CHANGEOLOGY FAKE

We owe so much to Galileo's criteria on the explanation of the behaviour of the Nature, by which the medieval metaparadigm of the divine will was replaced by laws. Newton suggest a commitment, keeping as an exception direct interventions to the adjustments: a divine legislation of Nature. Alchemy, kabbalah and mathematics, in his context was a consistent body of esoteric knowledge. Beyond his failures in kabbalah and alchemy, Principia Mathematica survived him, but it was by himself considered just as an approximation to the divine laws, which time to time required his intervention, as if by minimizing his effort, God set standards and stayed above them. The Church consented to a blessed and sorcerer Newton, because he gave margin to the divine, but they were strict with Galileo, whom arrogant offered to the priests to watch by themselves up to the sky with any need of God. Also in the 17th century, Pascal -addition- and Leibniz -multiplication- started the construction of mechanical calculators, recognizing previous Chinese, Greek and Persian versions, abacus type or even with sprocket wheels.

Newton did not understand his own laws: something was missed. He saw his law of action and reaction inconsistent with gratity at long distance. How could gravity act without contact between action and reaction? He did not know neither how to solve the problem of the "three bodies": against all logic, the law of gravity between two bodies away, is defined by the inverse of a "surface" -squared-, but the law of Gravity between three planets has no analytical solution. It was not logical, it was not intuitive, but it worked, and like quantum mechanics, its incomplete interpretation was posponed because it was useful,... until Maxwell, Lorentz, Grossman and Einstein upgrade Galileo's Relativity and differential geometry offered an answer to the first incongruity (close window: x). The 3-body window remain open.

In 1873 van der Waals proposed the “theorem of corresponding states”: all fluids, when compared at the same reduced temperature and reduced pressure, have approximately the same compressibility factor and all deviate from ideal gas behavior to about the same degree,... which could be updated as a phase change depends only on the dimensionality prescribed by the “class of universality”. Individuals or elements, grids of a model or even particles, matters in “soft” dynamics evolving between equilibriums, but in an emergency, collapse or non-linear phase change, the nature of the elements of the collective cease to matter and the change of macroscopic properties of the ensamble will be analogous to others with the same group of symmetry. Into de trouble all ensembles behave the same independently of the opinion, actitude, willing,... of each particle or person.

The closer they are to their phase change, systems behave according to self-similar patterns, regardless of their nature or inner characteristics. Intentions, heroes, awareness, reason or emotion, do not matter into the Change Dynamics. Predictability and reliability do not commute in changing situations: non-linear change is incompatible with forecast and they can not be both on the same sentence. Applyable in human societies, in ecology, in photonics, in thermodynamics, in web analysis, in epidemiology, ... whatever is the nature whenever there is a crisis or Change. No matter the awareness raising, social sensitivity, improvement of education,... they are only for soft evolution of things, completely useless for changing the System. Reasons or strenth are useless in revolutionary situations, which they will always evolve with no predictability because they can't be extrapolated from the elements behaviour to the ensamble behaviour. Near to the Change, the extrapolation has to be at the same level: between ensembles, never down-to-top. So reductionism is limited to the “soft” equilibrium evolution.

Lets retake the opened window of 3-bodies. It took more than two centuries to state the mathematical limitation of analytical calculus, since the limitation are bad news for bad scientists, but once it was accepted that "the problem of the three bodies" had no exact solution, Poincaré

proposed geometric methods without accuracy -graphics- and without metrics -topology-... With the development of computer science, limitations changed with those proposals to opportunities in numerical calculus. They were not only accurate, but also useful to find radicals in systems of equations above the fifth power. Thanks to the definition of the limitations of analytical calculus, mathematics had overcomed simplifications and reductionism to which linear algebra and infinitesimal calculus retained. They improved the range but not erased boundaries, because the process capacity continues restricting the reality to caricatures according to the expertise and dedication of different code designers.

