Climate Change from a Holistic/Phenomenological Perspective

The Living Climate: Computer Modelling or Planetary Harmonics approaches the question of climate change from two complementary perspectives: from the ground up, as it were, in following the epochal discoveries of Viktor Schauberger; from the solar system in following the influence of Sun and planetary cycles as they have been explored in the work of Theodor Landscheidt, Nicola Scafetta, Nils-Axel Mörner and many others. The second approach, which leads to an understanding of climatic variability over centuries and millennia, has been confirmed by the work of a variety of scientific disciplines in the last forty years. It also allows for far more correct climatic predictions and matching of past trends (hindcasting) than present computer models can.

The two approaches highlight that the cycle of water is far more important than the cycle of CO_2 in regulating or mediating impacts of human or solar activity on climate over centuries and millennia and up to the present.

Viktor Schauberger and a Revolutionary Understanding of Water and Climate

Climate science is be based on a mechanistic/deterministic paradigm that equates ecosystems and planet Earth to a complex machine. Incomplete sets of observations give rise to fragmentary theories that miss more often than hit the target. This is primarily because they dismiss the living dimension of Nature and planet Earth that differentiates them from machines. Viktor Schauberger had the capacity, like Goethe before him, to observe and see what others completely ignored, and to live with questions for a long time without forcing answers or escaping into easy theories. However, he knew the science of his time and could understand it and rebut it. It is not surprising, therefore, that Schauberger sounded the alarm about climatic alterations and Nature's deterioration long before anybody spoke about climate change. In this brief overview of his work we will highlight three interrelated aspects: the ecology of rivers and forests and the global cycle of water.

When it comes to water and rivers Schauberger makes us realize that we should aim at achieving fully living water, and healthy rivers and forests. At present most of water that goes through human hands has been degraded, most rivers in the industrially developed countries have been critically altered and highly compromised; most forests have likewise vastly

lost the regulating effect they have on soils, rivers and climate. Why is this so?

Conventional science cannot tell when water has lost its bio-dynamic, living qualities. River water naturally meanders on the surface of the Earth. When seen more closely the core waters of the river form a longitudinal vortex, generated at the river bends. The coldest water closest to the center moves fastest, pulling the outer water layers. This pattern of circulation naturally cools off the water, reduces oxidation and pathogens, enhances quality and carries off more matter in suspension. Matter is brought through "extreme densation" into a physical condition of emulsion rendered possible by high states of ionization, and enhancing the generation of levitational energies. The water cools off toward the 4° C, the point of maximum density and greatest inclusion of chemical elements in dilution.(1)

Schauberger discovered that we can only preserve water's life-affirming qualities if we know and understand that it behaves very differently when it moves toward a positive gradient, or toward a negative gradient. Under a positive gradient, moving from warm temperatures toward +4°C, water cools off and densifies. It naturally carries more solid matter, avoiding floods. Modern river regulation has eliminated the forest cover that naturally accompanied watercourses and cooled them off. It has shortened the course of the rivers, increased the temperature and the speed of waters and decreased their carrying capacity. In so doing the whole of the northern hemisphere and parts of the southern one have created a gigantic imbalance in the global water cycle.

Forest management has compounded the problems very much in the same direction. Most of trees we exploit for commercial purposes are shade-loving trees grown under the conditions favorable to sun-loving species. They naturally would grow under the shade of other trees, with steady and very even, slow growth overtime, displaying very tight tree rings. Clearcutting and modern forestry practices have completely altered our forest ecosystems. Where we used to have a well-balanced, highly differentiated ecosystem, we now have mono-cultures, or perennial pioneer ecosystems when regrowth is left to itself. Under these conditions the trees suffer a host of negative conditions, basically altering the temperature and moisture of the ecosystem. The soil, being exposed, warms up and becomes less able to absorb water; the groundwater level drops. The exposure of the tree surface leads it to develop side branches to protect it from the sun; the growth becomes conical rather than cylindrical. What conventional forestry hails as a success—larger tree rings—is in reality a sign of cancerous growth. The tree capillaries can no longer carry the finer

substances to the tips, which often dry up. The mono-specificity of tree plantations causes the forest to only use a limited soil horizon and, over time, the tree feeds off the little that the rain brings in its wake.

