American Geophysical Union AMA: Hi Reddit, I'm Jill Trepanier, Assistant Professor of Geography at Louisiana State University (LSU), here to talk about the science and risk of hurricanes. Ask Me Anything!

AmGeophysicalU-AMA [1] and r/Science AMAs[1]

[1]Affiliation not available

April 17, 2023

Abstract

I am Jill Trepanier, Assistant Professor in the Geography and Anthropology Department at LSU. I've been at LSU for five years, and my area of expertise is the understanding of hurricane risk variability. I have been working in the area since 2007 and am fascinated with all things extreme weather. The types of questions I ask include why do hurricanes more frequently visit Louisiana compared to Tampa, Florida? Are we starting to see more severe hurricanes in a warmer climate? What changes happen to hurricanes when ocean temperatures rise? And what is the likelihood of extreme winds and deep storm surges at locations along a hurricane-prone coastline? Typically, I use statistics and maps to help answer my questions. And, as a geographer, I always make sure that the spatial element of the problem is included because, for me, differences across space are everything! I'll be back at 12 pm ET to answer your questions, ask me anything! The AGU AMA series is conducted by the Sharing Science program. Sharing Science: By scientists, for everyone. More at sharingscience.agu.org.

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REDDIT

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AMGEOPHYSICALU-AMA R/SCIENCE

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Are there any methods that allow us to estimate the paleo-hurricane record?

KyleMFKarl

We call it paleotempestology and there are quite a few different approaches one can use. One is to identify "sand lenses" in sediment cores. You can go out to the middle of a coastal marsh/water body, use a coring device to grab a "tube" of sediment from the lakebed, and analyze it to find large sections of sand deposits. It is possible to make inferences about the type of event that would cause that much sand to be moved from the beach to the lake. You can also identify signatures in coral reefs, and even trees! One of my graduate students is working on coastal tree signatures right now! Seems the trees are influenced by the saltwater inundation when the storm brings in the surge and you can see it in the tree's growth rings. If you have a tree old enough, you could extend the record. Thanks for the question!

Are hurricanes getting more intense and if so, what does that mean for the Mississippi River Delta? Is the delta is eroding faster than it is depositing sediment and will storms of greater intensity accelerate that or is the erosion they cause of a similar scale to "traditional strength" storms?

Thanks!

Malicious_Drumstick

Hurricanes require warm ocean water, water vapor, some amount of disturbance in the atmosphere (like a thunderstorm), weak shear, and cool temperatures at higher parts of the atmosphere. If you change the temperature of the surface, but not aloft, you increase the temperature difference between the area near the ocean and the area near the clouds. This allows for greater inflow and outflow, i.e., a stronger hurricane. Now, if you warm up the upper atmosphere, too, you might not actually change the intensity all that much. It's a tough question. In all of the research I have done, those events that do form, and that gain in strength and structure, seem to be reaching higher intensity levels than similar storms in earlier parts of the record. This is a statistically significant find that myself, and others, have come to.

Now, I'm not a river person, but my colleague, Dr. Kory Konsoer at Louisiana State University is. I asked him about your river question this morning. He said that in our current environment, there are two major things to consider. First, storm surge that comes in with a hurricane greatly reduces the amount of sediment in the delta. The storm surge comes in, grabs the sediment, and ultimately pulls it back into the ocean. In an overall balance, throughout the year, more sediment is deposited into the river delta through conditions upstream. The environment has typically adapted to this. In an environment where we might see more intense surges with these hurricane events, the storms might erode more sediment than can be deposited back in. This will certainly change the delta's shape. The second major thing is sea level rise. As our sea levels rise (and as Louisiana, in particular, continues to subside), these surges are able to move even farther inland. This will cause even more erosion.

If you could make any change, how would you update the Saffir-Simpson scale?

