Temperature Exploration

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¿Will you survive?

Limits Of Human Survival

We cannot survive in any condition. We need to take care of where we live, especially how we transform the places we live

Why We Need To Analyse Temperature?

As you could see, weather linked to human survival. One of it bigger and determinant factors is temperature

Tools Used

Pig Latin

We decided to use PigLatin because it's simple, easy to program and its similar to SQL.

Data

Every good project has a .... huge and massive amount of data,

one that broke your memory

We use Climate Change: Earth Surface Temperature Data dataset. It's a monthly temperature series from 1750 to 2013. It's part of a scientific initiative pursuing to answer observations made by climate change sceptics.

Methodology

We are nothing without knowing what we are going to do…

Ok we are doomed

What we Analyze in Summary

- **Trends (T):** The evolution of temperatures
- **Zoning (Z):** Changes per zone
- **Detect Events (DE):** Around the globe
- **Detect inhospitable places (DiP):** Where is already becoming dangerous

Guideline Questions

- -¿Which are the most affected countries by the "changes" in temperature? **Z, T**
- -¿Increase or decrease *delta* of temperatures over the years? (Δ = Max - min) **T**
- -¿What are the trend of *average* temperature over the years? **T**
- -¿Which is the tendency of the average temperature per zone? **Z, T**
- -¿Which is the tendency from the extreme marks zones (-20, 20 °C) **Z, T**

If we define a threshold, like 30 °C (an «extreme» heat temperature)

- -¿How many times this threshold is exceed? **T, DE**
- -¿Can we identify heat and cold waves? **DE**
- -¿Which places are becoming (tendencies) inhospitable? **DiP, T**

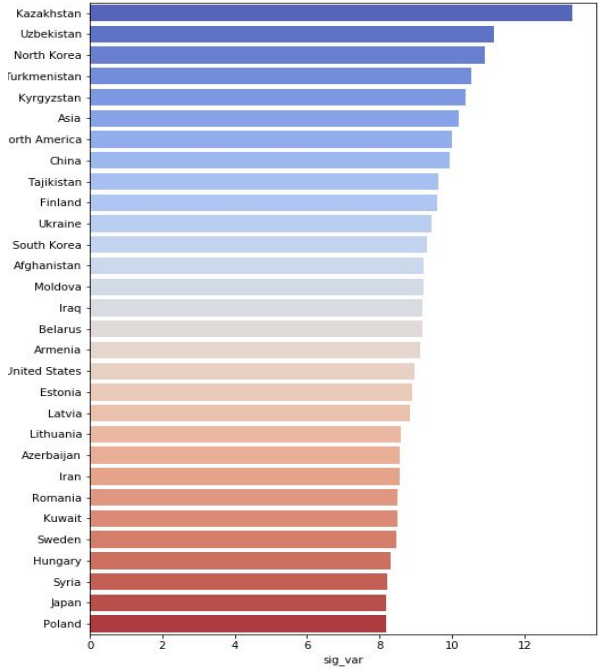
And for cold thresholds?

Results

There are some moments in life that are called happiness!