The channeling of water courses and the transformations of forests into plantations have had devastating effects over the climate that Schauberger could already detect a hundred years ago. To this end he offered many practical solutions. He also clearly showed us that inexpensive, etheric energy is abundant all around us and that many solutions exist that would allow us to bypass the use of fossil fuels.

Summing up all of the above, already n 1931, Schauberger prophetically wrote: "It should be noted that formidable climatic changes will occur if, as a result of incorrect systems of forest management and river regulation, the orderly formation of clouds is disturbed." As a consequence of the mistreatments of rivers and forests, plus that of farmlands, a number of challenges ensue. One of these is the ubiquitous sinking of the groundwater, and the pervasive disappearance of natural springs. Floods and water run-off are coupled with the retreat of the groundwater table. The most far-reaching consequence is the transformation of the full hydrological cycle into a half-cycle.

The Full Hydrological Cycle and the Half Cycle

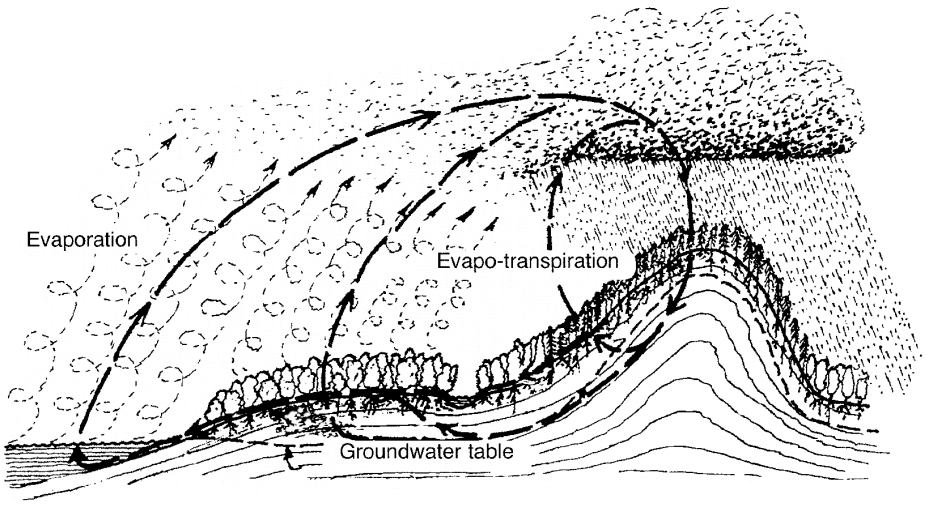


Figure 1: full hydrological cycle

The hydrological cycle (figure 1) is the circulation that takes place between the groundwater, land—especially under the cover of forests—oceans and the atmosphere.

Water that evaporates from the great oceans' masses condenses and falls as rain; some sinks into the ground, the rest drains off. The forest cover plays a major role. It maintains a positive temperature gradient from the air to the soil—generally cooler than the rain and air—during much of the year, and especially during the growing season. The positive temperature gradient attracts the water towards the $+4^0$C stratum underground. The absorptive capacity of the soil is increased and the groundwater table remains high, leading to the formation of natural subterranean water reservoirs and springs. At present the full cycle has largely given way to the half-cycle (figure 2).

The positive temperature gradients have presently been more and more transformed into negative ones. The hydrological half-cycle arises in great part where forests are clearcut over large areas. Without the forest and its captured water a greater contrast arises between areas with abundant evaporation—the seas, great lakes and their proximity—and those with little or none.

If wide areas of tree cover are exposed, the groundwater table sinks. In the absence of forest cover the temperature of the ground rises and causes a negative temperature gradient between the rain and the warmer soil. Water in the ground expands at a faster rate than the falling rain, preventing it from penetrating the soil. A good example of this is what happens in desert areas when there is a sudden rainstorm. The riverbed fills out but, instead of quenching the soil and replenishing the water table, the water runs off on the surface, most often causing havoc.

