



Bringing Fieldwork to the Classroom

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PRI & its Museum of the Earth



The **ReaL** Earth Inquiry Project

- ✓ **ReaL** Earth System Science is a project of the Paleontological Research Institution (PRI) that is funded by NSF (DRK-12 0733303). The project helps teachers teach **Regional and Local** Earth system science using an inquiry-based approach, as a way to understand the global environment.
- ✓ This is undertaken through several components:
- ✓ A series of 7 regional **Teacher Friendly Guides (TFGs)** to the geology of the United States. teacherfriendlyguide.org
- ✓ Teacher professional development programs
- ✓ The creation of **Virtual Fieldwork Experiences (VFEs)** virtualfieldwork.org

Virtual Fieldwork Experiences

- ✓ Allow students to virtually explore a real location with the purpose of answering the core question:

Why does this place look the way it does?

- ✓ These are not intended to be field trips.
 - Field trips = Linear guided tours
 - Experiences = Inquiry driven exploration

Why does this place look the way it does?

- ✓ The process students undertake to answer this question mimics site-based field work
- ✓ Though only key features of the site are available for student review, there is ample data for students to filter and process as they would at the actual site.

Why does this place look the way it does?

- ✓ Considering this question and figuring out how to engage students in the question is great professional development (that **you** can do outside on nice days).
- ✓ Virtual fieldwork is ideally a step toward *actual* fieldwork. As you put together a VFE, you're considering what kids would do in the field.
- ✓ VFEs can be used to prepare for and process actual fieldwork.

Where Does One Find a VFE?



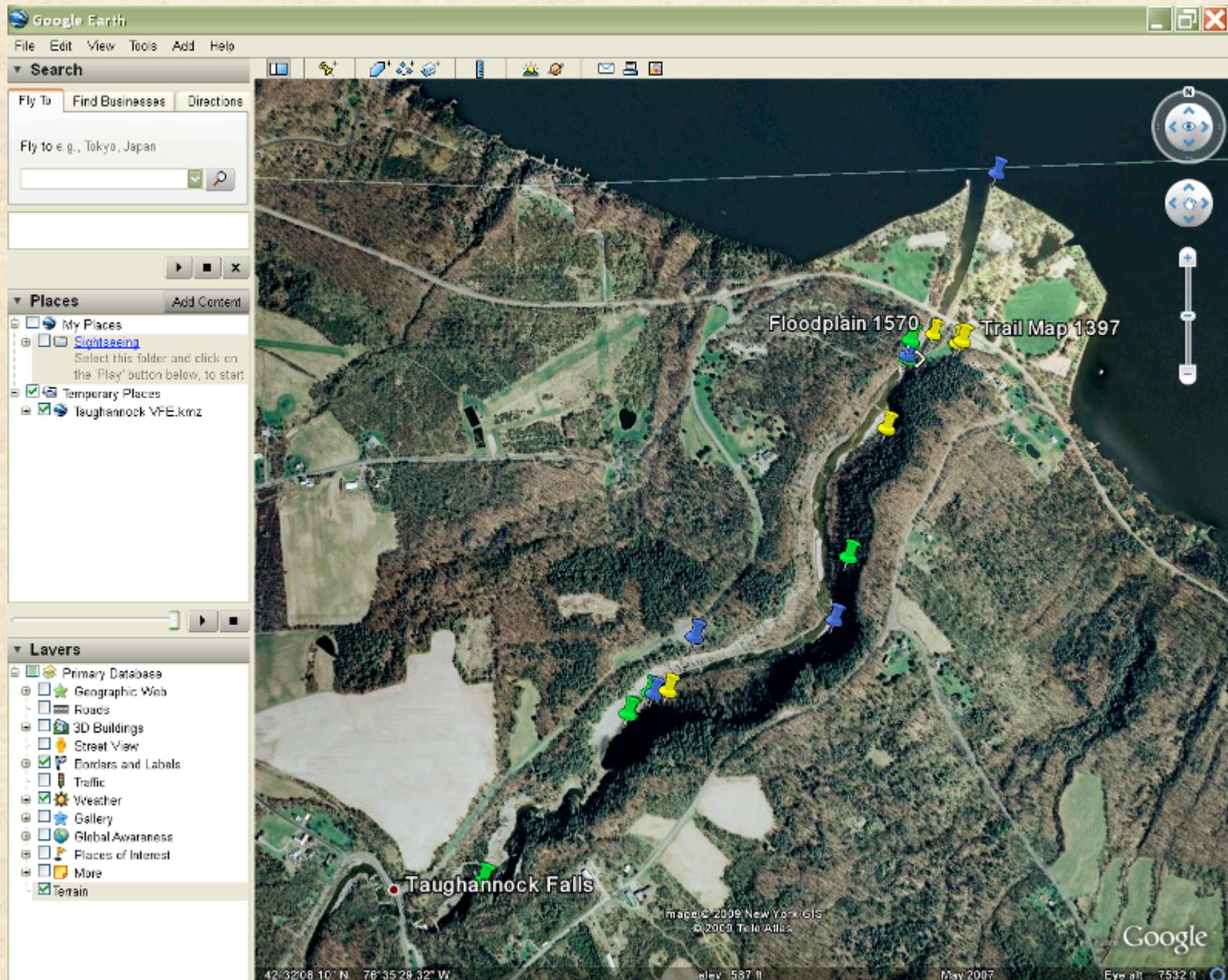
- ✓ We are currently creating a database of VFEs that have been made by PRI and other educators
- ✓ These VFEs are open to the public.

