# Climate4you update August 2014


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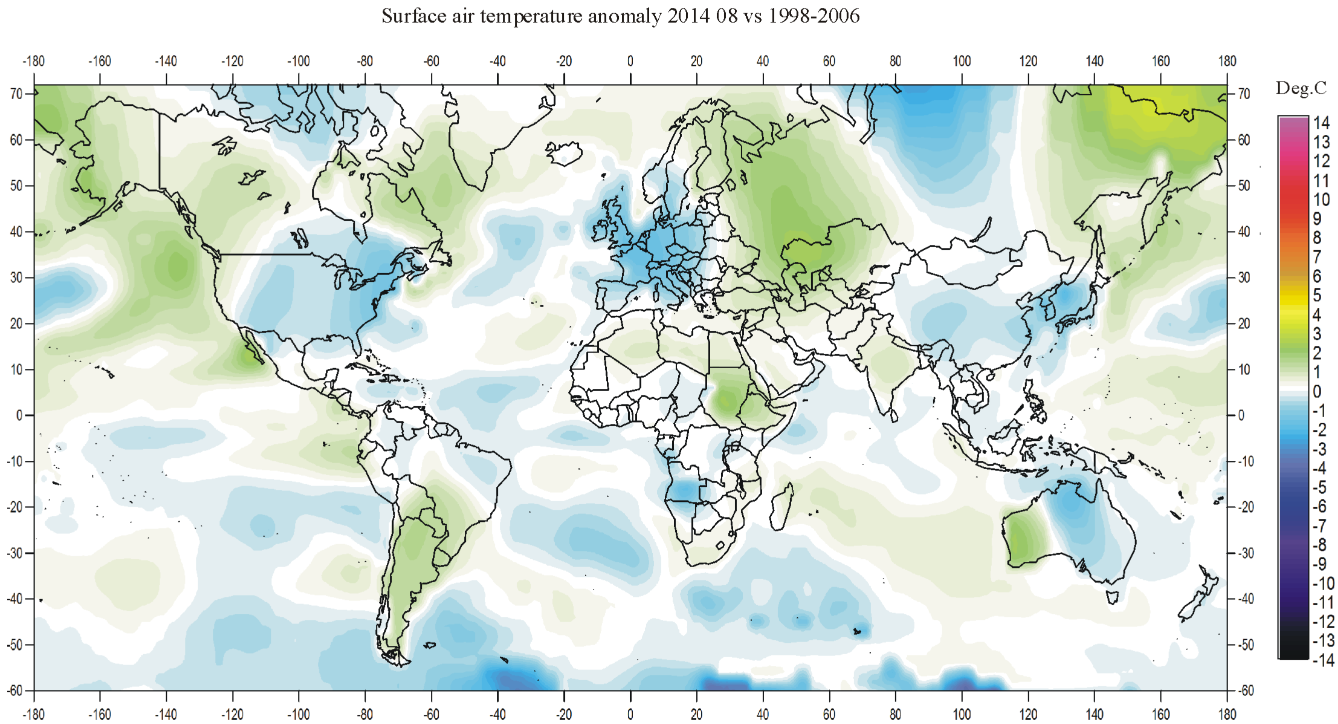
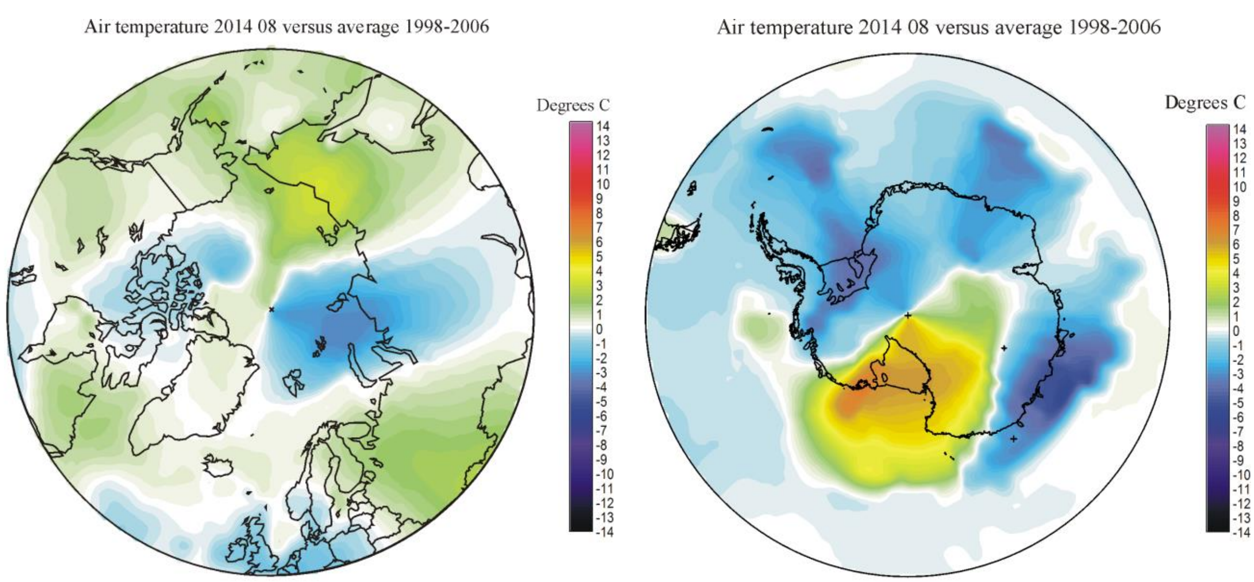
All diagrams in this newsletter as well as links to the original data are available on www.climate4you.com

## August 2014 global surface air temperature overview






*August 2014 surface air temperature compared to the 1998-2006 average. Green-yellow-red colours indicate areas with higher temperature than the 1998-2006 average, while blue colours indicate lower than average temperatures. Data source: Goddard Institute for Space Studies (GISS).*

## Comments to the August 2014 global surface air temperature overview

General: This newsletter contains graphs showing a selection of key meteorological variables for the past month. *All temperatures are given in degrees Celsius*.

In the above maps showing the geographical pattern of surface air temperatures, *the period 1998-2006 is used as reference period*. The reason for comparing with this recent period instead of the official WMO 'normal' period 1961-1990, is that the latter period is affected by the cold period 1945-1980. Most comparisons with such a low average value will therefore appear as warm, and it will be difficult to decide if modern surface air temperatures are increasing or decreasing. Comparing with a more recent period overcomes this problem.

In addition to the above consideration, the recent temperature development suggests that the time window 1998-2006 may roughly represent a global temperature peak (see, e.g., p. 4-6). However, it might be argued that the time interval 1999-2006 or 2000-2006 would better represent a possible temperature peak period. However, by starting in 1999 (or 2000) the cold La Niña period 1999-2000 would result in a unrealistic low reference temperature by excluding the previous warm El Niño in 1998. These two opposite phenomena must be considered together to obtain a representative reference average, and this why the year 1998 is included in the adopted reference period.

Finally, the GISS temperature data used for preparing the above diagrams show a pronounced temporal instability for data before 1998 (see p. 7). Any comparison with the WMO 'normal' period 1961-1990 is therefore influenced by monthly changing values for the so-called 'normal' period, which is therefore not suited as reference.

In the other diagrams in this newsletter *the thin line represents the monthly global average value*, and *the thick line indicate a simple running average*, in most cases a simple moving 37-month average, nearly corresponding to a three-year average. The 37-month average is calculated from values covering a range from 18 month before to 18 months after, with equal weight for every month.

*The year 1979 has been chosen as starting point in many diagrams*, as this roughly corresponds to both the beginning of satellite observations and the onset of the late 20th century warming period. However, several of the records have a much longer record length, which may be inspected in greater detail on www.Climate4you.com.

**August 2014 global surface air temperatures**

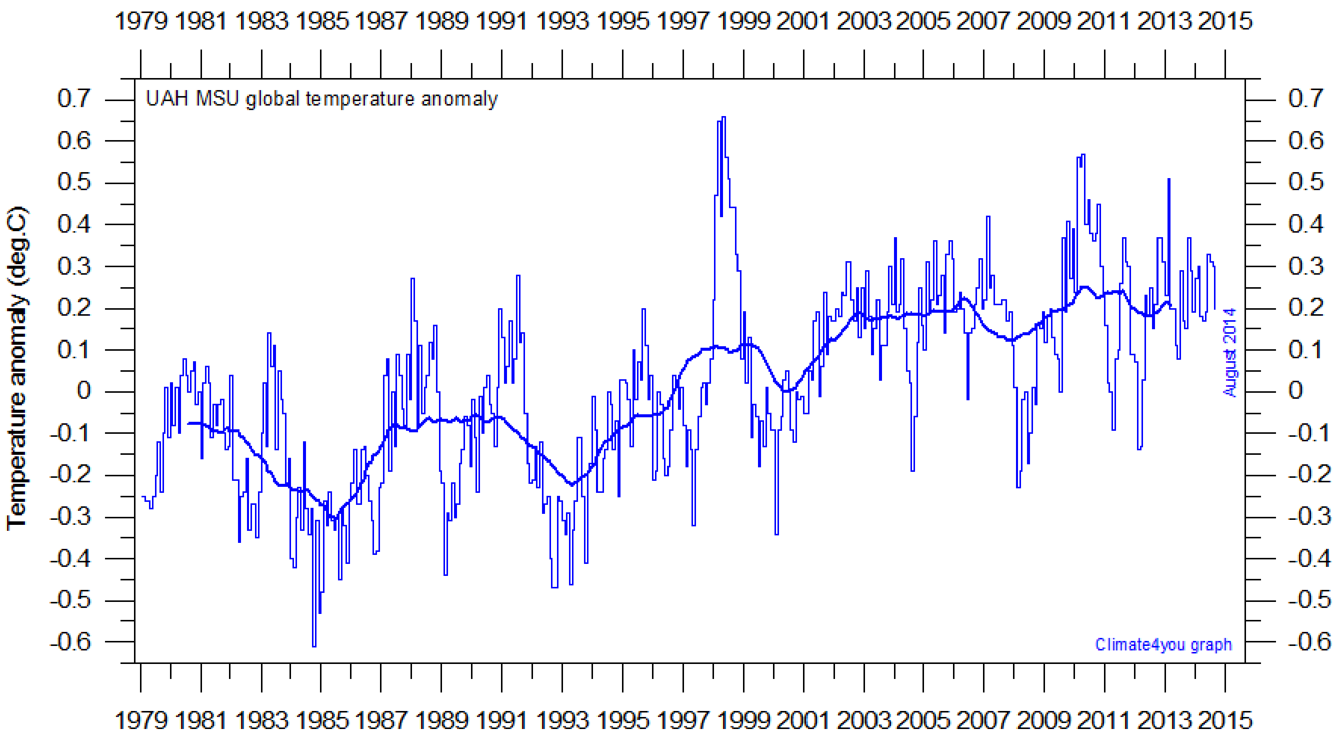
*General:* In general, the global air temperature was near or a little above the 1998-2006 August average.

*The Northern Hemisphere* was characterised by clear regional air temperature contrasts, although smaller than during the NH-winter. USA, Europe and eastern Siberia experienced a negative anomaly compared to the 1998-2006 average, while western Russia, eastern Siberia and most of Canada and Alaska experienced a positive anomaly. Greenland was near average conditions. The Arctic had both below and above average temperatures and the warm zones extending towards the North Pole are mainly the result of the GISS interpolation technique, and should not be over interpreted.

*Near the Equator* temperatures conditions were generally near the 1998-2006 average, nearly like the preceding month.

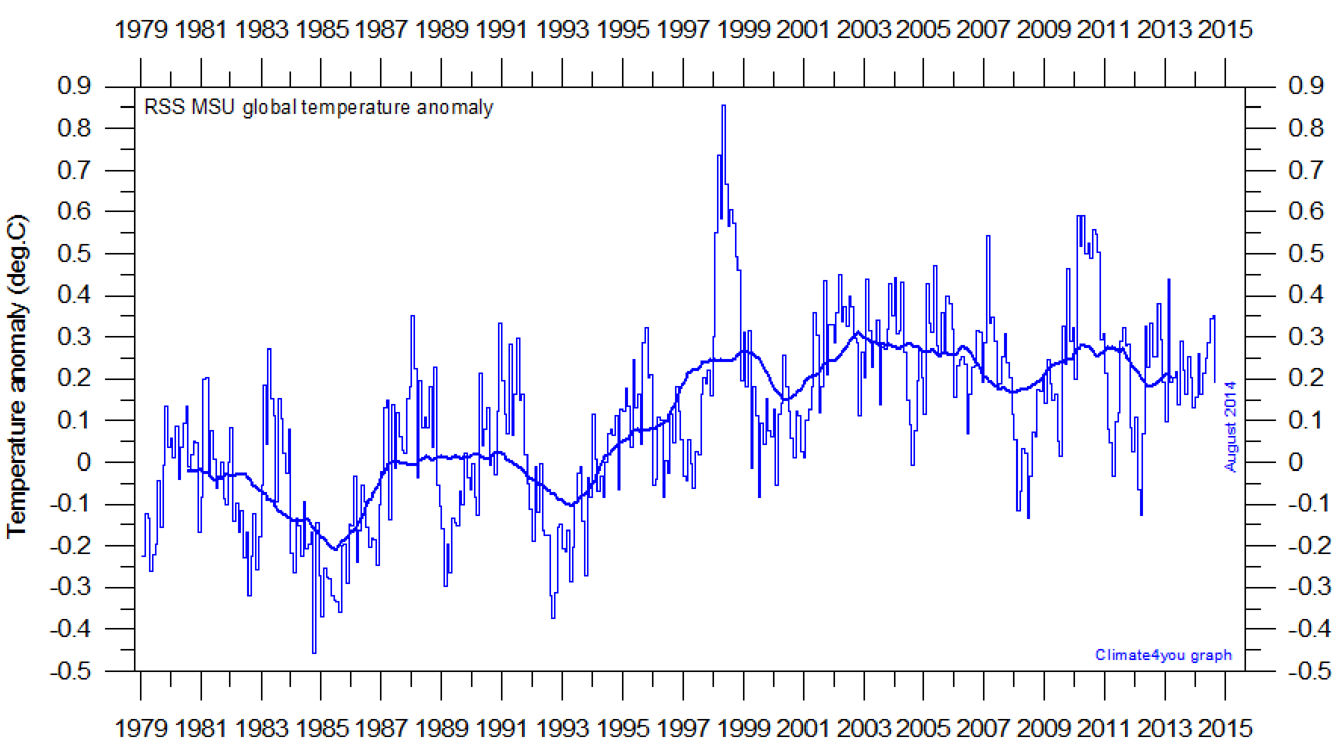
*The Southern Hemisphere* temperatures were mainly near or below average 1998-2006 conditions. The only major exceptions from this was Argentina and western Australia. The Antarctic generally was below average, although with a major warm anomaly centred on the Ross Sea.

## Lower troposphere temperature from satellites, updated to August 2014



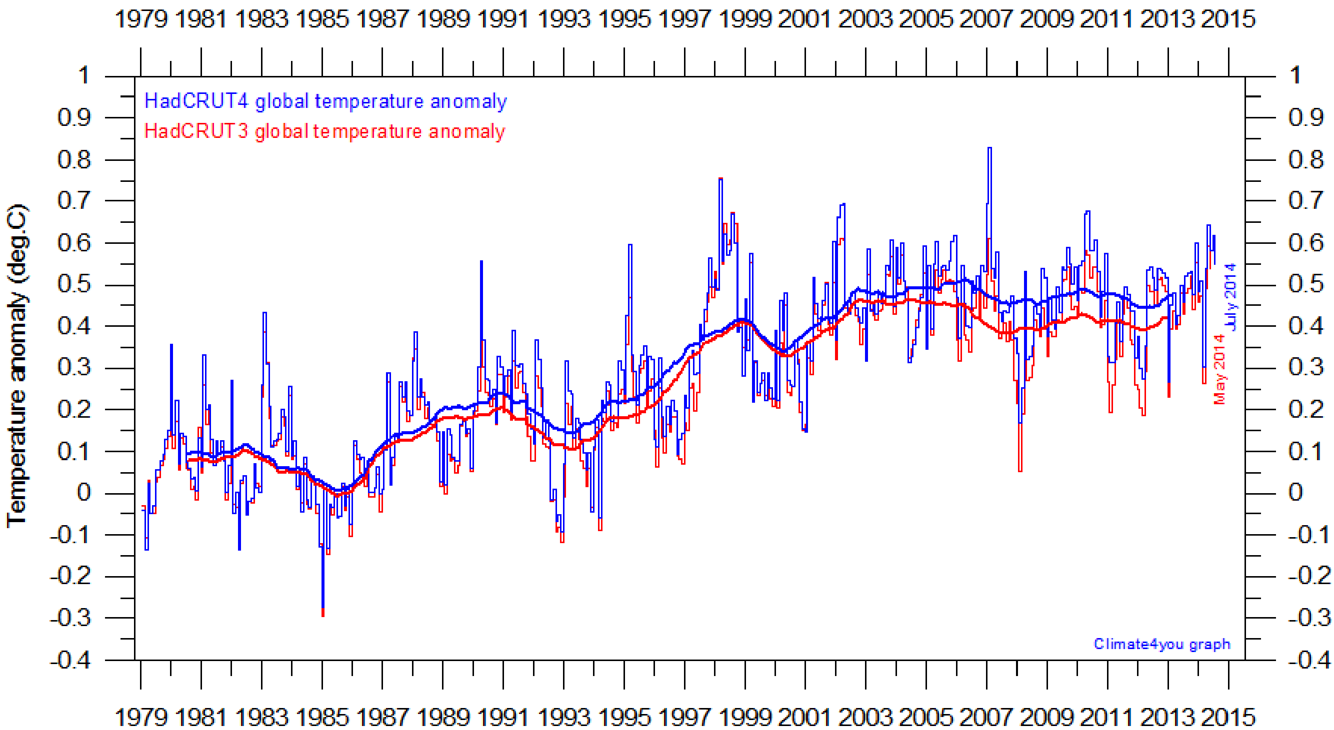

*Global monthly average lower troposphere temperature (thin line) since 1979 according to [University of Alabama](#) at Huntsville, USA. The thick line is the simple running 37-month average.*





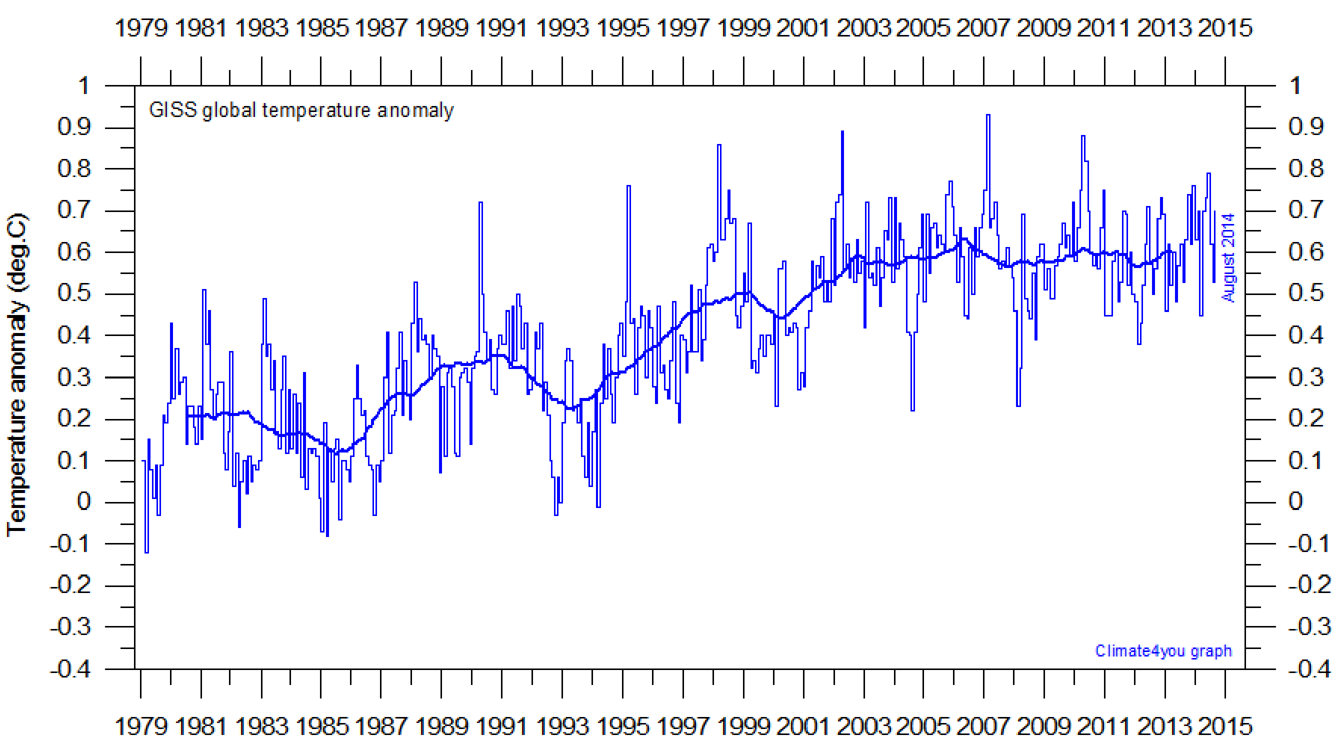

*Global monthly average lower troposphere temperature (thin line) since 1979 according to according to [Remote Sensing Systems](#) (RSS), USA. The thick line is the simple running 37-month average.*

