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Abstract

An examination of daily highs and precipitation days across 7800 weather stations in the US and Canada to determine regions where people who like cold, hot, or temperate climates might want to live

Data Driven Insights into Ideal Places to Live

DU AI Bootcamp: Project 1 Report

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# Project Overview

## Executive Summary

Our team is: Jeff Flachman, Pedro Zurita, Thomas Brown

People like different temperature ranges that allow them to enjoy where they live and the types of activities they do. For this project we examined weather data to identify areas where different types of people may choose to live based on their preference for cold, hot, or temperate climates.

We queried ChatGPT and Claude to refine parameters for cold, hot and temperate climates. These recommendations were discussed, and a range of temperatures was defined for each of the climates. Global weather station data for the US and Canada was pulled, cleaned and organized.

Because weather is a geographic centric statistic, we found it best to analyze and present our data on dynamic plotly maps. The maps in the report contain links to dynamic plotly maps saved on our github pages at <http://jflachman.github.io>.

## Goals & Questions

### Our Goal

We want to answer a basic question: **Where would I like to live based on the weather in that region?**

There are many sources that talk about cities with great weather, culture, and activities. However, most of their analysis is based on Average temperature information. However, you do not typically decide what you are going to do today based on the average monthly or annual temperature. You base your decision on the high for the day, the max temperature.

Therefore, we wanted to find a way to base our results on the high or max temperature for the day. We defined a number of questions to answer that would drive our analysis.

### Our Questions

To define some parameters for our questions, we consulted two AI sources: ChatGPT (chatgpt.com) and Claude (claude.ai). ChatGPT provided different answers when we asked it a second time to confirm our data for this report.

The use of these sources, and our chosen application of the recommendations is somewhat subjective. Others may rerun our analysis, altering these parameters to refine the result to better meet their interpretation.

The text of our ChatGPT and Claude interactions and our chosen parameter summaries is included in Appendix A (section 6).

Our questions and the summary of our parameter selections is listed below:

**Question 1:** What are the different climate categories from arid to wet?

**Our Summary:**

For Arid and Semi-Arid climates, we will use 100 days of precipitation or less. This is good for hot and temperate climates.

For Humid Continental climates we will use 100-200 days of precipitation or less. This may (a subjective answer) be better for colder climates to support winter activities.

**Question 2:** For people who like cold weather, what is the ideal temperature?

**Our Summary:**

We selected **25°F to 55°F** as the desired temperature for people who like colder temperatures based on the initial ChatGPT and Claude responses.

For the Ideal weather, we chose a more Arid to humid continental climates with less than 200 days of precipitation. This allows for snow to support enjoyable cold weather activities.

**Question 3:** For people who like hot weather, what is the ideal temperature?

**Our Summary:** We selected **75°F to 95°F** as the desired temperature for people who like hotter temperatures based on the initial ChatGPT and Claude responses.

For the Ideal weather, we chose a more Arid to Semi-arid climate with less than 100 days of precipitation.

**Question 4:** For people who like temperate weather, what is the ideal temperature?

**Our Summary:**

We selected **60°F to 80°F** as the desired temperature for people who like hotter temperatures based on the initial ChatGPT and Claude responses.

For the Ideal weather, we chose a more Arid to Semi-arid climate with less than 100 days of precipitation.

**Question 5:** What temperatures would be considered extreme that people who typically like hot or cold climates would not like?

**Our Summary:**

We selected **20°F** as the point for people who like colder temperatures and will find the cold to be extreme. We selected **95°F** as the point for people who like hotter temperatures and will find the heat to be extreme.

## Approach

Needs narrative.

* Defined the goals with ChatGPT.
* Created visualizations.
* The visualization provided the best insight into the data.
* Analyzed the visualizations to make our conclusions.

[A map of the united states

Description automatically generated](https://jflachman.github.io/plotly/60-80.html)

## Data Collection, Cleanup & Exploration

Need narrative.

