

The background of the entire image is a close-up photograph of dark brown, textured soil. In the upper right corner, there is a hand-drawn yellow sun with several short, radiating lines. In the center, there is a hand-drawn globe of the Earth. The globe's continents are outlined in dark brown and filled with a green, textured pattern. The oceans are filled with a blue, textured pattern. Overlaid on the center of the globe is the text "How the natural environment is impacted by climate change" in a white, sans-serif font.

How the natural environment
is impacted by climate change

Examples of how climate change is impacting our landscapes:

Temperature



image: Ocal, 2011

Extreme weather



image: 1enchik, n.d.

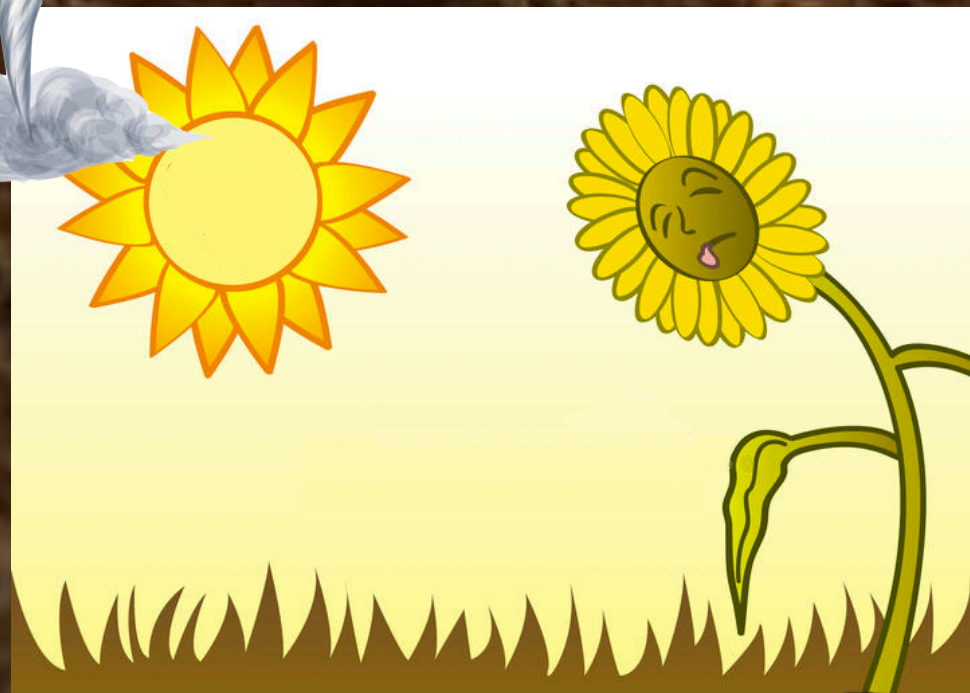


image: Jslavy, n.d.

Rising sea level



image: Rodrigo, 2009

Examples of how climate change is impacting our landscapes:

Precipitation



image: owattaphotos, n.d.; Syaibatulhamdi, 2020

Water



image: eliflamra, 2021

Landscapes are reacting to the changing of the elements
caused by climate change

Wildlife



image: fireflamenco, 2015

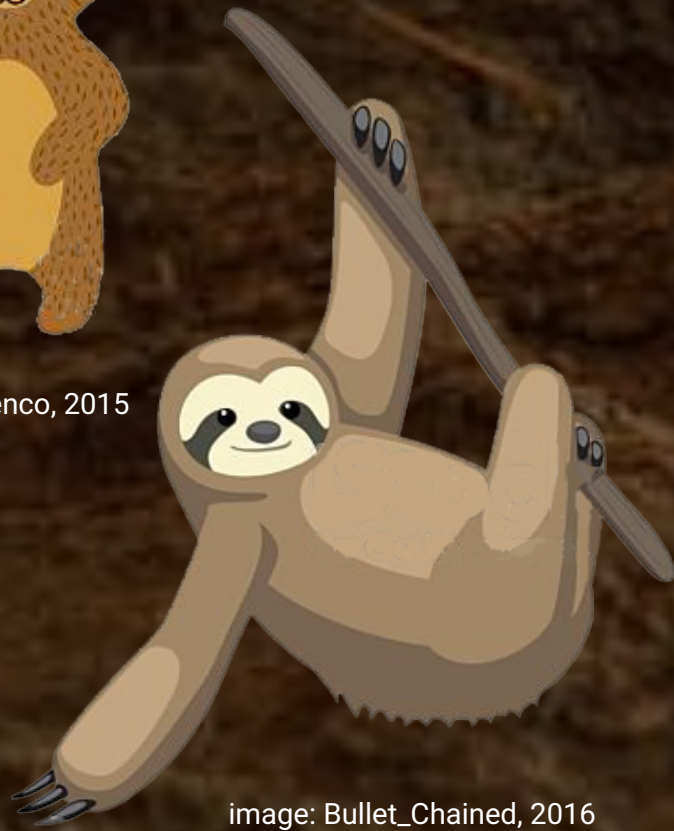


image: Bullet_Chained, 2016

Wildfires



image: Alias Ching (n.d.)