Up to then, human beings had predicted weather phenomenologically by comparing patterns from expertise in self-similar situations, but with the new perspective new approaches could be essayed. Also in the early twentieth century, following that reductionist paradigm. Bjerkness had proposed another radical change: to analyze the meteorology from the reducibility of the equilibrium and build dynamics from the variables of the energy balance. He started to develop predictions of macroestates according to the evolution of the initial conditions of the variables that configure them: energy balance. Richardson took over the legacy and tried to rough estimate with calculus in a grid system... with appalling results: his predictions were wrong and slower than the time to happen.

In the nineteenth century Babagge tried to build the first function calculator by linearization to polynomials. Maths derived in computer technology, returned to pay with benefit to mathematics. Some decades later, before the Great War, flip-flop -or digital- computing had already been established, and analogic automatic calculation equipment was already operating in areas such as looms, demographic censuses, parabolic-throw calculators, cryptography,... In the 50's, Charney and von Newman tried again with an ENIAC, to run Richardson's essays with better performance, but also disastrous predictions.

They relay that information of the atmosphere was restricted to the surface layers and data were of bad quality, in intermittent series, insufficient in space and time. They claimed it was due to the quality in the "inputs" and knowledge of the processes, so that they assumed that improving both, the models would come to a good ending. They did not know abour non-equilibrium dynamics, but now-a-day scientists does, while most of changeologists still states the same than in the 50's. From then long term prediction and verification did never agree, and each hudge effort has been rewarded by a positive but low improvement as return. Predicting the climate, like predicting stock exchange or loss of information, was not merely an academic hobby, but a very useful and strategical issue: economically -price of harvests, portfolios and investments- and military -planning of landings of troops, campaigns, ballistics ...-. With spying technology and development of atomic physics, prediction of weather were one of the most critical weapons of the Cold War. The real improvement in the meteorological forecasting came from satellites, much more than from models. Everything changed when the limitation was discovered to be systemic.

In the year 63, while he was working to develope a reduced recreation of the energy balance on the atmosphere with a Royal McBee computer (on those days it was innovative and complicated issue), E. Lorenz focused his model on three non-linear differential equations with three parameters (two of them arbitrarily fixed, leaving free and bounded only one). Some said because the time coffe, once he rounded to three decimal the initial conditions instead of six as usual in other tentatives. The output was so hypersensitive to the initial conditions of the west winds that it seemed to prove that it was not feasible to construct a meteorological model with balanced energy. According to the value of a parameter the system tended to an answer set alternatively placed in two "wings" of near periodic solutions. At the time that the deterministic paradigm knock down with dissipative systems, Lorenz was surprised to also discover recurrence as a conjugate attribute to the indeterminacy of prognosis. He found that the set of solutions tends to a region in the phase space called Attractor.

From the "strange" graphic form he got, arose the name Butterfly Effect, in which the wings tended to converge, and from time to time, between wings, tended to diverge.

Shannon went further from hypersensitivity to initial conditions to stochastic forgetting of initial conditions. If a process in any of its steps has a random decision, a singularity with a discontinuity in a near-derivative, reversibility would need the non-existence of random in the inverse process: effect would preceed the cause with no random if cause preceed the effect with random. Although Humanity has not yet assimilated it, -not every human being has succeed to accept Natural Selection, and the irreversibility is a newer concept-, the amazing thing is that a lot of the physicists still do not accept it and cling to determinism. Systems forget their origin and "information theory" itself, burst the sacred "principle of information conservation". Even in very justified exceptions, the macroscopic processes can not depend on the initial conditions but on a narrow time, without a definition of the probabilities of the microstates. That was exactly the why of the poor benefits of the improvement of the quality of the initial conditions, new variables and more complicated processes model based, in the weather forecasting.