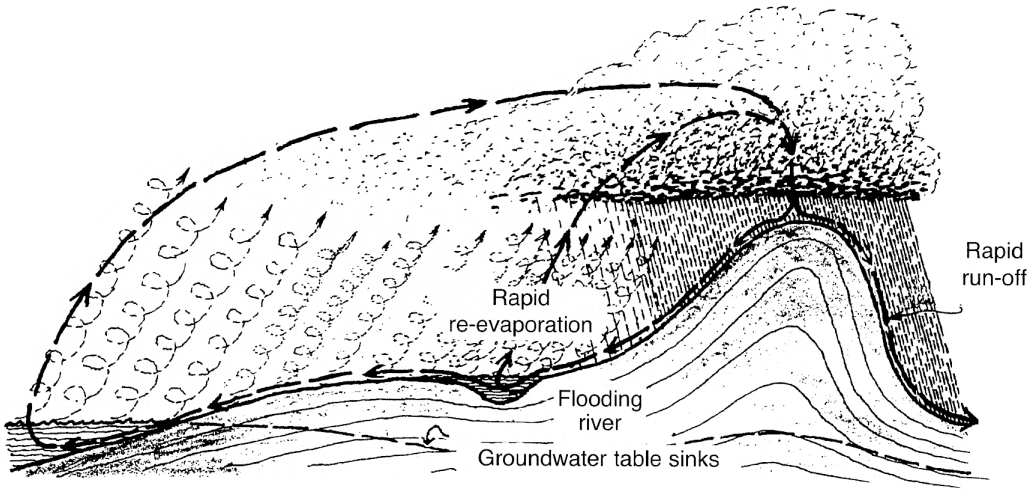


Figure 2: hydrological half-cycle

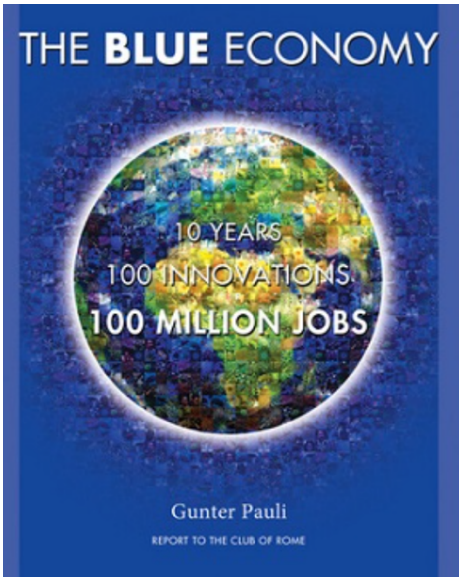
The hydrological half-cycle gives rise to a vicious cycle. More water evaporates than is normal and the greater vapor content in the atmosphere causes more rains. A general double pattern arises: hurricanes, violent storms and flooding near the coasts, and droughts inland. Everything that the half-hydrological cycle describes reflects of an alteration of the water cycle, much more so than a CO_2 imbalance.

Gunther Pauli and the Blue Economy[2]

What Schauberger shows us in the management of natural resources, Gunther Pauli, an admirer of the Austrian genius, has spread to the industrial/technological levels. Gunther Pauli and ZERI (Zero Emissions Research and Initiatives) have ushered in the seeds of a future industrial/technological revolution. Many of the technologies used to strengthen the Blue Economy take their departure from imitating unusual processes in the natural world, such as many animals' capacity to adapt to extreme conditions and overcome natural obstacles with simplicity and little expense of energy. These technologies can create outstanding products and processes with minute shifts in pressure and temperature, greatly reducing energy use and carbon emissions.

What further renders the Blue Economy an ecological economy is the logic of "cascading nutrients and energy." Cascading comes from the analogy with a waterfall, indicating an effortless movement from one level to the

next, akin to gravity, which is what happens in Nature where each stage becomes the substratum for the next one. Cascading greatly reduces waste and energy consumption. The almost complete media silence about the Blue Economy is all the more stunning in light of its incredible results in controlling CO_2 emissions.



Harmonic Models and Climate's Evolution over Centuries and Millennia

While climate computer models consider climate data over a very limited span of time and incorporate inbuilt assumptions and theories that become axioms, it is possible to detect climatic variations over centuries and millennia solely based on larger, observable phenomena. This is what can be done in relation to harmonic periodicities of the solar system. Theodor Landscheidt was a pioneer in this field; many have followed since.

