

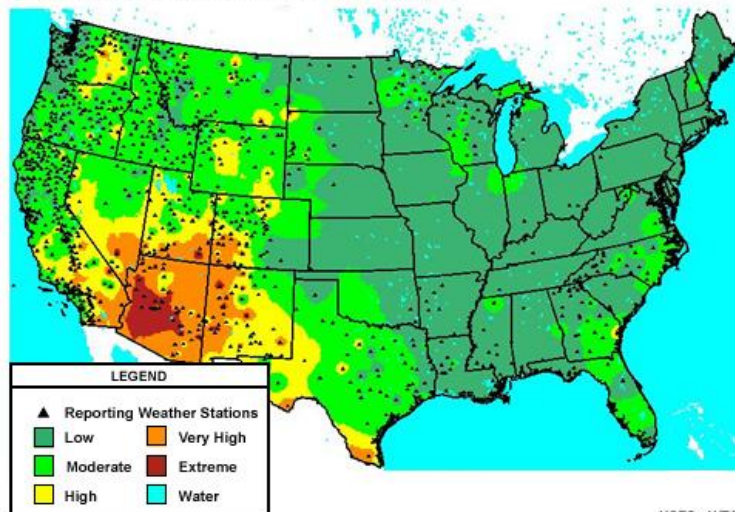
NIMBLE AND ACTIVE: USING TECHNOLOGY TO RESPOND TO REAL WORLD EVENTS IN A CHANGING CLIMATE

DR. LESLEY-ANN DUPIGNY-GIROUX
DEPARTMENT OF GEOGRAPHY – UVM
VT STATE CLIMATOLOGIST

Teaching PLACE: Using technology and professional wisdom to
uncover the interrelationships between natural and built systems
Champlain Basin Education Initiative – Keynote – 24 January 2015

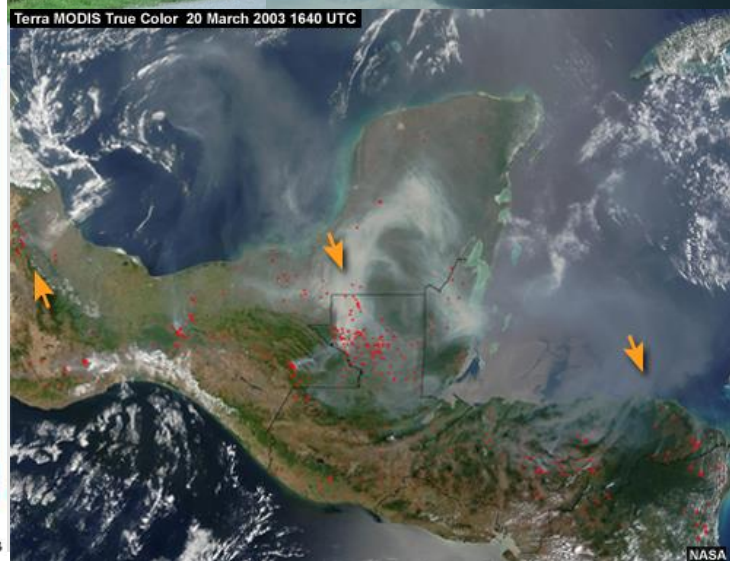


Observed Fire Danger Class Product, 05 July 2005



USFS - WFAS

Terra MODIS True Color 20 March 2003 1640 UTC



Photos: L-A.
Dupigny-Giroux

MOTIVATION

STUDENTS IN GENERAL – ESPECIALLY TERTIARY

- declining familiarity with basics
- inability to conceptualise in 3-D space
 - multi-level ozone
 - atmospheric stability, circulation

STRATOSPHERIC VS. TROPOSPHERIC OZONE

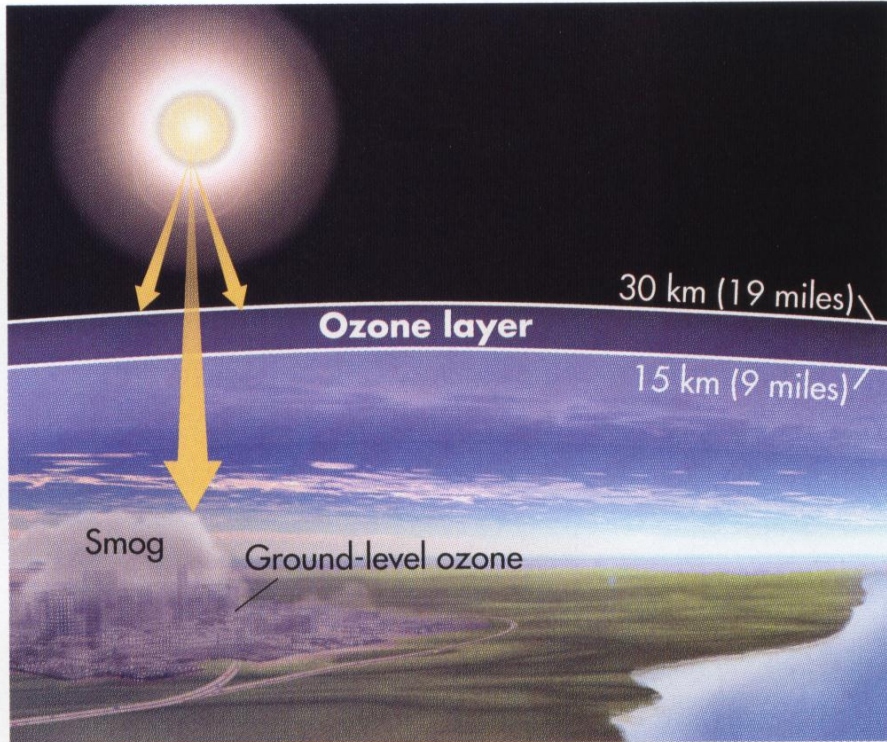
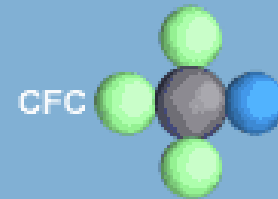


Figure 4.10 The two layers of the atmosphere where high concentrations of ozone occur. One layer is at high altitudes and absorbs UV radiation from the Sun. Most of this ozone is concentrated in the ozone layer. The second layer occurs in the lower part of the atmosphere and is associated with pollution, particularly chemical smog in cities.



STUDENTS IN GENERAL – ESPECIALLY TERTIARY

- declining familiarity with basics
- inability to conceptualise in 3-D space
 - multi-level ozone
 - atmospheric stability, circulation
- lack of critical thinking skills & ability to make connections
- abstract concepts are challenging
- lack of basics in the tertiary curriculum

WHAT ARE THE SYMPTOMS?

- “Ozone hole causes global warming and ice cap melt”
- weather = climate = climate change
- urban sprawl, deforestation & canal dredging are evidence of climate change

OUTLINE

- VT State Standards → Common Core → NGSS
- Technology continuum
- keeping up with the apps
- Geospatial technologies
- tapping into federal resources
- using current events
- What's SWAC got to do with it?

TECHNOLOGY CONTINUUM

- lower tech
 - daily observations
 - fieldwork
 - stereoscopic viewing
 - frisbees
 - digital photography
 - role playing
 - art
- medium tech
 - balloon launches, unmanned aerial vehicles (UAVs)
 - geocaching
- higher tech





Images courtesy: Vermont Life Magazine

APPS & SOCIAL MEDIA AT YOUR SERVICE

HOW OLD IS TWITTER?



NWS Burlington 

@NWSBurlington

Official Twitter Account for National Weather Service Burlington, Vermont.
Details: weather.gov/btv

 Burlington, Vermont

 weather.gov/btv

 Joined July 2012

 2,190 Photos and videos



TWEETS
4,617

FOLLOWING
184

FOLLOWERS
4,500

FAVORITES
24

LISTS
1

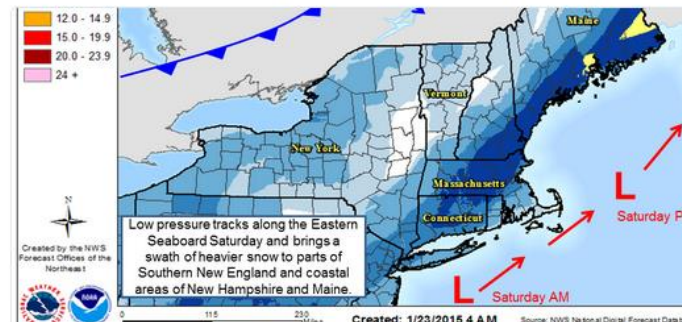
 Follow

Tweets Tweets & replies Photos & videos



NWS Burlington @NWSBurlington · 7h

Heavy snow near eastern seaboard on Saturday. Cold front Saturday night brings us snow showers, then cold on Sunday.



Don't miss any updates from **NWS Burlington**

Full name

Email

Password

Worldwide Trends · [Change](#)

#MakeSexAwkwardIn5Words

#CiteFrasesDaSuaMae

#QuisieraTener

#hiçormayın

#GHAALG

Baby Jet

<https://twitter.com/NWSBurlington>

NATIONAL WEATHER SERVICE BURLINGTON



US National Weather Service Burlington VT is on Facebook.

To connect with US National Weather Service Burlington VT, sign up for Facebook today.

[Sign Up](#) [Log In](#)



US National Weather Service Burlington VT ✓
Government Organization

[Timeline](#) [About](#) [Photos](#) [Radar](#) [More ▾](#)

PEOPLE

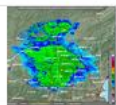
15,723 likes

ABOUT

Facebook posts do not always reflect the most current information. For current official info, visit: <http://www.weather.gov/btv>

<http://www.weather.gov/>

APPS



Radar

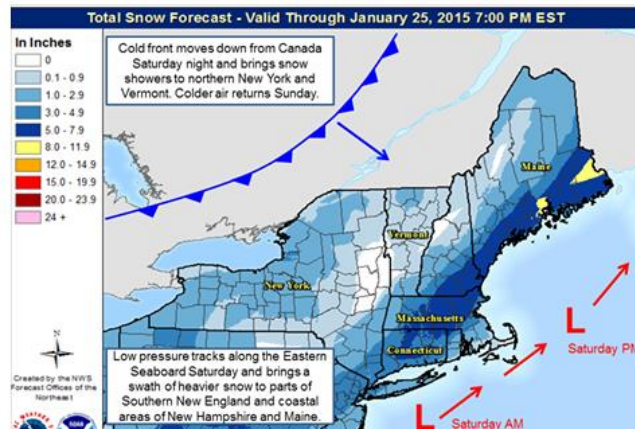
PHOTOS



US National Weather Service Burlington VT

6 hrs · 🌐

Its looking like a near miss for us on Saturday with low pressure moving up the East Coast. However, swath of heavier snow confined to parts of southern New England and coastal sections of New Hampshire and Maine. Cold front moves down from Canada Saturday night and brings us snow showers followed by cold air on Sunday.





Julie Bostock Goodrich

Yesterday at 7:52am

Help !!! Can you tell me if this weekends storm will affect us ?? (more in my area of Springfield, Vt !!!)
Thank you !!! :)

Like · Comment · Share



1



Greg Ramsdell

January 19 at 3:14am

01-19-2015 @ 06:14 hrs Swanton Village 2.1 inches of snow

Like · Comment · Share



1



Beth Thompson

January 18 at 7:35pm

Heavy wet snow began at 7:15p, measured 1.5 in @10:15p 2 mi south of Danby Four Corners.

Like · Comment · Share



1

LIKED BY THIS PAGE



National Weather Service Training ...



St. Lawrence County Skywarn



Vermont Federal Executive Associ...