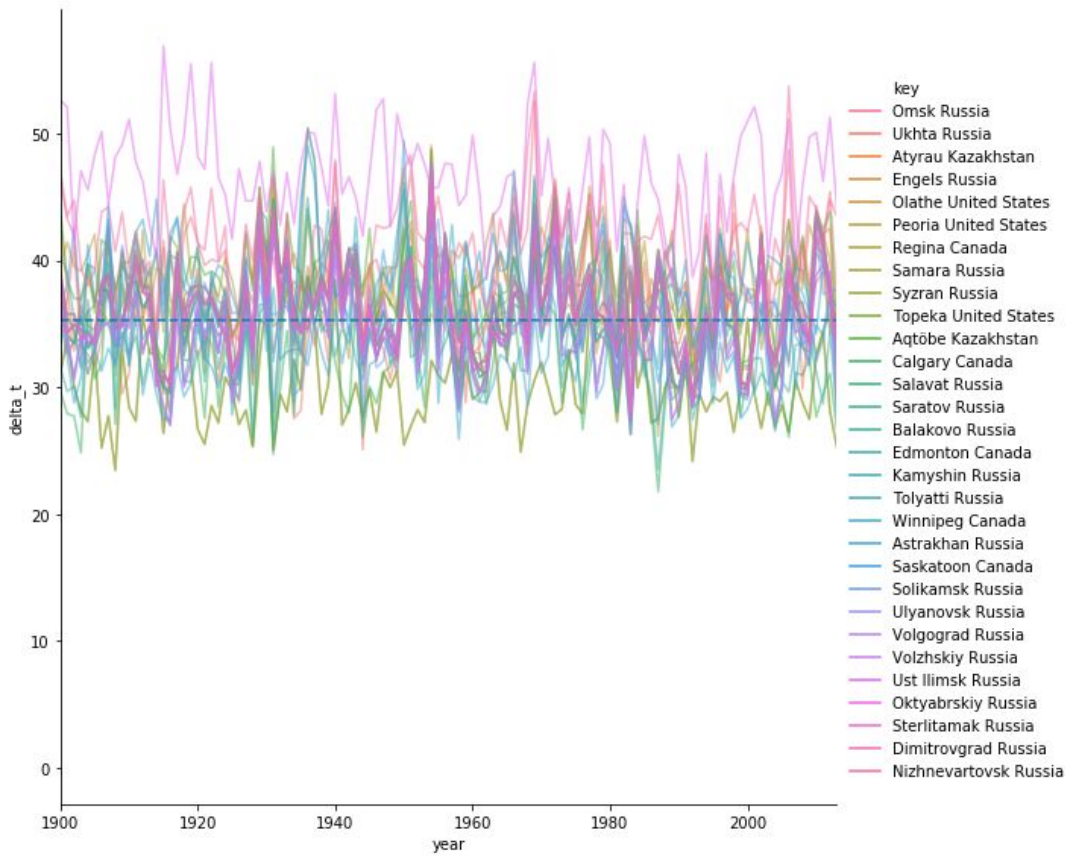
We managed to develop the Pig Queries for the questions 1-3 and 6-8.

Unfortunately, the zoning was quite complex to implement in Pig and we couldn't arrive to a working solution.



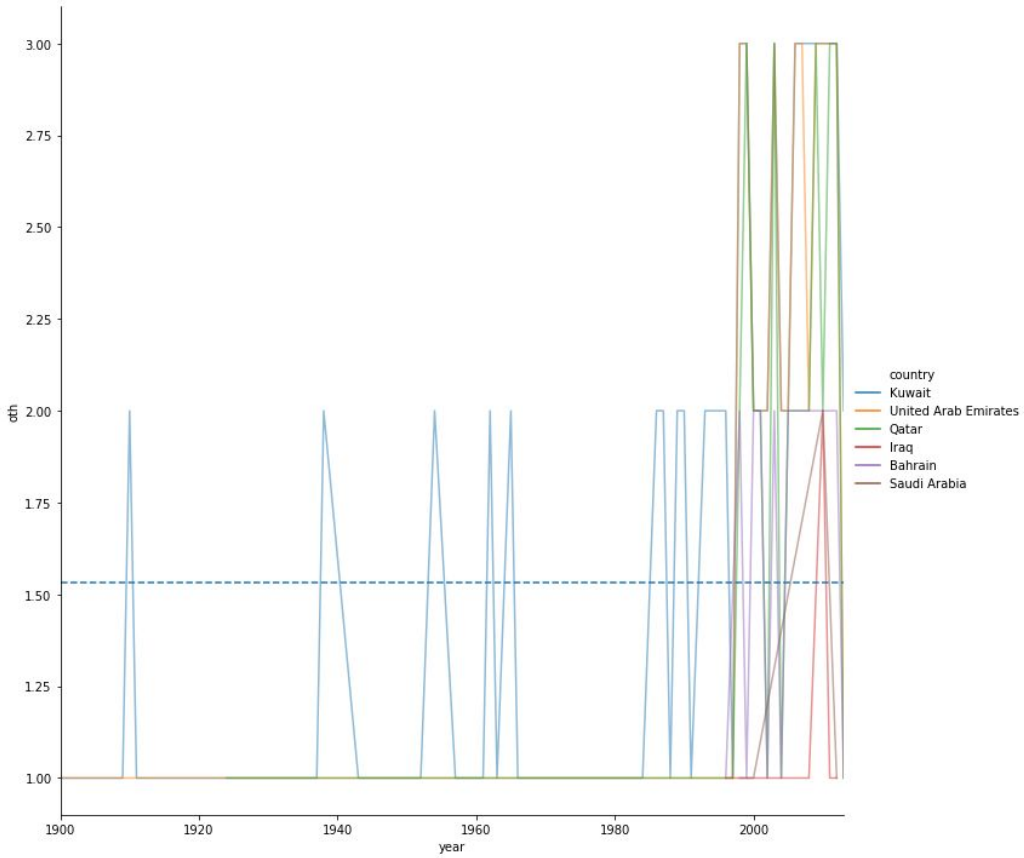
¿Which are the most affected countries by the "changes" in temperature?

