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The State of the Climate 2025 Global and Arctic

Based on Real Observations*

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Abstract

Real observations show a slight decrease of global temperature in 2025 compared with the previous ten years. Some stations in the Arctic show warming, but most are fairly stable. The Arctic Ocean is cooling to considerable depth, while the tropical and Antarctic oceans have a slight surface warming. The sea level trend is not changing as IPCC model data indicate. The Arctic September sea ice varies but its area has the last 4 years been much larger than modelled by the IPCC. The average snow cover on the Northern Hemisphere is fairly constant during the last 50 years. The number of tropical cyclones varies, but with no clear trend. The integrated cyclonic energy shows some periodic variations, but no trend. Global precipitation has almost zero trend. The global cloud cover decreased from 64 % to 61 % from 1985 to 2020. At the same time the global temperature increased 0.7 °C, suggesting a possible relation. The observed sequence: first warming the of the sea surface, then the deeper sea, atmosphere and land suggests that the Sun is the source of warming, modulated by clouds, and there is no manmade climate catastrophe in the foreseeable future.

Keywords: Global climate; climate change; climate catastrophe

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1. Introduction

The United Nations Secretary General, António Guterres on July 27, 2023, declared: *The era of global boiling has arrived. We have a huge climate crisis.*

There is a good reason to study the available climate data to see if that is true. In the following we will compare data for 2025 with previous years and look for trends of this claimed extreme warming and accompanying weather extremes. We found no sign of a coming climate crisis.

Before I started this survey, I asked my helpful AI to make some images illustrating a) Changing Climate, b) Natural climate change, and c) Good climate change and d) Man made climate change. The pictures are shown on the next page. They give a good idea of what the public is told about climate and climate change and that mankind is destroying it, as stated by the UN Secretary General.

In this extended abstract I present a short status for the atmospheric and ocean temperatures, sea level, sea ice, sea level, snow, wind and storms, precipitation and global cloud cover. My talk can be seen at https://www.youtube.com/watch?v=85puIDVyBgc. Monthly updates of climate data are available at my website: www.climate4you.com.

* Talk at the Annual Meeting of Klimarealistene, Oslo, Norway March 15, 2026

Figure 1: AI generated pictures of a. Changing climate, b. Natural climate change, c. Good climate change, d. Manmade climate change

2. Atmospheric temperatures

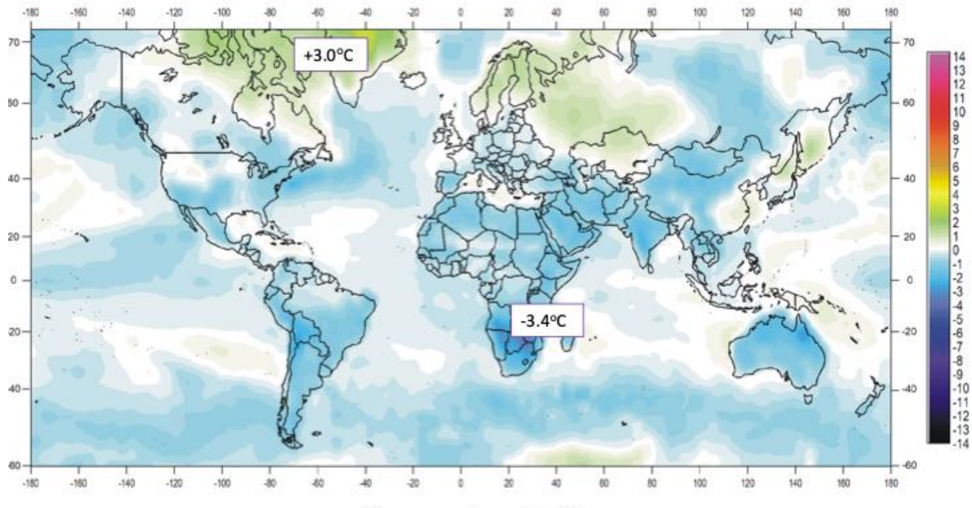

Figure 2: The average temperature of the year 2025 versus last 10 years.

A crucial parameter is the change of the global temperature. Usually, it is compared with a fixed 30-year average, which changes every 30 years. The last one is from 1990-2020. Since this becomes more and more in the past, and is hard to remember for ordinary citizens, I prefer to compare with the last 10 years which is shown in Figure 2. The average change is -0.24 °C and is more a sign of cooling than warming.

A warning: The use of just one number, the average change in global temperature, hides the fact that our planet has various temperature regions which may show a different change than the average. In 2025 we observe that the Southern Africa has cooled 3.4 °C, while Greenland and Northeast Canada have warmed 3.0 °C. The use of averages tends to hide important details.