English (US) · Privacy · Terms · Cookies · More
Facebook © 2015



US National Weather Service Burlington VT

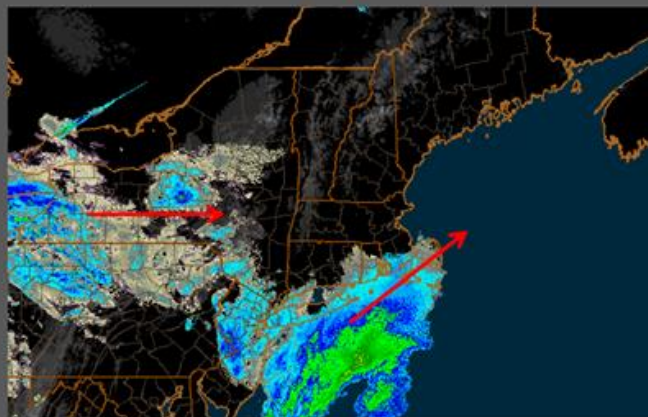
January 21 at 4:51pm · Edited

7:50PM Wednesday- Not much going on in northern New York and Vermont this evening and tonight as an Alberta Clipper passes south of the region and redevelops offshore.



National Weather Service Burlington, VT

www.weather.gov/btv



A dry night is expected as a system slides south and east of the North Country.

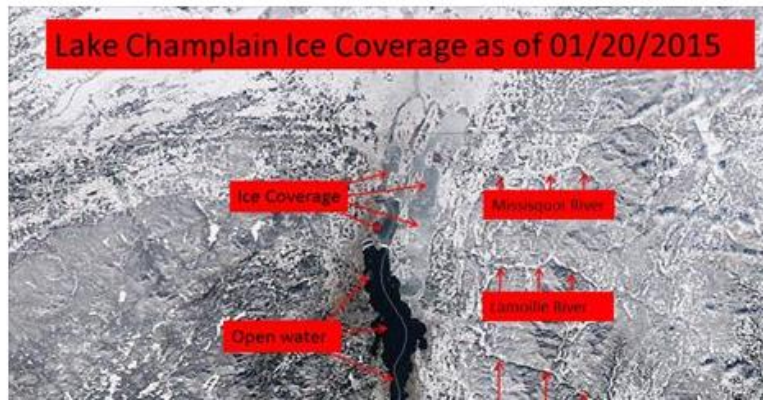
Like · Comment · Share · 14 1



US National Weather Service Burlington VT

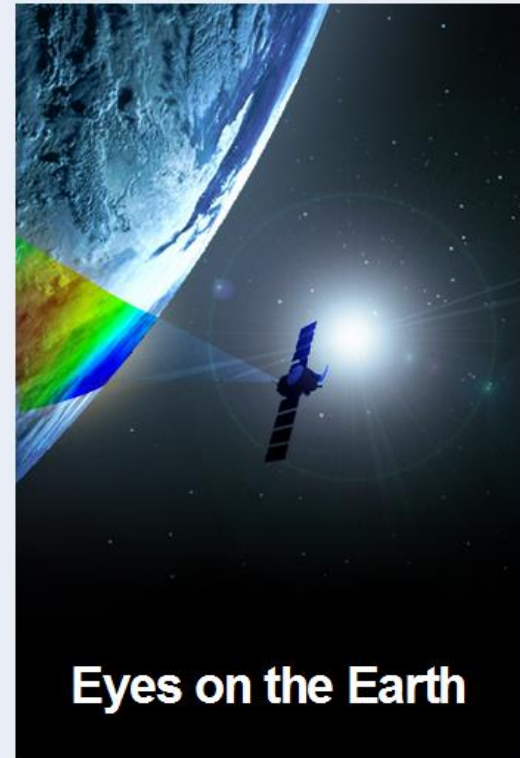
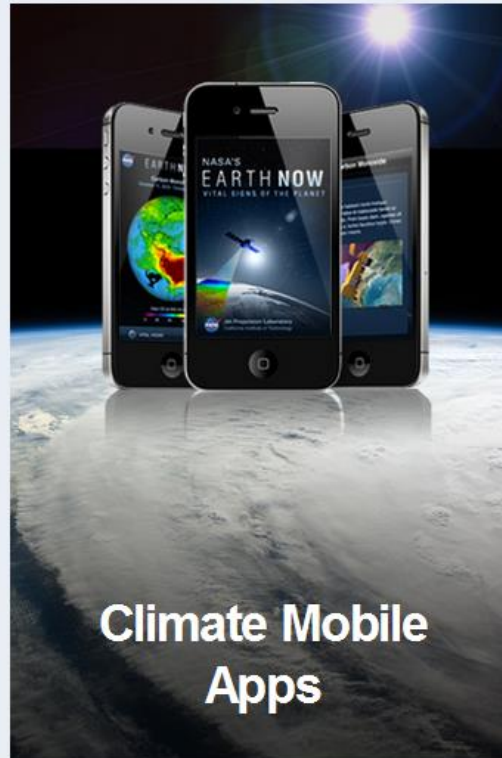
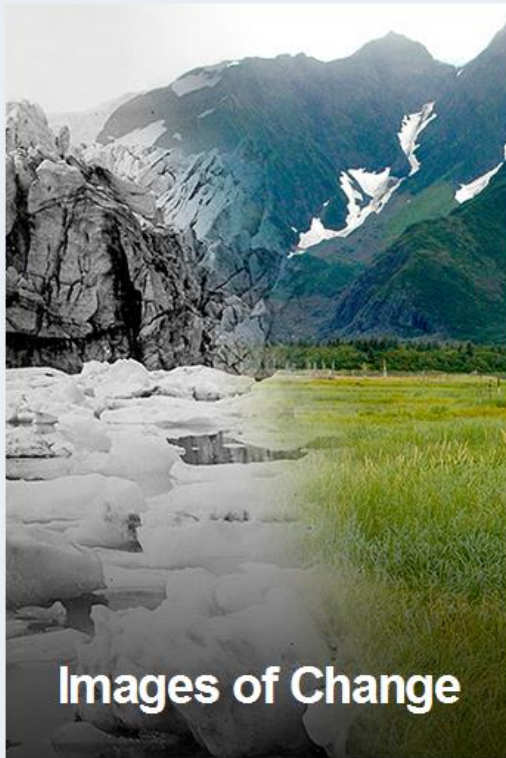
January 21 at 10:41am

MODIS visible satellite picture at 250 meters resolution taken on 1/20/15 showing Lake Champlain ice coverage.

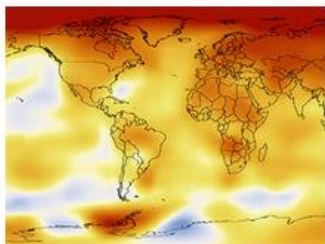




Explore



[MORE MULTIMEDIA](#)



How Hot is Earth?

Take a look at the latest worldwide temperature trends and what they mean.

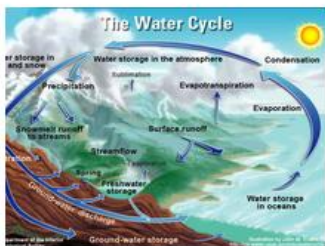
[Launch interactive](#)



10 things you never knew about Earth

Discover some amazing and little-known facts about our home planet.

[View the slideshow](#)



The Water Cycle

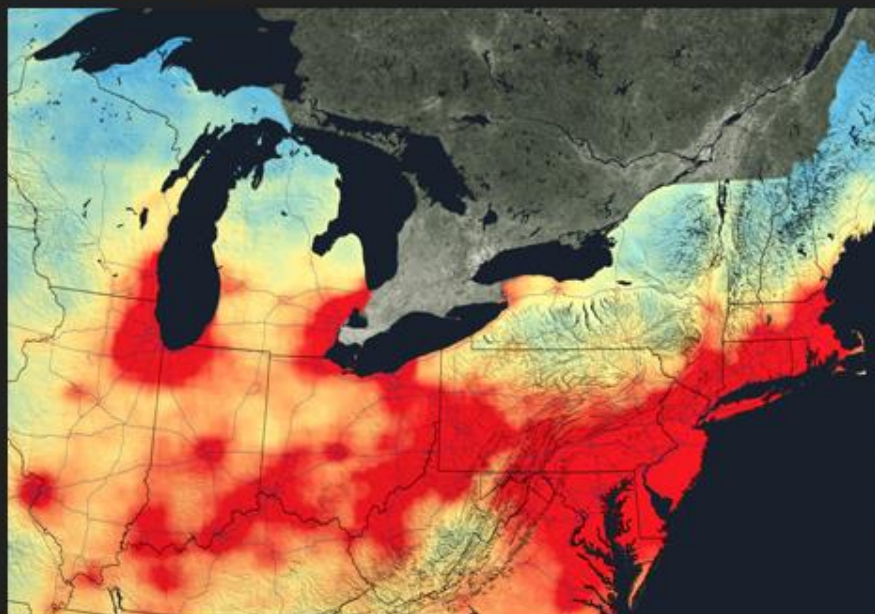
Follow the path of water in our climate system.

[Launch interactive](#)

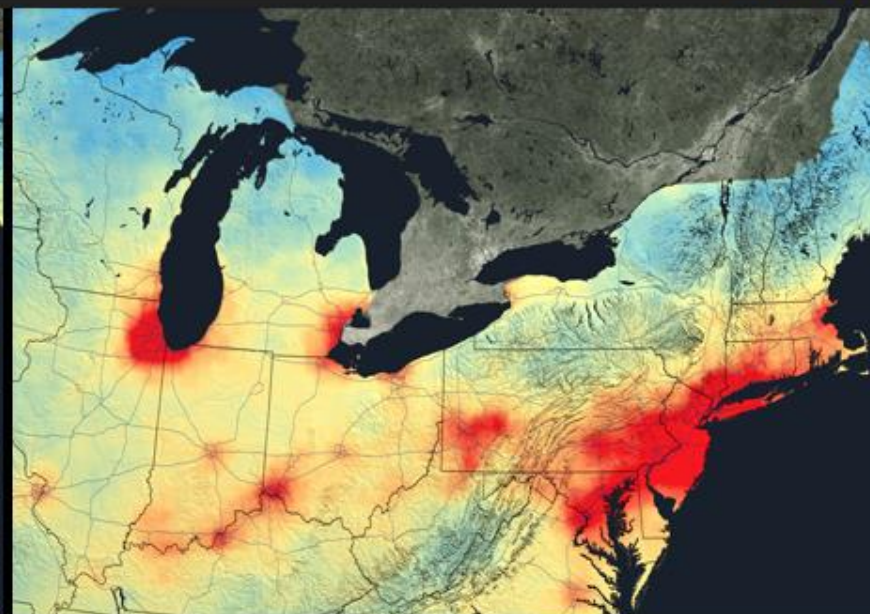


[IMAGE VIEW](#)[MAP VIEW](#)[ALL IMAGES](#)

8 of 297



2005



2011

Air pollution reduction, northeastern United States

Nitrogen dioxide (NO₂) is a yellow-brown gas that can cause respiratory problems, contribute to the formation of other pollutants, and serve as a proxy for air pollution in general. It is produced primarily during the combustion of gasoline in vehicle engines and coal in power plants. Thanks to regulations, technology improvements and economic changes, air pollution — including NO₂ — has decreased despite an increase in population and number of cars on the roads. These images represent the improvement seen in the northeast corridor of the U.S., from Boston to Richmond, where some of the largest absolute changes in NO₂ have occurred.

[show credits](#)[download image](#)

IPHONE APP – GEOLOCATING PHOTOS

iTunes Preview

Overview Music Video Charts

Theodolite

[View More by This Developer](#)

By Hunter Research and Technology, LLC

Open iTunes to buy and download apps.