## Global surface air temperature, updated to August 2014

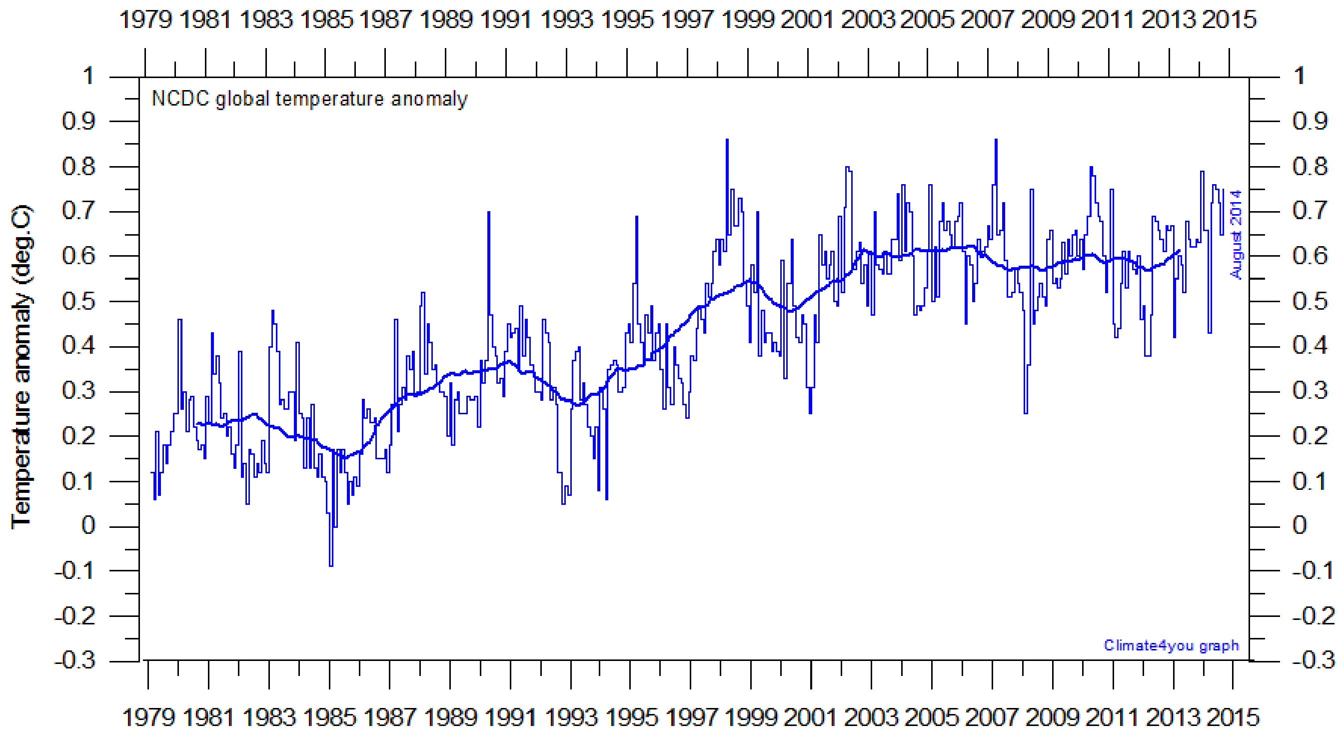



*Global monthly average surface air temperature (thin line) since 1979 according to according to the Hadley Centre for Climate Prediction and Research and the University of East Anglia's [Climatic Research Unit](#) ([CRU](#)), UK. The thick line is the simple running 37-month average. Version HadCRUT4 (blue) is now replacing HadCRUT3 (red). Please note that this diagram is not yet updated beyond July 2013.*






*Global monthly average surface air temperature (thin line) since 1979 according to according to the [Goddard Institute for Space Studies](#) (GISS), at Columbia University, New York City, USA. The thick line is the simple running 37-month average.*




*Global monthly average surface air temperature since 1979 according to according to the [National Climatic Data Center](#) (NCDC), USA. The thick line is the simple running 37-month average.*



<u>A note on data record stability:</u>

All the above temperature estimates display changes when one compare with previous monthly data sets, not only for the most recent months as a result of supplementary data being added, but actually for all months back to the very beginning of the records, more than 100 years ago. Presumably this reflects recognition of errors, changes in the averaging procedure, and the influence of other unknown phenomena.

None of the temperature records are stable over time (since 2008). The two surface air temperature records, NCDC and GISS, show apparent systematic changes over time. This is exemplified the diagram on the following page showing the changes since May 2008 in the NCDC global surface temperature record for January 1915 and January 2000, illustrating how the difference between the early and late part of the temperature records gradually is growing by administrative adjustments.

You can find more on the issue of lack of temporal stability on www.climate4you (go to: *Global Temperature*, followed by *Temporal Stability*).

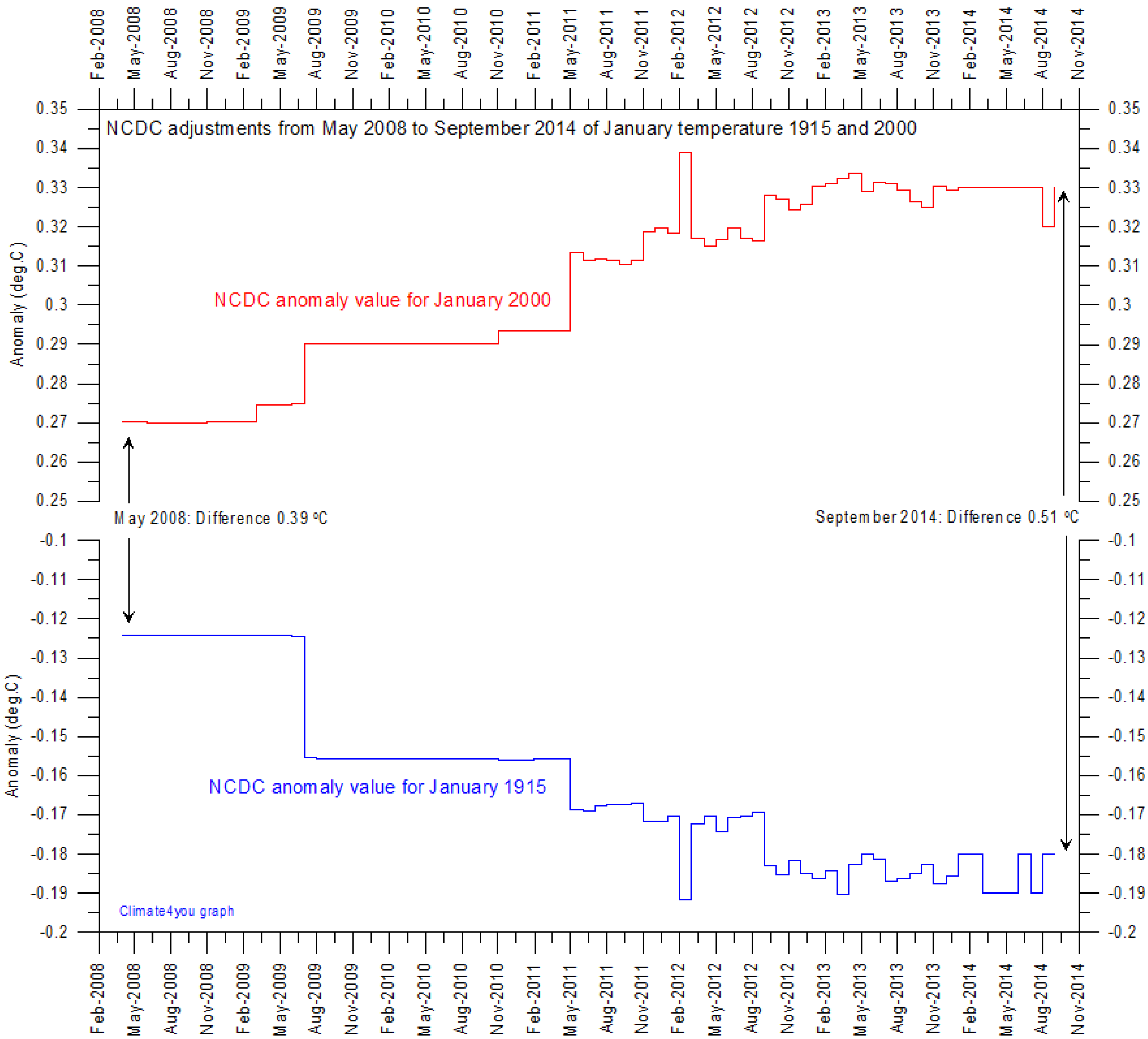



*Diagram showing the adjustment made since May 2008 by the [National Climatic Data Center](#) (NCDC) in the anomaly values for the two months January 1915 and January 2000.*

Note: The administrative upsurge of the temperature increase between January 1915 and January 2000 has grown from 0.39 (May 2008) to 0.51 °C (September 2014), representing an about 31% administrative temperature increase over this period.

## Global air temperature linear trends updated to July 2014

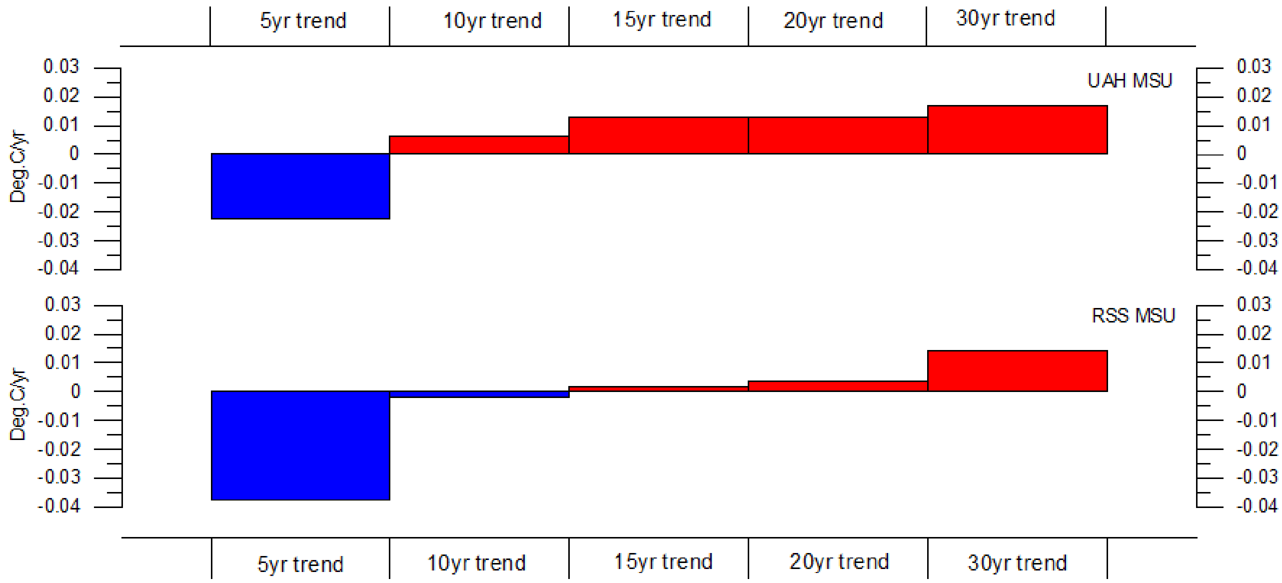



*Diagram showing the latest 5, 10, 20 and 30 yr linear annual global temperature trend, calculated as the slope of the linear regression line through the data points, for two satellite-based temperature estimates (UAH MSU and RSS MSU). Last month included in analysis: July 2014.*



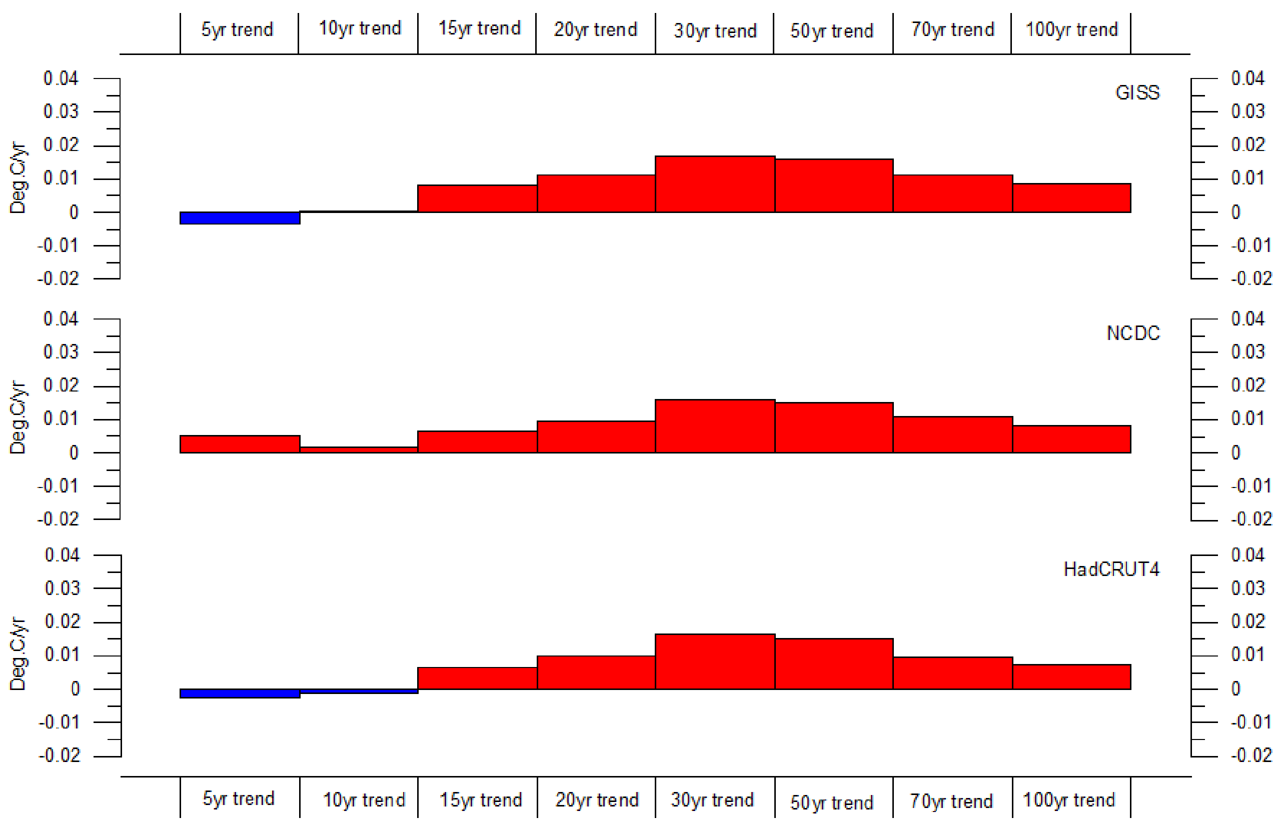
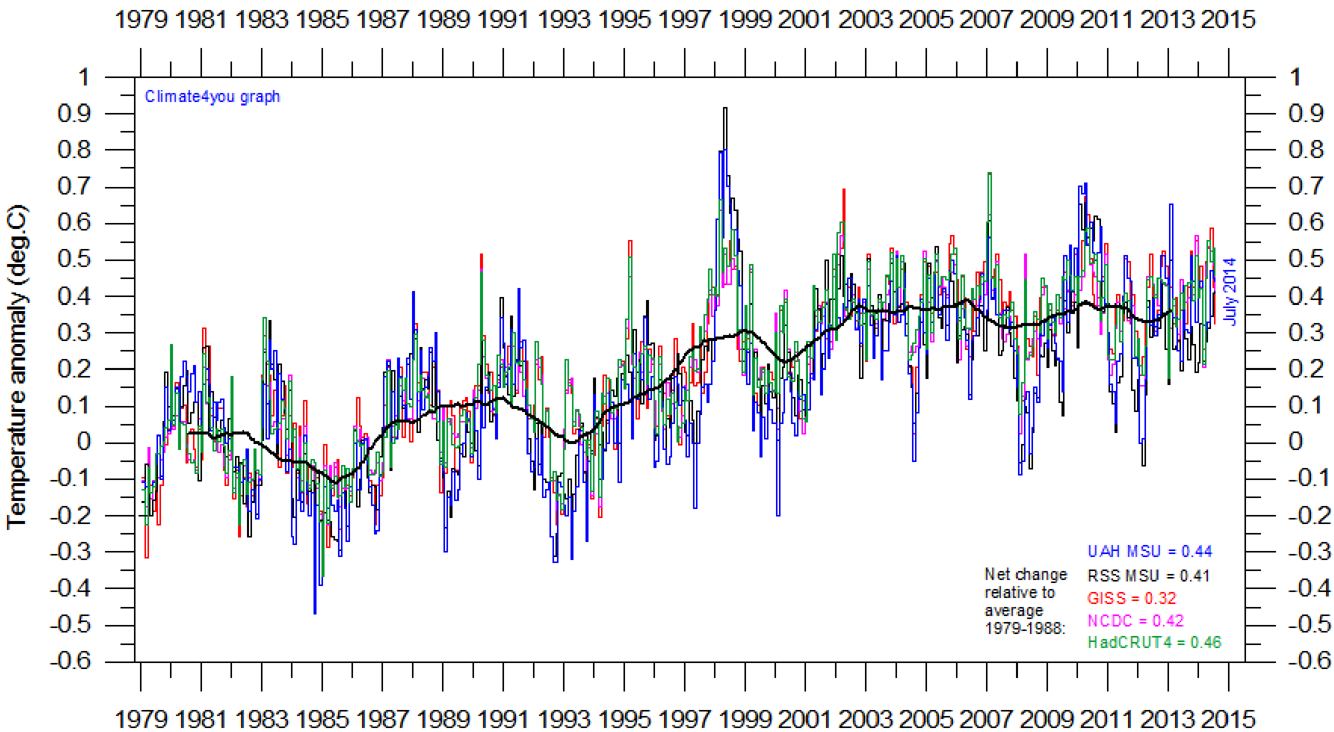



*Diagram showing the latest 5, 10, 20, 30, 50, 70 and 100 year linear annual global temperature trend, calculated as the slope of the linear regression line through the data points, for three surface-based temperature estimates (GISS, NCDC and HadCRUT4). Last month included in all analyses: July 2014.*

## [All in one, updated to July 2014](#)



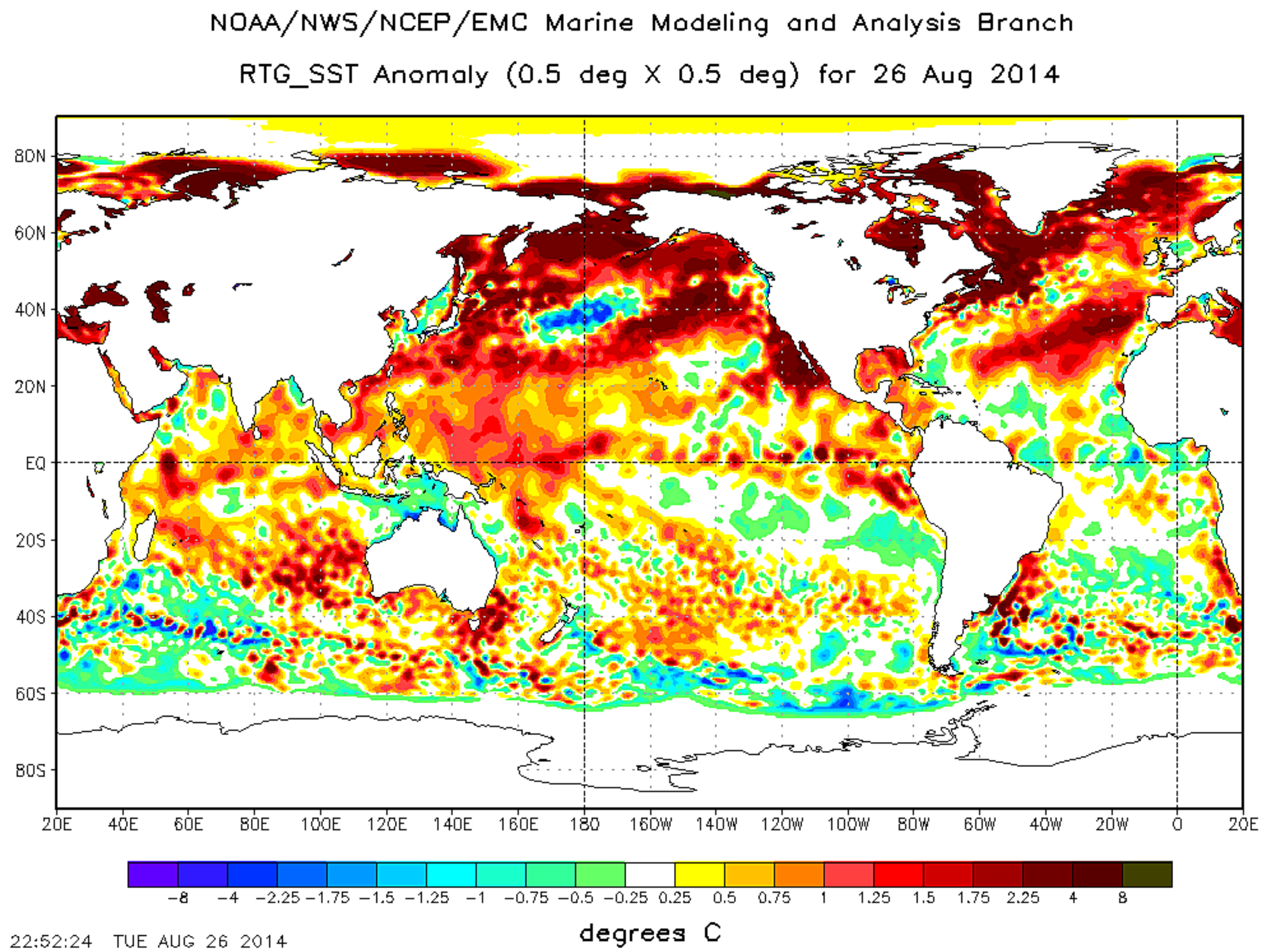

*Superimposed plot of all five global monthly temperature estimates. As the base period differs for the individual temperature estimates, they have all been normalised by comparing with the average value of the initial 120 months (10 years) from January 1979 to December 1988. The heavy black line represents the simple running 37 month (c. 3 year) mean of the average of all five temperature records. The numbers shown in the lower right corner represent the temperature anomaly relative to the individual 1979-1988 averages.*



It should be kept in mind that satellite- and surface-based temperature estimates are derived from different types of measurements, and that comparing them directly as done in the diagram above therefore may be somewhat problematical. However, as both types of estimate often are discussed together, the above diagram may nevertheless be of some interest. In fact, the different types of temperature estimates appear to agree quite well as to the overall temperature variations on a 2-3 year scale, although on a shorter time scale there are often considerable differences between the individual records.

