

# **The GLOBE Program**

## **Section V: GLOBE in Action**



# Exploring the GLOBE Web site: www.globe.gov

The screenshot shows the GLOBE Program website interface. At the top, there's a header with the GLOBE logo and the text 'The GLOBE Program'. Below this, a navigation menu on the left lists various sections: 'GLOBE Schools Log-in', 'News and Events', 'EDUCATION & SCIENCE' (with sub-links for Teacher's Guide, Protocols, Student Investigations, School Collaboration, Scientists' Corner, and Educators' Corner), 'GLOBE DATA' (with sub-links for Data Entry, Maps and Graphs, and Data Access), 'GLOBE PARTNERS' (with sub-links for Partners' Corner, Countries, Schools, and U.S. Partners), 'LIBRARY' (with sub-links for Resource Room, GLOBE Stars, and News and Events), and 'INFO & HELP' (with sub-links for Learn About GLOBE, Contact GLOBE, and FAQs). The main content area is divided into several sections. The top section is titled 'News and Events' and features a 'Thank you for a great Annual Conference!' message. Below this is a map of Europe with a color-coded temperature scale ranging from -40 to 40 degrees Celsius, labeled 'GLOBE Student Data Minimum Temperature (2005-07-29)'. To the right of the map are two news items: 'The GLOBE Alumni International Network' and 'Niger Joins GLOBE'. The bottom section is titled 'Congo Joins GLOBE!' and includes a 'GLOBE Bulletin' icon.

- **EDUCATION AND SCIENCE**: Student investigations and school collaborations, access to the online Teacher's Guide.
- **GLOBE DATA**: Access to student-collected data, mapping and graphing tools.
- **GLOBE PARTNERS**: Access to country/regional coordinator and school information.
- **LIBRARY**: Access to student, teacher and partner resources.
- **INFO & HELP**: Learn about GLOBE and Frequently Asked Questions (FAQs).



# The GLOBE Web site... around the World

**GLOBE Canada**

Welcome!

**Canada**

**GLOBE Croatia**

**Croatia**

**GLOBE Czech Republic**

**Czech Republic**

**GLOBE Denmark**

**Denmark**

**GLOBE Estonia**

**Estonia**

**GLOBE-PROJEKTI**

**GLOBE Finland**

**GLOBE Germany**

**Germany**

**GLOBE Europe**

**GLOBE Europe**

**Project ALEXANDROS**

**GLOBE Greece**

**GLOBE Program**

**GLOBE Hungary**

**GLOBE India**

**India**

**Globe Italia**

**Italy**

**GLOBE Japan**

**Japan**

**GLOBE programma**

**GLOBE Latvia**

**GLOBE Program**

**Lithuania**

**GLOBE Programma**

**Netherlands**

**ENVIRONMENTAL MONITORING & ACTION PROJECT**

**GLOBE New Zealand**

**THE GLOBE PROGRAM IN NORWAY**

**GLOBE Norway**

**CONSEJO NACIONAL DEL AMBIENTE**

**GLOBE Peru**

**GLOBE PROGRAM**

**GLOBE Poland**

**GLOBE SCHWEIZ - SUISSE - SVIZZERA - SWITZERLAND**

**GLOBE Switzerland**

**THE GLOBE PROGRAM**

**GLOBE Thailand**

**GLOBE Programme**

**GLOBE United Kingdom**

# GLOBE Learning Expeditions

GLOBE Learning Expeditions (GLEs) are organized every 2 to 3 years in order to provide students from around the world the opportunity to meet one another, establish friendships and develop collaborative partnerships that will enhance their future GLOBE experience. These conferences also provide teachers an opportunity to share ideas and challenges from their GLOBE experiences, to attend protocol and activity enrichment sessions, and to build connections for research efforts between schools. GLEs have occurred in 1998 (Helsinki, Finland), 2000 (Arkansas, U.S.A.), and 2003 (Šibenik, Croatia).



For further information about GLEs visit:

[www.globe.gov/fsl/html/templ.cgi?gle\\_general&lang=en&nav=1](http://www.globe.gov/fsl/html/templ.cgi?gle_general&lang=en&nav=1)

The next GLE is scheduled for 22 - 28 June 2008 in Cape Town, South Africa. The theme of the 2008 GLE will be GLOBE Research for Sustainable Communities. Research for Sustainable Communities is a concept that embraces studying the environment in the context of developing an understanding of the interconnectedness between the environment, the social structures and economic needs of a student's community, and the balance needed for healthy living.

