

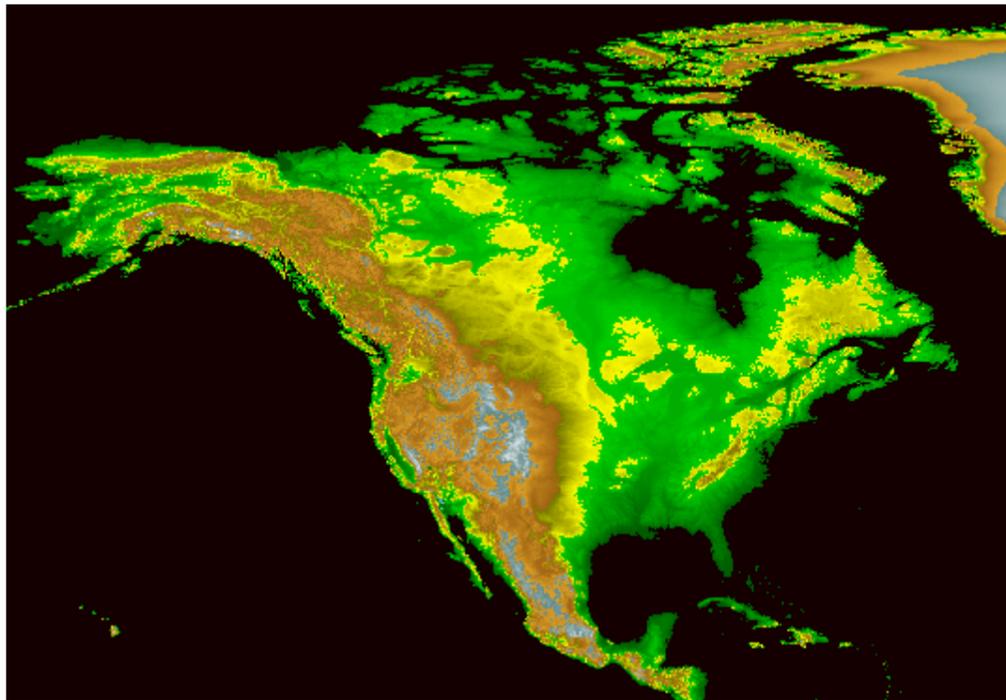
The Great NAWAPA Renaissance

NAWAPA

Key to the Brightest Renaissance Ever

Or failing that, potentially a Crime Against Humanity

Rolf A. F. Witzsche - December. 2010



Elevation map from National Geophysical Data Center, NOAA

Danger!!

A too primitive NAWAPA implementation might become the blocking factor that inhibits world development and humanity's preparation for the New Ice Age ahead

The Intelligence of the Universe sets a wide open stage for us, without entropy

The Great Peace of Westphalia that lifted the world into a new era from 1648 onward came out of the revival of the humanist principles of the Golden Renaissance. It was built on the discovery of the "Principle of the Advantage of the Other." The active recognition of this principle discredited the war-philosophers and shut down their Thirty Years War, and even created a new renaissance. But did this renaissance result from the shutting down of war and empire? Or was it the other way around? Wasn't it rather the development of the new renaissance built on a discovered profound principle that put an end to war and empire for a period? Stopping fascism, empire, and war is a passive thing. It, in itself, doesn't cause a renaissance. A renaissance is always an active thing in which the understanding and acknowledgement of a great principle ushers in a New World, the kind in which the Thirty Years War, etc. could no longer stand. The Treaty of Westphalia that instituted the new platform was evidently a secondary natural expression of the unfolding great renaissance in thinking.

We are back at this point. We are stuck in a new thirty years war of escalating fascism and empire madness. History seems to tell us that we cannot get out of this trap on a passive platform of fighting against madness, but require an active renaissance built on advanced principles, technologies, and a revolutionary commitment to rapidly building a radically new world, such as a world with universal free housing and boundless food

resources that is achievable beginning in less than five years. No new exotic new technologies, materials, or energy resources are required for this. Only a commitment is needed to utilizing the leading edge technologies, materials, or energy resources what we have laying unused at our feet as it were. This commitment would create a new form of expression of the Principle of the Advantage of the Other - the Principle of the General Welfare.

NAWAPA, in its present form, is too limited, small, inefficient, and impotent, to meet this requirement

But it can be elevated to the leading edge to start a New Renaissance

It is a project that, when constructed, will break all records in infrastructure development, with a development goal on a scale never before imagined, but it is also oriented in the wrong direction in several key aspects which makes it the potentially most dangerous project in the entire history of mankind, and may for this reason be blocked by the Universe itself for the protection of mankind. This may be a factor why no breakthroughs have occurred on the political front, as those might have opened the door to developments with consequences that mankind cannot recover from when its development focus is oriented into the opposite direction than that which is critically needed.

By the misdirection of resources into a dead-end pursuit, not only the development resources would become wasted, but the critical timeframe in which the correctly oriented development can still be achieved, would thereby be wasted as well.

But it isn't necessary to divert Arctic water to the dry southern regions overland across mountains, reservoirs, and high elevation deserts, with 350 way stations and immense pump lifts along its 2000 mile path, when vastly more efficient principles exist to accomplish the same and more almost without effort, which at the same time promise an economic uplift for the entire world with cultural improvements and materials, food, and energy resources not yet dreamed of, and this in a fraction of the NAWAPA timeframe proposed for the northern water diversion. The northern water diversion is comparable in efficiency to flying from New York to Boston via Beijing. And so it won't happen. The year 2011 will mark the beginning of the age of powerful new technologies for high-temperature automated manufacturing with boundless materials and energy resources for them, on a scale of immediate use in civilian industries that promise to be greater than anything seen in the past with entirely new fields of application. The resulting renaissance promises to be of such power that the return of the Ice Age, whenever it may happen, will be a non-event. Only when this development is blocked will the returning Ice Age decimate mankind, as its then unprotected food resources, especially the vast agricultural regions in the Northern Hemisphere, become disabled by the cold.

We stand at the turning point in this age, with both options before us. The northern water-diversion option promises a "chicken in every pot" as Hoover had offered at the 1932 election. It didn't inspire many then, nor does it's equivalent today. The efficient option promises in contrast a whole new world, as Roosevelt had promised. That's what society responded to and will so again by the same principle. For this, Roosevelt was elected. The efficient option that promises a new world today offers free universal housing, unlimited food resources and energy resources, and boundless industrial development potential. Fortunately for mankind, the discovered efficient principles of the Universe always tend to assert themselves and inspire society. The efficient option with automated industrial production is inherently clean and 'energy dense' instead of being Earth bound and 'labor dense.' With the natural commitment by society to building a New World on efficient infrastructures, the chance will be avoided that a project is undertaken that would consume huge development resources for what is potentially a dead-end project, while the essential developments would thereby become prevented. This kind of thing just wouldn't happen, and so it won't happen.

The timeframe towards a new Ice Age is critical in this context only as a reference point, a kind of reminder to us to put us into the efficient direction where mankind's productive and creative power is located. The Ice Age timing is critical today as it reminds us to get moving in the right direction without delay, because most of the world's agricultural resources are located in areas that typically become overlaid by snow, or become agriculturally disabled by the inseting cold climates, when the ice age transition takes place. Eighty percent

of the area of the above map would likely be affected in a disabling manner in a short timeframe when the transition begins, if not all of it, affecting thereby much of the Northern Hemisphere and large portions of the Southern Hemisphere as well (Australia is already been hit with snow and ice in a freak storm right in the middle of its summertime - 2010).

To duplicate the endangered worldwide agricultural potential is evidently not a small task, so that any diversion of resources into opposite developments has the potential to be a mistake with existential consequences. For this reason it might be that the Universe is blocking us from pursuing what might be a dangerous mistake, which is presently being promoted, but lacks the power to inspire and rouse society, so that the political world remains tied up into knots until the blocking factor is removed. And it will be removed. Isn't this what we are already seeing the beginning of?