For the polar regions we observe that the average air temperature is increasing in the Arctic but is stable in the Antarctic. A more detailed look at station level in the Arctic shows that only two out of six stations show a marked temperature increase. They are marked with red circles in Figure 3 and may be related to the warm Atlantic current entering the Barents Sea. To investigate climate dynamics, we must focus on local values, rather than average values.

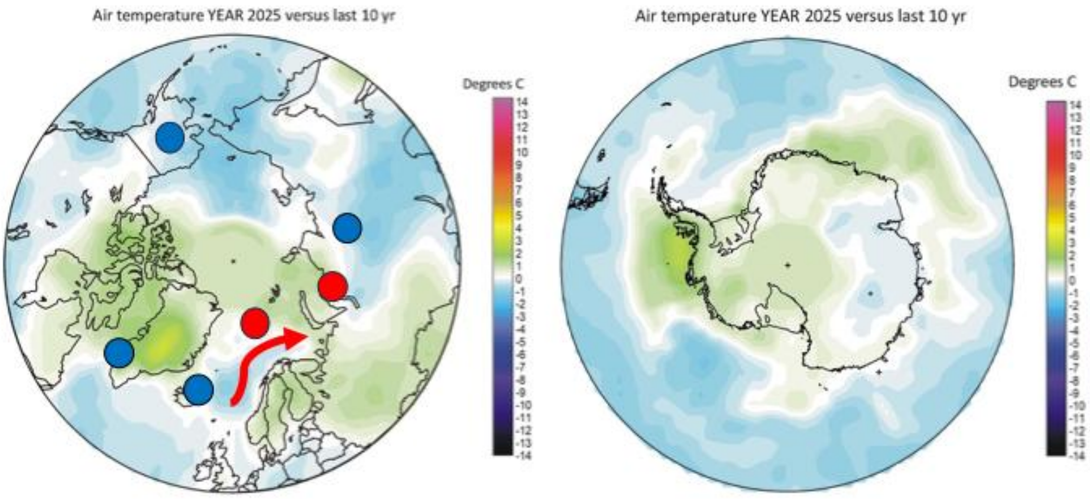

Figure 3: Air temperature in the Arctic and Antarctic in 2025 compared with the last 10 years. Red circles in the Arctic map shows stations with increasing temperatures. Blue circles show no trend. In the Antarctic there are variations in different areas but no trend.

3. Ocean temperatures

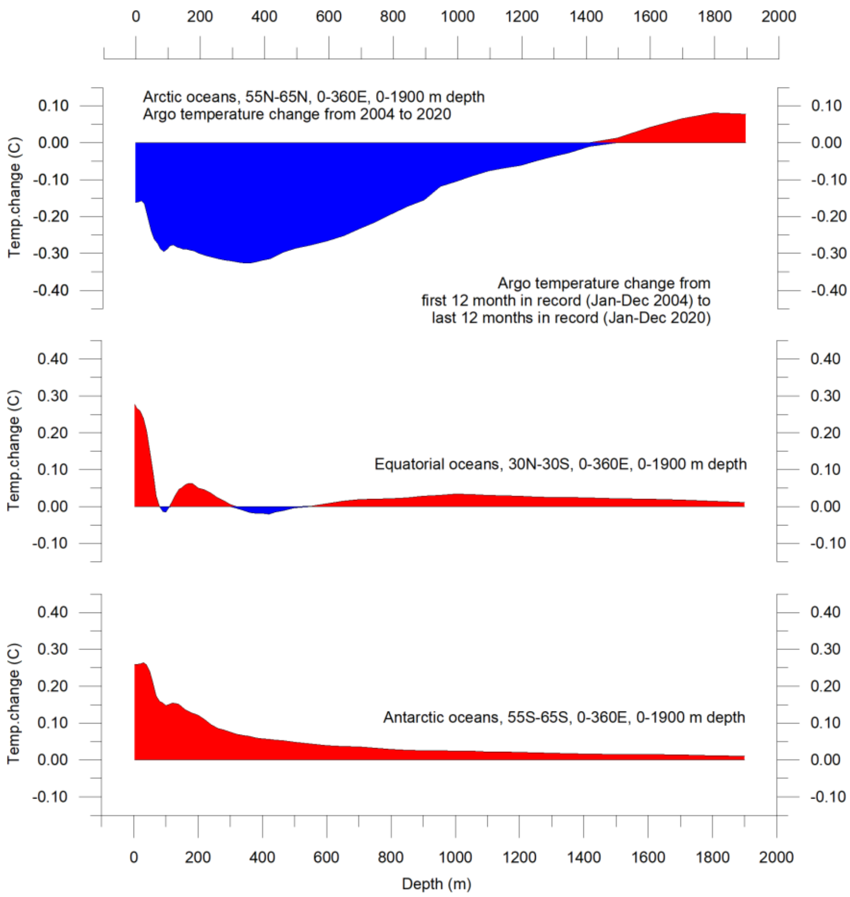

Figure 4: Argo temperature change 2004 - 2021 in three different ocean areas.