Most of the relationships between celestial bodies—primarily Sun and planets—and earthly phenomena is subjected to oscillations and rhythmic periodicities, which take the form of the "sinus wave" (figure 3). The pendulum renders this wave graphic. Let the pendulum swing from an extreme (e.g., maximum on the top side of displacement axis) and it will describe an arc before passing through the center—where it is found when at rest—then move to the same extension but in the opposite direction to the original (e.g., minimum on the bottom side of the displacement axis). From there it will return to the center and reach the original extreme. In so doing the pendulum has described a sinus wave.

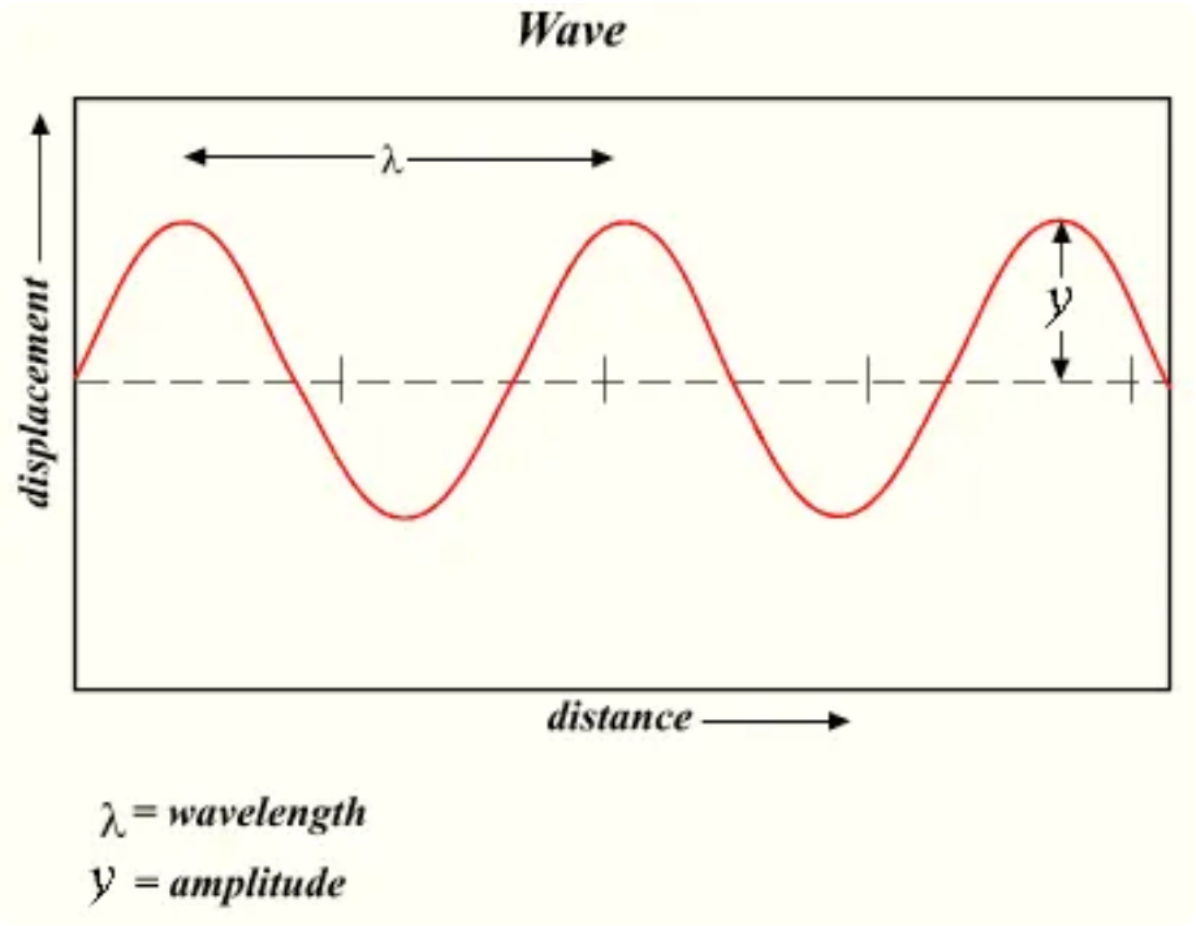


Figure 3: sinus wave

Harmonics are most of all known in musical language. However, for other than musical purposes it seems better to adopt the practice of equating the number of the harmonic with the number into which the whole length is divided. If two waves fit exactly into a given period, then they may be said to represent the second harmonic of that period; three waves, exactly completed in the period, represent the third harmonic, four waves yield the fourth harmonic and so forth.