Three critical elements related to NAWAPA.

1. NAWAPA is Northward oriented with a potential 50-year effort to develop water resources that are the first to be disabled in the onset of the potentially near Ice Age glaciation cycle. - **Replace this with the South Orientation built on Water-in-Water Conveyance, made possible by basalt technology and the already existing high-temperature Liquid Fluoride Thorium Reactor technology (LFTR).**
2. NAWAPA is inefficient by design, as it ignores the Least Action Principle that is the natural platform in the Universe. - **Basalt technology opens up a whole new world with capabilities yet barely imagined.**
3. NAWAPA is an old-technology project that is paramount to moving backwards, such as in the case of nuclear-fusion-power development that is unworkable, for which no universal principle exists. - **Utilize already discovered high-energy-dense principles, including the LFTR and automated industrial production.**

The coming Ice Age Renaissance

The Ice Age is not critical yet, but the potential it demands is more than critical

Nuclear war and economic collapse isn't the only existential danger society is facing. Nuclear war is the least of these dangers. It is known where the tens of thousands of nuclear bombs are located, which can be destroyed in a week should mankind decide to do this. Likewise can economic collapse be halted in short order, when mankind decides to eliminate the system of empire, which is the cause for it. These are existential dangers that can all be overcome with 'ease' when the decision is made to do so. However, the existential challenge that the next Ice Age glaciation cycles imposes cannot be that easily brushed aside as the global agriculture that is mankind's prime food resource, which is depended on the warm interglacial climate that we presently enjoy, becomes largely disabled. Our food resource is presently near 100% vulnerable to the coming deep freeze of the next glaciation cycle that promises a potentially 10-times deeper cooling than was experienced during the last Little Ice Age. Even as the transition unfolds the world's entire northern agriculture is threatened to become totally disabled, which includes that of Canada, most of Russia, large parts of China, most of Europe, and the northern parts of the USA if not all of it. How would these nations feed themselves when agriculture becomes collectively disabled on a massive scale around the world by the coming climate transition that is potentially near?

Agriculture is where our food comes from. Nearly the entire agriculture that we presently depend on, which became enabled by the warm interglacial period of the last 13,000 years, is about to become disabled. Mankind emerged from the last Ice Age glaciation cycles with a one to ten million world population, after over two million years of its existence. This minuscule population hints at the limiting effect that Ice Age Challenge imposes when agriculture isn't protected, as it would be protected by shifting it into the tropics and later into indoor facilities.

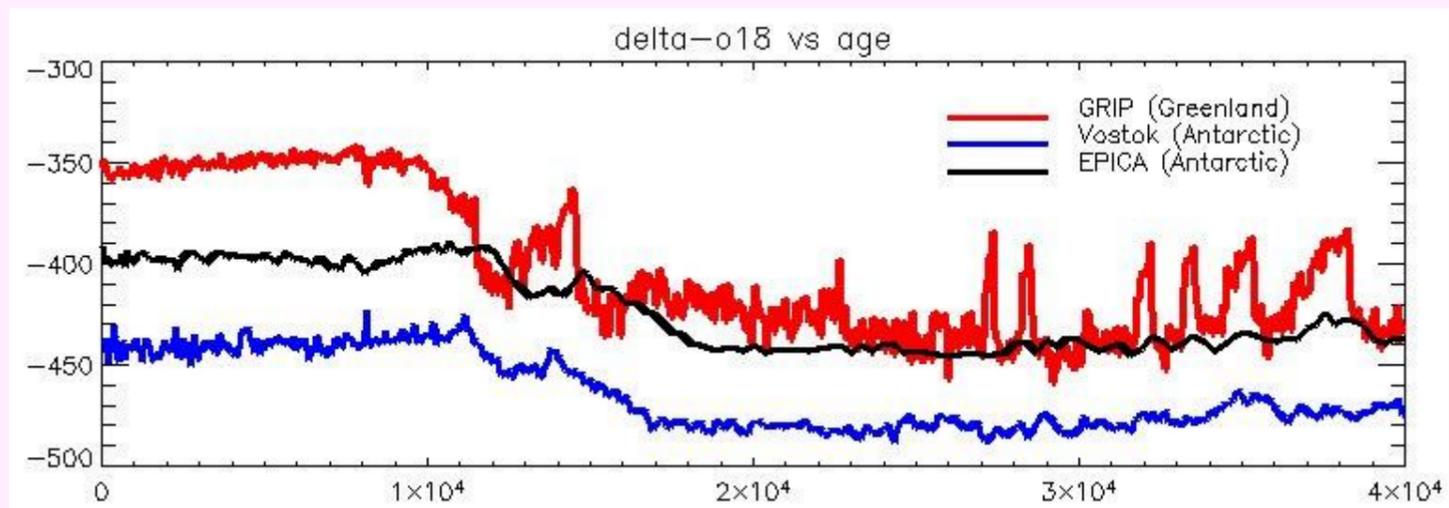
The more one looks at the Ice Age Challenge, the scarier the picture becomes. The Polish professor Zbigniew Jaworowski, (M.D., Ph.D., D.Sc., and Chairman of the Scientific Council of the Central Laboratory for Radiological Protection in Warsaw) suggests in his paper "The Ice Age Is Coming" (published in the 2003 Winter Edition of *21st Century Science and Technology*) that the transition to the next glaciation cycle is

already overdue by half a percent. Which means that it may not be far off. Our planet has been in an Ice Age epoch (called the Pleistocene Epoch) for the past two million years, which gets interrupted cyclically with warm interglacial periods of roughly 13,000 years in duration on average, like the current one that is about to end. Zbigniew Jaworowski quotes some scientists' projections that we might still have 50 to 150 years left of the present warm climate, while the transition period itself is deemed to be short, in the range of 1-50 years in duration. He suggest that the transition might begin any time and without warning.

All of this stands of course in total contradiction to the global warming doctrine that was concocted in 1974, at the very time when the scientific community was concerned about the needed preparation for the coming Ice Age transition. The timing of the global warming doctrine makes it stand out like a smoke screen to hide the potentially near start of the next glaciation cycle for which a new renaissance is absolutely required, with which to create the economic, scientific, and technological power to protect mankind's existence by protecting its food resources.

So what about the Ice Age?

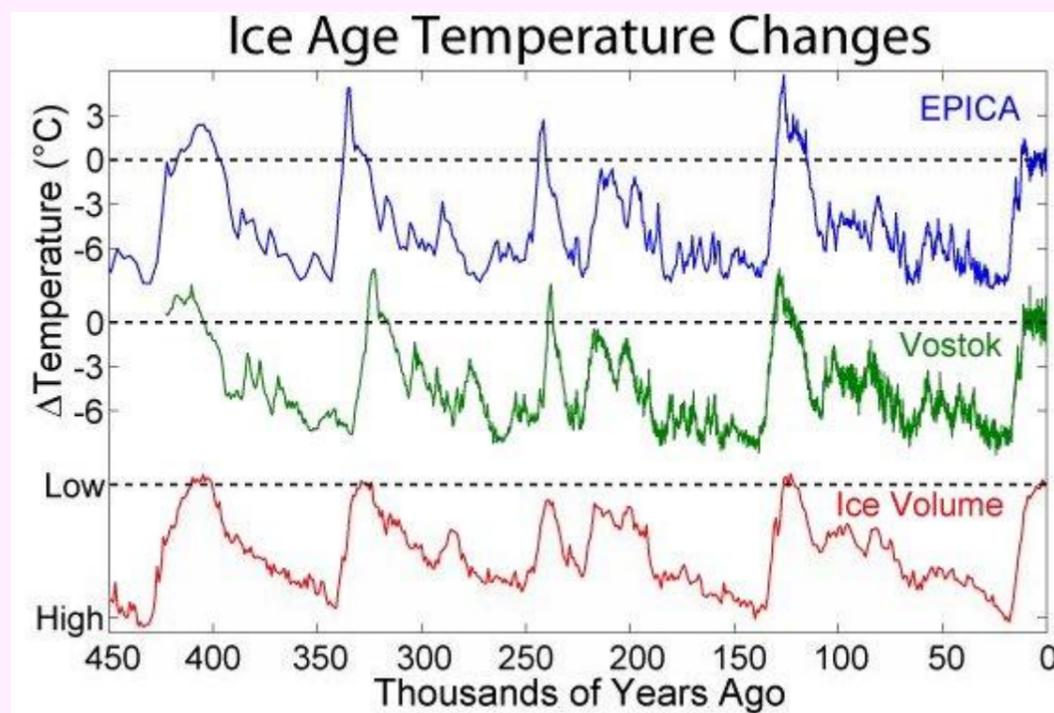
In general terms, the end of the last Ice Age glaciation is generally understood to be the end of the Younger Dryas period. In real terms, the Antarctic Ice Core records indicate a gradual warming occurred that had its beginning as far back as 18,000 years before the present, which peaks about 14,500 bp. After this two cooling episodes begin, called the Older and Younger Dryas, in honor of its discoverer.