Landslides

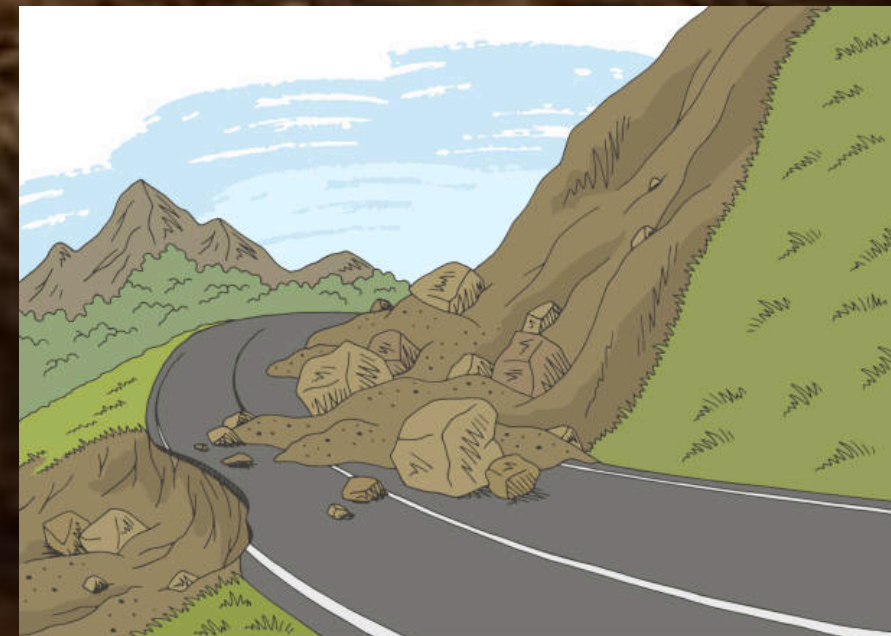


image: Aluna1 (2019)



EXAMPLE 1:

North America - Ontario, Canada

Canada has a Latitude of approximately 49 and a Longitude of approximately -86 (gps-coordinates.net, n.d.)

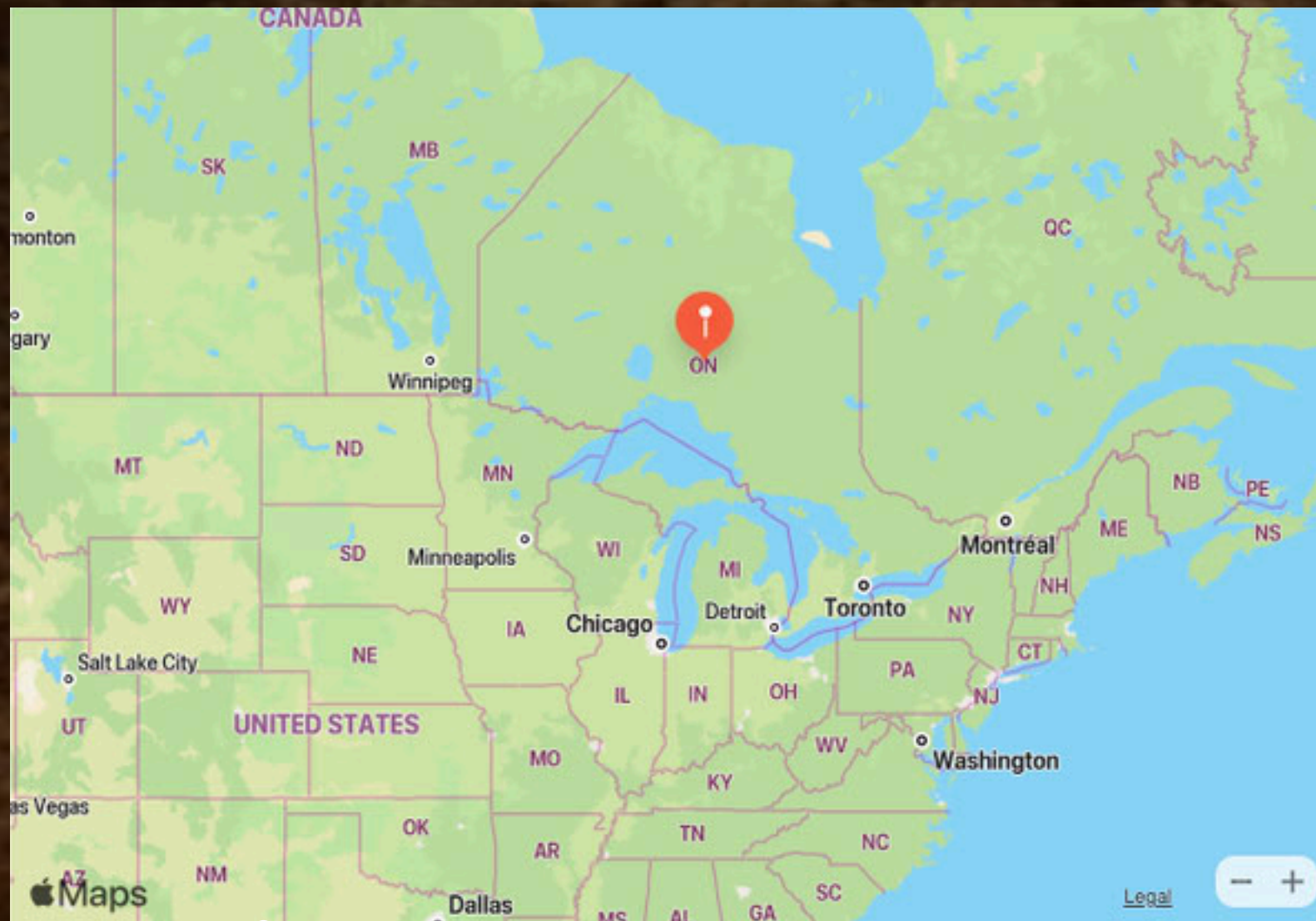


image: gps-coordinates.net, n.d.