All five global temperature estimates presently show an overall stagnation, at least since 2002. There has been no increase in global air temperature since 1998, which however was affected by the oceanographic El Niño event. This stagnation does not exclude the possibility that global temperatures will begin to increase again later. On the other hand, it also remain a possibility that Earth just now is passing a temperature peak, and that global temperatures will begin to decrease during the coming years. Time will show which of these two possibilities is correct.

## Global sea surface temperature, updated to late August 2014




*Sea surface temperature anomaly on 26 August 2014. Map source: National Centers for Environmental Prediction (NOAA).*

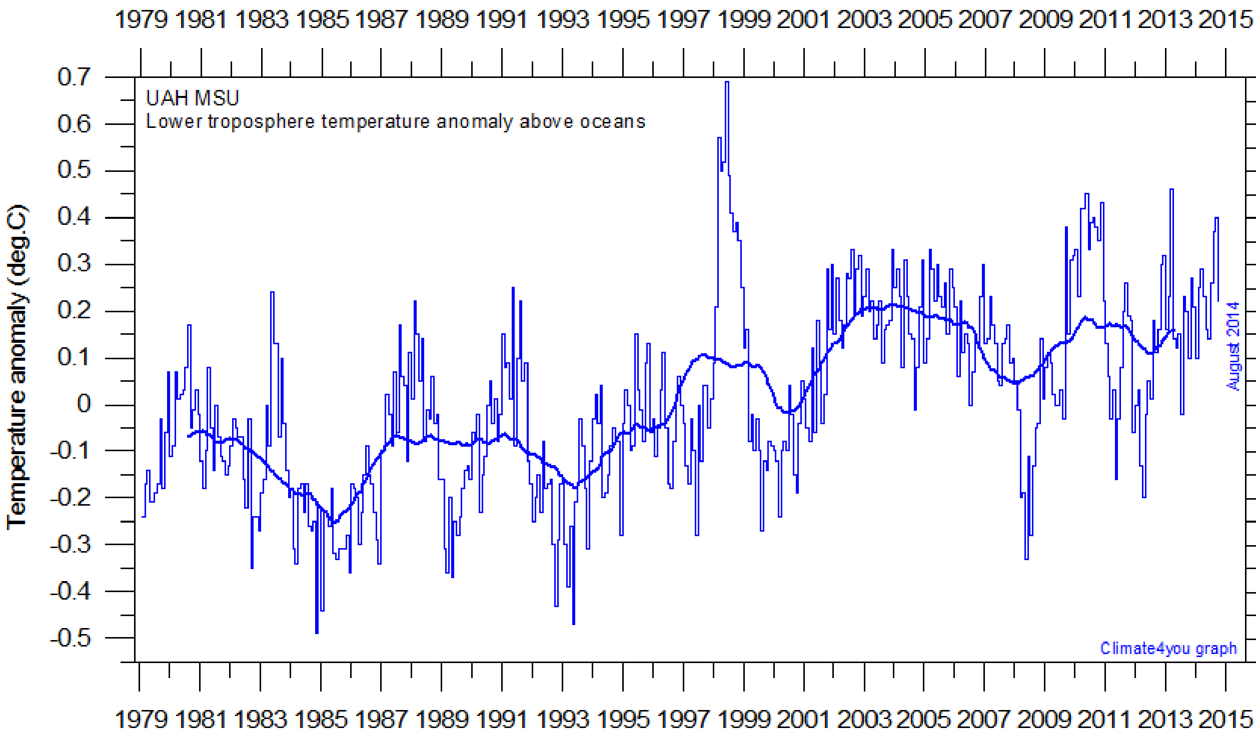


Because of the large surface areas near Equator, the temperature of the surface water in these regions is especially important for the global atmospheric temperature (p.4-6).

Relatively warm water is dominating the Pacific Ocean and Indian Ocean near the Equator, and is influencing global air temperatures now and in the months to come.

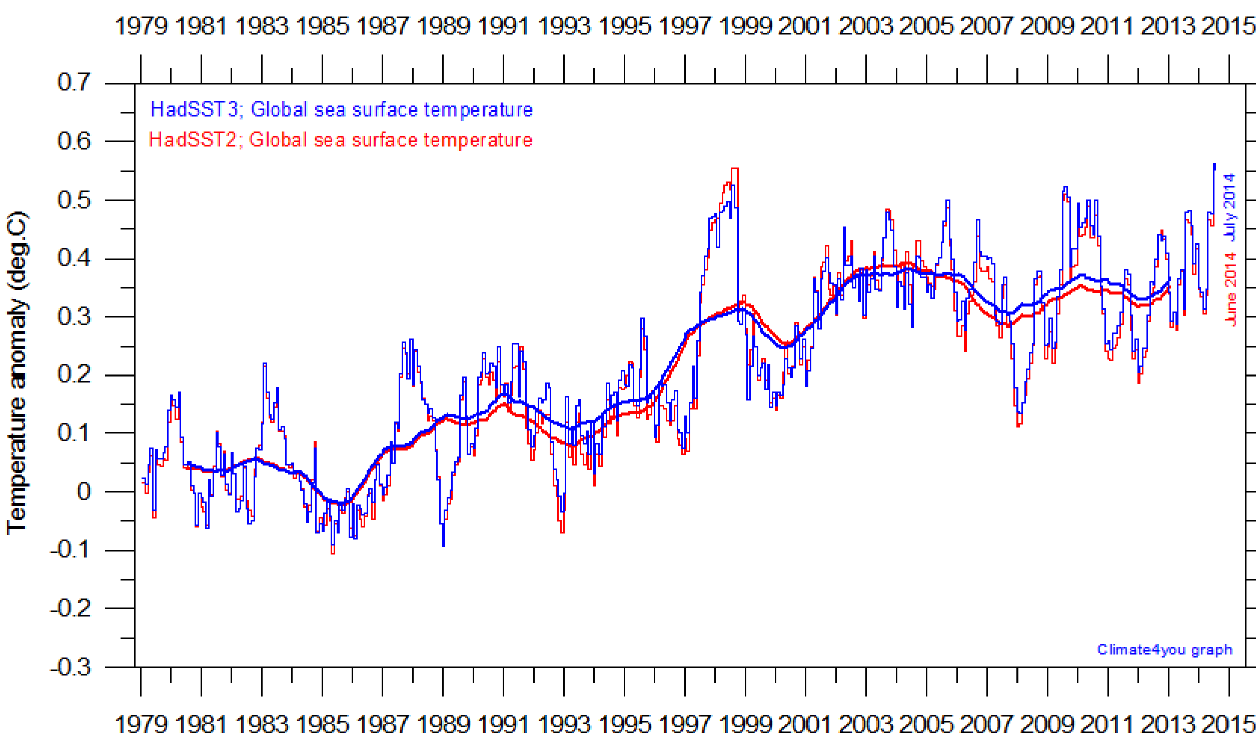
The significance of any such short-term cooling or warming reflected in air temperatures should not be over stated. Whenever Earth experiences cold La Niña or warm El Niño episodes (Pacific Ocean) major heat exchanges takes place between the Pacific Ocean and the atmosphere above, eventually showing up in estimates of the global air temperature.

However, this does not reflect similar changes in the total heat content of the atmosphere-ocean system. In fact, global net changes can be small and such heat exchanges may mainly reflect redistribution of energy between ocean and atmosphere. What matters is the overall temperature development when seen over a number of years.

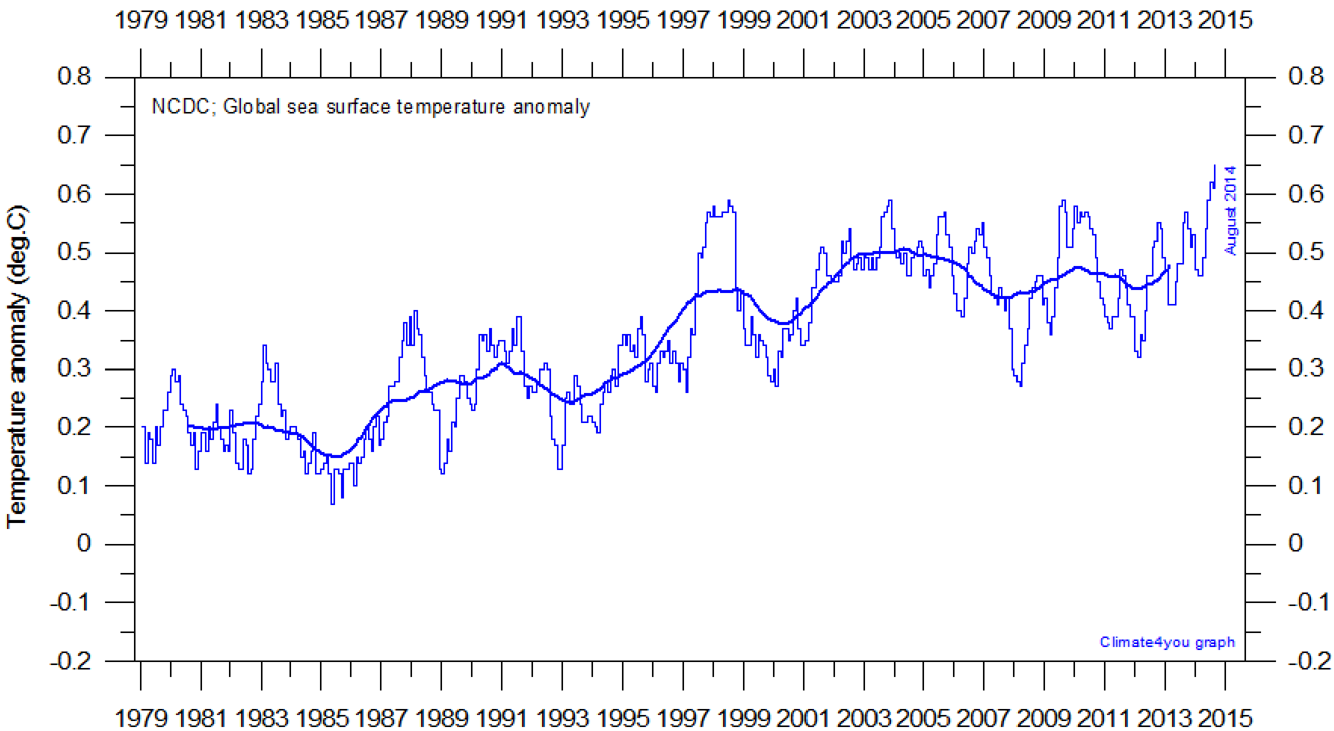



*Global monthly average lower troposphere temperature over oceans (thin line) since 1979 according to [University of Alabama](#) at Huntsville, USA. The thick line is the simple running 37 month average.*



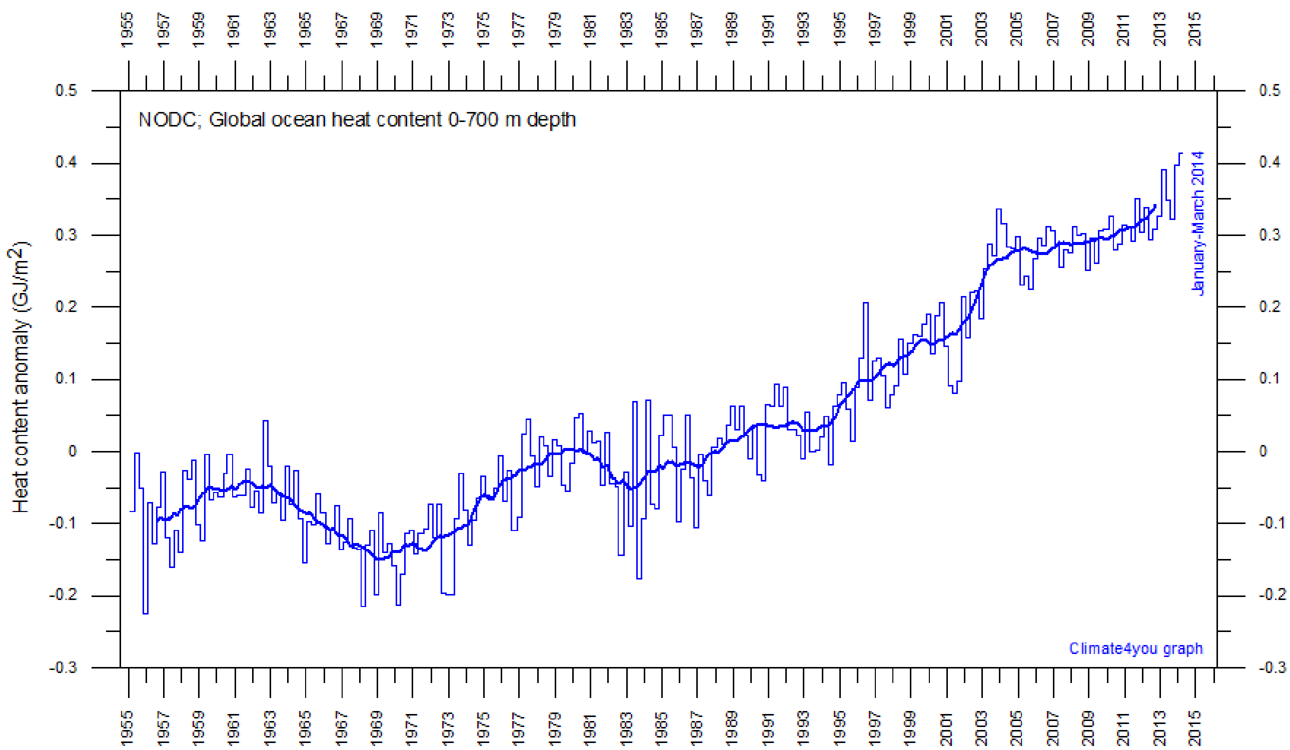



*Global monthly average sea surface temperature since 1979 according to University of East Anglia's [Climatic Research Unit](#) ([CRU](#)), UK. Base period: 1961-1990. The thick line is the simple running 37-month average. Please note that this diagram is not updated beyond July 2014.*



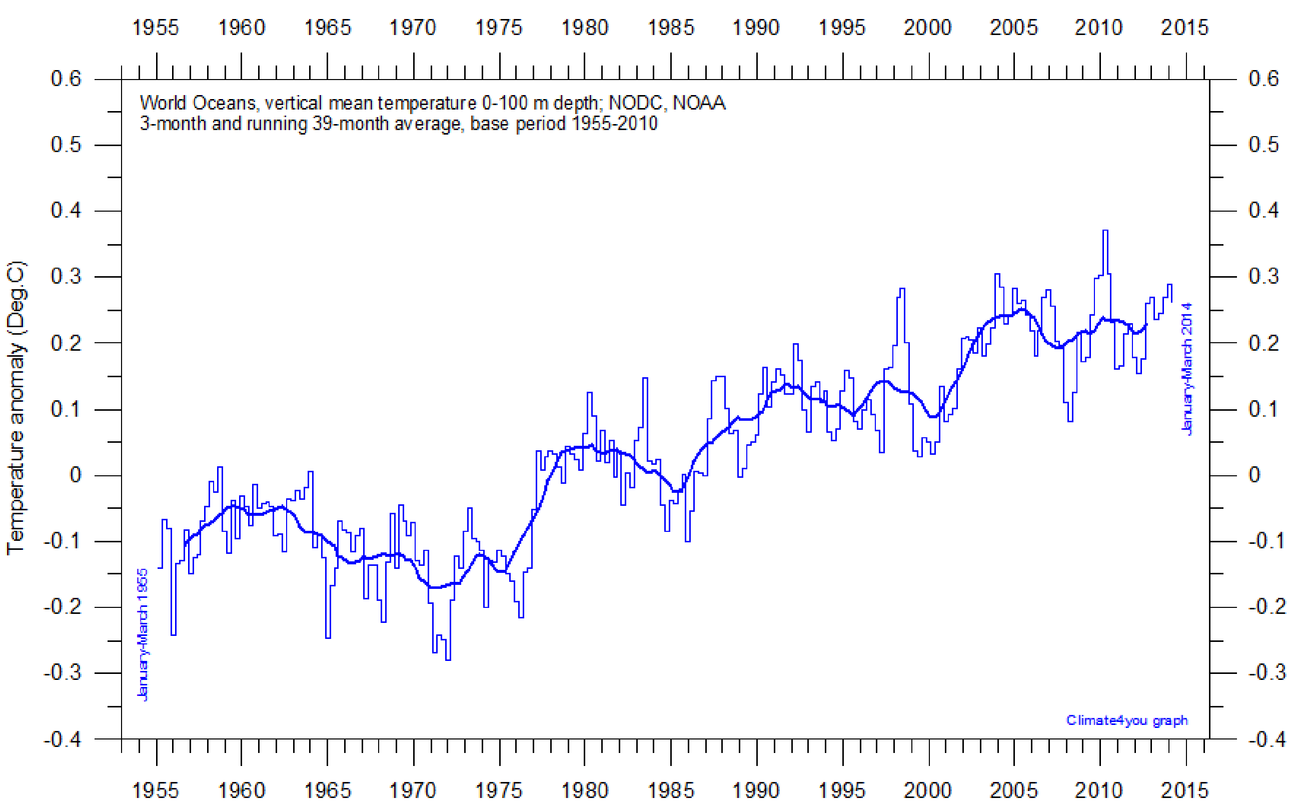

*Global monthly average sea surface temperature since 1979 according to the [National Climatic Data Center](#) (NCDC), USA. Base period: 1901-2000. The thick line is the simple running 37-month average.*

## Ocean heat content uppermost 100 and 700 m, updated to March 2014

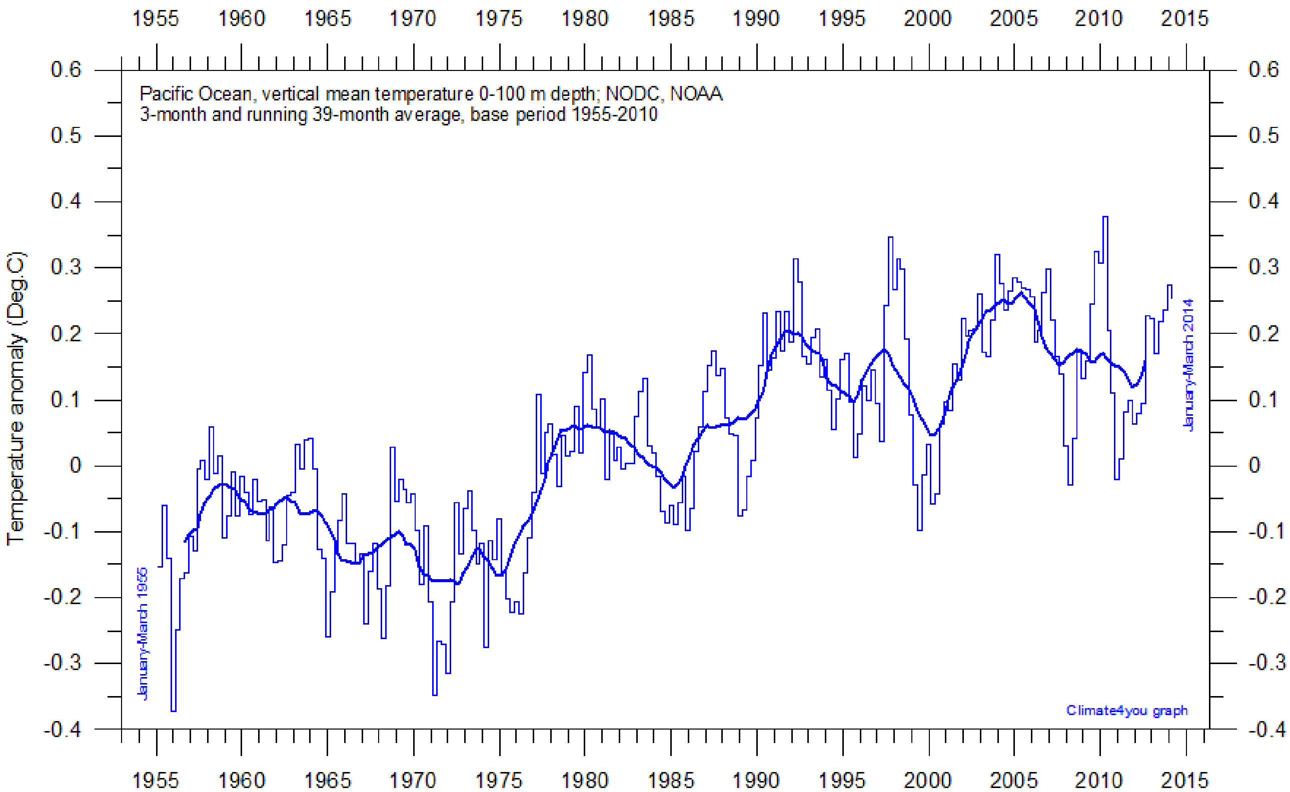



*Global monthly heat content anomaly (GJ/m2) in the uppermost 700 m of the oceans since January 1955. Data source: National Oceanographic Data Center(NODC).*