[location of the Younger Dryas 14,000 to 11,400 ybp](#)

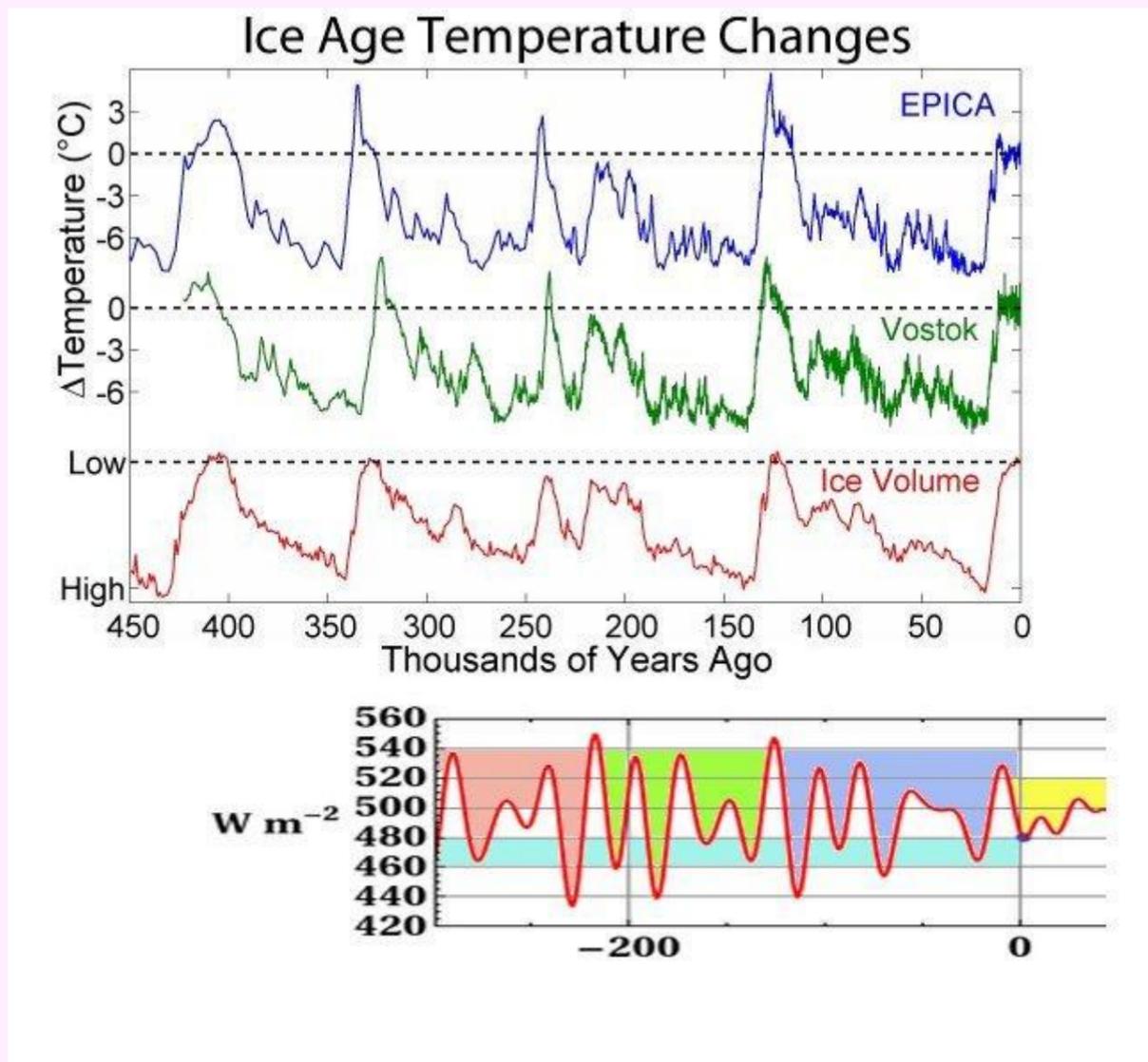
The Younger Dryas ended 11,400 years ago. At this point a continuous dramatic warming occurred that became the current interglacial period that continued uninterrupted (the small variation, such as the Little Ice Age of the 1600s are too minuscule to be recognizable here.)

With the end of the Younger Dryas period taken as a reference point, it can be said the current interglacial period has lasted for 11,400 years to date. When, on the other hand the first big warming spike is taken as a reference point, preceding the Dryas periods, then it can be said that the current interglacial cycle has been in effect for 14,500 years. The trouble is that the previous interglacials are not identical in duration, only approximately so. Some have been longer, some shorter, with a rough average of 12,500 years that has already been superceded by 2,000 years when the start of the Dryas periods 14,500 years ago is taken as a reference point.



[ice age glaciation cycles](#)

Attempts have been made to explain the Ice Age cycles in terms of the combined effects of the cyclical variations of the Earth's orbit, such as, the changing eccentricity of the Earth's orbit around the Sun in 100,000-year cycles, and the 26,000-year cycles of the precession of the Earth's spin axis, and the 41,000-year cycles of the changing tilt of the spin axis. All of these factors affect the relative distribution the sunlight energy received by the Earth in the different hemispheres, and the intensity of the seasons (termed solar forcing). Since the computed combined effect of these cycles (the Milankovitch Cycles) somewhat matches the Ice Age cycles, it had been assumed for a long time that these are the causes for the Ice Age cycles. However, the Universe doesn't quite comply with computed predictions. Too many irregularities have been observed. In one case an interglacial began 10,000 years in advance of the computed causes. The case of an effect preceding the cause invalidates the underlying assumptions.



[ice age glaciation cycles with the Milankovitch cycles added](#)

The most immediate example of the observed non-compliance of the universe with computed solar forcing is

the failed reflection of the current weaker solar forcing that has already dropped way below the level that has prevailed for most of the deep cold of the last glaciation cycles (see the light-blue line), for which we should experience deep glaciation right now. But this hasn't materialized. We are presently at a low point in solar forcing (solar exposure, expressed in watts per square meters at the top of the troposphere at 65 North in latitude). This low value was only rarely reached and crossed below during the glaciation cycles that we have ice core records for. We should be in a glaciation zone right now according to the Milankovitch Cycles. Since we haven't entered the glaciation zone yet, we may be in the boundary zone towards it. This means the time has come to get ready to protect our agriculture in the most efficient manner possible. Erring on the side of caution here, would mean that we would enjoy the greatest renaissance ever for a period before it is absolutely needed, while our failing to get this done in time would likely force the death of 90% of mankind.

