

DOPE LABS

Transcript of Lab 022 ____

Zakiya: There have been three things that I've seen tumbling down the timeline in the past couple of days. First is the Ivy Park and Adidas collaboration.

Titi: Yes. Have you gotten anything? Were you able to?

Zakiya: No. I thought I could at least get a pair of socks.

Titi: I was able to snag a sweatshirt, which I was shocked.

Zakiya: Why did you buy a sweater? You know, Beyonce, is going to send you a box.

Titi: I know. I'm just still waiting for it. I don't know what's taking so long.

Zakiya: Well.

Titi: June Ambrose got hers.

Zakiya: June Ambrose got hers and...

Titi: Slayed that whole try-on. I was like, this is the best Beyonce Ivy Park, try on of all time. I'll link to it in the show notes because it's just amazing.

Zakiya: It is. What's the second thing?

Titi: The second thing is those things on Instagram that you can say shows you like what Disney character are you? What, Harry Potter house are you? What's your next vacation? Everybody's been doing them, OK? I've done probably like 50.

Zakiya: 50??

Titi: At least.

Zakiya: Man, that's a lot. I don't want to do them because I don't want anybody to assign me the wrong character. And then I'm gonna be upset. Can you do it over again?

Titi: You could do it over again.

Zakiya: And decide when you're gonna record?

Titi: You can record and then delete it.

Zakiya: I can't delete the data.

Titi: I'm Titi.

Zakiya: And I'm Zakiya.

Titi: And from Spotify studios, this is Dope Labs.

Titi: What's the third thing?

Zakiya: Third thing is every thing fire related in Australia.

Titi: Oh, my gosh. Yes.

Zakiya: Have you seen the videos of the animals running from the fire and people helping them? It is awful.

Titi: Is awful. All the destruction that is causing there, people that have died. There's thousands of homes that have been lost.

Zakiya: Yeah,.

Titi: It's just awful to see.

Zakiya: And it taught me, like even looking at some of the information that's being spread, I realized I don't know enough about A, australia and B, fire.

Titi: Yeah.

Zakiya: And so I think we should jump into that.

Titi: I think so, too, because there's a lot to be learned.

Zakiya: So this episode we're talking about.

Both: The Australian fires.

Zakiya: We're gonna give you a broad overview of what's been happening, what caused the fires and what we need to think about to prevent things like this happening in the future.

Titi: So let's get into the recitation.

Zakiya: All right. What do we know, Titi? I know there was a lot of destruction. There were a lot of fires. I don't know if there was one single fire or multiple fires, but I know that it was mass fire destruction.

Titi: Another thing that we do know is that a lot of scientists are linking these fires to climate change and the National Oceanic and Atmospheric Administration or NOAA, they just released their findings saying that 2019 was the second hottest year on record.

And they have a long record.

Titi: Exactly. And so 2019 was only second to 2016. So in the last five years, we've put up the hottest,.

Zakiya: The two hottest years

Titi: The two hottest years on record.

Zakiya: But what do we want to know?

Titi: I want to know how these fires actually started, because there are a number of ways that fires can start.

Zakiya: Right.

Titi: But I want to know who is the culprit?

Zakiya: Titi wants to know who did it?

Titi: Yes. Find that person. Or it could be other thing that could might not be a person. It could be.

Zakiya: Other factors.

Titi: Other factors.

Zakiya: I think the other thing that I want to know is exactly like what are the links between fire and climate change? You know, I want to know what that link looks like. What are the variables that can lead to more instances of fires like this that are out of control because the fire is a new.

Titi: No.

Zakiya: So what led to this mass destruction and has this been going on and it just got picked up in the news or like when did this start?

Titi: That's a very good question. And I want to know what we should expect in the future. This seems to be something that's not just happening in Australia,.

Zakiya: Right?

Titi: It's happening in other parts of the world. And I want to know what we should be expecting now that this is becoming a part of our normal, everyday lives. Fires.

Zakiya: All right. I think we're ready to jump into the dissection.

Titi: So to help us out, we called on Dr Sarah Perkins-Kirkpatrick.