From Boltzmann to Gibbs, thermodynamics had incorporated the microstates as generators of the macrostates in ensembles of known statistical behavior... up to then always in equilibrium. The analytical calculation remained in interactions between particles, linear algebra was enclosed in quantum mechanics and aproximations of added reductible processes, multilineal success in relativity, statistics was limited for systems with known behaviour, numerical calculation for systems with few variables and elements agreed with the process availability,... but a new non-equilibrium chaos theory for dynamic and emergent systems, borned with abrupt changes. Linear, deterministic and reductible reality was replaced by smooth cycles of equilibriums succeeded by drastic changes between non-equilibrium, overlaped with random paths. The cosmos can change phase to chaos, as chaos can converge to the cosmos: from fixed analitycal solutions -points and limit cycles-, to transient solutions jumping and evolving with no extrapolability, to converge in a harmonic state of solutions. If pendulum is cosmos, double pendulum is chaos; and chaos is not chance, but patterns and limitations. The chaos determines the irreversibility and stochastic -chances-: the Oblivion.

Chaos demonstrated the limitation of analytic mathematics and linearity, but at the same time gave new paths. Popper's unverifiability had already been designed to obviate the impossibility of demonstrating the Truth. Gödel's incompleteness had shown us in the 40's the limits of our capability to know Reality. Church, demonstrate it is not even possible to decide whether certain propositions are demonstrable. Turing, defined non-computable numbers in a finite sequence of operations. Irreversibility and Stochastic Chance, determine the limits of the predictions. Mathematicians are often ahead of physicists, and in the 50's previously Thom had already advanced the catastrophe. In the 1970s Prigogine combined chaos with entropy and time, to develop successfully non-equilibrium thermodynamics.

Meteorologists ignored Lorenz interpretation as it was not aware of the sacred Bjerkness micro-to-macro deterministic and cycled perspective, and physicists for some few years too, as his concepts had not been published on their environment... until a decade later that was rediscovered, and starts the new paradigm of Complexity. Applying the concepts of complexity, structure and organization, Maturana and Varela developed in 1972 the Autopoiesis in neurobiology. In 1976, R. May described bifurcation cascades in iterative "maps" of discrete functions, with a much more urgent and drastic transition to chaos, and popularized it in population modeling. Haken applied it to the laser coherence in synergetics. Feigenbaum found again and again the fundamental numbers that determine the self-similarity between the scales to which a system forks and transits to the chaos.

From then thermodynamic irreversibility reinterpreted from statistical mechanics distinguishes

between evolutionary processes in the quasistatic microstates, reversible form equilibrium to equilibrium, form the explosive and dissipative processes between non-equilibrium states, whith no time to pass through equilibrium and no energy balanced (in quantum they are resonant or intermediate particles, which do not conserve energy). Dynamic stability of emergent and/or catastrophic singularities: points of the phase space converging into solutions or diverging into "jumps", introduces stochastic decision makers in situations of non-equilibrium. The irreversibility without equilibrium with respect to which to refer, necessarily implies unplausibility and unpredictability: non-arrow-of-time-symmetric processes in which a random decision erases the system memory, by requiring inversely another random decision of equal result to recover the temporal symmetry. The "jumps", "discontinuities", "emergencies", "colapses", "singularities", ... "bad behaviors", changed the "Zeigeist" to non-linear algebras.

If to drive a stimulus we had a very long neuron from the receiver to the brain, and another response to the muscle, ... it would be faster, more efficient and safer, but there would be no discontinuity for the environment to influence the chances of the random. So neurons are shorter and has not so faster chemical comunication between them, that allows adaptability trough interaction with external circumstances. The "leaps", "energy levels", "not n-derivability", ... are the nexus of communication with the environment: points where a vertical pencil is left on its tip and on which the breeze of the environment has something to say.

Threats means opportunities and sometimes the bad become to good. Poincaré had already demonstrated recurrence, which means that divergence does not preclude a non-analytic approximation to a pattern. New capabilities did not came from the dynamics between equilibriums at different scales, but from similarity between non-equilibrium states at the same scale. Forgiving about the cause-effect complete knowledge, the new paradigm focused in pattern finding with no care about the path to arrive. In the 80's, scientists such as Wilson&Shaw proposed the strange goal of searching for deep structure in chaos from the description of the observed: predicting what's indeterminate -few interrelated variables, which complexity hides patterns-, but not what's randomness -many independent variables, evidence a distribution-. Kosmogoroff-Arnold-Moser introduced self-similarity in their pre-harmonic paths, the resonance and amplification of the solutions, in which they proved that the splitting cascade of the period converges for all phenomena described by functions with maximum (other authors have described other routes with other limitations): survives the more irrational and next to the golden number torus. The patterns convergence -space- and recurrence -time- depends on the system, not on the process, not on the will.