While the Milankovitch Cycles are vaguely expressed in the observed evidence in the ice core samples, and it would be surprising if the Milankovitch Cycles would not be reflected to some degree, the evidence suggests that some additional, larger factors are involved that are super-imposed above the solar forcing expressed in the Milankovitch Cycles. These superimposed factors are considered an unresolved enigma, based on the observation that the thermal energy output of the Sun itself, the only other external factor, is not a variable factor as its thermal output is deemed to be slowly increasing at a rate of 10% per billion years.

Since predictions according the Milankovitch Cycles are too unreliable, and the superimposed factor left to speculation, the entire scene of predicting the ice age cycles has been thrown wide open to the wildest speculation. Some 'scientific' projections suggest that our present warm interglacial will last for another thousand years, or another 10,000 years, or even 30,000 years, according to who makes the prediction. The resulting uncertainty factor also leaves the scene wide open to potentially dangerous policy pursuits.

For example, the currently promoted 50-year water-diversion project that would direct the northern rivers of the sub-arctic region to the southern deserts in the USA and in Mexico, which is by far the largest infrastructure project proposed in world history, might be considered a somewhat useful project if we had a thousand years left in our warm interglacial world, to make such a project worthwhile? If, however, professor Zbigniew Jaworowski is correct in concluding after his 50 years of personal hand on research on six continents, that the next glaciation transition could start any time, then the giant water diversion project from the high north to the southern deserts could be a dead end project from the outset, as it would likely be disabled before it was completed, whereby the entire decades-long development effort would be wasted, that then should instead have been devoted to mankind's response to protecting its agriculture from the coming glaciation.

That's our situation if the slightest chance exists that a new glaciation cycle is near. The nature of the Ice Age Challenge thereby becomes of utmost importance to us all, because if we fail to protect our food resources against the coming cold, mankind will be hit with the greatest existential cataclysm of all times.

In exploring these questions, during research for my novels of the series *The Lodging for the Rose*, another factor came to light that is directly relevant to the Ice Age question, by which a much more deeply hidden world came to light that has a direct impact on the Ice Age Challenge. Here we find the scientific reason for the cause for the overriding factor above the Milankovitch Cycles, by which the Milankovitch Cycles fail. This factor takes us into the (presently) carefully hidden world of the Electric Cosmology. that historically precedes the Big Bang Cosmology that was likely created to stand in opposition to it.

The Electric Cosmology is build on the recognition that 99.999% of the mass in the Universe exists in the unbound state, in the form of electrons and protons existing as free-flowing particles in the so-called 'void' of space. It recognizes a Universe in which only an infinitesimal portion of the mass of the Universe is energetically bound into atoms that form the galaxies and their billions of suns and planets. Since in the free-flowing state, the electrons and protons carry an electric charge, large-scale electric phenomena, governed by the electric force, are recognized to exist by the Electric Cosmology (evident throughout the Universe) for which the gravity-only cosmology, such as the Big Bang Cosmology, has no rational answer for.

Electric currents in the plasma in space are evidently the most fundamental factor in dynamics of a galaxy and the stars within it, while the galaxies themselves are but nodes in the intergalactic power grid by which all galaxies are interconnected. While weak electric flows are invisible, the intergalactic interconnection is visible by the existence of filamentary lines in which the galaxies are located like so many beads on a string.



<http://www.eso.org/gallery/v/ESOPIA/GalaxyClusters/phot-09i-02.jpg.html>

The photo of the galaxy cluster ACO 3341 is from a collection of the first images obtained with [VIMOS of ESO](#). ACO 3341 is located at a distance of almost 500 million light years

One of the most immediate factor of the recognition of the electric-force is that our Sun is not powered by a nuclear fusion furnace within it, but is electrically powered from the outside by the sun's gravitational attraction of the electrically charged particles that surround it in space, flowing within the spiral arms of our galaxy. It has been computed by the electrical engineer Ralph E. Juergens that an electron in-flow to the Sun.

I have read figures for the required inflow in the order of three electrons per square centimeter per second being required across the surface of a sphere of the size of the orbit of the Earth around the Sun, to power the Sun with its current energy output. This flow rate is well within the range of the existing resources. NASA has measured an electron density of 90 electrons per cubic centimeter in 'near-earth' interplanetary space.

One of the phenomena that are easily explained in the Electric Cosmology, but which is an enigma in gravity-only cosmology, is the observed acceleration of the solar winds flowing out from the surface of the Sun, which gain in speed rather than slow down, reaching speeds in excess of 1000 Km/sec (3.6 million Km/hr). Gravity doesn't have this accelerating effect, but electric interaction does. The out-flowing solar winds in turn form the heliosphere, which is the boundary of their reach. Within this sphere the solar winds surround our solar system until they become stopped at a distance typically twice that to Pluto. At the termination boundary of the heliosphere, the solar-wind particles are halted by their interaction with the interstellar medium, where they accumulate and form an attenuating barrier against the high-speed 'cosmic-ray' particle portion of the cosmic background radiation, before the solar wind particles return to the Sun in the heliospheric current sheet.

The intensity of the attenuated cosmic background radiation that is reaching the earth is a critical factor for

our terrestrial climate, because the incoming cosmic-ray particles ionize the atmosphere in the cloud-forming region of the troposphere. When the cosmic-ray density is increasing, cloud formation is increasing as ionized water molecules are 100-times more attractive to one-another than non-ionized molecules.

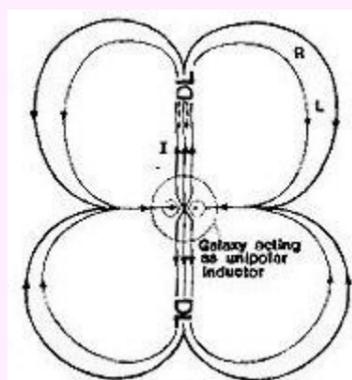
With increased cloud formation the climate gets colder. This is the climate factor that professor Zbigniew Jaworowski points to as the main factor in global climate determination. Since this ionizing factor is critically influenced by the attenuating effect of the heliosphere, whatever affects the heliosphere directly affects our climate. And the resulting effects can be quick and dramatic, with corresponding rapidly falling and rising global temperature changes as are evident in the glacial records, including the minor ones, such as those of the last Little Ice Age of the 1600s.

Presently the solar heliosphere is shrinking by which the incoming cosmic radiation is increasing. Studies show that this trend began roughly half a century ago. "The average pressure of the solar wind has dropped more than 20% since the mid-1990s," says Dave McComas of the Southwest Research Institute in San Antonio, Texas. "This is the weakest it's been since we began monitoring solar wind almost 50 years ago." ([NASA News](#))

The resulting effect is evident in the global cooling trend that was measured at the Solar Terrestrial Institute in Irkutsk beginning in 1998, as Jaworowski points out. The second set of evidence is found in the weakening solar activity cycles since 2006. Research at the institute predicts that the weakening will continue to at least the mid 2020s. More distant predictions are evidently not possible since the causative factor is located in the Universe itself in the form of variations in the galactic electric-flow density that affects our solar system.

However, some predictable electric patterns are discernable. They appear to reflect dynamically the size of our galaxy and the position of our solar system within it. These size-factors result in a patterns that falls within the framework of the 100,000 year glaciation cycles. They may also be the causative factor of the 100,000 eccentricity cycle of the Earth orbit that the Milankovitch Cycles incorporate.

With the ecliptic plane of our galaxy extending across 100,000 light years of space, as it does, in which 200 to 400 billion suns (stars) are located, which, like our own sun, are electrically powered, we find that a 100,000-year electric intensity cycle is well within the range of possibilities. A galaxy can be perceived as rivers of electric currents flowing towards the galactic center. There, the currents are concentrated and facilitate star formation. From this center the currents are recycled back into the arms of the galaxies to complete the circuit in which the entire galactic engine is dynamically powered, and is sustained by incoming intergalactic plasma streams that pervade the cosmos.