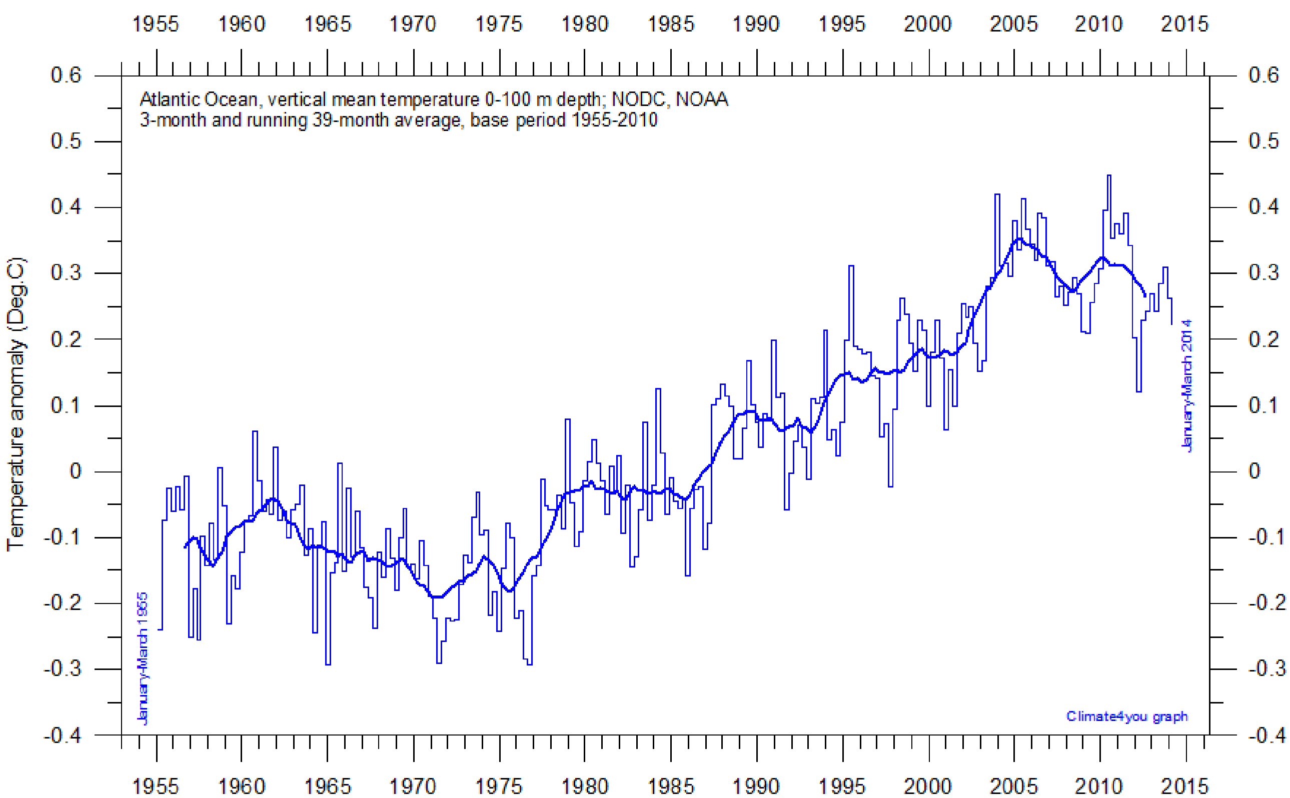



*World Oceans vertical average temperature 0-100 m depth since 1955. The thin line indicate 3-month values, and the thick line represents the simple running 39-month (c. 3 year) average. Data source: [NOAA National Oceanographic Data Center](#) (NODC). Base period 1955-2010.*

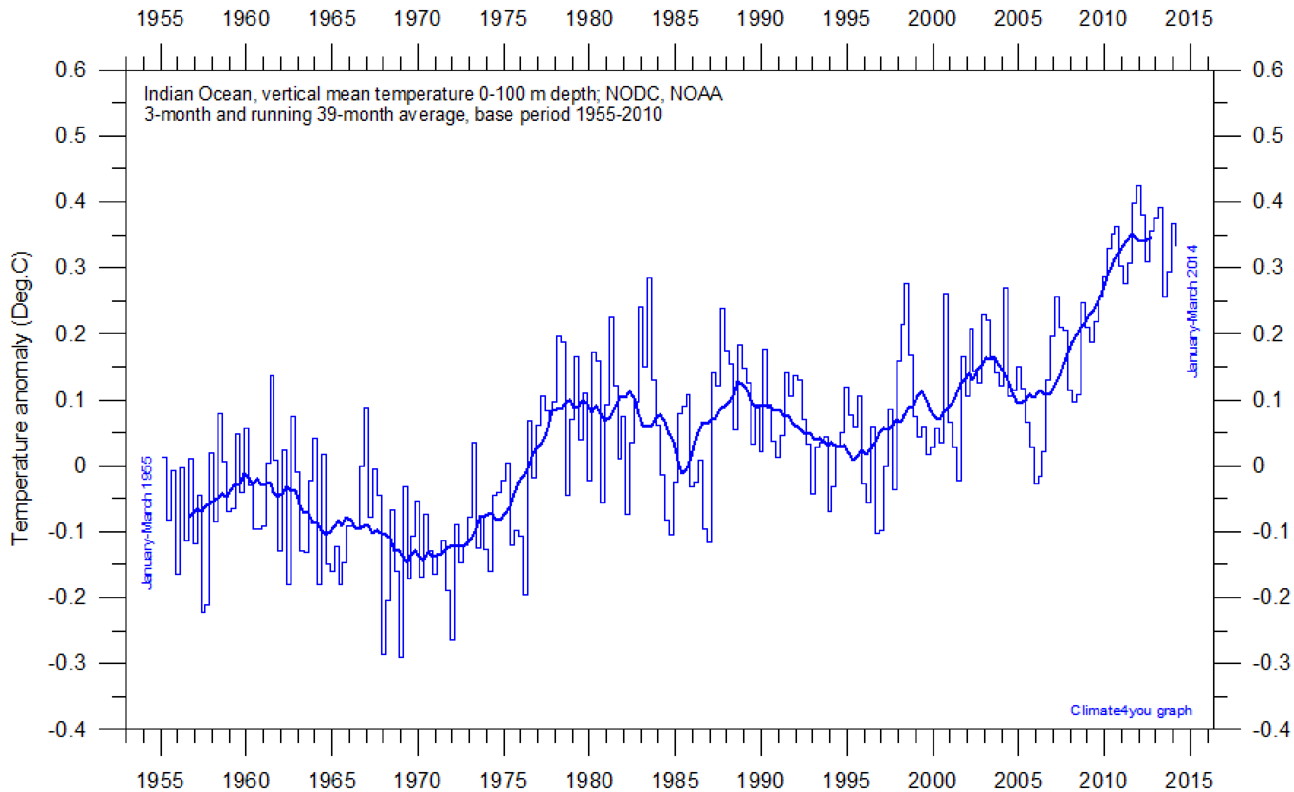



*Pacific Ocean vertical average temperature 0-100 m depth since 1955. The thin line indicate 3-month values, and the thick line represents the simple running 39-month (c. 3 year) average. Data source: [NOAA National Oceanographic Data Center](NOAA National Oceanographic Data Center) (NODC). Base period 1955-2010.*



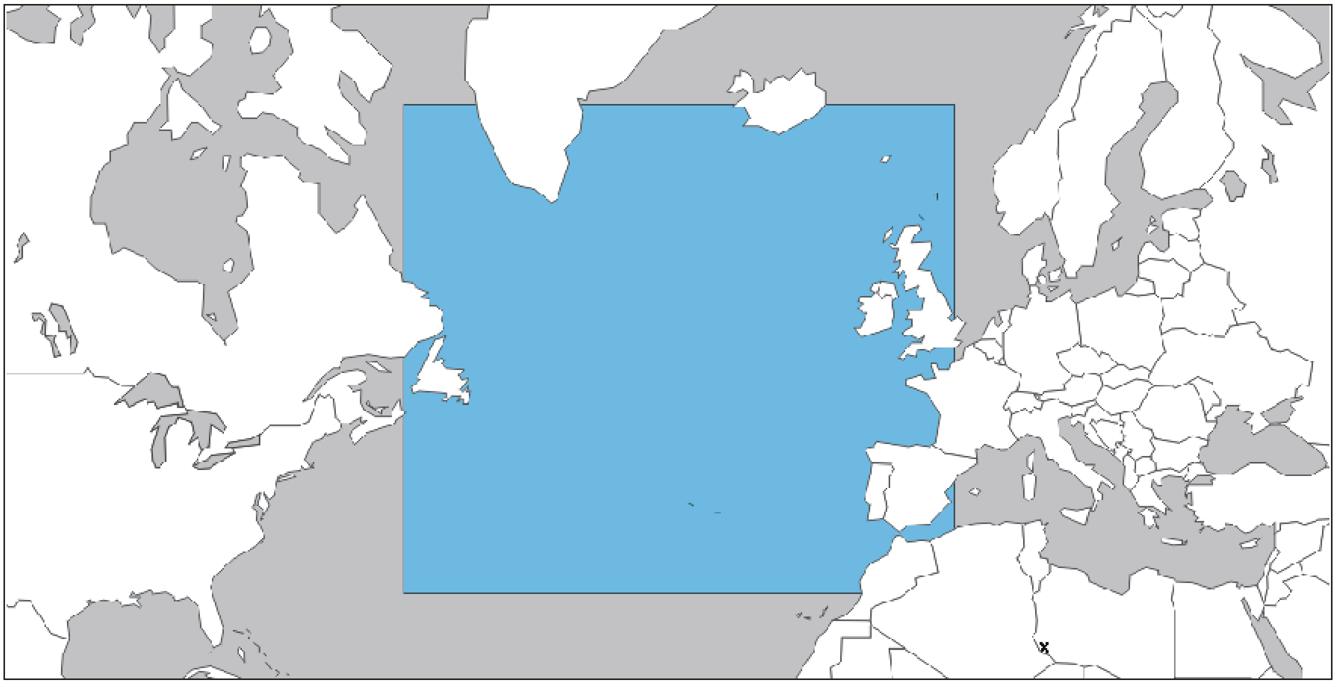



*Atlantic Ocean vertical average temperature 0-100 m depth since 1955. The thin line indicate 3-month values, and the thick line represents the simple running 39-month (c. 3 year) average. Data source: NOAA National Oceanographic Data Center (NODC). Base period 1955-2010.*

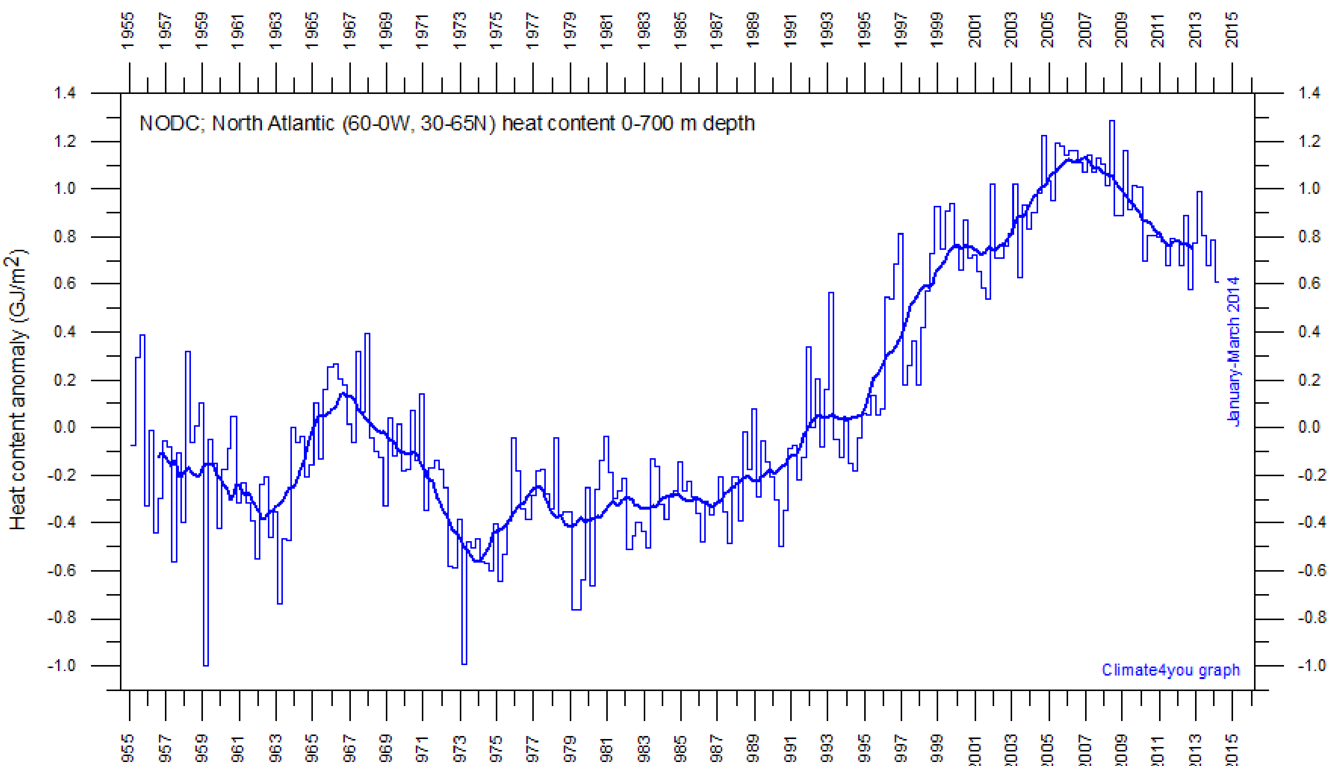



*Indian Ocean vertical average temperature 0-100 m depth since 1955. The thin line indicate 3-month values, and the thick line represents the simple running 39-month (c. 3 year) average. Data source: [NOAA National Oceanographic Data Center](#) (NODC). Base period 1955-2010.*

## North Atlantic heat content uppermost 700 m, updated to March 2014

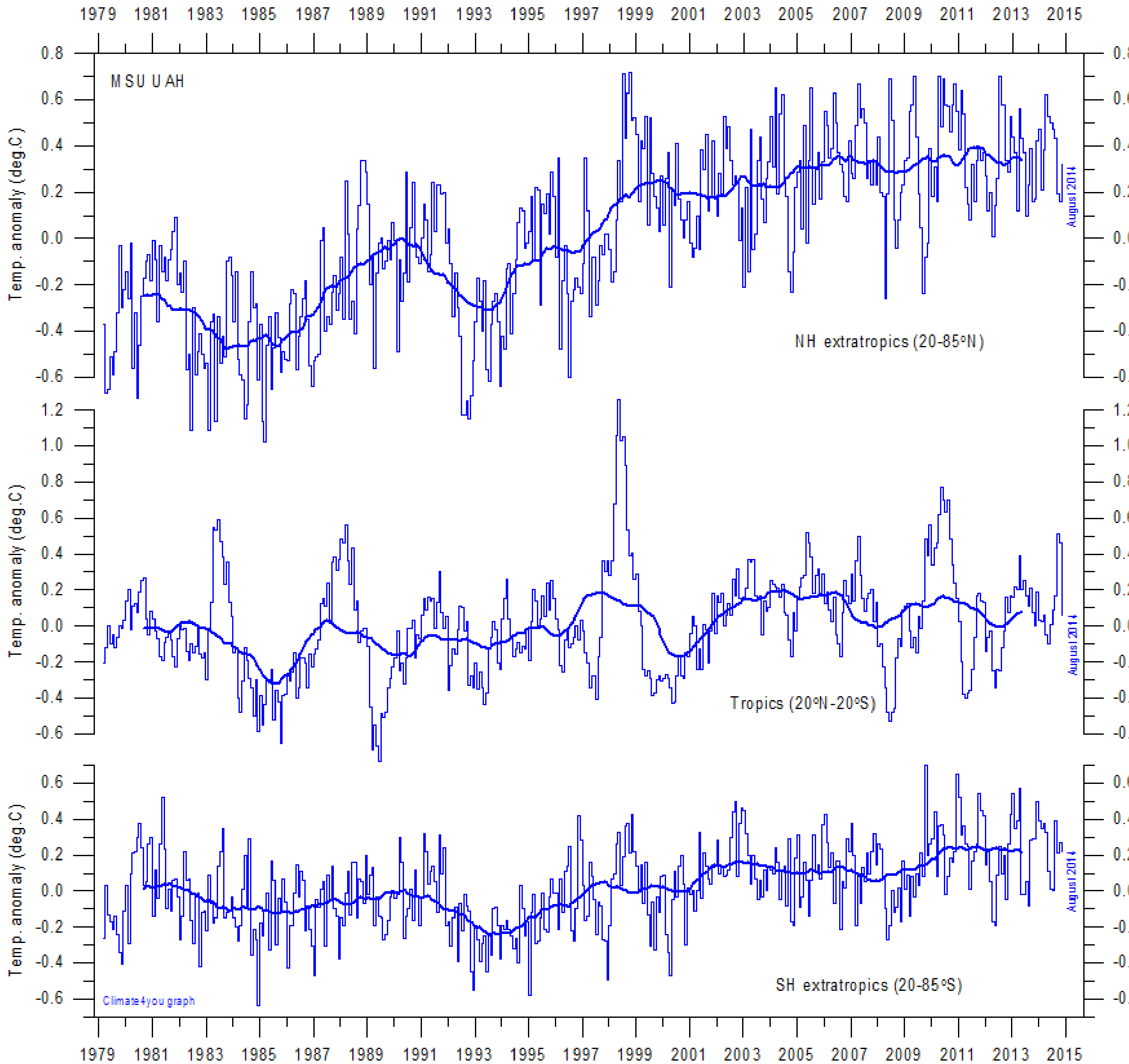






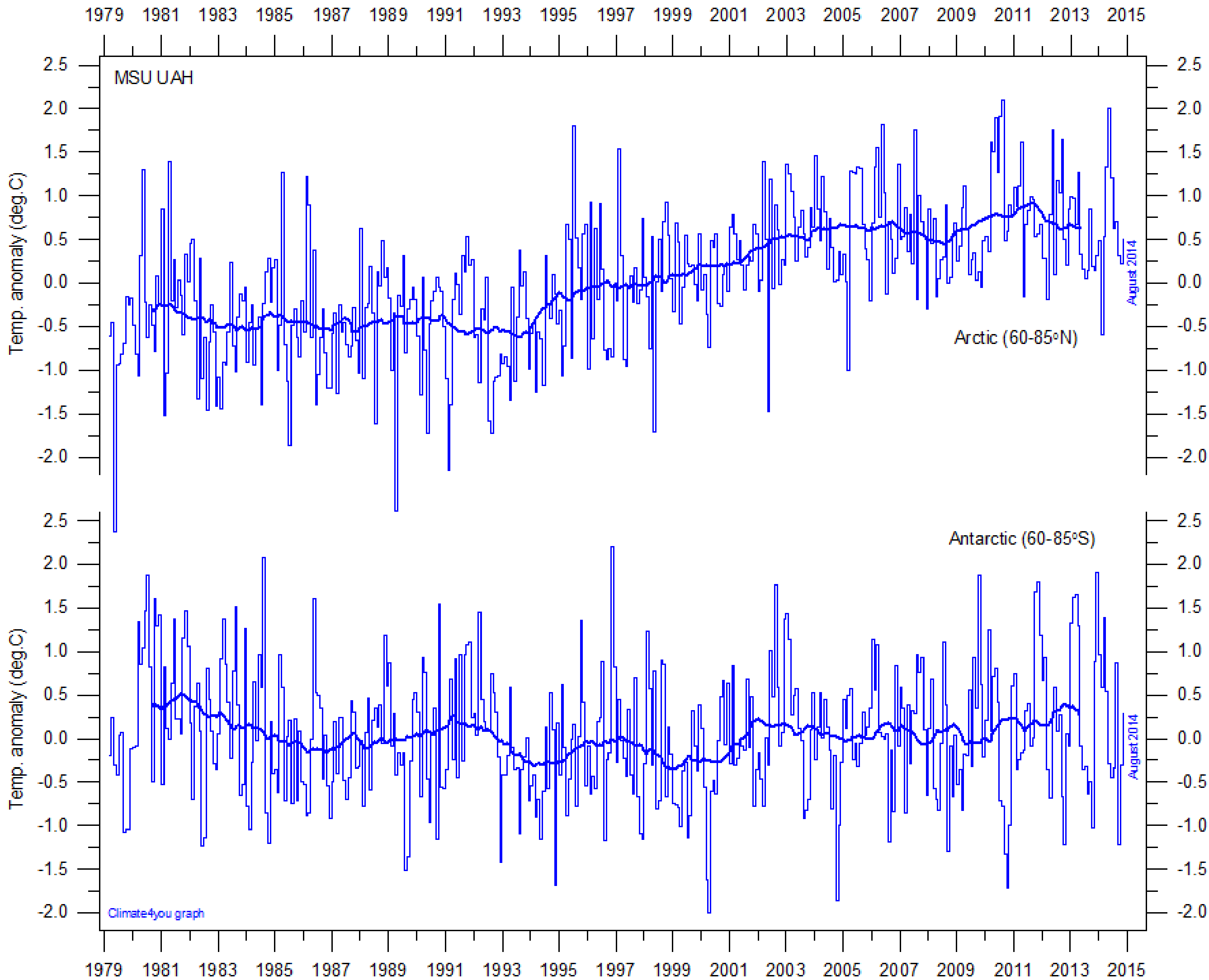

*Global monthly heat content anomaly (GJ/m2) in the uppermost 700 m of the* North Atlantic (60-0W, 30-65N; see map above) *ocean since January 1955. The thin line indicates monthly values, and the thick line represents the simple running 37 month (c. 3 year) average. Data source: [National Oceanographic Data Center](#) (NODC).*