PelicanSquadron

This is an excellent question that is posed all the time. By the public and by scientists in our meetings! If it were up to me, every location would have their own risk scale. I publish and work in the idea of "relative risk". A category 1 to Miami is not the same as a category 1 in New Jersey. We have, unfortunately, seen the evidence of what happens when people apply a blanket scale. I know how difficult it is to have a unique scale for every major metropolitan area. However, it is illogical to use one that is not meant for your area. The SS scale is simply wind speed. That's it! Wind isn't even the most dangerous part! Storm surge needs to be included, but it is incredibly dependent on the local environment. This pushes us even more toward needing a unique scale. I deal with a lot of combined risk estimates - wind speed and storm surge. I actually just published a paper in an AGU journal that shows the spatial differences in risk of these two variables all along the Gulf Coast. Using information like this could help provide a "common" type of event for each location, and, thus, an "extreme" event, too. So those people in NJ know to get out of dodge when a "Cat 1" (i.e., a large event with weak winds bringing a ton of water inland) is headed their way.

Regarding hurricanes and climate change. All the talk 10-15 years ago about climate changes was that hurricanes would be much more frequent, yet we have seen far fewer hurricanes. I know that on a global timeline 15 years is nothing, but every time there is a hurricane or significant weather event, everyone screams "Climate Change" as the culprit.

In your opinion, what % of the significant weather events like hurricanes over the past 15 years are the direct result of climate change, and what % would have just happened anyway?

RedditBlowhard

This is a great question, thanks. First, I think 15 years ago, when people made the "more frequent" claim, it was a bit of a stretch. Hurricanes (or any tropical cyclone) exists when it is warm and when there is water vapor available and a relatively weak sheared environment (means all the winds are

blowing in relatively the same direction). The tropics were warm 15 years ago and they will still be warm 15 years from now. Hurricanes that formed there before will continue to form. Frequency won't be so easily affected in the tropics. Frequency along the eastern seaboard, however, will be affected. And we have seen this in recent years (Sandy, Matthew). In this part of the ocean, it used to be too cold to have a lot of events. That threshold is now being crossed more often and so the eastern seaboard of the U.S. now has the conditions needed to have hurricanes (unfortunately).

As far as percentages about events with or without a warming planet – this is a tough, somewhat unanswerable question. Most "significant" events are such because of where they make landfall – not necessarily because of how intense they are. I think disastrous hurricane events will always affect the United States because we have people living along the coastline. I find that intensity is changing in the most extreme events (something I'm sure I will have the chance to post on with another question), so I do believe we will see high intensity events along the coastline. Those that do happen, will have more fuel to become worse. If we keep building up the infrastructure along the coastlines, the "significant events" will most certainly continue to happen.

If there was another Katrina type disaster, are we better or worse off to deal with it?

JasonAnarchy

This is a good question and I see it has already started a bit of a conversation. DarthNetflix is totally right - we are better off now than we were in 2005. Other people are also right, a very serious event will still leave billions of dollars in damage. If we have infrastructure along the coast, we will see major monetary losses. Always. But, and this is an important but, I think that many people will get out of the way now. I think (hope) our governmental infrastructure would be more efficient in aiding evacuation measures before the event, and allowing those who are less advantaged areas the access to transport. This will lead to a substantially lower loss of life, which is ultimately, the most important thing.

Why do we rarely see any hurricanes along the West Coast of the United States as opposed to the East Coast?

Cavalanche95

This is a great question. First, events that form in the eastern Pacific are still called hurricanes (to address someone's comment below) and they can make landfall on the western coast. Typically, though, the western coast of Mexico and not the U.S. There is a very cold ocean current coming down from the Arctic that runs all along the western Pacific coast (ever gone swimming in north Cali? - brrr!!!) and hurricanes forming in the eastern Pacific usually can't survive that.

As a separate note, typhoons are hurricanes that form in the western Pacific (by Japan, for example).

I live on Barbados, we haven't been hit with a real big storm for a number of decades, what effect does this have on the risk when we do get hit? I am assuming thing like trees with 50+ years of growth without being tested to be one of the main areas of risk, but what are the things we might not be thinking about that we need to be aware of?