Dr. Perkins-Kirkpatrick: So my name is Dr Sarah Perkins Kirkpatrick. I'm a research fellow at the University of New South Wales in Sydney, and I specialize in extreme events and heatwaves, so I analyze how they've changed over the observational record.

Zakiya: Dr Perkins Kirkpatrick says the fires occurring in Australia right now are the worst in the continent's historical record.

Dr. Perkins-Kirkpatrick: We have just had our worst bushfire event on record. I was going to say season, but this season isn't even over yet.

Zakiya: These fires have been blazing since September and many of them have been in forest away from major cities. But now the country has seen a rapid spread since December 2019.

Titi: And what we're talking about is almost 200 fires burning at the same time. These fires are eating up everything in their path.

Dr. Perkins-Kirkpatrick: We haven't seen fires of this ferocity really ever in the observational record here.

Zakiya: In the past few weeks, the Australian government has updated its report of the area that is either currently burning or has been burned. It's now at 17 million hectares across all the territories of Australia.

Titi: I don't know what a hectare is.

Zakiya: Don't even worry about it. From a hectare to an acre to a mile, don't worry. You know, I got. So I did the conversion for you. And 17 million hectares is basically the size of Florida. Can you imagine?

Titi: No. That is insane. So what caused these fires? What started them.

Dr. Perkins-Kirkpatrick: For fires We actually need an ignition. You can have the worst fire weather ever, but it doesn't mean anything, really, if the fire isn't ignited.

Titi: So there are two primary culprits for fires and how they start. One of them could be a natural event, like a lightning strike that ignites a dry bush or plant and then the fire starts.

Dr. Perkins-Kirkpatrick: It's been really dry. We've had three of our lowest years on record in terms of rainfall over eastern Australia. We also had our driest year on record last year and that feeds into fuel. So the drier it is, the more the vegetation dries out and consequently becomes fuel to a fire.

Titi: The other possibility is a manmade ignition like arson, where somebody intentionally sets a fire.

Dr. Perkins-Kirkpatrick: So this could be either people going out and deliberately lighting fires for God knows what reason or even throwing a cigaret butt out the car window or leaving some rubbish which can then trap the sun that ignite the fire.

Zakiya: And this is all really awful to think about, you know.

Titi: Yeah,.

Zakiya: But the thing to remember is that fire is nothing new in Australia.

Dr. Perkins-Kirkpatrick: The indigenous people have been using fire management practices for tens of thousands of years. So it's not like it's anything new here.

Titi: Aboriginal fire management consisted of deliberately setting fires to get rid of some of the dry vegetation that could lead to spontaneous fires in the future. This practice is called controlled burning. Modern day fire agencies adopted these practices from the indigenous people of Australia.

Zakiya: And I think this is really this is a really clever strategy. If, you know, there is an issue with things catching on fire in a certain period, why not preemptively burn? So you don't have all this dry fuel,.

Titi: Right. That could catch fire at any moment from anything.

Zakiya: Right. In Australia actually has a fire season.

Dr. Perkins-Kirkpatrick: So the fire season usually follows the warmer weather that follows summer in the southern part of Australia. And it's basically when we see the bushfires occur. So you can't get bushfires in winter. It's not impossible, but we tend to see much more of them and then generally of higher intensity within the warmer seasons simply because it's hotter and temperature is a major component to fire weather.

Titi: But what's happening in Australia this year is unprecedented from other fire seasons for a couple of reasons. First, it's starting earlier,.

Zakiya: Right. Peak fire season is usually late January to February. But remember, these fires have been happening since September. So this is really unexpected and the weather will only get drier from here. Second is the intensity of fire.

Dr. Perkins-Kirkpatrick: They were burning at a intensities, you know, upwards of six, seven hundred degrees centigrade.

Titi: That's up to 1200 degrees Fahrenheit.

Zakiya: That's wild I don't cook above 500. What it that like? What does that even feel like?

Titi: You would never know.

Zakiya: I don't want to know.

Titi: You would never know.