* Pulled in 37M daily weather records from 24K weather stations across the globe.
* https://www1.ncdc.noaa.gov/pub/data/ghcn/daily/by\_year/
* Reduced the data by reducing to US and Canada weather stations.
* Transformed the data by consolidating (groupby) for Precipitation & min, max and average temperature.
* Resulted in 8687 stations across US and Canada
* Binned all the data within ~20 temperature ranges for TMAX (count of days in each range)
* Eliminated stations with fewer than 300 days of data and normalized to 365 days.
* Resulted in 7767 stations across US and Canada
* Performed analysis of days > X, days < X, and X < days < Y
* Added Station Lat/Lon (Merge)
* Plotted all the result on a dynamic map using plotly (plotly.com)
* Analyzed regions of temperature dynamics.
* Saved intermediate progress DataFrames in work above in compressed Parquet files to keep file size to minimum.
* Assumptions:
* Missing Precipitation data set to zero.
* Eliminated data with missing TMAX.
* Eliminated stations with TMAX count < 300.
* TMIN, TAVG cleaned but not needed for analysis.
* Precipitation is used to inform the idea of rainy days or potential cloudy days. This is an imperfect assumption.

# Results & Conclusions

To refine our questions, we consulted two AI sources: ChatGPT (chatgpt.com) and Claude (claude.ai). ChatGPT provided different answers when we asked it a second time to confirm our data for this report.

The use of these sources, and our chosen application of the recommendations is somewhat subjective. Others may rerun our analysis, altering these parameters to refine the result to better meet their interpretation.

The text of our ChatGPT and Claude interactions and our chosen parameter summaries is included in Appendix A (section 6).

The questions and summaries are provided in the sections below:

## Areas of Extreme Temperatures

Need to write text about the question, parameters and results.

Need to insert graphics and create Links.

A map of the united states

Description automatically generatedReally too cold: Days < 20

* Most regions above Lat: ~

Really too hot: Days > 90

* Most regions below Lat: ~34
* See Brown regions.

A map of the united states

Description automatically generated

## Precipitation (ARID vs Wet, Dry vs Humid)

Need to write text about the question, parameters and results.

Need to insert graphics and create Links.

Arid Regions include:

* Southwester US
* Mid rainy
* Wet Regions include:
* Northwestern US and Canada
* US and Canada East Coast toward the Midwest

## Cold Climates (25°F to 50°F)

Need to write text about the question, parameters and results.

Need to insert graphics and create Links.

Our analysis defined the comfort zone for cold climates as 25°F to 55°F.

Comfort Zones for people who like it cold:

* Northern US and all of Canada
* The area includes southern states in the west.

## Hot Climates (75°F to 95°F)

Need to write text about the question, parameters and results.

Need to insert graphics and create Links.

Our analysis defined the comfort zone for hot climates as 75°F to 95°F.

Comfort Zones for people who like it hot:

* Southeast US (FL, LA, AL, GA, SC, NC, TN)
* Central Southern CA
* South TX

## Temperate Climates (60°F to 80°F)

Need to write text about the question, parameters and results.

Need to insert graphics and create Links.

Our analysis defined the comfort zone for temperate climates as 60°F to 80°F. Most people set thermostat for 72°F.

Comfort Zones for people who like temperate climates:

* Westcoast within a short range from the coastline (CA, OR WA
* Canada BC – Vancouver, Edmonton
* Mid-southeast US (VA, WV, NC, SC, TN, GA and N AL)
* Arizona at elevation (Flagstaff on to SE)

# Summary

Need a better narrative for the summary!

Comfort Zones for people who like it hot:

* Southeast US (FL, LA, AL, GA, SC, NC, TN)
* Central Southern CA
* South TX

Comfort Zones for people who like it cold:

* Northern US and all of Canada
* Area includes southern states in the west (NV, UT, CO)

Comfort Zones for people who like temperate climates:

* Westcoast within a short range from the coastline (CA, OR, WA
* Canada BC – Vancouver, Edmonton
* Mid-southeast US (VA, WV, NC, SC, TN, GA and N AL)
* Arizona at elevation (Flagstaff on to SE)

Extremes:

* Too hot: large number of days >90: Southern US below Lat: ~
* Too cold: large number of days <20: Norther US and Canada above Lat: ~

# Problems Encountered

Need narrative and not just bullets!