Taughannock Falls Example

- ✓ A preliminary view of our database, soon to be sortable & searchable by category and key words

Sample Image	Title (with link)	Author(s)	Abstract =====	Download	Location	Landscape Region(s)	Geologic Key Words
	Taughannock Falls VFE in Google Earth	Christine Besemer, Sara Auer		Click to download Google Earth Tour of Taughannock Falls.	Taughannock Falls State Park, NY	Allegheny Plateau	glaciation, waterfall, Devonian, shale, sandstone

Taughannock VFE- a quick look



Search

Fly To Find Businesses Directions

Fly to e.g., 37.407229, -122.107162

Search input field with a magnifying glass icon.

Places

Add Content

- My Places
 - Sightseeing
 - Taughannock VFE.kmz
 - Temporary Places
 - Taughannock VFE.kmz

Layers

- Primary Database
- Geographic Web
- Roads
- 3D Buildings
- Street View
- Borders and Labels
- Traffic
- Weather
- Gallery
- Global Awareness
- Places of Interest
- More
- Terrain

What happend to create this crevasse? Look Closer...



From 5-20-2009

In this location there are two distinct rock types. What observations can you make about these rock types? Do they play a role in this landscape?



From 5-20-2009

Some of these rocks also contain fossils (see below). Based on these fossils, we can determine that the rocks are roughly 380 million years old. Can you tell what kind of fossils they are? What kind of environment might these animals have lived in?



Search

Fly To Find Businesses Directions

Fly to e.g. , Tokyo, Japan

Search input field with a magnifying glass icon.

