

# Designing Data

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Opposing Positions on  
Anthropogenic Climate Change

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Opposing Positions on  
Anthropogenic Climate Change

## **IMPRINT**

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## **FOREWORD**

This book was written as a practical part of the bachelor's thesis in the Communication and Media Management course at the Karlsruhe University of Applied Sciences under the supervision of Prof. Anja Grunwald.

The scope of the following controversial discourse in which the 17-year-old Swedish climate activist Greta Thunberg and the current US president Donald Trump face each other is to demonstrate the possibility of manipulating information graphics in order to portray diverging opinions on climate change. Through parallel narrative strands based on illustrations and original quotations, their opinions on anthropogenic climate change are presented. All quotations are cited from speeches, interviews or tweets and can be distinguished in the book by the quotation mark symbol or the hashtag symbol.

The pages are partly supplemented by data on climate change. Each dataset is presented twice in form of information graphics to support the protagonists' statements. Since Donald Trump is known as an official denier of man-made climate change, his information graphics are designed in such a way that they also speak against man-made climate change in their presentation – while the presentation of the same data in Greta Thunberg's graphics supports her opinion on climate change. This demonstrates how easily information graphics can be designed in a manipulative manner, and that it is ultimately always up to the designer to interpret and present the data. All those, that are supposed to support Donald Trump's statements, are partly shown with less information contrasting to those of Greta Thunberg in order not to disturb the focus on the visual change of the graphics. Explanations of the procedure and design of the information graphics can be found on some pages in the footer next to the asterisk. Each pair of information graphics has the same headline so that a quick link can be established.

While the 17-year-old Swedish climate activist  
Greta Thunberg fights for the climate in front of  
the parliament in Stockholm →



→ inspired thousands of pupils and students all over the world to take to the streets every Friday to campaign for climate protection. This is how Greta Thunberg launched the "Fridays for Future" movement.

**”** *We are now facing an existential crisis – the climate crisis, the ecological crisis – which has never been treated as a crisis before.*



**” Politicians one second say that 'climate change is the most important topic, we are going to do everything we can to stop it'. And the next second they want to expand airports, build new coal power plants and motorways and then they fly off in a private jet to attend a meeting on the other side of the world.**



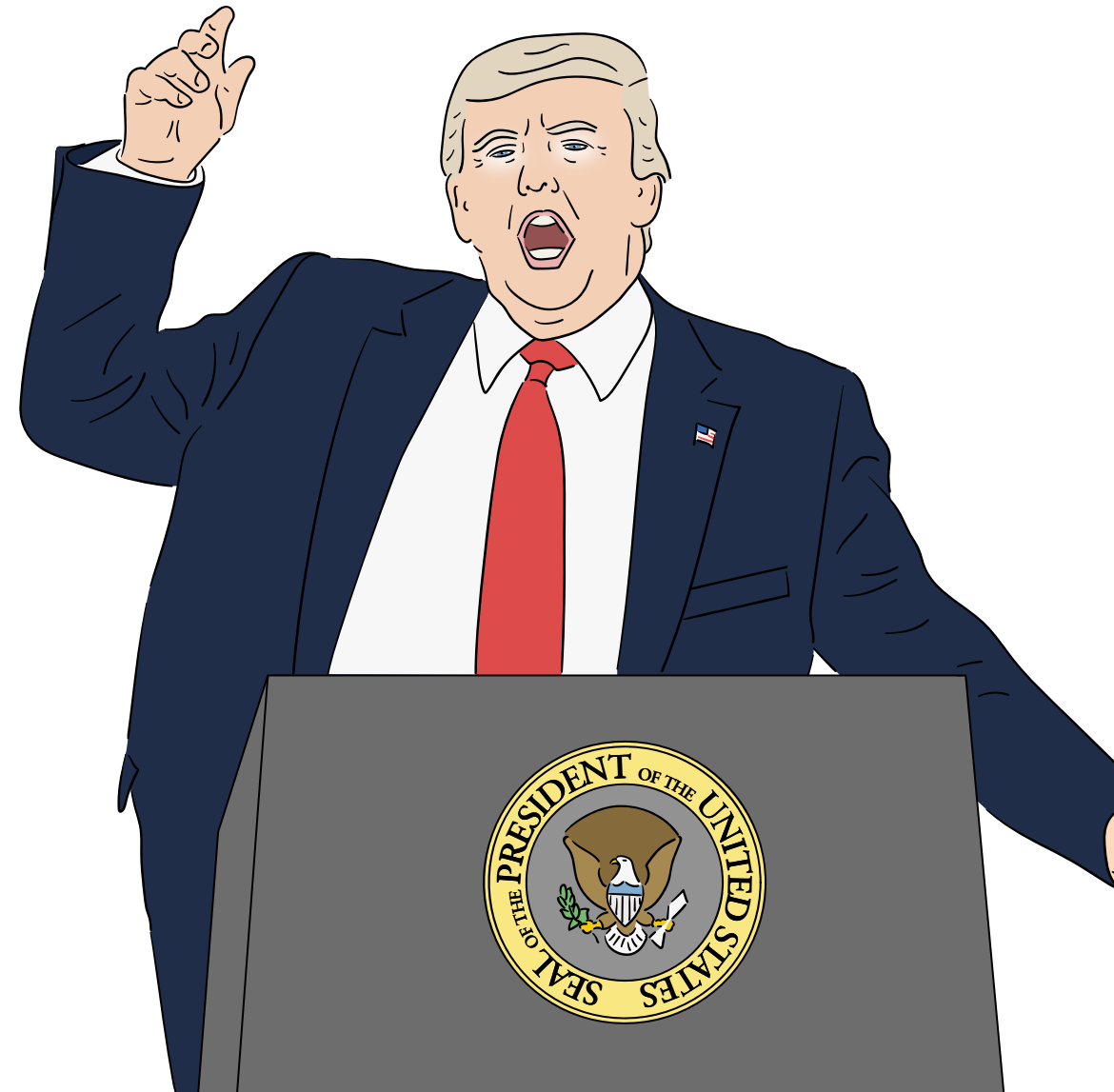
In her speeches at conferences and demonstrations\* she always refers to science. She tries to prompt people to take climate change seriously and convince politicians to introduce a new climate policy. Because the CO<sub>2</sub> (carbon dioxide) emissions emitted by people through their actions\*\* contribute to the earth's climate change.

\* Conferences and demonstrations: Climate March in Stockholm 2018, Declaration of Rebellion in London 2018, UN Climate Change Conference in Katowice 2018, World Economic Forum in Davos 2019 and 2020, European Economic and Social Committee in Brussels 2019, Golden Camera Film and TV Awards in Berlin 2019, European Parliament in Strasbourg 2019 Extinction Rebellion Rally in London 2019, House of Parliament in London 2019, Austrian World Summit in Vienna 2019, French National Assembly in Paris 2019, United States Congress in Washington DC 2019, UN General Assembly in New York City 2019, Week for Future Climate Strike in Montreal 2019

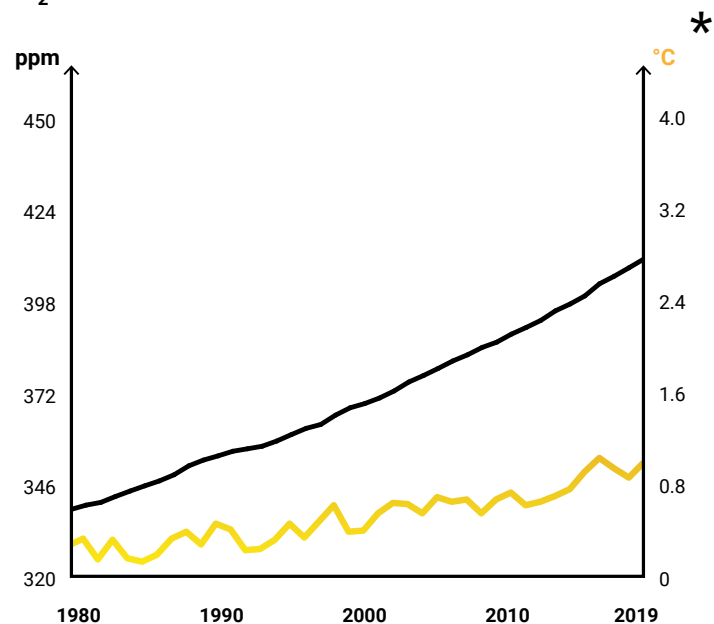
\*\* CO<sub>2</sub> emissions: Energy supply for industry and private households through the burning of fossil fuels, energy-intensive production of goods, deforestation for factory farming, cheap meat processing, forest fires, and the transport of people and goods by road, river, sea and air

Looking across the Atlantic, the 45th President of the United States, Donald Trump, fights for his economy. As an official denier of man-made climate change, Donald Trump ensured that the USA withdrew from the Paris Agreement, thus shirking his global responsibility in matters of climate protection.

**”** *I am proud to declare that the United States is in the midst of an economic boom, the likes of which the world has never seen before. We regained our stride, rediscovered our spirit, and we awakened the powerful machinery of American enterprise. America is thriving – America is flourishing – yes: America IS winning again like never before. We’re concentrating and creating the most inclusive economy ever to exist. The concept of global warming was created by and for the Chinese in order to make U.S. manufacturing non-competitive.*



## GLOBAL WARMING IN CONNECTION WITH GLOBAL CO<sub>2</sub> EMISSIONS FROM 1980 TO 2019



ppm = parts per million

Indication of the CO<sub>2</sub> concentration in the earth's atmosphere

**”** *I'm not denying climate change. But I don't know that it's man-made.*



\* By stretching the temperature axis, the temperature curve from 1980 to 2019 does not indicate an extreme increase. Thus, in contrast to Greta Thunberg's visualization, the temperature curve shows a low correlation with the course of CO<sub>2</sub> emissions, so that in this information graphic it can be assumed that there is only a low correlation between humans and global warming. The color gradient from yellow to red in Greta Thunberg's line additionally enhances the representation of warming.

SOURCE NOAA/ESRL, NASA

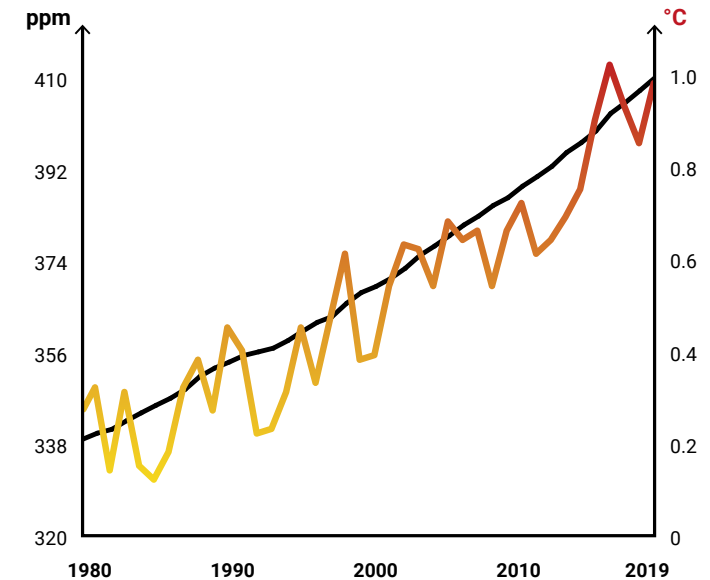


” On climate change, we have to acknowledge that we have failed. But there is still time to turn everything around. We can still fix this. We still have everything in our own hands. Our emissions have to stop if we are to stay below 1.5-2 °C of warming. The 'lowering of emissions' is of course necessary, but it is only the beginning of a fast process that must lead to a stop within a couple of decades, or less.

