



GLOBE El Niño Web Chat

25 September 1997

[Ann/GLOBE]

Greetings and welcome to GLOBE students and teachers around the world. Today's GLOBE Web Chat features GLOBE Scientist Dr. Susan Postawko and members of her research team at the University of Oklahoma in Norman. The subject of this chat is topics in atmosphere and the El Nino climate event. We invite your questions and your own observations about how El Nino might be affecting weather patterns in your part of the world.

[KAT-GLOBEschool]

Good day everybody in this chatroom.

[Ann/GLOBE]

Hi Kat: Where are you from?

[Susan/GLOBEScientist]

Hi everyone - Susan Postawko here at the University of Oklahoma. Hope everyone is doing well and is ready for an information-packed chat session today. I'm here with Andy Wood and John Ensworth, and we're looking forward to talking to you today.

[Andrew/GLOBEScientist]

Hello, everyone. My name is Andrew Wood. I'm a research associate at the University of Oklahoma. I do GLOBE research for Susan, among other things. I'll be answering some of your questions today, too.

[GLOBEschool]

We're from Belgium, the Koninklijk Atheneum from small town in the centre of Belgium, named Tienen. Is the chat already started?

[Ann/GLOBE]

Greetings Belgium. You (and others joining the chat) may want to put your names/school in the box labeled "prefix to your handle" before you send a message so we know who you are. Thanks!

[GLOBEschool]

Hello everyone I' m a student from Athens Greece

[BikerJohn]

Hi everyone, I'm John Ensworth (Biker John). I'm a graduate student working in Meteorology with Susan and Andy. I like meteorology, astronomy, geography, physics, and chocolate.

[Susan/GLOBEScientist]

Glad to have the students from Belgium and Greece with us today. What is the weather like in your area? In Norman, Oklahoma today it is cloudy (mostly stratus) and relatively cool (around 15 Celcius right now)

[KAT/Tienen/Belgium-GLOBESchool]

BikerJohn - In Belgium we have the finest chocolate in the whole world!

[GLOBESchool]

Dr. Postawko, The winds normally blow the warm surface water to the west. What causes them to reverse direction and push the surface water east? Galesburg-Augusta Intermediate

[Andrew/GLOBEScientist]

What's the weather like in Tienen and Athens today? It's cloudy here in Norman with a temperature of about 15 C.

[KAT/Tienen/Belgium-GLOBESchool]

Susan - We had the warmest August month ever and September is also beautiful weather. Today we have open sky, 22° Celcius at 12 o'clock, what is extraordinary for this time of the year in Belgium.

[BikerJohn]

RE: [KAT/Tienen/Belgium-GLOBESchool] BikerJohn - In Belgium we have the finest chocolate in the whole world!

Here I come Belgium! What have you always wondered about El Nino?

[Susan/GLOBEScientist]

RE: [GLOBESchool] Dr. Postawko, The winds normally blow the warm surface water to the west. What causes them to reverse direction and push the surface water east? Galesburg-Augusta Intermediate
To Galesburg-Augusta Intermediate - I'm assuming that you are asking about the winds during El Nino. Most of the time the trade winds in the equatorial regions blow from East to West. During El Nino, they don't exactly completely reverse, but they get weaker. However, we don't think that this is what CAUSES El Nino. No one is really sure what starts an El Nino.

[KAT/Tienen/Belgium-GLOBESchool]

BikerJohn - Is it possible that El Nino influences the Gulfstream from exico to Europe?

[Andrew/GLOBEScientist]

RE: [KAT/Tienen/Belgium-GLOBESchool] BikerJohn - In Belgium we have the finest chocolate in the whole world!

World's finest chocolate? I might have to visit Belgium in the near future.

[Andrea/Ames]

For all of the GLOBE 'schoolers' - please remember to put your school name and city in the small box below the chat window so we can tell you apart! Thanks.

[BikerJohn]

RE: [KAT/Tienen/Belgium-GLOBESchool] BikerJohn - Is it possible that El Nino influences the Gulfstream from Mexico to Europe?

To my knowledge, no one has yet studied the Atlantic Mexico-to-Europe Gulfstream, but we do know that there is an impact on weather in the south Atlantic during El Niño. Temperature anomaly maps show the equatorial Atlantic cooler than normal and the Gulfstream warmer than normal. This cooling in the equatorial Atlantic seems to decrease the number of tropical storms and hurricanes.

[Theodore/Greece-GLOBESchool]

How does El Niño affect the whole world?

[KAT/Tienen/Belgium-GLOBESchool]

In Europe we're not very familiar with El Niño. Tell us a bit more about it!

[Andrew/GLOBEScientist]

I've done some research in severe weather, so if you have any questions about thunderstorms, tornadoes, etc., I'd love to answer them

[GLOBESchool]

C Wood/Belton JHS/Belton TX Dr. Pastawko, Ms Wood here with some questions from some of my students about El Niño. We are writing from Belton TX. First question is from Matt: When is the El Niño most severe?

[KAT/Tienen/Belgium-GLOBESchool]

BikerJohn - How do you mean "no one has yet studied the Atlantic Mexico-to-Europe Gulfstream"?

[Susan/GLOBEScientist]

RE: [KAT/Tienen/Belgium-GLOBESchool] In Europe we're not very familiar with El Niño. Tell us a bit more about it!

Let me tackle this question before trying to discuss how El Niño affects the whole world. El Niño originally referred to the warm waters that appeared off the coast of Peru around Christmas each year. In the 1960s scientists started to realize that every 2 to 7 years the water over a large region in the central and eastern Pacific got unusually warm. At first scientists thought that this warming of the sea surface mainly affected weather patterns in and around the Pacific. Now we are beginning to realize that El Niño actually can affect weather patterns around the world.

[Andrew/GLOBEScientist]

RE: [GLOBESchool] C Wood/Belton JHS/Belton TX Dr. Pastawko, Ms Wood here with some questions from some of my students about El Niño. We are writing from Belton TX. First question is from Matt: When is the El Niño most severe?