The general impression of the global sea temperatures is that they follow the radiation pattern of the Sun, with a maximum surface temperature in Equator regions and colder water towards the poles. At the deep bottom of both Polar Oceans we find, to our surprise, permafrost regions.

If we look at data for the Argo Ocean temperature surveys for the oceans from 0 to 1900 m depth, from 2004 to 2021, we find that the average temperature of the global oceans has increased from 6.42 to 6.47 °C. However, if we look at different oceans: the Circum-Arctic oceans are cooling, while the Circum-Equator oceans are warming – but only near the surface level. The Circum-Antarctic oceans show warming down to 500 m. This is illustrated in Figure 4.

Much is still to be learnt about the oceans! We should focus on local and regional values instead of global averages and should not overinterpret published values.

4. Sea level

In their last report, IPCC presents a Projected global sea level rise under different SSP scenarios and concludes with a likely range (medium confidence) of 1.5 to 2 m global sea level rise in 2150. We may compare this with a sea rise of 3-4 mm per year calculated from satellite observations, although with many questionable assumptions and corrections. This number is significantly less than shown in most IPCC projections.

The satellite observations refer to a global model of the sea surface of the oceans. It is far more relevant to study the traditional sea level observations in coastal areas where people live. An important measuring station is Korsør in Denmark, which is in a geologically very stable area with no uplift or sinking. Measurements since 1897 in Figure 5, shows a linear trend of +0.83 mm/year. This means an estimated sea level rise of about 10 cm in 2150.

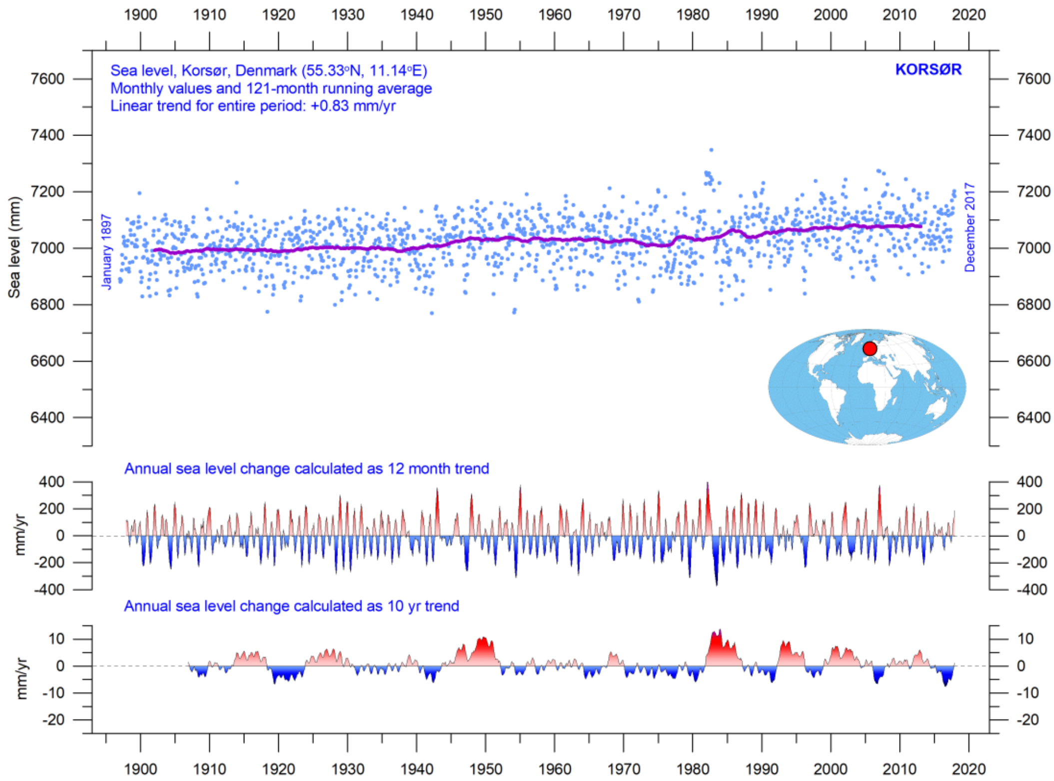

Figure 5: Sea level measurements in Korsør, Denmark. A geologically stable location.