TarikB75

Great question. Those trees will certainly provide a bit of debris, but they will also help to absorb some of the rainfall and take some of the hit for the winds. As opposed to the winds hitting the buildings (or you!). Your biggest risk will come from the complacency of people. 50 years is a long time for people to

forget the potential risks. Pay attention to the debris and the expected rainfall.

IT'S A GREAT DAY FOR ANTHROPOLOGY!

Dumb Question: will a hurricane effect the start of the 2017 football season?

Better question: Is there any record or history of native Americans dealing with hurricane? I've always been curious to how the tribes along the coast handled massive storms. I know freak out the second the A/C cuts off and it's 100 degrees. I am just curious to how the prepared for storms and if they had any idea of them coming.

jwil191

Hahahaha, I have to answer this just because! To your dumb question - it sure might - but I hope not! And to your better question - this is an awesome question that I actually know very little about. Right now, we are working with some Native American tribes and their relationships with sea level rise and the loss of their coastal cultural resources and cemeteries. I'll make sure to bring this up with them because it is a cool question. I know some of the changes in the sky noticed before a bad storm (cirrus clouds about 24 hours before, for example) have been used since Aristotle in his Meteorology manuscript. I imagine they had all sorts of cool atmospheric tells. Thanks for the cool question (and sorry I don't have a better answer).

Maybe it's just a random probability thing, but why hasn't there been a major hurricane landfall since 2005? Every year when hurricane season starts up again, the news outlets like to bring up that a Cat. 3 or higher hurricane hasn't made landfall since Wilma. It seems like rising ocean temperatures would have increased both the average intensity of hurricanes and the likelihood of a strong storm making landfall.

EDIT: Ok, so I probably should clarify: the only criterion for a major hurricane is being Cat. 3 or higher. Not every catastrophic storm is a major hurricane, e.g. Ike, Gustav, Sandy, etc.

lowenergy_bitch

A lot of the other comments have brought up the idea of a "major" event and how to define it, so I'll leave that alone. What I will focus on is the "lull" of activity in the North Atlantic over the last decade. Many people look at 2005 as this very impressive season (and it was) and since we haven't had any summers with that many storms since, people think we have had a reduction in activity. Maybe in the North Atlantic, but not the Pacific. Over the last few years, the Pacific has seen its fair share of terrible events (huge, record breakers in size and intensity). This could be attributed to the El Niño, La Niña thing. Ever heard of it? When the Pacific gets nice and hot (El), they get a bunch of typhoons (hurricanes) but we get less because it causes the winds to get choppy (increased shear) over the North Atlantic. When it switches to a cold Pacific (La), they get less and things calm down by us, and we get more. This is what we are moving into now. We saw fewer events because the conditions weren't prime. That won't last forever and is actively changing to a more "perfect storm" kind of environment right now (hot temps, high water vapor, weak shear, and lots of pop up thunderstorms - seeds for hurricanes). These next few years, I think, will change the recent lack of a major landfall.

How much does it really matter that there's no official head of FEMA at the start of H season? I would think FEMA people know what to do.

Boothecus

That depends, how important is it to have someone organize thousands of people with millions of dollars? They need a head. Immediately. Someone with experience. Someone who can organize, delegate, and make important, difficult decisions. Sorry, can you tell how I feel about this one? :)

As far as extreme weather goes, was the massive flooding in the Baton Rouge area last year truly a once every 1000 years occurrance, or is it indicative of what south Louisiana and other coastal areas can regularly expect if climate change is ignored?