The goals of the 2008 GLE are:

1. To promote global understanding of local and regional sustainability issues through student presentations and student-to-student discussions.
2. To provide an authentic audience for student research presentations.
3. To provide the interface for GLOBE student multicultural learning experiences.
4. To increase student understanding of science.



# The GLOBE Annual Conference

The 10th Annual GLOBE Conference, “The New Decade for Global Sustainable Development” was held 30 July – 4 August, 2006 in Phuket, Thailand. The Annual Conference brought together GLOBE Country Coordinators, U.S Partnership Coordinators, representatives of cooperating organizations, teachers, scientists, students, academics, program managers, and government officials from across the world regions. Participants addressed key ideas for improving education through GLOBE, supporting awareness of sustainable development and scientific elements of GLOBE, and sustaining the strength of the GLOBE Program itself. The conference was organized by the GLOBE Asia and the Pacific Region, in collaboration with the GLOBE Program Office, and was graciously hosted by the Institute for the Promotion of Teaching Science and Technology (IPST), the organization responsible for GLOBE in Thailand. More than 250 individuals from 27 countries participated actively in presentation, discussions, workshops and social events. For further information visit: [www.globe.gov/fsl/reg/html/templ.cgi?thailand2006&lang=en&nav=1](http://www.globe.gov/fsl/reg/html/templ.cgi?thailand2006&lang=en&nav=1)



The 11th Annual GLOBE Conference will be co-hosted by the GLOBE Program Office along with U.S. GLOBE Partners from the University of Texas at Tyler and Austin, in collaboration with Partners from Northern Michigan University and GLOBE Southern Connecticut State. This event will take place from 29 July though 3 August 2007 in San Antonio, Texas. Check the GLOBE Annual Conference Web page for more information: [www.globe.gov/fsl/html/templ.cgi?sanantonio2007&lang=en&nav=1](http://www.globe.gov/fsl/html/templ.cgi?sanantonio2007&lang=en&nav=1)



Past annual conferences have been held at Airlie, Virginia (1996 and 1997), Snowmass, Colorado (1998), Durham, New Hampshire (1999), Annapolis, Maryland (2000), Blaine, Washington (2001), Chicago, Illinois (2002), Boulder, Colorado (2004), and Prague, Czech Republic (2005). No annual conference occurred in 2003 in order to dedicate efforts toward the GLE (see previous page). Information about these conferences can be found on the GLOBE Web site at:

[www.globe.gov/fsl/html/templ.cgi?annual-conf&lang=en&nav=1](http://www.globe.gov/fsl/html/templ.cgi?annual-conf&lang=en&nav=1)



# ST. CROIX SOURCE

Friday, Apr. 30, 2004

St. Croix, US Virgin Islands

## STUDENTS IN WIRELESS WORLDWIDE WEB CHAT

by Karen D. Williams

April 24, 2004 - During an Earth Day forum, members of two St. Croix Central High School science clubs logged on to a nationwide program using wireless laptops.

During the two-hour Web chat session that started at about 12:30 p.m. Thursday, CHS students in their campus technology-learning center communicated with scientists and other students across the world.

While the students sent text and responded in both English and Spanish, three local advisers guided the experiential learning process linking them to chat teams in Mexico, Trinidad, Florida, Liberia and Costa Rica.

CHS participants fielded questions from the Universidad Vasco de Quiroga and the International School of Port of Spain. Evan Williams at the Miami Springs Middle School asked if they had seen condensation trails in the Virgin Islands -- a term that was new to CHS students.

Contrail Count-a-thon was a worldwide experiment sponsored by the National Aeronautics and Space Administration and led by scientists to help students gain a better understanding of the earth. Earth Day 2004 is the 10th year anniversary of GLOBE, a science education program created to offer hands-on experience for primary and secondary students around the world.

GLOBE is a cooperative effort of schools partnering with universities and government organizations. Formally, it's Global Learning and Observations to Benefit the Environment, but the program is mainly known now just by its acronym. It is designed to contribute data for scientists to use in their research, help students increase their science and math skills and nurture future scientists and researchers.

Students perform learning activities which involve investigations of the atmosphere, hydrology, soil, land cover, biology, global positioning systems and seasons.

Advisers offered one-on-one advice and the group also received instruction via an overhead projection system. At CHS, students of GLOBE and of another group, Nature's Environmental Role Models, used 15 Apple laptops to receive signals from a round wireless hub approximately 8 inches in diameter. The hub was connected to an Ethernet, T1 or DSL line.

