search**: Google Maps search bar
- **Navigation Tools**: Map tools
- **Base Maps**: Map layers
- **Sharing**: Options to print, send, or create a link
- **My Maps**: List of maps created by the user

Created by me:
- CLEAR
- Map from Fusion KML
- NEARC 2010
- San Francisco Bay NERR
- CT Election 2008
- Ragged Rock Creek Tidal Marsh Research
- Hawaii Mashup Trainings
- Wailupe Basin
- UConn Extension Center
- Bannockburn Plantation
- Haddam_POIs.kml

Created by others:
- Eagleville Brook Implementation Sites
- San Francisco Park
- San Francisco Training
Google Maps My Maps Edit Mode

Create by me
UConn Extension Center
CLEAR
Map from Fusion KML
NEARC 2010
San Francisco Bay NERR
CT Election 2008
Ragged Rock Creek Tidal Marsh Research
Hawaii Mashup Trainings
Wailupe Basin
Bannockburn Plantation
Haddam_POIs.kml

Created by others
Eagleville Brook Implementation Sites
San Francisco Park
San Francisco Training
Google Maps My Maps Edit Mode
Google Maps My Maps Edit Mode

[Image of a Google Maps interface with a map and editing tools highlighted.]
Adding Features to a My Map

- **Import Data**
- **Line along roads**
- **Line**
- **Placemark**
- **Shape**

Draw a line
Draw a line along roads
Draw a shape
Editing a Feature
Using the Rich Text Format

Format Text

Insert Hyperlinks

Embed Photographs
Sharing and Collaborating

Google maps

Bannockburn Plantation
A map of the 3,500-acre Bannockburn Plantation slated for development over the next 10-12 years.

Created on Feb 1, 2010 - Updated Feb 16, 2010
By carly chadwick - Open Collaboration
Rate this map - Write a comment

Bannockburn Plantation
The Bannockburn Plantation is located in Georgetown County, SC between Highway 17 and the Atlantic Ocean. The 3,500 acre site is slated for development over the next 10-12 years. Research will be cond...

Dendrometer/Sap Flow
This is the location of a dendrometer and sap monitor. Dendrometer bands measure tree stem growth and expansion. Sap flow investigations can be expanded to quantify stand water use.

Inviting collaborators

Invite collaborators
emily.wilson@uconn.edu

Separate email addresses with commas
Message:

I've shared a map with you called Bannockburn Plantation:
http://maps.google.com/maps/ms?ie=UTF8&msa=0&msid=21714443766302733049.00047d7db8f8496608c3c4
Add your message (optional)

Hi Emily!
Would you like to collaborate with me on this My Map?
You can add your own data to the map or edit some of my mistakes. You can also invite others to collaborate as well.

Thanks!

Send invitations
Send me a copy of this invitation

Manage collaborators

Advanced Permissions
Only the owner may change these settings

Collaborators may invite others
Allow anyone to edit this map

Collaborators (1) - remove all
Collaborators may edit the map.

Me - owner
Sharing and Collaborating

KML
Print Map
Email
URL Link
Embed HTML
Live Demo
Google Maps My Maps Limitations

- You are limited to 1000 map features
- Maximum KML import = 10 MB
- All collaborators must have a Google Account
- Customization is somewhat limited
- Data is stored on Google servers
- Google-centric
Google Maps My Maps Q&A

"Franklin's waiting for the Google 'Street View' camera car to drive by so he can moon it."
Google Fusion Tables

Fusion Table Basics:

- Just graduated from Google Labs
- Cloud-based application
- Designed for data management and collaboration
- Offers data visualization tools including ability to map data in Google Maps and access HTML code to embed on third party websites
- Supports .csv, .xls, .xlsx, .ods, Google spreadsheets, .KML files
- Quota of up to 250 MB per user (shared tables not included)
Google Fusion Tables

Interact, Share, Embed

Geographic Properties

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
<th>Discovered</th>
<th>Pic</th>
<th>Link</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chet Arnold</td>
<td>Water Quality Educator for the...</td>
<td>Discovered circa 1987</td>
<td><img src="http://clear.uconn.edu/index.htm" alt="Image" /></td>
<td><a href="http://clear.uconn.edu/index.htm">Link</a></td>
</tr>
<tr>
<td>Emily Wilson</td>
<td>Geospatial Technology Speciali...</td>
<td>Discovered circa 2000</td>
<td><img src="http://clear.uconn.edu/index.htm" alt="Image" /></td>
<td><a href="http://clear.uconn.edu/index.htm">Link</a></td>
</tr>
<tr>
<td>Dave Dickson</td>
<td>is the coordinator of the National NE...</td>
<td>Discovered circa 2004</td>
<td><img src="http://clear.uconn.edu/index.htm" alt="Image" /></td>
<td><a href="http://clear.uconn.edu/index.htm">Link</a></td>
</tr>
<tr>
<td>Cary Chadwick</td>
<td>joined the University of Connecticut...</td>
<td>Discovered circa 2006</td>
<td><img src="http://clear.uconn.edu/index.htm" alt="Image" /></td>
<td><a href="http://clear.uconn.edu/index.htm">Link</a></td>
</tr>
<tr>
<td>Bruce Hyde</td>
<td>is a Land Use Educator for the Universi...</td>
<td>Discovered circa 2010</td>
<td><img src="http://clear.uconn.edu/index.htm" alt="Image" /></td>
<td><a href="http://clear.uconn.edu/index.htm">Link</a></td>
</tr>
<tr>
<td>Kara Bonsack</td>
<td>As the NEMO National Network Communicator, Kara Bo...</td>
<td>Discovered circa 2001</td>
<td><img src="http://clear.uconn.edu/index.htm" alt="Image" /></td>
<td><a href="http://clear.uconn.edu/index.htm">Link</a></td>
</tr>
<tr>
<td>Mike Dietz</td>
<td>is a water resources educator, with primary r...</td>
<td>Discovered circa 2010</td>
<td><img src="http://clear.uconn.edu/index.htm" alt="Image" /></td>
<td><a href="http://clear.uconn.edu/index.htm">Link</a></td>
</tr>
</tbody>
</table>