Historically, El Niño has the biggest effect during the Northern Hemisphere winter months. Its effects were normally first seen around Christmas time and last through March or longer. However, the severity of El Niño and how it affects your location varies from event to event.

[Darrell/BeltonTX-GLOBESchool]

Why does El Niño happen only every 2 to 7 years?

[KAT/Tienen/Belgium-GLOBESchool]

The longer the more the scientific weather station of Belgium is convinced that the weather is changing: it's becoming warmer. Is it possible that this is caused by El Niño and not by Global Warming by CO2?

[KAT/Tienen/Belgium-GLOBESchool]

Andrew - What are the first effects that were normally first seen around Christmas time?

[Andrew/GLOBEScientist]

RE: [Darrell/BeltonTX-GLOBESchool] Why does El Nino happen only every 2 to 7 years?

Scientists have been asking that same question for many years. To be honest, we don't know for sure. The more we learn about El Nino, the more questions we have about it.

[BikerJohn]

RE: [Theodore/Greece-GLOBESchool] How does El Nino affects the whole world?

Wow! Big Question! I can tell you some of the indicators that I am aware of. Hopefully more will come out as the morning (here in OK) goes on. The main (first noticed?) was a warming of the eastern Pacific that was the cause of/and result of (chicken and egg) supression of the cold upwelling off the coast of Peru. [This resulted in the lack of nutrients coming up from the deep ocean to feed the Anchove. They died in huge numbers causeing the Peruvian fishing industry to suffer.] Other symptoms of El Nino (all linked together in various ways) are a weakening of the equatorial Pacific easterly trade winds. The southern U.S. (SW and SE) get wetter. A drought occures in western Australia, the Indian and Bangladesh monsoon fail, and the equatorial Carribean and northern South America get drier. There are many many more symptoms than this (since the entire globe's weather pattern shifts into a new stable mode).

[Susan/GLOBEScientist]

RE: [KAT/Tienen/Belgium-GLOBESchool] The longer the more the scientific weather station of Belgium is convinced that the weather is changing: it's becoming warmer. Is it possible that this is caused by El Nino and not by Global Warming by CO2?

This is a very interesting question, because there is some thought in the scientific community that El Nino and global warming are somehow connected. Some scientists believe that if Earth gets warmer because of increased CO2, then El Ninos will become more frequent. So in a sense, the answer to your question is that yes, the increasing temperatures may be because of El Nino. BUT, El Nino may be linked to global warming. Don't forget - a real El Nino only happens every 2 to 7 years. If the weather station is seeing a warming trend over a longer period than that, then they may be measuring global warming. HOWEVER, there are also other reasons why a weather station may be measuring increasing temperatures over time.

[Michael/BeltonTX-GLOBESchool]

Do scientist know why El Nino happens only in the Pacific Ocean?

[KAT/Tienen/Belgium-GLOBESchool]

Did El Nino already exist 50 year ago? Isn't it possible that it's just a symptom of climat changes and not a periodic phenomenon?

[BikerJohn]

RE: [KAT/Tienen/Belgium-GLOBESchool] BikerJohn - How do you mean "no one has yet studied the Atlantic Mexico-to-Europe Gulfstream"?

To my knowledge no one has yet studied the Mexico-Europe Gulfstream during El Nino. I haven't heard any claims or conclusions stating changes in it's water/heat transport or any changes in it's track. There still is ALOT of base level research to be done on El Nino that just about anyone could do. (It could also be I haven't seen the right journal yet!)

[Andrew/GLOBEScientist]

RE: [KAT/Tienen/Belgium-GLOBESchool] Andrew - What are the first effects that were normally first seen around Christmas time?

The traditional onset of El Nino is characterized by the warming of ocean waters off the coast of Peru. Fish thrive in the cooler water of this region normally. When the warmer waters reach the Peruvian coast, most of the fish either die or migrate to cooler water. This means less fish for the Peruvian fisherman. El Nino is a bane for Peruvian fisherman but a boon for Peruvian farmers. Coastal areas of Peru are normally arid. During the onset of El Nino, the arid regions receive lots of rainfall that result in big harvests for Peruvian farmers. These effects are what first brought attention to El Nino.

[Theodore/Greece-GLOBESchool]

BikerJohn, I'm also very interested in Astronomy. If you want leave me your email, to discuss about it.

[Susan/GLOBEScientist]

RE: [Michael/BeltonTX-GLOBESchool] Do scientist know why El Nino happens only in the Pacific Ocean? Not really. It may be because the Pacific Ocean is the largest ocean on Earth - it covers one-third of the surface area of our planet. It may also be that the effects are most obvious in the Pacific, or maybe we just don't know what to look for in the Atlantic. As John mentioned, we do know that effects of El Nino are felt world-wide, and there is a definite link between the hurricane season in the Atlantic and El Nino.

[Cain/BeltonTX-GLOBESchool]

Dr.Postawko, Is there a specific question about El Nino that you are trying to answer in your studies?

[Theodore/AthensGreece-GLOBESchool]

Why are the hurricanes so rare in Europe?

[Andrew/GLOBEScientist]

RE: [KAT/Tienen/Belgium-GLOBESchool] Did El Nino already exist 50 year ago? Isn't it possible that it's just a symptom of climat changes and not a periodic phenomenon?

El Nino has been occurring for a long time. Historical documents from Spanish explorers in South America describe some of the local effects of El Nino as early as the 16th century. Scientific data on the global effects of El Nino were first collected in the late 19th century. The effects of climate change are much less known. It is possible that human activities have affected El Nino in some way that we don't realize, but El Nino has been around for a long time.

[KAT/Tienen/Belgium-GLOBESchool]

Normally in Belgium the weather is changing quickly, but the last 5 years we can see a higher stability in the weather: longer periods of drought, cold weather, hot weather ...