Besides the emission of CO<sub>2</sub>, there are other man-made greenhouse gases that contribute to global warming. These include: methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O) and the so-called F-gases (fluorinated gases). These man-made greenhouse gases accumulate in the earth's atmosphere in addition to the natural greenhouse gases, which means that less heat can escape into space, thereby warming the climate.

14/15

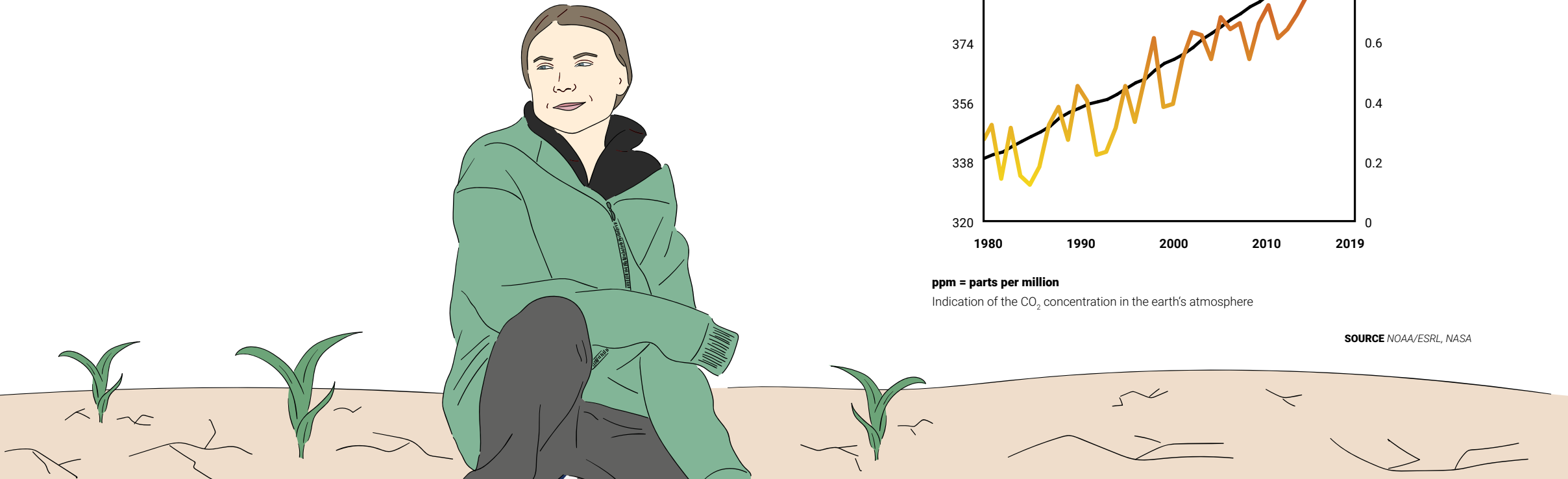
### GLOBAL WARMING IN CONNECTION WITH GLOBAL CO<sub>2</sub> EMISSIONS FROM 1980 TO 2019



ppm = parts per million

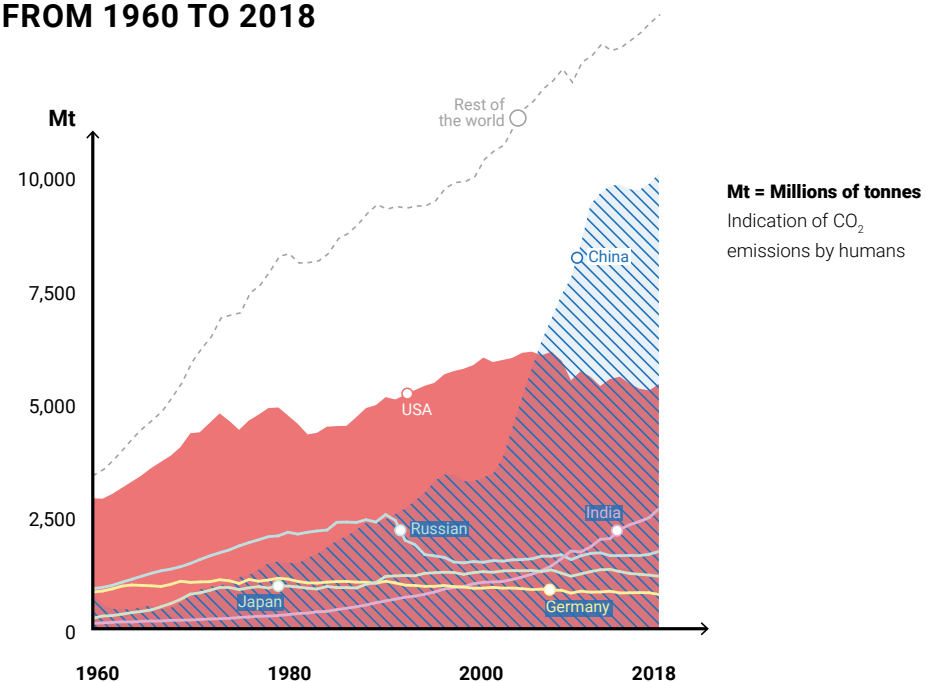
Indication of the CO<sub>2</sub> concentration in the earth's atmosphere

SOURCE NOAA/ESRL, NASA



**”** *The USA is the biggest carbon polluter in history. It is also the world's number one producer of oil. And yet, you are also the only nation in the world that has signalled your strong intention to leave the Paris Agreement.*

### COUNTRIES WITH THE HIGHEST CO<sub>2</sub> EMISSIONS FROM 1960 TO 2018



SOURCE CDIAC, Gilfillan et al., UNFCCC, BP

In her speeches, Greta Thunberg repeatedly refers to the Paris Agreement, which stipulates that every country must reduce its emissions in order to remain below a global warming of 2 °C in the future compared with pre-industrial times.

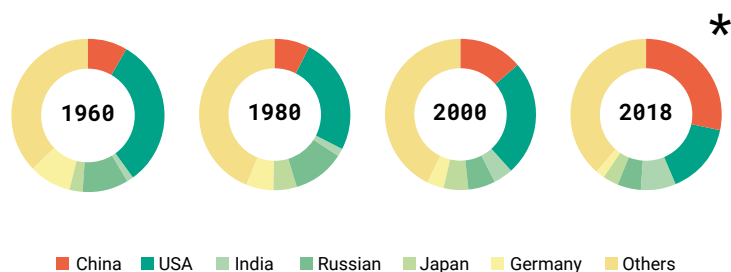


**” We want you to follow the Paris Agreement and the IPCC\* reports. Rich countries need to get down to zero emissions, within six to twelve years, so that people in poorer countries can heighten their standard of living by building some of the infrastructure that we have already built. Such as roads, hospitals, electricity, schools and clean drinking water. Because how can we expect countries like India or Nigeria to care about the climate crisis if we, who already have everything, don't care even a second about it or our actual commitments to the Paris Agreement?**

\*IPCC — Intergovernmental Panel on Climate Change

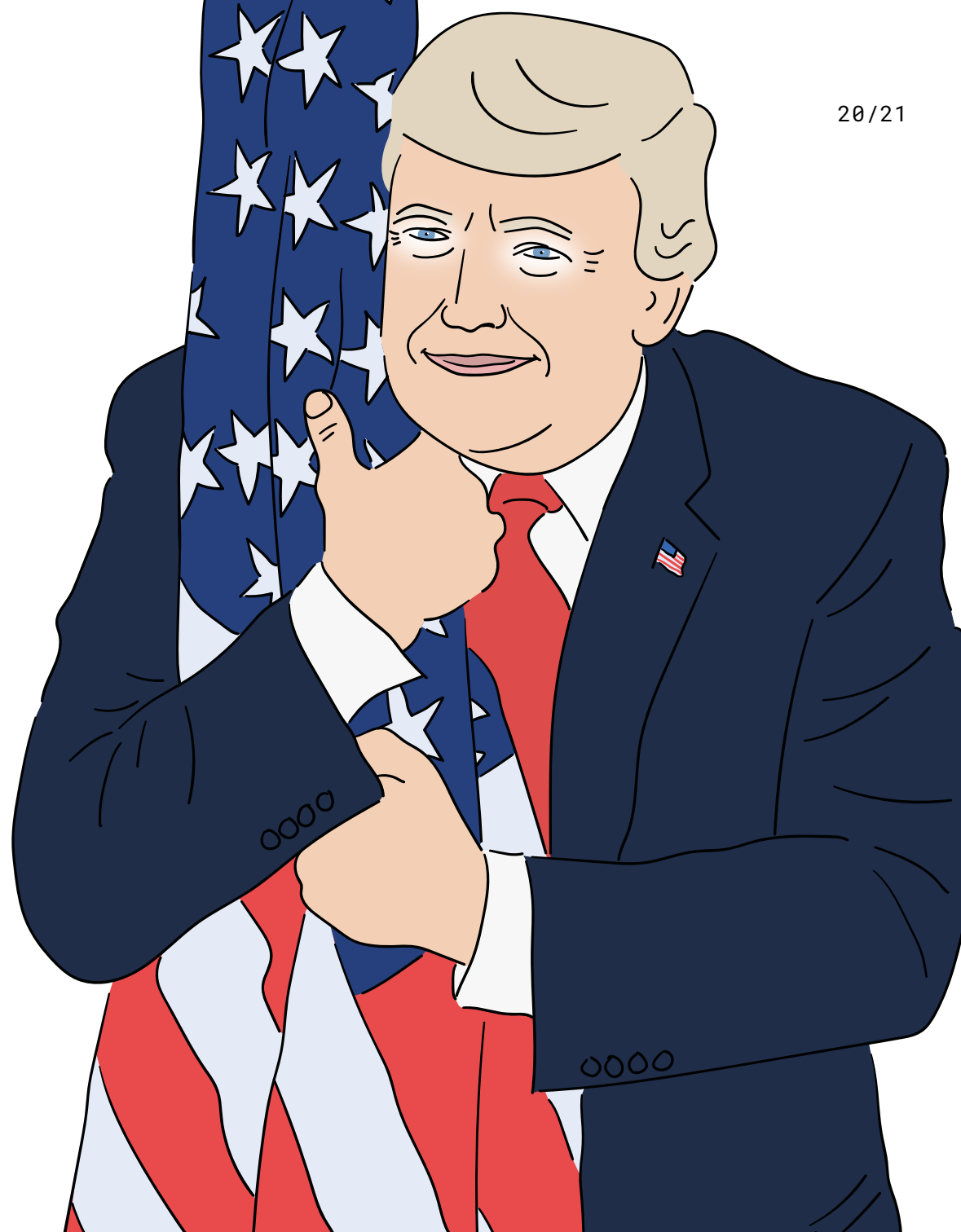
**”** *I'm proud to report the United States has among the cleanest air and drinking water on Earth – and we're going to keep it that way. And we just came out with a report that, at this moment, it's the cleanest it's been in the last 40 years.*