Standard Deviation Country Temperature

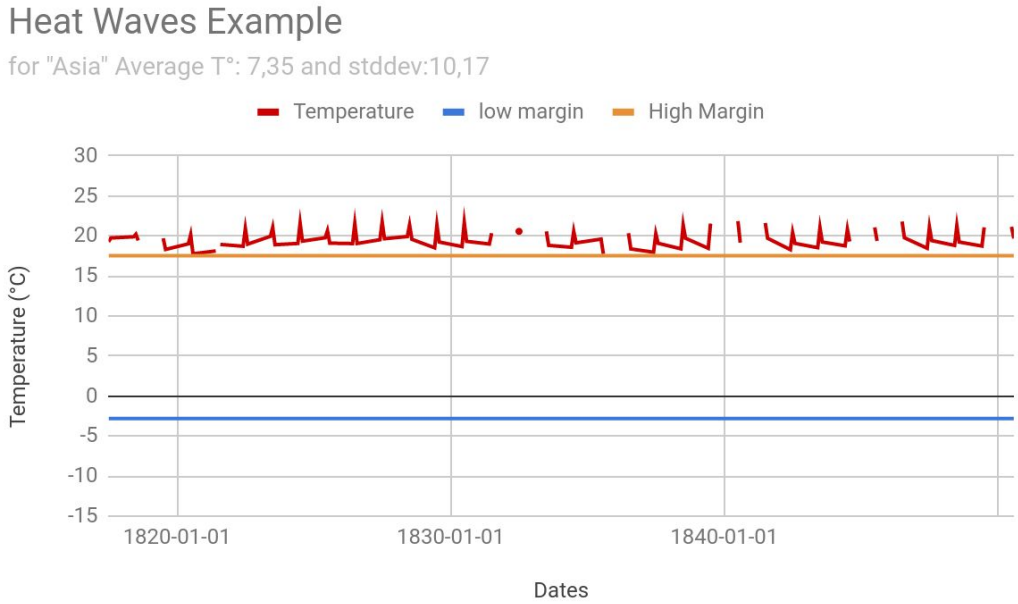


¿Increase or decrease delta of temperatures over the years? (Δ = Max - min)

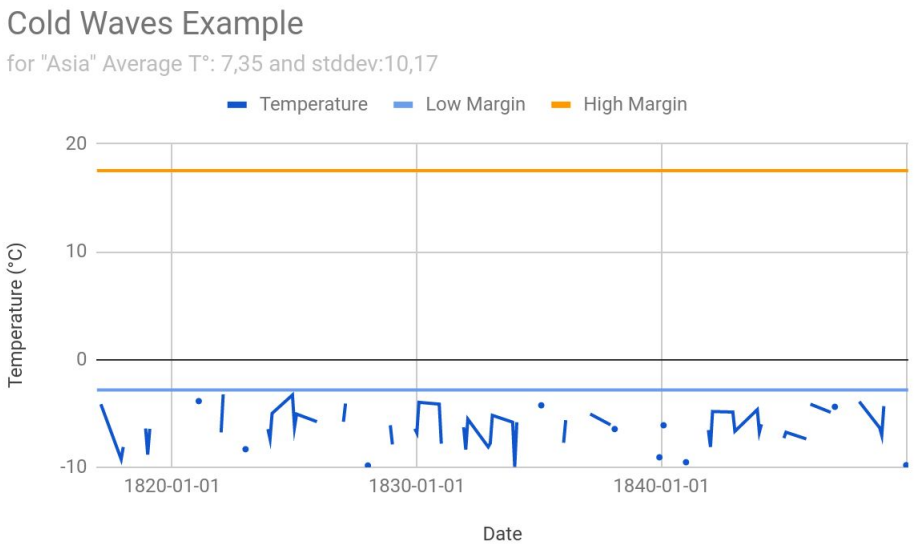
¿What are the trend of average temperature over the years?