## Problems with the data we used:

* Some bad data was in the dataset (extreme temp outliers)
* Some weather stations provided limited TMAX data.
* We chose to use only weather stations with at least 300 days of TMAX data.
* We normalized data to 365 days (this is the reason that TMAX days is a float)

## Problems adding to our analysis.

* Data by County or Zip Code was limited or costly.
* Spent way too much time searching for additional data to add in that was freely available.
* Ran out of time to integrate mean house price from US Census with zip code Geojson file to create a Choropleth layer coloring counties by median house value.
* See example figure on next slide: plotly choropleth example from plotly.com with counties and unemployment rate

# Future Considerations

Need some narrative.

There are many ways that this analysis can be extended.

* Create an interactive tool where users enter temperature range, and a map is generated.
* Add housing median price by zip code (Chloropleth) and overlay weather on top.
* See example figure on next slide: plotly choropleth example from plotly.com with counties and unemployment rate.
* Add a precipitation overlay (correlation to cloudy)
* Show additional visualizations for min or average temperature.
* Find other sources for environmental impacts by geography: tornados, earthquakes, humidity, pests, etc.

# Appendix A

To refine our questions, we consulted two AI sources: ChatGPT (chatgpt.com) and Claude (claude.ai).

The detailed result of these queries is included below:

## Question 1: Arid vs Wet Climates

**Question:**

What are the different climate categories from arid to wet?

**Our Summary:**

For Arid and Semi-Arid climates, we will use 100 days of precipitation or less.

For Humid Continental climates we will use 100-200 days of precipitation or less.

**ChatGPT:**

Climate classification systems categorize climates into different types based on factors such as temperature, precipitation, and vegetation. One widely used classification system is the Köppen climate classification system, which divides climates into several main categories and subcategories. Here's an overview of the different climate categories from arid to wet in the Köppen classification system:

1. **Arid Climates (Group B):**

* Deserts (BW): Very low precipitation, often hot temperatures. Examples include the Sahara Desert and the Arabian Desert.
* Steppe or Semi-Arid (BS): Low precipitation, typically characterized by grasslands with sparse vegetation. Examples include parts of central Asia and the Great Plains of North America.

1. **Temperate Climates (Group C):**

* Temperate (C): Moderate precipitation, with distinct seasons including warm summers and cool winters. Subcategories include:
* Mediterranean (Csa, Csb): Warm, dry summers and mild, wet winters. Found around the Mediterranean Sea and in parts of California, Chile, and South Africa.
* Humid Subtropical (Cfa, Cwa): Hot, humid summers and mild to cool winters. Examples include the southeastern United States, eastern China, and Japan.

1. **Continental Climates (Group D):**

* Continental (D): Moderate precipitation, with more extreme seasonal temperature variations. Subcategories include:
* Warm Summer (Dfa, Dwa): Warm to hot summers and cold winters. Found in parts of central and eastern Europe, central Asia, and the central United States.
* Cold Winter (Dfb, Dwb): Cool to cold summers and very cold winters. Examples include parts of Canada, Russia, and northern China.

1. **Polar Climates (Group E):**

* Tundra (ET): Cold climates with very little precipitation and short, cool summers. Vegetation is typically low-growing plants like mosses and lichens. Found in northern parts of North America, Europe, and Asia.
* Ice Cap (EF): Extremely cold and dry climates, with temperatures below freezing year-round. Ice caps are found in Antarctica and Greenland.

1. **Tropical Climates (Group A):**

* Tropical Rainforest (Af): High precipitation and consistently warm temperatures year-round. Dense vegetation, including tall trees and diverse plant life. Examples include the Amazon Rainforest and the Congo Basin.
* Tropical Monsoon (Am): High precipitation, with distinct wet and dry seasons. Found in regions such as parts of Southeast Asia and northern Australia.

These are just a few examples, and there are variations and subcategories within each climate type. The Köppen system is widely used, but there are other classification systems as well, each with its own set of categories and criteria.