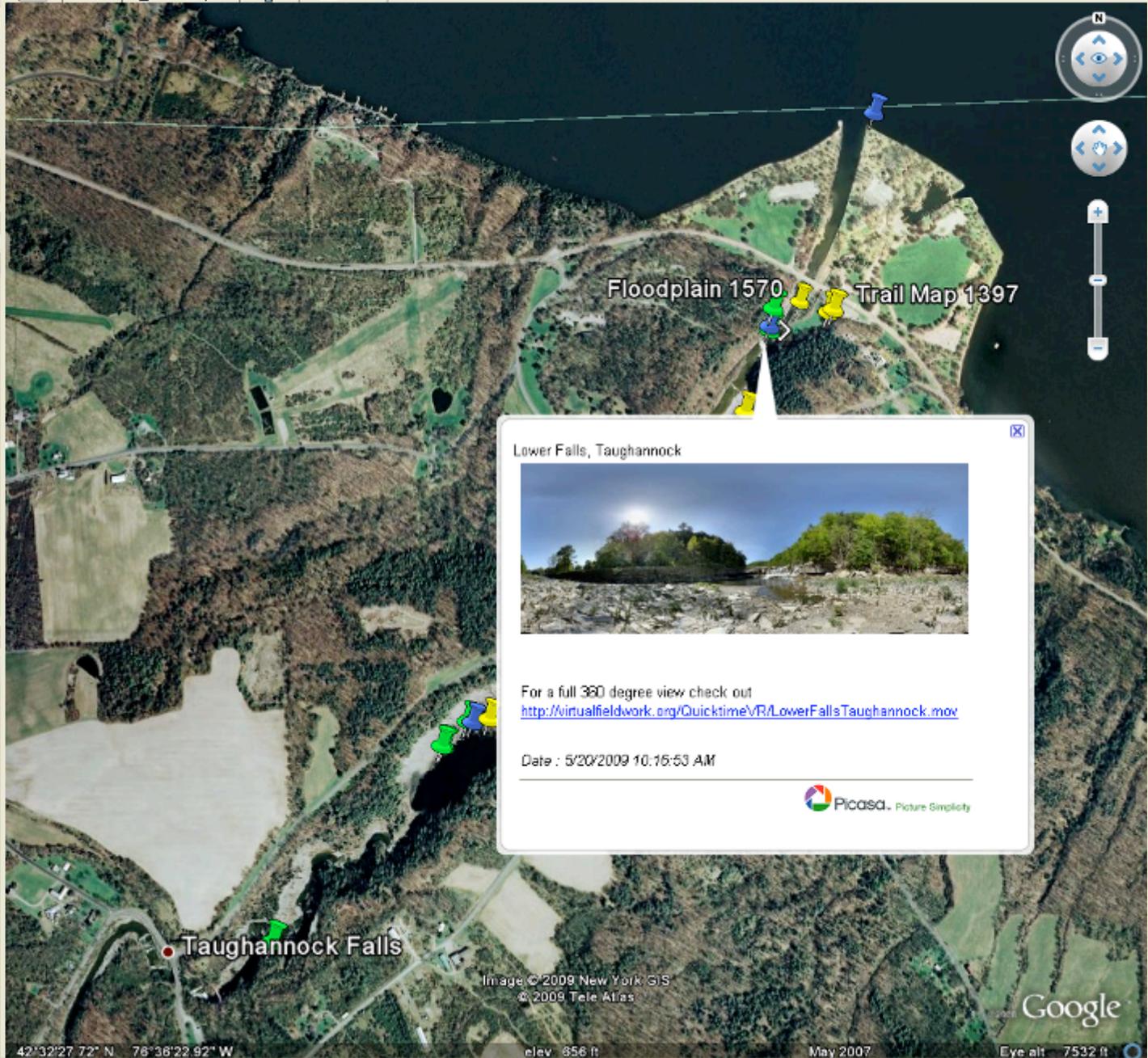
Places

Add Content

- My Places
 - Sightseeing
 - Select this folder and click on the 'Play' button below, to start
- Temporary Places
 - Taughannock VFE.kmz

Layers

- Primary Database
- Geographic Web
- Roads
- 3D Buildings
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- Global Awareness
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- Terrain



360° Panoramas



Gigapan-in progress

The screenshot displays the GigaPan website interface. At the top left is the GigaPan logo and a search bar. On the top right, there are navigation options: "Login", "Show me: Most Popular", "Most Recent", "Tags", and "Conversations". A blue banner below the navigation reads "Make your own GigaPans with the low-cost GigaPan Epic". The main content area features a large photograph of a modern building with a glass facade. On the left side of this image is a vertical control panel with "Help", navigation arrows, a zoom-in (+) and zoom-out (-) button, and a "View All" button. A red box highlights a small inset image of a dinosaur sculpture in the bottom right corner of the main image. Below the main image is a "Snapshots" section with a "Take a Snapshot" button and sorting options: "Sort by: Most Recent | Most Popular | Creator". It also includes "Show me: fqvfe's Snapshots | My Snapshots" and a "Subscribe to Feed" button. At the bottom left, a larger red-bordered inset shows a close-up of the dinosaur sculpture. At the bottom right, a video player with a play button is visible.

Help

View All

Snapshots

Take a Snapshot Sort by: Most Recent | Most Popular | Creator Show me: fqvfe's Snapshots | My Snapshots

Subscribe to Feed

This "picture" is a compilation of 288 photos

Scientists **ACTUALLY** do this

- ✓ NASA's Mars Rovers
- ✓ Scientists are learning about the Mars by examining pictures taken by the rovers
- ✓ The creators of VFEs are playing the role of the robotic rovers.



How do you do this?

- ✓ Visit the site
- ✓ Take LOTS of photos & GOOD notes
- ✓ Upload selected photos to the web
- ✓ Insert photos into chosen web-based map application
- ✓ Carefully chose captions and questions

Specialty Items

- ✓ **Web application for photo storage**
 - Picasa Web Albums
- ✓ **Web-based map application**
 - Google Earth
- ✓ **Specialty photo systems to take panoramas**
 - Nodal Ninja (manual)
 - Gigapan (automated)
- ✓ **Software designed to “stitch” the photos together**
 - PT Gui

How do we do this?

- ✓ Visit the site & take LOTS of photos & notes
 - Videos were taken with movie function on the digital camera
- ✓ Specialty camera equipment:
 - Nodal Ninja (manual panoramas)
 - Gigapan (automated panoramas)
- ✓ Stitch panos and convert to 360° degree views
 - PT Gui (360° QTVRs open in Quick Time)
- ✓ Upload selected photos to the web
 - Picasa Web Albums
- ✓ Insert photos into a web-based map application
 - Google Earth
- ✓ Carefully chose captions and questions

www.virtualfieldwork.org

- ✓ Tutorials on website
 - Including How to use Google Earth and Picasa

- ✓ Database
 - Many types of VFEs
 - Choose a VFE based on goals, ability, time...

- ✓ Resources
 - Teacher-Friendly Guides

Questions?