Dr. Perkins-Kirkpatrick: These fires they moved extremely quickly. They have killed somewhere between half a billion to a billion animals we've lost g.osh, I think 25 to 30 people, thousands of homes have been destroyed.

Zakiya: I think the last number I saw as there were 20 is at least 27 people dead. And that's confirmed. Right. There are people that are missing that, you know, you can't get in touch with because people's homes have burned. They've had to quickly evacuate.

Titi: Then I'm sure it's just hard to make a phone call. Right. Have it go through because of all of that.

Zakiya: An emergency. Yeah. The other thing to consider is Australia's really unique ecosystem. There are many species that are only found in Australia. So this raging fire threatens the very existence of some organisms. Now we're talking about the possibility of extinction.

Titi: The other thing to consider is that this number one billion animals is a running estimate of those lost in the fire right now. we're not capturing the downstream effect. There will be more death when you consider those animals who have lost their natural habitats with destroyed ecosystems. These fires have wiped out what they normally eat, where they live and are protected from predators. There's so much to consider.

Dr. Perkins-Kirkpatrick: Also, there's been lots of studies that have shown the length of the fire season in southeast Australia is increasing in length.

Zakiya: So what we're really saying here is that.

Titi: There are levels to this.

Zakiya: right! First of all, we're talking about earlier instances of these fires occurring.

Titi: And then when there is an instance, there is increased intensity.

Zakiya: And now the possibility of even longer periods of conditions that make these fires more likely to occur.

Titi: And that equation means.

Zakiya: More fire. So now that we have an understanding of what's happening in Australia and what has contributed to these fires, when we come back, we'll talk about how climate and fire season are both changing.

Titi: And we're back and it's time to get to the root of this climate change. But before we jump into this, there's a couple of things that we really want to make clear, and that's what is climate change. And the difference between climate and weather,.

Zakiya: Greenhouse gases trapped in the earth's atmosphere causes climate change. So as sunlight comes down on the earth, some of it is absorbed, some of it is reflected back in, some of it gets trapped in the earth's atmosphere, Because of these greenhouse gases. This causes the earth to warm.

Titi: Think of it like a blanket. The more dense the blanket, the warmer you are, right? Well, because of our behavior on earth with fossil fuels, we're knitting ourselves a blanket made of bricks.

Zakiya: Of all the greenhouse gases, though, carbon dioxide is the worst.

Titi: Carbon dioxide is released through natural processes such as respiration and volcanic eruptions. But through human activities such as deforestation, land use changes and burning fossil fuels. The amount of carbon dioxide in the atmosphere has increased by more than a third since the Industrial Revolution in the 1760s.

Zakiya: That is crazy. I knew it was bad, but I dont think I knew it was increased by more than a third.

Titi: It's really crazy because it's happening so fast.

Zakiya: Yeah, I think one of the main things I see people doing wrong is confusing weather and climate change or weather and climate.

Titi: Yes, and that is. those two things are very different. Weather is a short term event that occurs in the section of the earth's atmosphere that is closest to the ground.

Zakiya: The troposphere.

Titi: Yes. And weather is different depending on where you are. So the weather here in my town could be different from where Zakiya lives in her town, which isn't very far. It's only about 25 minutes away. And the factors that affect weather are things like air pressure, wind, humidity and things like that.

Zakiya: Climate, on the other hand, captures long term changes. So when scientists talk about climate, they are looking at trends over a longer period of time and over larger regions. When we talk about climate change, we're saying the overall trend for a specific region of the world or the world in general is trending in a certain way.

Titi: So if you have a record heat wave or record snowfall in your state, that's the weather. And that will be averaged out with the rest of the weather for the year to provide a data point for the overall climate for a region.

Dr. Perkins-Kirkpatrick: Another way of looking at it is climate is your wardrobe. Weather is the outfit you put on today. You know, you've got a broad general set of outfits that that suit who you are. But what you pick that day might or might not fit into that. You know, that generalized range that you have.

Zakiya: Australia has experience highly variable weather over the last few years. And that's one of the ways scientists have determined the climate is changing. What they do is look at extreme weather events like heat waves and they compare those events against what would be expected with the given climate.