Our solar system is located roughly 25,000 light years from the galactic center. If one considers the length of the spiral arms in which the electric currents are located, and the path to the galactic center and the length of the return path, electric cycles of 100,000 years in duration, affecting our solar system, would therefore not be an unexpected happening, but a natural phenomenon. If anomalies would be introduced into the flow of this 100,000-year loop, one would expect the anomalies to occur with cyclical consistency, such as the cyclical interglacial periods.

The 100,000-year electric loop time that appears to be causative of the Ice Age cycles, could easily have been the actual cause of the 100,000 year cycle of the Earth orbital eccentricity since the electromagnetic

force of the universe is 39 orders of magnitude stronger than gravity.

For the last million years, glaciation has typically occurred in roughly 100,000-year cycles. The 100,000-year eccentricity cycle of the Earth's orbit, however, should not be the dominant factor for the climate cycle as it is a relatively weak factor in the Milankovitch theory of solar thermal forcing. In fact, the current interglacial should not be happening at all as the 100,000-year eccentricity cycle is nowhere near its extreme point. The shape of the Earth's orbit varies in time from between being nearly circular, with a low eccentricity of 0.005, to its high eccentricity of 0.058. The current eccentricity is 0.017. It is therefore closer to the mean eccentricity of 0.028 than to any of its extremes. In spite of it all, the Earth experienced a nice warm interglacial for the last 12,000 years.

The point is, that the prime factor for determining long-term policy decisions is the dominant electric cycle that is clearly superimposed over the Milankovitch Cycles, as the force that produces the climatic expression that we see reflected in the ice core samples. According to these expressions, the current interglacial period has run its course so that the next glaciation cycle is near or is already in the beginning stages as the shrinking of the heliosphere seems to suggest. The high potential for the near occurrence of the next glaciation cycle should therefore be the driving impetus for all long-term policies for economic development, so that such development should be focused on protecting the global food supply, that is our agriculture, from the radically colder climates that mankind needs to prepare for. Most of the present agriculture is located on the large continental landmasses of the Northern Hemisphere where the major Ice Age glaciation and its associated climatic cooling is expected to occur.

The Least Action Principle - the critical principle for large scale development

It makes no sense in this context to launch large-scale arctic-focused development projects, such as the fifty-year NAWAPA project to divert the northern rivers that currently flow into the sub-arctic oceans, overland to the South, to irrigate the southern deserts of the USA and Mexico for increased agricultural production. Such a project was developed in the 1960s by an American engineering firm and became known as the North American Water and Power Alliance (NAWAPA) project. The project didn't go anywhere at the time, but it is now being promoted again as an economic driver to redevelop the collapsing North American economy.

The project would indeed be a huge economic driver, the largest ever. It would involve the building of over 300 separate projects, including major dams, one 1,700 feet high, and another 900 feet high, both to be built in permafrost country, in order to raise the water levels of two of the northern rivers to such height that the rivers flow backwards and drain southward into the Rocky Mountain Trench. From there the water would be channeled to the South through a long string of reservoirs, tunnels, canals, aqueducts, with pump lifts in between to lift the diverted water over the 5,000 foot high hump of the Nevada Great Basin of high elevation deserts, before it would flow into the South. If it was built, and be completed after a construction period spanning nearly half a century, the project would be the largest infrastructure project ever created on the face of the planet. The pump lifts alone that would drive the system would require 38 major nuclear power plants to power the pumping.

The giant project would eventually, after four to five decades of construction, deliver upwards to 90 million acre feet of fresh water per year for increased irrigation for food production in the deserts. However, the scheme would fall apart if the onset of the next Ice Age glaciation cycle would occur during the construction period, or would occur in the decades thereafter. The onset of glaciation would immediately disable the northern rivers and thereby disable the entire project. In this case the enormous economic effort that would be devoted to the northern project would be wasted, and the opportunity to prepare for the real need would be wasted likewise.

This does not mean that the idea to irrigate the southern U.S. and Mexican deserts for increased food production is thereby in danger of being unattainable. To the contrary. The potential near return to Ice Age glaciation, if it became acknowledged, would re-orient the development focus towards the tropics and towards far more efficient principles for implementation. For example, instead of diverting water from the high North

over land, one would simply redirect the outflow of one of the tropical rivers that drain into the Atlantic Ocean to flow to the coast near the location of the deserts where water is needed. Such a natural diversion would utilize the efficient principle of Water-in-Water Conveyance. Great rivers of fresh water, confined into thin-walled arteries can be transported extremely efficiently over long distances. With fresh water being 2.7% lighter than salt water, the diverted rivers would simply flow on the surface of the oceans, separated by 'thin' membranes and protected by simple wave-breaker barriers along the way. Almost any volume of water can be transported that way.

The efficient option

We find the water-in-water-conveyance principle already applied in the natural universe in the largest water-transport system on the planet, called the Great Ocean Conveyor Belt that distributes vast amounts of heat, minerals, and CO₂ across the planet.



The Great Ocean Conveyor Belt consists of a network of warm ocean currents (red) that flow into the Arctic and Antarctic. In the Atlantic Arctic region, for example, the warm water gets cooled and increased in salinity by evaporation, to the point that the cold water sinks. As it sinks, it starts a worldwide network of deep coldwater stream that gets conveyed around the world, some into Indian Ocean, and some into the Pacific Ocean, where it gets reheated and starts a return path.

In the North Atlantic the system is driven by the warm water from the Gulf Stream. As the water cools in the Arctic and increases in salinity by evaporation, it sinks into an encapsulated basin of cold water that is confined by the Greenland-Scotland Ridge - an undersea barrier between East Greenland, Iceland and Scotland. The gaps in the ridge enable the main body of the basin to flow into the North Atlantic Ocean to the south. The flow is powered also to some degree by the down-slope of the undersea barrier. The conveyance is so efficient that the cold water stream flows all the way to the Antarctic before it flows from there into the Pacific and Indian Ocean where it warms up again.

This system is huge. The North Atlantic loop all by itself moves 8.5 million cubic meters of water per second, that's almost 40 times the average flow rate of the outflow of the Amazon River, or 1,500 times of the NAWAPA diversion rate. This entire huge water conveyor belt from the Arctic to the Antarctic appears to be powered by nothing more than a minute difference in the salinity of the seawater to about 35.25 from the normal ratio of 34.88 in salinity units (grams of salt per liter) while the temperature drops in the process from 8.5°C to 2°C or less before the water begins to sink. The resulting flow in this system is so immense that it carries with it 300 million kilograms of salt per second, and distributes over 300 million megawatts of thermal power in its flow.

The water-in-water conveyance principle that we see in action here, is the most efficient principle for water transport that is available. It reflects the Least Action Principle that governs all natural processes in the Universe. Thus, the same principle is evidently also the most efficient principle for bringing fresh water into the American and Mexican deserts. For this purpose the diverted fresh water would flow in large-diameter submerged arteries (thin-walled 'hoses') as an application of the same principle than enables the efficient movement of water throughout the oceans by the Great Ocean Conveyor Belt.

