The Clinton County GIS Program consists of several unique means of disseminating GIS and related data.

Using Google Earth as a Data Delivery Mechanism

Joe Merritt, County GIS Manager
Clinton County GIS Program

WILMINGTON
OHIO
What?
Google Earth?
Why?

For the last couple of years at the Ohio GIS Conference, we have done presentations on using LiDAR data, and the importance of 3-D GIS. At these presentations we mentioned how we have some unique means of searching for and viewing or downloading Clinton County GIS Data, including using Google Earth.

The topic of this presentation is on using Google Earth as an effective and easily available means of disseminating data.

This is really a proof of concept, and should not be considered final or authoritative. The time spent is to encourage interest in GIS, encourage the GIS community of users and professionals to think "out of the box", and to simply demonstrate some of the things we have been able to accomplish with GIS in Clinton County, Ohio.
Uses of Google Earth to the GIS Community

Disseminating Data for User Download

Disseminating Data for User Viewing

Plain Old Mapping!

Finding Latitude and Longitude

Viewing Existing Imagery
Goal of this Presentation

...is to see that...

Applications such as Google Earth have Value with Users of Geographic Information Systems in Disseminating Data

My Career has been Spent in Getting Power to the People, and spans almost 20 years of work in 3 states 4 cities.

I have been a grade school teacher, an ArcView certified Instructor, GIS Project Manager, Regional Sales Manager, map-printer, Department Manager, Software Support manager, etc.

I am all about getting people in a position where they can help themselves.

Clever Uses of GIS and Related Applications bring a ton of value to a GIS Program
Clinton Counties Efforts

To Put Power in the Hands of the People

Over 100 installations of ArcReader
Auditors Office Web Page for Property research
GIS Department Web Page
Hundreds of maps printed monthly
More than 13 thousand surveys online
Aerial Photography back to 1951 available online
Tools

Some of Them Include:

Large Format Color Scanner
Touch-Screen Toshiba Tablet PC
ESRI Software
The Never Ending Quest

There is a never ending quest that GIS Managers and users alike undergo; the quest for an easy means of getting people information they want when they want it in a format that they can use.

With the advent of ArcMap 9.3 and a number of other tools available at little to no cost, GIS users now have the means to convert main-stream GIS data into KML format for use with application such as Google Earth and ArcGISExplorer.
One Application to Rule Them All?

NO SUCH THING!
LETS LOOK AT THE
GIS Department Web Page

- Surveys
- PDF Maps
- Links to Web pages
- Download TONS of Data
- Many years worth of Aerial Photography
- Map Books
- Flood Plain Data and Information
- Soils Data and Information

- Monumentation Data and Maps
- OLD Tax Maps
- CURRENT Tax Maps
- LIDAR section of its own!
- Publications from the GIS Dept.
- Wetlands
- Zoning
- Census

Constantly Updated and Tweaked

WWW.CLINTONCOUNTYOHGIS.ORG

VERY Inexpensive – Primarily just Hard Drive Space on a Server!
A Little Bit on ESRI’s Stuff

ArcExplorer reads KML files...

...As well as all of the standard GIS datasets, including MrSID Imagery

All of the data we have available online is Downloadable and can be used in any Application Users may find
No limit to the amount that the terrain elevation can be exaggerated.
ArcGIS Explorer Built-In Imagery

Looks like NAIP Imagery?

Caesar Creek 1971 Imagery Overlay!
1. USE OF SOFTWARE; RESTRICTIONS
Use of Software. For an individual end user, the Software is made available to and may be used by you only for your personal, non-commercial use according to these Terms of Service and the Software documentation. For a business entity user, the Software may be used by you and your employees for internal use according to these Terms of Service and the Software documentation (individual end users and business end users are collectively referred to as “You” herein).
Restrictions. You agree not to use the Software in connection with or in conjunction with a system in a vehicle that offers real-time route guidance or turn-by-turn maneuvers. You agree not to use the Software for any bulk printing or downloading of imagery, data or other content
More on Licensing...


...Google Earth Free finally becomes a proper universal browser of georeferenced data. You no longer need Pro to do geoweb surfing at work, or to search and view KML files, even for doing business-related research or intelligence gathering, much as you would use an ordinary web browser to gather information from the ordinary web. Nevertheless, I suspect this new license does preclude businesses from using the Free application to produce commercial geospatial products. That would result in an "external" application of Google Earth. But, again, IANAL. Google Earth's "Software documentation" is given as a source for further explication, but the online legal FAQs are currently still the old ones.

CHANGES LESS THAN A MONTH AGO!!
AGENDA:

First

VIEWING

Google Earth

- Aerial Photography – bits and pieces!
- Data – translated
- Scanned Maps

Second

SHARING

Google Earth

- Contour Data
- ** LiDAR / .las files **
- PDF maps
- Imagery – MrSID format for download OR viewing
Viewing Data *Images*

- As opposed to just downloading files using GE as a front-end.
- Aerial photography:
  - *Rectified* and displayed in Google Earth
  - NON – Rectified MrSID files *linked* to a Grid in Google Earth
- Scanned Maps
  - *Rectified* and displayed in GE
  - NON – Rectified *linked* in GE.
Imagery

OLD - Archived

Rectified Cowan Lake & Caesar Creek

Non Rectified MrSID FILES

Grid in ArcMap

FROM

Exported to a KML File

TO

Attribute that is a hyperlink

USE
Old Photography – 1951 - Rectified for viewing in GE
1951 Scanned Aerial Photography
Viewing Data

Translated datasets

Points, Lines, Polygons
ArcScripts is intended for the free exchange of scripts and tools related to ESRI software products. Please alert the moderator if this script is a demo, trial-version, or an advertisement for a retail product.