## Zonal lower troposphere temperatures from satellites, updated to August 2014




*Global monthly average lower troposphere temperature since 1979 for the tropics and the northern and southern extratropics, according to [University of Alabama](#) at Huntsville, USA. Thin lines show the monthly temperature. Thick lines represent the simple running 37-month average, nearly corresponding to a running 3 yr average. Reference period 1981-2010.*

## Arctic and Antarctic lower troposphere temperature, updated to August 2014




*Global monthly average lower troposphere temperature since 1979 for the North Pole and South Pole regions, based on satellite observations (University of Alabama at Huntsville, USA). Thin lines show the monthly temperature. The thick line is the simple running 37-month average, nearly corresponding to a running 3 yr average.*

## Arctic and Antarctic surface air temperature, updated to May 2014

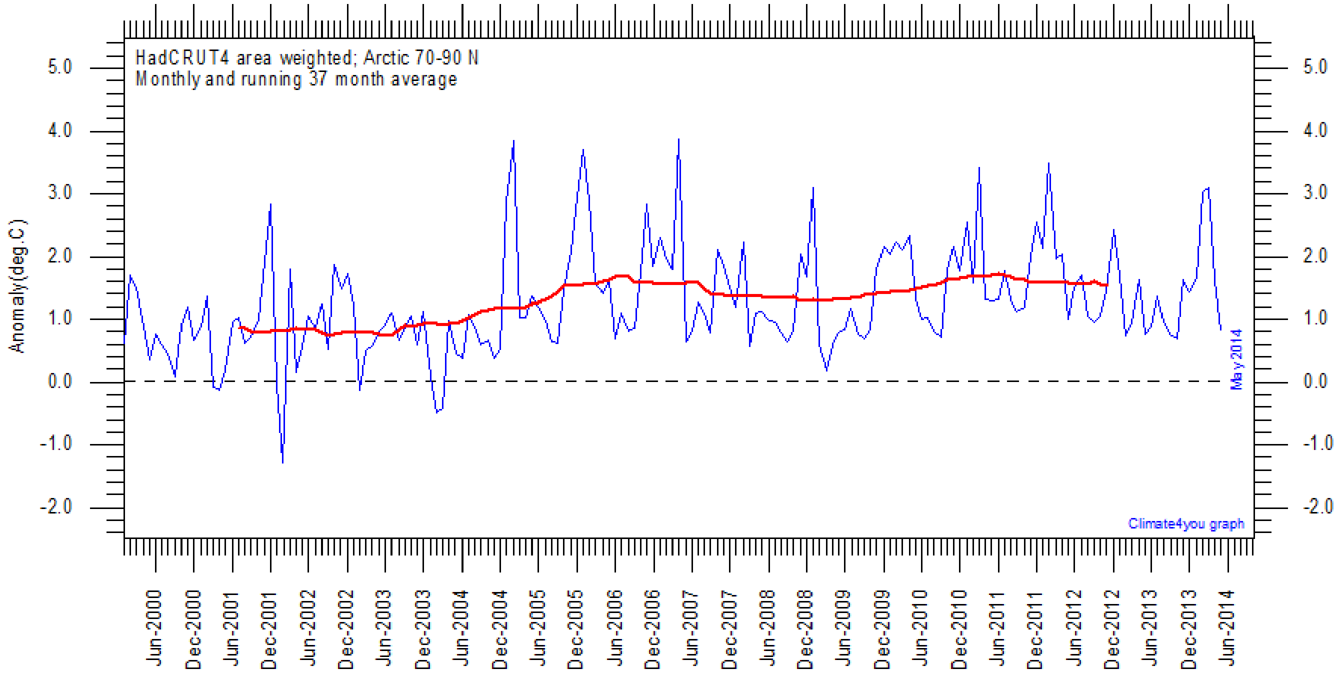



*Diagram showing area weighted Arctic (70-90°N) monthly surface air temperature anomalies ([HadCRUT4]) since January 2000, in relation to the WMO [normal period] 1961-1990. The thin blue line shows the monthly temperature anomaly, while the thicker red line shows the running 37 month (c.3 yr) average.*



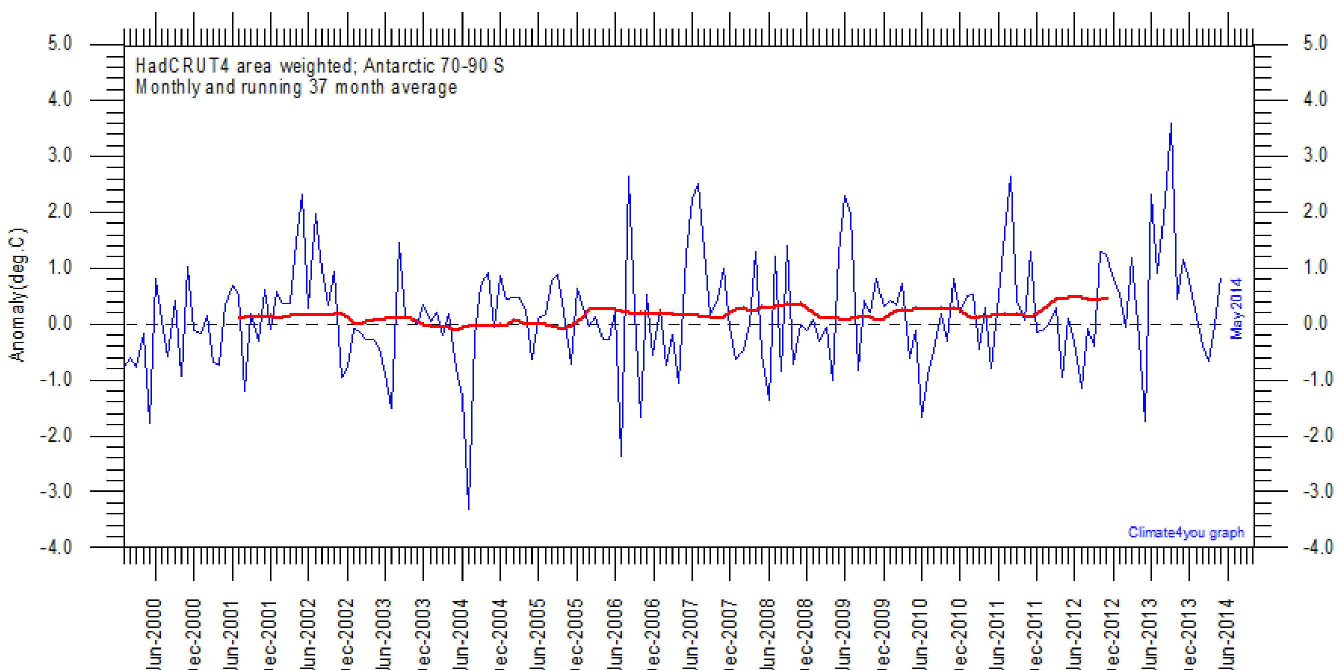



*Diagram showing area weighted Antarctic (70-90°N) monthly surface air temperature anomalies ([HadCRUT4]) since January 2000, in relation to the WMO [normal period] 1961-1990. The thin blue line shows the monthly temperature anomaly, while the thicker red line shows the running 37 month (c.3 yr) average.*

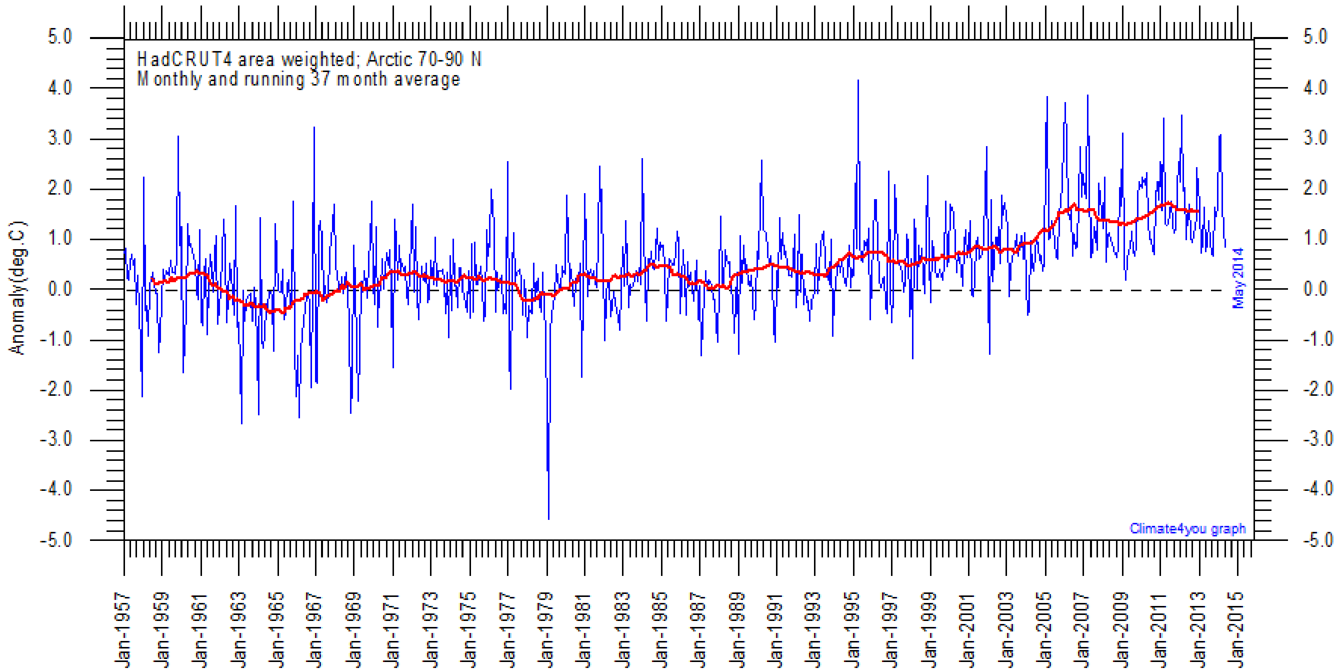



*Diagram showing area weighted Arctic (70-90°N) monthly surface air temperature anomalies ([HadCRUT4]) since January 1957, in relation to the WMO [normal period] 1961-1990. The thin blue line shows the monthly temperature anomaly, while the thicker red line shows the running 37 month (c.3 yr) average.*



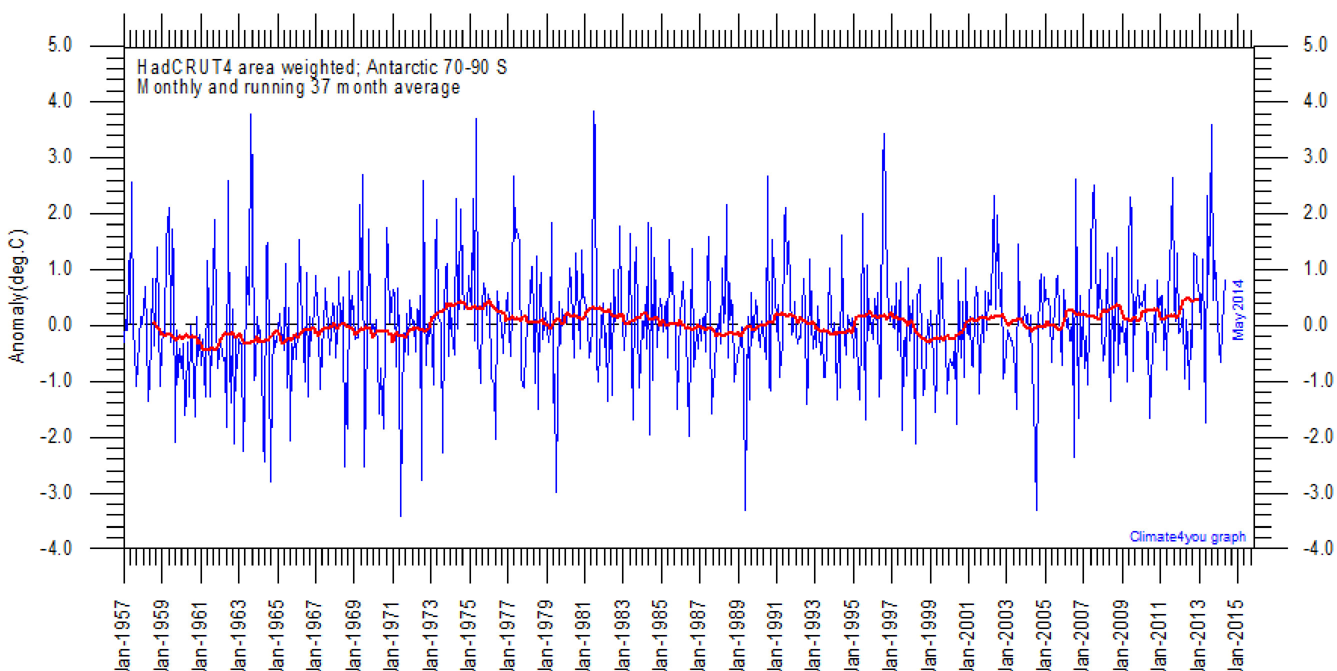



*Diagram showing area weighted Antarctic (70-90°N) monthly surface air temperature anomalies ([HadCRUT4]) since January 1957, in relation to the WMO [normal period] 1961-1990. The thin blue line shows the monthly temperature anomaly, while the thicker red line shows the running 37 month (c.3 yr) average.*

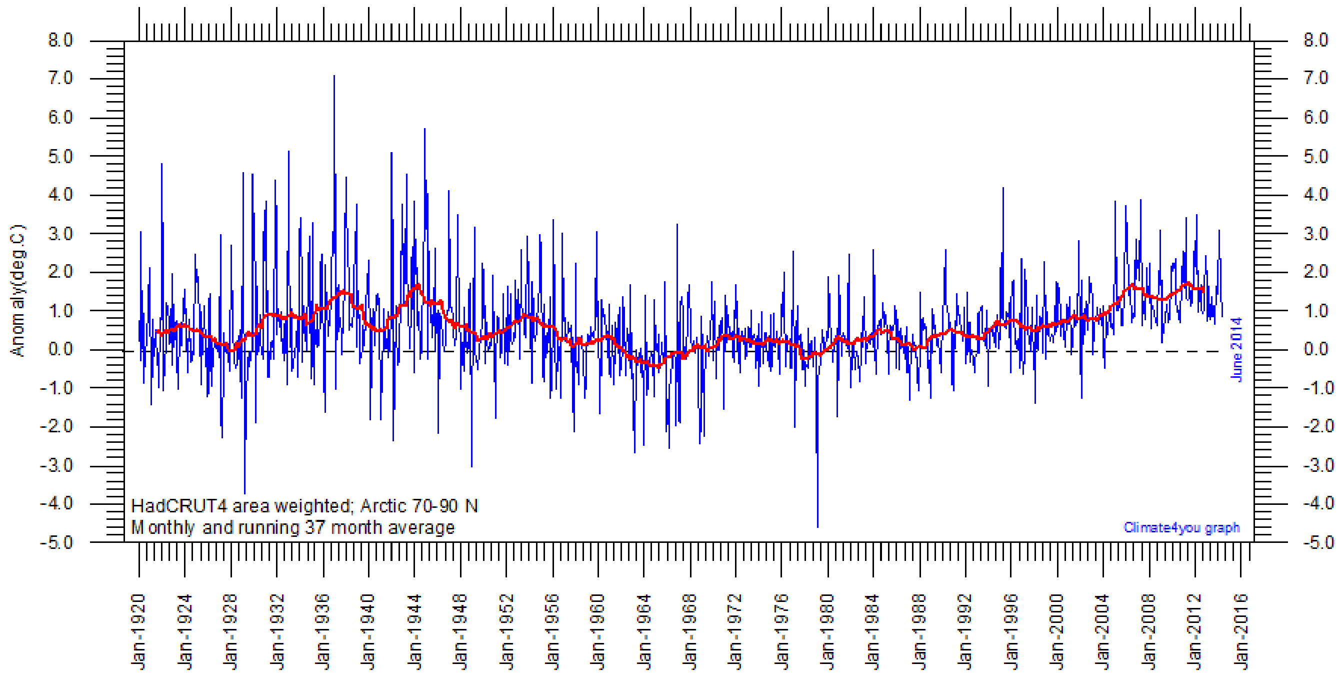



*Diagram showing area-weighted Arctic (70-90°N) monthly surface air temperature anomalies ([HadCRUT4]) since January 1920, in relation to the WMO [normal period] 1961-1990. The thin blue line shows the monthly temperature anomaly, while the thicker red line shows the running 37 month (c.3 yr) average. Because of the relatively small number of Arctic stations before 1930, month-to-month variations in the early part of the temperature record are larger than later. The period from about 1930 saw the establishment of many new Arctic meteorological stations, first [in Russia and Siberia], and following the 2nd World War, also in North America. The period since 2000 is warm, about as warm as the period 1930-1940.*

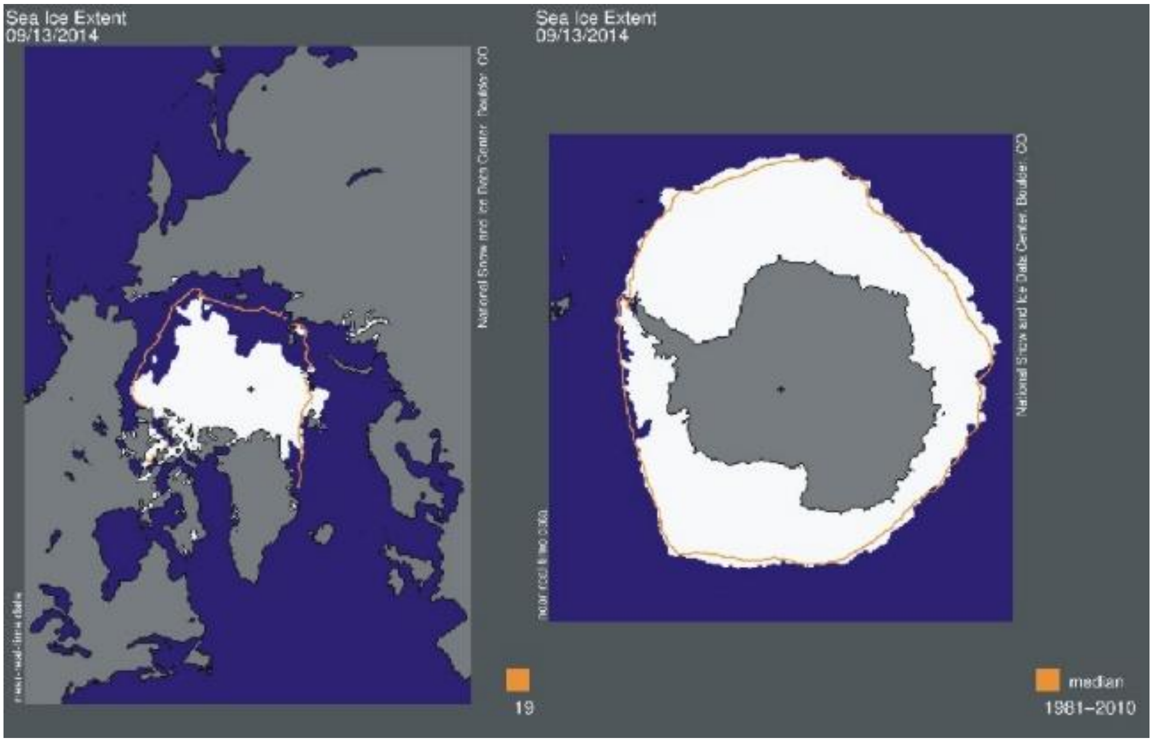


As the HadCRUT4 data series has improved high latitude coverage data coverage (compared to the HadCRUT3 series) the individual 5°x5° grid cells has been weighted according to their surface area. This is in contrast to [Gillet et al. 2008] which calculated a simple average, with no consideration to the surface area represented by the individual 5°x5° grid cells.