¿How many times this threshold is exceed?



¿Can we identify heat and cold waves?



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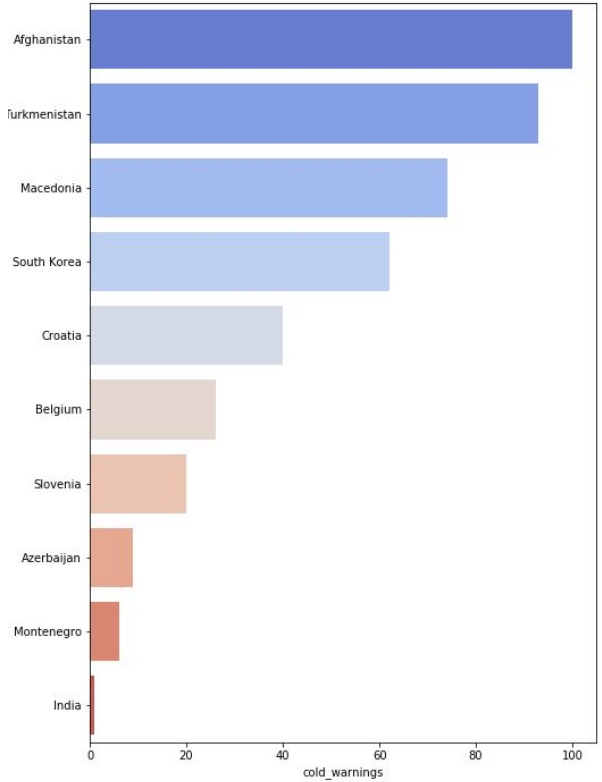
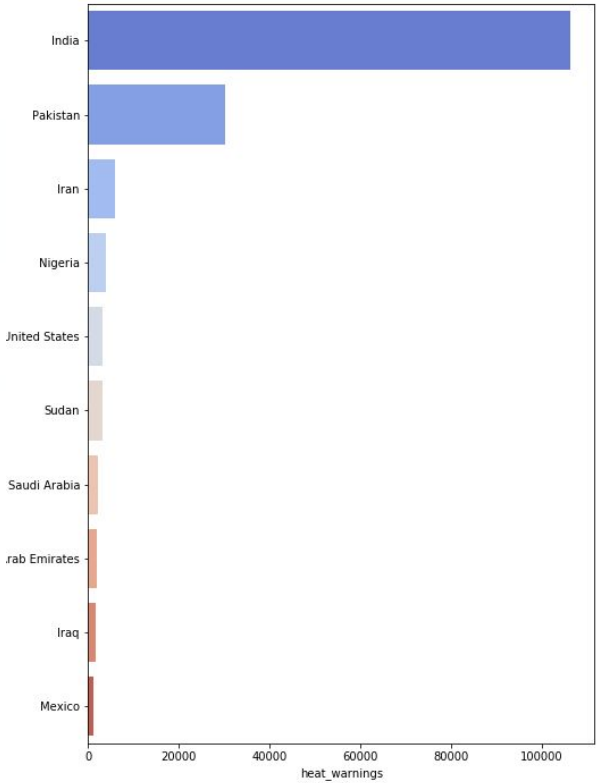


¿Which places are becoming (tendencies) inhospitable?