### COUNTRIES WITH THE HIGHEST CO<sub>2</sub> EMISSIONS FROM 1960 TO 2018



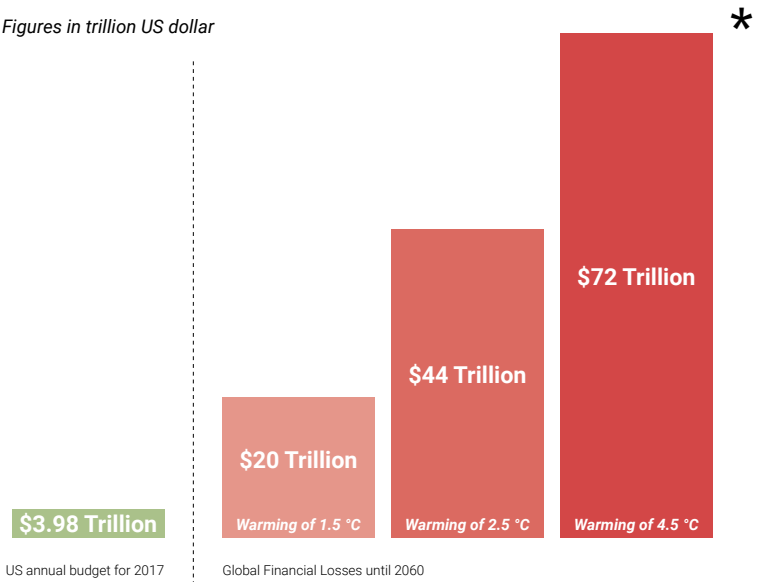
\* The CO<sub>2</sub> emissions of the individual countries and the rest of the world were limited to the years 1960, 1980, 2000 and 2018. Each year is shown with its own pie chart, which means that the values of the years cannot be compared so quickly. The signal color red also reinforces the feeling that China has always had the most emissions, while the green of the USA also makes it look better. The focus in Greta Thunberg's information graphic is deliberately directed towards the USA by assigning the area color red, so that it quickly becomes clear that the USA, with the exception of the rest of the world, had the most CO<sub>2</sub> emissions in the past.

SOURCE CDIAC, Giffillan et al., UNFCCC, BP



GLOBAL FINANCIAL LOSSES COMPARED WITH THE US FEDERAL BUDGET

Figures in trillion US dollar

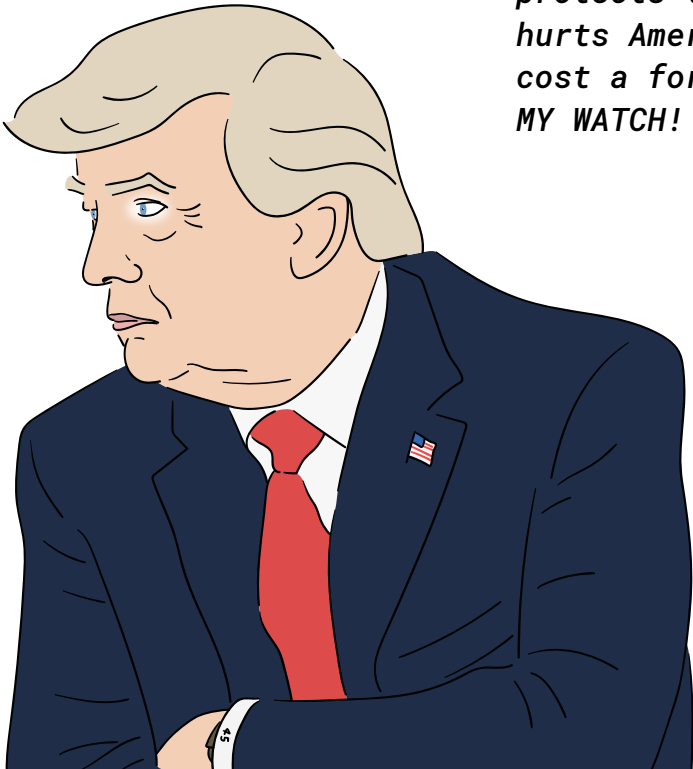


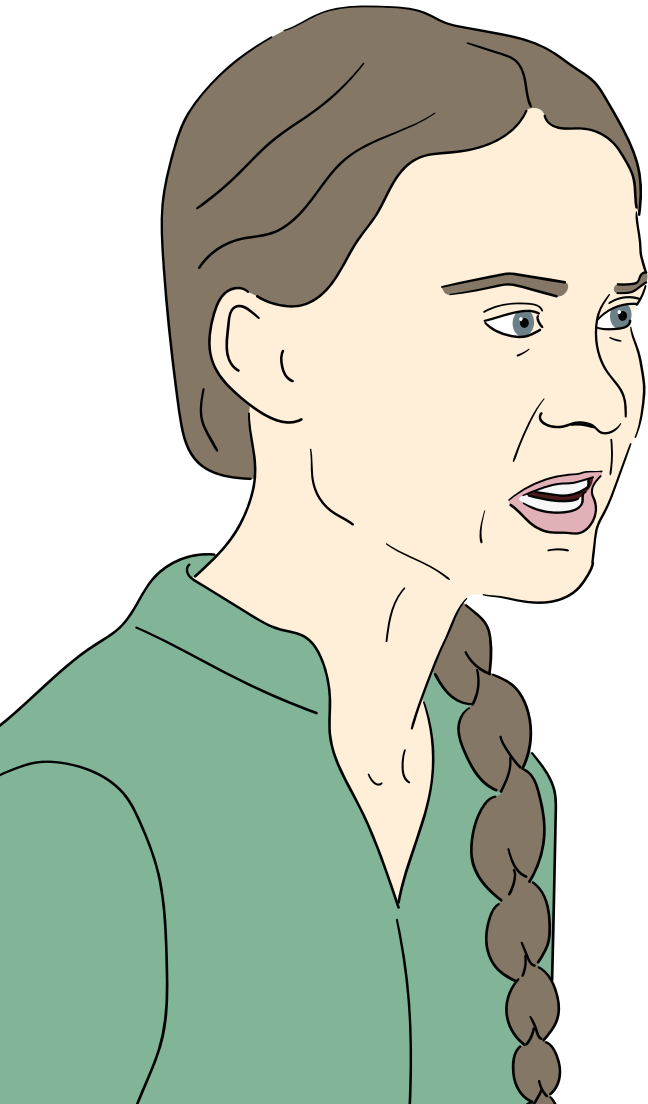
\* In this visualization, the predicted financial losses due to the degree of warming were compared with the US federal budget of 2017, which is significantly lower contrasting to the sums for future climate protection. This demonstrates that climate protection expenditures far exceed Donald Trump's expenditures, even if the three sums refer to 43 years. The different shades of red also reinforce the scale of the three sums compared with his spending, supporting his statement that climate change is too expensive. In Greta Thunberg's information graphic, on the other hand, a forecast was made for the US federal budget from 2017 onwards in the form of a trend line up to 2060, which allows to determine the annual budget. The predicted financial losses were also calculated for the year and divided by 43 years. This illustrates that in 2060 the United States' expenditures are likely to be significantly higher than the global financial losses due to climate change – regardless of the degree of warming. Moreover, it can be interpreted from this that if all nations pull together, then the expenditures per nation will be lower, which in turn strengthens Greta's view that the world should join the Paris Agreement. Since a forecast is a prediction and the values determined can be influenced by unforeseen events, forecasts are always vague. Usually they are calculated using special methods, which in the present case have only been used in a simplified way. The more forecasts are compared, the more unreliable the underlying data is. Therefore, the focus of these information graphics is more on the visualization method.

SOURCE Handelsblatt, US Government Information

Donald Trump uses Twitter as a platform to give his opinion spontaneously free rein – right after getting up in the morning. When he is not handing out praise or congratulations, he makes fun of things or people or insults them in the worst possible way without taking their feelings into account. On average, Donald Trump publishes more than 9 tweets a day. Donald Trump is not prepared to invest money in 'expensive' climate protection or to support third world countries in implementing climate targets. This is also one reason why he announced in 2017 that the US would withdraw from the Paris Agreement.

# The badly flawed Paris Climate Agreement protects the polluters, hurts Americans, and cost a fortune. NOT ON MY WATCH!



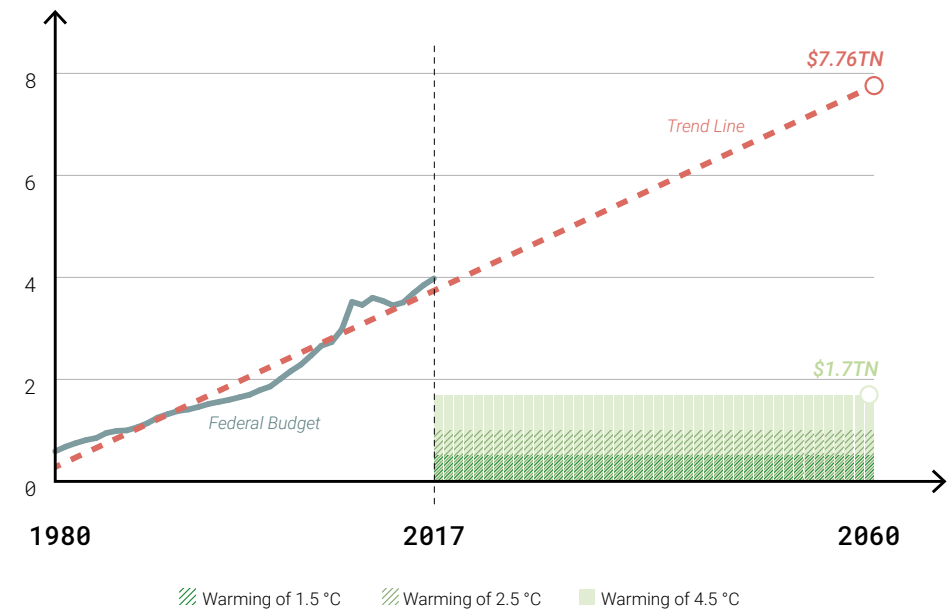


**” People are suffering. People are dying. Entire ecosystems are collapsing. We are in the beginning of a mass extinction. And all you can talk about is money and fairytales of eternal economic growth. How dare you!**

Even though the environment is far more important to Greta Thunberg than money, the financial damage caused by climate change is considerable. Money that must now be used to find solutions and thus to implement the Paris Agreement, in order for the warming not to exceed 2 °C compared with the pre-industrial era.