Summary

> SUMMARY:
Export to KML is an extension developed for ArcGIS 9.x by the City of Portland, Bureau of Planning. The extension allows ArcGIS users to export GIS data in “keyhole markup language” (KML) format for viewing in Google Earth. Any point, polyline, or polygon dataset, in any defined projection, can be exported. Features can be exported as either 2-dimensional features, or 3D features "extruded" upwards by an attribute or z-value.
Data Translated to KML

Great Example
Simple yet Useful

MONUMENTATION
INFORMATION
Data Translated to KML
Great Example
For Small Areas
PARCEL POLYGONS
AND
ATTRIBUTION
Google Earth Parcels and Surveys
I would NOT recommend translating all of your parcels into a KML file. There are better ways to share this kind of data.

Small Areas Of Particular Interest

Never forget the WOW Factor of Google Earth
Issues with Translations

Sometimes the data just doesn’t line up right!
Scanned Maps

KML and KMZ files provide an excellent Means of sharing scanned maps
Via
Google Earth
OR
Other Software
Examples

Hyperlinks...

FIRST
Lets look at the surveys page on the web…

NOW
Lets look at a few of the surveys in a grid using Google Earth:

Sometimes there just isn’t a good easy way to get this kind of data to the people!

Google Earth might provide a viable solution
Surveys Page Screenshot

For the Latest Upload Date:

Upload History

Property Surveys in PDF File Format:

Click on the book to see that books surveys.

<table>
<thead>
<tr>
<th>Book 7</th>
<th>Book 17</th>
<th>Book 27</th>
<th>Book 37</th>
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<td>Book 16</td>
<td>Book 26</td>
<td>Book 36</td>
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</table>

Click on a book, get a list of those surveys
Index of Rectified Surveys
**Examples:**

<table>
<thead>
<tr>
<th>Ohio DOT Right of Way Scans Linked to a Location Index Accessible in Google Earth</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Click the Line = View the Drawing</em></td>
</tr>
<tr>
<td>Railroad Right of Way Scans Linked to a Location Index Accessible in Google Earth</td>
</tr>
</tbody>
</table>
Use Google Earth to see an Intelligent Map Index of the ROW Surveys!
Lines linked to Scans

Click Below to view the ODOT Survey in PDF Format
http://clintoncountyohio.org/DownloadSurveys/ODOTROW/08r1071.pdf
Directions: To here - From here
One of the questions that strikes fear into the heart of a good employee....

Who Used to Own This Property?

Old Tax Maps Rectified in Google Earth

GREAT for genealogical research or any kind of historical research on property information
Old Tax Maps

Use Google Earth to view Rectified Old Tax Maps

List of Maps Available In PDF File Format
Cowan Lake Property Map circa 1950
Caesar Creek Reservoir
Sharing Data

- Contour & Associated Data in CAD dwg file format
- LiDAR LAS files (not complete dataset yet)
- PDF Maps
- Images (example: MrSID) for viewing and/or Download

Is Sharing Data such an original idea?
A Little on “Finding the Area you Want”

It is sometimes very difficult to interpret what someone is describing to you over the phone….particularly when it comes to describing a location!

I say..

Let the users find what they need themselves!!

With GE at least they can see an aerial photograph, road names, etc., and while the GE data itself might not be the most accurate stuff in the world it does enable people to find the area they want information for.
Examples:

- Find the area you want
- Click on the tile name
- Hyperlink to a folder online
- Copy the drawing file to your computer's hard drive

**DWG FILES - CONTOUR DATA**
Screenshot:

ACAD Drawing File

Google Earth Same Location
LiDAR Data

Google Earth as a Front End to Find the Data You Want!

LAS file format
PDF Maps...

Linked to Grid in Google Earth...

- Link to PDF Maps
- Link to Parcel Lines & Attribute Data
- Link to Survey Nodes / ability to view the surveys, in PDF format
Imagery Linked...

Linked to Grid in Google Earth...

MRSID
Could more be done with GE & GIS?

SURE, but you’d have to ask yourself why when…

parcels? surveys? road centerlines? addresses?

There are other, better tools specifically designed to access some types of data.
Conclusion

Google Earth is the Coolest of 3D viewers, but buried under that awesome of exteriors it is at it’s core a presentation tool.

It has a lot in common with Adobe Acrobat Reader, the universally accepted document viewer.

KML files can be created pretty easily but they are not exactly a suitable format for large amounts of spatial data storage or transfer.

**ARCMAP 9.3 WILL PROVIDE MANY NEW WAYS OF EXPORTING DATA TO KML FILE FORMAT!**
Thanks for Coming!

WWW.CLINTONCOUNTYOHGIS.ORG

DWG TrueView -> www.autodesk.com

LAS LiDAR Tools -> http://www.cs.unc.edu/~isenburg/laszip/