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TEMPERATURE

Temperature is one of the six basic units of the SI (Metric) system, but is the least understood and most mysterious of all of them.

It originally arose as a method of assessing heat level, which could be measured by the change in length of a liquid inside a glass capillary. The scale was divided into a number of equal units between "fixed" points.

In 1724 Daniel Gabriel Fahrenheit (1686–1736) chose three fixed points. Zero was the temperature of a mixture of ice, water and ammonium chloride, which he considered to represent the lowest possible temperature on the earth's surface (he was wrong). Then he chose the melting point of ice as 32 degrees, which meant the boiling point of water was 212 degrees. It is amazing that this cumbersome and inconvenient system survived for so long, and is still used in the USA.

In 1742, the Swedish astronomer Anders Celsius devised a temperature scale based only on the melting and boiling point of water, with the movement of a liquid in a glass capillary divided into 100 degrees. He took boiling point as zero and the melting point as 100. Celsius originally called his scale centigrade derived from the Latin for "hundred steps". For years it was simply referred to as "the Swedish thermometer". The scale was later revised by Carolus Linnaeus in 1745, a year after Celsius's death, to how it is today. I was personally rather surprised when the name "Centigrade' was changed to "Celsius" as it seemed to involve a reversal of the scale, but fortunately, did not.

A better understanding of temperature was a result of the development of the science of thermodynamics in the middle of the 19th century. It was realised that different forms of energy were equivalent, and were interconvertable, at least in their ultimate conversion to heat energy. Heat energy, such as that produced chemically could only be partially converted to mechanical energy because of the necessary operational requirements of engines,

It became evident that mechanical and vibrational energy of atoms and molecules in all substances is the source of heat energy, so that temperature can be related to the average of this energy. Since this energy disappears altogether at the absolute zero the SI temperature scale sets its origin at the absolute zero and calls the scale degrees Kelvin. On the Celsius scale the absolute zero is -273.15 degrees. This is zero degrees on the Kelvin scale.

According to thermodynamic theory, temperature of any body can only be defined if that body is in equilibrium, that is to say it is neither receiving energy or losing it. Any body that is not in equilibrium does not have a definable temperature. It is somewhat paradoxical that the rigid definition applies as a result of averaging the many different amounts of mechanical energy within the body but cannot be applied rigorously if there is a variability.

There is nowhere on the earth, or in its atmosphere where the energy content can be considered to be in equilibrium. In daytime there is usually a rise in energy, at night time, a fall. There are no circumstances where a definite temperature of any part can be defined thermodynamically.

You can, of course, put a measurement instrument close to one part and record the apparent transient temperature. If the measurement is continuous you might even derive some sort of average temperature at that point. But there is no way that one could carry out sufficient measurements, distributed in a representative way, so that any sort of global average temperature could be derived.

The climate scientists connected with the IPCC do, however, claim not only that they have measured average global temperature, but that this has been carried out with such accuracy that an increase of less than 1 degree Celsius over 100 years could be confidently related to increased emissions of greenhouse gases over the period, rather than to the errors of the measurement.

James Hansen, the pioneer scientist who is credited with having launched this belief in the influence of increasing greenhouse gases and continues to promote it, has admitted publicly, on his website,

Hansen, J., 2008a, GISS Surface Temperature Analysis, The Elusive Absolute Surface Air Temperature (SAT)
http://data.giss.nasa.gov/gistemp/abs_temp.html

that the measurements are completely unreliable; as follows:

"GISS Surface Temperature Analysis

The Elusive Absolute Surface Air Temperature (SAT)

Q. What exactly do you mean by SAT?

A. I doubt that there is a general agreement how to answer this question. Even at the same location, the temperature near the ground may be very different from the temperature 5ft above the ground and different again from 10ft or 50ft above the ground. Particularly in the presence of vegetation (say in a rain forest) the temperature above the vegetation may be very different from the temperature below the top of the vegetation. A reasonable suggestion might be to use the average temperature of the first 50ft of air either above ground or on top of the vegetation. To measure SAT we have to agree on what it is and, as far as I know, no such standard has been adopted. I cannot imagine that a weather station would build a 50ft stack of thermometers to be able to find the true SAT at its location.