As the researcher Theodor Landscheidt predicates, we can divide the role of the planets on a functional basis between "tidal planets" and "giant planets." On the first instance we find Mercury, Venus, Earth and Jupiter, with a role similar to that of the Moon in relation to the Earth. On the other hand are Jupiter, Saturn, Uranus and Neptune. It is mostly the second set of planets, and Jupiter in particular, that will call our attention in relation to Sun cycles and solar activity.

The shortest Sun cycle, the Sunspot cycle (Schwabe), of about 11 years average, switches from positive to negative values between one cycle to

the next. Thus, the whole cycle is really completed with 2 Schwabe cycles forming 1 Hale cycle.

Among the giant planets, which regulate or modulate essential features of the Sun's activity, Jupiter is what Landscheidt calls "the weighty center of the world of planets." The planet plays a major role because its mass equals 71% of the total mass of the planets, and 61% of the total angular momentum of the solar system, versus less than 1% for the Sun.(3)

To speak about the "Sun's motion" within the solar system is to seemingly contradict an immobility that we take for granted, and yet it is something that was already known three centuries ago when Newton introduced the notion of the solar system's "center of mass" (CM). The Sun moves in relation to this center, as if the whole mass of the solar system were concentrated there. When Jupiter is in opposition to Saturn, Uranus and Neptune, CS (center of the Sun) and CM almost coincide. When all four planets are nearly conjunct CS and CM are at their greatest distance.(4) The result of these movements is shown in figure 4.

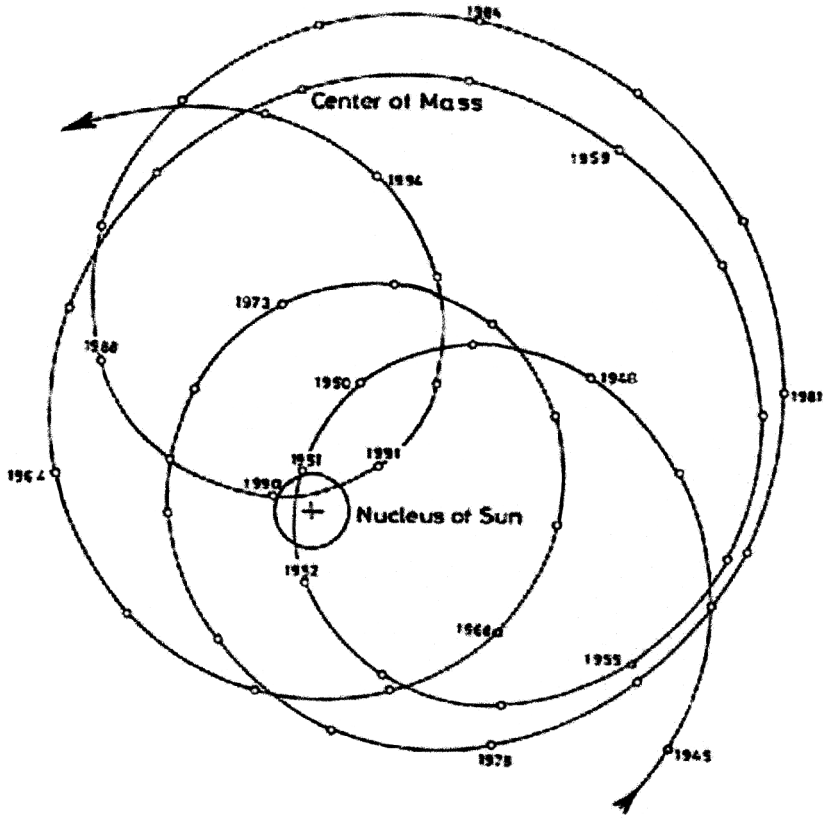


Figure 4: motion of the Sun around the Center of Mass

Central to a closer understanding of the Sun's motion around CM is the notion of "impulse of torque" (IOT). Torque, used in the case of a rotating body, is defined as the rate of change of angular momentum, the force generated by the movement of a rotating object. The intensity of IOT is measured by the change in angular momentum affected by the impulse. Strong impulses of the torque take place when Sun's center, CM and Jupiter are aligned, or when the Sun changes type of motion from approaching toward or receding from CM. At those times new patterns can be seen at the Sun's surface.