Dr. Perkins-Kirkpatrick: And what we're starting to see now is more of those extremes occur more often and they're actually starting to break records and therefore break that envelope of climate that we've measured from previous weather. And that's how we can detect the changing climate.

Titi: So as the climate continues to change, what should we expect to see in Australia?

So in terms of climate change, we know that we're going to see an increase in temperature and that's what we've seen over Australia already. So even though we've only seen an increase of average temperature of about 1 degrees Celsius, which doesn't sound like a lot to most people, that actually drastically increases the number of heatwaves we say in extreme temperature events that we see. And hot weather is a key ingredient to bushfire weather.

Zakiya: This is another case of the butterfly effect. While it may seem great to have these bursts of extreme weather events and I'm looking at you DC with those summer days in January,.

Titi: It was lovely.

Zakiya: We're seeing this happen more and more often. Our frequency is increasing.

Titi: Yes, and this is just like contractions when somebody is about to have a baby. So as those contractions become more and more intense and they get closer and closer together, that baby coming out.

Zakiya: And that baby is warm air.

Dr. Perkins-Kirkpatrick: And also warmer air can hold more moisture. So for every degree Celsius, temperatures rise, approximately seven per cent more moisture can be stored in the atmosphere and it doesn't have to rain out.

Zakiya: So now we're talking about warmer air and no relief from that warmer air because your atmosphere just holds onto the water, says I could take a little more water. You know, normally if it can't hold more water, it will rain.

Dr. Perkins-Kirkpatrick: And eventually it will right out but it can just sit there and, you know, because it can hold more moisture, there's more evaporation going on and that can exacerbate droughts and therefore bushfire weather, too.

Zakiya: So not only is it warmer is warmer, it is not raining and is taking water away from.

Titi: From the vegetation,.

Zakiya: From the plants and.

Titi: Creating basically starter fuel for these fires.

Zakiya: It's a duraflame.

Dr. Perkins-Kirkpatrick: So if you look at maps of last year of Australia, it was our hottest year and our driest year on record. And a lot of that area or some of that area is where we've had these really bad bushfires, especially in the south east.

Titi: Knowing this, knowing that the climate is continuing to change, we can predict that what's happening in Australia isn't just a blip on the radar. This is the new landscape,.

Dr. Perkins-Kirkpatrick: These fires that we've seen this season will become much more commonplace when the earth is warmed by about two and two and a half degrees Celsius.

Zakiya: Here's the thing to remember climate change is global, so Australia isn't the only place likely to be affected this way.

Titi: And we've already seen that.

Dr. Perkins-Kirkpatrick: This can happen anywhere else, especially Mediterranean climate. So think the climate of California, even with wildfires in Canada, certain parts of Europe, weather like this where it's hotter and drier, is projected for the future, which consequently can equal a lot

more bushfires. So on top of that, with the bushfires, we're going to expect more heatwaves. There's a direct relationship between rises in global average temperature and the frequency and duration of heatwaves.

Zakiya: So what can we do to help mitigate the effects of a changing climate? Dr Perkins Kirkpatrick gave us two big things that think about. One of them is planning ahead.

Dr. Perkins-Kirkpatrick: So we need to work out as communities how we can best adapt to the conditions that lie ahead as well. So what resources do we need to throw at an emergency when it occurs? Are we best prepared to handle higher hospital missions during a heatwave, for example, or do we have enough firefighters When a bushfire does occur,? we really need to be forward thinking and forward planning as a society in those ways to.

Titi: the other way we can work against climate change is to start at home with us.

Dr. Perkins-Kirkpatrick: We all need to collectively work together to reduce our emissions. So we need to put pressure on our governments. We also need to do our bit. So choose wisely with the products that you buy. Choose wisely with what you put in your mouth. Choose wisely with how you buy and use your energy. Try and use green energy where possible if you can grow some food at home, even if it's just herbs. Use public transport. These all sounds like really basic things, and I know a lot of people think "what can I do as a person, as just one individual". But if we all do a little bit, that's better than doing nothing at all.