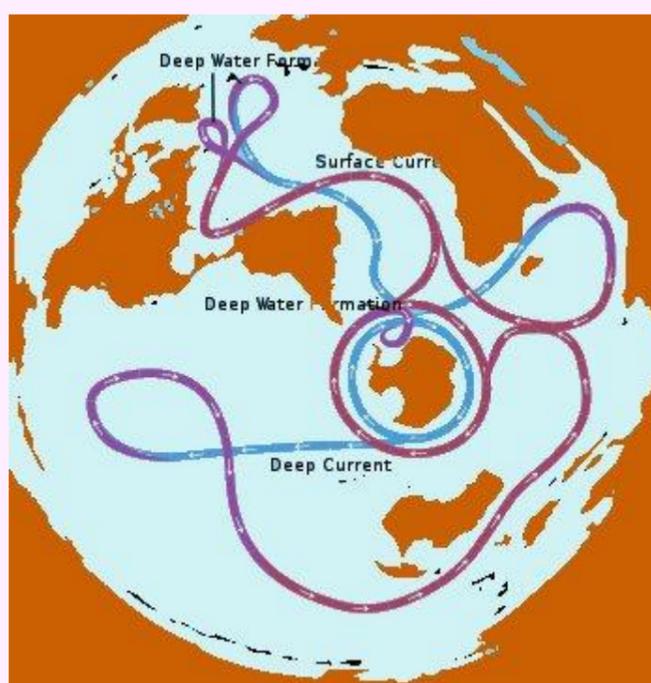
For the application fresh water would be conveyed within thin-walled pipelines of large diameters, made of woven basalt in automated industrial processes. The pipelines would be placed into the oceans by which the water transport infrastructure would operate with near-zero pressure differential, and would operate efficiently over long distances, like the conveyor belt. The NAWAPA objective could thereby easily be met by simply diverting some of the outflow of one of the great southern rivers, such as for example the Orinoco River in Venezuela (that dumps 850 million acre feet per year into the ocean) into the dry U.S. and Mexican

desert regions, where the water is needed. The Orinoco River in Venezuela, presently dumps more than six times the amount of fresh water into the oceans than the NAWAPA project aims to transfer from the North. The water-in-water transfer from the South could, for example, be channeled across the Gulf, and via a 50-mile sea-level tunnel across Panama, and from there to the north North, to the North American deserts. All this could be accomplished with relative ease and with a far greater volume potential than the NAWAPA plan presently envisions or ever could provide for the lack of available water in the North.

A small pilot project might be run initially, up the West Coast to divert the outflow of the Columbia River or from the Fraser River, or from a collection of lesser rivers, that all presently flow unused into the Pacific. These all by themselves would provide several times the water resources than the northern sources would or could ever provide. The Columbia River presently dumps 200 million acre feet of water per year into the ocean. That's twice the NAWAPA delivery rate to the US South and Mexico.

By the same principle, the water outflow of the Congo and Amazon rivers could be diverted to irrigate the Sahara Desert, and so on. Also the resulting water-in-water transfer system, when applied for uplifting the American and Mexican deserts, could be build in a small fraction of the envisioned NAWAPA development timeframe. In addition, the Least Action Principle would also be applied to the construction of the water transfer system. In accord with this principle, the transfer system would be produced almost entirely with automated industrial processes, utilizing nuclear power for process heat and basalt for its feedstock. Basalt is a hard volcanic stone that is 10 times stronger than steel, is none-corrosive, melts at 1400 degrees C., can be extruded into fibers for weaving, and is infinitely abundant on the planet in vast surface deposits.

Nor would this type of water transfer project be vulnerable to the potentially near glaciation transition that would immediately disable all the arctic rivers, and thereby disable the water diversion project. However, the protection of the project from the Ice Age glaciation isn't the main factor for choosing the water-in-water conveyance of fresh water from the South. The main factor in this change in focus would be to utilize the most efficient principles to achieve the NAWAPA objective to irrigate the deserts and so on. NAWAPA would thus become a part of a global project. Vast networks of global water distribution arteries would thereby become easily possible, constructed of woven basalt produced in automated industrial processes. And this too, would be just the beginning of what comes to light if we seriously face the Ice Age Challenge to create the kind of renaissance that would ultimately meet this challenge, regardless of how distant or how close the next Ice Age glaciation cycle may be. In the pursuit of this path, also still bigger factors come to light that have the potential to give us the brightest renaissance ever imagined. A big one of these factors is also related to the Great Ocean Conveyor Belt.



<http://www.whoi.edu/oceanus/viewArticle.do?id=20727>

It appears that the belt is not exclusively powered by the weight differential of waters with differing salinity and temperature. The evidence suggests that the main driving force is an electric engine. The above image shows the Antarctic continent being encircled with both a warm water stream and a deep-layer cold water stream, both of which flow in the direction of the rotation of the Earth, and flow thereby faster than

the Earth itself, which means that the Great Ocean Conveyor Belt is actively powered, and is potentially powered by the same process that powers the jet streams and also the rotation of the Earth.



An extremely simple universal principle exists that makes this type of phenomenon possible. This principle is the principle of the homopolar motor. A homopolar motor causes mechanical movement of an electric conductor that crosses a magnetic field and has an electric current flowing that at some point is not parallel to the magnetic field (though ideally perpendicular). This very condition exists at Antarctica. At the distance of the ring around Antarctica, the Earth's magnetic field lines are offset against the electric flow, flowing into the Earth, causing the rotational movement of the ocean currents and potentially the rotation of the Earth itself by the same principle. The homopolar motor was the first device ever created (by Michael Faraday in 1821 at the Royal Institution in London) to produce rotation from electromagnetism. Faraday used mercury for a conductive liquid instead of water as in the case of the Great Ocean Conveyor Belt, but the rest was essentially identical, though not in scale.

Looking to the future

The evidence that we see here suggests the presence of far greater electric power resources surrounding the Earth than we are inclined to acknowledge. Thus we find one more item of evidence that tells us that our energy future is immensely bright if we care to develop the science and technologies to connect ourselves into the galactic electric energy grid that for all practical consideration is an unbounded and inexhaustible energy resource.

It is generally understood in Electric Cosmology that the homopolar-motor effect is the driving force for the rotation of the galaxies, and also for the orbits of the planets, and the rotation of the planets themselves including the rotation of the Sun. In this view the entire Universe is seen as actively powered by electric forces, instead of being entropic in nature and thereby winding itself down to its eventual collapse.

That the solar system is electrically powered is evident by the 10-fold decline in orbital speed of a planet with increasing distance. For example, the average orbital speed for the innermost planet (Mercury) is a whopping 47.9 Km/sec, and that of the outermost planet (Pluto) is a mere 4.7 Km/sec. This difference reflects the difference of the magnetic field strength of the Sun between the inner and outer planets, since the field strength is reduced with increasing distance. In the same manner do the planets' rotational speeds correspond with their own magnetic field strength. The planet Venus, for example, has an extremely weak magnetic field, almost none at all, which results in a rotational speed that is so slow that its day on Venus (one revolution of its spin axis) is 5832 hours long (or 243 days). All of these effects correspond with the principle of the homopolar motor, which operates by the interaction of flowing electric currents and magnetic fields. Of course, none of these effects would be observed if the solar system was not located in a wide field of flowing galactic electric currents.

That the rotation of the galaxy itself is electrically powered by the principle of the homopolar motor is evident by its shape. The shape of a galaxy reflects the same characteristics that are evident in the solar system, where it has been observed that the orbital speed of the planets diminish with their distance from the Sun. In a galaxy the stars are moving away from their galactic center, which is the star-forming region. As a consequence the stars' orbital speed is slowing in relationship with their increasing distance from the magnetic center (the center of the galaxy). As the result a galaxy forms a more-tightly wrapped spiral than

we would otherwise see.