Another example of the difference between models and real observations is shown by Figure 6, illustrating the Oslo sea front. The land is raising isostatically from the weight of 3 km ice which melted 12 000 years ago. Sea level measurements at Oslo began in 1914, and the sea level is sinking (in relation to land) with a linear trend of 3.3 mm/year. The sea level model estimates by IPCC and used by authorities in their planning, predicts an increase of 6 mm/year and results in 0.5 m higher sea level in 2100 than the linear negative trend observed.

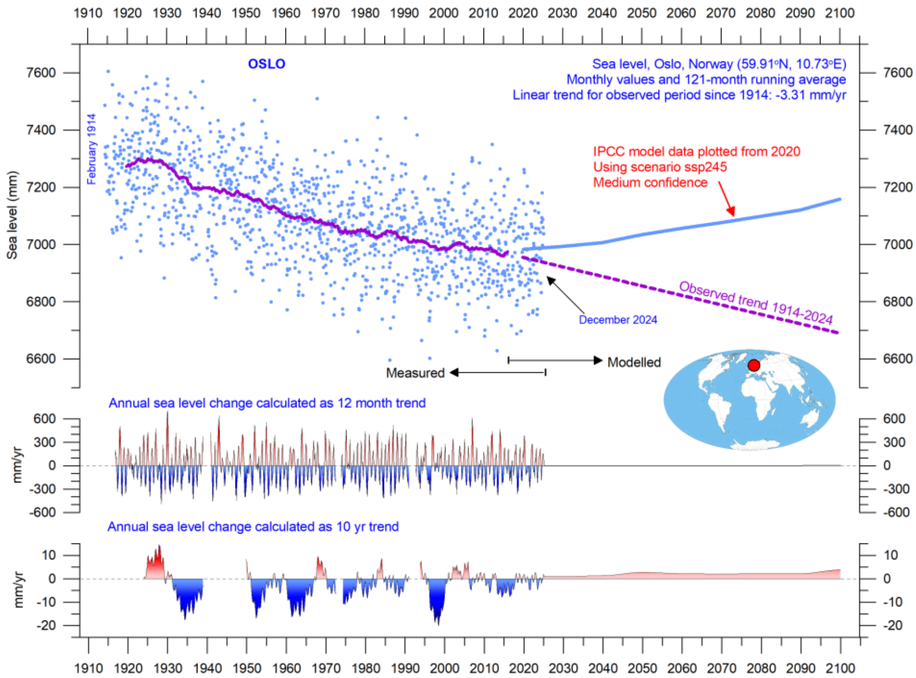

Figure 6: Sea level measured in Oslo 1914 - 2024 with IPCC projections and observed trend.

5. Sea ice

The future of the Arctic Sea ice is rather serious according to the last IPCC report. Some scenarios predict practically ice-free conditions in September from 2050 as shown in Figure 7. But observations show that for the last 4 years the sea ice area has been considerably higher than forecasted by the models.

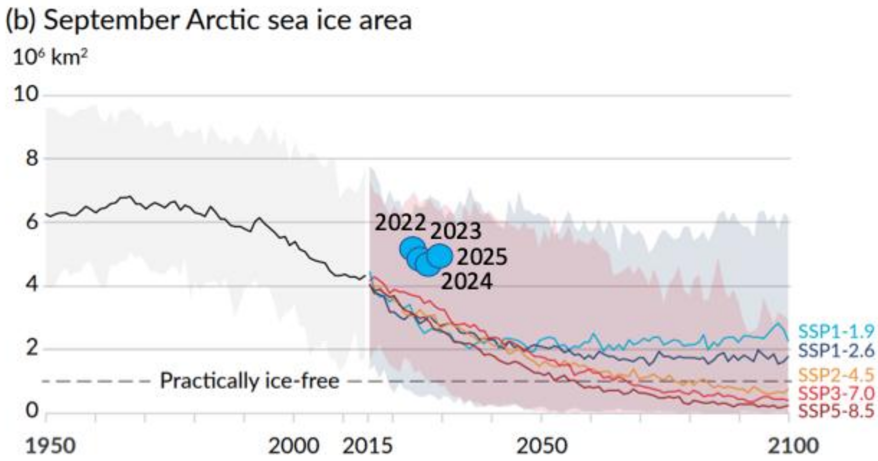

Figure 7: Arctic minimum sea ice (September) from last IPCC report (2021) with observed areas for 2022-2025 (blue circles).