[BikerJohn]

RE: [Theodore/Greece-GLOBESchool] BikerJohn, I'm also very interested in Astronomy. If you want leave me your email, to discuss about it.

Sure! I'm at ensworth@ou.edu I have a B.S. in Astronomy from Arizona State University. I've been interested in astronomy from about 3rd grade (age 8) and have been observing at the Kitt Peak National Observatory a number of times (in Arizona, USA) and at the Multiple Mirror Telescope (also in AZ, USA). I've taught and written astronomy labs for 5 years and operate a planetarium and give lectures here in Oklahoma City, Oklahoma.

[Susan/GLOBEscientist]

Just a point of clarification about anchovies off the coast of Peru. What happens during an El Nino is that the depth of warm water off the coast of Peru increases. This means that the thermocline (the narrow region that separates the warm surface waters from the cold, deep waters) is found much deeper than usual. Cold waters are actually more nutrient-rich than warm waters. Under normal conditions, this cold water is "upwelled", bringing food for the anchovies upward. During El Nino there is still upwelling, but since the warm water is so deep, it is only the warm, nutrient-poor water that is upwelled. The anchovies then have to migrate to find food, leaving the anchovy fishermen with no catch!

[KAT/Tienen/Belgium-GLOBEschool]

Is it possible that El Nino occurs in certain parts in the orbit of the sun?

[Andrew/GLOBEscientist]

RE: [Theodore/AthensGreece-GLOBEschool] Why are the hurricanes so rare in Europe?

Great question, Theodore. Hurricanes can only form in tropical environments. They need the warm ocean water and atmospheric conditions normally found in the tropics to thrive. These same conditions do not exist over Europe. Although the Gulf Stream waters are warm, they are not warm enough for a hurricane to maintain itself all the way to Europe. The wind structure of the atmosphere at mid-latitudes also helps weaken hurricanes as they move across to Atlantic toward Europe. I could say a lot more on this subject, but it would require me to talk about concepts you might not be familiar with.

[Susan/GLOBEscientist]

RE: [Cain/BeltonTX-GLOBEschool] Dr.Postawko, Is there a specific question about El Nino that you are trying to answer in your studies?

Yes, actually. I'm very interested in the connection between El Nino and global warming. That is, I am looking for indications that El Nino may an increasing phenomena. I'm doing this mainly by watching rainfall patterns around the world, particularly in the Pacific regions (which is where we usually see things happen first).

[KAT/Tienen/Belgium-GLOBEschool]

Are the anchovies migrating to deeper water or to other places in the sea?

[Susan/GLOBEscientist]

RE: [KAT/Tienen/Belgium-GLOBEschool] Are the anchovies migrating to deeper water or to other places in the sea?

Most scientists think they are migrating to other places.

[BikerJohn]

Probably not. We go around the sun once a year and are closest to the sun in January and farthest from the sun in July. Even though we get closer and farther from the sun by a few million miles (about 3% of the total distance)- that change really dosen't effect our weather (much). [The seasons are caused by the tilt of the earth's axis and sun shining more overhead in the northern hemisperie in it's summer and more overhead in the southern hemisphere in it's summer]. At the same time, the sun is going around the center of the galaxy (sun's orbit?) every 2.3 million years! (I think) El Nino seems to come and go every 2 to 7 years. I don't think there is an Earth/Sun orbital cycle that is 2 to 7 years in length.

[Theodore/AthensGreece-GLOBESchool]

BikerJohn, I have published a web page for Variable Stars. It's address is : <http://users.hol.gr/~tkoutso/Variables/>. If you want visit it. We may contact later.

[KAT/Tienen/Belgium-GLOBESchool]

When the fish migrate to other places, aren't other fishers happy with it? Can't the industrial ships follow the fish or is it so that all the fishermen are poor people with a little wooden ship?

[BikerJohn]

RE: [Theodore/AthensGreece-GLOBESchool] BikerJohn, I have published a web page for Variable Stars. It's address is : <http://users.hol.gr/~tkoutso/Variables/>. If you want visit it. We may contact later. Thanks!!

[Susan/GLOBEScientist]

RE: [KAT/Tienen/Belgium-GLOBESchool] When the fish migrate to other places, aren't other fishers happy with it? Can't the industrial ships follow the fish or is it so that all the fishermen are poor people with a little wooden ship?

This is a very good question that I'm not sure I can completely answer. I think that the problem has to do with the cost of catching the anchovies compared to what the fishermen can get paid for them. Plus, I'm not sure people know exactly where the anchovy go.

[BikerJohn]

Does anyone like Anchovies on thir Pizza.

[Susan/GLOBEScientist]

John, Andy, and I have degraded into discussing pizza toppings. I, for one, like anchovies on my pizza.

[KAT/Tienen/Belgium-GLOBESchool]

Can't the shoal of anchovies followed by radar or satellite?

[BikerJohn]

RE: [KAT/Tienen/Belgium-GLOBESchool] Can't the shoal of anchovies followed by radar or satellite? We know that the phytoplankton (Anchovy food) can be easily seen by satellite due to color changes (light scattered/reflected/absrobed) in the ocean surface. You could probably infer where the fish have gone. You *might* even be able to track them directly visibly (I'm out of my league at this point though). It probably gets too expensive to move the fishing boats too far from their normal fishing grounds, so they are dependent on the fish staying close to 'home'.

[GLOBESchool]

WHY DO THE TRADE WINDS DIE DOWN

[KAT/Tienen/Belgium-GLOBESchool]

Anchovies are a part of the food chain in the sea. If they leave the coast of Peru and therefore they are caught any more, there is a bigger biomass of small and economical cheap fish that can be eaten by economical expensive, large fish. Can't El Nino be therefore a good phenomenon for the fishers in a longer time?

[Aldon/BeltonTX-GLOBESchool]

Are there structures under the Pacific in the area where the El Nino forms that might influence the surface temperatures, such as underwater volcanoes?