[View in iTunes](#)

\$3.99

Category: [Navigation](#)

Updated: Oct 02, 2013

Version: 4.0

Size: 2.3 MB

Language: English

Seller: Craig Hunter

© 2009–2014 Hunter Research and Technology LLC

[Rated 4+](#)

Compatibility: Requires iOS 7.0 or later. Compatible with iPhone, iPad, and iPod touch. This app is optimized for iPhone 5.

Also Included In



Description

... Holiday Sale 50%-off! ... As seen in Apple's Special Event Keynote! Theodolite is a multi-function viewfinder that combines a compass, two-axis inclinometer, rangefinder, GPS, map, nav calculator, tracker, and geo-tag photo/movie camera into one indispensable app. Uses are endless, and the app is great for hiking, boating, hunting,

[Hunter Research and Technology, LLC Web Site](#) [Theodolite Support](#)

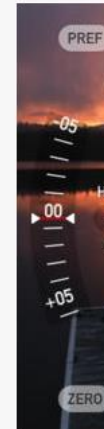
[...More](#)

What's New in Version 4.0

ATTENTION IOS 8 USERS: When Theodolite launches in iOS 8 for the first time, iOS puts up a dialog asking you to give the app permission to access the camera. Many people are mistakenly clicking "no", which causes Theodolite to display a black camera view or simply not launch. If you have denied permission to access the camera, you can

[...More](#)

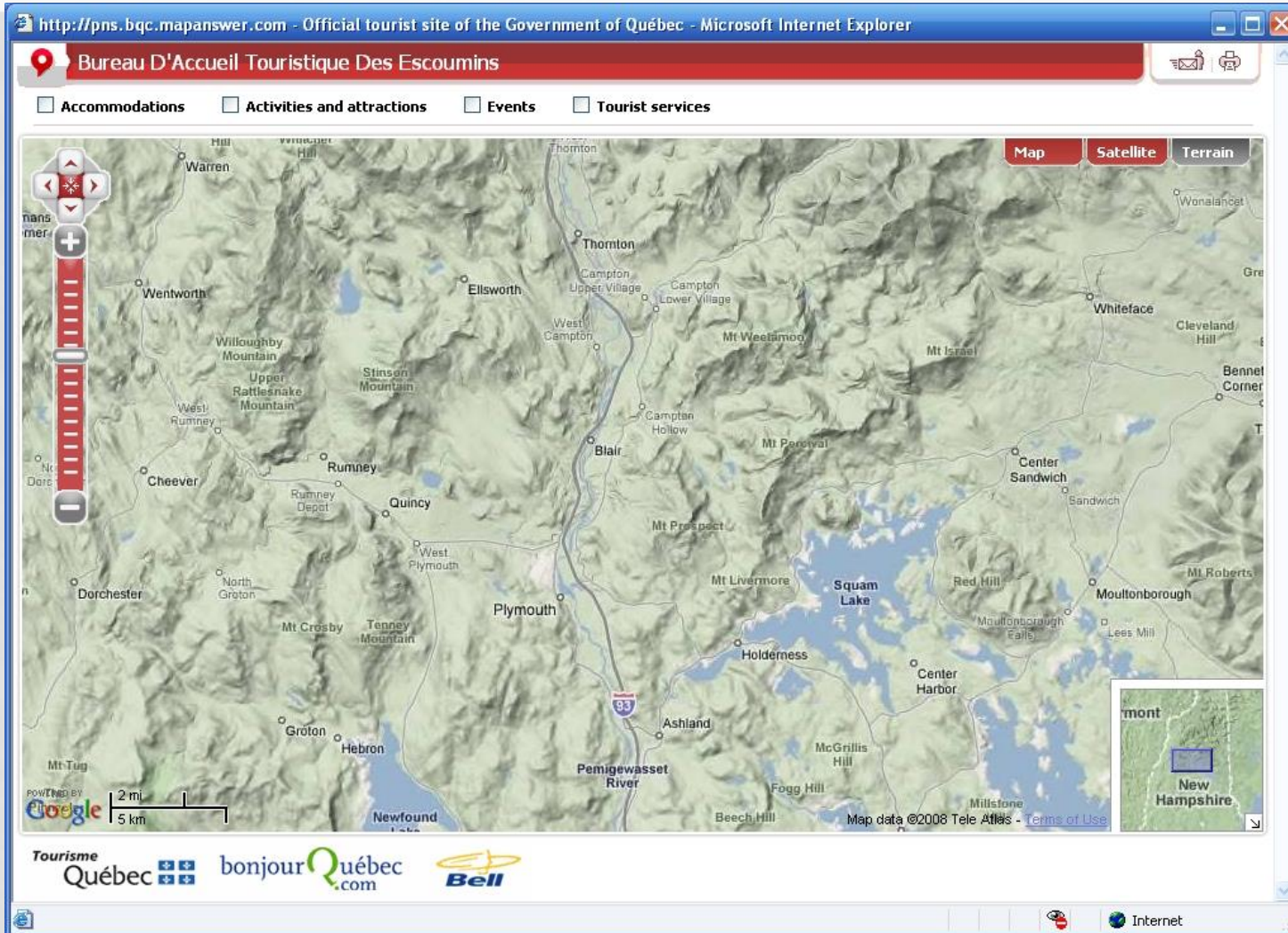
iPhone Screenshot



<https://itunes.apple.com/us/app/theodolite/id339393884?mt=8>

GEOSPATIAL TECHNOLOGIES

GOOGLE MAPS REVOLUTIONS



Wentworth,
NH

Radiational
cooling



IMS



DEEDS



Directory



DIAA

Home Schools Instruction and Assessment Supports Educators

PROFILES CHARTER SCHOOLS SCHOOL CHOICE NONPUBLIC SCHOOLS **DELAWARE PUBLIC SCHOOLS**

Home / Delaware Public Schools / Mapping

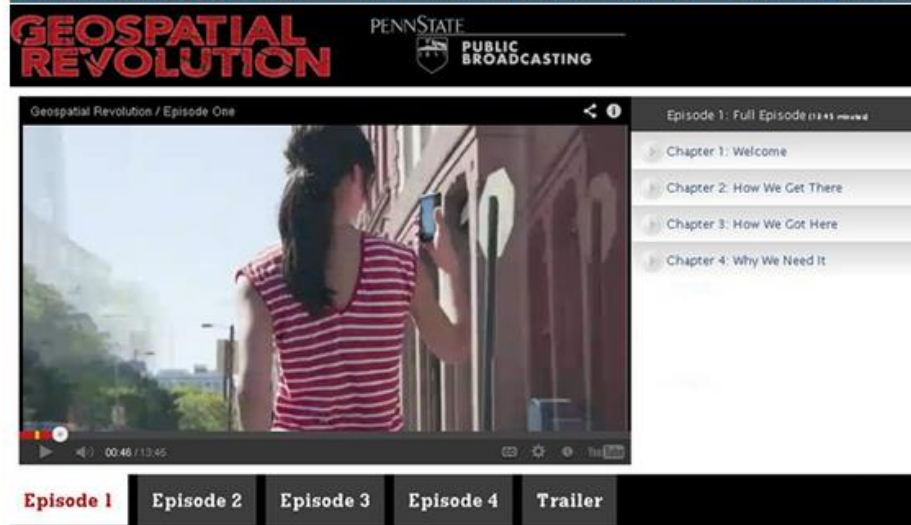
MAPPING

Mapping
Static PDF Maps
Historical Data
Delaware Public School GIS Layers
Main Information - ESRI K-12
ArcGIS - File Lib

+ HOME
+ SERVICES
+ INFORMATION

ESRI K-12 GIS LICENSE WEBSITE

LEARNING PATHWAYS - Watch These Videos then try "Teaching with GIS"



The video player shows the title "GEOSPATIAL REVOLUTION" and "PENN STATE PUBLIC BROADCASTING". The video title is "Geospatial Revolution / Episode One". The video player controls show a progress bar at 00:46 / 13:45. To the right of the video player is a table of contents for Episode 1: Full Episode (13:45) which includes:

Chapter	Topic
Chapter 1	Welcome
Chapter 2	How We Get There
Chapter 3	How We Got Here
Chapter 4	Why We Need It

Below the video player is a navigation bar with tabs for Episode 1, Episode 2, Episode 3, Episode 4, and Trailer. Episode 1 is currently selected.

Welcome to the Geospatial Revolution!

DOE's ESRI K-12 GIS website is the place to begin your journey into understanding location based technologies and learning new ways of engaging your students in Social Studies and STEM content using spatial technologies.

If you are new to GIS (geographic information systems) GPS (global positioning systems) or RS (remote sensing), the four videos by Penn State Public Broadcasting linked here, provide an excellent introduction to the spatial technologies that power today's smart phones, enable mobile business applications and can start K-12 students on a path that leads to a STEM (science, technology, engineering and mathematics) career.

ESRI CONNECTED

ArcGIS Simple Wind Speed and Direction

MODIFY MAP

Sign In

Details

Basemap

Share

Print

Measure

Find address or place



Legend

NOAA_METAR_current_wind_speed_dir - Stations

Wind Speed (km/h)

> 146

110

70

40

< 0



Home Join AAG Knowledge Communities Jobs Contribute Bookstore Contact Us RSS

Problems logging in? Get Help

Search GO Login

About AAG Membership Annual Meeting Projects & Programs Education Publications Calendar Of Events Jobs & Careers

GeoMentors

About

Participate

Prepare

Prepare

About ArcGIS Online

ArcGIS Online Training for Educators

ArcGIS Online: Available Courses, Lessons, and Activities

Training Materials for Different Engagement Types

Data Sources and Learning Resources

Connect

Communicate

Share

Review



ArcGIS Online: Available Courses, Lessons, and Activities

There are many free online resources for learning basic GIS skills in ArcGIS Online as well as existing projects and lesson plans that can be directly incorporated into classroom curricula. Browse the resources below to gain ArcGIS Online skills, find exercises to help educators use in their classrooms, or get inspired to create new projects and exercises with a K-12 school collaborator using ArcGIS Online. Additional training materials designed specifically for educators are available here.

ArcGIS Online: General Courses and Lessons

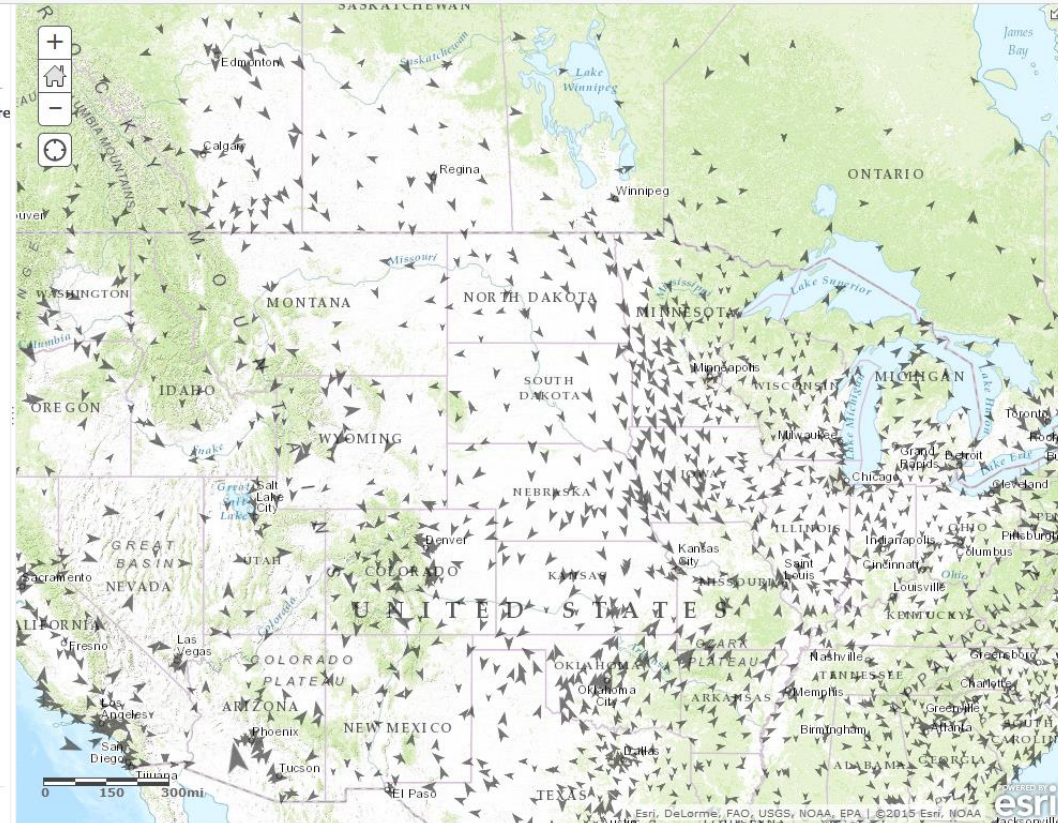
Geolnquiries

Designed to be fast and easy-to-use instructional resources that incorporate advanced web mapping technology. Each 15-minute activity is intended to be presented by the instructor from a single computer/projector classroom arrangement. No installation, fees, or logins are necessary to use these materials and software. More Geolnquiries collections will be released throughout 2015. Recommended for grades 6-9.