The sea ice cover in the Arctic Ocean is difficult to predict. An example is the year 2011-12 in which we observed the maximum ice extension during the last 20 years, which was followed by the lowest extension in the period during the following summer.

In the Antarctic, the sea ice extension increased significantly during the period 1979-2016, while it was decreasing in the Arctic. Then the Antarctic sea ice diminished markedly from 2015 and is now about the same level as in the Arctic. This has nothing to do with changes in air temperatures in the Antarctic, which were nearly constant throughout the period. Instead, the decrease was caused by strong catabatic winds pushing the ice out in warmer water further north, causing it to melt.

Much is still to be learnt about polar sea ice.

5. Snow

We often read in newspapers and are told in the media that snow is just a thing of the past. But if we look at the Northern Hemisphere snow cover, as it is measured by satellites since 1972, it has been surprisingly constant. If we look at the seasons, the winter cover is very stable, the spring and summer level have a slight decrease, while the fall snow cover shows a slight increase.

6. Wind and storms

The media communicates that the frequency of storms is increasing and the damage they do is more serious than before. Figure 8 shows a map of global cyclone tracks from 1985 to 2005.

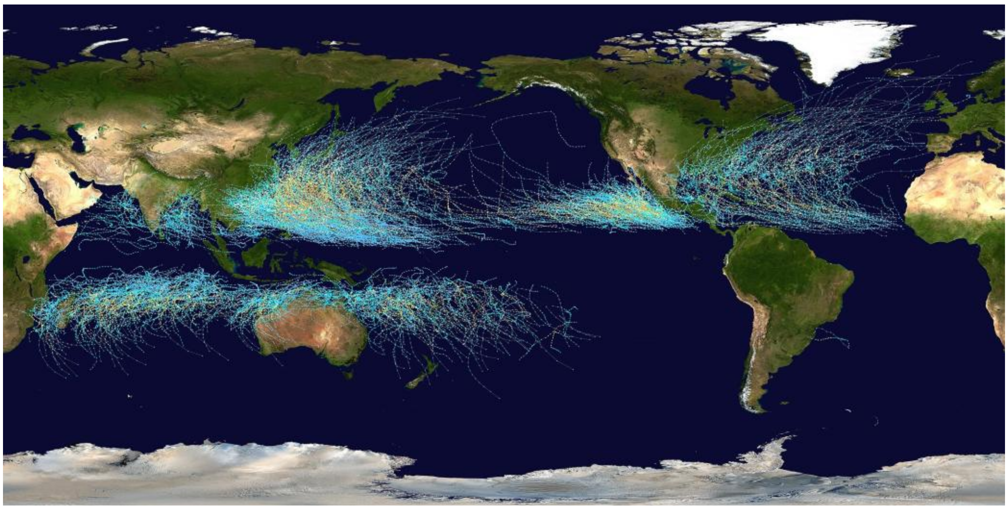

Figure 8: Global tropical cyclone tracks 1985 - 2005. Picture source: NASA.

If we study the statistics of all hurricanes recorded since 1980, we find a variable pattern, but without a clear trend. The news media alarm is thus entirely unfounded. A Fourier analysis indicates a significant oscillation of about 3.7-year duration.

Accumulated cyclone energy (ACE) has been calculated since 1851 for the Atlantic basin. A Fourier analysis shows a significant period of 61.5 years and a possible period of 5.6 years. These periods are also present in other climate series.