**Claude:**

Here are the main climate categories ranging from arid to wet, based on precipitation amounts and patterns:

1. **Arid Climates:**

* Hyper-Arid (desert) - Less than 5 precipitation days per year
* Arid - 5 to 30 precipitation days per year

1. **Semi-Arid/Moderately Dry Climates:**

* 30 to 100 precipitation days per year

1. **Dry Subtropical Climates:**
   * 30 to 90 precipitation days per year, with distinct wet and dry seasons
2. **Mediterranean Climates:**
   * 30 to 90 precipitation days per year, with hot, dry summers and mild, wet winters
3. **Humid Subtropical Climates:**
   * 90 to 150 precipitation days per year, with hot, humid summers
4. **Humid Continental Climates:**
   * 100 to 200 precipitation days per year, with four distinct seasons
5. **Oceanic/Marine West Coast Climates:**
   * 150 to 250 precipitation days per year, with cool summers
6. **Wet Tropical Climates:**
   * Over 150 precipitation days per year, hot and humid year-round
7. **Monsoon Climates:**
   * Over 200 precipitation days per year, extreme wet and dry seasons
8. **Tropical Rainforest Climates:**
   * Over 200 precipitation days per year, hot and humid with frequent rainfall

So, in summary, the categories go from hyper-arid (under 5 rain days), to arid (5-30), semi-arid (30-100), then increasing precipitation for dry subtropical, Mediterranean, humid subtropical/continental, marine west coast, wet tropical, monsoon, and finally the wettest tropical rainforest climates.

## Question 2: Cold Climates

**Question:**

For people who like cold weather, what is the ideal temperature?

**Our Summary:**

We selected **25°F to 55°F** as the desired temperature for people who like colder temperatures based on the initial ChatGPT and Claude responses.

Alternate Cold climate range may be **30°F to 65°F.** We will evaluate both interpretations.

For the Ideal weather, we chose a more Arid to humid continental climates with less than 200 days of precipitation. This allows for snow to support enjoyable cold weather activities.

**ChatGPT:**

ChatGPT provided different answers when we asked it a second time to confirm our data for this report.

**Answer 1:**

For those who enjoy cold weather, the ideal temperature typically ranges **23 to 50** degrees Fahrenheit. However, preferences can vary widely among individuals, with some preferring even colder temperatures, especially if they enjoy winter sports like skiing or snowboarding. Additionally, factors such as humidity, wind chill, and personal tolerance to cold also influence what someone considers their ideal cold weather temperature.

**Answer 2:**

The ideal temperature for people who enjoy cold weather can vary significantly based on personal preferences, activities, and physiological factors. However, generally speaking, temperatures in the range of 10°C to 20°C (**50°F to 68°F**) are often considered comfortable for those who prefer cooler climates. Here are a few reasons why this temperature range might be ideal for cold weather enthusiasts:

1. **Comfortable for Outdoor Activities**: Temperatures between 10°C to 20°C are often comfortable for outdoor activities such as hiking, skiing, or simply taking a leisurely walk. It's cool enough to be refreshing but not so cold as to be uncomfortable.
2. **Enjoyable for Layering Clothing**: Cooler temperatures allow for comfortable layering of clothing, which many cold weather enthusiasts enjoy. This allows for flexibility in adapting to changing weather conditions and outdoor activities.
3. **Maintains Energy Levels**: For some people, cooler temperatures can help maintain energy levels and alertness, especially during physical activities. The brisk air can feel invigorating and refreshing.
4. **Better Sleep Environment**: Many people find it easier to sleep in cooler environments. Sleeping in slightly cooler temperatures can promote better sleep quality and may be more conducive to restful sleep.
5. **Reduced Allergens**: Cooler temperatures can sometimes be associated with lower humidity levels, which may reduce the presence of allergens like mold and dust mites. This can be beneficial for individuals with allergies or respiratory issues.

Of course, individual preferences can vary widely, and what one person considers ideal, another may find too cold or too warm. Some individuals may even prefer much colder temperatures and thrive in climates with temperatures below freezing. Ultimately, the ideal temperature for cold weather enthusiasts depends on personal comfort levels, lifestyle, and the activities they enjoy.

**Claude:**

For people who enjoy colder weather, the ideal temperature range tends to be:

* **50°F (10°C) to 65°F (18°C)** - This range is considered cool to mild for most people. At the lower end around 50°F (10°C), it starts feeling quite crisp and refreshing for cold weather fans.
* **40°F (4°C) to 55°F (13°C)** - Many who love cold temperatures revel in this brisk, chilly range. Around 45°F (7°C) is an ideal cool temperature for some cold devotees.
* **30°F (-1°C) to 45°F (7°C)** - The colder part of this range from freezing (32°F/0°C) down to around 30°F (-1°C) is absolutely perfect cold weather for extreme cold lovers.