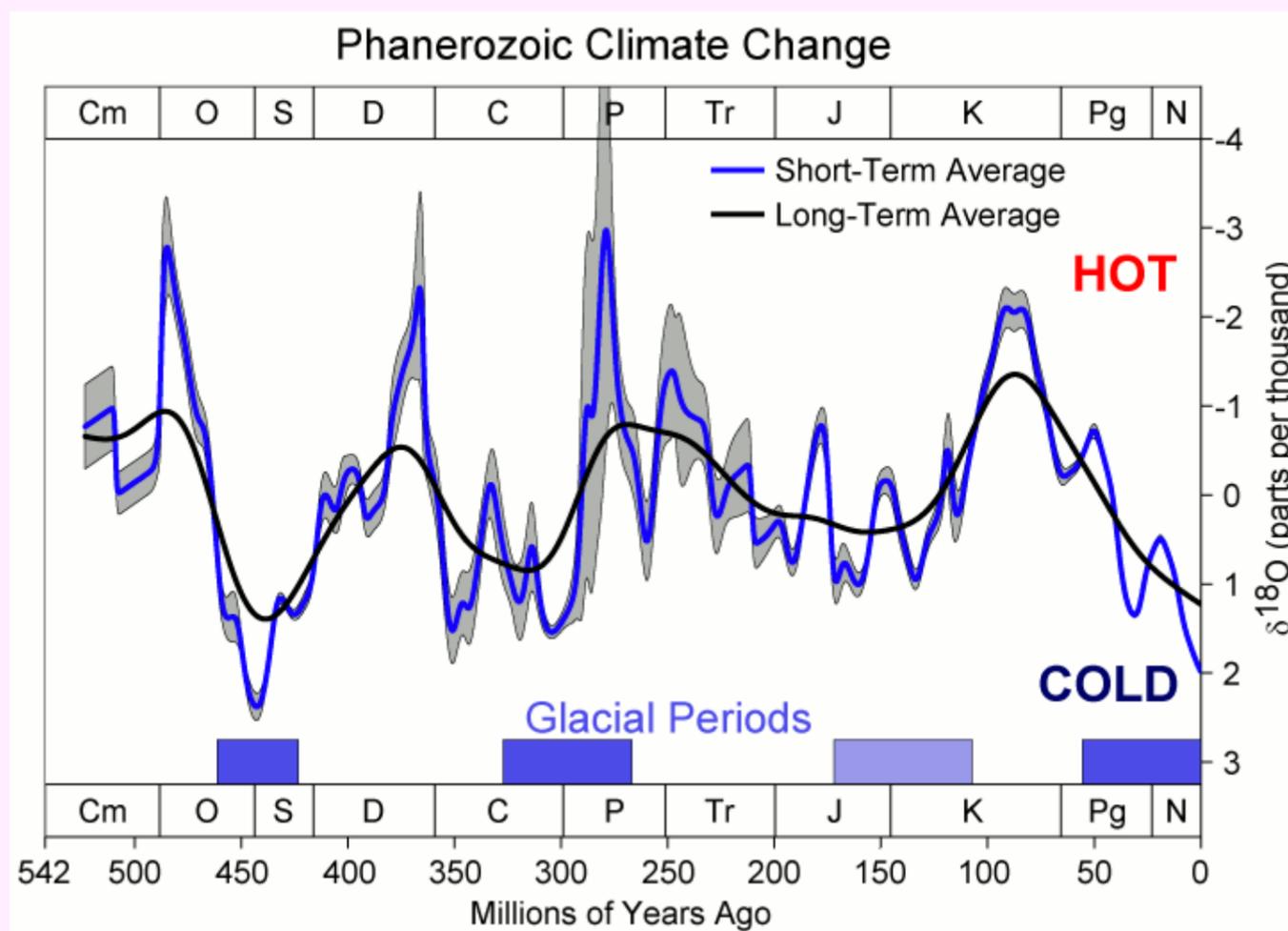


With the entire spiral rotating, as the evidence indicates, it makes no sense to assume that one star within it (our solar system) would orbit the galactic center independently and cross through the galactic spiral arms in predictable cycles. But this is precisely what the observed great ice age cycles (appr. 150 million years in length) are based on. This theory is made further obsolete by advanced observations that render the Milky Way Galaxy (our galaxy), not as a structure of 4 major spiral arms and two lesser ones, but as simply a standard barred galaxy as shown below.



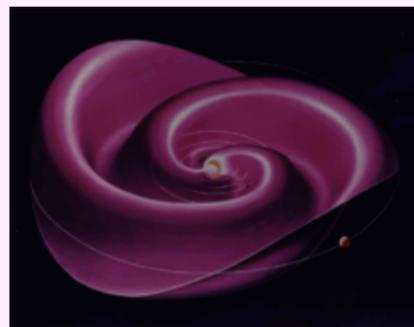
[milky way new map](#)

All the observed evidence suggests that the cycles of our Ice Age are cycles determined by cyclical events outside of our galaxy that affect it with dynamic processes of far-away cosmic electric phenomena. Nor do the observed cycles indicate that the most recent downturn that gave us the current 2 million-years long Pleistocene Ice Age at the end of the Neocene Period where the cradle of mankind is located, is not about to end any time soon. Both cycles are presently at a low point.



[The four major glaciation cycles](#)

The above diagram also indicates that shorter cycles of lesser intensity are superimposed over the 150 million year cycles, that are dominant. Some theories have it that the shorter cycles are caused by the solar system bobbing up and down across the galactic plane (ecliptic) as it orbits around the galactic center. It is believed that this 'bobbing' brings the solar system periodically across the line of the galactic termination shock on the side where the closest neighboring galaxy is located. This theory is faulty as the bobbing action can only be explained as a phenomenon caused by electric action as we see it reflected in the wave action of the current sheet that extends across the solar heliosphere.



[heliospheric current sheet](#)

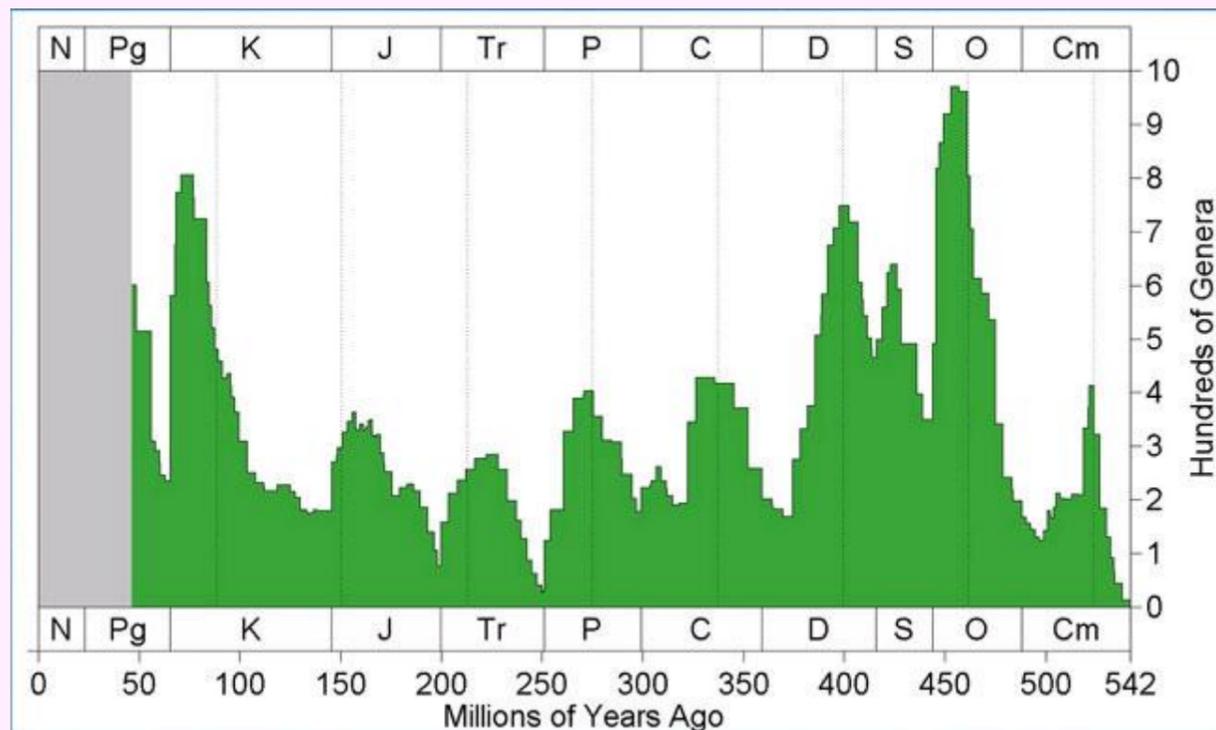
Electromagnetic interaction with the 'spinning' solar magnetic field, causes wave actions of the electric current to occur, relative to the solar ecliptic, as the current flows within the solar heliosphere towards the Sun. Similar types of wave actions must be expected within the larger 'heliosphere' in which our galaxy is located. In this case the galactic spiral arms are the current sheet. Consequently we would find similar wave actions occurring in a galaxy, affecting the stars relative to the galactic ecliptic plane, resulting in electric density variations and corresponding cosmic-ray density variations that we see secondarily reflected in the short cycles superimposed in the above graph, over the long 150-million-year cycles.