CHS students joined NERM after they completed beach, community and campus cleanups around the island. The GLOBE program began at CHS in 1998 and NERM began in 2002.

Susan Allick, technology specialist and GLOBE coordinator, said she came across the program while conducting research at the University of British Columbia. She said scientists came to the University of the Virgin Islands and trained a group of science-based facilitators for the program.

"Students wanted to do more," said Jesus Espinosa, Science Department chair. He



*CHS students send data to scientists during Contrail Count-a-thon*

joined the program in 2000 after receiving training as a facilitator. "This is something the students enjoy doing." He said research and experiments really grab the students' interest.

Espinosa said the GLOBE club also monitors the climatic conditions daily through a weather-monitoring station mounted on the northeast end of the CHS campus. Every school day between 11:05 a.m. and 12:05 p.m., temperature, rainfall and ozone readings are logged.

Espinosa said the next phase of the project for NERM students will be a Power Point presentation on their findings.

Sharon Prudoff, head librarian and grant writer for the program, said the wireless equipment -- an approximately \$30,000 cost -- was purchased through a federal grant. "It makes classroom learning very interactive. It can make learning more fun and engaging."

Tenth-grade student Zydmarie Sanes, a NERM member, said the Count-a-thon was very interesting because she was able to chat with learners around the world. "We can compare and contrast other procedures to get information."

Pedro Reyes, a GLOBE member, said Espinosa encouraged him to get involved with the weather-monitoring aspect of the program. The station measures air pollution, level of rainfall and acid rain. The readings are input into a database and sent to NASA weekly.

Allick said the next step for GLOBE is to use the data collected for predictions or discovering trends in the environment.

She said 12,000 schools and more than 100 countries participate worldwide. GLOBE is not limited to public schools. She said GLOBE clubs meet at six schools on St. Croix and one on St. Thomas. All schools were invited to the Web chat.

For more information on GLOBE visit the GLOBE Web site at [www.globe.gov](http://www.globe.gov)

The GLOBE Program  
An exciting, worldwide, hands-on education and science program

[Learn About GLOBE](#)  
[Enter the GLOBE Site](#)  
[GLOBE Schools Log-in](#)  
[Forgot username or password?](#)

WINNER  
The Goldman Sachs Foundation  
Prizes for Excellence  
in International Education

Putting the World into  
World-Class Education

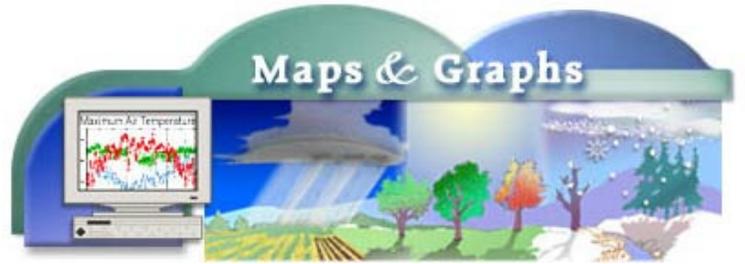
"When I once described the utopia of what science education should look like, I ended up describing what GLOBE is today."  
--State Middle School Science Consultant

[ Español ] [ Français ] [ Русский ] [ عربي ] [ Deutsch ] [ Nederlands ]

University Corporation for Atmospheric Research  
Colorado State University  
NASA National Aeronautics & Space Administration  
NSF National Science Foundation  
U. S. Department of State

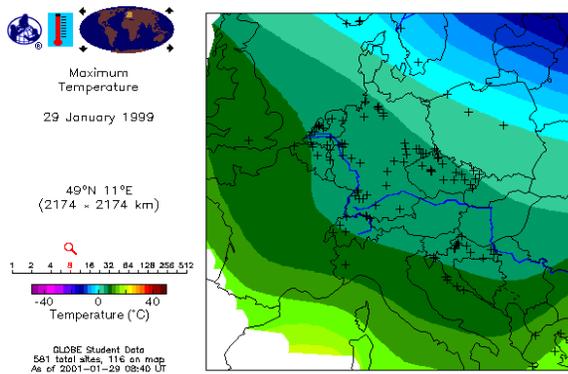
[Other Cooperating Organizations](#)

