Climate change and Climate changes - how to understand it?

The main directions of thinking about climate change:

Under the term "CLIMATE CHANGE" we mean only those changes in the Climatic system of planet that are caused by anthropogenically conditioned change in the greenhouse effect of the Earth's atmosphere (emission of greenhouse gases and aerosols) – Prof. Milan Lapin

Really?

What about natural climate changes?

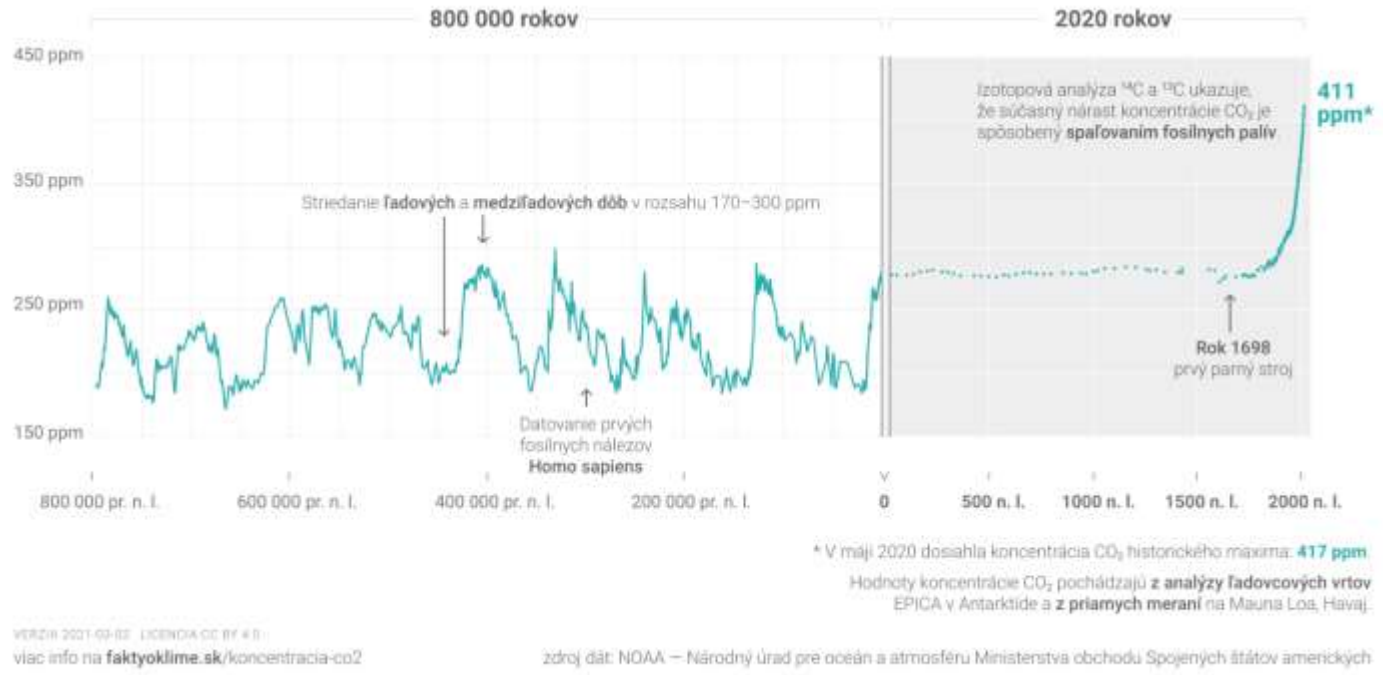
Can we ignore them?