Fractal geometry describes the linear relationship between scale dimension and space-time dimensions. Converging somehow with Feigenbaum, Mandelbrot, was adopted and adapted with its fractals -incorporating the recurrence in scale to the space-time coordinates-. If spatial coordinates expand at the same time as temporal coordinates, linear or non-linear, it will be applyable the “Principle of Correspondence” independently on the scale. If the spatial coordinates expand at the same time as the scale, we will draw fractal patterns; but if the temporal coordinates are not ergodic: diverges non-linearly depending on the Lyapounov exponent with respect to spatial ones, and borrows the elasticity -symmetry, reversibility-. So systems will change asymmetrically the variables of state, properties and dynamics with the scale, not being able to extrapolate ones according to the others, breaking correspondence. The systems are independent of the scale if and only if space and time are related in a linear, reversible, elastic, ergodic, histerical,... manner. Not in vain does quantum mechanics need the complex variable to "well-behave" functions and thus, be able to approximate perfect elasticity.

Mathematicians use to live some decades before physicists, and Lyapunov had already prescribed disruption between space and time evolvicity. "Response functions" are valid away from the phase

transitions, either from laminar to turbulent or vice versa, which always forces the divergence or unknown convergence. There, on cycled and ergodic hypothesis equates space and time in the statistics of the evolution of a variable, but only applies in non-dissipative "softness": in the "well-behaved" and parsimonious transition, with energy conservation. Extrapolation over time of a meteorological numerical model to Climate Change modeling, because it is a “change”, diverges in the phase space with respect to the improvement of the description of the variables: turbulence appears with exponential urgency when extrapolating projection over longer time, and a turbulent system is the purest expression of non-linearity.

The extension of the weather models to the climate -assuming that the climate is reductible to a convergent succession of meteorological events, which means the same that climate can be idealized as the addition of independent phenomena-; the increase of the initial conditions sets -assuming that the evolution is smooth, convergent, and therefore linear-; the complexitation in idealized systems -assuming absence of relationship-; with statistically balanced data -assuming reversibility-; approach to reality only if the assumptions are acceptable under theoretical conditions of stability and complete set of compatible observables. As the revolutionaries allways announce but never know the consequences of the revolutions, the prediction of Climate Change will never improve extending time of reductible and reduced weather models, qualifying initial conditions, data and variables included, but in the recurrent autosimilarity -pattern identification- and the phenomenological models: alike Bénard cells.

Also form the 70's, combining complexity and natural selection, Holland began to analyze adaptive chaos. He was followed by Kauffman until the 90's with boolean networks, or more recently by Bárbassi with viral models advancing and describing the behaviors of top seller's or youtoubers phenomena. Perhaps in the Bar El Farol, before than the Institute of New Mexico, in the 90's, a new stage emerged in the modeling of reality, what has been called Econophysics, Sociophysics, Biophysics,... (B. Arthur), merging together multivariable non-linear collective dynamics with game's theory, based on analogies not only with biology, but also ecological, social, historical, ... in networks, crossing experiences of areas with no reason to suppose that they share patterns -as the fluids of van der Waals-, just because they are in trouble, not only near the phase change, but in its non-linear evolution, self-organized and concurrent. Leopard spots, turbulence in the atmosphere of Jupiter, epidemics, electronic circuits or election results.

Laminar flow dynamics happens between quasi-periodic cyclic combination of sudden disruptive moments of emergency -syntropy- and collapse -entropy-. Reality does not allow us to be reduced to linearized description if it is not in "ergodic" conditions, evolving between equilibrium, conserving energy, and only with these limitations applies the "Central Limit Theorem", which states that the linear combinations of any set of non-null variance variables, converge to a Normal stathistical distribution. Despite climatologists and accountants, the paradigm had definitely changed and from time to time, as Newton liked to understand, God does play dice... or rather, dice play with God... only if he shares our dimensionality.