### GLOBAL FINANCIAL LOSSES COMPARED WITH THE US FEDERAL BUDGET

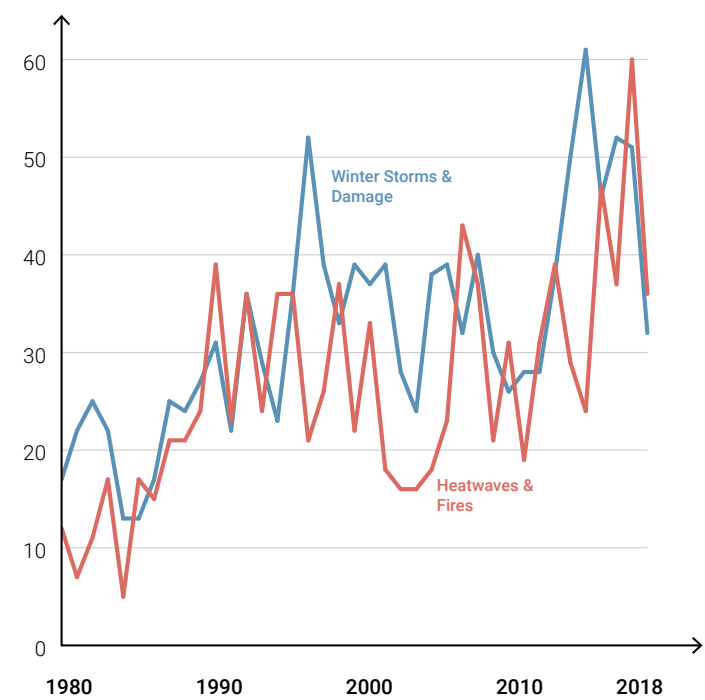
Figures in trillion US dollar, per year



SOURCE Handelsblatt, US Government Information

# GLOBAL HEATWAVE VERSUS WINTER STORM EVENTS FROM 1980 TO 2018

Figures represent number of events



SOURCE Munich RE NatCatSERVICE

The extreme heat causes droughts and water shortages worldwide. As a result, the general conditions for agriculture are deteriorating and people in Africa are increasingly threatened by starvation. The number of climate refugees is therefore constantly increasing. But people on the other continents also suffer from the extreme heat – dehydration, heat stroke, and, in the worst case, heat death, which occurs when the body temperature remains above 42 °C for a long time and the body is unable to regulate it.



**#** Preliminary new German heat record.. 42.6 °C! Over 2° warmer than the old record. Which was yesterday...

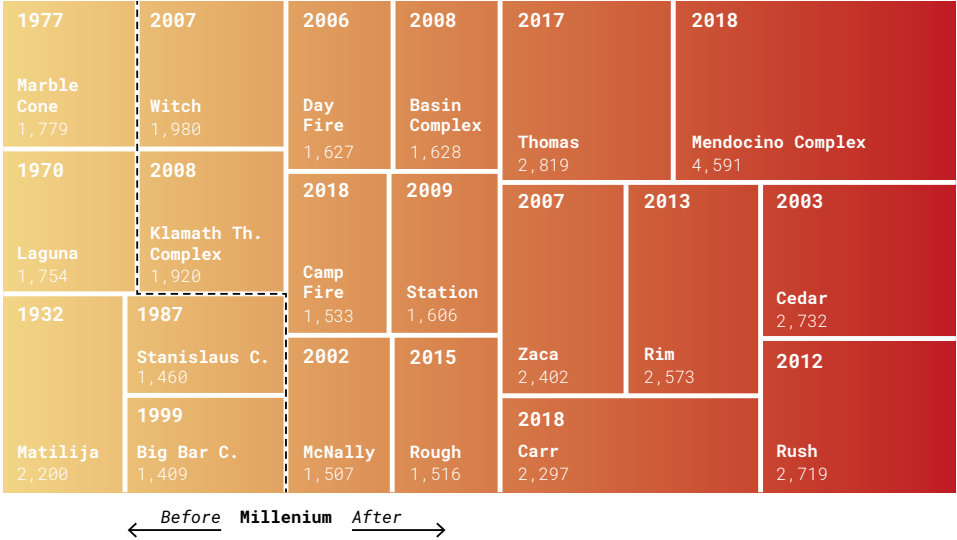
” Today in California, we can see the wildfire is happening just around the corner. Wildfires that are being intensified by the climate crisis. But it’s not just here, everywhere around the world we can see these horrible environmental feedbacks that countless of people are suffering and dying from. Our house is on fire.



Some regions in the world have a fire season in which forest fires are not uncommon. But climate change is making seasons longer – they start earlier and end later. Long periods of drought and strong winds make it difficult for firefighters to keep the fires under control. 15 of the 20 largest fires of the past 88 years in California occurred after the turn of the millennium. This shows that the intensity and size of the fires are related to global warming and are constantly all the time.

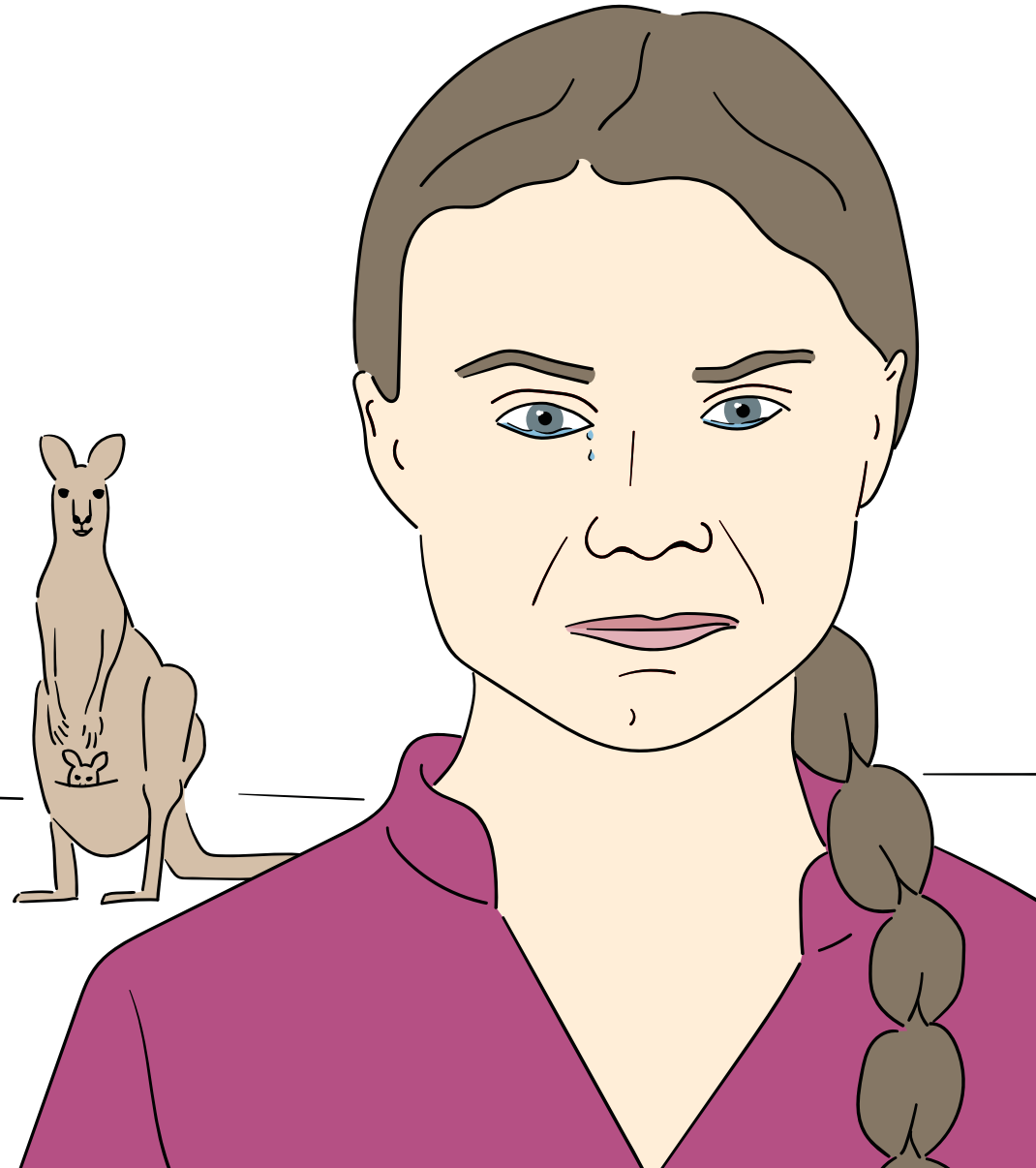
THE 20 LARGEST FIRES IN CALIFORNIA FROM 1932 TO 2018

Figures in km²



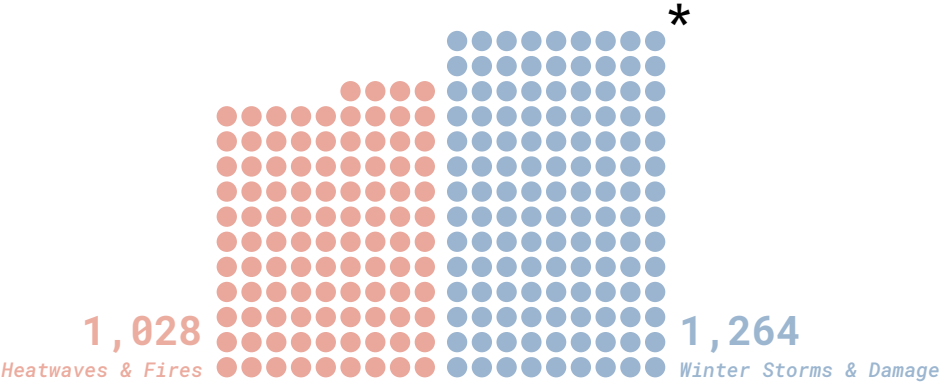


**#** Ecologists at the University of Sydney and WWF Australia estimate that a billion animals has died in Australia's bushfires.



# GLOBAL HEATWAVE VERSUS WINTER STORM EVENTS FROM 1980 TO 2018

Figures represent number of events in thousands



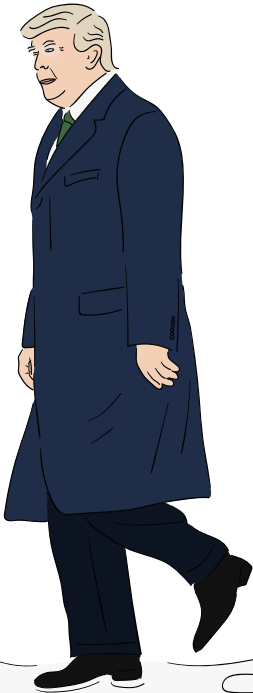
\* In contrast to Greta Thunberg's visualization, all heatwaves and winter storms from 1980 to 2018 were added together. The focus in this information graphic is therefore not on the fact that the number of events tends to increase, but that the number of winter storms outweighs the number of heatwaves. This reinforces the statement that there can be no global warming if there are more extreme winter events. In addition, the delicate colors convey a feeling of lightness, so that the numbers are losing weight.