Of course, preferences can vary based on the individual, clothing worn, wind chill, and humidity levels. But in general, most people who appreciate cold conditions seem to idealize temperatures from about 30°F to 55°F (-1°C to 13°C).

Below freezing from 25°F (-4°C) and lower becomes too frigid for most cold weather fans to truly enjoy being outdoors for extended periods. And above 65°F (18°C) starts feeling too warm for diehard cold aficionados.

The crisp 40s Fahrenheit (around 5°C to 9°C) seem to be the sweet spot for maximum cold weather enjoyment for many people who love brisk, wintry conditions.

## Question 3: Hot Climates

**Question:**

For people who like hot weather, what is the ideal temperature?

**Our Summary:**

We selected **75°F to 95°F** as the desired temperature for people who like hotter temperatures based on the initial ChatGPT and Claude responses.

For the Ideal weather, we chose a more Arid to Semi-arid climate with less than 100 days of precipitation.

**ChatGPT:**

ChatGPT provided different answers when we asked it a second time to confirm our data for this report.

**Answer 1:**

The ideal temperature for people who enjoy hot weather can vary based on personal preference, but generally, it ranges between **77 to 95 degrees Fahrenheit**. Some might even prefer temperatures higher than that, especially if they live in regions with consistently warm climates. However, it's essential to note that **humidity levels also play a significant role in how comfortable or enjoyable hot weather feels** to individuals.

**Answer 2:**

For individuals who enjoy hot weather, the ideal temperature typically falls within a warmer range compared to those who prefer cooler climates. However, just like with cold weather enthusiasts, the ideal temperature for hot weather lovers can vary based on personal preferences, activities, and other factors. Here are some temperature ranges that might be considered ideal for people who enjoy hot weather:

1. **Warm and Sunny Days (25°C to 35°C / 77°F to 95°F):** Many individuals who enjoy hot weather find temperatures between 25°C and 35°C (77°F to 95°F) to be ideal. These temperatures are warm enough to feel comfortably hot without being excessively sweltering.
2. **Beach Weather (28°C to 32°C / 82°F to 90°F):** For those who love spending time at the beach or engaging in water activities, temperatures ranging from 28°C to 32°C (82°F to 90°F) are often considered ideal. These temperatures provide the perfect balance for sunbathing, swimming, and enjoying outdoor water sports.
3. **Dry Heat (30°C to 40°C / 86°F to 104°F):** In regions with dry climates, such as desert areas, temperatures ranging from 30°C to 40°C (86°F to 104°F) can be preferred by individuals who enjoy hot weather. The lack of humidity makes these temperatures feel more comfortable compared to humid conditions at similar temperatures.
4. **Tropical Climates (25°C to 30°C / 77°F to 86°F):** In tropical regions, temperatures ranging from 25°C to 30°C (77°F to 86°F) are common and are often considered ideal by individuals who enjoy hot and humid weather. These temperatures are typically accompanied by lush vegetation and frequent rainfall.
5. **Hot Summer Days (30°C to 35°C / 86°F to 95°F):** During the summer months, temperatures between 30°C and 35°C (86°F to 95°F) are often appreciated by hot weather enthusiasts. These temperatures provide ample opportunity for outdoor activities such as hiking, picnicking, and barbecuing.

It's important to note that individual preferences for hot weather can vary greatly, and what one person finds enjoyable, another may find uncomfortably hot. Factors such as humidity levels, wind speed, and personal tolerance for heat also play a significant role in determining the ideal temperature for hot weather lovers.

**Claude:**

There is no definitive "ideal" temperature that will be perfect for everyone who enjoys hot weather. Personal preferences and factors like humidity can influence what feels comfortable. However, some general guidelines for temperatures that many people who like hot weather would find pleasant:

* **80°F (27°C) to 95°F (35°C)** - This range tends to be considered very warm to hot by most people. The hotter end around 90°F (32°C) or above is when heat starts to become oppressive for some.
* **85°F (29°C) to 90°F (32°C)** - This could be considered an ideal hot temperature range for many heat-lovers, though the humidity level makes a big difference in how comfortable these temps feel.
* **75°F (24°C) to 85°F (29°C)** - Some may find the hotter part of this range ideal, while others who really crave heat may want it a bit warmer still.