# GLOBE Visualizations

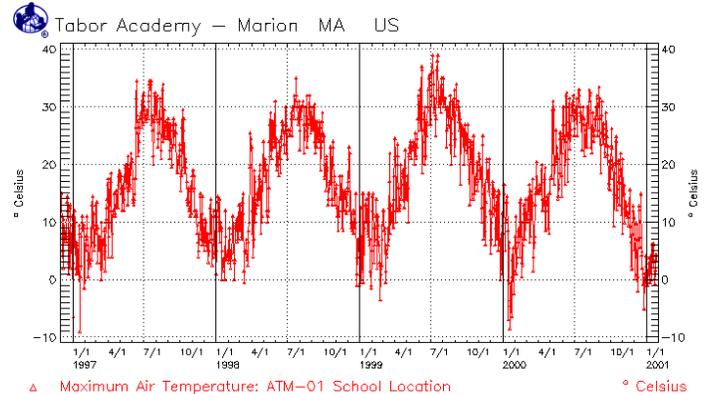


Students can visualize data in several different ways.

## Maps



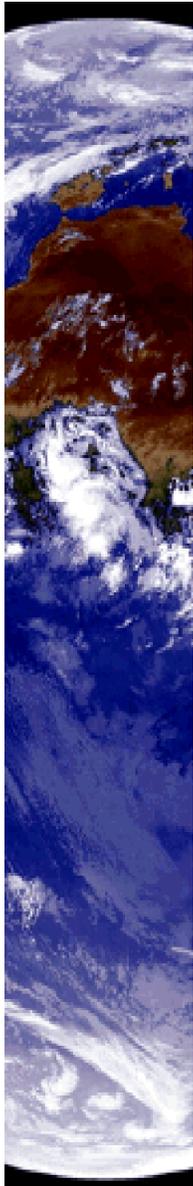
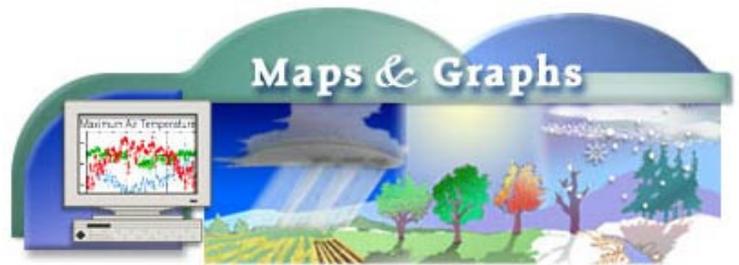
## Graphs