Because warming of the climate is more intense in locations being at a higher latitude, forest landscapes in this part of the Northern Hemisphere are significantly vulnerable to the impacts of climate change (NRC, 2013).

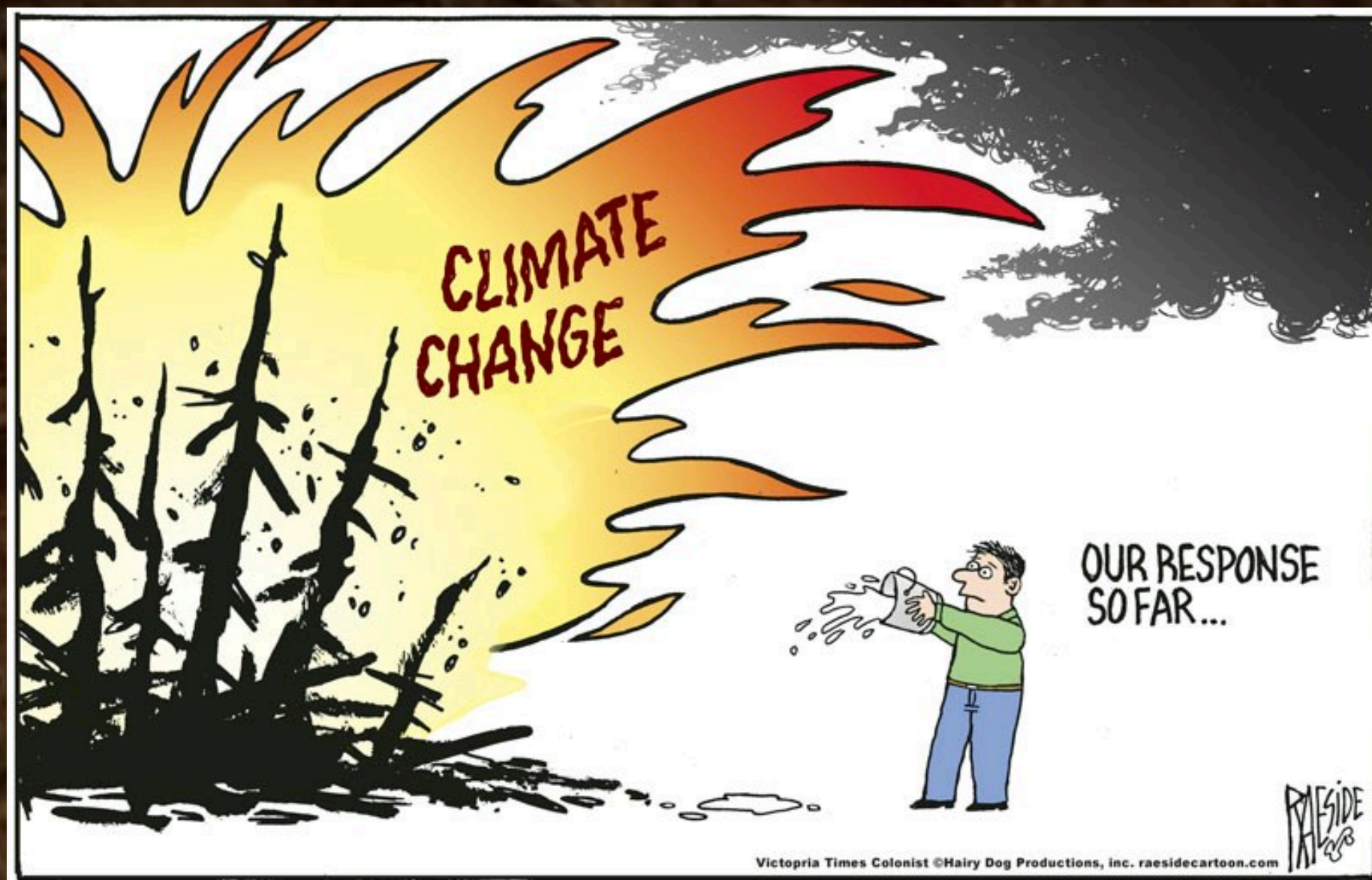


EXAMPLE 1:

North America - Ontario, Canada

Particularly, the forests.

Ultimately, the structure of our landscapes and ecosystem depends on and is determined, by climate (Thompson et al., 1996).



Credit: Adrian Raeside, 2021



EXAMPLE 1:

Two of the three major forest types in Canada are:

- Boreal





EXAMPLE 1:

and

• Great Lakes-St. Lawrence





EXAMPLE 1:

North America - Ontario, Canada





EXAMPLE 1:

North America - Ontario, Canada

Wildfires are the primary disturbance to both of these forests
(Thompson et al., 1996).



image: BNP Design Studio, n.d.

Researchers anticipate both forests will suffer shrinkage. It is predicted there will be very little 'old growth' forest that remains, and a general imbalance to the forest will occur as a result of climate change (Thompson et al., 1996).



EXAMPLE 1:

North America - Ontario, Canada

Wildfires are the primary disturbance to both of these forests
(Thompson et al., 1996).



image: PegasuStudio, n.d.