7. Global precipitation

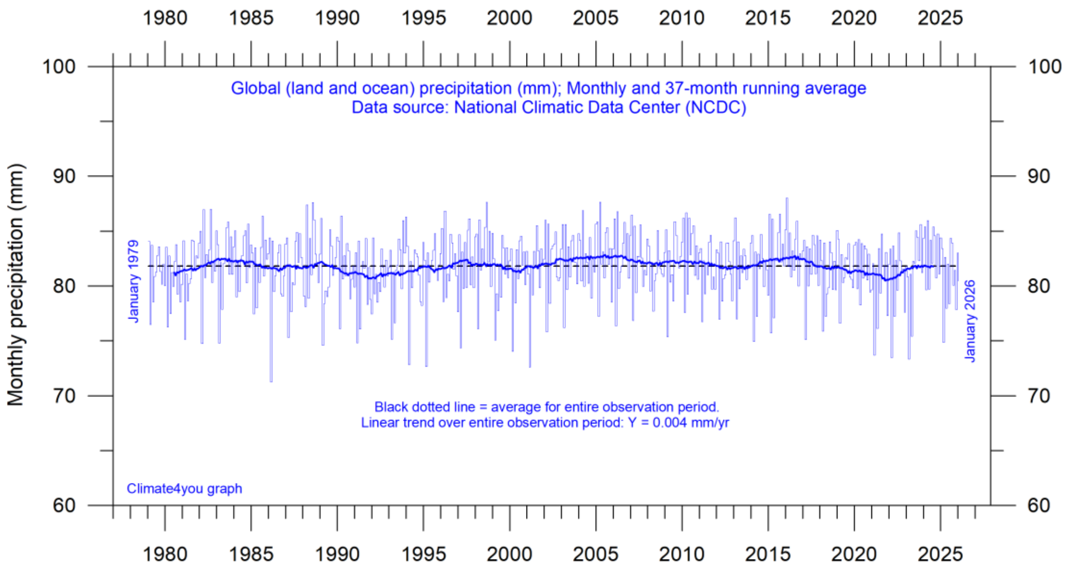

Figure 9: Global precipitation 1979 - 2026.

Warmer air is able to contain more water vapour. The slight global temperature increases which are measured (Figure 11) might therefore result in increased precipitation, since the last warming started about 1980. However, the measured monthly rainfall (Figure 9), which is highly variable from month to month, shows a trend close to zero, in contradiction to model forecasts.

If we look at individual regions, we find that precipitation in Europe also has been constant during the same period. In the Arctic as shown in Figure 10, there was a dry period around 2001, and after 2005 there was a slightly higher precipitation than before the dry period.

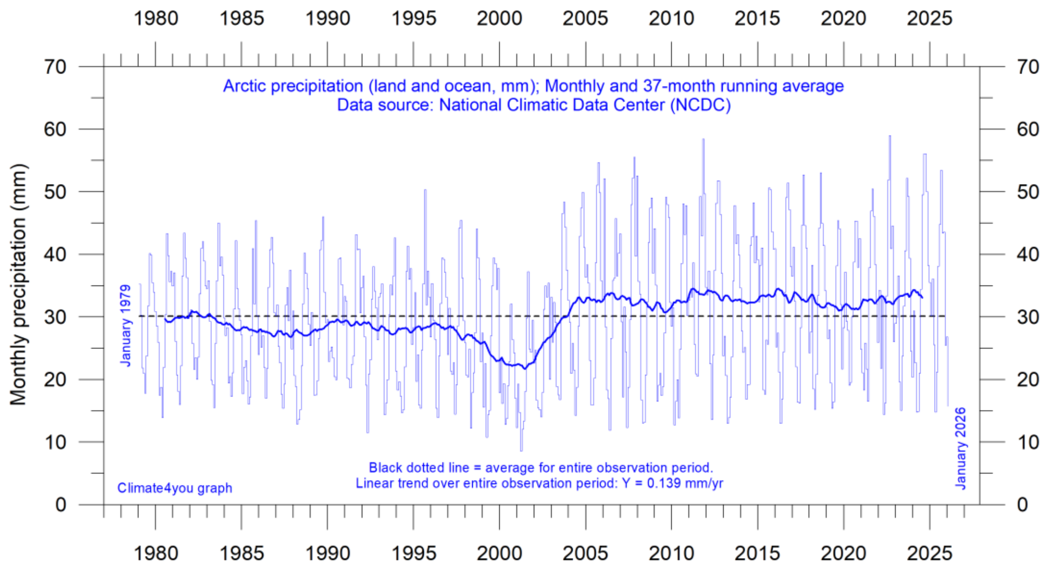

Figure 10: Monthly precipitation in the Arctic 1979 - 2026.

The Arctic is a dryer region which makes the changes from month to month larger.

8. Cloud cover – and a few reflections

If all clouds were suddenly removed, then our planet would gain about 17 W/m^2 in solar radiation and become warmer. In the period 1982-2019 we have observed a decrease in cloud cover from 64 % to 61 %. This means that the Earth has received significantly more solar radiation. This may well be the main explanation for the observed temperature increase of about 0.7 °C during this period, as shown in Figure 11.

