

# Birchwood



## Climate change and what you can do about it: a discussion with Danny Blair



Meet Danny Blair – Manitoba’s climate-change guru.

Blair is a Co-Director of the Prairie Climate Centre at the University of Winnipeg, and a Professor in the Department of Geography, where he has been teaching courses related to climate and weather since 1987. At the Prairie Climate Centre, he leads the team that provides users of the online Climate Atlas of Canada with high-quality data and visualizations of climate projections for all parts of Canada.

He was the Chair of the Geography Department for seven years, and from 2011 to 2017 served as the Associate Dean and Acting Dean of the Faculty of Science, and was the Acting Principal of the Richardson College for the Environment. From 2004 to 2007, he was the PARC-Manitoba Hydro Climate Change Research Professor at the University of Winnipeg.

His main research interest is climate change in Canada, and especially the Prairie Provinces, and climate variability, natural hazards, and data visualization.

He earned his PhD from the University of Manitoba, and MSc and BSc degrees from the University of Regina.

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### What is global warming and what causes it?

Global warming is the change in temperature on our planet mostly due to human activity, burning fossil fuels emissions and carbon dioxide coming from vehicles.

Did you know that every litre of gas burns just over two kg of CO<sub>2</sub> and goes straight into our atmosphere. If I fill my tank with 40 litres, that is 100 kg of CO<sub>2</sub> going into the atmosphere. Multiply that by the cars around the world and that adds to the quarter of our emissions coming from vehicles.

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## **What is climate change and is it different from global warming?**

The changing temperature is the starting point for climate change. The greenhouse effect is always there. The greenhouse effect has been enhanced. The world would be frozen solid if we did not have a greenhouse effect. The change in temperature around the world will trigger several changes. Change in sea levels, the decline in sea ice, the melting of ice sheets, change and variability in weather that is occurring. Climate change is a more inclusive term.

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## **You and your team created a great interactive online tool called “Climate Atlas of Canada,” for citizens, researchers, businesses, and political leaders to learn more about climate change, specifically in Canada. Please tell us more about this tool.**

In 2015, we created an online interactive tool Climate Atlas to showcase the prairies (Manitoba, Saskatchewan and Alberta). This tool was very quickly converted into the [Climate Atlas of Canada](#) with funding from the provincial and federal governments.

The goal is to educate people about climate change, its importance and the reality of it. The urgency of it and the way to do that and the academic literature if you want somebody to take it seriously. How do we make it relevant to them?

We have tried to localize the information to local climate change embedded in the global change. We use state-of-the-art climate information and focus on where you live. No matter where you live, you can click on the map and it will show you a variety of things, such as the average temperature is expected to change each month and season, precipitation, the number of hot and cold days, and the growing season length.

No matter what line of work you're in, we want to show what the science says about how your world is likely to change. Climate change whether we slow it down or not is going to happen. We can't stop it.

We do have to make this type of information accessible to people no matter what their education level. We've also translated everything to French to make it more accessible. There is a video section that shows stories of optimism and communities that are doing great things. They film stories that give people hope. If that community can do it, why can't we?

Science literacy and lack thereof is also part of the problem. It's difficult to understand. Our goal is to increase the science literacy. Part of the problem, if you don't understand something, you will turn away or dismiss it and less likely to take it seriously. There is a relationship between climate change and the severe weather we are having. A warmer atmosphere has more heat and energy in it.

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## **What does climate change have to do with severe weather, like storms, heat waves, droughts and hurricanes?**

What is the fuel to create great thunderstorms? – heat and water. The enhancement of the moistening of the atmosphere is absolutely changing the frequency of our storms. If you look at the data over a long period of time you will notice there is a very large amount of evidence that rain falls are more intense and storms are more frequent. That is not good news for a lot of people around the world who are in the lines of typhoons, tornadoes and drought.

Drought is exasperated by climate change. The climate has been altered somewhat such that it is more variable. It can rain a lot and not rain for a long period of time. In Manitoba, we are just coming out of that. We had a dry start to the winter and spring. We are very much in a drought situation in the prairies.

Drought and floods are a part of our climate but there is something wrong with the weather. It is more variable than it used to be. This is a symptom of climate change. Climate change is related to extreme weather that includes Canada and Manitoba. We will be having intense rain falls in the coming decades.

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### **What will happen if our global average temperature changes by two to three degrees? What impacts will this have on us?**

Our whole world has warmed up by one degree if you compare it to the last 100 years. If we take the window of preindustrial (end of 1800s) the world has warmed up by one degree. All of the things we have heard about melting ice up north, drought in the prairies and hurricanes. This biodiversity loss adds up to one degree.

We are expected to see an increase of two or three degrees by the end of the century. Unless we do something drastic we'll see a continued rise in the global temperature.