VinylJunkieM

This is a stellar question and I was truly hoping someone would ask. To bring snakespm into the convo too, yes, March 2016 was considered a pretty epic flood - and the rivers were higher than they had been in the known record. Then August came. And March seemed like a baby storm. The "once every 1000 years" statement is loaded with so many caveats. It is correct, yes. It is correct when you specifically consider the amount of rainfall that fell in Watson, Louisiana over a 48 hour period. That amount of rain has a 1 in 1000 probability of occurring. Let me explain that: that means that every year, there is a 1/1000 chance that 36 inches will fall in Watson over a 48 hour period. It does not mean it will be another 1000 years before we see it again. It just means it is very rare. Now, something even more important is that the value we had for Watson was reported by a citizen scientist. That does not mean it is not valid! It just means that it needs to be taken with caution. It is not a national weather service station (the nearest one is closer to Denham Springs and the rain gauge gave out the day of the storm - figures!). No where else do we see rainfall totals that high. Every other station had values closer to the 1 in 100 year event. Only Watson matched the 1 in 1000 year event (and I ran the statistics to verify this number). The most important thing about this: people in Louisiana should always be prepared for this type of flooding. As we move into the future, we continuously change the landscape, removing more trees and vegetation and replace with parking lots, etc. (don't get me wrong, I love progress, but the fact remains). We change the surface and we change the way the rivers flood. Also, in these years with the warmest temperatures on record, we evaporate a lot of water into the air. This provides a lot of fuel (which is essentially what caused that storm in August to just keeeeeeep raining). I do believe we will see events with high precipitation totals more often into the future because of this water vapor issue.

Dr. Trepanier,

What are your thoughts on the disparity in accuracy between the European (ECMFW) and American (GFS) models for projecting trajectory?

adenovato

Thanks for your question. Each of these models is better in some respects than in others. I think those relying most on physics with some influence from historical climatology are those most suited to use. I recently saw a talk by Kerry Emanuel about this very thing. His thoughts are to switch to solely physics based models. He was very convincing. I would say you should use those that have a historical accuracy for your area.

Is there concern amongst those studying hurricanes about potential budget cuts to NOAA and NASA's Earth Science division? What technology do you rely upon from these organizations? Are there any alternative sources (e.g. other countries or private satellites) for this data?

shiruken

There is a major concern amongst us scientists. Almost all of our data come from those two sources. It is quite terrifying, actually, that we might not have access anymore. Without it, finding alternative sources becomes incredibly expensive - so much so that the average scientist will never be able to acquire it without some type of external funding (and we see where the government is going on this front, also). Whenever possible, lobby for keeping those satellites. Without it, we will see greater losses from weather events because people will not be able to see them coming. That is the major reason we see such a small death toll from events in our country.

Thanks for the AMA! How has global climate change impacted the rate and intensity of hurricanes across the globe?

nowtayneicangetinto

Great question - and I've answered it in some fashion or another to other questions above. I spent more on the frequency before, so I'll spend more on the intensity here. Hurricanes function like heat engines. A warm surface with cold air aloft sets up a pressure gradient that will begin the inflow of air. If the conditions are right, that system will continue to grow and intensify. In a changing climate, if just the surface warms , and thus, the gradient gets steeper, the system should become more intense (more air going up, more condensation, more clouds, more rain, worse hurricane). If we warm everything, though, including the air aloft, it might not affect the intensity all that much. In my research, the events of the highest intensities (wind speeds) today are more intense than their analogs of the past.

Do you think extreme weather (or weather in general) is sometimes hard to predict because the science hasn't caught up to it yet or is it possible for there to be a randomness element to weather patterns?

quedas

Great question. I have my students think though this all the time. Is it possible to predict? Or is there an inherent chaos to the situation? People usually start with - we can absolutely predict, we just haven't figured it out, and typically end with less confidence on the matter. It is certainly possible that there is a randomness. Have you ever heard of chaos theory? Pretty cool stuff (very heady - but fun to think about). I think it is possible (albeit, far off) for us to get very close to accurately predicting day to day weather. I don't think it will ever be possible for us to know it exactly. This is due to the "butterfly effect". Not the movie - but the Lorenz butterfly effect. Since we can never know how people will interact with the environment (and thus, cause air to move) we can never know every possible way the atmosphere will be impacted. Fun to think about this. Thanks for the question!

Probably not the best question you'll see today, but how does this year's hurricane season look?