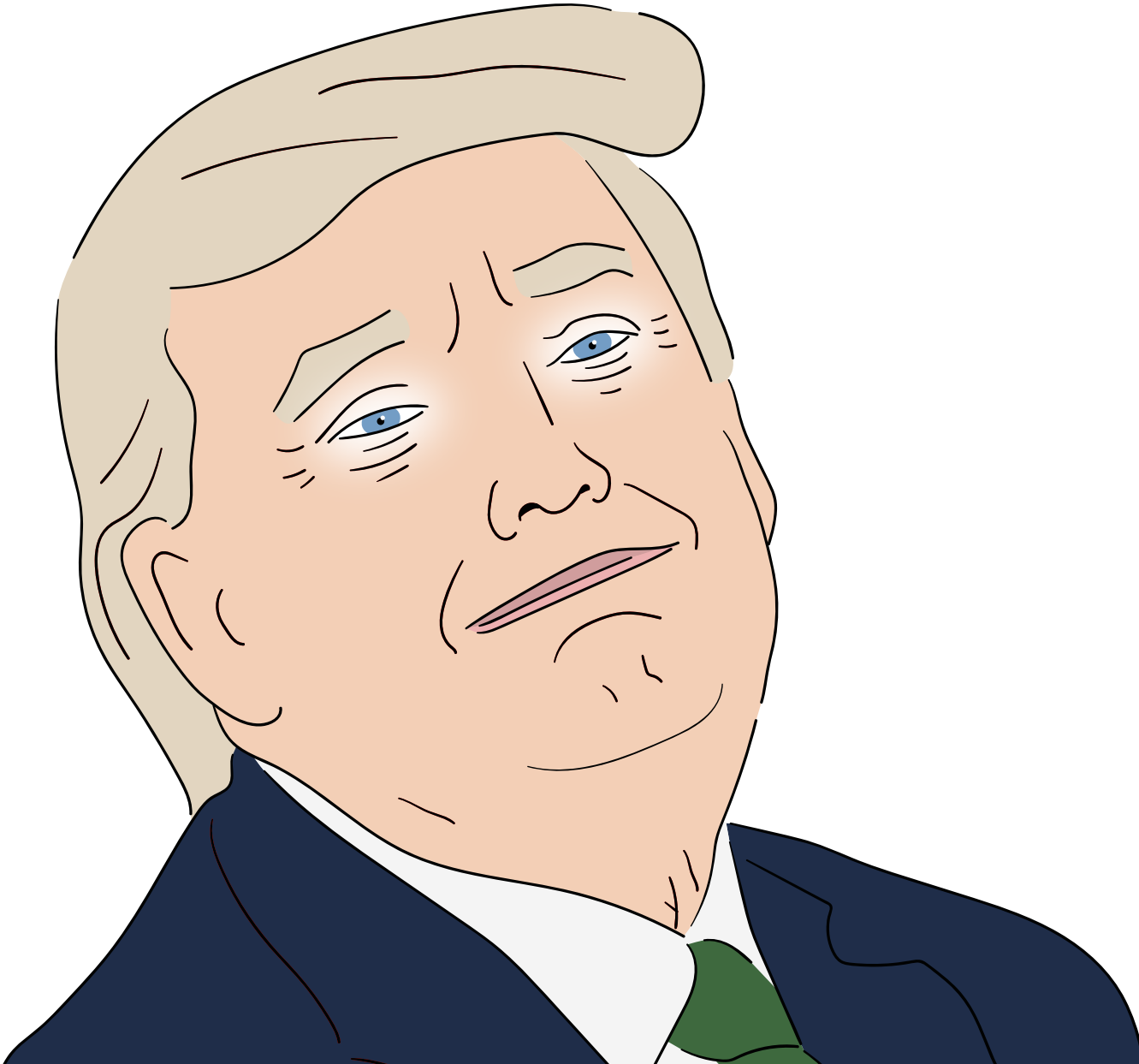
SOURCE Munich RE NatCatSERVICE

For climate change denier Donald Trump, the cold leg fractures, which occur predominantly in North America, come at just the right time. This is his chance to speak out against climate change and to claim that the earth's climate could never warm up if the country had such extreme cold spells. But this is about two very different animals – on the one hand, it is about the climate, which warms up worldwide on average over a long period of time due to the anthropogenic greenhouse gases, and on the other hand, it is about the weather, which changes daily in temperature, humidity, air pressure etc. in the different climate zones. The warming of the climate in the Arctic ensures that the jet stream\* makes uneven, sometimes longer lasting, jumps. The more it moves south, the more southern regions are affected by cold. Scientists believe that extreme cold spells and blizzards\*\* will lead to harder winters in North America.

\* Jet stream — High-altitude winds, which are driven by cold and warm air and provide for weather patterns on earth  
\*\* Blizzards — Heavy snowstorm in northern regions

# Be careful and try staying in your house. Large parts of the Country are suffering from tremendous amounts of snow and near record setting cold. Amazing how big this system is. Wouldn't be bad to have a little of that good old fashioned Global Warming right now!

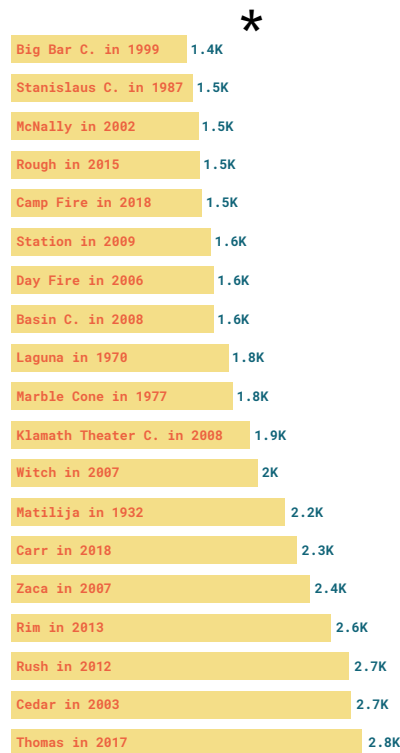




**#** *They changed the name from 'global warming' to 'climate change' after the term global warming just wasn't working (it was too cold)!*

## THE 20 LARGEST FIRES IN CALIFORNIA FROM 1932 TO 2018

Rounded figures in km<sup>2</sup>

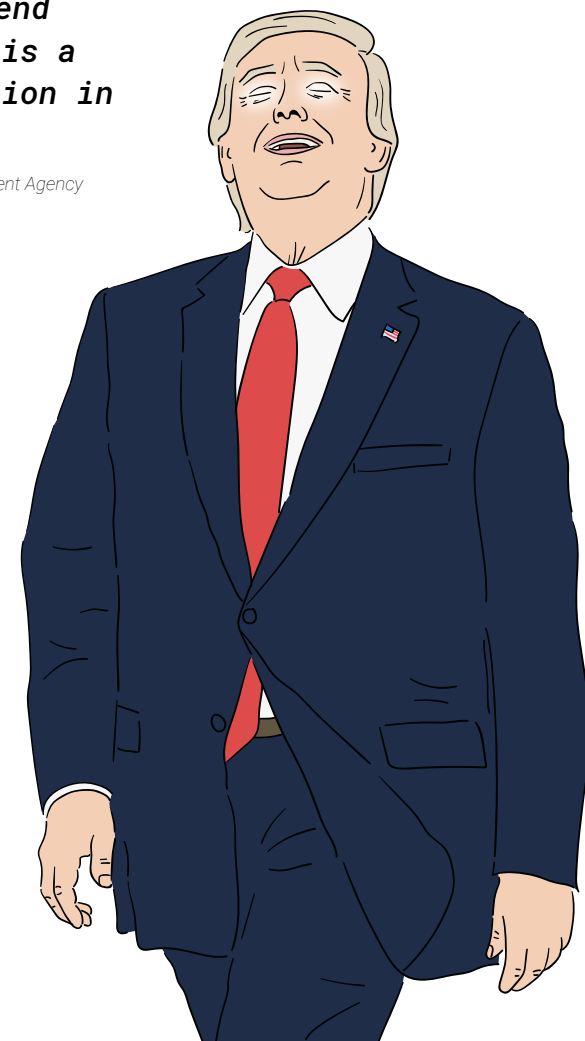


\* The bar chart has been designed in order for the fire with the smallest area to appear first and the ranking is ascending. This results in an optically decreasing tendency. All fires were visualized according to the same design factors so that the ranking can be seen as a whole – quite different to Greta Thunberg's information graphic, where the color gradient, indicating the increase in red, shows that the fires are getting bigger and bigger. In addition, the dotted dividing line immediately illustrates that the majority of the fires occurred after the turn of the millennium, from which it can be concluded that the intensity and size of the fires are increasing gradually.

SOURCE CAL Fire

# Billions of dollars are sent to the State of California for forest fires that, with proper Forest Management, would never happen. Unless they get their act together, which is unlikely, I have ordered FEMA\* to send no more money. It is a disgraceful situation in lives & money!

\* FEMA — Federal Emergency Management Agency



Not only extreme heat waves are consequences of climate change. Other extreme weather events are the effects of global warming. These include violent storms with hail, thunderstorms and flooding. Experts distinguish between severe storms and tropical cyclones, also known as hurricanes, which occur in the northern Atlantic Ocean and in parts of the North Pacific and South Pacific. Hurricanes in categories 3, 4 and 5 are becoming increasingly frequent, claiming several victims each year. Due to the warmer sea temperature, hurricanes already accumulate more energy when they form at sea, which increases their intensity. As they move slower in the countryside than before, they remain there for longer periods and can therefore cause more damage. Within a few hours, their wind speed can change dramatically, which is why each individual hurricane can be very dangerous – making it difficult for experts to make predictions.

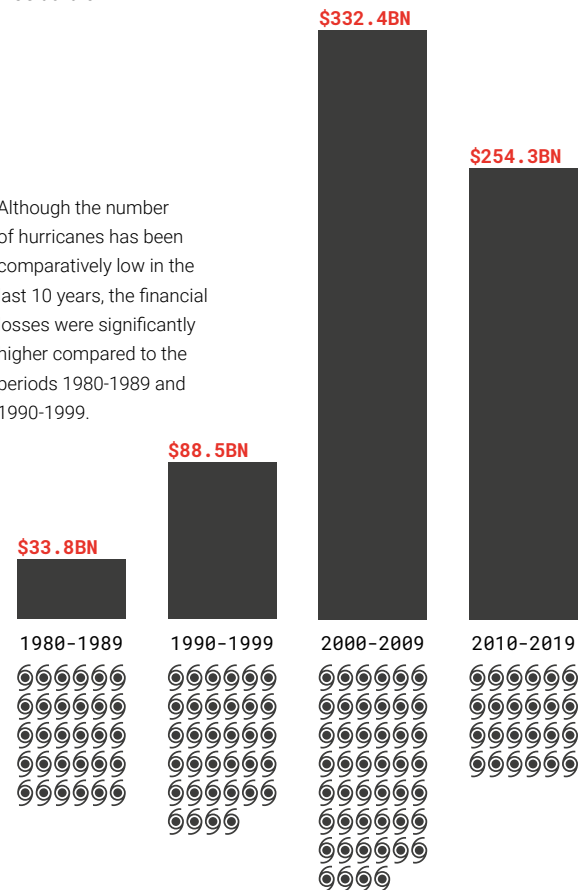
**” We are facing a disaster of unspoken sufferings for enormous amounts of people.**



## NUMBER OF HURRICANES IN THE US AND THE RESULTING FINANCIAL LOSSES FROM 1980 TO 2018

Figures in billion US dollars

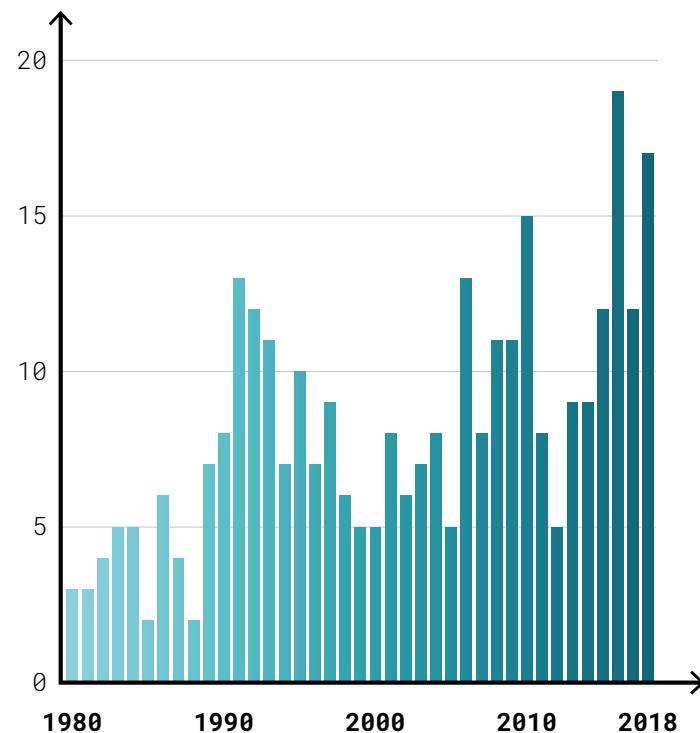
Although the number of hurricanes has been comparatively low in the last 10 years, the financial losses were significantly higher compared to the periods 1980-1989 and 1990-1999.