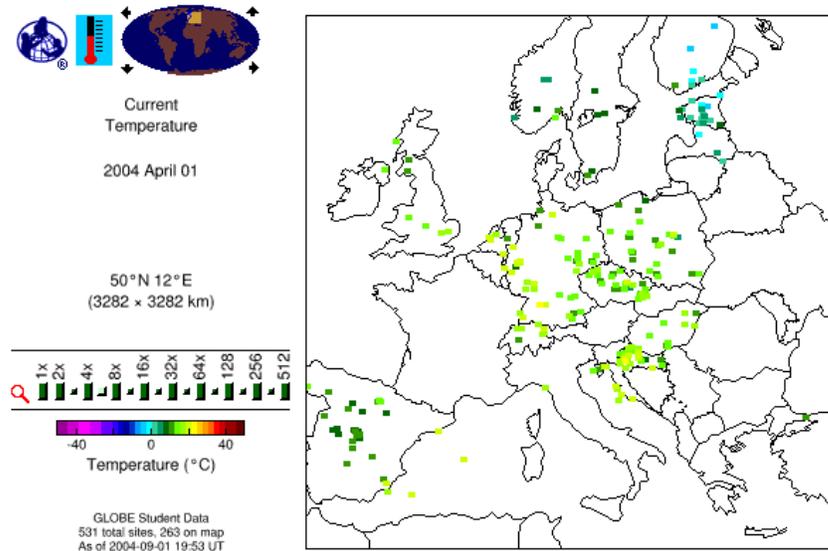
## Raw Data

YYYYMMDD	LATITUDE	LONGITUDE	ELEVATN	SITEID	CTTMP	MXTMP	MINTMP
20000819	64.8497	-147.8268	133.0	ATM-01	10.0	-99.0	-99.0
20000819	64.8618	-147.7217	203.0	ATM-01	10.0	12.0	4.0
20000819	38.7777	-120.8897	454.0	ATM-02	32.0	34.0	24.0
20000819	32.1832	-110.9775	836.0	ATM-01	40.5	40.5	22.5
20000819	36.5197	-119.5463	27.0	ATM-02	30.5	32.0	-99.0
20000819	33.7769	-118.0386	7.0	ATM-01	27.0	29.5	14.0
20000819	39.1167	-105.0167	1647.0	ATM-02	31.0	31.0	18.0
20000819	31.7535	-106.4733	1165.0	ATM-02	36.0	37.0	20.0
20000819	31.7694	-106.5066	1154.0	ATM-01	30.0	31.0	20.0
20000819	48.5467	-117.9044	774.0	ATM-01	20.5	28.0	7.0
20000819	36.0612	-90.9550	84.0	ATM-02	31.0	33.0	18.0
20000819	29.0892	-97.2763	68.0	ATM-01	36.5	39.0	22.5
20000819	36.0906	-94.9200	280.0	ATM-01	29.0	29.0	19.0
20000819	29.0382	-82.6903	5.0	ATM-01	39.0	39.0	23.0
20000819	36.3720	-109.6243	1658.0	ATM-02	26.0	31.0	15.0
20000819	35.9510	-97.2358	278.9	ATM-01	36.0	36.0	19.0
20000819	35.2969	-94.0361	198.0	ATM-01	32.5	38.5	21.5
20000819	36.0000	-93.0032	834.0	ATM-01	32.0	38.0	21.0
20000819	28.1390	-82.5071	8.0	ATM-01	30.0	34.0	23.0
20000819	34.8982	-96.1000	239.0	ATM-01	35.0	-99.0	-99.0

# GLOBE Visualizations

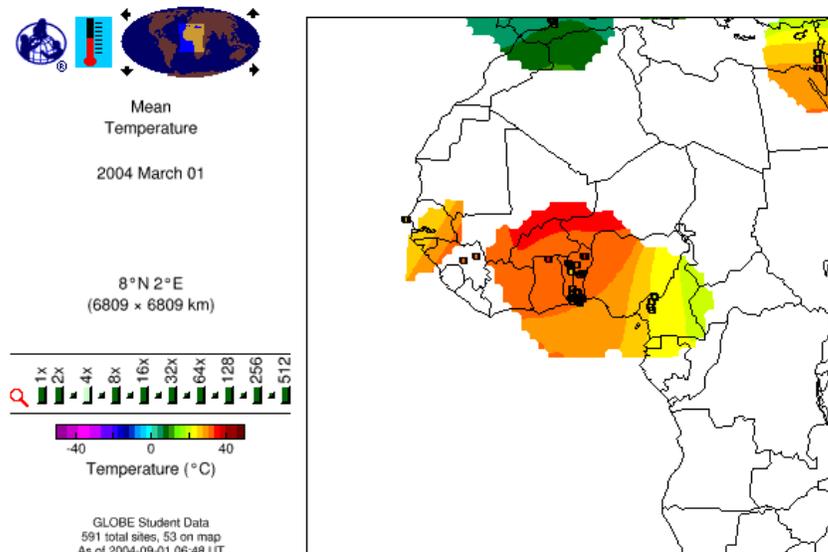


Data can be displayed as individual data in a map.



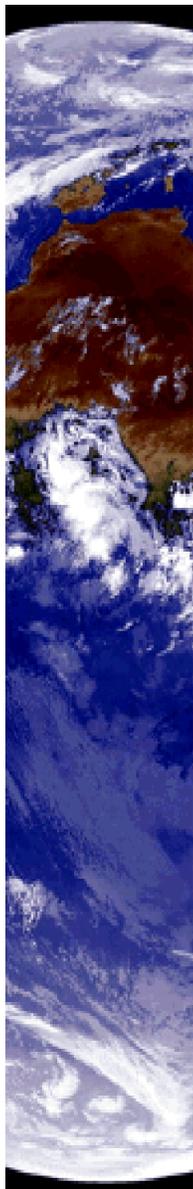
This map displays the current air temperature in Europe on April 1, 2004.

Data can be also displayed as contours in a map.



This map displays the mean air temperature in West Africa on March 1, 2004.