Zakiya: This is a great point and is really eye opening.

Titi: It really is, because, I mean, we all feel like we know what climate change is and what it does. But this really kind of like open up inside the light on a whole area of climate change that some of us in the United States don't really think about.

Zakiya: And this is not this is nothing new. We have to do something different. You can think back to the fires in California in 2016. Same thing. Climate related. Right. And today, we only put fires under the magnifying glass. But if you think about it, there is a flip side to that, too. When we talk about extreme events, if a fire is coming through and burning up all your vegetation, there is no root system to hold anything in place in the ground. And we saw this in California after that fire season in 2016 and 2017, there are mudslides.

Titi: Right. So what the roots do in the plant systems is that they hold the ground together. They're not there just for no reason. They help this earth stay together.

Zakiya: Yes. Now we're crumbling. Or when you have excessive rains later, because you've held all this moisture, when you when your atmosphere finally does rain. It's a lot of rain in the ground's really dry and everything's dead. There's nothing to absorb that water.

Titi: Exactly. That's what's happened in my plant currently. I haven't watered in a while and I tried to put water in and it just came out the bottom.

Zakiya: I think the other thing that we didn't get a chance to touch on today in this interview is about the who else is affected. It's easy to say, oh, that's happening in Australia, but it's all of us. OK, because there are even reports that smoke from the fires in Australia has drifted over to South America.

Titi: South America?

Zakiya: Do you below us? Yes. We all have to work together collectively to stop these types of events when they happen because we all feel the downstream effects.

Titi: Exactly. It just goes back to what we have said in a number of labs. It's about being a global citizen.

Zakiya: That's right.

Titi: And doing your part for the overall good for everyone on this planet.

Zakiya: You know, this is something that we've talked about, emergency preparedness and readiness. Yes. We need to rethink what that looks like.

Titi: Absolutely. These natural disasters are becoming more frequent. We have to know ways to save ourselves when these things happen, because the fires in Australia, they they happened They started so quickly and spread so rapidly. That a lot of people just didn't have the time to get out.

Zakiya: And to prepare. So let's start looking ahead. Let's start thinking different.

Titi: That's it for Lab 22. Don't forget to check out our Web site for a cheat sheet on today's episode. You can find it and sign up for our newsletter at dopelabspodcast.com. Also, we love hearing from you. What do you think about today's lab? What are your ideas for future labs? Our number is 2 0 2 5 6 7 7 0 2 8.

Zakiya: You can also find us on Twitter and Instagram @DopeLabspodcast. Titi is on Twitter at @dr_tsho

Titi: And you can find Zakiya @zsaidso.

Zakiya: follow us on Spotify or wherever you listen to podcasts. Special thanks to our guests, Dr Sarah Perkins Kirkpatrick. We have some links to her work and some resources she provided. If you want to learn more about what's happening.

Titi: And some links on how you can help with the effort in Australia.

Zakiya: This episode of Dope Labs is produced by Jenny Radelet, Master of WaveRunner studios and Elizabeth Nakano, Mixing and Sound Design by Hannis Brown. Special thanks to Masako Fukui.

Titi: Original theme music is by Taka Yasuzawa and Alex Sugiura with additional music by Elijah LX Harvey.

Zakiya: Dope Labs is a production of Spotify Studios and MegaOhm Media Group and is executive produced by US.

Titi: Titi Shodiya.

Zakiya: And Zakiya Whatley.

Zakiya: You say toboggan or hat?

Titi: I say winter hat,.

Zakiya: Winter hat? I've always known these little knit heads as toboggans. I ask somebody that and they told me I was one hundred for calling it a toboggan.

Titi: My mother asked me to buy her hat while we were in Michigan. She said it's too cold outside for ladies hats. I was like, I don't know what a lady hat is.

Zakiya: What?

Titi: Whata a lady hat?

Zakiya: Its a style, a fashion hat that doesn't cover the ears. Everybody knows that.

Titi: So you and my mother are on the same page.