Earth Science Geolnquiries Topics include: topographic maps, remote sensing, climate change, earthquakes, volcanoes, and mountain building.

Thinking Spatially using GIS

Thinking Spatially using GIS provides structured lessons in elementary geography using ArcGIS Online software. Recommended for grades 4-6. Approximately 30-60 minutes per lesson. Topics include: world exploration, the animal kingdom, people and patterns, and US tornadoes. These activities may



<http://www.geomentors.net/>



BRIEFING ROOM

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EDUCATION

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AT A
GLANCEEARLY CHILDHOOD
LEARNINGEDUCATION FOR
K-12 STUDENTSSUPPORT FOR
HIGHER EDREFORM FOR
THE FUTURE

In June 2013, President Obama announced the ConnectED initiative, designed to enrich K-12 education for every student in America. ConnectED empowers teachers with the best technology and the training to make the most of it, and empowers students through individualized learning and rich, digital content.

Preparing America's students with the skills they need to get good jobs and compete with other countries relies increasingly on interactive, personalized learning experiences driven by new technology. Yet fewer than 40% of America's schools have the broadband they need to teach using today's technology. Under ConnectED, however, 99% of American students will have access to next-generation broadband by 2019. That connectivity will help transform the classroom experience for all students, regardless of income.

The President also directed the federal government to make better use of existing funds to get Internet connectivity and educational technology into classrooms, and into the hands of teachers trained on its advantages. And he called on businesses, states, districts, schools, and communities to support this effort, which requires no congressional action. Following the 2014 State of the Union address, the President announced major progress on the initiative, highlighting commitments by the FCC and the private

RELATED VIDEOS



JUNE 19, 2015 10:48 AM

West Wing Week: 06/19/15 or, "Her Map & Compass"

1

Info for Schools

2

Info for Teachers

3

Info for Students

How ConnectED Works

Upgrading Connectivity

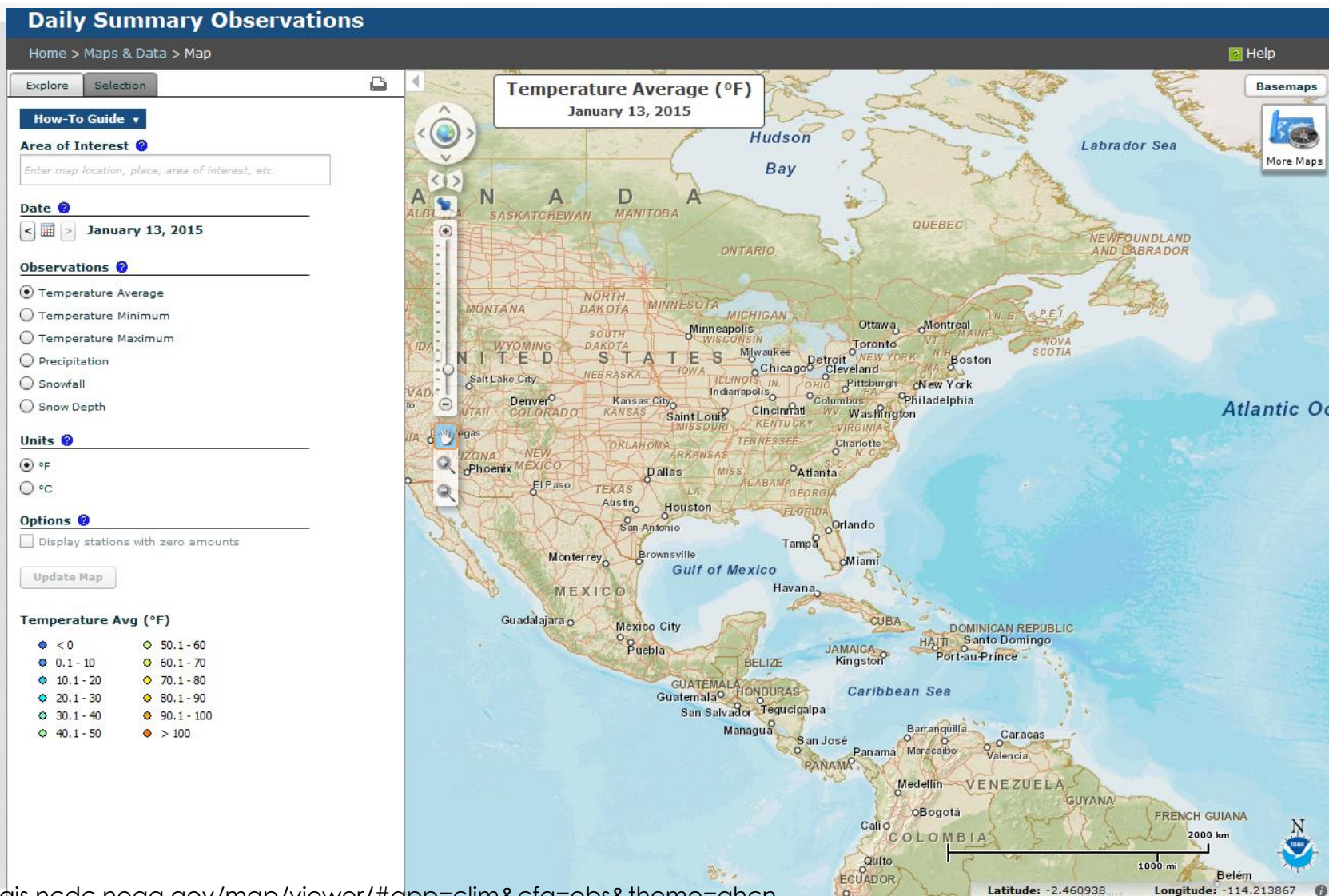
Training Teachers

Encouraging Private-Sector Innovation

The ConnectED initiative will, within five years, connect 99 percent of America's students to next-generation broadband and high-speed wireless in their schools and libraries. The Federal Communications Commission (FCC) and companies like Apple, Microsoft, Sprint, and Verizon are already providing their support, collectively pledging to connect more than 20 million more students over the next two years.

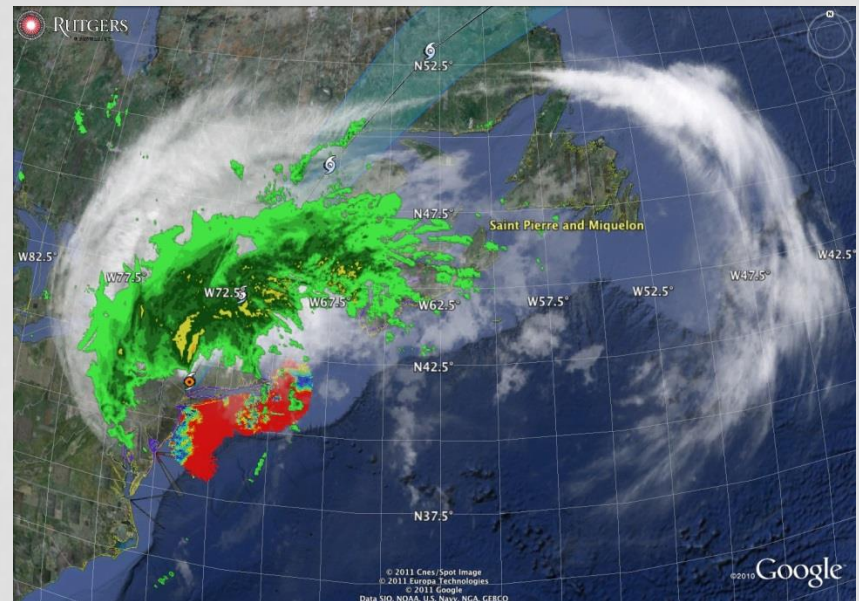
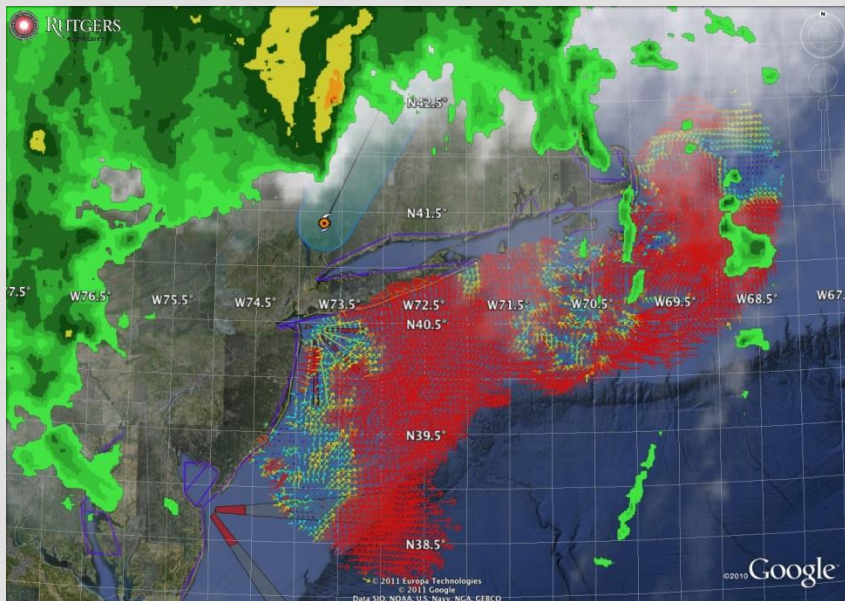
ConnectED will also provide better broadband access for students in rural areas, by expanding successful efforts to connect parts of the country that typically have trouble attracting investment in broadband infrastructure.

GIS MAPPING - NCDC



IRENE'S RAINFALL COMPOSITE

28 AUGUST 2011



<http://www.americaview.org/>

[About▼](#)[Locations▼](#)[Gallery▼](#)

What is Science On a Sphere®?

Science On a Sphere® (SOS) is a room sized, global display system that uses computers and video projectors to display planetary data onto a six foot diameter sphere, analogous to a giant animated globe. Researchers at NOAA developed Science On a Sphere® as an educational tool to help illustrate Earth System science to people of all ages. Animated images of atmospheric storms, climate change, and ocean temperature can be shown on the sphere, which is used to explain what are sometimes complex environmental processes, in a way that is simultaneously intuitive and captivating.