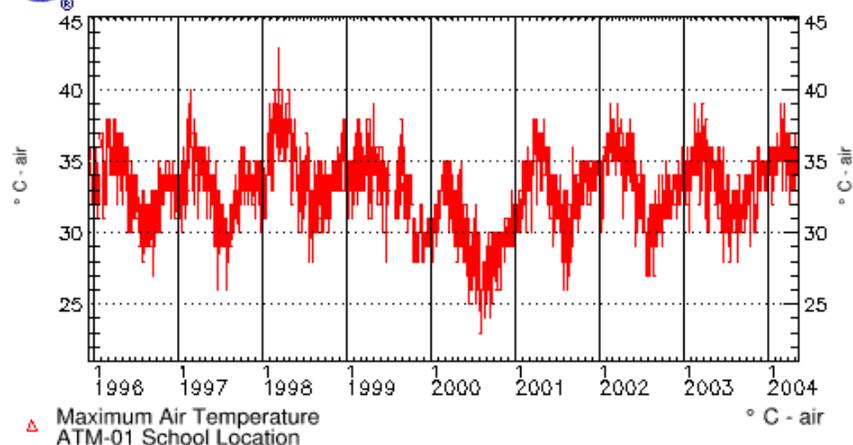
# GLOBE Visualizations



**GLOBE Student data can also be displayed in graphs.**



CEG1 Lokossa-Lokossa, BJ

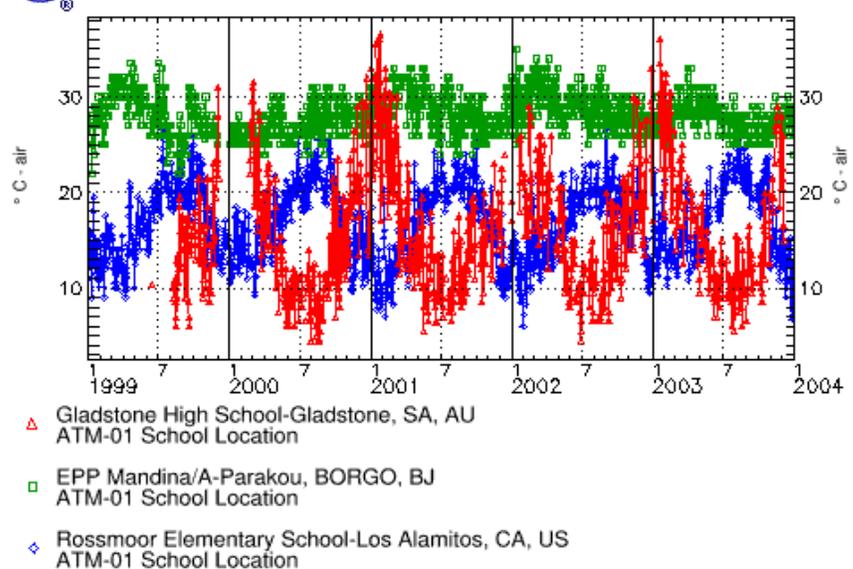


**This graph shows maximum air temperature for a school in Benin, West Africa.**

**Data from up to six schools can be displayed in a graph.**



Mean Air Temperature



**This graph displays the mean air temperature for schools in Australia, Benin and the United States.**

**Air temperature and seasonal fluctuations can be seen for both Northern and Southern hemispheres as well as Equatorial.**

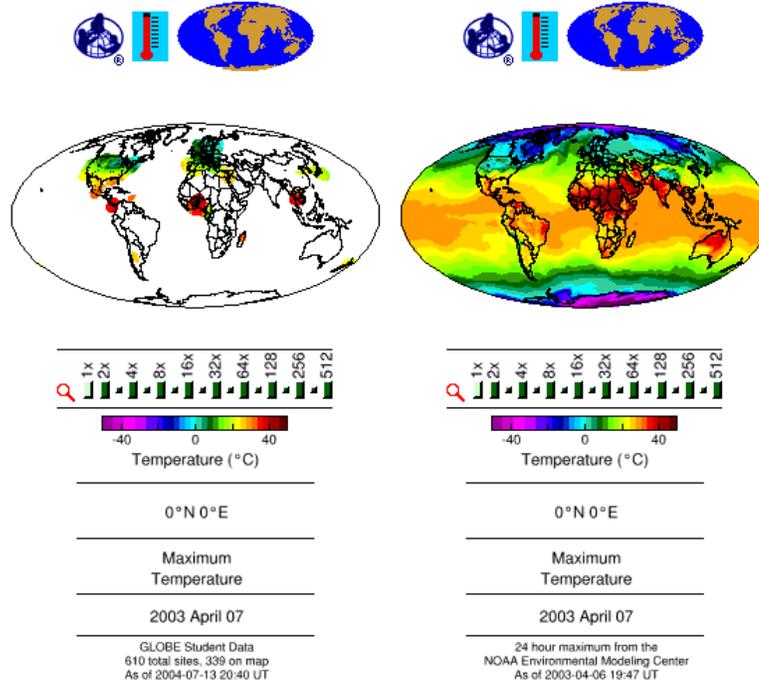
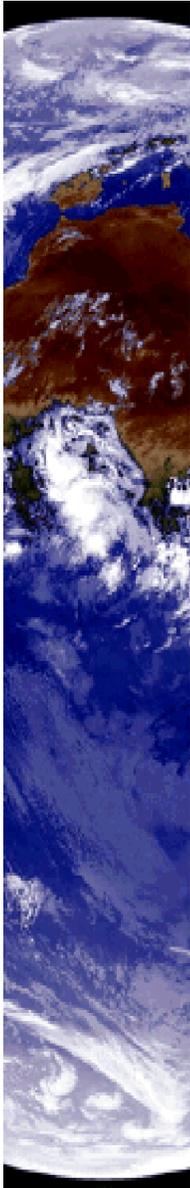