Number of hurricanes — One symbol stands for 1 hurricane

SOURCE Munich RE NatCatSERVICE

## NUMBER OF FLOODS IN THE UNITED STATES FROM 1980 TO 2018

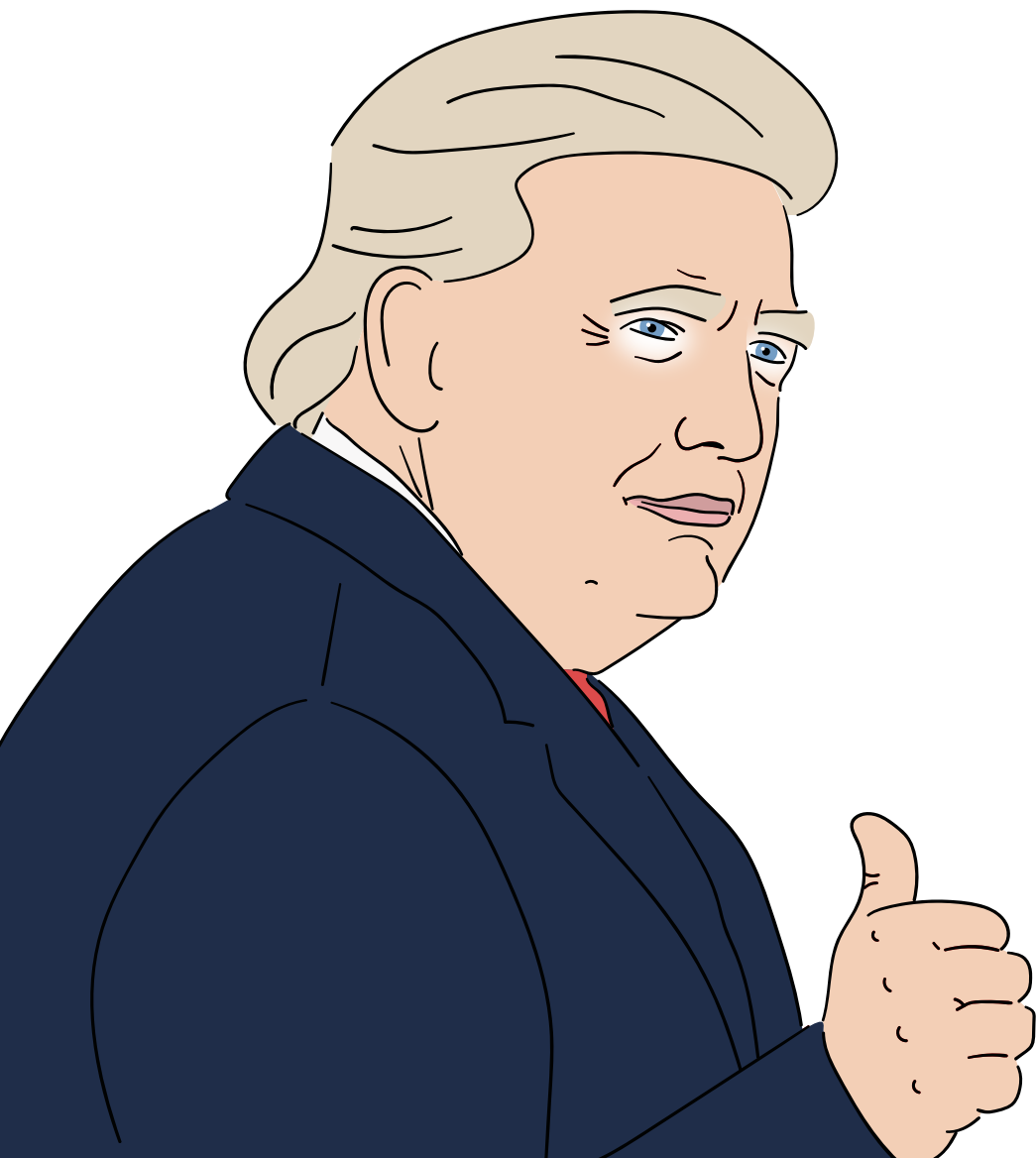


SOURCE Munich RE NatCatSERVICE

” People keep doing what they do because the vast majority doesn't have a clue about the consequences of our everyday life.

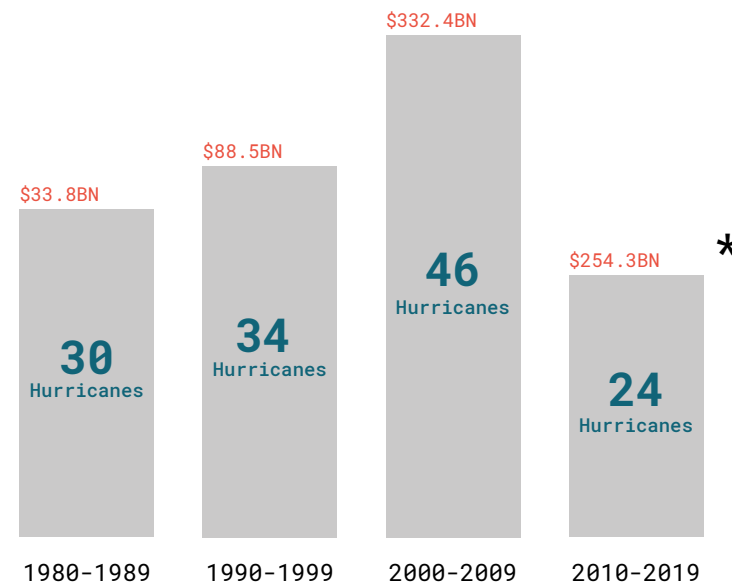


**”** Weather changes, and you have storms,  
and you have rain and you have  
beautiful days.



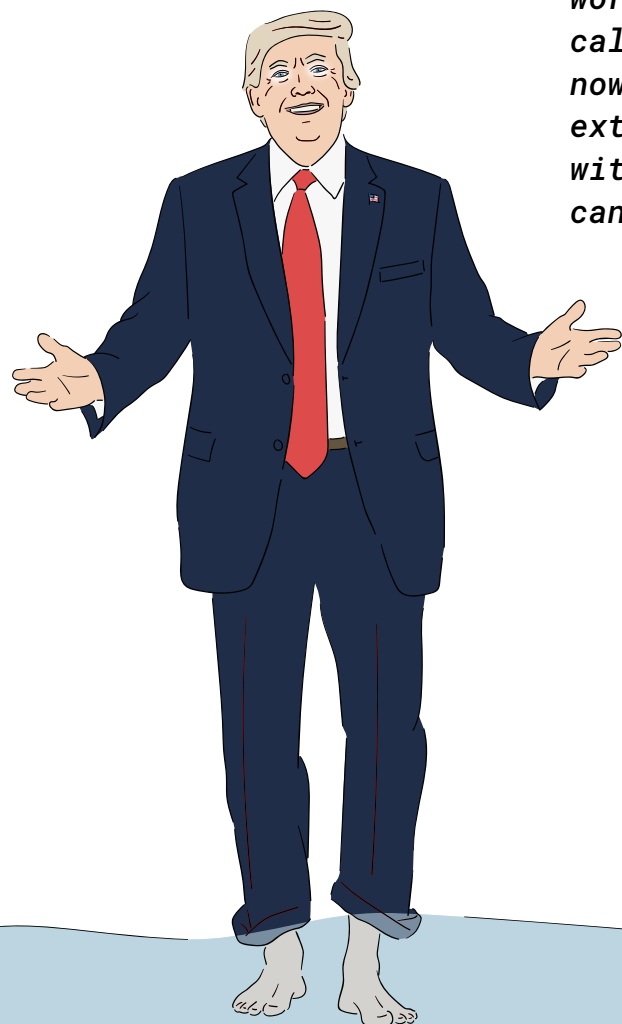
## NUMBER OF HURRICANES IN THE US AND THE RESULTING FINANCIAL LOSSES FROM 1980 TO 2018

Figures in billion US dollars

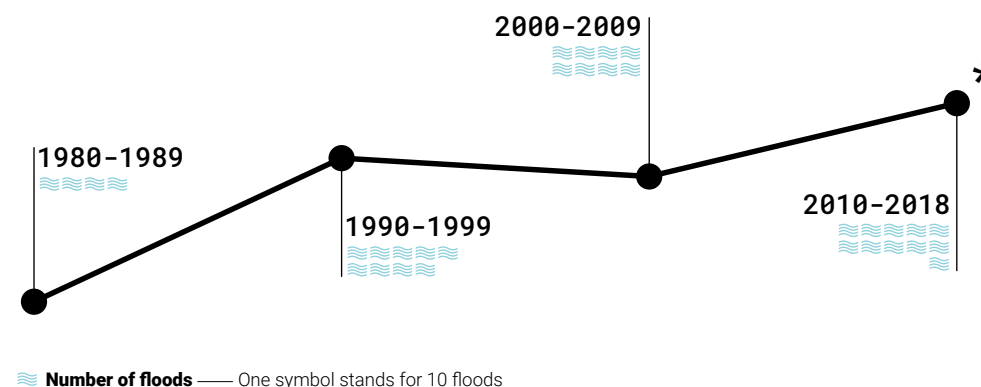


\* The number of hurricanes has decreased in the last 9 years compared with the years before, which is why the bar chart is based exclusively on the number of hurricanes. This gives the impression that the number of hurricanes has decreased and that the advancing climate change therefore has no influence on severe storms – which reinforces Donald Trump's statement and opinion. However, a second look at the financial losses in the upper range shows that the hurricanes must have been much stronger in the last period than in previous years. Greta Thunberg's visualization, on the other hand, precisely presents these financial losses in order to be able to more clearly illustrate the influence of man-made climate change on the severity of hurricanes.