SOS in the News

September 24th, 2014

Experts gather at Aquarium of the Pacific to talk drought, climate change

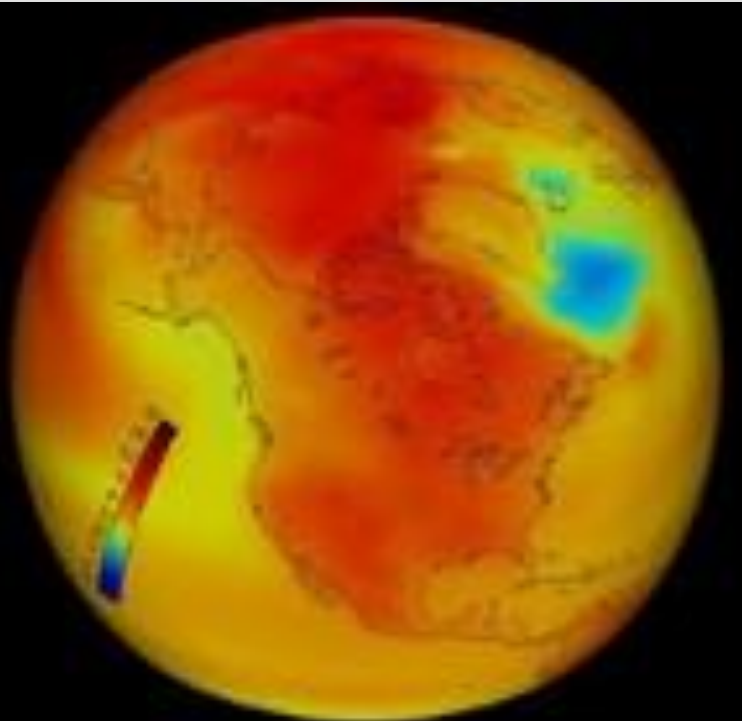
August, 2014

Communicating science: NOAA's visualization technologies

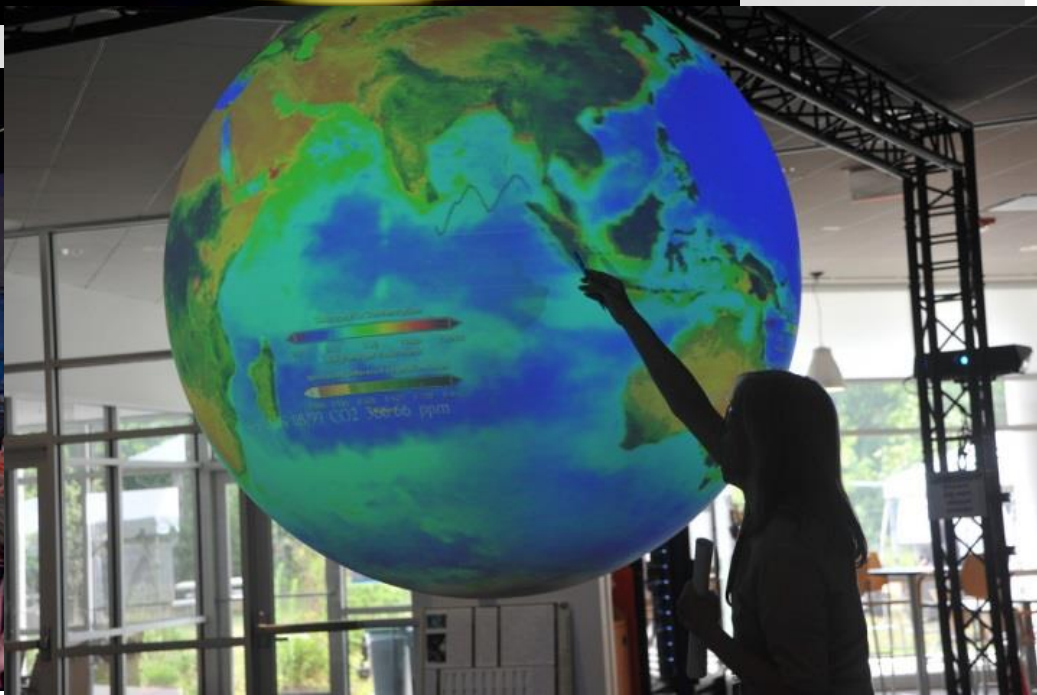
July 30th, 2014

HS science center opens with fanfare

July 28th, 2014



NOAA
NASA



IGLOBE







Bill Horn
iGlobe, Inc.
Bill@iglobeinc.com


USE OF GOVERNMENT RESOURCES

SCIJINKS

[About](#)





Search SciJinks... 

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What is a derecho?


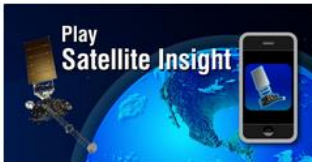










What's a derecho? • • • • • And why are they so destructive?

[Hurricanes and Storms](#)
What the heck is lake effect snow?


[Multimedia](#)
Space weather!


SCIJINKS GAMES

Topics	Games 		
Answers			
Games			
Weather			
Hurricanes and Storms			
Clouds, Water, and Ice			
Tides and Oceans			
Atmosphere			
Seasons			
Satellites and Technology			
Space Weather			
Dispatches			
Multimedia			
People			
Educators			
Adventures			

 <p>When disaster strikes Families need to know where to find the stuff they need.</p>	 <p>Play Satellite Insight Help to capture and store the flood of data from GOES-R.</p>	 <p>Solve a weather slider puzzle Put these weather pictures together by "Sliding" their pieces...</p>
 <p>Shields Up! Protect your satellites from bad space weather.</p>	 <p>Be Spuzzled! Unscramble pictures of NOAA at work.</p>	 <p>Wild Weather Adventure Explore Earth and its wild weather in your weather research blimp....</p>
 <p>Weather Tricktionary Are you a weather guru?</p>	 <p>The Bad (Weather) Joke Machine Guess the riddles before the Joke Machine coughs up the answers.</p>	 <p>Weather Jigsaw Puzzles Solve Earth and space weather picture puzzles.</p>
 <p>Weather folklore Weather myths from around the world, plus the scientific explanations!</p>	 <p>Be an expert Flight Controller! Use satellite sensor data to guide planes around hazards.</p>	 <p>Play Spectrix! Combine colors to reveal important information about weather...</p>

SCIJINKS TOPICS



SciJinks in a Snap: Stormy Space Weather

What is space weather and how can we monitor it?



What is a Heat Wave?

And how can I stay safe during one?



Share SciJinks on the Web!

Spread the word!



Next Generation Science Standards

Find SciJinks content that aligns with the NGSS.



Keeping a Watchful Eye on Dangerous Ice

Pablo Clemente-Colón is the chief scientist for the National...



What's it Like Being a Broadcast Meteorologist?

Learn all about Carrie Rose's and her job as a broadcast meteorologist.



GOES-R/JPSS Calendar

Download it today!



How Do You Become An Air Force Meteorologist?

We ask a soon-to-be recruit!



What is the Coriolis Effect?

And what does it have to do with hurricanes?



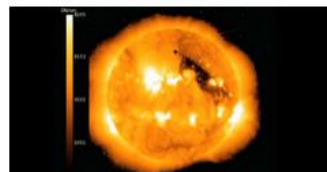
Steps in a science fair project

Where shall I begin? How will I pick a topic?



What is scientific method?

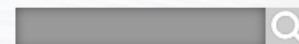
There are certain steps to follow, but science doesn't always follow them!



GOES captures a rare celestial event

See an x-ray view of Venus crossing in front of the Sun.

CLMATE.GOV

[News & Features](#)[Maps & Data](#)[Teaching Climate](#)[Supporting Decisions](#)[About](#)[Contact](#)[FAQs](#)[Site Map](#)[What's New?](#)

Reviewed resources for teaching about climate and energy

[Climate Systems](#)[Causes of Climate Change](#)[Measuring & Modeling Climate](#)[Climate Impacts](#)[Human Responses to Climate](#)[Nature of Climate Science](#)

[Home](#) » [Teaching Climate](#) » [Resources and Tools](#) » [Global Science Investigator](#)

Global Science Investigator

This is an animated interactive that displays, on a Global Viewer, NOAA datasets on hazards, ocean, and climate. User can visualize data on phenomena such as hurricanes, humpback whale migrations, carbon tracker, sea ice extent, IPCC scenarios on global warming.

Go To:

<http://www.csc.noaa.gov/psc/dataviewer/>

NOAA Pacific Services Center



Notes From Our Reviewers

The CLEAN collection is hand-picked and rigorously reviewed for scientific accuracy and classroom effectiveness. Read what our review team had to say about this resource below or learn more about [how CLEAN reviews teaching materials](#)

[Teaching Tips](#)[About the Science](#)[About the Pedagogy](#)[Technical Details](#)

Excellent quality, easy to use after initial fiddling/experimentation.

Animation can be paused over time to have students focus on one specific area

Share This:



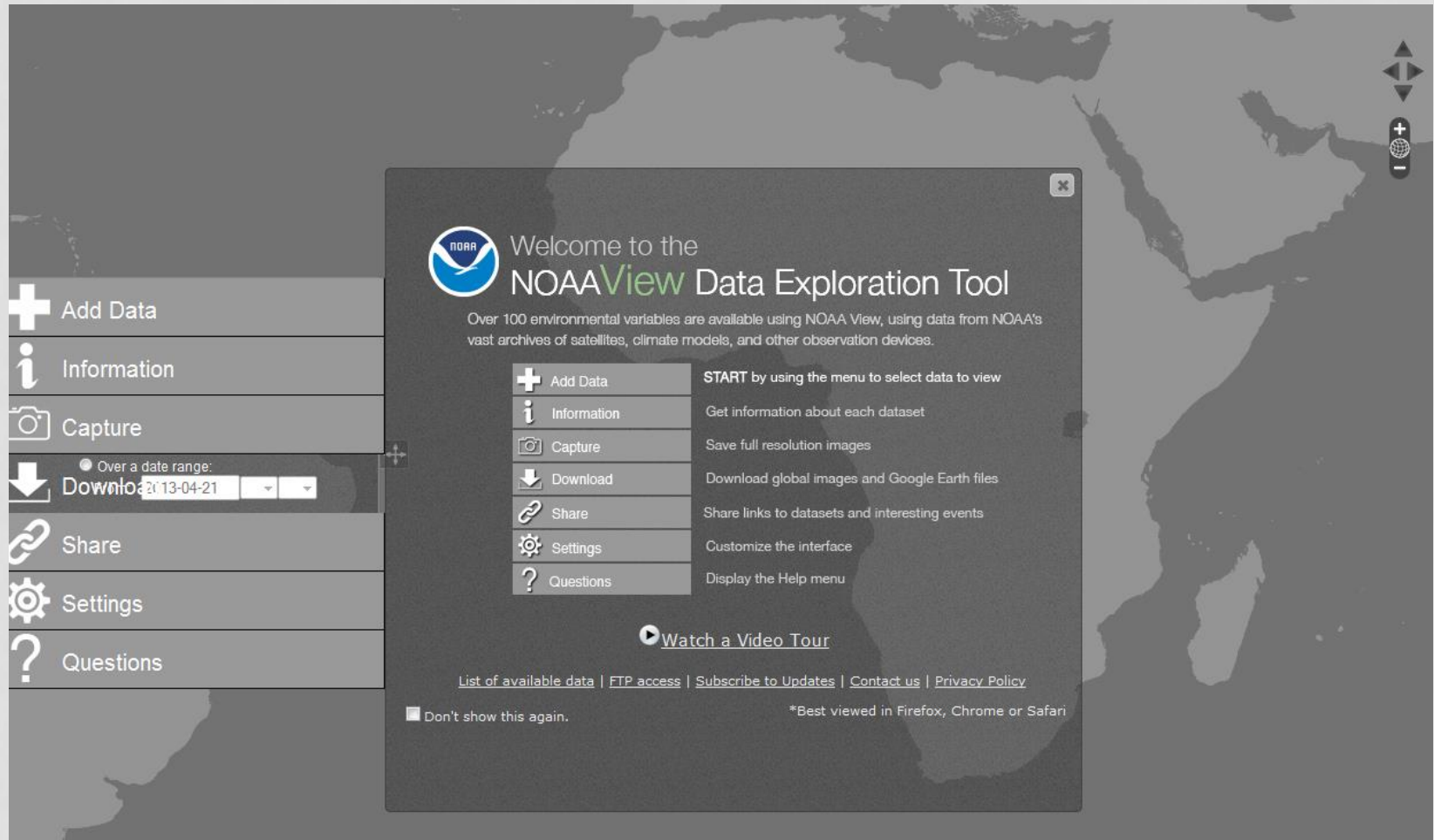
Grade Level:

Middle (6-8)

College Lower (13-14)

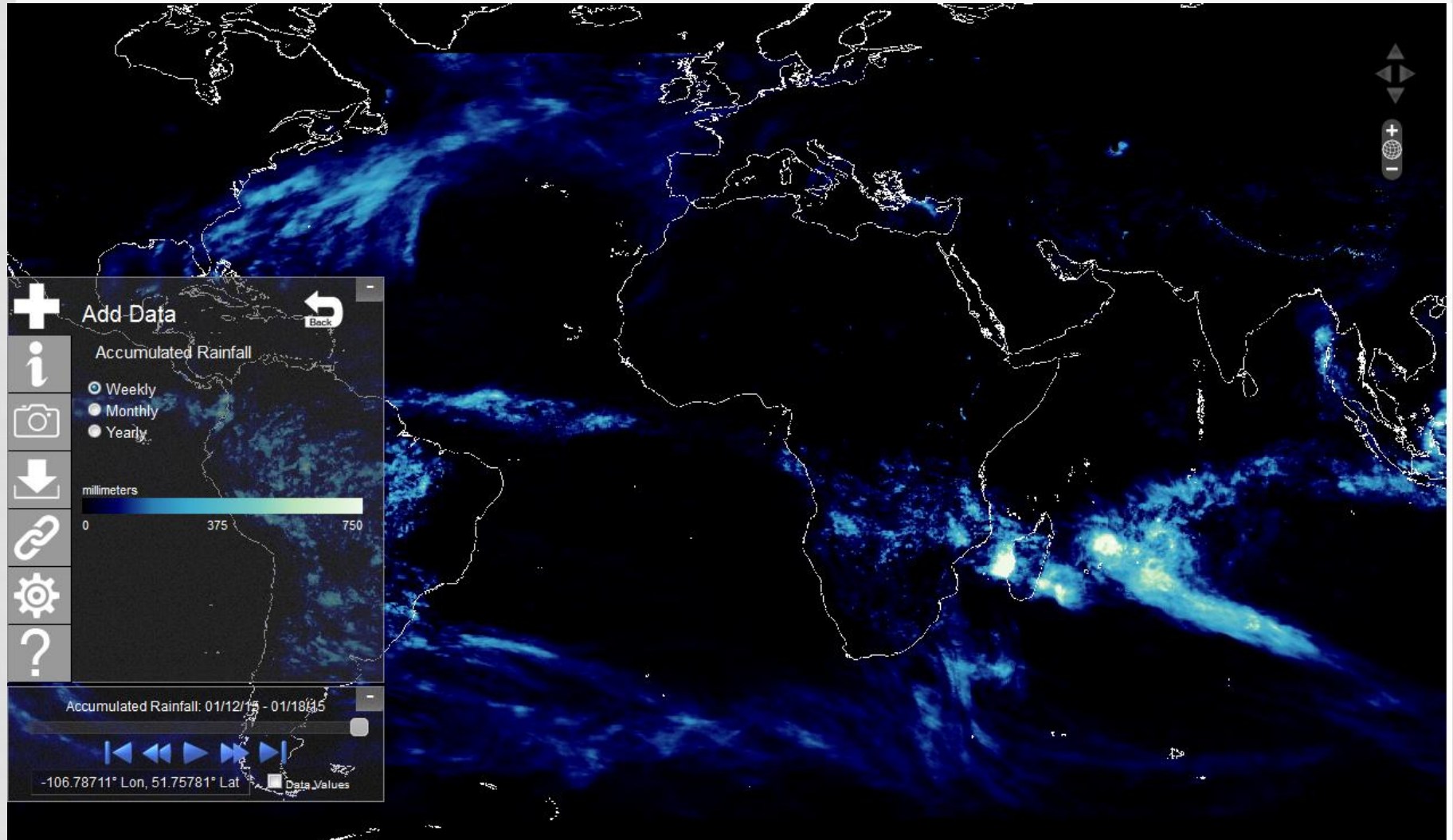
High School (9-12)

NOAA VIEW

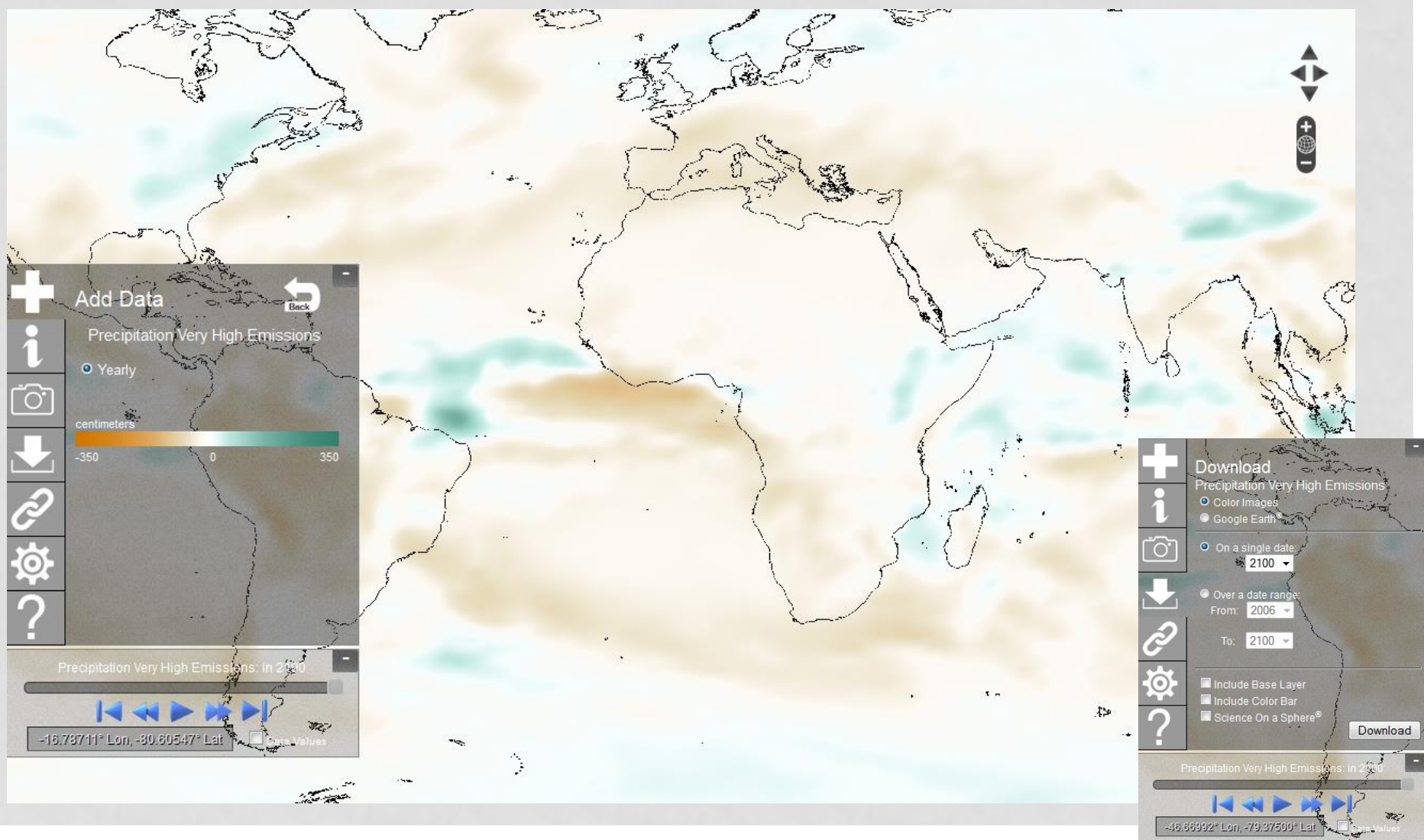


<http://www.nnvl.noaa.gov/view/>

WEEKLY RAINFALL AS OF 22 JAN 2015

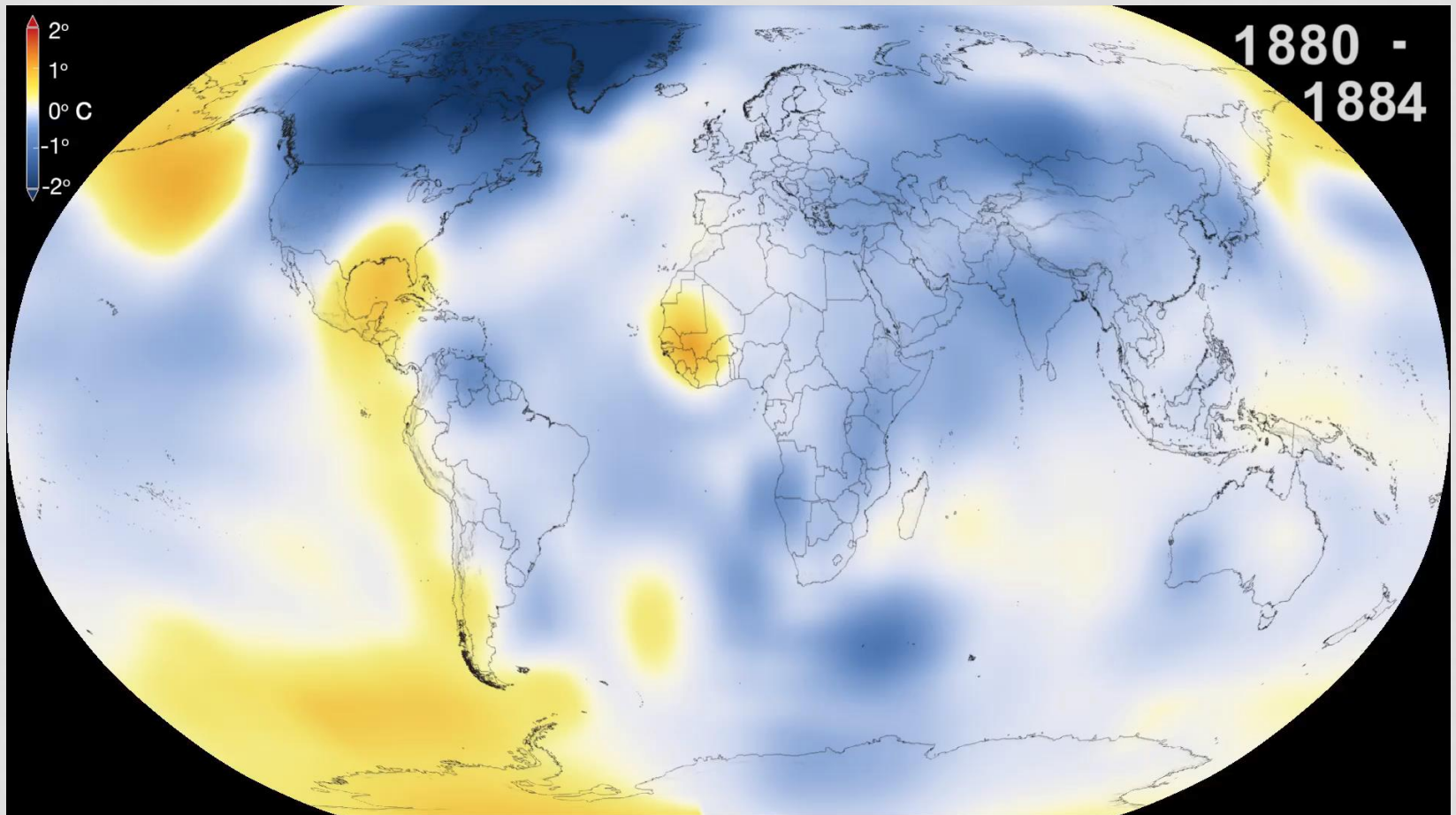


SIMULATED PRECIPITATION UNDER VERY HIGH GREENHOUSE GAS EMISSIONS



FIVE-YEAR GLOBAL TEMPERATURE ANOMALIES

NASA/Goddard Space Flight Center Scientific Visualization Studio



USING CURRENT EVENTS

AIR QUALITY, HUMAN HEALTH ...