Cold zones

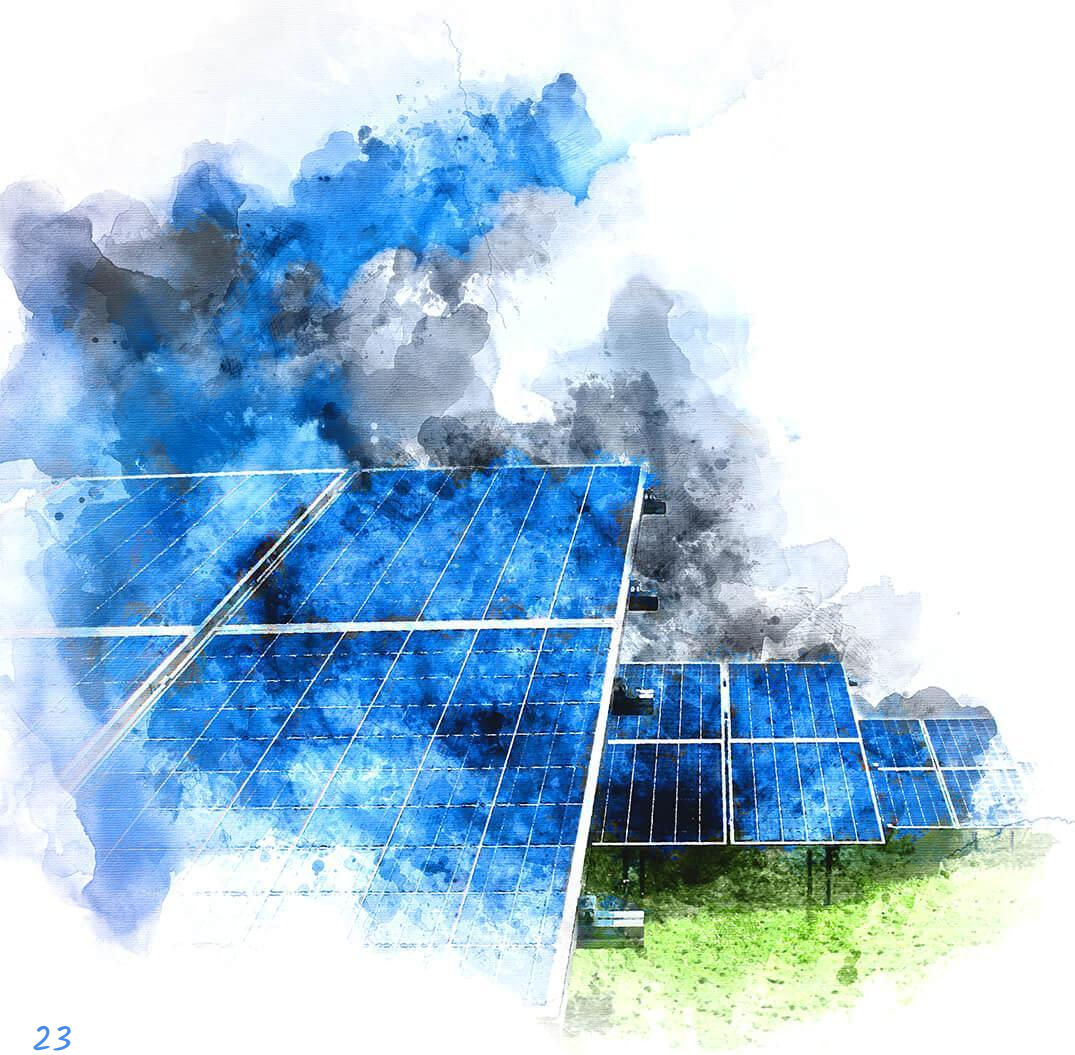


¿Which places are becoming inhospitable?