Mechanisms of natural climate change:

- Transformations of the biosphere in the process and as a result of its evolution, because the atmosphere of the Earth (its state as we observe it today) is the "work" of the biosphere (life).
- The movement of continents, which changes their shape and mutual position, thereby affecting the thermohaline exchanger and, consequently, the global climate.
- The Milankovich cycles, which due to the transformations of eccentricities, the change in the inclination of the axis of rotation, and the change in precession explain the change in the position of the Earth towards the Sun, the variation in the power input of solar energy in long-term cycles, and explain the onset and retreat of ice ages.
- Climate variation due to changes in solar activity
- Pacific Decadic Oscillation
- A cycle of southern oscillation in which La Niña and El Niño phenomena periodically alternate
- Source: Wikipedia
- And so we still lack reflection on past civilizations and water.
- So do we know what we need about climate change or don't we know?
- And do we even want to know?
- Or we have already created a scheme and we ignore what does not fit into it.

Climatic change

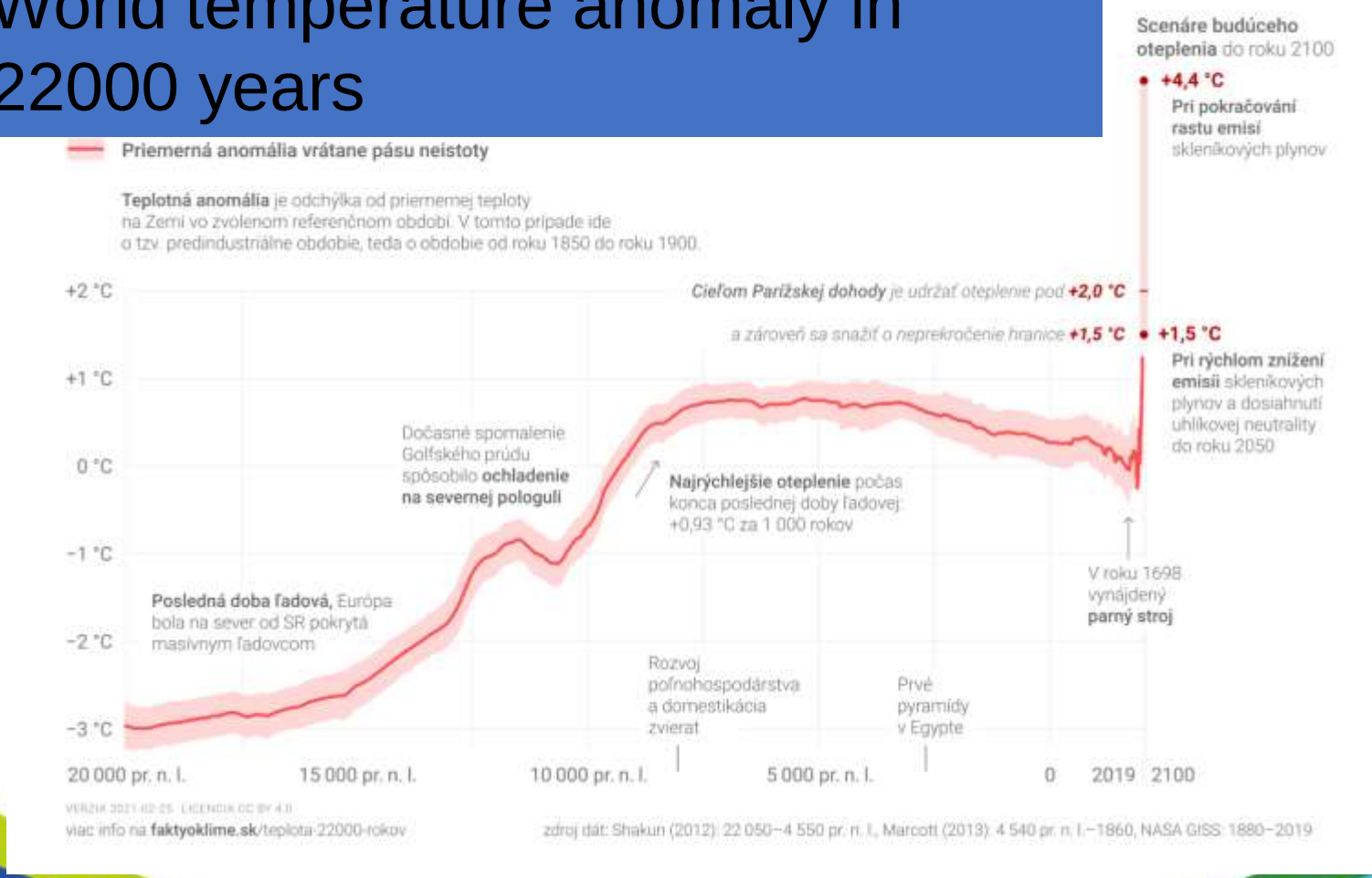
evolution of CO2 concentration in the atmosphere