**The GLOBE Program**

# GLOBE Visualizations

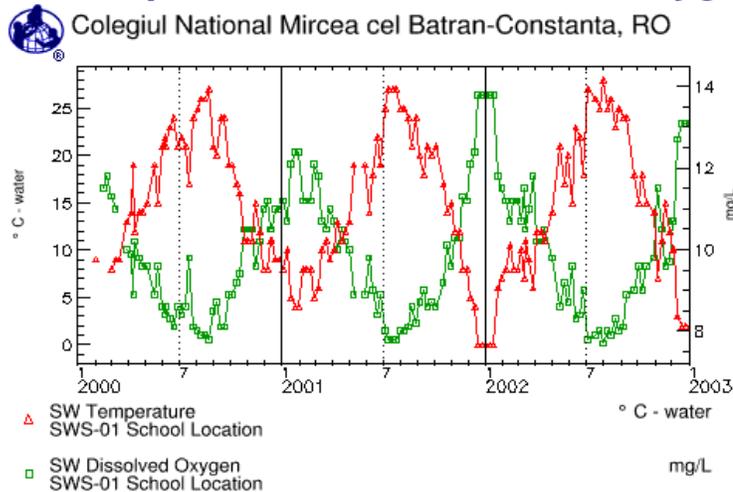


**GLOBE Students can compare their data with data from satellite and model data.**



**This graphic is a comparison of GLOBE student data and NOAA Environmental Modeling Center data for April 7, 2003.**

**These data show the inverse relationship between water temperature and dissolved oxygen**



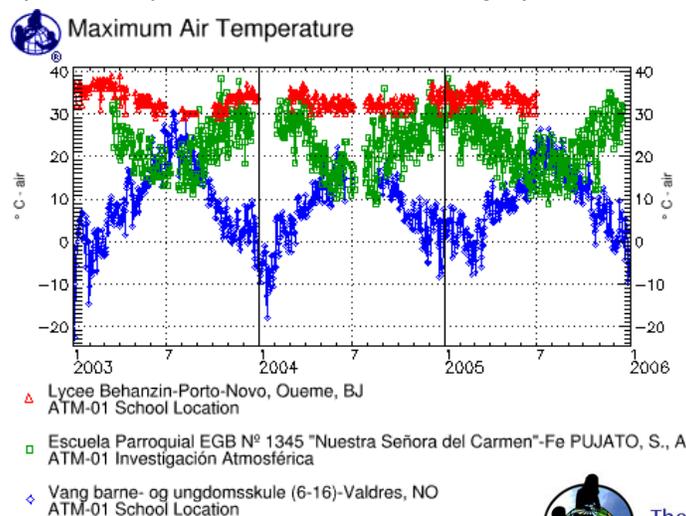
**Chemistry connection: this graph displays what Henry's law states: the solubility of gases generally decreases with increasing temperature.**