Irreversibility, irreducibility, the limitations of our prognostic capacity, shifts the burden of proof from prediction to the unkown in the scientific methodology. But above all, irreversibility, ineslasticity, non-ergodical relation between space-time coordinates, hysteresis and non-linearity, remember us that oblivion is real and the singularities -"badly behaved"- make us free by breaking the symmetry with respect to time. Bad news of the limitations in the conditions of change, are much better than the frustration of not being able to know the future beyond a bifurcation and with exponential difficulty the past. Future is not adiabatic if it is not extrapolable. Without digging, we have found the treasure that philosophy has been seeking for centuries: we are free!

If God shares dimensionality with his creation -our reality-, God has Alzehimer, since by “Campbell's theorem”, He needs N+1 dimensions -maybe complex numbers- to locally transform

singularities into derivable and extrapolable parsimony. In 1997 Nobel Prize in Economics was given to financial advisors who in mathematical language, without so much divine power of living in more dimensions, camouflaged hungry tigers as pussy cats: Scholes and Merton. The principles of their "Black" model, far outweighed by the mathematics of complexity, were correct only in linear cycles, only while there is no any “black-swan” arround. Mathematics are sometimes bad-used as a marketing tool hiden behind its crypto-language: they simply calm those customers who are stressed with uncontroled risks by the standard deviation of a statistical distribution. Following the mediatic success of the changeology, their formula, based on the turbulent hydrodynamics of Navier-Stokes, forgets all of the above, misunderstand the deep meaning and declares as linear the turbulence, changed the uncontroled risk by an statistical point of view of the “butterfly effect”, and replaces non-linear "forcing" terms. His trap in the patience game succeded, and in the following year the losses of the fund they managed were billionaire. Three years later they break down dragging lots of investors with them, who had believed in what they did not understand because it was written in differential equations. Even today, financial advisors follows that successfull language recommending "balanced portfolios" during crisis, and describing cycles integrating crises as they were inside them. It is a dangerous atitude to make the people beleive that crisis will pass trough only with enough defiance and time. Crisis changes rules, and new rules means new behaviours for the better.

Something similar was done with neutrons scattering, and it worked: it depends on the linearity and applicability in the particular system, and even often works cyclically until a black swan gets in scene and everything in the model stops working. The indeterminacy of the future creates the niche for witches, where some scientists are named as experts with the agreement with determinism. Beyond prizes, bulls and medals to be given, "there is change when there is no move". There are no longer only cycles integrating crises, because limitations in predicting future through extrapolation, but between cycles emerges turbulence. From the atomic bomb to the simulation of the galactic genesis -Millenium-; from financial risk management, to decision making; Monte Carlo's reduction method of S. Ulam, continues to be applied in numerical models assuming linearity, without previous consideration of the hysteresis process. By tessellation, a complex shape can be splited into simple geometric figures, and then added together ... but sometimes such complexity is too expensive and a cheaper way to think is about two figures, one greater that contains and one contained less, and approach by several successive approaches.

Climatologists know all this very well, economists might know even better, sociologists should have known: prediction in analytical systems is limited to few variables with few elements; prediction by statistical extrapolation is limited to equilibried systems, stable and "well-behaved"; prediction by numerical calculation is limited to multilinear or chaotic systems of controled and non-stochastic complexity; but prediction of nonlinear in-phase change, near crisis, emergency, colapse or catastrophe, is only possible by autosimilar analysis of attractors, dimensionality and symmetry. You can not eliminate a part of mathematics when it does not suit you: science is not an à la carte restaurant for whim and taste of the scientist. The paradigm shift changes the method defined inside the paradigm itself: prediction is still a condition in the verification of an experiment, but only if its between equilibriums we can predict down-to-top, switching the scale with scale state equations; but if it is between non-equilibriums, with out energy conservation, only by similarity on the same scale could be applyable. Without shame we predict ensambles or imbalances modeling in the non-equilibrium and verifying with numerical calculation without complaining from anybody, (with numerical calculation, as with accounting, it can be demonstrate any tautology that can be enunciated in poetic format). Climate Change modeling changes and delays its extrapolations, and like Babbage's machines, never get to a checking point, allways pending about a new better announcement.