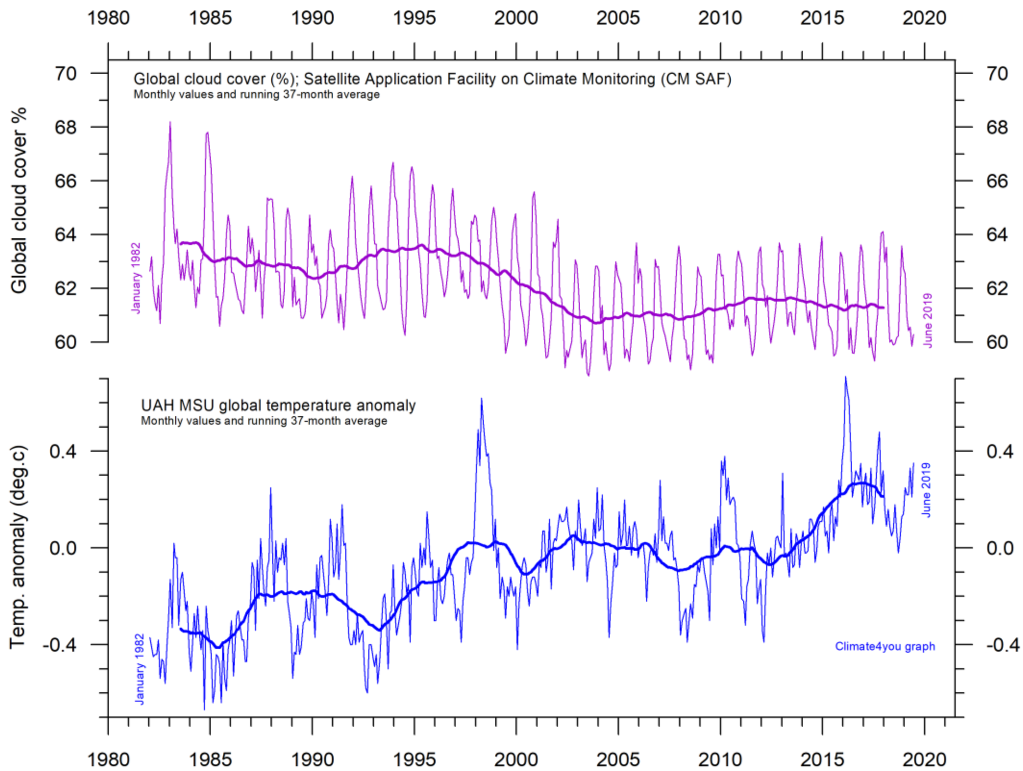

Figure 11: Global cloud cover and global temperature in the period 1982 – 2019.

Climate scientists admit that they cannot model he cloud cover in a reliable way. It is simply not possible to trustworthy model small scale phenomena as evaporation and condensation, for use in global climate models.

There are many additional parameters that may act on the cloud cover. For instance, if we study the changes in the Earth's rotation, which we measure as the length of the day, we find that it was 2 milliseconds longer in 1980 than it is today. The faster rotation mirror decreasing cloud cover and decreasing humidity. Thus, it is therefore entirely possible that these parameters in some ways are related. Much is still to be learned about global cloud cover.

8.1 Some reflections

The principal question was this: Are we currently in a climate crisis?

1. The observed average global air temperature change during the last 40+ years is about +0.16 ºC per decade. If unchanged, the additional average global air temperature increase by year 2100 will be about +1.15 ºC. However, part of the temperature increase reported may be caused by administrative changes, and the real future increase may therefore be

smaller.

2. Tide gauges along coasts indicate a typical global sea level increase of about 1-2 mm/yr. Coastal sea level change rate last 100 year has essential been stable, but with periodic variations. If unchanged, global sea level at coasts will typically increase 8-16 cm by year 2100, although many locations in regions affected by glaciation 20,000 years ago, will experience a relative sea level drop.

3. Since 2004 the global oceans above 1900 m depth have on average warmed about 0.037ºC (do not overinterpret). The maximum warming (about 0.2 ºC, 0-100 m depth) mainly affects oceans near Equator, where incoming solar radiation is at maximum.

If we look at the Earth's climate on geological time scales of millions of years, it is surprisingly stable. In most periods it is stable and warm – about 25 ºC on average, and in some periods, it is about 10 degrees colder, as we observe now. It seems that the planet has a thermostat that keeps the climate between these limiting temperatures. Today, our planet is well situated in between these limits, and there is no reason to think that we are in a climate crisis.

8.2 Nature provides us with simple answers

In a simple way, observed data shows us what really controls the global air temperature. We just need to use our common sense and examine the sequence of temperature changes. Measurements (Figure 12) tell us that the global temperature signal originates at the ocean surface. Two weeks later the signal is recorded by satellites in the lower atmosphere. The land surface air temperature also follows the ocean surface temperature with a delay of two months, and 20 months later the signal is recorded in the ocean at 200 m depth. This sequence was first described by Humlum et al. (2012) and demonstrates the key role for ocean surface temperature in controlling atmospheric temperatures.