Wildlife species within these forests such as populations of moose and caribou are expected to significantly decline, thereby affecting species distribution, as warming also affects plant/food availability
(Thompson et al., 1996; USGRCP, 2016).



EXAMPLE 1:

North America - Ontario, Canada

Wildfires are the primary disturbance to both of these forests
(Thompson et al., 1996).



image: Vertyr, n.d.

These forests have survived climate changes in the past. However, the rate at which prior changes occurred were slow moving over multiple centuries (Thompson et al., 1996). The rate at which we are experiencing climate change right now, will likely take its toll on the forests much more quickly than the forests can respond (Thompson et al., 1996). Leaving us with a highly imbalanced ecosystem and "landscape patch dynamics" (Thompson et al., 1996).



EXAMPLE 2:

African continent

The southern tip of the African continent has a Latitude of -33 and a Longitude of 20 (gps-coordinates.net, n.d.).

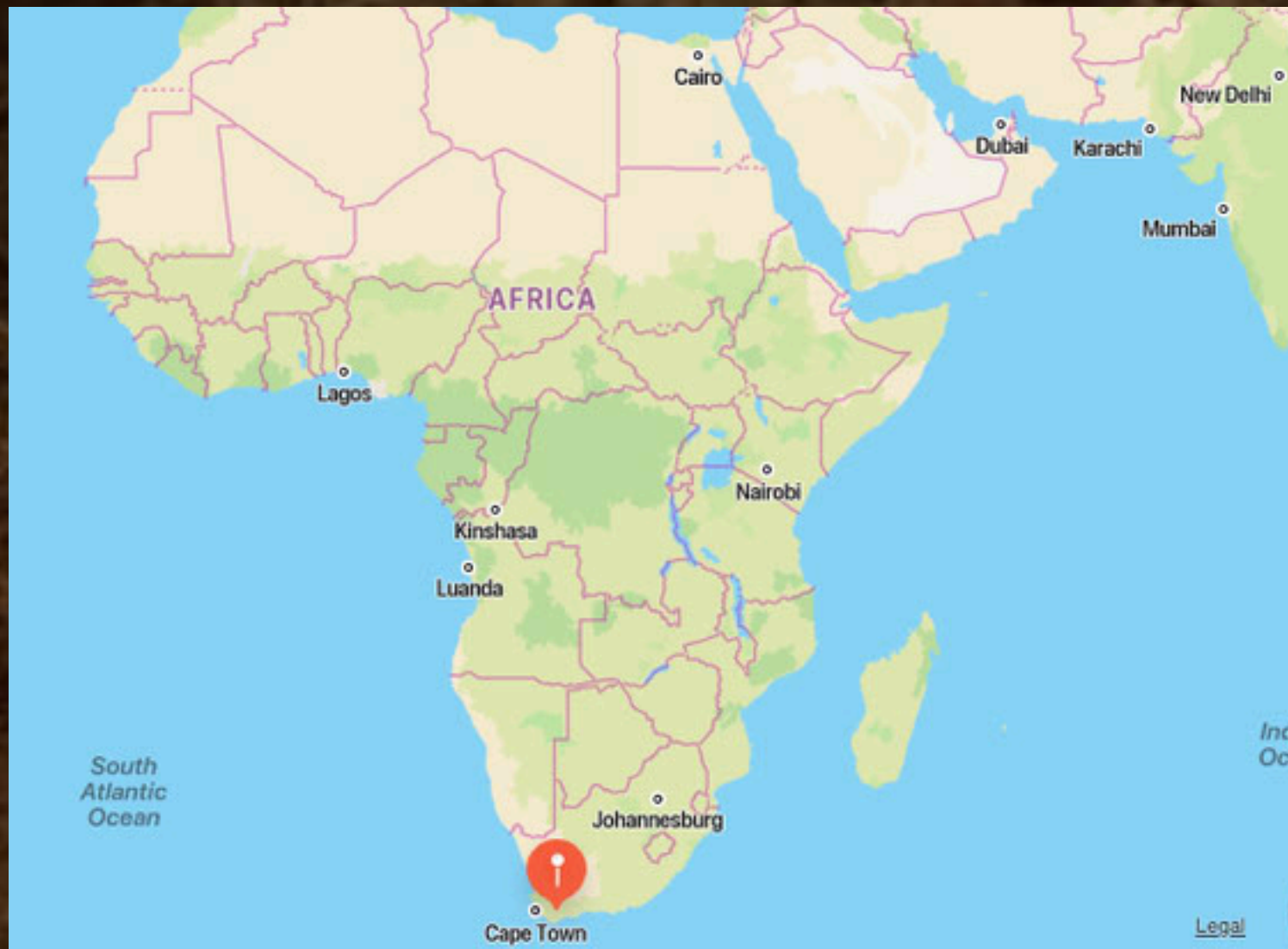


image: gps-coordinates.net, n.d.

Although South Africa is at a lower Latitude, the impacts to the landscapes are not unscathed by climate change. "Africa is one of the most vulnerable regions, globally, to climate change." (Shackleton et al., 2019).



EXAMPLE 2:

African continent

The national average temperature in South Africa has "increased twice as fast as global temperatures" (USAID, 2022)



image: Nikada, n.d.

Much of Africa is covered by rural landscapes which increase risks of impacts this subtropical country is already experiencing (Shackleton et al., 2019).