Social recognition and budgets encourage climatologists who did not wanted to know about compatibilities conditions and limitations between prognosis and change, in non-equilibrium and chaos theory and turbulent phases between cycles: in 2007 they gave the Nobel Prize to the IPCC. Much more clever than all them together, in 2008 the Queen of England wrote to the London School of Economics asking “why they did not see the crisis coming?”... and the question should have been why they have sold certainty in numerical forecasting stathistical models, when complexity theory prevents from such description in non-linear circumstances of hysterical change? What they do not want to know, we all know: the weather prediction is made by satellite images and experience in equivalent situations and patterns, self-similarity; and is justified -which does not verifyed!- by numerical models of regular cycles, which every scientist should know that are limited to soft changes "C-infinite", or at least "C-high". They are very useful to knowledge indeed, because they describe processes, but they are not alwas extrapolable. Airplanes and satellites are not useful tools to "measure" the nonlinear climate change in cryptomath language, they seem rough. We can not derive a discontinuity and the polynomial of a Taylor behavior apply up to the term that is no longer derivable: irreductibility.

In any phase change, turbulence, explosive behavior,... in any abrupt change, the system has not time enough to swift through states of equilibrium, dissipates, and the mathematical properties of Taylor decomposition before and after, prevent reductibility, reversibility and extrapolation, as perturbations are interrupted, trigged or tripped, and intervals do not converge. Climate evolution from equilibrium to equilibrium converges and can be extrapolated, but Climate Change from imbalance to disequilibrium, is by definition unpredictable from any initial conditions, unless it is approached to laminar flow and consequently, it is not described as a real Change, but an strong variation. Far from feel noticed, changeology currently use the constant increase of computer capabilities to improve up to 70 "sets" of initial conditions, in a dozen parameterizations. It does not depend on the power of the computers, the complexity of the scenarios, or the quality of the data in height, series or representativity; but of the laminar -extrapolable cause-effect- or turbulent regime -extrapolable auto-similar-. With hysteria and no ergodicity, forecasting on time coordinates diverges and is exponentially more expensive than forecasting in geography. It is a mathematical limitation such as incompleteness, the speed of light or the position-moment unconmutability.

Besides, even just in case where the system changes from equilibrium to equilibrium, in a such "well-behaved" way, data limits the reliability of the forecast. In any model, like in any cartography, scale, precision and detail are dependent variables: to improve the scale is not enough a pantograph, nor it is enough to infer data to make the grid thicker, but to improve the precision of each node. Change of complexity in a system self-organization, whether syntropic or entropic, invests or spends energy. Phase changes -alike than freezing or condensation-, are expensive in energy: in the change between non-equilibriums, the balances can not square. Changeologists like finnacial advisors, bypassing the turbulence, change the "imbalance" of energy input and output assigned to a typical deviation.

Energy distribution measured with appliances, which feeds the numerical models of the weather, can fall up to 30% at ground level... and that is refered to the primary heat system. In secondary or tertiary variables such as rainfall, cloudiness, winds, evapotranspiration, photosynthetic rate,... balances are extracted from modeling, in which part of the inputs are outputs of the energy distribution models. Height distribution of heat is not representative -there are much more data at the ground level than in the first limit layer-, which is precisely the most turbulent and irregular area; distribution in espace zones is not representative -more abundance of data as more population and more civilized, but not with orography or microclimate criteria-; distribution in time is not always representative -30 years may be too many or to little according to the mesoclimatic irregularity and the variable-; local geographic circumstances in the weather changes -cities grow,

asphalt streets, air conditioners, ..., reflection or color changes, cloudiness, dust, etc, etc, etc...-.