Additional Information

"Name"    "Description"
"Discovered"
"Pic" – URL to photograph
"Link" – URL to web link

Comments
Google Fusion Tables

Emily Wilson is the Geospatial Technology Specialist for the NEMO program. Since joining UConn in 2000, her role has been to provide GIS remote sensing information and support to the NEMO project, the Geospatial Training program and other related research and outreach efforts. She also does a significant amount of web work with the goal of providing easy access to geospatial information and maps. Emily is a graduate of Connecticut College with a BA in environmental science and botany. She received her M.S. in forestry and remote sensing from the University of Maine.

http://clear.uconn.edu/index.htm
Additional Fusion Table Functions

- Supports embeddable charts, graphs, maps, and timelines
- Configurable map styles and information windows
- Supports data filters and basic queries
- Data attribution and protection capabilities
- Integration of data from multiple sources or users
- Export to KML for sharing or viewing in Google Earth
- Embed map or access as a KML network link
- Public (searchable, embedded), Private or Collaborative Databases

www.google.com/fusiontables
Google Fusion Tables for GIS Users

Zip up your GIS data and upload

http://shpescape.com
Google Fusion Tables for GIS Users

ArcGIS 10

http://shpescape.com
Google Fusion Tables Q & A
Google Earth

- Desktop Application
- 3D Globe
- Shows polar regions
- No login require to create files
- Requires knowledge of HTML to customize features
- Can create KML and KMZ
- Can import GPS data directly from receiver
- Auxiliary data layers including historical imagery
- Google Sky, Moon, Mars and Ocean
- Wow factor? ⭐⭐⭐⭐⭐

http://earth.google.com/
Poll Question 3:
Do You Know How to Create KML?
Keyhole Markup Language (KML)

KML is a file format used to display geographic information in Earth Browsers such as Google Earth and Google Maps.

KML uses a simple tag-based structure with nested elements and attributes and is based on the XML standard.
Creating and Sharing KML in Google Earth

Placemarks (points), Areas (polygons), Paths (lines) and Image Overlays can be created in Google Earth and saved to KML on your desktop and shared in a number of ways.
Formatting KML in Google Earth

Feature descriptions can be enriched by using standard HTML tags.

![Google Earth interface showing HTML tags for Placemark description](image)
Customizing Pop Up Windows

http://earth.google.com/outreach/tutorial_balloon.html

Select a Template

Download Source Code as KML file
Customizing Pop Up Windows

Template Properties window contains customized HTML and instructions

Open in Google Earth
Saving and Sharing Data in Google Earth

Right-click > Save Place As

Save as .KML
Live Demo
KML in Google Maps and Google Earth

**Importing KML**

1. Click on the **Import** button.
2. Enter the title **UConn Extension Center**.
3. Enter the description **This is CLEAR’s home base.**
4. Under **Import KML**:
   - Click **Browse** to select map data to upload.
   - Or enter the URL of the map data on the web.
5. Click **Upload**.

**Exporting KML**

1. Click on the **View in Google Earth** button.
2. Choose the option to open the file: **Open with**, **Browse**, **Save File**.
3. Check the option to automatically open or save similar files.
4. Click **OK**.
Exported KML in Google Earth
KML for ArcGIS Users

ArcGIS 10
KML for ArcGIS Users

Google Earth
KML for ArcGIS Users

Google Earth

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Sharing Your Map Data on the Web

- Link to Google Earth File
- Embedded Google Earth Map
Embedding Maps in Websites – Option 1
Embedding Maps in Websites – Option 2

Check out the Google Embed Map Gadget!

http://tinyurl.com/mapgadget

KML or My Maps URL goes in

Select map type (Google Earth requires plugin)

HTML code is generated for web applications
Have You Mastered Basic Mashups?

Advanced Mashup Topics:
- KML Formatting (Advanced HTML)
- Programming with mapping APIs
- Database driven mashups (PHP & MySQL)
# Mashup Resources

## Google Earth Resources
- **Google Earth User Guide**
- **Google Earth Help**
  - [http://earth.google.com/support/](http://earth.google.com/support/)
- **Google Earth Community**
  - [http://tinyurl.com/beq5z](http://tinyurl.com/beq5z)
- **Google LatLong**
  - [http://google-latlong.blogspot.com/](http://google-latlong.blogspot.com/)
- **Google Earth Blog**

## Google Maps Resources
- **Google Maps Help**
  - [http://maps.google.com/support/](http://maps.google.com/support/)
- **Google My Maps Help**
  - [http://tinyurl.com/kjo4sx](http://tinyurl.com/kjo4sx)
- **Google Maps Mania (Blog)**
  - [http://googlemapsmania.blogspot.com/](http://googlemapsmania.blogspot.com/)

## KML Resources
- **Google Code – KML Guide**
- **Google Earth Hacks (KML library)**
  - [http://www.gearthhacks.com/](http://www.gearthhacks.com/)
CLEAR Trainings & Resources

http://clear.uconn.edu/training/maps

- **Keep it Simple:** static images, PDFs, GeoPDFs, Image Maps

- **Mashups:** Google My Maps, Creating KML, Working with mapping APIs, Tips and Tricks

- **Interactive Map Services:** ArcIMS, ArcGIS Server

*Mashup Training!*

May 24th
Middlesex County Extension Center
Haddam, CT
Q & A
Thank You!

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http://clear.uconn.edu/geospatial