EXAMPLE 2:

African continent

Scarcity in water are threatening to Africa's agriculture and food security (Shackleton et al., 2019)

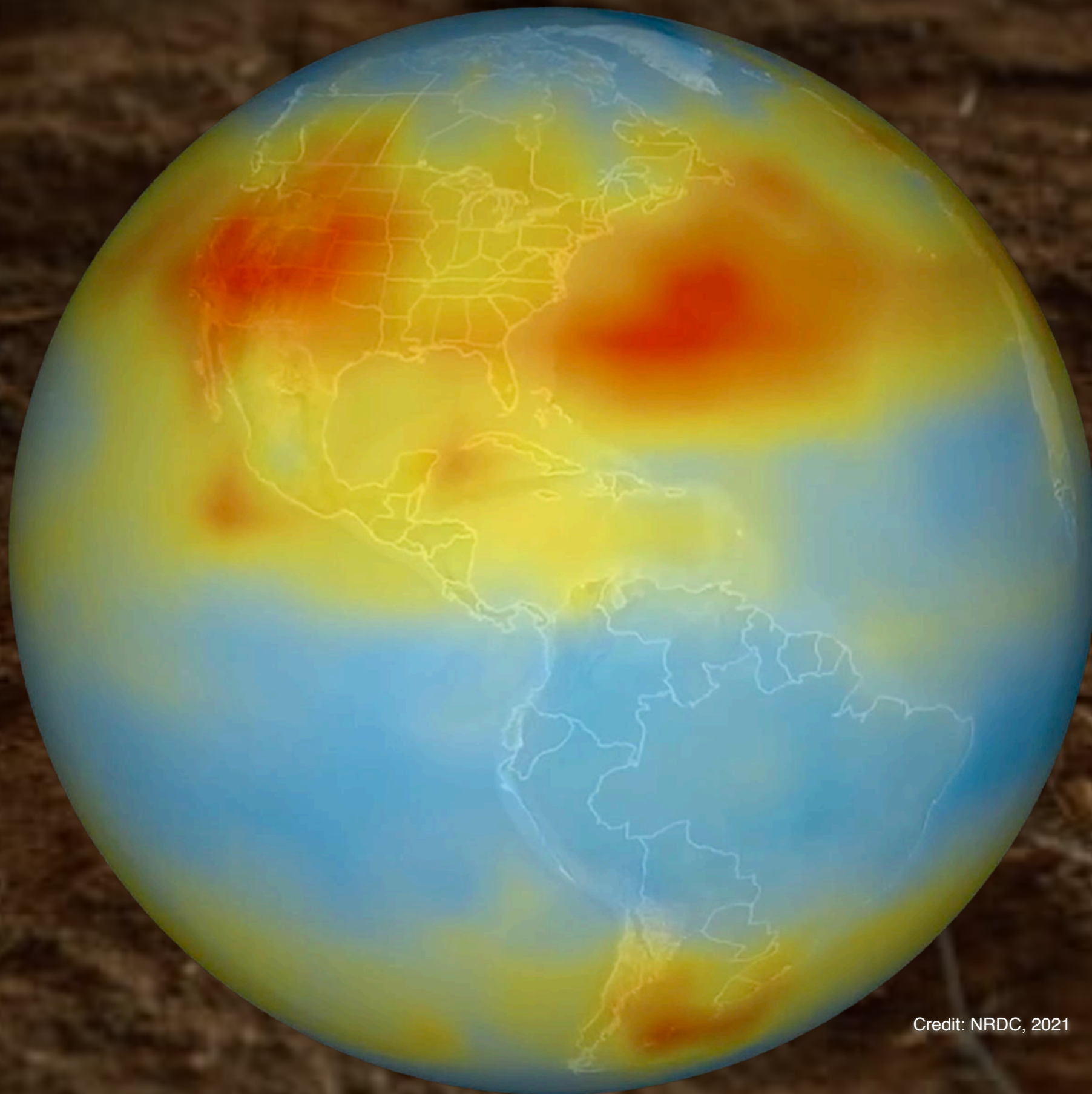


image: Unknown, n.d.

Farmers are heavily impacted by the reduction in water which effects crops, livelihood and food supply (Shackleton et al., 2019).



Global



Credit: NRDC, 2021



EXAMPLE 1:

SEA ICE:

In a span of 35 years, **warming** has caused more than 2 million square kilometers of sea ice to **melt** - globally (Schmittner, 2021).