[BikerJohn]

My thinking is (and I'm not a fisherman) that if the Anchovies go too far away to be caught, then the big fish feeding on them would (for the most part) stay too far away to be caught as well. But that might help sustain a regional specialized fish/plant ecosystem somewhere in the ocean that we are presently unaware of.

[Susan/GLOBEScientist]

RE: [GLOBESchool] WHY DO THE TRADE WINDS DIE DOWN

Winds are driven by temperature variations. Under normal conditions, the sea surface temperature in the western Pacific is greater than in the eastern Pacific. However, this changes during El Nino and temperatures across the Pacific become more equal (with the eastern Pacific being much warmer than usual, and the western Pacific being cooler than normal). This has the effect of weakening the trade winds. So you see that the trade winds dying down appears to be a RESULT of El Nino, not a CAUSE of El Nino.

[Andrew]

RE: [Aldon/BeltonTX-GLOBESchool] Are there structures under the Pacific in the area where the El Nino forms that might influence the surface temperatures, such as underwater volcanoes?

There are no known structures along the sea floor, such as a volcano, that influence El Nino. Researchers have tried to link underwater volcanoes to El Nino, but no proof has been found to support this link.

[CamargoElem/MtSterlingKY-GLOBESchool]

Hello Dr. Susan. We are fourth graders. We would like to know how scientists predict that the weather will affect us here in Kentucky and the southern United States. We are afraid that we will have too many snow days and have to make them up in the summer months.

[KAT/Tienen/Belgium-GLOBESchool]

Susan - This question has nothing to do with El Nino, but we take the opportunity to ask it. Globe Data Entry: Is it necessary to type every time 0.0 for precipitation solid or is it enough to type nothing

[GLOBESchool]

How does El nino effect hurricaines?

[CamargoElem/MtSterlingKY-GLOBESchool]

Our concern here in Kentucky is about the world wide effects of El Nino. Will the southern US have a colder and wetter winter?

[Susan/GLOBEScientist]

RE: [KAT/Tienen/Belgium-GLOBESchool] Susan - This question has nothing to do with El Nino, but we take the opportunity to ask it. Globe Data Entry: Is it necessary to type every time 0.0 for precipitation solid or is it enough to type nothing

Unfortunately you really do need to type in 0.0 to make it perfectly clear what is happening in your area. I know that in the middle of summer it seems silly to have to type in 0 for solid precipitation, but in the long run it really helps us. This way we always know that there really was no solid precipitation. If you

don't type anything, then we can never be sure that a measurement was actually made. This is probably obvious in the summer, but during the rest of the year there actually could be solid precip and we need to know for sure.

[GLOBEschool]

How close to the equator is the current el nino and how hot does the water get?

[Andrew]

RE: [CamargoElem/MtSterlingKY-GLOBEschool] Hello Dr. Susan. We are fourth graders. We would like to know how scientists predict that the weather will affect us here in Kentucky and the southern United States. We are afraid that we will have too many snow days and have to make them up in the summer months.

That's the kind of question I would have asked when I was in fourth grade! From the information I have seen, there is no strong signal about how the weather in Kentucky is affected during El Nino. You may have a snowy winter, but this being an El Nino year does not suggest it. I hope you get the weather you want!

[BikerJohn]

RE: [GLOBEschool] How does El nino effect hurricaines?

The main ingredient in the formation and sustaining of a hurricane is a warm ocean surface. During El Nino, the western north and south pacific warms up. The north central Atlantic also gets warmer than normal. We expect (and see) more and stronger hurricanes in these areas [there is a hurricane that will hit Arizona as a tropical storm this afternoon! This is the first time a tropical storm will have ever made it into that state in the U.S.]. Around Australia and in the western pacific the waters cool, so we expect (and see) fewer and weaker tropical systems. The water is also cooler around the equatorial and south Atlantic. The same thing happens here as well.

[Susan/GLOBEscientist]

RE: [GLOBEschool] How close to the equator is the current el nino and how hot does the water get? During El Nino it is the water almost right along the equatorial Pacific that gets warmest. Just how warm the water gets varies from El Nino to El Nino. Temperatures typically increase by 3 to 5 Celcius in the equatorial Pacific.

[GLOBEschool]

Indialantic Elementary/Indialantic, Fl. just signing on for the first time; first chat.

[JennyDoe/BeltonTX-GLOBEschool]

Is there any evidence that El Nino affects Antartica or the poles at all? Does it cause warming and more ice melting?

[Andrea/Ames]

Welcome, Indialantic Elementary/Indialantic, Fl -- please type your school and city information into the window below the large chat window - this way we will know who you are each time you send a new message.

[Andrew]

RE: [CamargoElem/MtSterlingKY-GLOBEschool] Our concern here in Kentucky is about the world wide effects of El Nino. Will the southern US have a colder and wetter winter?

The research done so far suggests that the US Gulf Coast will have a wetter winter than normal. Colder than normal temperatures are suggested over the deep south (Florida, Georgia, South Carolina, etc.). However, just because past data suggest this will happen, doesn't mean that this year's El Nino will be just like past events. There is significant variability between El Nino events. This year's event could be different than past events.

[BikerJohn]

We have never heard of any significant El Nino signatures (indicators) at or near the poles. That would be a GREAT research topic!

[BikerJohn]

This El Nino seems to be the strongest on record (and it is still taking shape).Is anyone out there experiencing unusual weather this fall/spring (southern hemisphere) where you live?

[Kyle/BeltonTX-GLOBESchool]

What was the worst reported effects of an El Nino occurrence?

[Andrew]

RE: [Kyle/BeltonTX-GLOBESchool] What was the worst reported effects of an El Nino occurrence?

Widespread flooding and drought are probably the worst effects. Some areas of western South America experience flooding during El Nino. Western Australia, India, and Indonesia experience drought during El Nino due to a failure of the monsoons to bring rainfall. The loss of life and property due to these effects can be very high.