Personal acclimatization also plays a role. Those who live in very hot climates year-round tend to prefer even hotter temperatures than visitors from cooler areas. But in general, most people who like it hot seem to ideal hot temp in the mid 80s to low 90s Fahrenheit (29°C to 34°C) with low humidity. Anything much above 100°F (38°C) can feel uncomfortably hot for extended periods even for heat-lovers.

## Question 4: Temperate Climates

**Question:**

For people who like temperate weather, what is the ideal temperature?

**Our Summary:**

We selected **60°F to 80°F** as the desired temperature for people who like hotter temperatures based on the initial ChatGPT and Claude responses.

For the Ideal weather, we chose a more Arid to Semi-arid climate with less than 100 days of precipitation.

**ChatGPT:**

ChatGPT provided different answers when we asked it a second time to confirm our data for this report.

**Answer 1:**

People who prefer moderate temperatures typically find comfort in a range of **64 to 75** degrees Fahrenheit. This range provides a pleasant balance between warmth and coolness, allowing for comfortable indoor and outdoor activities without feeling too hot or too cold. Moderate temperatures like these are often considered ideal for various daily activities, such as outdoor exercise, leisurely walks, or simply enjoying time outdoors without discomfort.

**Answer 2:**

For individuals who enjoy temperate weather, the ideal temperature typically falls within a moderate range that is neither too hot nor too cold. Temperate weather enthusiasts often appreciate a comfortable balance that allows for outdoor activities and enjoyment without extreme temperatures. Here are some temperature ranges that might be considered ideal for people who like temperate weather:

* **Mild and Pleasant Days (20°C to 25°C / 68°F to 77°F)**: Many individuals who prefer temperate weather find temperatures between 20°C and 25°C (68°F to 77°F) to be ideal. These temperatures are neither too hot nor too cold, providing a pleasant and comfortable environment for outdoor activities, such as hiking, biking, or simply enjoying nature.
* **Spring and Fall Weather (15°C to 20°C / 59°F to 68°F):** Temperatures ranging from 15°C to 20°C (59°F to 68°F) are often appreciated by those who enjoy temperate climates during the spring and fall seasons. These temperatures are mild and comfortable, allowing for enjoyable outdoor activities like picnics, gardening, or leisurely walks.
* **Cool Summer Evenings (18°C to 22°C / 64°F to 72°F):** During the summer months, temperatures between 18°C and 22°C (64°F to 72°F) are often preferred by individuals who enjoy temperate weather. These temperatures provide relief from the heat of the day while still allowing for outdoor gatherings, barbecues, or stargazing.
* **Moderate Humidity (20°C to 25°C / 68°F to 77°F with Low Humidity):** Temperatures between 20°C and 25°C (68°F to 77°F) with low humidity levels are often considered ideal by temperate weather enthusiasts. Moderate humidity levels contribute to a comfortable and enjoyable outdoor environment without feeling too sticky or uncomfortable.
* **Balanced Climate (No Extreme Temperatures):** Overall, individuals who prefer temperate weather appreciate climates that avoid extreme temperatures, whether hot or cold. A balanced climate with moderate temperatures year-round is often considered ideal for those who enjoy temperate weather.

It's important to note that individual preferences for temperate weather can vary, and what one person finds ideal, another may find too warm or too cool. Additionally, factors such as wind speed, sunshine, and personal tolerance for temperature fluctuations also influence what individuals consider to be the ideal temperate weather.

**Claude:**

For people who prefer temperate, moderate weather conditions, the ideal temperature range tends to be:

* **65°F (18°C) to 75°F (24°C)** - This range is often considered perfect temperate weather by many people. Not too hot, not too cold, just pleasantly mild.
* **60°F (16°C) to 70°F (21°C)** - Some may find the cooler end of this range ideal for temperate conditions, while others lean toward the warmer end.
* **70°F (21°C) to 80°F (27°C)** - As you get up into the 70s Fahrenheit, it starts feeling warm rather than just mild for some temperate weather fans. But low 70s can still be appreciated.

A few key factors that make certain temperatures feel ideally temperate include:

* **Low humidity** - Dry air feels more comfortable than muggy conditions at the same temp.
* **Ample cloud cover** - Sunny days make temperatures feel warmer than overcast ones.
* **Little wind** - Breezy conditions can make a mild temp feel colder.