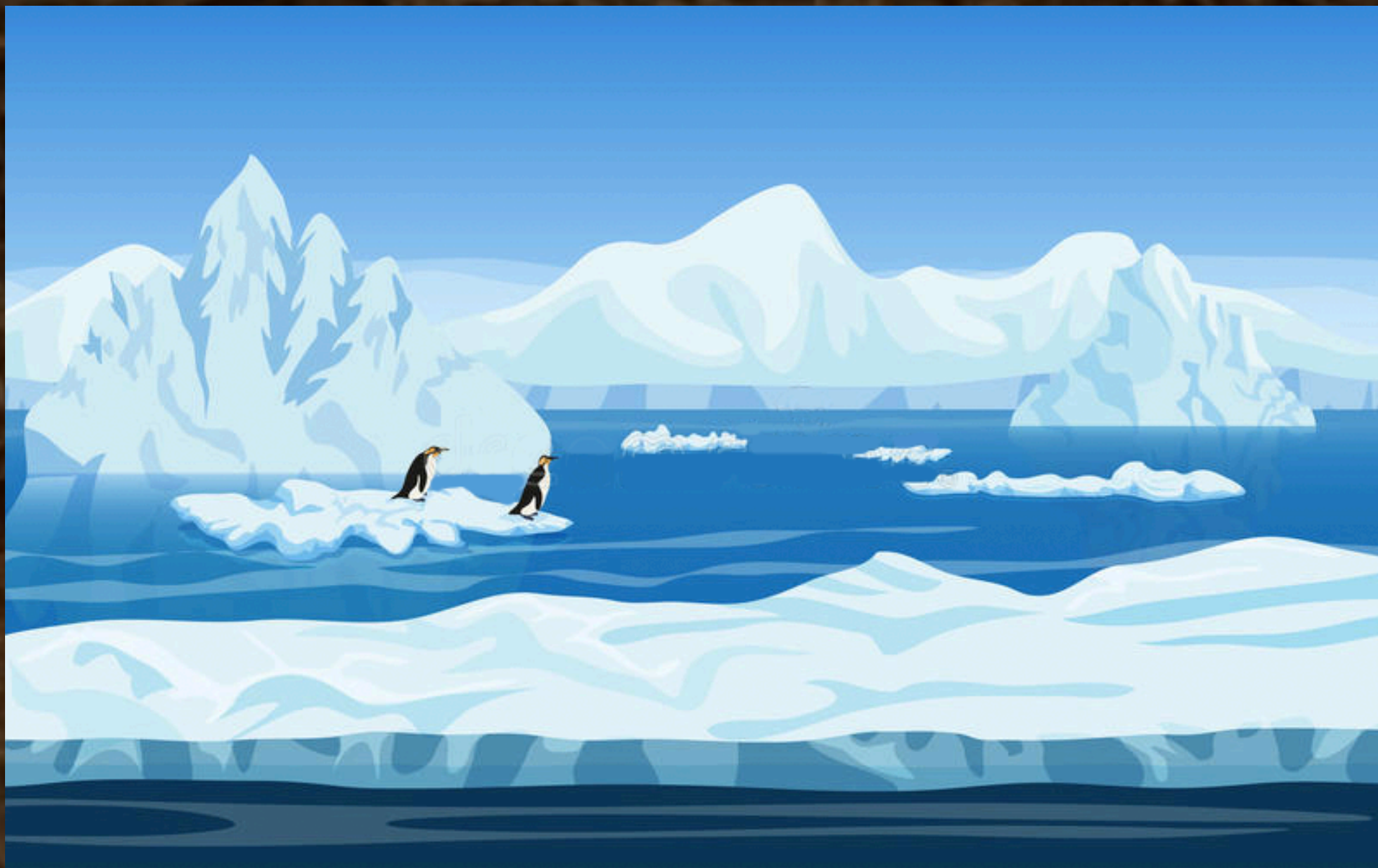


image: Kutsnyi , n.d.



EXAMPLE 1:

SEA ICE:

equivalent to 772,204.32 square miles

Alaska is 665,384 square miles (census.gov, 2010)



The amount of
sea ice we have
lost due to
warming is
greater than the
size of Alaska



EXAMPLE 1:

SEA ICE:

The melting of sea ice in the arctic regions trigger a rippling effect throughout the rest of the world. When ocean circulation is disrupted by the melting of sea ice caused by warming, it changes the way the ocean naturally moves (NOAA, 2023). The bright reflection of sea ice generally causes the sunlight to reflect back into the atmosphere....





EXAMPLE 1:

SEA ICE:

...As we lose more and more sea ice, we are losing the surfaces we rely on to reflect the sunlight back. This is what is causing our earth to absorb radiation like a sponge, leading to the increase ocean temperatures causing an imbalance and ripple effect throughout our ocean waters (NOAA, 2023)