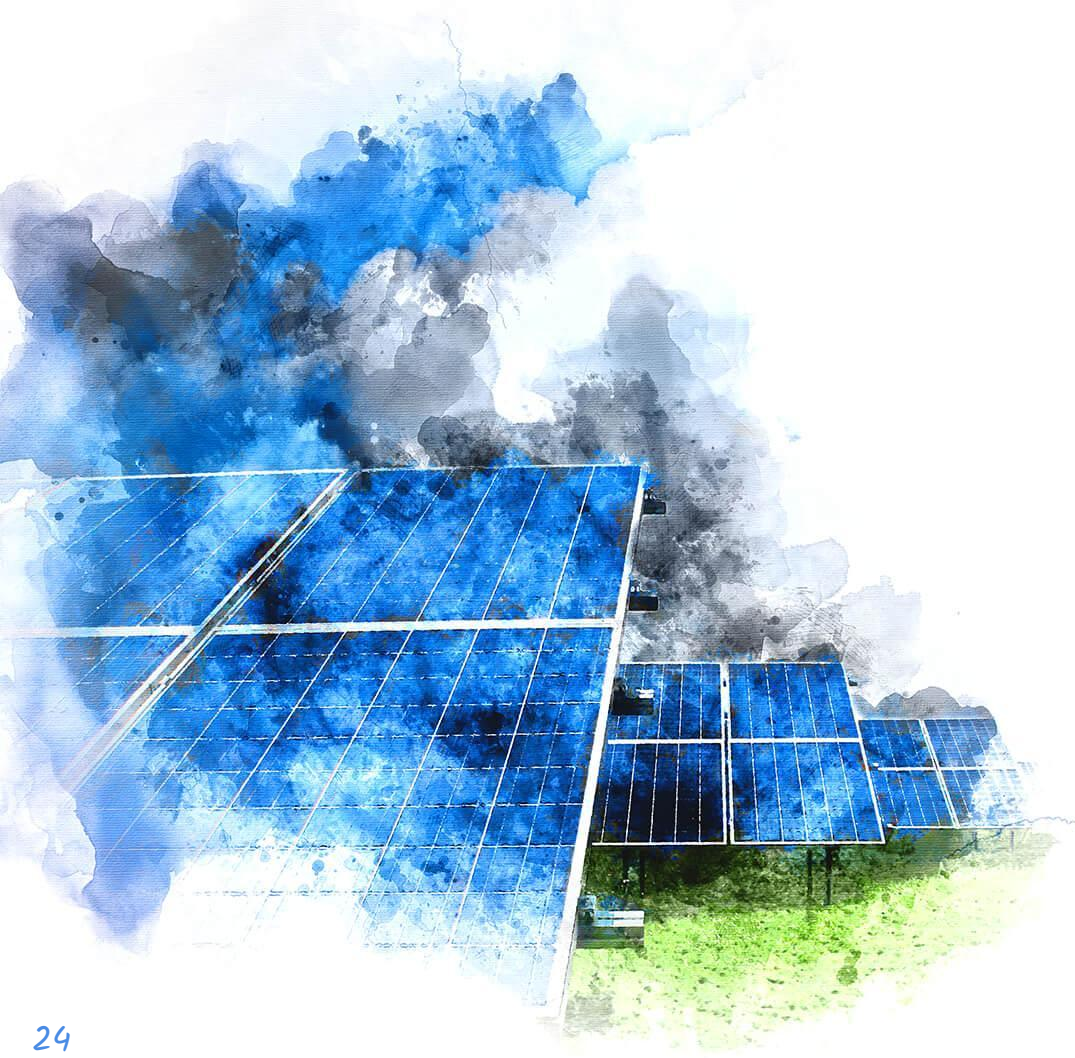
Hot zones

Conclusions

We didn't start the fire!



- The temperature is increasing, slower than what one could imagine, but still considerable amount.
- In countries that have a naturally unstable weather, is harder to measure the changes in temperature.
- There are measures that rise above the habitable bounds of temperature in all defined zones.
- Cold waves and heat waves are difficult to identify using the chosen dataset.



We were able to create the codes for almost all Queries, having successfully learned to use Pig and Hadoop in a way that can be applied to real world problems.

Still, we encountered several problems with the lack of complex data analysis tools in Pig and had to resort to the use of complementary software.

In future implementations and analysis it's recommended to consider another platform.

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