[Andrew]

Widespread flooding and drought are probably the worst effects. Some areas of western South America experience flooding during El Nino. Western Australia, India, and Indonesia experience drought during El Nino due to a failure of the monsoons to bring rainfall. The loss of life and property due to these effects can be very high.

[Wood/BeltonTX-GLOBESchool]

Last question from Belton..Does the El Nino affect the height and direction of the jet stream as it moves across the US ?.Thank you for all your answers. We will print out the chat and discuss in class tomorrow.

[Andrew]

RE: [Wood/BeltonTX-GLOBESchool] Last question from Belton..Does the El Nino affect the height and direction of the jet stream as it moves across the US ?.Thank you for all your answers. We will print out the chat and discuss in class tomorrow.

We are not exactly sure of the specific cause and effect, but it does appear that the path of the jet stream is altered by El Nino. The height and direction of the jet stream are not effected so much as the north-south location of the jet stream is effected.

[BikerJohn]

Here is a misconception about El Nino that has sort of crept into the media and stories you hear about it. We often think of El Nino as an unusual thing or a set of weather problems. Actually it is just another state of the atmosphere. It is another 'normal' way for the atmosphere and ocean systems to operate. It just occurs (overall) less of the time than what we call 'normal' weather. El Nino is a usual rather than an unusual climate change.

[TallinnTechSch/Estonia-GLOBESchool]

Why the GLOBE students do not measure wind direction and speed?

[Andrew]

RE: [TallinnTechSch/Estonia-GLOBESchool] Why the GLOBE students do not measure wind direction and speed?

Most GLOBE schools have limited resources. Although a simple wind vane may not be expensive to build, most scientific-quality instruments used to measure wind speed are expensive. The atmosphere protocols were set up to acquire data for the most important environmental parameters while also keeping costs to a minimum. If your school has the ability to measure wind speed and direction already, you could probably submit that information in the comments section. The scientists creed: The more data, the better!

[TallinnTechSch/Estonia-GLOBESchool]

DO you have any data about the effects of El Nino in the Baltic region?

[Susan/GLOBEScientist]

RE: [TallinnTechSch/Estonia-GLOBESchool] Why the GLOBE students do not measure wind direction and speed?

This isn't a reply to your question, but I was wondering what the weather is like at your school today?

[Joris/Tienen-GLOBESchool]

A few months ago we've made a comparison of the precipitation and temperature data of our school and the Chemisches Institute of Stuttgart. Shouldn't we get roughly the same results, since our school is only 360 km (225 miles) separated from Chemisches Institute? The precipitation of Chemisches is more than double of ours from February to August 1996. Also the temperature is over the whole year higher. The Chemisches Institute is situated 200 meters higher than ours. Can this give such a large difference?

[TallinnTechSch/Estonia-GLOBESchool]

Well, the weather today has been very nice and sunny. Actually we have had this year a very unusually warm weather. The average temperature in September has been +15,5 degrees Celsius.

[Joris/Tienen-GLOBESchool]

Andrew - At our school we measure the light intensity at 12 o'clock. Should we type it in the comments for that day?

[Andrew]

RE: [TallinnTechSch/Estonia-GLOBESchool] DO you have any data about the effects of El Nino in the Baltic region?

Not really. The few maps that I have show no real strong signal during El Nino years for the Baltic region. The northern coast of Russia, between Urmansk and the northern Ural Mountains, generally experiences a weak cold anomaly during this time of an El Nino year. That is the only strong signal that I can detect near your region, though.

[GLOBESchool]

What is the difference between El Nino and La Nina?

[Andrew]

RE: [Joris/Tienen-GLOBESchool] Andrew - At our school we measure the light intensity at 12 o'clock. Should we type it in the comments for that day?
Go for it! How are you measuring the light intensity?

[Susan/GLOBEScientist]

Actually, 360 km is a pretty significant difference in distance and it doesn't surprise me too much that you are getting large differences in temperature and precipitation. This is one of the reasons why we want to have lots of schools involved with the GLOBE - because we don't have a good knowledge of the variations in weather across relatively small regions.

[Joris/Tienen-GLOBESchool]

Andrew - With a lux meter of the firm PHYWE. We measure the light intensity every day under a tree and in open sky. Once a week we also measure the light intensity in our forest pixel in a diagonal way (10 points in a diagonal way through the square of 30 x 30 meter).

[Joris/Tienen-GLOBESchool]

The last weeks we often measure a pH of the rainwater higher than 7. How can this be explained?

[Joris/Tienen-GLOBESchool]

Andrew - for more information about the light measurements visit the site of our school:
<http://gate.argo.be/scholen/argo0047/index2.htm>

[BikerJohn]

RE: [Joris/Tienen-GLOBESchool] A few months ago we've made a comparison of the precipitation and temperature data of our school and the Chemisches Institute of Stuttgart. Shouldn't we get roughly the same results, since our school is only 360 km (225 miles) separated from Chemisches Institute? The precipitation of Chemisches is more than double of ours from February to August 1996. Also the temperature is over the whole year higher. The Chemisches Institute is situated 200 meters higher than ours. Can this give such a large difference?

Since the Institute is at a higher elevation, I assume that it is in mountains and you are more in a flat (plains) type location.(?) The precipitation is often greater on the windward side of a mountain range since air is forced up over the mountains as it moves along. When air is forced up, it expands and cools which allows clouds and rain to form. The windward side (where the wind hits first) of a mountain range is often wetter than the leeward side (where the air is leaving [leeward : leaving / easy to remember?]). The dry leeward side is often said to be in a "Rain Shadow" or experiencing the "Rain Shadow Effect". So I'm guessing that the increased rainfall they experience is from the air passing over your head rising up the elevation change, cooling, and dumping more rain on them.