Trending Now

What If Every Volcano on Earth Erupted at Once?

By Becky Oskin, Senior Writer
January 12, 2015; 11:25 AM ET



Whether it's glowing lava snaking into the sea or lightning blooming in billowing ash clouds, the sight of an erupting volcano inspires awe and wonder.

Now imagine 1,500 of these suckers all shooting off at once. That's how many active volcanoes dot the Earth, plus an unknown number hidden under the ocean. Every day, between 10 and 20 volcanoes are erupting somewhere on Earth, but scientists say the chance of every volcano on the planet erupting at once is so small that it's impossible. But what if it did happen? Would Earth as it we know it survive?

Not likely, said Parv Sethi, a geologist at Radford University in Virginia. Even if only the volcanoes on land blasted in sync, the effects would trigger an environmental domino chain many, many times more powerful than a nuclear winter, Sethi said. "Things will become so bad that I wouldn't want to survive on an Earth like this," he told Live Science. [\[Top 10 Ways to Destroy Earth\]](#)

The two big hazards from a worldwide volcanic cataclysm are ash and volcanic gases. (While the explosions and outpourings of lava would be deadly to people living close by, the number of deaths would pale compared to those caused by the ensuing climate change.)



Klyuchevskaya Volcano - Kamchatka, Russian Federation - Summer 1993. (Credit: Flickr/Giorgio Galeotti)

Trending Now

[Philly to NYC, Boston May Get Biggest Snowstorm of Season Yet](#)

[DeflateGate: Can Weather Deflate Footballs?](#)

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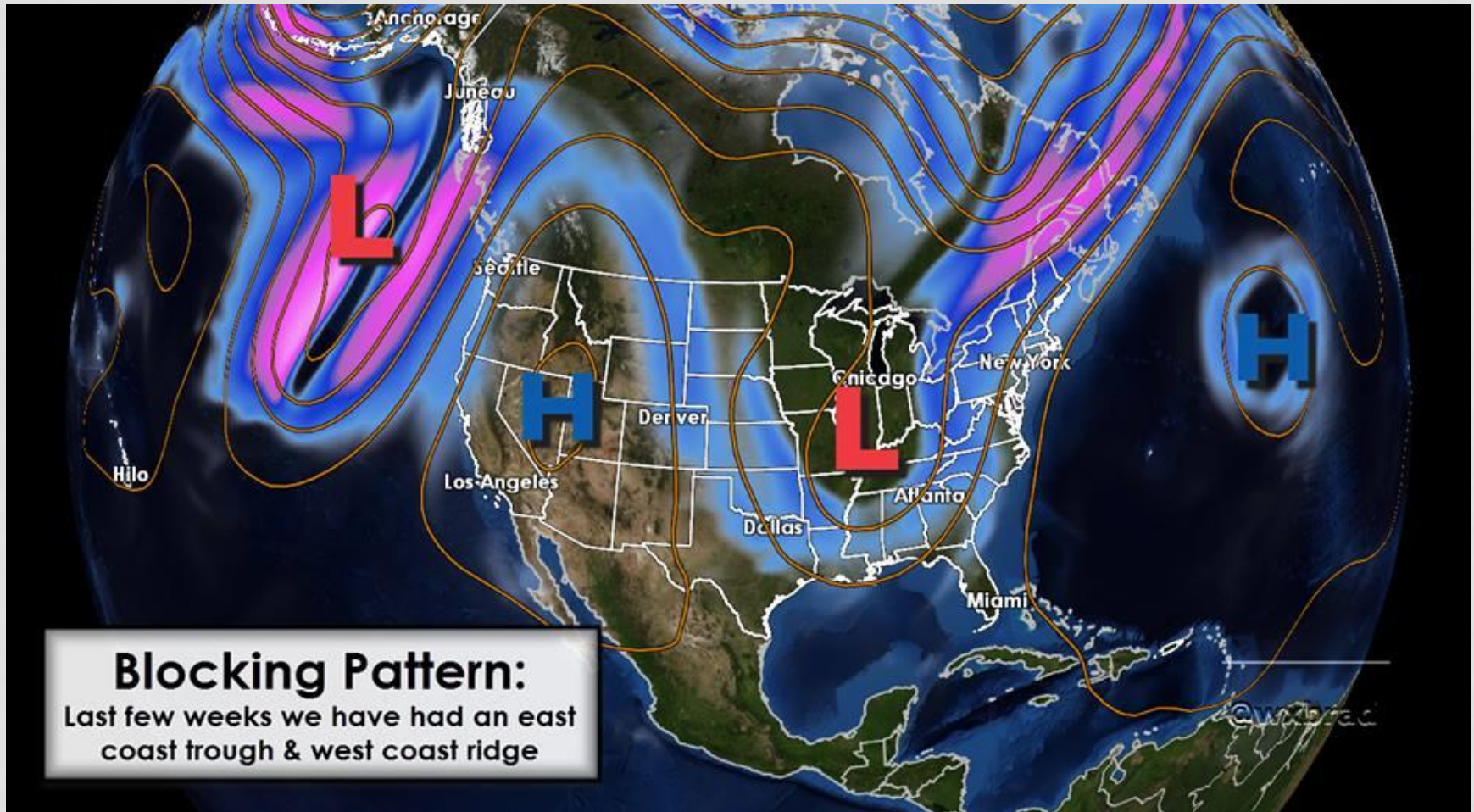
Utah Proposes Winter Wood Burning Ban to Improve Air Quality

In an effort to improve air quality across Utah during the winter season, the Utah Department of Environmental Quality (DEQ) has proposed a seasonal wood burn ban, much to the chagrin of many locals.

[Read Story >](#)

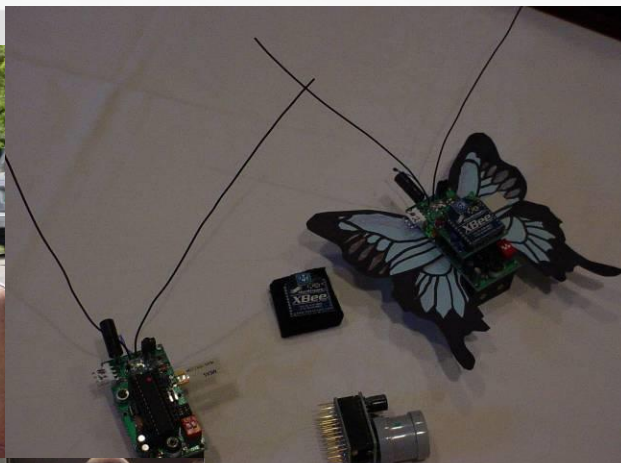
http://www.accuweather.com/en/features/trend/what_if_every_volcano_on_earth/40282546

ARCTIC INFLUENCE ON WEATHER



SWAC'S USE OF TECHNOLOGY

SATELLITES, WEATHER & CLIMATE (SWAC)



(GEO-0807787 & 1034945)

Photos: L-A. Dupigny-Giroux



SWAC IS...

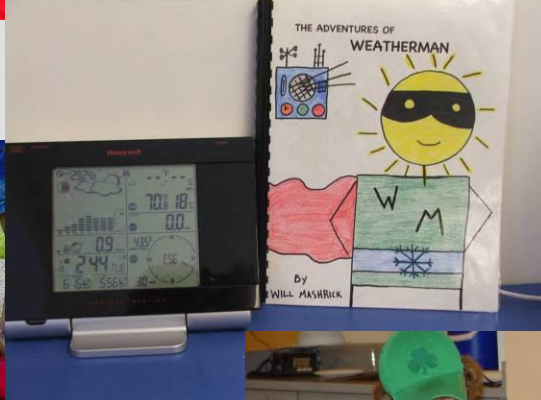
- NSF-funded teacher professional development program
- in-service science & math teachers
- elementary, middle and high schools
- inquiry & project based learning
- STEM content knowledge & skills
 - climate, weather
 - engineering
 - geospatial technologies

WHY SWAC?



- varying student and teacher content knowledge
- curricular constraints
- role of the media or Internet
- gender difference in understanding
 - underlying physics vs. patterns
- overarching principles
 - Backward design
- Earth Science, physics, chemistry, social studies, math

TAPPING INTO A CHILD'S CURIOSITY



Photos: L-A. Dupigny-Giroux

SWAC MODULES

- introduction to EMR & satellites
- cloud identification & monitoring
- weather interpretation
- tropospheric profile creation
- land surface interpretation
- permafrost
- Geo-applications
- “just-in-time” - air quality, Irene, 2012 drought
- climate change
- snowstorms of the North Country