” *I believe there's a change in weather, and I think it changes both ways. Don't forget, it used to be called global warming, that wasn't working, then it was called climate change, now it's actually called extreme weather, because with extreme weather you can't miss.*



## NUMBER OF FLOODS IN THE UNITED STATES FROM 1980 TO 2018



\* The line chart, which serves as the basis for the time axis, was compressed so that the period 2010-2018 with the highest amount of flood events is only slightly above the other values. The number of floods was visualized with symbols, each symbol marking a factor of 10, making the number of floods in the respective periods appear low and thus less dramatic. The detailed bar chart in Greta Thunberg's information graphic differently provides transparency on all figures between 1980 and 2018, which means that an increasing trend in the number of floods in recent years can be noticed.

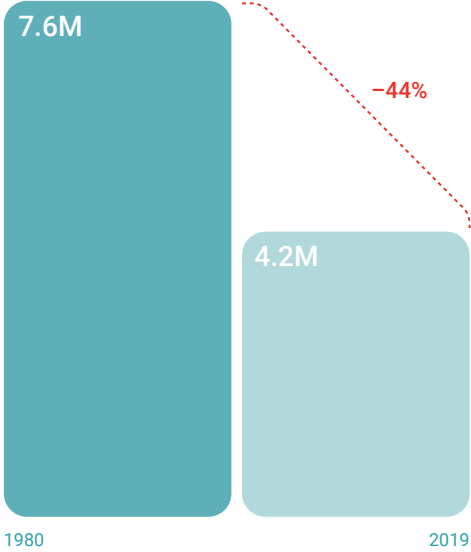


Global warming is also causing the oceans to become warmer. As a result, the ice in the polar regions is melting faster. This brings about the effect that less ice surface is available to reflect the heat energy of the sun back into space. Since the sea is darker than the ice surface, the water absorbs the heat energy and the water temperature continues to rise. Due to the decline of the ice surface, the polar bears' hunting grounds are also disappearing gradually. Sitting on the ice floes, the bears wait for robes which show up to take a breath. Then the hunt begins. Without ice floes, the bears have to travel further distances to get food. This consumes more energy – one of the reasons why the polar bear population continues to decline.

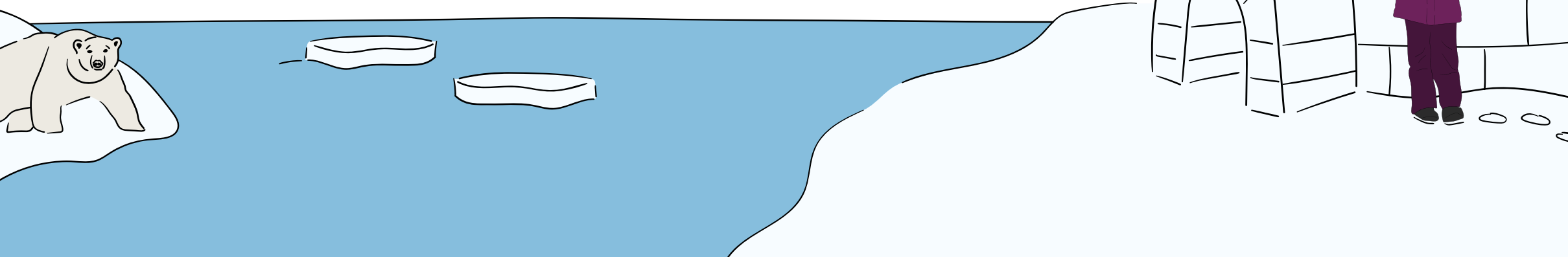
**”** *Why is it so important to stay below 1.5 degrees? Because even at one degree people are dying from the climate crisis. Because that is what the United Science calls for to avoid destabilizing the climates. So that we have the best possible chance to avoid setting off irreversible chain reactions such as melting glaciers, polar ice and thawing Arctic permafrost.*

**DECREASE OF THE ARCTIC ICE SURFACE  
FROM 1980 TO 2019**

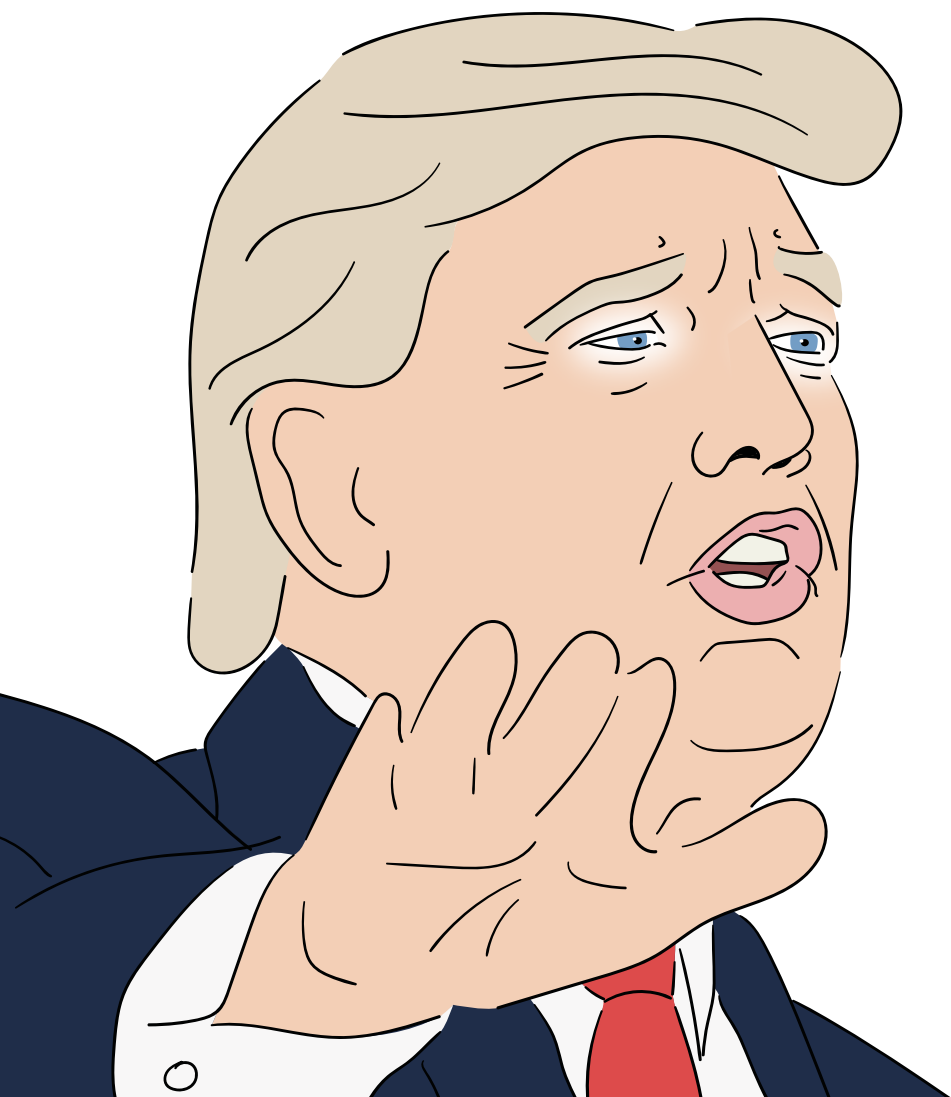
*Figures in million km²*



SOURCE NSIDC

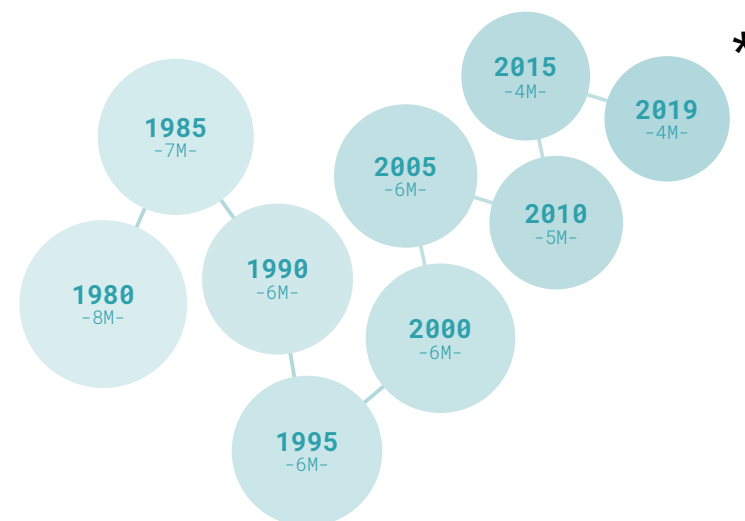


**#** Just out – the POLAR ICE CAPS are at an all time high, the POLAR BEAR population has never been stronger.



## DECREASE OF THE ARCTIC ICE SURFACE FROM 1980 TO 2019

Figures in million km<sup>2</sup>



\* Although the circles become smaller along the time axis, the area of 1980 cannot be directly compared with the area of 2019. This makes the decline in ice appear less dramatic. In Greta Thunberg's visualization, however, the squares of equal width show immediately how large the decrease in ice surface from 1980 to 2019 actually is. The dark ice blue to light ice blue also intensifies the gradation into the small – quite unlike Donald Trump's information graphic, in which the color gradient was kept rather subtle on the one hand and runs from the light large to the dark small on the other. Thus, the smallest ice surface still looks mighty despite the decrease in comparison with the largest one, even if the low figure ground contrast makes all color surfaces together appear less mighty.

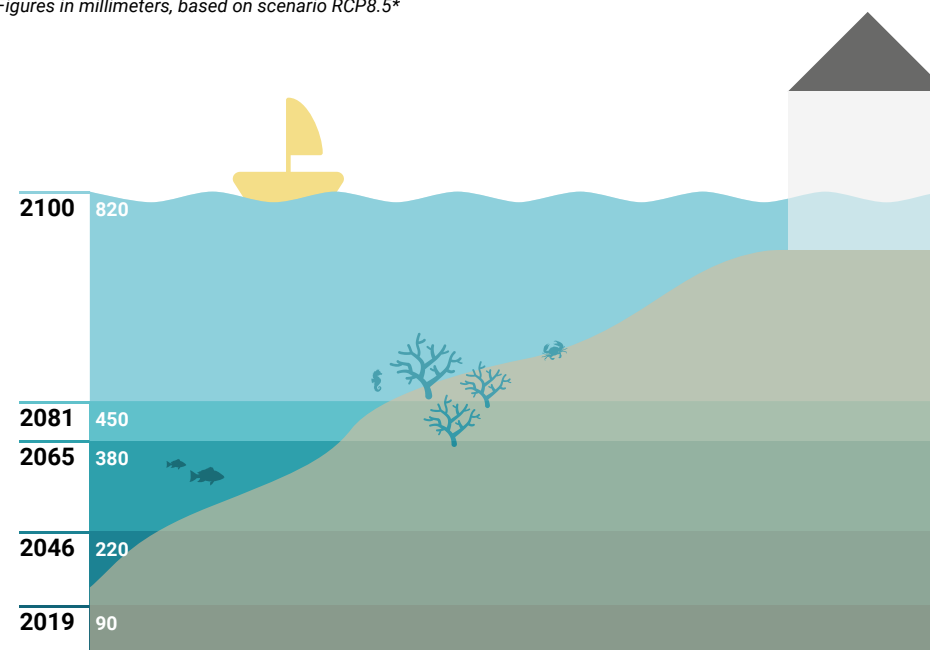
The reason for the rise in sea level is twofold. Firstly, the warmer water temperature causes the water to expand – and the only direction it can grow in is upwards. Secondly, the sea level is rising because the ice sheets at the poles are melting more and more and the volume of water is therefore increasing.