[Susan/GLOBEScientist]

RE: [GLOBESchool] What is the difference between El Nino and La Nina?

La Nina ("the girl" in Spanish) is an opposite phase of El Nino ("the boy" in Spanish). During El Nino, the surface waters in the central and eastern Pacific become unusually warm. As an El Nino episode ends, the warm waters move back to the western Pacific, and the eastern Pacific becomes cool again. However, this transition doesn't happen smoothly, and doesn't go right back to what we call "normal" conditions. Typically there is a "pendulum" effect, where the waters in the western Pacific become even warmer than usual, and the central and eastern Pacific become even colder than usual. This is the phase that scientists call La Nina.

[Joris/Tienen-GLOBEschool]

Since March this year we also measure the air moisture every day. On our hygrometer we can read that the percentage, we measure, is a relative percentage. What does the percentage express and are there conversion tables to convert it into an absolute number?

[Andrew]

RE: [Joris/Tienen-GLOBEschool] Andrew - for more information about the light measurements visit the site of our school: <http://gate.argo.be/scholen/argo0047/index2.htm>
I'll have to check that out. Thanks!

[HELLO-GLOBEschool]

HELLO THERE. I'M JON.

[Joris/Tienen-GLOBEschool]

BikerJohn - I agree that the Chemisches Institute should get more precipitation because they are situated higher, but our school is situated closer to the sea, which results in more precipitation, cooler summers and warmer winters. They've got always a warmer temperature. Normally they should have a warmer summer, but a cooler winter.

[GLOBEschool]

Jacob/WPSD Pittsburgh Hello Well.. will El Nino produce more hurricanes in Pacific Ocean?

[Susan/GLOBEscientist]

RE: [Joris/Tienen-GLOBEschool] The last weeks we often measure a pH of the rainwater higher than 7. How can this be explained?

Wow! A rainfall pH higher than 7 is very unusual! Most "normal" rainfall has a pH of around 5.6. This is because even in a very clean atmosphere there is always some gas, particularly carbon dioxide, that gets dissolved in the atmosphere water and forms a weak acid. A pH of 7 indicates a neutral pH, so a pH higher than 7 indicates a more alkaline solution. I can't honestly say that I can explain why you are getting a pH higher than 7. The only thing that comes to mind is some kind of industrial activity that would put some kind of dust like limestone in the air (for instance, a concrete company). What instrument did you use to measure pH? Has the instrument been calibrated recently? How much rainfall did you have?

[Andrew]

RE: [Joris/Tienen-GLOBEschool] Since March this year we also measure the air moisture every day. On our hygrometer we can read that the percentage, we measure, is a relative percentage. What does the percentage express and are there conversion tables to convert it into an absolute number?
The percentage represents the relative humidity, or the percentage of moisture the air can hold that is currently in the air. If you know the air temperature at the time of your measurement, you can use a chart to determine the mixing ratio. The mixing ratio is a variable that tells you how many grams of water per kg of air are present in the atmosphere. This number is an absolute measure of humidity. Mixing ratio charts are not easily found, but your science teacher may have one.

[Joris/Tienen-GLOBEschool]

With the changing to Globe II, we've had some problems to define our study sites and while we were trying we've sent by accident a few wrong data to Globe. Why isn't there an option to delete data in Globe Student Data Archive?

[Joris/Tienen-GLOBEschool]

Andrew - Can't we find a mixing ratio chart on the internet?

[GLOBEschool]

Hi! I'm from West Chester, Pennsylvania. What I'd like to know is what will our winter be like here in the Southeastern part of Pennsylvania here in the U.S due to El Nino?

[EastHighKid-GLOBEschool]

how does pollution affect el nino?

[Susan/GLOBEscientist]

RE: [GLOBEschool] Jacob/WPSD Pittsburgh Hello Well.. will El Nino produce more hurricanes in Pacific Ocean?

Typically, yes. Even more important is that El Nino causes a change in the pattern of hurricanes in the Pacific. The unusually warm water in the central and eastern Pacific during El Nino means that more hurricanes can form and survive in that region of the ocean. Many places that don't normally worry about hurricanes find that during El Nino they are much more likely to be affected by hurricanes. This is certainly true of places like Hawaii and Mexico.

[Joris/Tienen-GLOBEschool]

Susan - I agree that the pH higher than 7 is very strange, since we normally have a pH of between 5.5 and 6.0 (a normal pH for precipitation). We use an electronic pH meter, which is calibrated once a week. When we measure a number that we think is strange we always measure it a few times, so I don't think that there is anything wrong with the measurement. It could be that there was a bit dust in the pluviometer, which gave this high pH.

[BikerJohn]

RE: [Joris/Tienen-GLOBEschool] BikerJohn - I agree that the Chemisches Institute should get more precipitation because they are situated higher, but our school is situated closer to the sea, which results in more precipitation, cooler summers and warmer winters. They've got always a warmer temperature. Normally they should have a warmer summer, but a cooler winter.

Yes, since you are near the ocean you would expect the water (which does not vary much in temperature as compared to the air seasonally) to moderate your weather (cooler summers and warmer winters) than the Institute further inland and higher up. Is this what you are observing (I'm a bit lost in what your conclusions are...)

[GLOBEschool]

Dr. Postakwo Our ph has been about 4.7 to 5.3 this school year. A quarter mile away at the high school their ph has been about 6.5. They washed their raingauge with soap. Our numbers seem too low. We both calibrate. What accounts for the difference?

[Derek/WPSDPittsburgh-GLOBEschool]

Hello My question will El Nino produce more hurricanes in Pacific Ocean?

[Andrew]

RE: [Joris/Tienen-GLOBEschool] Andrew - Can't we find a mixing ratio chart on the internet?

You may be able to find one in a basic meteorology text. That is where most are found. If you don't have any in your library, give me your address and I will send you a copy of a chart I have with some basic instructions on how to compute mixing ratio.