The hypothetical CO_2 temperature signal originates in the upper troposphere, and – if dominant – we would see the signal in the satellite data from the lower atmosphere, before we see the signal arriving at the ocean surface. Measurements show that the opposite is the case (Figure 12). To the degree CO_2 influences atmospheric temperatures, its effect is clearly subordinate in relation to other influences.

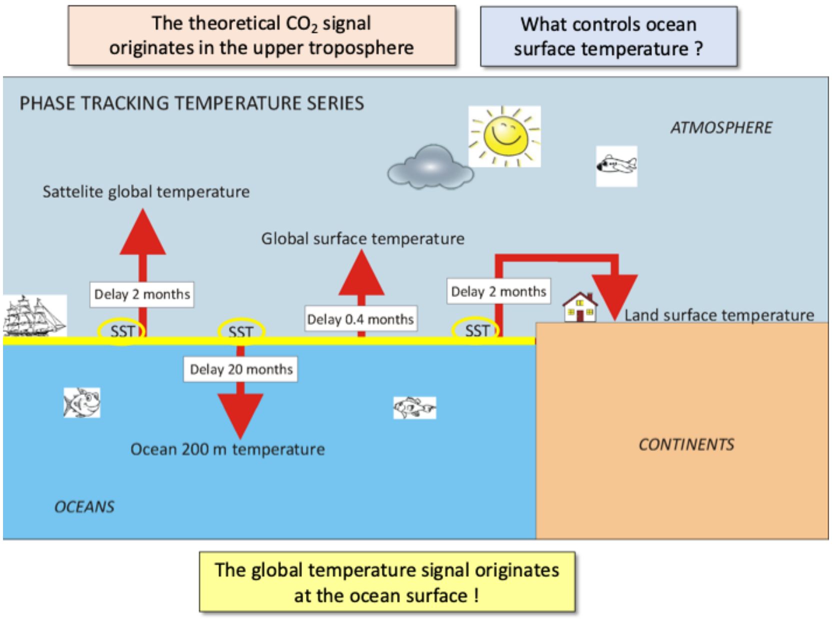

Figure 12:The sequence of global climate signal from the sea surface (SST) to the deep ocean.

The principal climate research question therefore is this: *What controls the ocean surface temperature?* Presumably, the Sun is the key answer, modulated by the global cloud cover.

9. Climate Change: importance of oceans

I have two overall conclusions and one suggestion for what should be the future main climate research focus:

1. Observed data do not support the notion of a climate crisis but reveals many and partly recurrent natural variations.

2. Ocean surface temperature controls the atmospheric temperature.

PROBABLY THE MOST IMPORTANT CLIMATE RESEARCH QUESTION:

What controls the ocean surface temperature?

10. Final reflections and conclusions

Why did I not speak anything about CO_2? This is because my talk is on climate, and CO_2, although being very important for plant and animal life, in my opinion, is not overly important to understand meteorology and climate.

Co-Editor: Jan-Erik Solheim

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Appendix

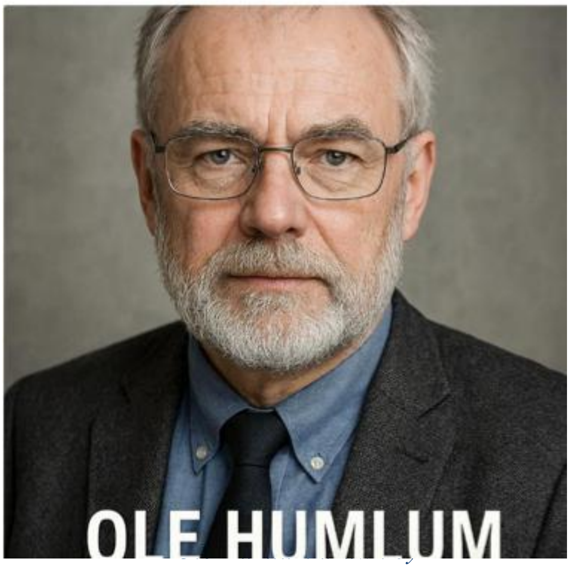
Finally, another small experiment with Artificial Intelligence: I asked the AI to generate a picture of a typical climate scientist, and I got the picture below to the left. I then asked it to generate a picture of a typical climate realist and got the picture to the right. What a beautiful world!

A typical Climate Scientist drawn by AI

A typical Climate Realist drawn by AI

I then asked the AI to draw a picture of myself

– and got this one:



to be compared with the real one:

The real Ole Humlum