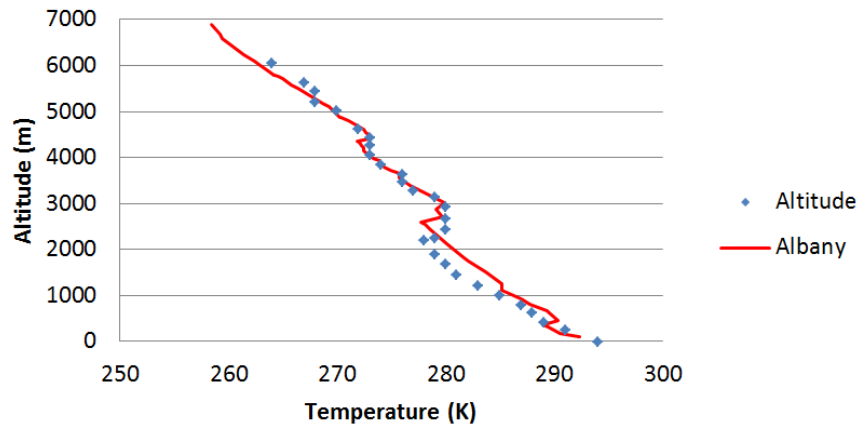
SWAC BALLOON LAUNCHES



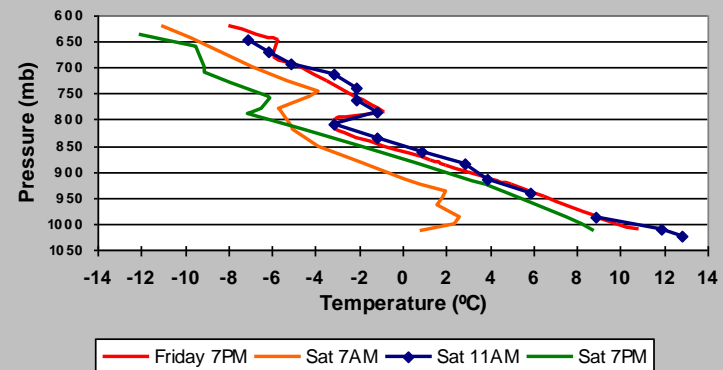
Photos: L-A. Dupigny-Giroux

SWAC BALLOON VS. ALBANY SOUNDINGS

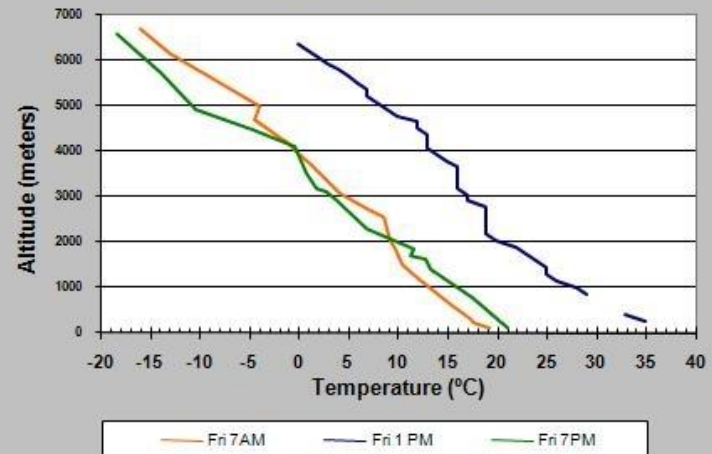
Altitude (m) vs. Temperature (K)



Radiosonde Upper-Air Measurements Temperature vs. Pressure



Radiosonde Upper-Air Measurements Temperature vs. Altitude





“When we did the weather books it really helped me to understand the symbols and the clouds. It helped by doing it every day to get practice. I can now use those terms and skills to understand the weather on the weather channel.”

Elise

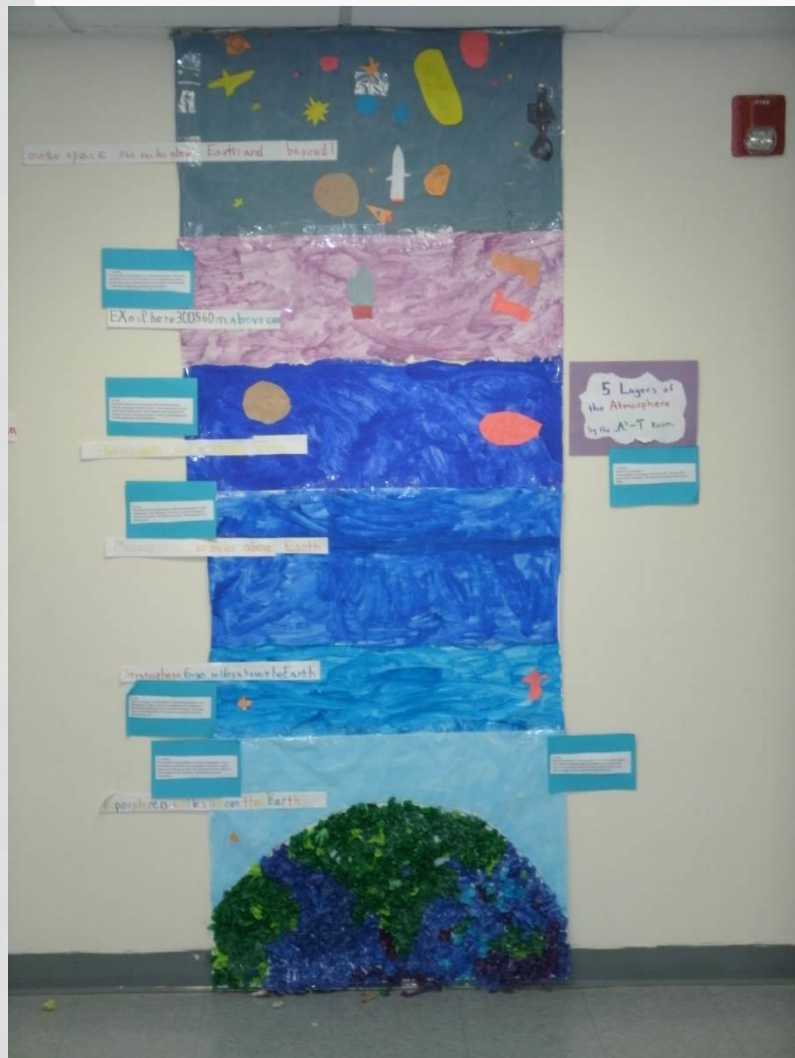
PARTNERING WITH ARCHIMEDES AEROSPACE



SWAC 2014



SWAC MEETS THE SCHOOLHOUSE - 2012



HOW TO BE NIMBLE

- cross-cutting concepts & lesson plans



From the Prow

The glass prow of AGU's headquarters was designed to represent a beacon of leadership for the Earth and space sciences.

20 January 2015

WITH GREAT TECHNOLOGY COMES GREAT RESPONSIBILITY

Posted by Chris McEntee

RFID, or radio frequency identification, isn't something most of us talk about in everyday conversation, but in many ways, this technology has become a regular part of our lives (though we often don't see it). It's in the books we check out of the library, the systems used to restock shelves at our grocery store, the passes that allow us to pay a toll on the highway without stopping, and the badges we use to swipe in and out of our offices.

In a world where maintaining the privacy and security of our personal information is becoming a complex challenge, the idea that others are collecting data about us is understandably concerning. That's why I want to apologize for how AGU implemented and communicated a recent experiment with RFID at the 2014 Fall Meeting.

For those of you who are not already aware, here are the facts about AGU's use of RFID at the Fall Meeting: The program was piloted in a small number of high traffic areas, including the exhibit and South poster halls, the Honors Ceremony, and in the large general session

<http://fromtheprow.agu.org/blog/great-technology-comes-great-responsibility/>

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HOW THE SENSOR WORKS:

RANGE-R RADAR SYSTEM

Suspect

50 feet

Police with radar

SOURCE: L3 Communications

Breakthrough USA TODAY

USA TODAY

DEVICE ALLOWS POLICE TO "SEE" THROUGH WALLS

JAMES HOLMES' TRIAL

STATE OF THE UNION

OVERPASS COLLAPSE

HEADLINES: MISS UNIVERSE SELFIE CAUSES INTERNATIONAL CONTROVERSY

Radar devices allowing officers to detect movement through walls have been secretly used by at least 50 U.S. law enforcement agencies over the last two years. VPC

At least 50 U.S. law enforcement agencies quietly deployed radars that let them effectively see inside homes, with little notice to the courts or the public.

(Photo: L3 Communications)

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WASHINGTON — At least 50 U.S. law enforcement agencies have secretly equipped their officers with radar devices that allow them to effectively peer through the walls of houses to see whether anyone is inside, a practice raising new concerns about the extent of government surveillance.

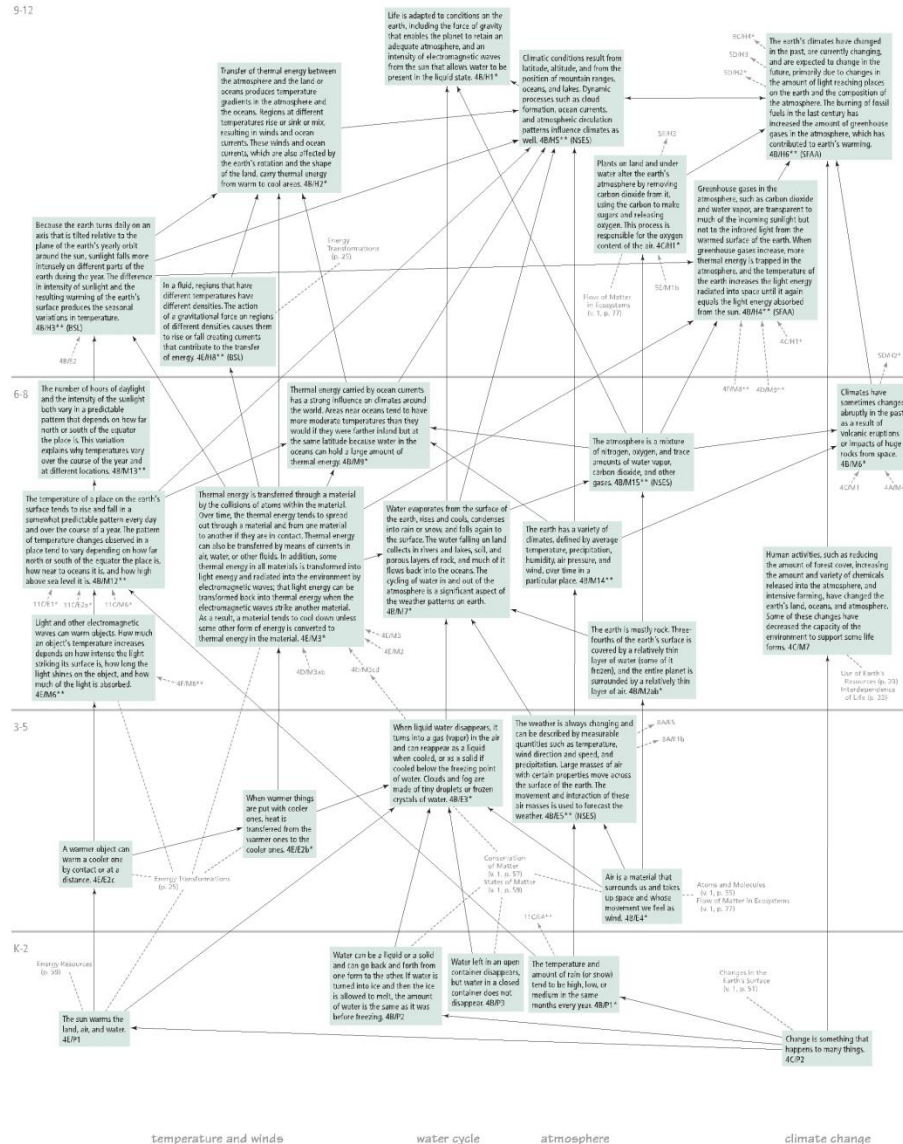
Those agencies, including the FBI and the U.S. Marshals Service, began deploying the radar systems more than two years ago with little notice to the courts and no public disclosure of when or how they would be used. The technology raises legal and privacy issues because the U.S. Supreme Court has said officers generally cannot use high-tech sensors to tell them about the inside of a person's house without first obtaining a search warrant.

<http://www.usatoday.com/story/news/2015/01/19/police-radar-see-through-walls/22007615/>

Brad Heath,
 20 Jan 2015

HOW TO BE NIMBLE

- cross-cutting concepts & lesson plans
- no need to re-invent the wheel



HOW TO BE NIMBLE

- cross-cutting concepts & lesson plans
- no need to re-invent the wheel
- partnering with outdoor agencies and groups
- judicious use of crawls and listservs
- ongoing teacher professional development and support for curricular reform
- cutting-edge content, skills and inquiry-based experiences for students
- invite a scientist or the media into your class

- “We live in a society exquisitely dependent on science and technology, in which hardly anyone knows anything about science and technology.”

CARL SAGAN

- “We live in a society exquisitely dependent on science and technology, in which hardly anyone knows anything about science and technology.”

THANK YOU!

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<http://www.uvm.edu/~vtstclim>

<http://www.uvm.edu/~swac>

802-656-2146