[BikerJohn]

RE: [GLOBESchool] Hi! I'm from West Chester, Pennsylvania. What I'd like to know is what will our winter be like here in the Southeastern part of Pennsylvania here in the U.S due to El Nino?
Our 'Normal' temperature and precipitation anomaly maps show that your location is just *slightly* warmer and wetter than 'normal'. PA does not seem to be affected much at all by El Nino, but this is potentially the strongest El Nino ever recorded, so who knows...!

[CorbinKY-GLOBESchool]

Does the presence of El Nino make it easier to predict the weather? Chris/Corbin

[Susan/GLOBEScientist]

RE: [Joris/Tienen-GLOBESchool] With the changing to Globe II, we've had some problems to define our study sites and while we were trying we've sent by accident a few wrong data to Globe. Why isn't there an option to delete data in Globe Student Data Archive?
Right now the only option there is to correct your data is to resubmit it. The GLOBE archive keeps all data entry pages, BUT if you find that you've incorrectly entered data you can go back and reenter it and your most recent entry will be the one that is used as the data for that day. This assumes that you are making corrections to the data itself, that is, that you enter the exact same date and time for the correction. Does this make sense?

[Andrew]

RE: [EastHighKid-GLOBESchool] how does pollution affect el nino?
I don't believe any research has shown if pollution has effected El Nino.

[CorbinKY-GLOBESchool]

What is the scientific definition of El Nino? Travis/Corbin

[Joris/Tienen-GLOBESchool]

BikerJohn - I agree that I'm not very clear in the things I'm writing. I will try to be a bit more clear from now on: The atmospheric temperature of the Chemisches Institut in 1996 is always higher than ours. In the summer this is normal because they're further situated from the ocean, but in the winter they should measure lower temperatures than ours, which they don't. (We've taken the Chemisches Institut to compare, because we're sure that their data are correct, they are one of the better Globe schools).

[Andrew]

RE: [CorbinKY-GLOBESchool] Does the presence of El Nino make it easier to predict the weather?
Chris/Corbin
The weather is rarely easy to predict, El Nino or no El Nino. :-)

[Jacob/WSPDPittsburgh-GLOBESchool]

Thank you for informing me And I wondered about Arizona have very heavy rainfall in past?

[RURALHALLELEM/NC-GLOBEschool]

HI! WE'RE MISS LEONARD'S FOURTH GRADE CLASS AND ARE JUST JOINING YOU. WE'RE EXCITED BECAUSE THIS IS OUR VERY FIRST CHAT! OUR WEATHER TODAY IS CLOUDY, MOSTLY STRATOCUMULUS, AND COOL, 22C. WE'VE HAD A VERY MUCH NEEDED RAIN SINCE YESTERDAY MORNING, 45.8MM. OUR QUESTION IS "THE SE UNITED STATES IS PREDICTED TO HAVE A WET WINTER. JUST HOW WET CAN WE EXPECT?"

[GLOBEschool]

Rural Hall Elementary/Rural Hall, NC Our fifth grade class wants to know if El Nino will have major or minor effects on the southeast.

[Joris/Tienen-GLOBEschool]

Susan - But a few times, we've for instance typed a wrong hour of measuring. When you reenter this correctly, you have two measurements for that day. This is why it would be convenient to have a delete option.

[BikerJohn]

RE: [Derek/WPSDPittsburgh-GLOBEschool] Hello My question will El Nino produce more hurricanes in Pacific Ocean?

Yes you will get more hurricanes in the Pacific during El Nino and you will get them in wierd places, that is; the western Pacific. Mexico, the SW U.S., and Hawaii are at greater risk of these more frequent and often stronger storms.

[Susan/GLOBEscientist]

RE: [Joris/Tienen-GLOBEschool] Susan - I agree that the pH higher than 7 is very strange, since we normally have a pH of between 5.5 and 6.0 (a normal pH for precipitation). We use an electronic pH meter, which is calibrated once a week. When we measure a number that we think is strange we always measure it a few times, so I don't think that there is anything wrong with the measurement. It could be that there was a bit dust in the pluviometer, which gave this high pH.

I agree, dust in the gauge seems to be the most likely answer. If you haven't had rain in quite a while, it would still be a good idea to rinse the gauge out with water at least once a week to get rid of any accumulated debris.

[CorbinKY-GLOBEschool]

Who "coined" the term El Nino and how long have scientists been studying this phenomenon?

Elaine/Corbin

[Joris/Tienen-GLOBEschool]

RURALHALLELEM/NC-GLOBEschool - Can you please type in normal letters (no capitals). It's very difficult to read!

[EastHighKid-GLOBEschool]

when will the next elmo, er el nino occur?

[MB/East-GLOBEschool]

what does el nino do to the ph of the affected water?

[Susan/GLOBEScientist]

RE: [GLOBESchool] Dr. Postakwo Our ph has been about 4.7 to 5.3 this school year. A quarter mile away at the high school their ph has been about 6.5. They washed their rain gauge with soap. Our numbers seem too low. We both calibrate. What accounts for the difference?

A real possibility is the soap. Most soaps have an alkaline component. If the other school is washing their gauge with soap it is likely that residuals of the soap are affecting their pH reading. It is best to only rinse the gauge with water.

[Lisa/BeltonJHSTX-GLOBESchool]

Is El Nino and La Nina the atmosphere's way of over correcting itself?

[CorbinKY-GLOBESchool]

What type of apparatus or technology are you currently using to study El Nino? Patrick/Corbin

[Derek/WPSDPittsburgh-GLOBESchool]

Thank you for informing me And I wondered about Arizona have very heavy rainfall in past?

[CorbinKY-GLOBESchool]

Why is the 1997 El Nino predicted to be the worst ever? Curt/Corbin

[BikerJohn]

RE: [Joris/Tienen-GLOBESchool] BikerJohn - I agree that I'm not very clear in the things I'm writing. I will try to be a bit more clear from now on: The atmospheric temperature of the Chemisches Institut in 1996 is always higher than ours. In the summer this is normal because they're further situated from the ocean, but in the winter they should measure lower temperatures than ours, which they don't. (We've taken the Chemisches Institut to compare, because we're sure that their data are correct, they are one of the better Globe schools).