Canada warms up faster than the world because of our geography and where its positioned. If the rest of the world warms up by two degrees than our country will warm up by four degrees.

It seems so long away and that is part of the problem. Most of us can't think that far. But this will effect our kids and their kids. The arctic warms up triple the average. I just published a paper that we wrote with three high school kids at the University of Winnipeg Collegiate and we even had it published in a journal. We looked at how much cold the arctic is losing. Most people think that cold is a bad thing, but in the Arctic, cold is a good thing. Our animals thrive in it. There are really big changes happening now. Winters are a lot warmer and shorter than they used to be.

There is no doubt that the pandemic and the downturn of the economy reduced carbon emissions in the atmosphere by seven per cent, but now they are on the rise again. The emission reduction was really significant in a short period of time. Working from home definitely saves emissions. People working at home are reducing carbon emissions because we are driving to work less.

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### **What is a carbon footprint, and how can we reduce my carbon footprint?**

**The number one thing we can do is to reduce the amount of driving done on a day-to-day basis as it's a large part of our carbon footprint.** Vehicles are essential for most people, but we can overuse them and that includes myself. I find myself using it too often. Leave your car at home when you can.

We have to think about our gasoline consumption and how to be more efficient with it. Gas is really expensive right now. Rethinking or thinking about our transportation needs. People want to take public transport if it is convenient and available. In our city, it is getting better, but there is a lot that can be done to make it more accessible. I hope more people come back to our public transportation system after the pandemic. Ridership is down and it needs to go up.

Heating and cooling of our houses. If you can and this is where government can play a role is helping us invest in more energy efficient houses and requiring energy efficiency. New houses are so big and because they are going to be there for a long time, they need to be energy efficient.

Consumption in general. We are a consumer society and for the most part for the privileged, we have disposable income but there are so many other people in Winnipeg and around the world that has no disposable income. We buy things we do not need and don't last a long time. Try to purchase eco-friendly and sustainable products as much as possible.

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## **What are renewable sources of energy?**

Fossil fuels are not renewable. You burn the oil and it's gone. It takes millions of years to replace that by biological processes. Renewable means its renewable in a short period of time.

Solar panels is a great example of a renewable source of energy. Fort Whyte has solar panels at its centre. They are becoming much more affordable now and cost effective.

Wind is being used a lot more. Water is renewable of course. We could benefit from hydroelectricity. This again is where our government needs to step up and help us move forward with making it affordable and available. It is starting to happen and it's a slow uptick so far.

There is this fear that comes along with it because some of these provinces, such as Alberta, rely heavily on this resource for its jobs and the province relies on that for tax revenues to pay for schools, hospitals, etc. That must change, society has to change with the help of government to make that transition and help our communities transition.

When we switch to a much greener economy, the jobs will switch. It will not happen instantly, but over time. We have to collectively and with the assistance of government and progressive companies that see the opportunities rather than the risks.

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## **The automotive industry is drastically changing, where do you see the future of the automotive industry heading especially when it comes to electric vehicles?**

We as a collective can be part of the solution. In order to solve or reduce the problem of climate change, we need to reduce our fossil fuel emission and burn less gasoline, oil and coal. That is starting to happen, but there is much more that must occur in the coming decades and this has implications for the auto industry. There are so many vehicles across the world and Canada – 25 million passenger vehicles in Canada and 800,000 in Manitoba alone. There is an enormous reliance on these fantastic combustion engines. The reason there are so many on the road is it is such a useful tool but we have overused it in my opinion.

The industry is slowly changing and it needs to go electric. It will not happen overnight. The economics are not there right now for a lot of people. Cars are too expensive for the average person. The hybrids are getting better. There will be large economics drivers that will be pushing us in this direction.

The demand will drive the change. Government has a big role to play in this and they can help us do the right thing and can't be done without policy.

The federal and provincial governments have a really important role in driving and insist on driving the change.

I very often get asked, ***what can I do?***

Vote for people who are proposing what you think needs to get done with the climate. Whether it is Medicare or environmental solutions people in power have to get it. Not everybody gets it at the same level. Every political party has some concern about climate change, but differ in the policies they want to revoke. The auto industry is going to see huge changes in the next 10 years and more. Those vehicles we make now last a long time, we can't insist people to get rid of their gas burning machines overnight it will be a drawn-out process and will occur.

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## **How are our Indigenous communities making a difference when it comes to our environment?**

Indigenous communities understand the relationship that human nature is fractured, and this is not the way it needs to be. We have a lot to learn from their perspectives. There is a facility called [Turtle Lodge](#), David Courchene is a world-renown Elder and shares his perspectives on climate change on our site. They all have wisdom to share with us. We are trying to create an Indigenous version of the atlas right now as we work to respect our indigenous communities and their perspectives.