In general though, temperatures from about 65°F to 75°F (18°C to 24°C) combined with low humidity, partial cloud cover, and light winds tend to be considered a perfect temperate weather zone for most who dislike extremes of hot or cold.

The mid to upper 60s Fahrenheit (around 18°C to 21°C) often hits that idealized sweet spot for temperate weather enjoyment. Not too cool, not too warm - just right in the middle.

## Question 5: Extreme Temperatures

**Question:**

What temperatures would be considered extreme that people who typically like hot or cold climates would not like?

**Our Summary:**

We selected **20°F** as the point for people who like colder temperatures and will find the cold to be extreme. We selected **95°F** as the point for people who like hotter temperatures and will find the heat to be extreme.

**ChatGPT:**

For people who typically enjoy hot or cold climates, there are temperature extremes that can become uncomfortable or even dangerous:

Extreme temperatures that individuals who typically enjoy hot or cold climates might find uncomfortable typically fall outside of their preferred temperature ranges. Here are some examples:

1. **Extreme Heat (Above 40°C / 104°F):** Temperatures above 40°C (104°F) are considered extreme and can be uncomfortable, even for individuals who generally enjoy hot weather. High temperatures can lead to heat-related illnesses such as heat exhaustion and heatstroke, and prolonged exposure to extreme heat can be dangerous.
2. **Extreme Cold (Below -10°C / 14°F):** Temperatures below -10°C (14°F) are considered extreme cold and can be challenging, even for individuals who typically enjoy cold climates. Extreme cold temperatures can increase the risk of frostbite, hypothermia, and other cold-related health issues.
3. **Heatwaves:** Heatwaves, which are prolonged periods of excessively hot weather, can be particularly uncomfortable and dangerous for individuals who enjoy hot climates. Heatwaves often bring high temperatures, humidity, and poor air quality, increasing the risk of heat-related illnesses and discomfort.
4. **Cold Snaps:** Cold snaps, which are sudden and prolonged periods of extremely cold weather, can be challenging for individuals who enjoy cold climates. Cold snaps often bring frigid temperatures, strong winds, and heavy snowfall, making outdoor activities difficult and increasing the risk of cold-related health issues.
5. **Temperature Extremes in Combination with Other Factors**: Extreme temperatures can become even more uncomfortable and dangerous when combined with other factors such as high humidity, low humidity (resulting in dry air), strong winds, or poor air quality. These conditions can exacerbate the effects of extreme heat or cold and increase the risk of health problems.

It's important to note that individual tolerance for extreme temperatures varies, and what one person considers extreme, another may find manageable. However, extreme temperatures outside of the typical range for hot or cold climates can pose health risks and discomfort for individuals who enjoy those climates.

**Claude:**

For people who typically enjoy hot or cold climates, there are temperature extremes that can become uncomfortable or even dangerous:

**For Hot Weather Lovers:**

* Temperatures above 105°F (41°C) are generally considered extremely hot, even for heat enthusiasts. The risk of heat illness increases significantly.
* In dry desert climates, temperatures of 115°F (46°C) or higher can be life-threatening with prolonged exposure.
* With high humidity levels, temperatures as "low" as 95°F (35°C) can feel oppressively hot and unbearable.

**For Cold Weather Lovers:**

* Temperatures below 0°F (-18°C) are considered extremely cold, even for cold aficionados. Risk of frostbite and hypothermia increases.
* Wind chills below -20°F (-29°C) make being outdoors very difficult and dangerous without proper protection.
* In polar regions, temperatures of -40°F (-40°C) or lower are considered extraordinarily cold extremes.

**So in general:**

* Temperatures over 105-115°F (41-46°C) are extremely hot, even for hot climate fans.
* Temperatures below 0°F (-18°C), especially with wind chill, are extremely cold even for cold lovers.

At these extreme ends of the temperature range, risks increase significantly regardless of hot/cold preferences. Most people find prolonged exposure very uncomfortable and potentially hazardous without proper preparation and precautions.

Moderation becomes more important as temperatures veer toward these thresholds considered hazardous extremes by meteorologists and health officials. Acclimation helps, but doesn't eliminate all danger at these limits.