The pattern of figure 5 describes the 9-year running variance of the Sun's orbital angular momentum (vertical axis) from 730 to 1075 AD. It reflects the dynamics of the Sun's motion around the center of mass. The resulting harmonic shows a fivefold symmetry, which has been dubbed "big hand" and its subdivisions "big fingers." This pattern has great influence on solar-terrestrial relations. A big finger cycle lasts in average 35.76 years, the big hand 178.8 years or five times as much. A cycle of 181 years exists in the sunspot data, remarkably close to the value of a big hand. And, it has been noted that the big hand cycle is almost twice as long as the Gleisberg cycle, which modulates the intensity of the 11-year average sunspot cycle (its length changes from 9 to 13 years).[5]

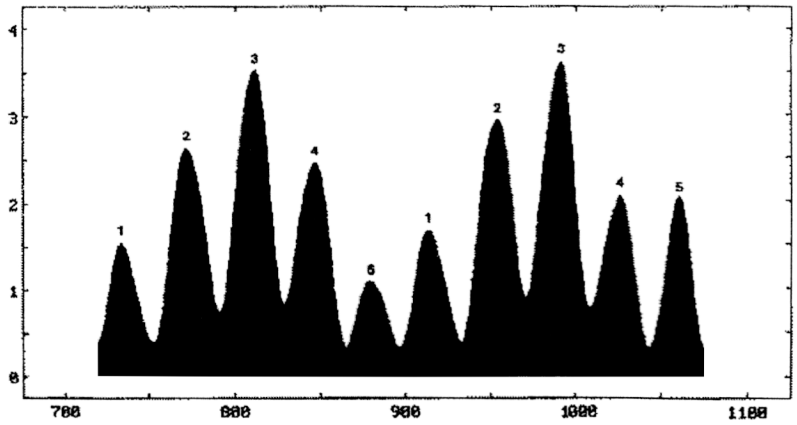


Figure 5: cycles of big fingers and big hands

Planetary movements influence the sun's motion around CM. The cycles influence Sun phenomena, such as solar eruptions. Related to the solar eruptions is the solar wind, which increases at times of solar eruptions and geomagnetic storms. The strength of the solar wind is the main factor

influencing the amount of incoming cosmic rays which modulate cloud coverage. At times of lowest solar eruptions the cosmic rays that reach the Earth increase. The strong influx of cosmic rays is reflected in the forming of a larger cloud cover. Thus solar and cosmic influences are modulated through the water in the atmosphere.

Both solar events, or geomagnetic storms occur in patterns of waves and harmonics, and they can be predicted based on our knowledge of the movement of the planets, mostly Jupiter around the Sun and the center of mass. The length of the magnetic Hale and Schwabe cycles are thus connected with the fivefold symmetry in the Sun's oscillations about the invisible center of mass of the solar system.

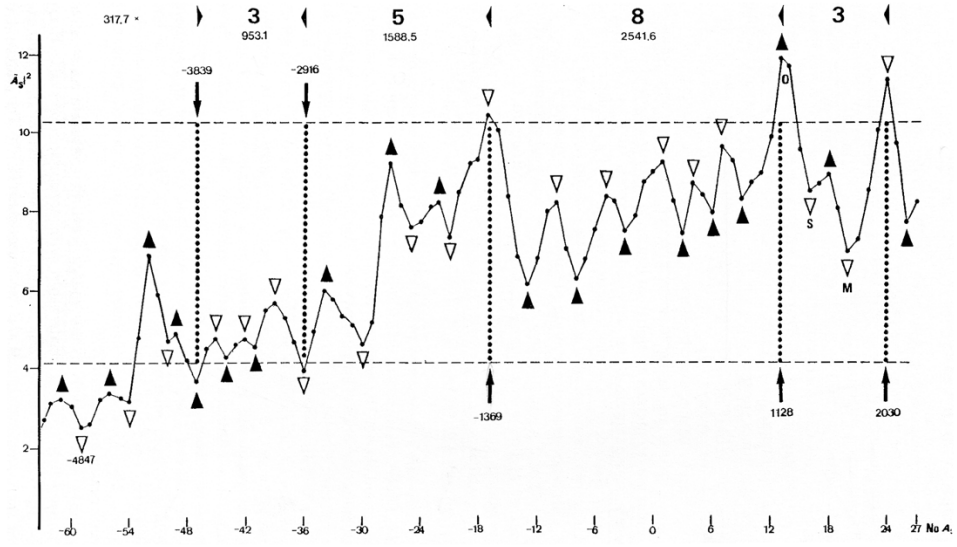


Figure 6: temperature maxima and minima in relation to changes in the Sun's angular momentum.