Literature:

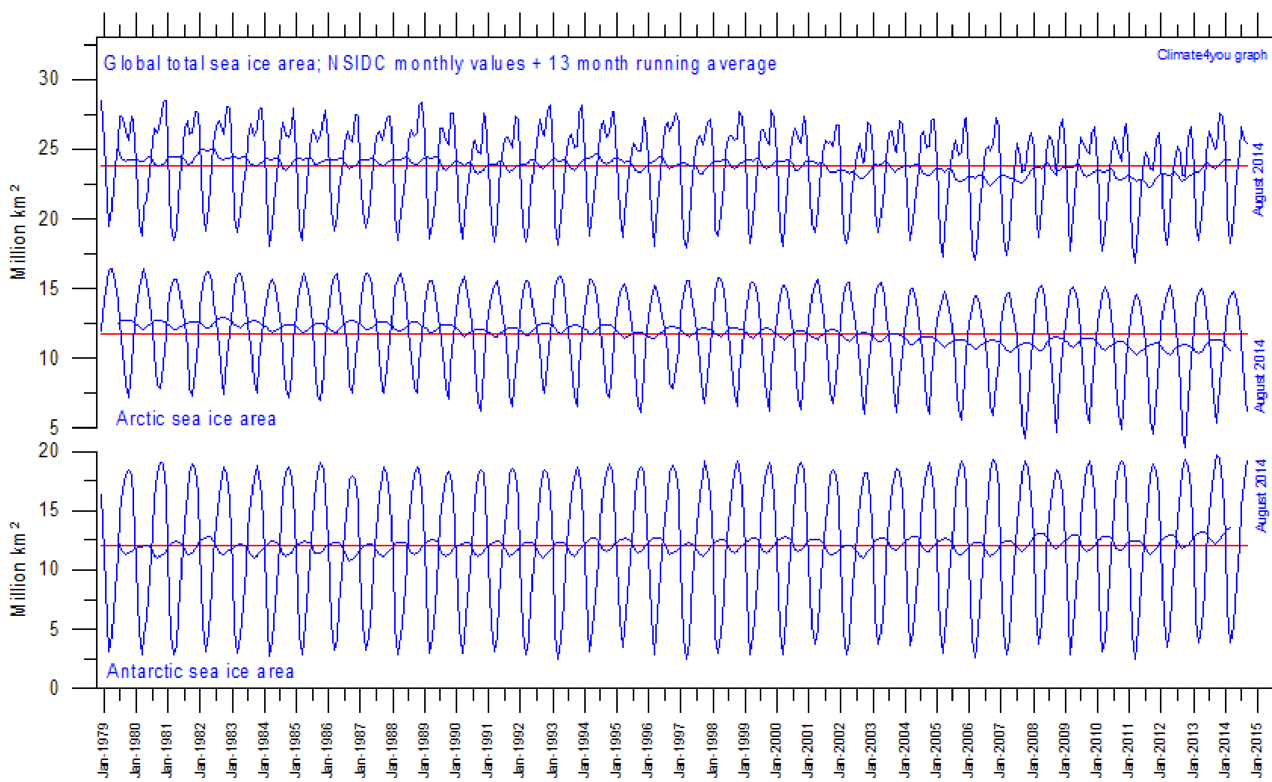
Gillett, N.P., Stone, D.A., Stott, P.A., Nozawa, T., Karpechko, A.Y.U., Hegerl, G.C., Wehner, M.F. and Jones, P.D. 2008. Attribution of polar warming to human influence. *Nature Geoscience* 1, 750-754.

## Arctic and Antarctic sea ice, updated to August 2014

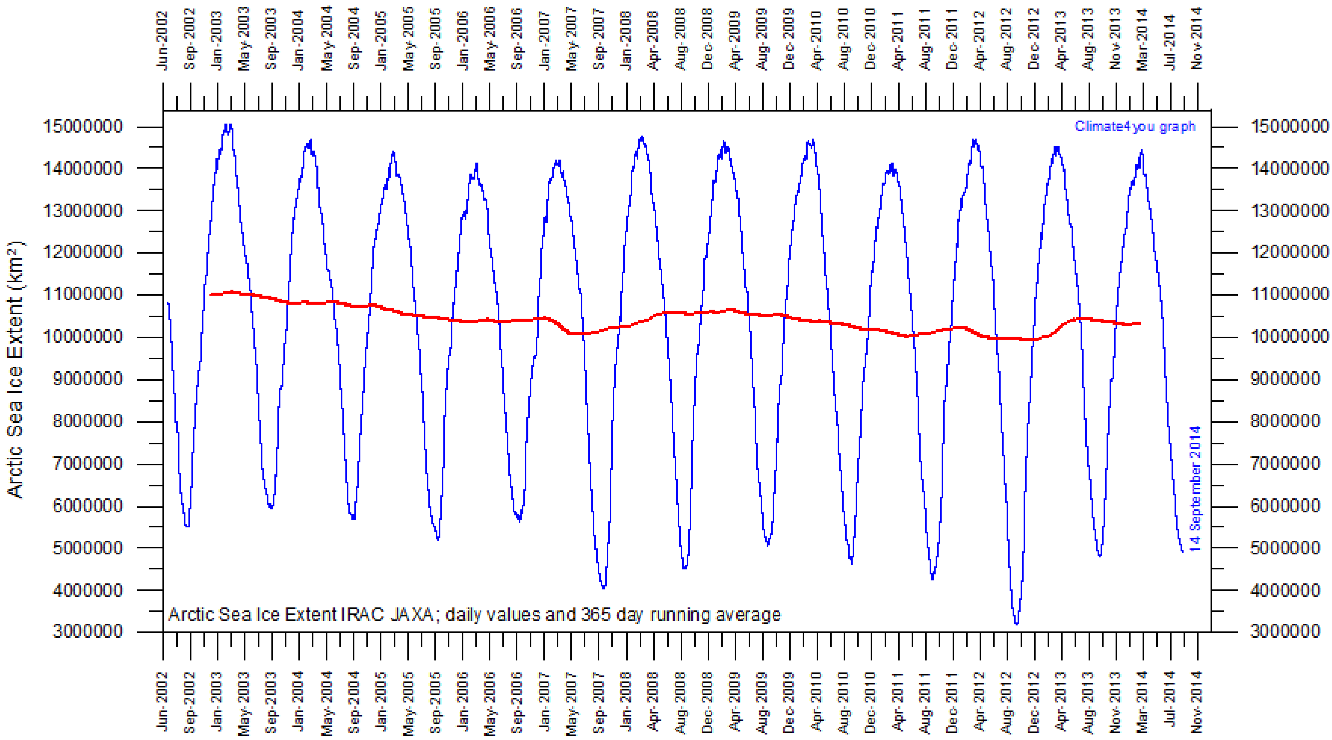



*Sea ice extent 13 September 2014. The 'normal' or average limit of sea ice (orange line) is defined as 15% sea ice cover, according to the average of satellite observations 1981-2010 (both years inclusive). Sea ice may therefore well be encountered outside and open water areas inside the limit shown in the diagrams above. Map source:* National Snow and Ice Data Center *(NSIDC).*



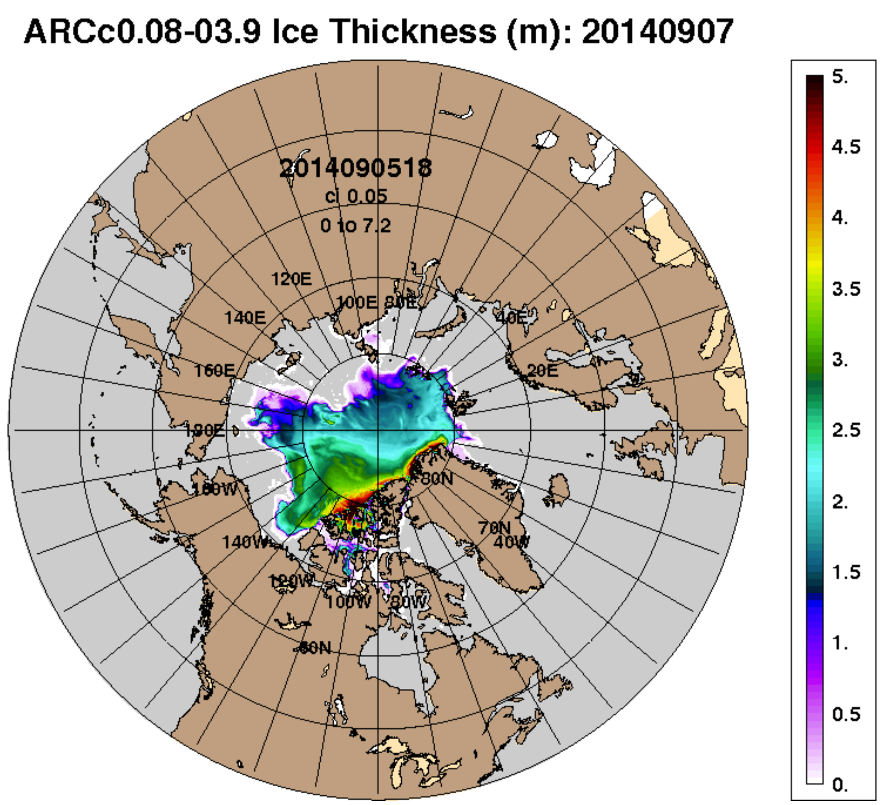



*Graphs showing monthly Antarctic, Arctic and global sea ice extent since November 1978, according to the [National Snow and Ice data Center](#) (NSIDC).*

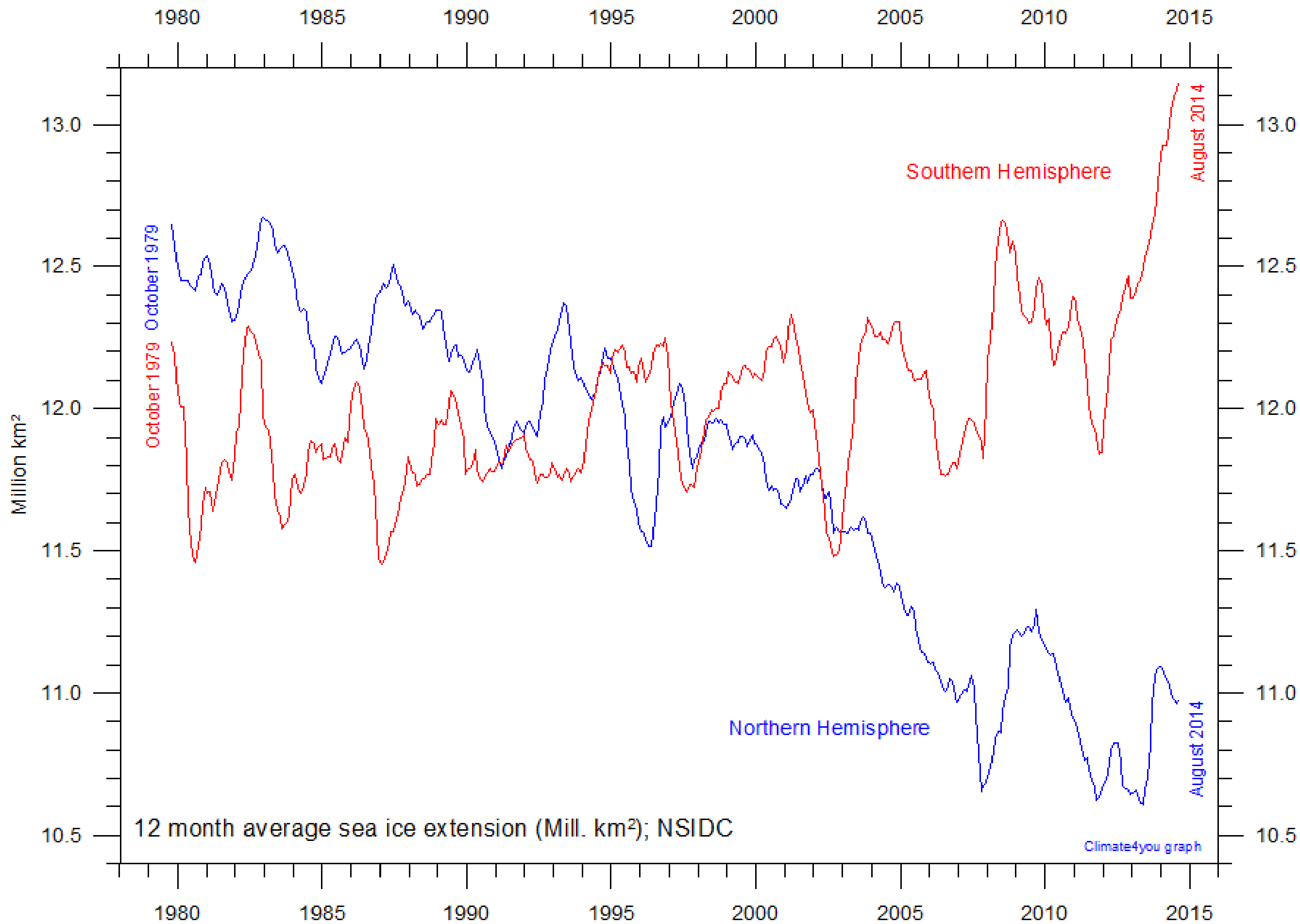



*Graph showing daily Arctic sea ice extent since June 2002, to 14 September 2014, by courtesy of [Japan Aerospace Exploration Agency](#) (JAXA).*





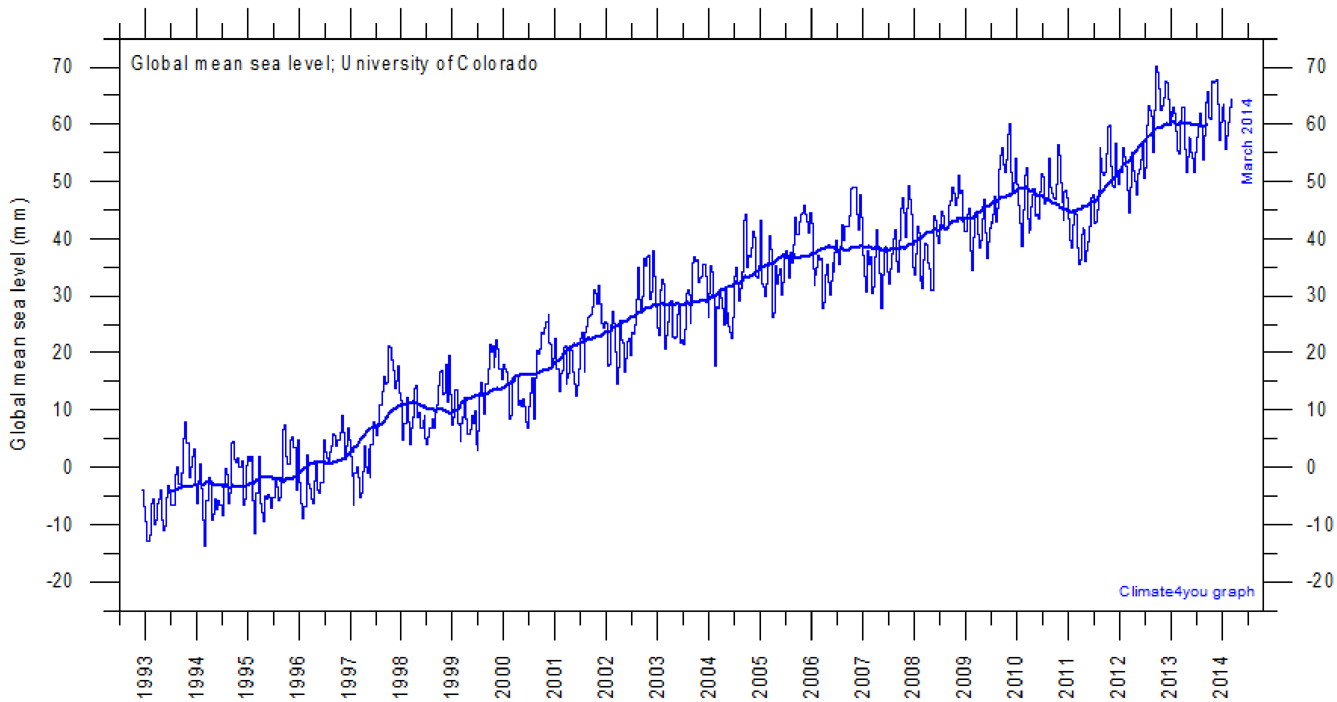

*Northern hemisphere sea ice extension and thickness on 7 September 2014 according to the [Arctic Cap Nowcast/Forecast System](#) (ACNFS), US Naval Research Laboratory. Thickness scale (m) to the right.*





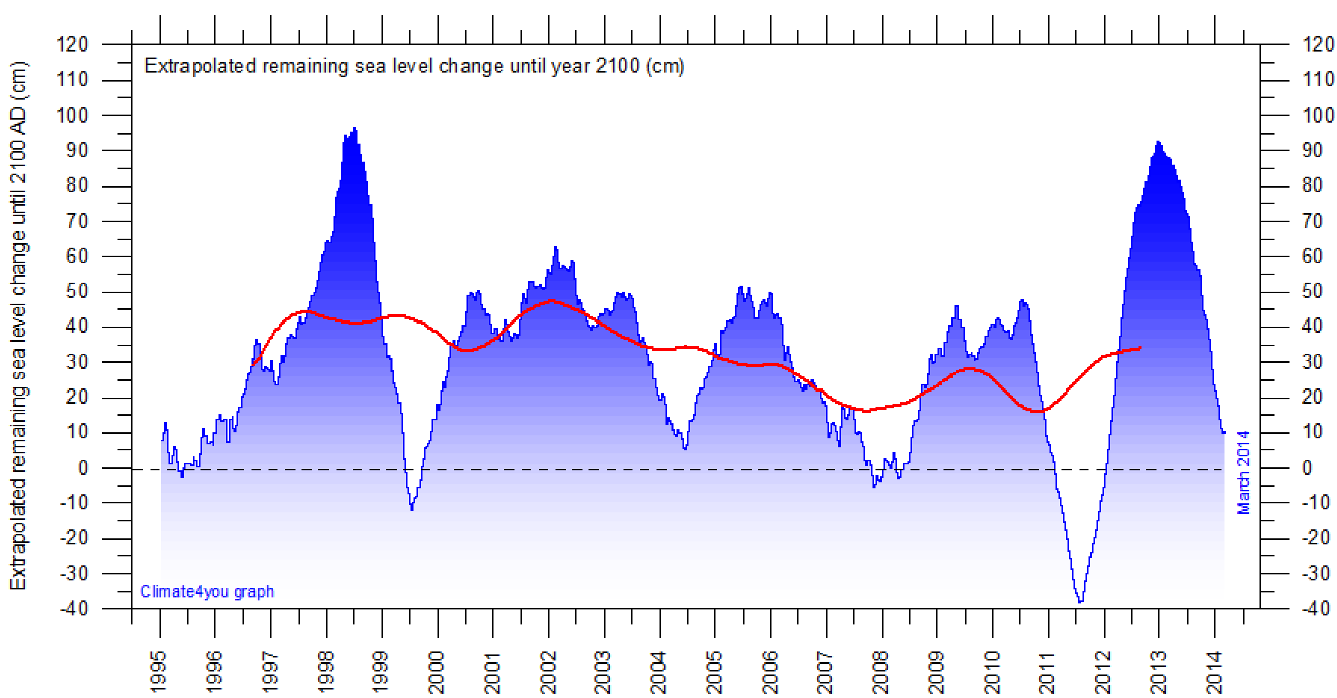

*12 month running average sea ice extension in both hemispheres since 1979, the satellite-era. The October 1979 value represents the monthly average of November 1978 - October 1979, the November 1979 value represents the average of December 1978 - November 1979, etc. Last month included in the 12-month calculations: August 2014. Data source: National Snow and Ice Data Center (NSIDC).*