MikuJess

It's going to be more active than over the last few years. The Pacific is switching to a La Niña. Means less for them and more for us. We have been in the opposite for the last few years. I think this season, and more particularly, next season, will be quite active.

Hi, Savannah GA checking in: we went through Hurricane Matthew last year.

We decided to stay in our home in order to defend it from looters and also because we had concerns

of one or two particular trees potentially falling on our house, and we wanted to be here to mitigate as much water (rain) damage as we could. We are on high ground here, so storm sturge was a distant worry.

My question is: we were very grateful to have running water and gas still functional in our home (of course we lost electricity for several days). We could heat water and food on the stove and we could flush toilets. Others were not as lucky. What has to happen in a hurricane to lose gas (or water)? Why were we spared when others weren't?

I will take your answers into consideration of leaving the city if we are faced with another hurricane. Thank you!

dragonfliesloveme

Ooh, good question. First, the loss of any utility is greatly dependent upon the infrastructure of the city and the way the event is (how much rain, wind, storm surge, angle of landfall, etc.). I'm glad you were spared, but you can never know if that same will happen in the next event (and I would say, statistically speaking, you are probably on the world's list for losing power next time). Most people do, so those that don't are quite lucky. Your transformer, gas line, water line, etc. must just be in a slightly protected area (for that particular event). Coming from another angle, you might not be so lucky. Doest this make sense? Never rely on your experience from one to get you through the next. Treat each storm differently and monitor the conditions when you decide to evacuate.

I grew up on the central East Coast of Florida. The whole time I was growing up we'd always been told that the gulf stream was the reason that hurricanes virtually always either went into the Gulf of Mexico or up the US coast - and never through the middle of Florida.

There have been a couple of exceptions, but it seems to generally hold. Or is it just luck & chance to date?

DonLaFontainesGhost

It holds, mostly. It is a combination of the Gulf Stream, and maybe more importantly, the location of the Bermuda High. For example, if the BH is lower and closer to Bermuda and Florida, the events will stay lower and head into the Gulf. If it is farther north and more into the central Atlantic, the events are able to stay east of Florida and move north. The Gulf stream helps to keep them from actually making landfall on the east coast of Florida and Georgia, but the lack of a pressure system to push it west is the real reason you don't get a lot of landfalls.

Is climate change affecting the Bermuda High? Is this changing where we're seeing the largest storms land (or will we see changes in the future)?

Also, I am a female environmental geography student at a University of Wisconsin state school, and I'm wondering what you've experienced in terms of sexism in academia over the years, especially since becoming an assistant professor.

Thank you!

bunny-hill

I definitely have to respond to this one! I am a UW-Oshkosh alum (2007) and grew up in Milwaukee. To your first question: we are seeing changes to the Bermuda High associated with a weakening temperature gradient between the middle and high latitudes and the type of relationship that has on our

semi-permanent high pressure areas. It will continue to move west and east and north and south, though. Just maybe in slightly different ways and in a different timing. I think we will see large (extreme) storms make landfall in these next upcoming seasons due to the change to the El Niño Southern Oscillation in the Pacific (you can look to a response above for more info on this).

For your second question - it is tough to answer. Sexism exists, sure. It exists from males and from females. In reality, you will always have someone who thinks you can't do something for some reason, be it, because you are a female or because you come from a certain background, or whatever the case may be. My advice to you: rise above it. Always. Know who you are and what you are capable of. If someone is sexist, let them be that way and do not let it affect you. They win if it does. Be you and let them be them. You can't change how other people behave, but you can change how you react. You'll do great things, often in spite of those naysayers. I'm in atmospheric science and many meetings are 90% male. No big deal. They notice what I have to say. My being female might mean I have stellar stiletto heals on, but it also means I can be an informed, detail oriented scientist (with fabulous shoes). Again, be you. Other people's sexism only affects you if you let it. All that being said, us women are starting to really dominate in STEM fields. I'm excited for you to be one of us!