We can extend our gaze over millennia only to find similar patterns once more. The intensity of impulse of torque (IOT) is measured by the change in the Sun's angular momentum. IOTs following each other in the Sun's motion around CM (the dots in the broken lines) form a sinusoidal pattern. The maxima and minima of these coincide with maxima and minima in the secular sunspot cycle (figure 6). At times maxima of IOT correspond to maxima of temperature and minima to minima—as in the present phase which will extend to 2030—while at other times IOT maxima correspond to minima of the sunspot cycle, and IOT minima to maxima of the sunspot

cycle, due to the phase reversals of the years -3839, -2916 (minima) -1369 BCE and 1128 CE (maxima).

In our present phase (1128 to 2030) both secular minima and maxima of the sunspot cycle are included as can be seen by the letter O for the Medieval Optimum, S for Spoerer Minimum and M for Meander Minimum (Little Ice Age). S and M both correspond to IOT minima in figure 6.(6)

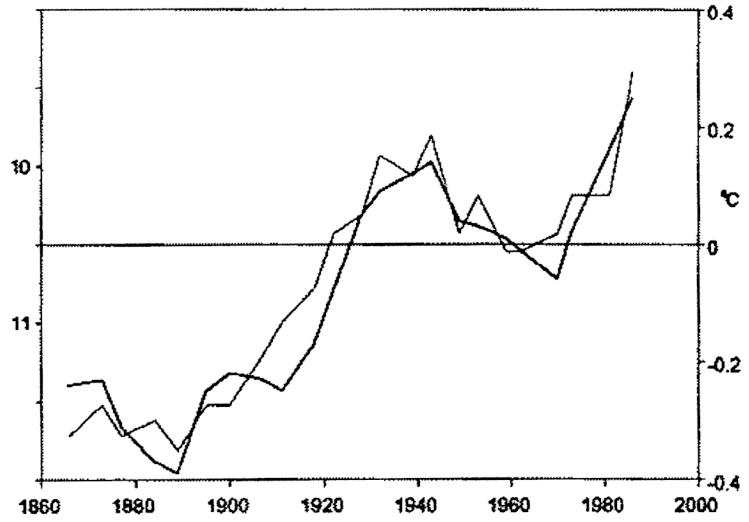


Figure 7: Northern hemisphere surface temperature in relation to the length of the sunspot cycle (varying from 9 to 13 years).

Another pattern to watch closely is that of thunderstorm activity, which increases up to 60% after solar eruptions.(7) Here too big and small fingers correlate with rainfall amounts, from the data of fourteen German weather stations. Rainfall maxima correspond to small fingers maxima, rainfall minima with small fingers minima at a high statistical level of significance. Rainfall and temperature data from England, Wales, USA and India confirm these findings.(8)

All of the above illustrates clear and protracted relationships between Sun and Jupiter (also other planets at time), solar activity and climate. In concluding, figure 8 highlights the complexity of the relationships between Earth, solar system and climate. The harmonics that underlie these relationships are far more correct in matching past data and predicting future behavior than any of the present computer models based solely on Earth-based observations. In other words they are as accurate in "hindcasting" than in forecasting for the medium term (e.g., up to a few decades).