**”** *Our main enemy now is physics. And we cannot make 'deals' with physics.*

## SEA LEVEL RISE FROM 2019 TO 2100

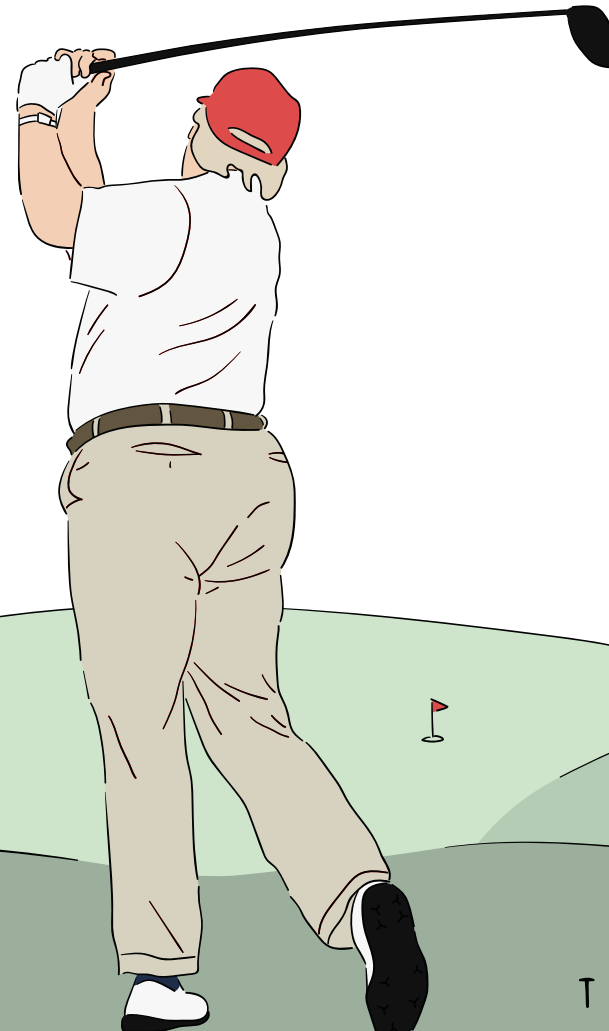
*Figures in millimeters, based on scenario RCP8.5\**



\* RCP8.5 — RCP is the name of a scenario for the determination of future values of greenhouse gas concentrations in the atmosphere by the IPCC; RCP8.5 is the scenario that occurs if the current situation does not change and CO<sub>2</sub> emissions and the associated global warming continue to increase

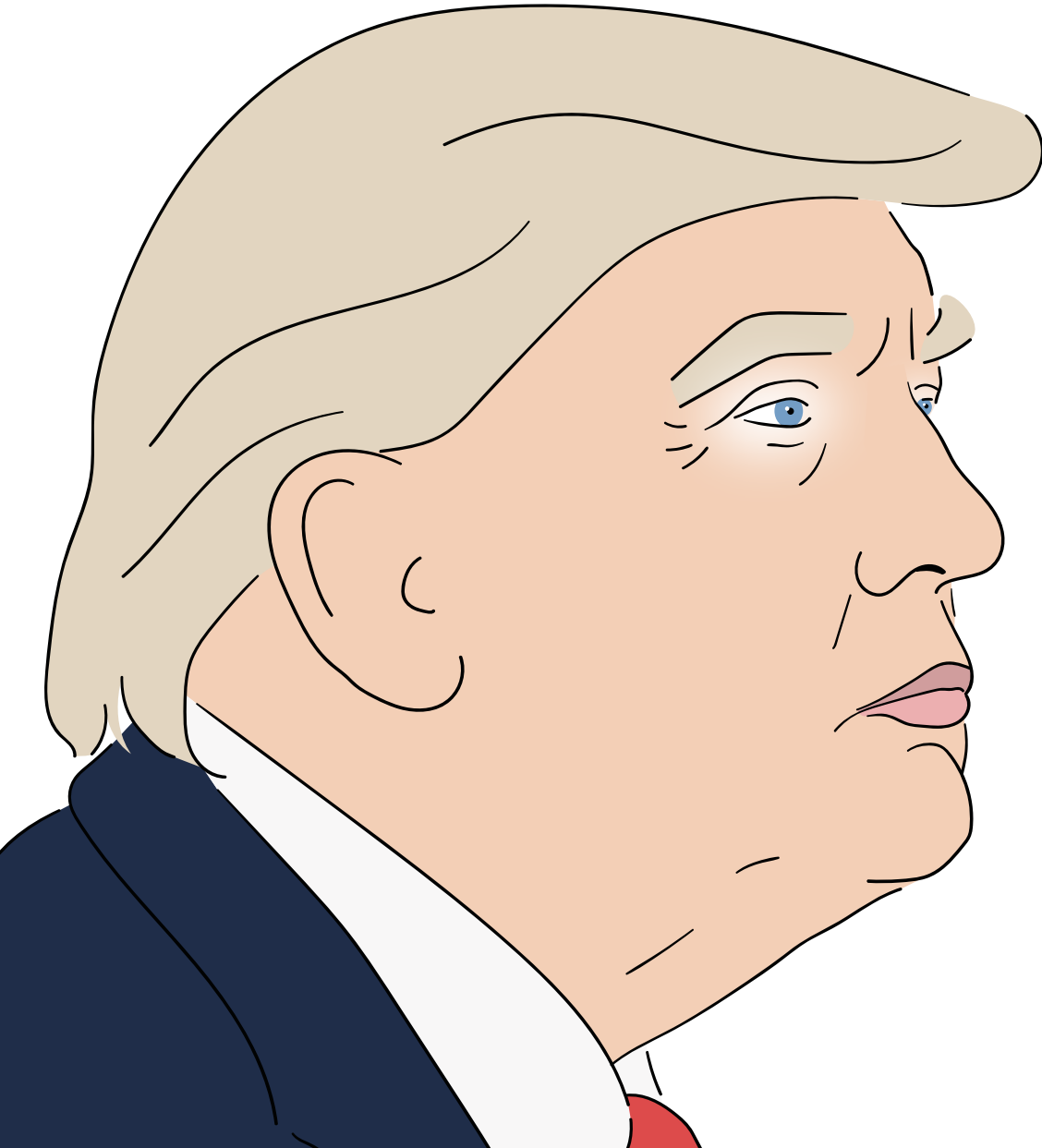
Donald Trump does not seem to deny climate change – at least not when it comes to his luxury golf course on the west coast of Ireland. There he wanted to build a huge wall to protect his resort from violent storms and rising sea levels. That is why it cannot be all that wrong with climate change... But the construction of his 38,000 tonne wall was rejected because it would have destroyed the fauna and flora of the coastal area.

**” If the predictions of an increase in sea level rise as a result of global warming prove correct, however, it is likely that there will be a corresponding increase in coastal erosion rates not just in Doughmore Bay but around much of the coastline of Ireland. [...] The existing erosion rate will continue and worsen, due to sea level rise, in the next coming years, posing a real and immediate risk to most of the golf course frontage and assets.**



But Donald Trump does not only comment on climate change on Twitter. The fact that he had himself lined up for the new elections on the very day he took office, 20 January 2017, shows how much he wants to be re-elected president in 2020. Due to the Covid 19 pandemic, postal votes are more frequent in America, but the incumbent US president does not like this. Because he fears a manipulated election. In addition, Donald Trump has made more foes than friends during the Corona crisis, which could lead to voters acting out of anger in the postal votes. Donald Trump recently voiced his concern about falsified election results through postal votes via Tweet and thus made headlines. For the first time Twitter tested a tweet from Donald Trump by checking the facts to see if the information was true.

**#** *There is NO WAY (ZERO!) that Mail-In Ballots will be anything less than substantially fraudulent. Mail boxes will be robbed, ballots will be forged & even illegally printed out & fraudulently signed. The Governor of California is sending Ballots to millions of people, anyone living in the state, no matter who they are or how they got there, will get one. That will be followed up with professionals telling all of these people, many of whom have never even thought of voting before, how, and for whom, to vote. This will be a Rigged Election. No way!*



The corporate policy of such social media platforms sets certain standards, including that persons with a public interest – so-called 'world leaders' – have certain freedoms in the dissemination of information. This also includes some fake news. Although Donald Trump has made more than 19,000 false or misleading statements since taking office, some of them via Tweet, Twitter is now acting for the first time, because the company reacts sensitively to disinformation about elections or Covid 19 remedies. Thus, Twitter marked the tweet with a fact check and a link where the tweet is corrected and it reads said that, according to experts, voting fraud rarely occurs in postal votes. Donald Trump reacted indignantly to the fact that he allegedly published a false report. He immediately retaliated via tweet, suggesting that the company was impeding freedom of expression and threatening to regulate or even close the platform. So he signed a provision to repeal 'Section 230'. This paragraph protects website operators from prosecution if one of their users publishes illegal content. It is also an important instrument that protects freedom of expression and innovation on the web. This series of events shows that Donald Trump cannot sit on his hands when people act against him and he tries with all his might to defend himself. If Donald Trump's decree is successful, even if the experts do not expect it to be so at the moment, the President would probably shoot himself in the foot. After all, he is the one who likes to go over the limit with his tweets – Twitter could then legally delete these tweets very quickly.

**#** *Twitter has now shown that everything we have been saying about them (and their other compatriots) is correct. Big action to follow!*



Meanwhile, Greta Thunberg cannot be led astray  
and continues to fight against climate change.

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” *If you say that we can 'solve' this crisis just by maybe increasing or lowering some taxes, phasing out coal in ten or fifteen years, putting up solar panels on new buildings or manufacturing more electric cars, then people will think we can 'solve' this crisis with a few political reforms, without anyone making a real effort. Adults keep saying: 'We owe it to the young people to give them hope.'*  
*But I don't want your hope. I don't want to be hopeful. I want you to panic. I want you to feel the fear I feel every day. And then I want you to act. I want you to act as you would in a crisis. I want you to act as if our house is on fire. Because it is. It's the only world we've got.*



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Global Warming in Connection with Global CO<sub>2</sub> Emissions from 1980 to 2019

Countries with the Highest CO<sub>2</sub> Emissions from 1960 to 2018

Global Financial Losses Compared with the US Federal Budget

Global Heatwave versus Winter Storm Events from 1980 to 2018

The 20 Largest Fires in California from 1932 to 2018

Number of Hurricanes in the US and the Resulting Financial Losses from 1980 to 2018

Number of Floods in the United States from 1980 to 2018

Decrease of the Arctic Ice Surface from 1980 to 2019

Sea Level Rise from 2019 to 2100