Zdroj: https://faktyoklime.sk

Climatic change

World temperature anomaly in 22000 years



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Klimatické zmeny

Last 65 million years, climate started out warm and gradually cooled to today. This warm time is called the Paleocene-Eocene Thermal Maximum, and Antarctica and Greenland were ice free during this time. For example, the Indian Plate and Asian Plate collided, creating the Himalaya Mountains, which increased the rate of weathering and erosion of silicate minerals, especially feldspar. Increased weathering consumes carbon dioxide from the atmosphere, which reduces the greenhouse effect, resulting in long-term cooling.

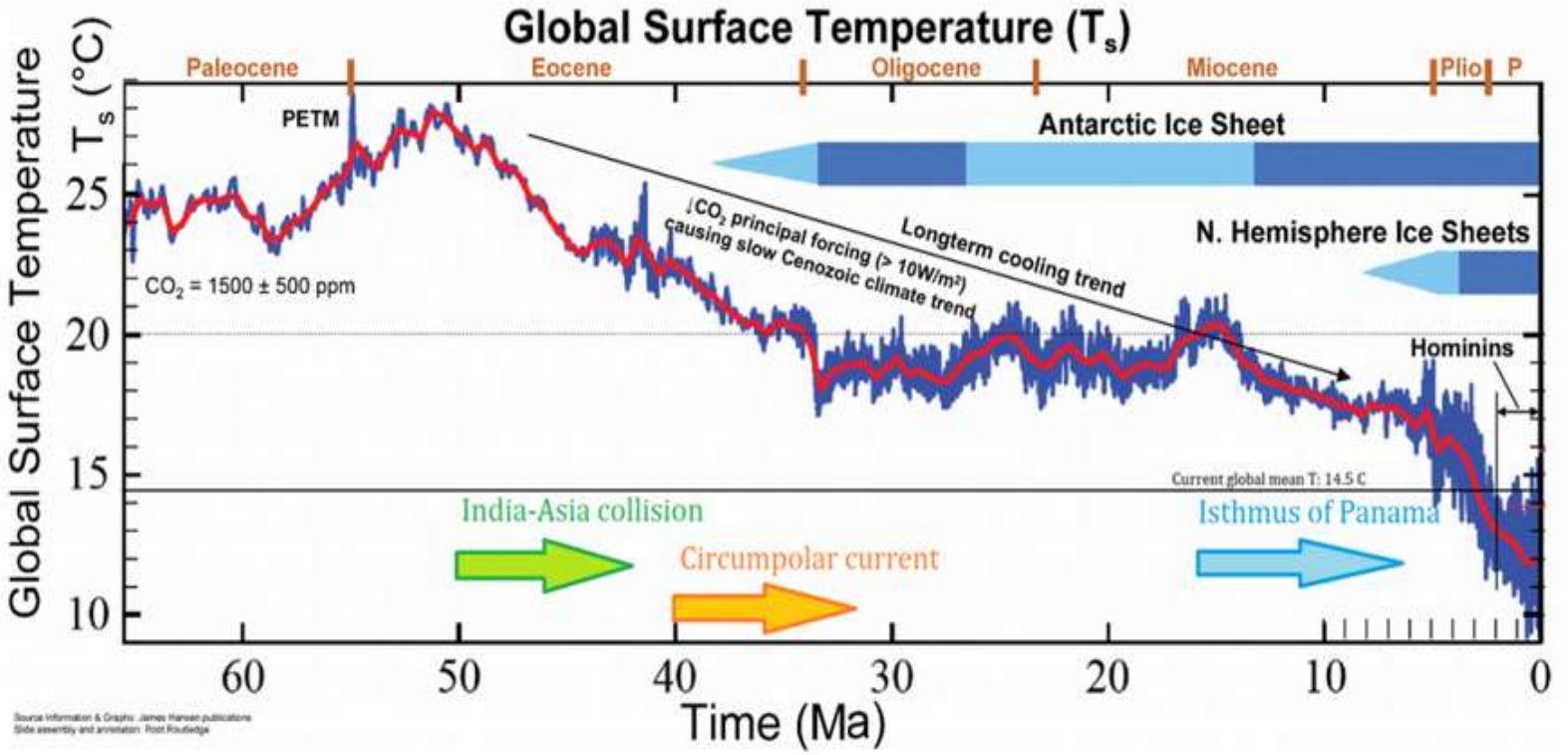


Figure 15.4.2: Global average surface temperature over the past 70 million years.

Zdroj: Salt Lake Community College

Klimatické zmeny