Q. What do we mean by daily SAT?

A. Again, there is no universally accepted correct answer. Should we note the temperature every 6 hours and report the mean, should we do it every two hours, hourly, have a machine record it every second, or simply take the average of the highest and lowest temperature of the day? On some days the various methods may lead to drastically different results.

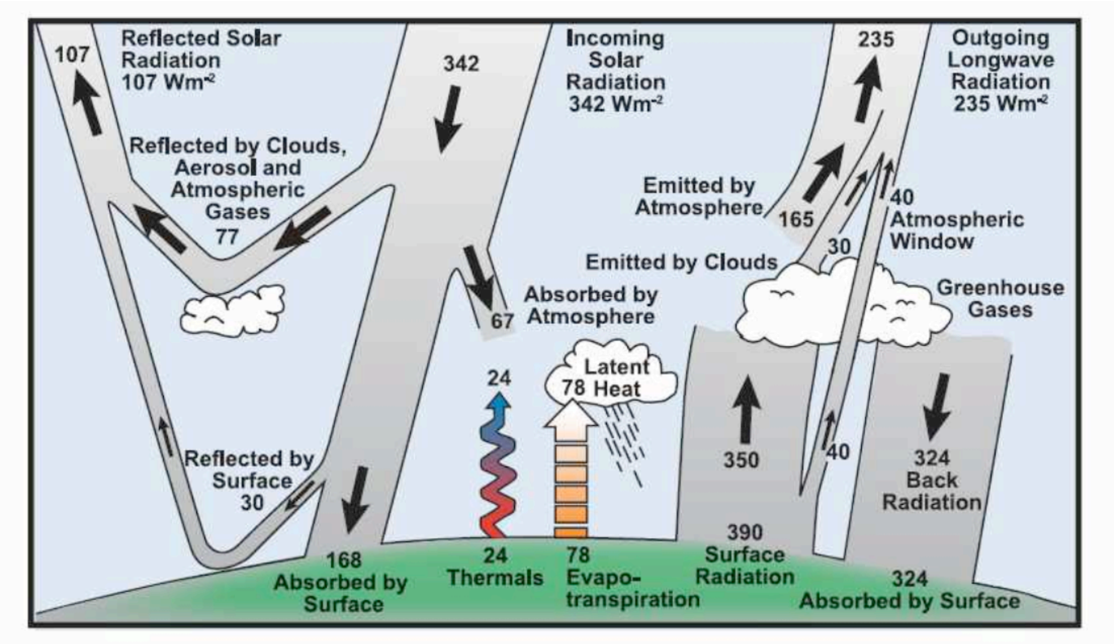
Q. What SAT do the local media report?

A. The media report the reading of one particular thermometer of a nearby weather station. This temperature may be very different from the true SAT even at that location and has certainly nothing to do with the true regional SAT. To measure the true regional SAT we would have to use many 50ft stacks of thermometers distributed evenly over the whole region, an obvious practical impossibility."

This rather devastating confession is not even all that can be said. In daytime the surface is warmer than at night time, so that temperatures that are experienced oscillate between two extremes and are hardly ever "average". Any average is the least probable temperature. This is why meteorologists usually give the daily maximum and minimum rather than the average, since these are the temperatures commonly experienced.

The "temperature anomalies" which form the basis of the "mean annual global temperature anomaly record" are obtained from weather station measurements, only once a day, of the maximum and minimum temperatures of the previous 24 hours. The number of stations changes over time, the time at which this measurement is taken varies and the actual day is different in different time zones. So-called "corrections" dependent on comparing many neighbouring stations are impossible for most areas. Then the location and influence of surrounding buildings alters over time, and is the main reason for a long term upwards bias.

The absence of any scientific justification for the existence of a reliable average global surface temperature is just one of the many absurdities of the assumptions which are made by the basic theory of computer models (attached) which assumes that the energy of the earth can be regarded as in equilibrium, with a constant temperature, and sunshine (day and night), and "balanced" with energy coming in equalling that going out. Since there is no part of the earth where this "balance" exists, it could not possibly exist on average.



No wonder the models do not work. But why do so many people believe the extravagant "projections"?