Ok, how about this (theory!), they might get a downslope wind in the winter (I'm guessing now!). This is the opposite of the upslope that would give summer rains, the air sinks down the mountain slope (opposite wind direction needed for this) compresses and warms. Possible?

[TallinnTechSch/Estonia-GLOBESchool]

Can you please compare your time with Greenwich time. We can not understand what time the chat began and what time it will end.

[Joris/Tienen-GLOBESchool]

Has everybody visited in this chat room visited our site already. Our site is completely filled with information about the way the Globe project is performed at our school. We've also made a few extensions to the Globe program. You can read all about it at:

<http://gate.argo.be/scholen/argo0047/index2.htm>

[Andrew]

RE: [GLOBESchool] Rural Hall Elementary/Rural Hall, NC Our fifth grade class wants to know if El Nino will have major or minor effects on the southeast.

Typically, El Nino produces wetter and cooler winters along the gulf coast and Florida. That doesn't mean that this winter will be wetter and colder than normal. Just that this is likely. The El Nino effects on North Carolina's weather is not as strong as it is further south. The data indicate a weak cold anomaly for your area during the winter.

[Susan/GLOBEScientist]

RE: [CorbinKY-GLOBESchool] Who "coined" the term El Nino and how long have scientists been studying this phenomenon? Elaine/Corbin

The El Nino phenomena has been known since the late 1800s. This is when fishermen off the coast of Peru noticed that each Christmas the waters off the coast got a little warmer and the fish disappeared. It was named El Nino by the fishermen because in Spanish the term refers to "the Christ child".

[BikerJohn]

RE: [Jacob/WPSDPittsburgh-GLOBESchool] Thank you for informing me And I wondered about Arizona have very heavy rainfall in past?

Yes, on at least 5 or 6 occasions, the *remains* of tropical systems have moved up the Gulf of California into Arizona causing BIG flooding in southern AZ. It usually doesn't affect areas in the northern 1/3 of the state since there is such a LARGE increase in elevation as you go north (the Mogolon Rim).

[Joris/Tienen-GLOBESchool]

BikerJohn - It's a good theory. We haven't yet had contact with the Chemisches Institute, but we're planning to. We'll ask them in our first letter, whether this theory is possible. Thank you for your help.

[BikerJohn]

RE: [CorbinKY-GLOBESchool] Why is the 1997 El Nino predicted to be the worst ever? Curt/Corbin
Because the western pacific ocean temperatures have already warmed more than we've ever seen as an El Nino starts. It *could* stop warming and suddenly cool! We don't think this will happen (partially because of computer models) but the weather does keep surprising us! Keep watching.

[TallinnTechSch/Estonia-GLOBESchool]

When is predicted the next El Nino to occur ?

[BikerJohn]

RE: [TallinnTechSch/Estonia-GLOBESchool] Can you please compare your time with Greenwich time. We can not understand what time the chat began and what time it will end.
I believe this is scheduled to end in a few minutes.

[Susan/GLOBEScientist]

RE: [CorbinKY-GLOBESchool] What is the scientific definition of El Nino? Travis/Corbin
El Nino refers to the warming of ocean waters in the central and eastern Pacific. You will often hear the term "ENSO" these days, which stands for El Nino - Southern Oscillation. Technically, the term El Nino just refers to the changing sea surface temperatures. At the same time that the ocean waters in the central and eastern Pacific are rising, there is a change in atmospheric pressure between western and eastern Pacific. This change in pressure is referred to the Southern Oscillation.

[Andrew]

RE: [MB/East-GLOBESchool] what does el nino do to the ph of the affected water?
I don't know if that has ever been studied.

[Susan/GLOBEScientist]

RE: [Joris/Tienen-GLOBESchool] Susan - But a few times, we've for instance typed a wrong hour of measuring. When you reenter this correctly, you have two measurements for that day. This is why it would be convenient to have a delete option.

I agree. Unfortunately there isn't a way to do this just yet. This is certainly something that we need to work on! Thanks for reemphasizing this for us.

[AnnHardison/GLOBE-GLOBESchool]

I'm afraid its time to wrap-up. Many thanks to Dr. Postawko, Andrew, and Biker John for sharing their expertise. Join us for the next GLOBE Web Chat on October 23, 1997 on topics in hydrology. For all you El Nino watchers, keep an eye on the GLOBE Student Data server for updates!

[RURALHALLELEM/NC-GLOBESchool]

Hi! We're Miss Leonard's fourth grade class and are just joining you. We're excited because this is our very first chat! Our weather today is cloudy, mostly stratocumulus, and cool, 22C. We've had much needed rain since yesterday morning, 45.8mm. Our question is "The SE US is predicted to have a wet winter. Just how wet can we expect?"

[Andrew]

RE: [TallinnTechSch/Estonia-GLOBESchool] When is predicted the next El Nino to occur ?
We are not sure when the current one is going to end, let alone when the next one will begin. That's why we need to research El Nino (and why we need GLOBE schools to collect data regularly).

[Susan/GLOBEScientist]

RE: [Lisa/BeltonJHSTX-GLOBESchool] Is El Nino and La Nina the atmosphere's way of over correcting itself?
That is probably a pretty good way to describe La Nina, although it isn't just the atmosphere readjusting itself.

[GLOBESchool]

OK - I'll be leaving now. Thank you everybody for this wonderfull chat and see you next web chat. Don't forget to visit: <http://gate.argo.be/scholen/argo0047/index2.htm>

[TallinnTechSch/Estonia-GLOBESchool]

Thank you very much for the very rewarding chat and interesting data. We really enjoyed the experience.