## [Global sea level, updated to March 2014]()



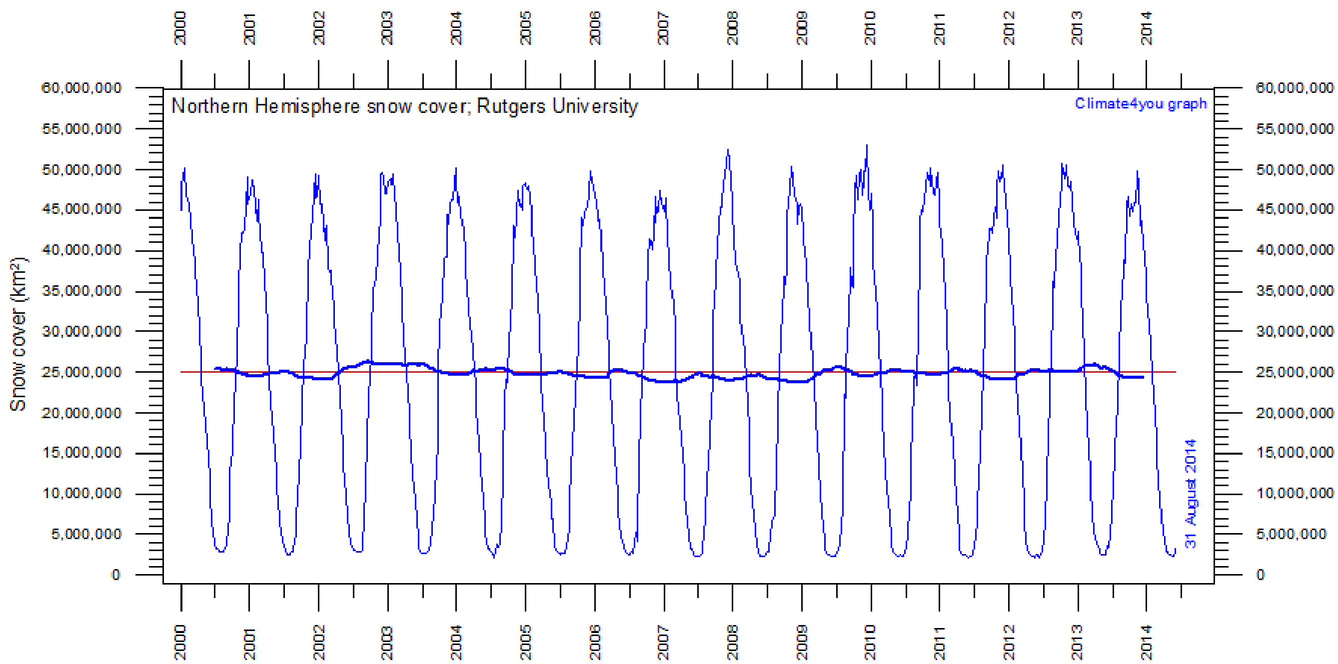

*Globa lmonthly sea level since late 1992 according to the Colorado Center for Astrodynamics Research at [University of Colorado at Boulder](), USA. The thick line is the simple running 37 observation average, nearly corresponding to a running 3 yr average.*





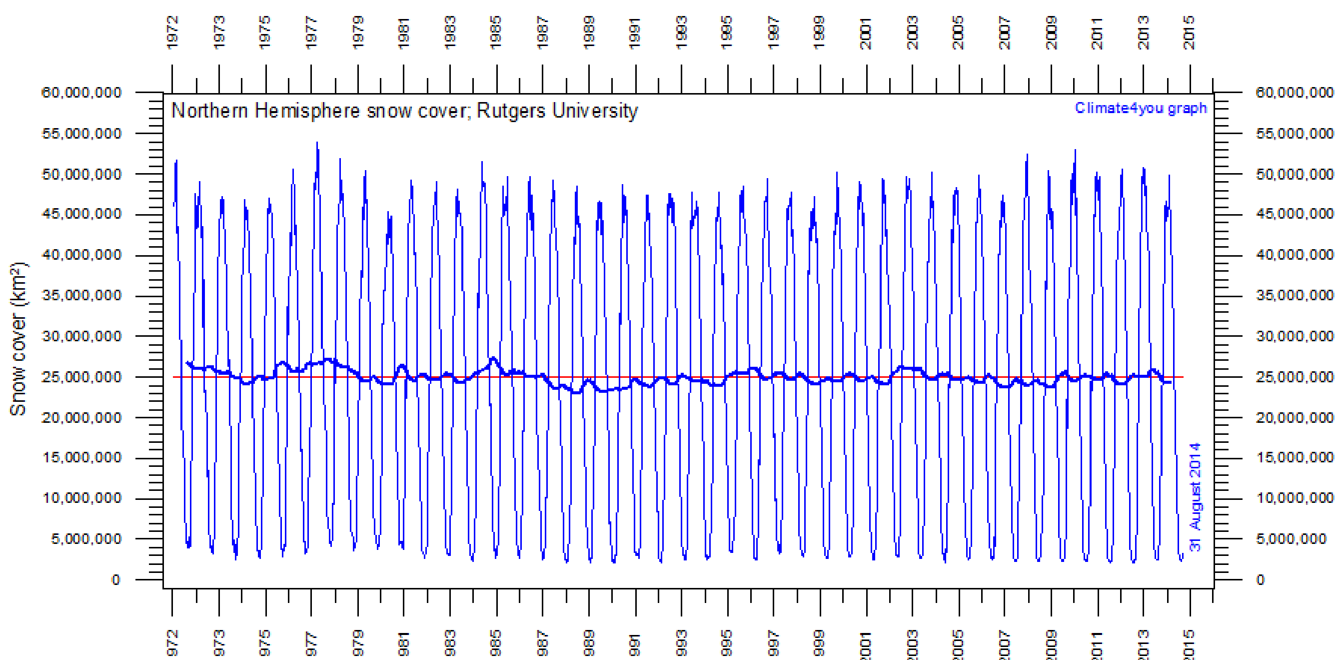

*Forecasted change of global sea level until year 2100, based on simple extrapolation of measurements done by the Colorado Center for Astrodynamics Research at [University of Colorado at Boulder](), USA. The thick line is the simple running 3 yr average forecast for sea level change until year 2100. Based on this (thick line), the present simple empirical forecast of sea level change until 2100 is about +34 cm.*

## Northern Hemisphere weekly snow cover, updated to late August 2014



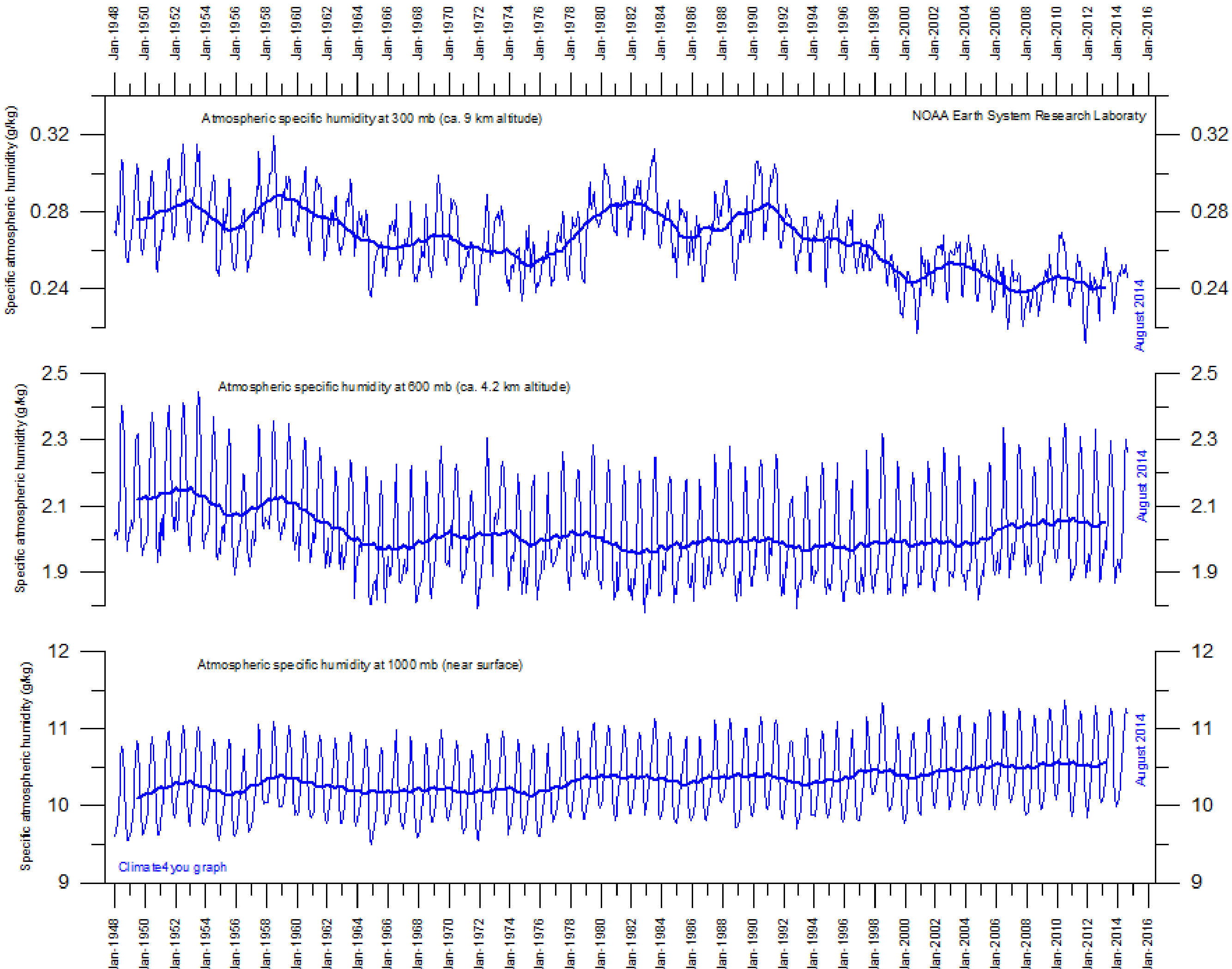

*Northern hemisphere weekly snow cover since January 2000 according to Rutgers University Global Snow Laboratory. The thin blue line is the weekly data, and the thick blue line is the running 53-week average (approximately 1 year). The horizontal red line is the 1972-2013 average.*





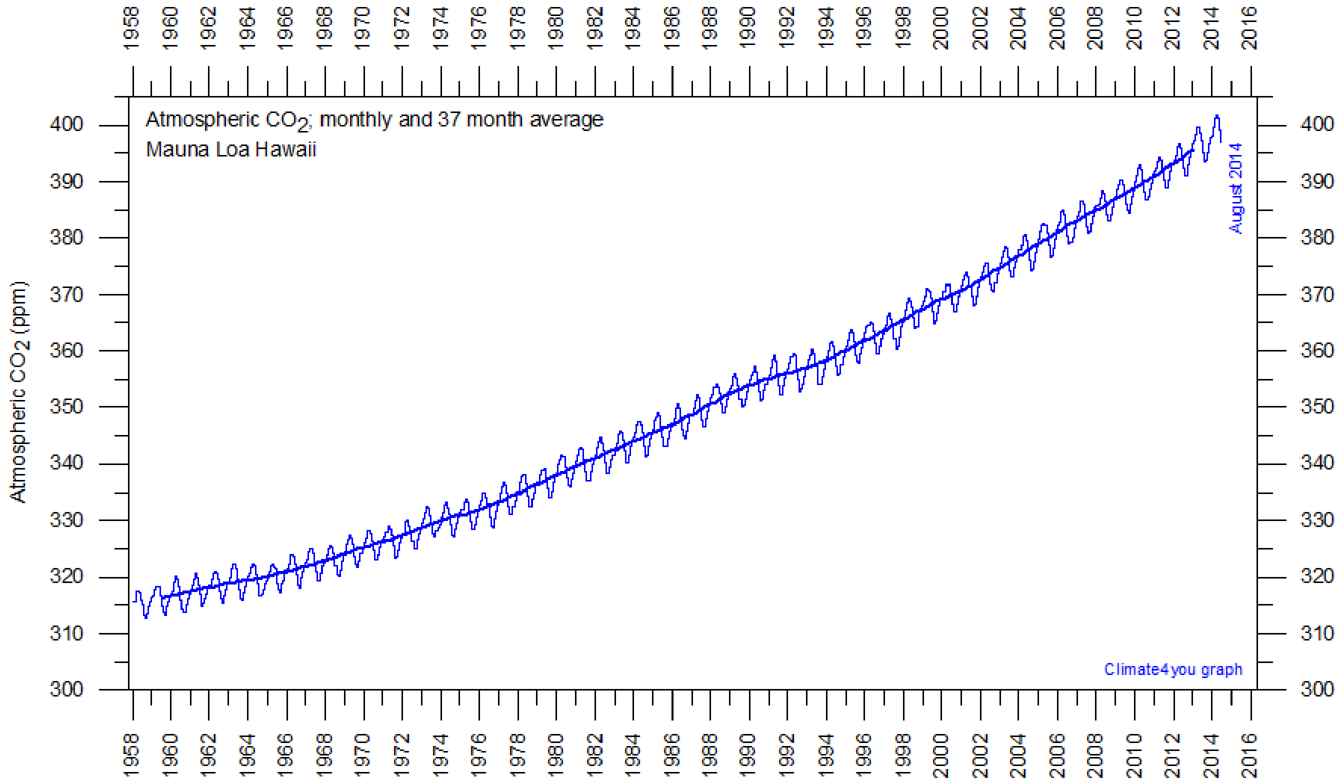

*Northern hemisphere weekly snow cover since January 1972 according to Rutgers University Global Snow Laboratory. The thin blue line is the weekly data, and the thick blue line is the running 53-week average (approximately 1 year). The horizontal red line is the 1972-2013 average.*

## Atmospheric specific humidity, updated to August 2014

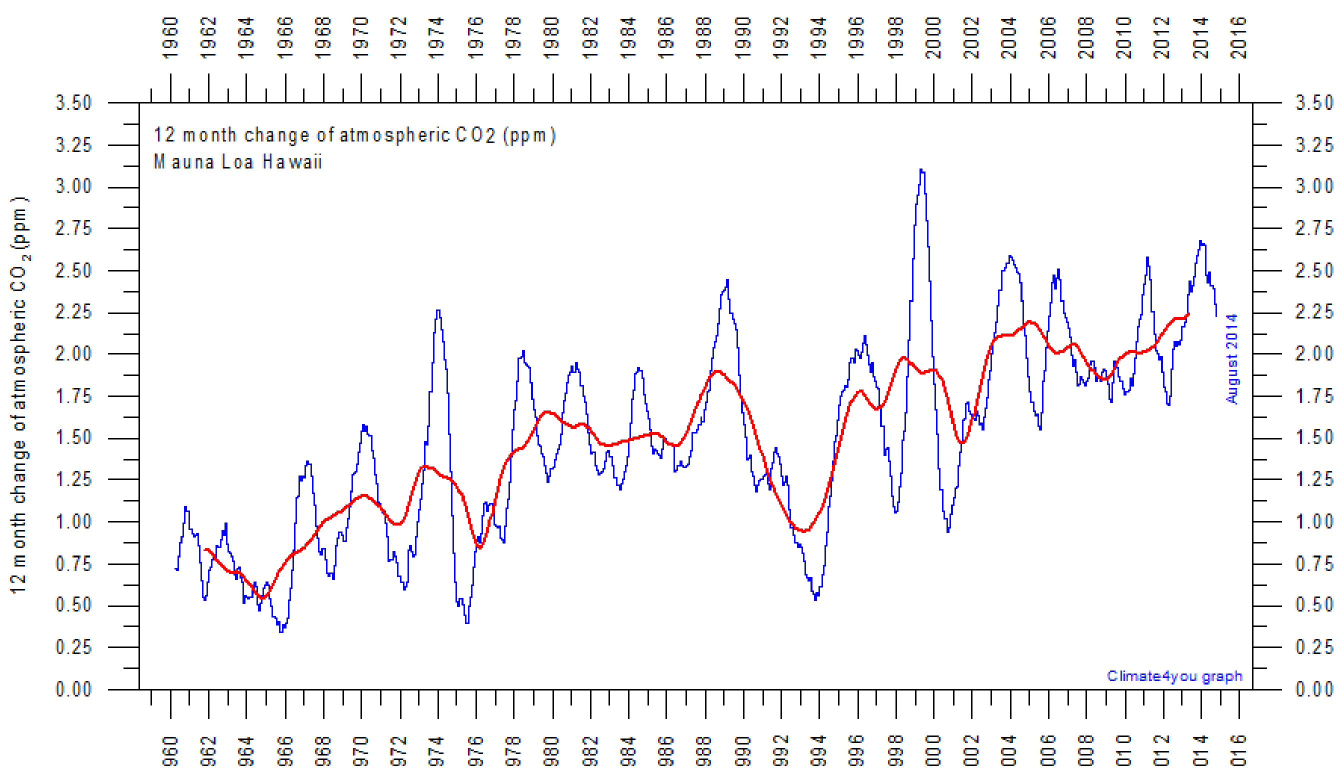



*Specific atmospheric humidity (g/kg) at three different altitudes in the lower part of the atmosphere (the Troposphere) since January 1948 (Kalnay et al. 1996). The thin blue lines shows monthly values, while the thick blue lines show the running 37-month average (about 3 years). Data source: Earth System Research Laboratory (NOAA).*

## Atmospheric $CO_2$, updated to August 2014

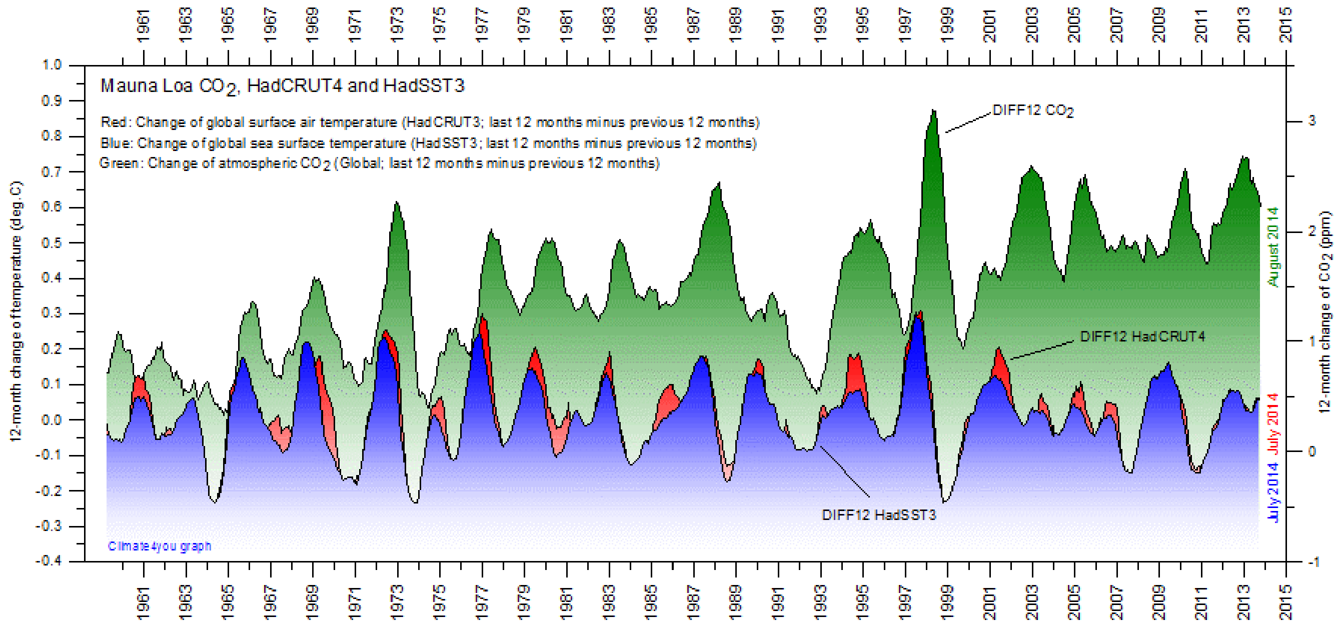





*Monthly amount of atmospheric $CO_2$ (upper diagram) and annual growth rate (lower diagram); average last 12 months minus average preceding 12 months, blue line) of atmospheric $CO_2$ since 1959, according to data provided by the Mauna Loa Observatory, Hawaii, USA. The red line is the simple running 37-observation average, nearly corresponding to a running 3 yr average.*