# Graphs and maps of GLOBE data can be created online by following the steps below:

## Creating graphs of GLOBE data

- Step 1: From the GLOBE Home Page, [www.globe.gov](http://www.globe.gov), click on *Enter the GLOBE Site*.
- Step 2: Click on *Maps and Graphs* listed under *GLOBE Data* on the navigation bar on the left side of the GLOBE Web page.
- Step 3: Click on *Search*.
- Step 4: Choose *Benin* from the Country list under *SCHOOL LOCATION: Country Search* and click on *Go*.
- Step 5: Place a checkmark by *Lycee Behanzin, in Porto Novo*, by clicking in the square next to the school name and click on *Go* in the green box next to "Make a Graph" above the table of schools.
- Step 6: The default graph will be for Maximum Air Temperature.
- Step 7: Scroll down until the *Other Options* box is visible. Click on *Select Option* and move the cursor so that *Add or change schools* is highlighted and click on *Go*.
- Step 8: Choose *Argentina* from the Country list under *SCHOOL LOCATION:Country Search* and click on *Go*.
- Step 9: Place a checkmark by *Escuela Parroquial EGB N° 1345 "Nuestra Señora del Carmen"*, by clicking in the square next to the school name and click on *Go* in the green box next to "Make a Graph" above the table of schools.
- Step 10: Scroll down until the *Other Options* box is visible. Click on *Select Option* and move the cursor so that *Add or change schools* is highlighted and click on *Go*.
- Step 11: Choose *Norway* from the Country list under *SCHOOL LOCATION:Country Search*.
- Step 12: Scroll down until you see the *NUMBER OF DATA REPORTS* section. Type 5000 in the first box under *Find schools that have submitted at least:*.
- Step 13: Place a checkmark by *Vang barne- og ungdomsskule (6-16), in Valdres*, by clicking in the square next to the school name and click on *Go* in the green box next to "Make a Graph" above the table of schools.
- Step 14: Scroll down until you see *Graph Data and Display Selection*. Change the dates to *Year: 2003; Month: 01; Day: 01* through *Year: 2006; Month: 01; Day: 01*. Click on *Redraw*.

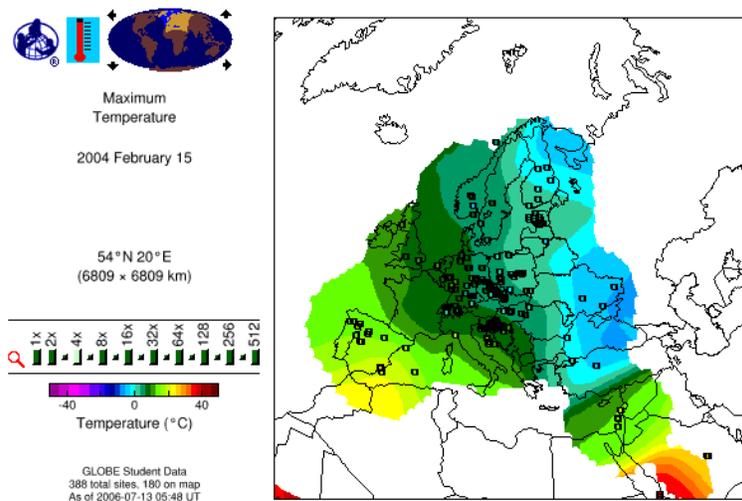
By following the steps above you will have created the graph below.



## Creating maps of GLOBE data

- Step 1: From the GLOBE Home Page, [www.globe.gov](http://www.globe.gov), click on *Enter the GLOBE Site*.
- Step 2: Click on *Maps and Graphs* listed under *GLOBE Data* on the navigation bar on the left side of the GLOBE Web page.
- Step 3: Click on *GLOBE Maps*. You will see an image of the Globe on the right. Notice that the data set is for Maximum Temperature and that the date is set for today. The zoom level (identified by the small magnifying glass) is set at 1x. These are the default settings.
- Step 4: Click on Europe (or as close as possible) on the Globe on the right. You will notice that the new view of the Globe has changed. Look at the top of the map box (left of the list of zoom levels). You will notice that the part of the Globe on the right that is currently not visible is now shadowed on the Globe to the left.
- Step 5: Scroll down below the map. You will see a box entitled: *Map Data and Display Selection*. Change the *Date* to *Year: 2004; Month: 02; Day: 15*. Click the radio button for *medium* under *Map size*. Click on *Redraw map*.
- Step 6: Click on Europe on the Globe on the right (it should be easier to identify Europe this time). Notice that the image of the Globe has changed yet again. It is now a square. Notice that the magnification level is now 4x.
- Step 7: Click on the *8x* zoom level. Notice that the map zooms in more.
- Step 8: Scroll down below the map to the box entitled: *Map Data and Display Selection*. Click the radio button for *Both* under *Map type*. Click on *Redraw map*.

By following the steps above you will have created the map below.



**You are now ready to search for data from other GLOBE schools in other GLOBE countries and in other investigation areas. GLOBE schools have currently entered over 16 million data – imagine the possibilities for student research!**