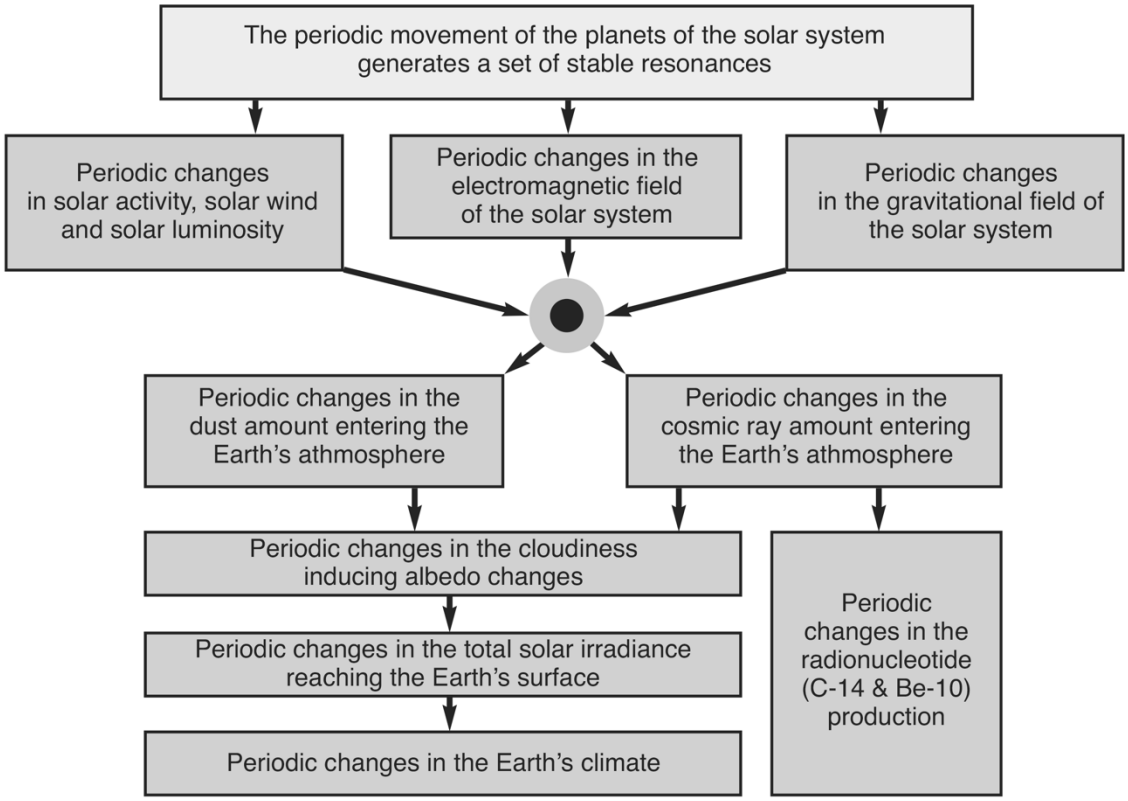


Figure 8: Planetary beat processes and the spectrum of terrestrial variables affected.[9]

Regardless of whether figure 8 offers the last word or not, what matter is understanding the range of complexity and real impact that the solar system has had for millennia and continues to have on climate, which altogether eclipses the anthropogenic element.

In final analysis what we see from world ecology supports what comes from an Earth/cosmos understanding of climate in placing water, not CO_2, at the center of the mediation mechanism of factors impacting global climate over the short or long term.

REFERENCES

1) Most of what Schauberger says about water has been gathered and edited by Callum Coats in Viktor Schauberger, *The Water Wizard: The Extraordinary Properties of Natural Water* and Viktor Schauberger, *The Fertile Earth: Nature's Energies in Agriculture, Soil Fertilisation and Forestry*.

2) Gunter Pauli, *The Blue Economy: 10 Years, 100 Innovations, 100 Million Jobs. Report to the Club of Rome*.

3) Theodor Landscheidt, *Sun-Earth-Man: a Mesh of Cosmic Oscillations: How Planets Regulate Solar Eruptions, Geomagnetic Storms, Conditions of Life, and Economic Cycles*, 53.

4) Ibid, 14, 28.

5) Theodor Landscheidt, *Solar Activity*, 11, available at https://plasmaresources.com/ozwx/landscheidt/pdf/SolarActivity_A_DominantFactorInClimateDynamics.pdf.

6) Theodor Landscheidt, *Sun-Earth-Man*, 79-83.

7) Theodor Landscheidt, *Solar Activity*, 18.

8) Ibid, 20.

9) Nils-Axel Mörner, *The Approaching New Grand Solar Minimum and Little Ice Age Climate Conditions*, at https://file.scirp.org/pdf/NS_2015111916552083.pdf.