## The phase relation between atmospheric $CO_2$ and global temperature, updated to August 2014



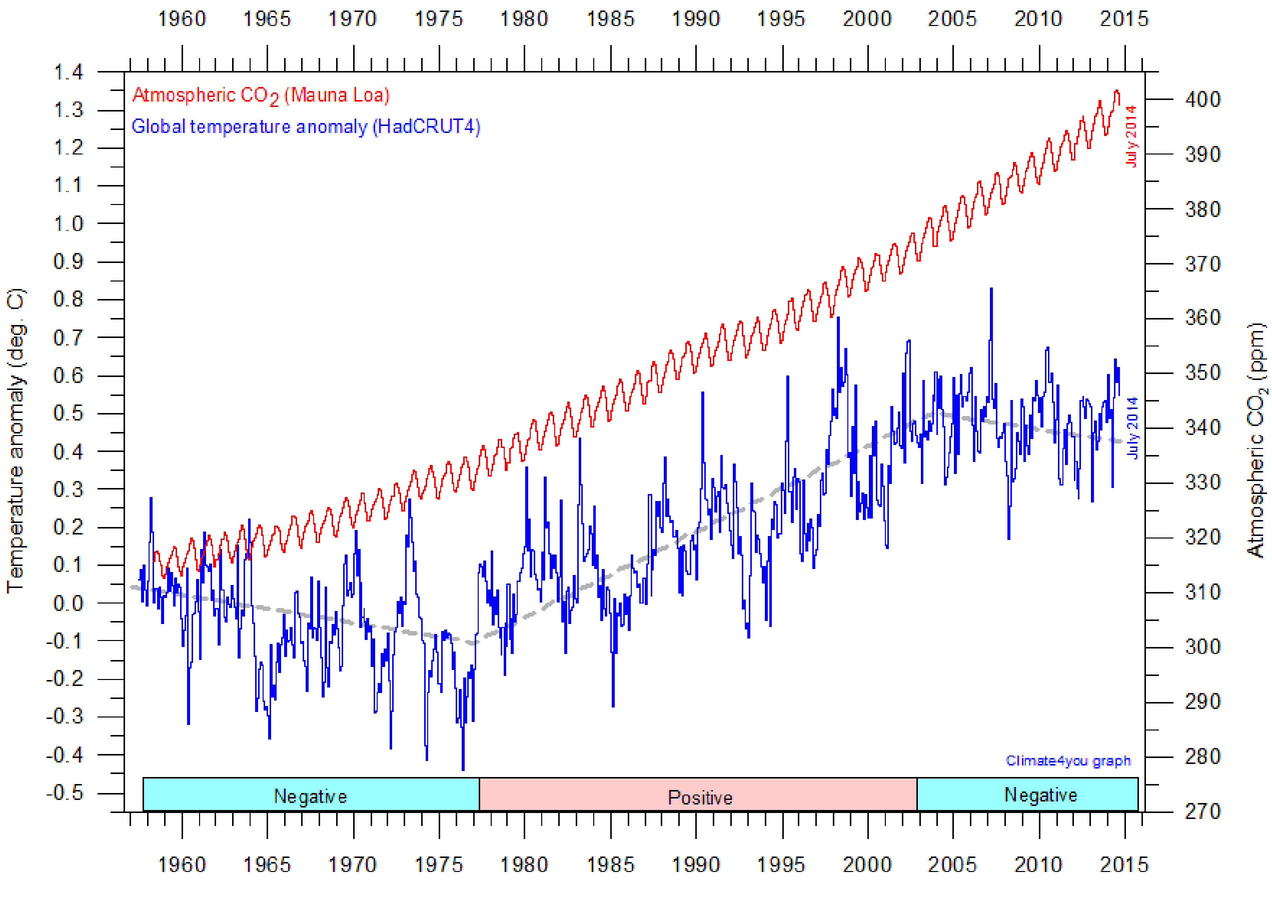

*12-month change of global atmospheric $CO_2$ concentration (Mauna Loa; green), global sea surface temperature (HadSST3; blue) and global surface air temperature (HadCRUT4; red dotted). All graphs are showing monthly values of DIFF12, the difference between the average of the last 12 month and the average for the previous 12 months for each data series.*



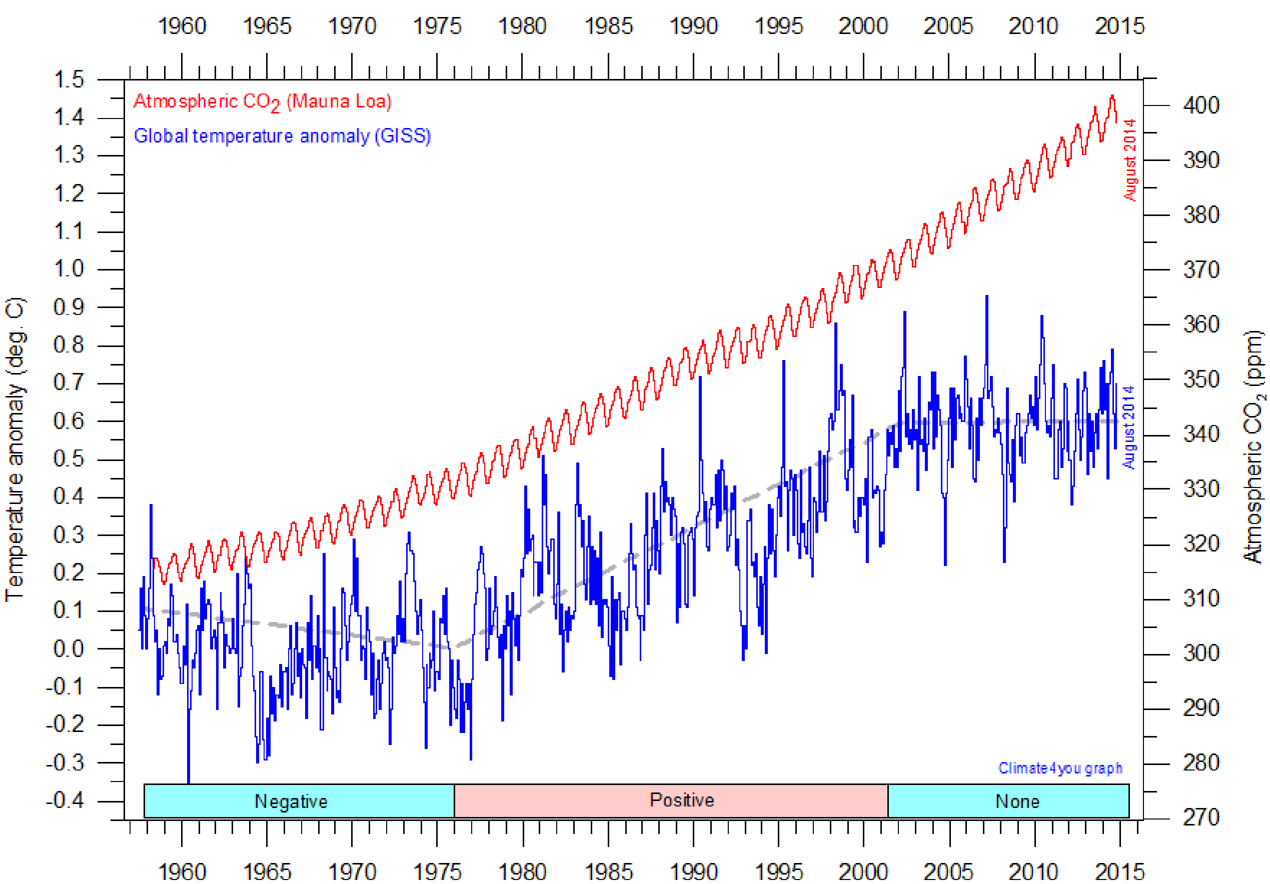
References:

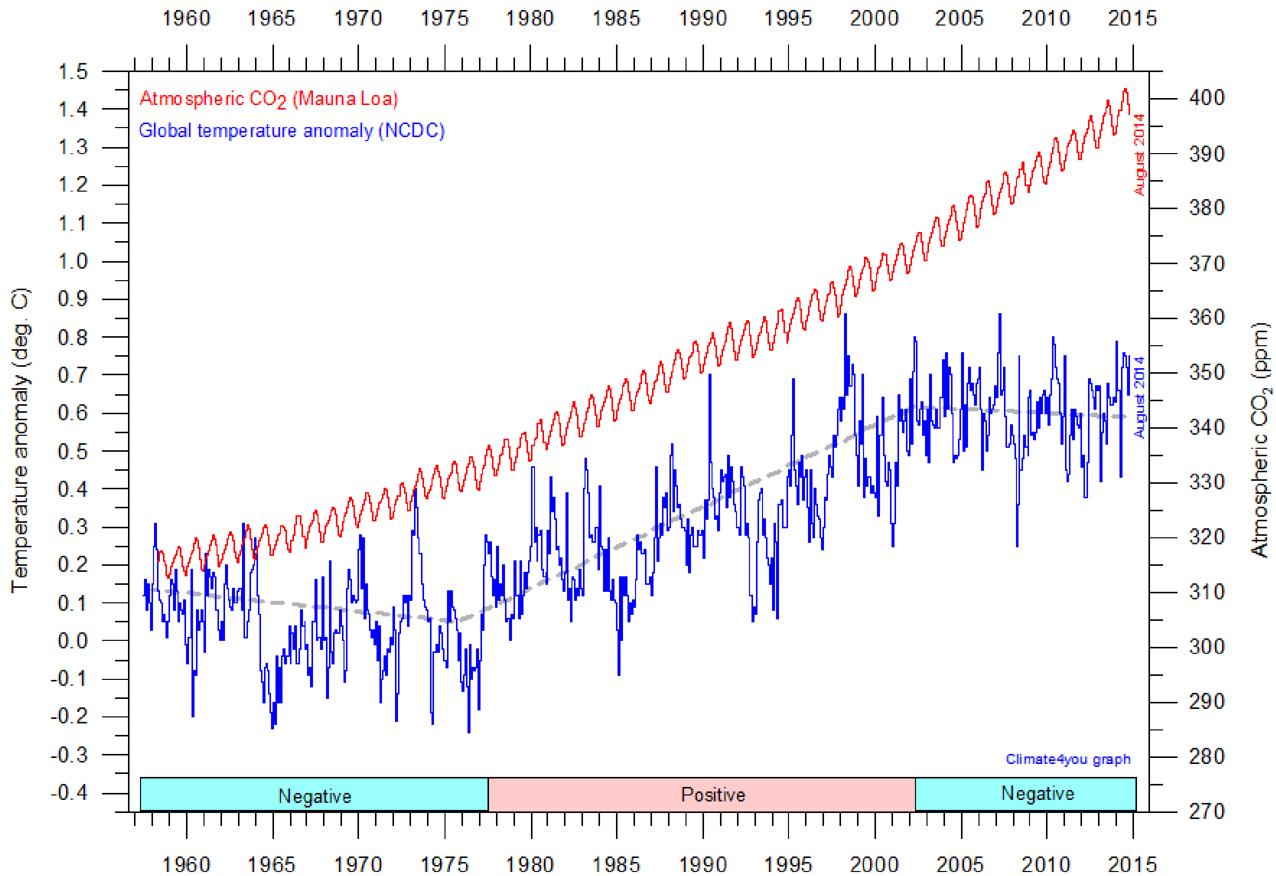

Humlum, O., Stordahl, K. and Solheim, J-E. 2012. The phase relation between atmospheric carbon dioxide and global temperature. Global and Planetary Change, August 30, 2012. http://www.sciencedirect.com/science/article/pii/S0921818112001658?v=s5

## Global surface air temperature and atmospheric $CO_2$, updated to August 2014










*Diagrams showing HadCRUT3, GISS, and NCDC monthly global surface air temperature estimates (blue) and the monthly atmospheric $CO_2$ content (red) according to the Mauna Loa Observatory, Hawaii. The Mauna Loa data series begins in March 1958, and 1958 was therefore chosen as starting year for the diagrams. Reconstructions of past atmospheric $CO_2$ concentrations (before 1958) are not incorporated in this diagram, as such past $CO_2$ values are derived by other means (ice cores, stomata, or older measurements using different methodology), and therefore are not directly comparable with direct atmospheric measurements. The dotted grey line indicates the approximate linear temperature trend, and the boxes in the lower part of the diagram indicate the relation between atmospheric $CO_2$ and global surface air temperature, negative or positive. Please note that the HadCRUT4 diagram is not yet updated beyond July 2014.*

Most climate models assume the greenhouse gas carbon dioxide $CO_2$ to influence significantly upon global temperature. It is therefore relevant to compare different temperature records with measurements of atmospheric $CO_2$, as shown in the diagrams above. Any comparison, however, should not be made on a monthly or annual basis, but for a longer time period, as other effects (oceanographic, etc.) may well override the potential influence of $CO_2$ on short time scales such as just a few years. It is of cause equally inappropriate to present new meteorological record values, whether daily, monthly or annual, as support for the hypothesis ascribing high importance of atmospheric $CO_2$ for global temperatures. Any such meteorological record value may well be the result of other phenomena.

What exactly defines the critical length of a relevant time period to consider for evaluating the alleged importance of $CO_2$ remains elusive, and is still a topic for discussion. However, the critical period length must be inversely proportional to the temperature sensitivity of $CO_2$, including feedback effects. If the net temperature effect of atmospheric $CO_2$ is strong, the critical time period will be short, and vice versa.

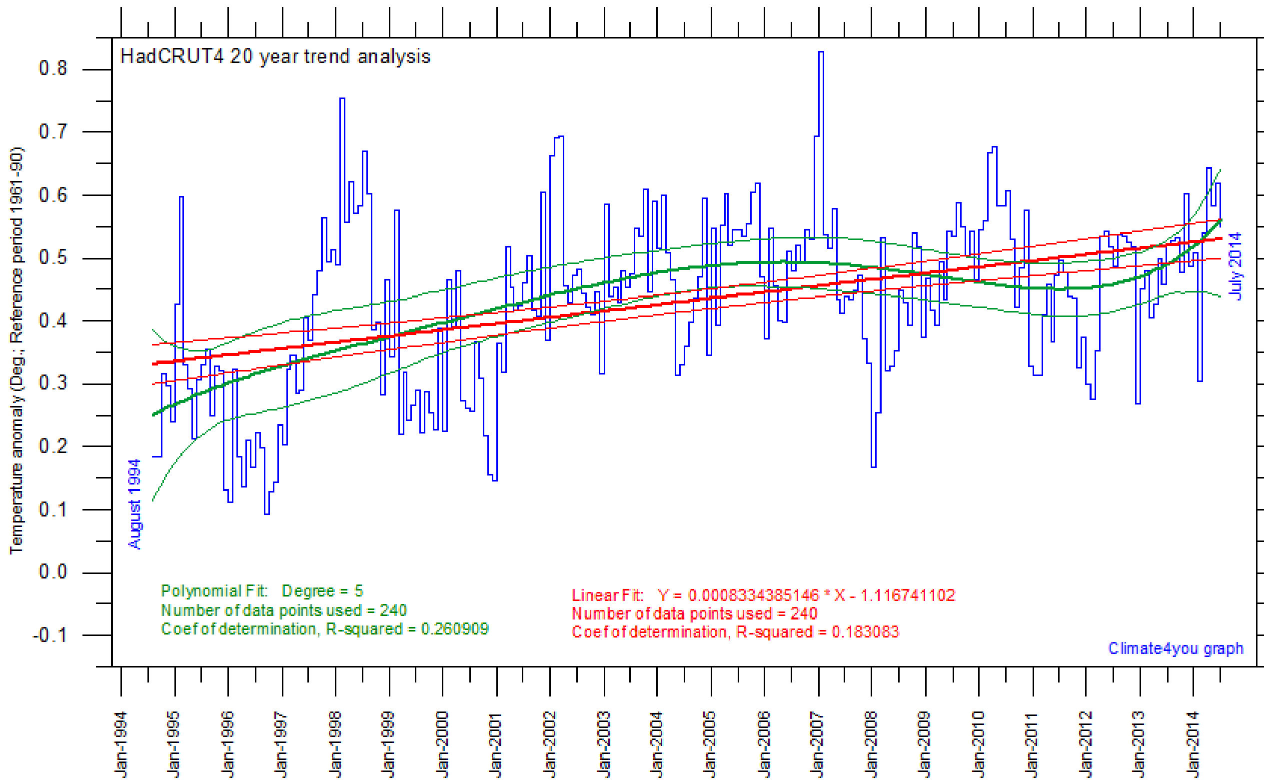
However, past climate research history provides some clues as to what has traditionally been considered the relevant length of period over which to compare temperature and atmospheric $CO_2$.

After about 10 years of concurrent global temperature- and $CO_2$-increase, IPCC was established in 1988. For obtaining public and political support for the $CO_2$-hyphotesis the 10 year warming period leading up to 1988 in all likelihood was important. Had the global temperature instead been decreasing, politic support for the hypothesis would have been difficult to obtain.

Based on the previous 10 years of concurrent temperature- and $CO_2$-increase, many climate scientists in 1988 presumably felt that their understanding of climate dynamics was sufficient to conclude about the importance of $CO_2$ for global temperature changes. From this it may safely be concluded that 10 years was considered a period long enough to demonstrate the effect of increasing atmospheric $CO_2$ on global temperatures.

Adopting this approach as to critical time length (at least 10 years), the varying relation (positive or negative) between global temperature and atmospheric $CO_2$ has been indicated in the lower panels of the diagrams above.

## [Last 20 year monthly surface air temperature changes, updated to July 2014]()




*Last 20 years global monthly average surface air temperature according to Hadley CRUT, a cooperative effort between the [Hadley Centre for Climate Prediction and Research]() and the [University of East Anglia]()'s [Climatic Research Unit]() ([CRU]()), UK. The thin blue line represents the monthly values. The thick red line is the linear fit, with 95% confidence intervals indicated by the two thin red lines. The thick green line represents a 5-degree polynomial fit, with 95% confidence intervals indicated by the two thin green lines. A few key statistics is given in the lower part of the diagram (note that the linear trend is the monthly trend). Please note that the linear regression is done by month, not year.*

It is quite often debated if the global surface air temperature still increases, or if the temperature has levelled out during the last 15-18 years. The above diagram may be useful in this context, and demonstrates the differences between two often used statistical approaches to determine recent temperature trends. Please also note that such fits only attempt to describe the past, and usually have limited predictive power. In addition, before using any linear trend (or other) analysis of time series a proper statistical model should be chosen, based on statistical justification.

For temperature time series there is no *a priori* physical reason why the long-term trend should be linear in time. In fact, climatic time series often have trends for which a straight line is not a good approximation, as can clearly be seen from several of the diagrams in the present report.

For an excellent description of problems often encountered by analyses of temperature time series analyses please see [Keenan, D.J. 2014: Statistical Analyses of Surface Temperatures in the IPCC Fifth Assessment Report]().

## 1808: Danish royal castle Koldinghus destroyed by fire

*Danish royal castle Koldinghus in Jutland before 1808 (left). Koldinghus on fire the night between 29 and 30 March 1808 (center). Painting by Hans Harder (1824) showing the ruin of Koldinghus after the fire.*



In Europe, the political landscape had changed again in 1807. Little Ice Age climatic and political induced disasters were not to end for Denmark by the two lost battles of Copenhagen in 1801 and 1807, respectively, as the unfortunate fate of the royal castle Koldinghus testifies.

Koldinghus was the last of the ancient royal castles in Jutland, the western main part of Denmark. The castle was originally founded by king Christoffer I (1252-1259) in 1268, but the oldest remaining part of buildings was built by king Christoffer III (1440–1448). Later king Christian I (1448-1481) and king Christian III (1534-1559) built other parts of the castle. Around 1720, king Frederik IV (1699-1730) contributed with rebuilding around 1720, resulting in a Baroque architecture.

The effects of war between Britain and France were also felt in the town Kolding in southeastern Jutland. Following the second British attack on Denmark and Copenhagen in 1807, Denmark allied herself with France and Spain against Britain and Sweden. About 30,000 French and Spanish soldiers were send to Denmark for support. Part of the plan was that these troops should assist in a campaign to recuperate the Scandian lands (southern Sweden), which was lost to Sweden following the Danish-Swedish war in 1658. When the French and Spanish soldiers arrived, the old castle Koldinghus was opened as quarters for some of these troops. In addition, it became the headquarters for the commander-in-chief of the expeditionary troops, the French marshal Jean-Baptiste Bernadotte (Lindeberg 1974).

It quickly became a heavy economical load for Denmark to accommodate and feed these about 30,000 foreign soldiers, and not the least the Danish King Fredrik VI hoped for a cold winter, that soon would enable these support troops to march across the sea ice between Denmark and Sweden, to begin the planned invasion in southern Sweden.

The local population generally considered especially the French troops as somewhat arrogant and unpleasant, and rapidly their presence in Denmark became known as the ‘friendly occupation’ (Glenthøj and Ottosen, 2014). In contrast, the Spanish troops were more popular, and for several years after it was quite fashionable for Danish citizens to claim ‘to have Spanish blood in their veins’.

The winter 1807-1808 surely became cold compared to modern standards, and temperatures plunged to values below what especially the Spanish troops were used to. Not surprisingly, they attempted to heat the castle correspondingly by firing zealously in the castles fireplace. The fire risk represented by the soldiers quite rightfully became a worry at the Danish castle administration, and, eventually, in the night between 29 and 30 March 1808 a major fire broke out. To fight the raging fire Marshal Bernadotte had his men to form a chain down to the castle lake. The lake, however, was frozen over so that a hole had first to be broken in order to get water. In the end, it turned out to be impossible to save the castle.

Posterity has been inclined to place the blame for the fire entirely on the Spanish soldiers, and it is entirely likely that they, being unused to the Nordic Little Ice Age winter, fired up all too enthusiastically in the castle's fireplace. However, another contributing reason might be that the maintenance of the castle's chimneys had been neglected for years. Whatever the real cause, Jutland's last royal castle, which in 1808 still stood in the Baroque form it had attained through Frederik IV's rebuilding in the years around 1720, was lost in the fire.

As people in Denmark generally had a relatively friendly attitude to the Spanish troops, the local population did not take this rather unfortunate event too seriously. This particular night had indeed been very cold.

Koldinghus was never rebuild as a royal castle, and quickly became one of the romantic ruins which were widely admired in the 19th century (Lindebjerg 1974). The planned, combined military effort against Sweden was never initiated, partly because of lack of suitable transports, and partly because the Spanish troops decided to regroup at more southerly latitudes, when Napoleon decided to replace the Spanish King with his brother Joseph.

Instead of attacking Sweden, marshal Jean-Baptiste Bernadotte later (1810) was offered and accepted the position as new Swedish Crown Prince and later King of Sweden under the name Karl XIV Johan.



References:

Glenthøj, R. and Ottosen, M.N. 2014: *Krig, nederlag, frihed*. Gads Forlag, Copenhagen, 391 pp. ISBN 978-87-12-04922-7.

Lindeberg, L. 1974. *De så det Ske. Englandskrigene 1801-14.* Lademann Forlagsaktieselskab, Copenhagen, 244 pp.

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All the above diagrams with supplementary information, including links to data sources and previous issues of this newsletter, are available on www.climate4you.com

Yours sincerely,

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