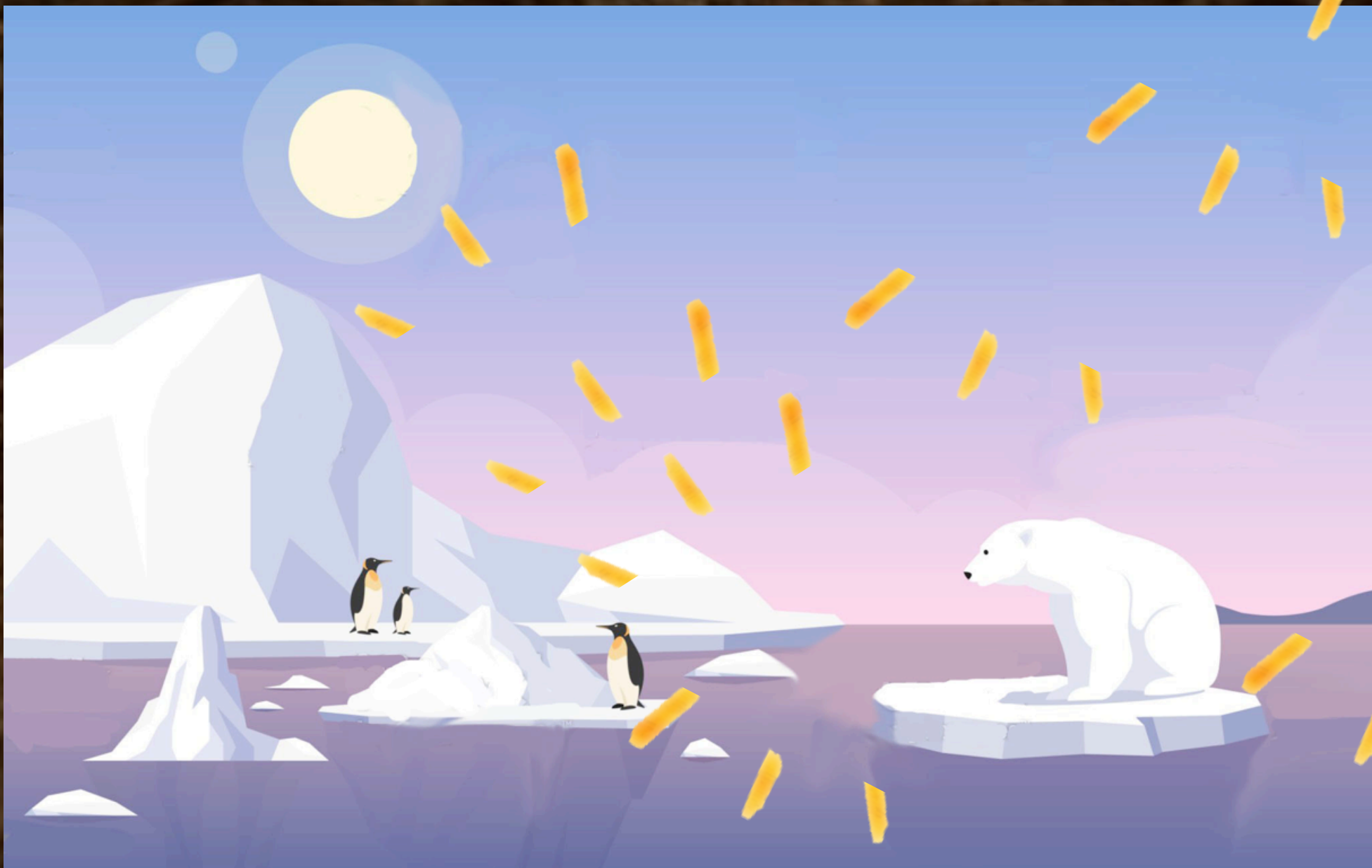


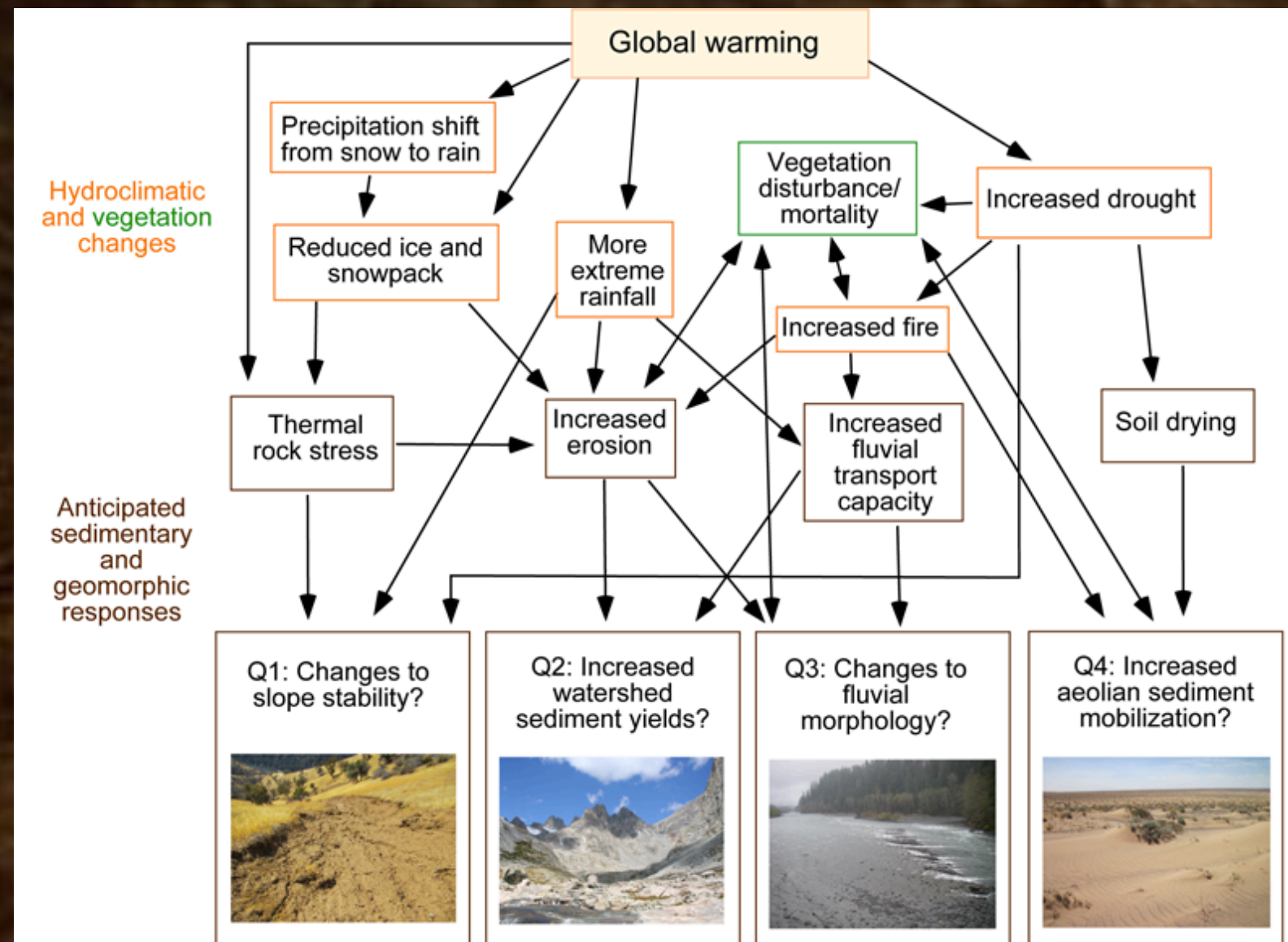
image: Natalia Darmoroz, 2020



EXAMPLE 2:

MOUNTAIN LANDSCAPES:

"Landscape response to climatic change lasts thousands to millions of years" (East & Sankey, 2020).



Credit: East & Sankey [2020]

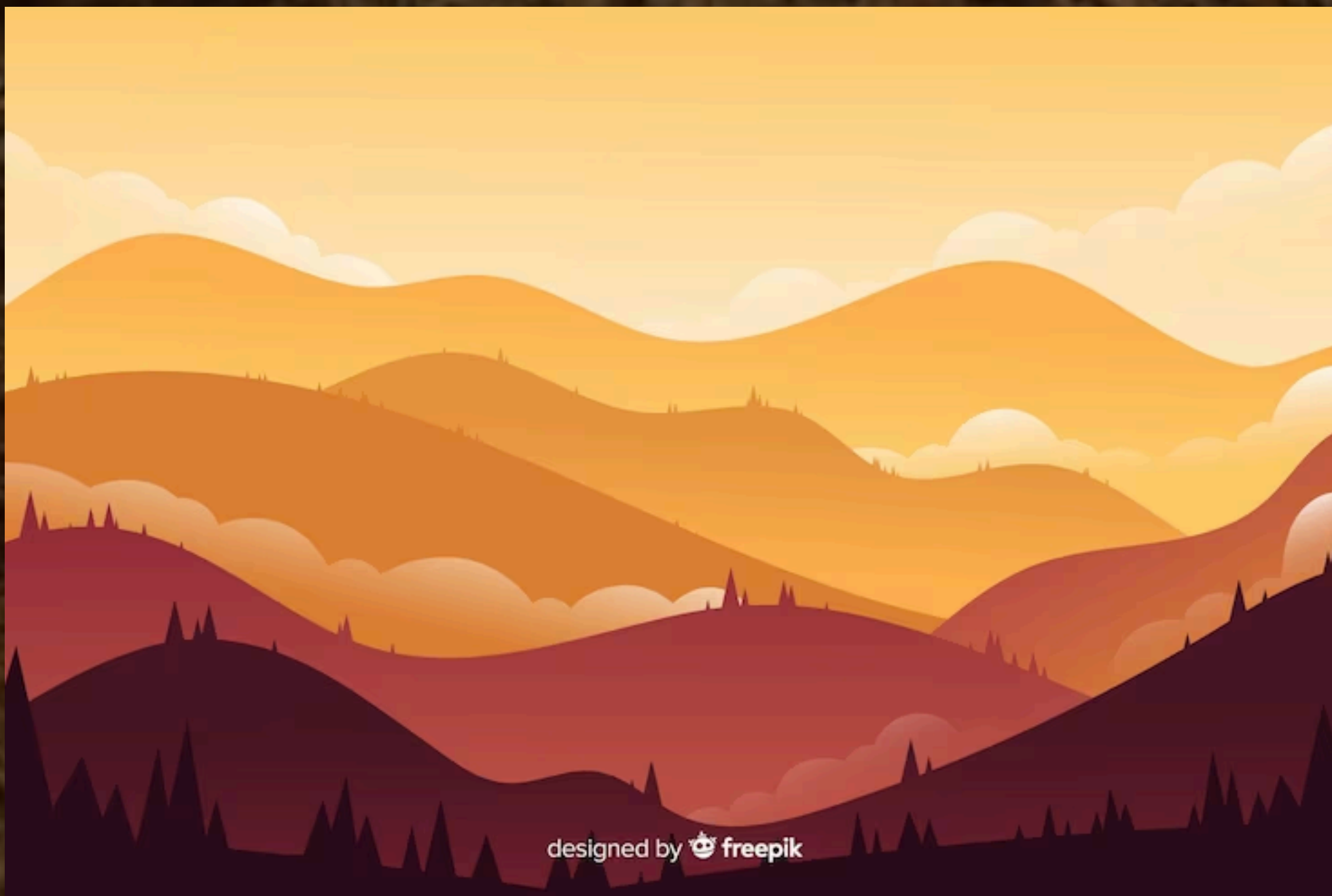
The above diagram shows "four process domains" that impact the landscape; all rooted from climate change (East & Sankey, 2020).



EXAMPLE 2:

MOUNTAIN LANDSCAPES:

Landslides, flooding to rivers, avalanches are just some of the negative impacts the world's mountain landscapes are experiencing (University of the Witwatersrand, 2022).



designed by freepik

image: pikisuperstar, n.d.



EXAMPLE 2:

MOUNTAIN LANDSCAPES:

Mountain water serves hundreds of millions of people all around the world. As mountain glaciers get smaller due to the extreme changes in weather, all continents will experience the toll climate change is taking on their sectors of the world, respectively (University of the Witwatersrand, 2022).



image: Vinata, n.d.

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