About 40 million years ago was opened the Drake Passage. This opening allowed the water around Antarctica—the Antarctic Circumpolar Current—to flow unrestrictedly west-to-east, which effectively isolated the southern ocean from the warmer waters of the Pacific, Atlantic, and Indian Oceans. The region cooled significantly, and by 35 million years ago, glaciers had started to form on Antarctica.

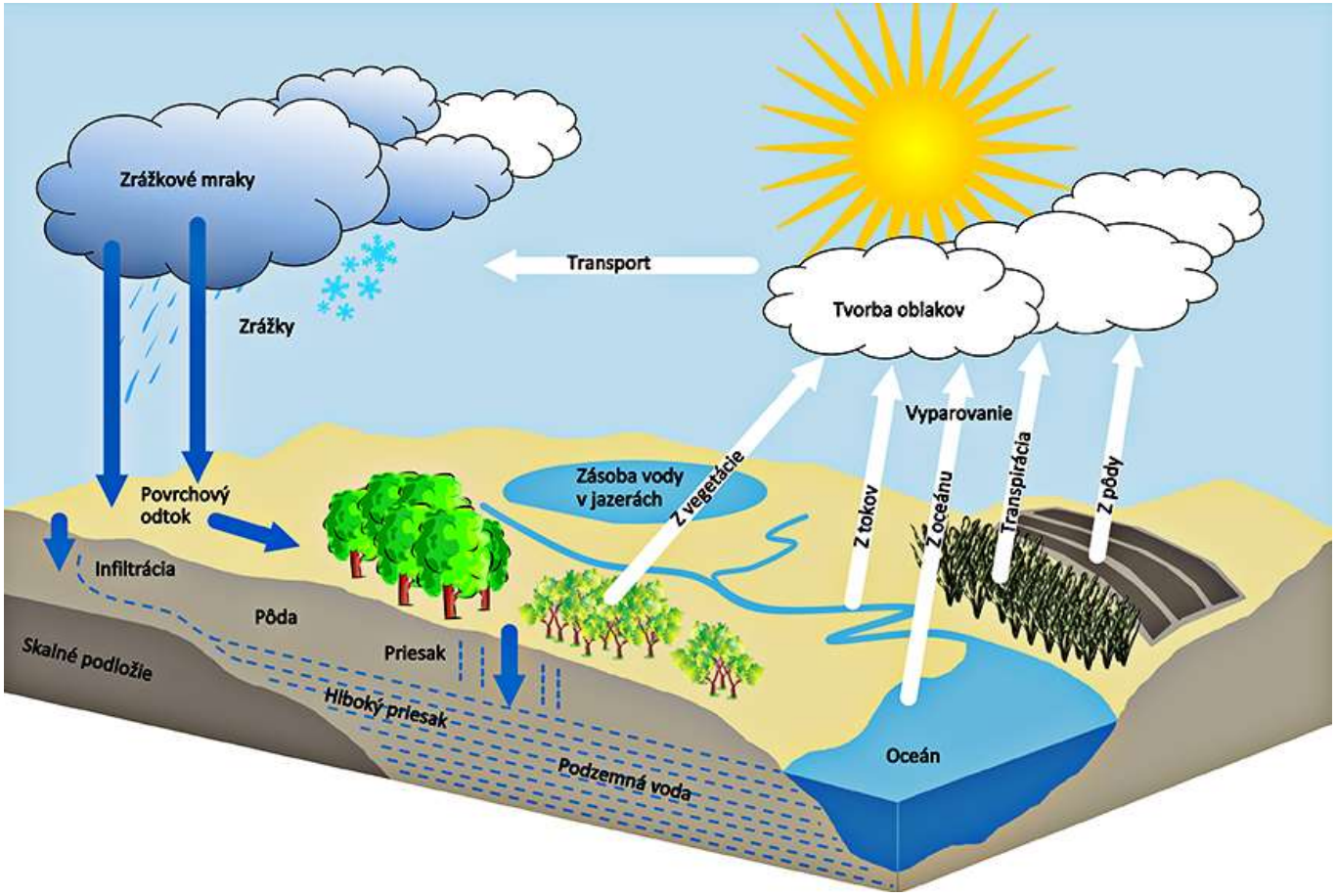
By 5 million years ago, ice sheets had started to grow in North America and northern Europe. The most intense part of the current glaciation is the Pleistocene Epoch's last 1 million years. The Pleistocene's temperature varies significantly through a range of almost 10°C on time scales of 40,000 to 100,000 years, and ice sheets expand and contract correspondingly. Over the past million years, the glaciation cycles occurred approximately every 100,000 years, with many glacial advances occurring in the last 2 million years (Lisiecki and Raymo, 2005).