Question:

As technology advances, are we going to be able manipulate natural disasters (Hurricanes and Tornadoes specifically) to the point of deletion?

1800BOTLANE

Never, in my opinion. And why would we want to? The atmosphere functions as a mass balance of inputs and outputs. If we remove those types of events, that energy transfer will manifest elsewhere. At least this way, we know how it is manifested (mostly). We just need to figure out how to best protect ourselves.

why do you think the atlantic multidecadal oscillation have little corelation with the occurence of major hurricanes considering that warmer sea surface temperature should theoretically lead to more violent storms and vice versa?

momoliciously

Great question. The AMO is an oscillation in sea surface temperature. Hurricanes need warm water, sure, but they also need a lot of other ingredients to form. The signal of the AMO gets masked because we have so many other variables influencing how many major events we have.

If the Arctic icecap does how a record breaking low this summer, do you think the cold fresh water in the Northern oceans will create a larger disparity of temperatures between the tropics and temperate zones and lead to more potent hurricanes?

circular_file

Cool question. (no pun intended). I think that having the Arctic icecap at a record low will do a lot of things to our environment. The relationship to hurricanes is tougher to see, but I think you will see a weaker temperature gradient between the high and middle latitudes. This will cause the jet stream to wiggle more and bring large changes in temperature and moisture over short time periods (meaning, it'll create some impressive changes in the weather and that means impressive storms during the transition). These types of events (midlatitude cyclones) have the capacity to interact with hurricanes

(like with Hurricane Sandy in 2012). We might see changes to hurricanes in this way - more midlatitude events merging with tropical events. That is, maybe more Sandys.

Could you explain why the east coast was hit by a massive hurricane (Sandy) despite that most hurricane hit areas of warmer waters? And can we expect more in the future?

lostcollegehuman303

Most hurricanes do hit where there are warm waters - those that are particularly more intense. Sandy, while large, was quite low in wind speed. This doesn't take away from the disaster, of course. Most hurricanes don't track up the eastern sea board for two reasons: 1. it is too cold, and 2. the bermuda high pressure area blocks them from coming north. As our seas warm up in the north Atlantic, we now have the ability to form and maintain these events. I believe you will see more in the future along the east coast (and my research supports this).

Thanks for doing this Jill. What are the factors that seem to protect Georgia from getting an actual landfall from a hurricane. Matthew came close last year, but it has been decades since Georgia has seen an actual landfall.

newsjunkee

Great question - some colleagues and myself are considering writing a paper about Georgia, actually, and the lack of landfalls. It is quite unique! While I don't know exactly (yet), I have a few hypotheses: first - the location of the bermuda high often keeps events closer to the tropics and helps to steer them into the Gulf of Mexico (and thus, away from Georgia). Second, for those that are able to stay to the east of Florida and start moving north, there is rarely something to push that event the small kick to the west to actually make landfall in Georgia. Usually, the Bermuda high will direct it north (and maybe out to sea) but up the seaboard and make landfall in the first place that land sticks out (the Carolinas). With changes to the Bermuda High, we might see more Georgia landfalls.

Do you write your own software for research? What technologies are you using the most?

gsemarre

No, but I write my own syntax code. I use the R program. It is open-source. Steep learning curve, but very powerful. Lots of online help, too!

How come the city of Corpus Christi, Tx doesn't get hit as much as city's like Huston Texas?

SomeN0Body

The location of other pressure zones and the Gulf stream help to move events into the northern Gulf and less toward South Texas.

The MOSE Project in Venice Italy is their fix to the city constantly flooding from higher and higher tides due to climate change. Do you think this is a viable solution to this issue, and will more and more cities be adopting plans to mitigate extreme high tides, or storm surges?

grinder0909

I think it is as viable solution as one can get. The real solution would be to move people away - and we all know this isn't going to happen. I think it will protect as best as possible with the technology that currently exists. And yes, cities around the world are beginning to adopt plans to mitigate storm surges. Parts of TX have funneled millions of dollars for this very thing.