Billions on budgets in exchange for certainties, has been useful to better understand the climate dynamics in soft processes, and even to announce risks of catastrophic or emerging dynamics. We can forecast future phase change, but not know beyond. Misregard at the best it is the infantilization of science -pointing out the limitations in small print-; at the worst - not including, or denying the limitations on changes-, a bargain to the market for a dish of lentils. No matter how powerful computers may be, no matter how many beautiful colors and animation the maps show, no matter how indecipherable equations seams to be, it does not depends of the prizes and chairs that support it: what it can not be, tends to be impossible.

Neither Second Law of Thermodynamics, Complexity, or Change, nor Reality do not obey willings. So far, within the current paradigm, the analysis of the evolution of equilibrium cause-effect in Climate Change or "well behaved" economic crises are scientifically inconsistent with its turbulent dynamics. Up to here what maths in the “complexity paradigm” can say, but further a more subjective aspect of the analysis also takes part: a cause-effect Bias, or natural selection of the theses, hypotheses and theories that fulfill the expectations, because they obtain better sustenance with less effort. There are -or there might be- as many skeptics as scientists and as many experts as corrupters, because expert is the one who argues the truth that had already been decided as true by those who have skepticism as an antagonist of their faith. Society demands certainties and science offers falsability, not what its "market" demands. Sponsors gives no mercy and their caprice today, tomorrow will be replaced by a younger lover, especially if state after state, leaves a record of the misrepresentation of reality. The bankruptcy of Enron, extended the crash to Arthur Andersen, whom had justified the impossible accounts that wanted its client.

Human is bewicht for the tragedy. Not being the data of the intended quality, not being the reductible models, reductible in turbulent circumstances, the forescasting of Climate Change results are also affected of the Bias of Confirmation: consciously and unconsciously survive the expected and papers are published regarding somehow on what the masochistic market of catastrophic millenarianism demands. Data sets not analyzed nor weighted, or analyzed and weighted as appropriate to the objective; scenarios and models selected "ad oc" to fullfill the expectations; “analysis processes” of inverse modelling to adjust; etc... Witches hunting to whom does not support the academic thesis, to the point of resisting scientific unverifiability and mathematical evidence itself. Should we continue to overestimate our prediction capability cause-effect, and underestimate auto-similarity, in order to make society aware of the risks of our abuse?, or should we make science to avoid the pendular reaction if small prints, exaggeration or undeclared limitations, leads society to be unconfident with climatologists and starts to look for another Apocalypse? Climate catastrophes have replaced nuclear war in the Manichaean scripts for cinema... Do we want to sell a pup?

Autosimilarity tends to be more qualitative than quantitative. By comparison with what happened in other "extinctions", the threat is real and of unknown consequences, but with high risk of being very serious, even more than announced. From the analysis of autosimilar patterns we are unable to announce the level of certainties, or assigning a value to decimals, or centimetres in the sea level, as we do from causal reductible models, but the academic method to support it is correct and scientific only out and far from the Change. Shortcuts are risky. Sooner or later someone will take advantage and use it against, as an argument to discredit and thus demonstrate that Climate Change is a hoax, when it is not. Using means to justify ends is a matter for politicians, not for scientists.

It is the mathematical overactivity in climatology as a forward jump ahead because the properties of hysteresis -indeterminism, irreversibility, irreductibility,...- and its limitations -n-derivability-,

instead of using them in positive. We are applying complexity and dissipative dynamics with patterns of emergence and auto-similarity, in neuroscience, logistics, traffic, fluids, photonics, ethology, sociology,... quite successfully, why Climate Change is still a matter of extrapolable modeling? Perhaps Climate Change is more catastrophic than predicted or maybe not, and only politicists and/or bad scientists claim to know what will happens ahead and beyond a Change. Improvement will not be purifying more or better initial conditions; it will not be better forecasting extending to the weather more variables in meteorological models; neither zooming the grid; insisting on a scientifically proven line as inadequate in the change circumstances. Improvement will come by exploiting statistically the properties of attraction, pattern analysis and indistinguishability in changes of state... and you all know it!

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