Studies of the CO2 content of the ice over the last 800,000 years confirm the results: the maximum CO2 content in the atmosphere was 300 ppm, during the cooling period there was about 170 ppm CO2 in the atmosphere, currently we record 400 ppm CO2 in the atmosphere.

A chance to return to the Mesozoic era?

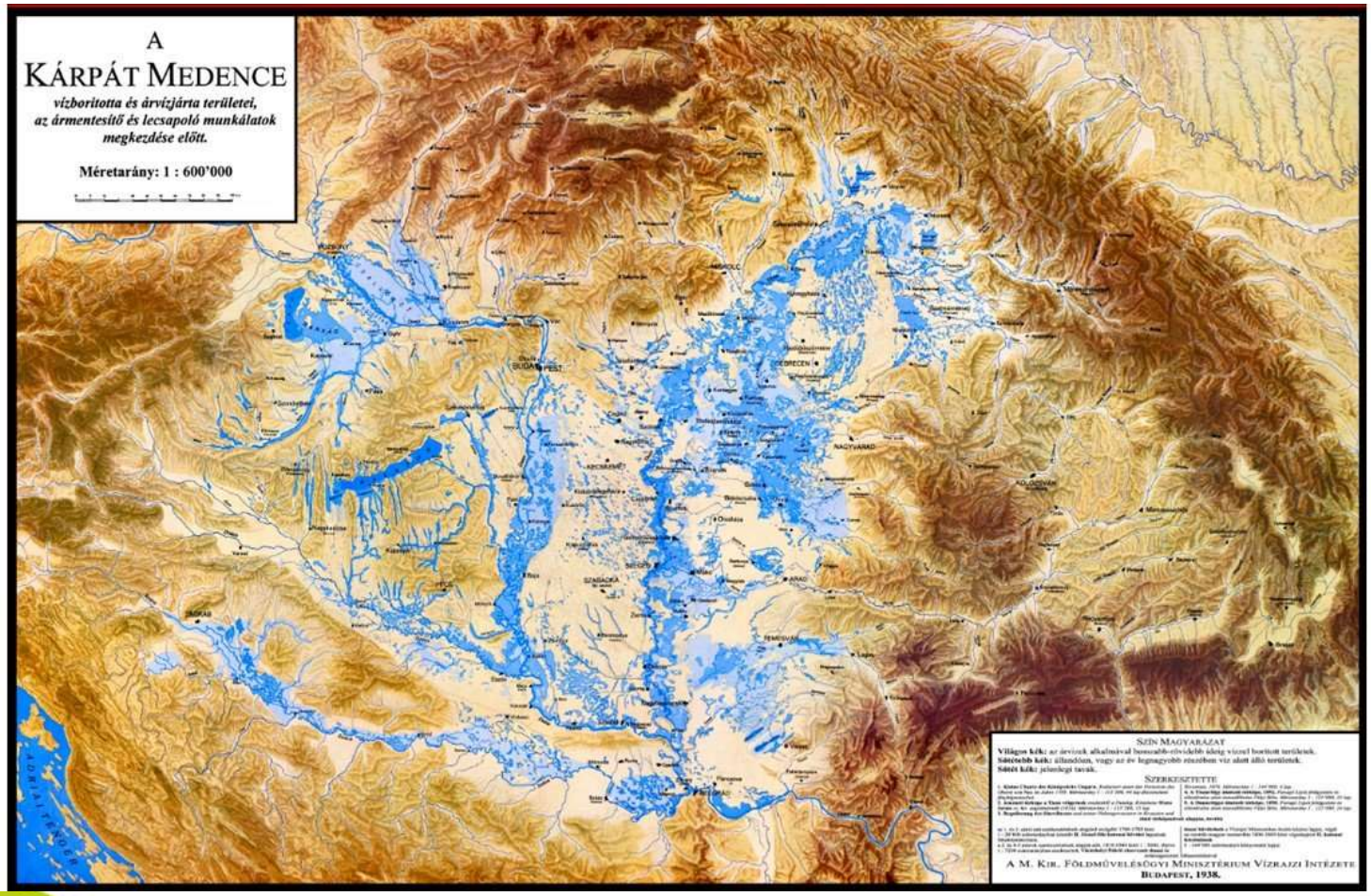
Zdroj: Salt Lake Community College

Small water cycle and changes in runoff ratios



Zdroj: Kravčík, Pokorný, Kohutiar, Kováč, Tóth: Voda pre ozdravenie klímy – Nová vodná paradigma, ISBN: 978-80-969766-5-2, 96 srt.

Small water cycle and changes in runoff ratios



Carpathian Basin 1938

Will we learn? Economy versus Ecology

It is known that V. Klaus (Minister of Finance of Czechoslovakia from the 90s) that it is necessary to make money on ecology first.

Let's analyze this attitude:

In essence, it means that ecology will be in last place in the ranking of priorities. Many politicians and public figures still stand in this position today, even those who talk about climate change on a daily basis.

It is an indisputable fact that if you invest in ecology, you have to siphon off resources in another sector. However, this also applies to education, healthcare, public administration, etc.

It is only a question of priorities.

On the other hand, investments in the environment trigger a desirable movement of the economy towards innovation, development of science and research and therefore higher education, offer interesting and promising jobs, contribute to the recovery of the population and thus help the health sector.

So is it really a loss-making investment? But not very many politicians seem to have asked themselves this question yet.

Will we learn? Morality versus Ecology

Tomáš Baťa: there is no economic crisis, it is a crisis of morality.

So what about the crisis in ecology and morality?

How else can we call the actions of politicians who know the gravity of the situation and yet prefer solutions for faster profit, ruthless economic growth, or populism securing electoral votes.

How else can we call the actions of voters who prefer politicians with non-ecological agendas in elections and act contrary to the knowledge that we are concerned about survival?

And what about our morality?

Ďakujem za pozornosť!

RNDr. Ivan Matušek

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