I live in Florida and it seems every year the news forecasts it to be the worst hurricane season ever. Is this just hype built up by the media or is there evidence that does dictate it to be worse every year?

Cristal_rage

No, not every season will be the worst hurricane season ever. Media has a tendency to "cry wolf" a bit too much. We go through periods of high activity and those with low. We have had some low years the last couple of seasons and this is currently changing as we move into a more La Niña like state of the Pacific. This means it is colder in the Pacific and our winds stay calm over the Atlantic - hurricanes like calm winds because they can form and get a nice structure when they aren't being pulled apart. Be prepared always and keep a watchful eye on the next few years.

Hey! I'm going to be a geology student at FSU starting in the fall and I am SUPER excited! I've always wanted to do geology my whole life and now I finally get to live my dream. Anything I should know or read before I start my major? Any suggestions, advice, or anything for an incoming freshman?

kaanfight

Well, I'm a geographer, not a geologist. I took a Geology class at FSU (my grad degrees are from there!). Don't break the rocks ;)

Good luck!

Hurricanes (and other tropical cyclones) tend to form in the tropical waters of the Indian, North Pacific, South Pacific, and North Atlantic oceans very frequently. But they rarely ever form in the tropical South Atlantic ocean. Why is this? Why are conditions unfavorable there, and what causes those unfavorable conditions?

pHScale

Good question. It is too cold and too choppy. Both conditions that hurricanes don't do well in. We've seen 2 form there in the known record. Freaked everyone out :)

When do you believe the current tropic lull we are in will end? Are any of your models or extrapolations pointing towards an indicators that we could have another year like 2005, either now or the near future?

Zargoza

This year. We have been moving out of an El Niño and into a La Niña. I'm running out of time, but see my responses to similar questions above! Thanks for your interest!

If climate change ends up interrupting warm/cold ocean currents (particularly the gulf stream), will that have any effect on how hurricanes can travel across the oceans?

If the gulf stream went cold, would/could that have enough of an effect on the evaporation/adiabatic/latent heat action that fuels hurricanes to make NA actually safer?

walrusbot

We think the younger dryas period (a climate cooling 14,000 years ago or so) may have happened because too much fresh water went into the North Atlantic and shut down the thermohaline conveyor belt (the Gulf stream is part of this). So, yes, if the gulf stream was influenced and cooled, some of that heat would be removed and the fuel would be removed. That would certainly influence hurricanes. Great thought question!

Hey - I live just a mile or two away from campus, so cool to see you here! Thanks for participating.

With the pleasantries out of the way, living in South Louisiana all of my life I am very very aware of what hurricanes can do. My family lost our camp in Andrew, my grandparents had their house split by a tree in Lilly, I lived without electricity for a month for Gustav; not to mention what Rita and Katrina did - and these are all storms in my lifetime.

What I'm actually here to ask is not how dangerous these storms are - but more important to me - how dangerous it is that our leaders ignore the climate science that is predicting more and stronger storms. How do you deal with that and how do you try to convince those who can effect change to actually, you know, do it?

thatgibbyguy

This is a great question and is the last one I'll have time to answer. Might as well end it with a controversial one :) It is extremely dangerous that our leaders are ignoring climate science. Ignoring the fact that climate is changing is one thing (silly as we no longer have mammoths on our planet so the change is real), but to ignore the benefits of understanding the climate is something else entirely. Here in the U.S., we boast that our weather events kill only small numbers of people, where elsewhere, the numbers are far higher. Does the administration realize that this reduced loss of life is completely dependent on climate scientists and their abilities to better prepare citizens with the information they discover with their scientific endeavors? It sure doesn't seem so. Ultimately, scientists like myself are striving to continue the pursuit of scientific knowledge. If we continue moving forward, and if the public arena supports us and agrees with the necessities of protecting cities against the weather, the leaders will follow suit. The public has more power than they realize. Leaders typically have to listen to the masses. Keep striving for science, and hopefully, they will come to see the benefits.