All of this tells us two things. 1 - That the entire Universe is electrically powered. 2 - That we are the 'children' of the Universe, as we find ourselves maturing by the increasing cosmic-ray density that causes the ice ages.

The Universe is offering us great capabilities through scientific development. Let's not reject those gifts, simply because they don't fit into the Old World

concepts and perceptions.

It has long been known that the ice ages are climate cycles that correspond with increases in cosmic-ray density reaching the Earth, and that these are affected by the prevailing electric-current density that causes the solar heliosphere to expand or shrink, which in turn attenuates the incoming cosmic-ray particles. It is further known that the biological development on our planet increases with increases in cosmic radiation, and that mankind 'grew up' in the latest high-intensity period for cosmic-ray density that corresponds with the lowest temperatures and produced the greatest bio-diversity. This knowledge tells us that we are indeed the Children of the Universe, the final product of a long chain of progressive steps of development that is influenced by the Universe itself.



[bio-diversity changes](#)

In logical progression of this trend we can expect mankind to make major advances in biogenic development and cognitive perception since our heliosphere is presently shrinking and an increase in cosmic radiation is being measured. On this basis we can expect to see rapid movements towards increased technological application, especially of already discovered principles, such as high-temperature nuclear-powered automated industrial processes, for the fabrication of basalt products. We will see these processes massively utilized in newly unfolding eras of economics that thereby become enabled. We will see thereby long-distance water-in-water conveyance enabled, and intercontinental floating bridges being built, and floating agriculture in the tropics created that all by itself would massively increase the power of the biosphere and mankind's food supply. On this platform free housing would not only be possible, nor even be inevitable, but it will happen in parallel with everything else along the line of mankind's progressive moral and spiritual development. In the same context, we will also see us availing ourselves of those boundless galactic electric-power resources that are literally laying unused at our feet. The only thing that we will not see happening in the already unfolding progressive environment of new discoveries, is a stepping back to the reliance on old labor-intensive technologies and primitive principles, and to self-limited projects, such as the North-to-South NAWAPA water transfer project that is potentially a dead-end project.

For the few years it may take society to get its galactic-energy development on line that it has within its grasp, mankind has vast resources of thorium nuclear-power available to it. America, for example, has over 900,000 tons of it in known resources. Thorium provides an energy yield that is equal, ton for ton, with the fabled nuclear fusion fuel for which no efficient process exists for its application. Nuclear fusion power is not possible as no principle exists that would enable it, as such processes for power production aren't happening naturally anywhere in the Universe. The Universe is electrically powered, including our Earth, and also its major ocean currents and its jet streams that power the thermal distribution patterns around the world. Moving backwards and closing the door behind us, as in the case of the North-oriented NAWAPA direction, is not something that will likely happen. Mankind is a progressive species reaching out to evermore powerful technologies, materials, and energy-dense production (such as automated industrial production) and liberating

processes (as providing free houses and massive increases of food resources). Since this direction corresponds with the native capacity of the human being, we will see all of this happening. On this future-oriented path, with a profound dedication to progress, the system of empire that has ruled mankind for far too many millennia already, will be swept into the trash bin to be seen no more. This is what we will also see happening. Only the timing is still uncertain.

Going backwards and closing the door behind us

Whatever bases the world development policy on the hope that the current interglacial period might last for another thousand years or more, contrary to unfolding evidence, so that society won't have to react in a progressive manner, would force mankind to be gambling with its future existence by preventing the critical focus that is essential at this stage. This 'backwards' orientation would make the present age poorer and in the process prevent the building of the needed infrastructures for mankind's survival in the coming Ice Age transition when agriculture becomes disabled in the northern regions where most of the world's food production presently takes place, including Canada and the northern USA. Much of the current food production is extremely climate sensitive, as has already been experienced, while ice core samples have shown that we should expect large climate fluctuations in the transition period in which the next glaciation becomes established. With the ignoring of this potential, and the promoting of a 50-year development project focused on the high sub-Arctic as a prime factor for world development, mankind's future becomes potentially shifted onto a dead-end project.

We currently have a far greater body of evidence at hand for expecting the near-term ending of the present interglacial climate than we have for assuming that our nicely warm interglacial will continue for another thousand years, or thousands of years. The evidence on hand suggests that all long-term Arctic-focused projects will likely become disabled in short order by the next glaciation cycle, possibly before it even becomes completed. However, if we wait till this happens before we react, we lose the means to respond to the crisis. When agriculture becomes massively disabled by a major cooling erupting over a short period, and this all across the Northern Hemisphere where most of the world's food production is located, the consequences are unimaginable. It will be too late by then to create an alternate resource that takes decades to build the necessary infrastructures for. NAWAPA could take us into the kind of renaissance in which such infrastructures are created and become the focal point, but for this it needs to be southward oriented from the start, being focused onto the tropics, instead of the Arctic. Should this reorientation not occur, NAWAPA would unfold as a crime against humanity, as it would close the door to the critically needed infrastructure preparations in the uncertain length of time span we may still have left to do this in the current interglacial period. Nothing, therefore, justifies actions or projects that grossly gamble with the future existence of mankind by diverting development resources and time to potentially dead-end pursuits on the basis of unprovable climate assumptions. No moral basis exists for such callous gambling. Thus the built-in uncertainty that overshadows the Ice Age transition timing leaves us no option open as a human society, but to yield to the necessities imposed by the ever-changing dynamics of our world. The current failure to respond to the changing climate dynamics potentially endangers the future existence of mankind. And this is simply too great a factor to gamble with.

The coming glaciation transition timing is of a type that no one can predict. As Professor Zbigniew Jaworowski, (M.D., Ph.D., D.Sc., and Chairman of the Scientific Council of the Central Laboratory for Radiological Protection in Warsaw) states in his paper "The Ice Age Is Coming" (published in the 2003 Winter Edition of 21st Century Science and Technology), that the next Ice Age transition to glaciation is already slightly overdue by half a percent, though it might still be 50 to 150 years away according to some scientists' projections that he quotes. He also states that while the transition periods themselves are typically short, in the range of 1-50 years in duration, we need to be prepared as the transition might begin any time and without warning.

Evidence suggests that a slow transition might have already begun. Nothing therefore, justifies our ignoring of Jaworowski's warning, especially in consideration of the man's high standing in the scientific community, who has devoted 50 years of his life to exploring this very issue with hands-on experiences in examining ice core samples on six continents. Certainly, nothing justifies the devoting of the economic resources of an

entire nation to a 50-year project that stands in total defiance of his warning with vast genocidal consequences arising for mankind if the critical development period becomes thereby wasted on a 50-year effort of building a dead-end project like the currently promoted North-focused NAWAPA project.

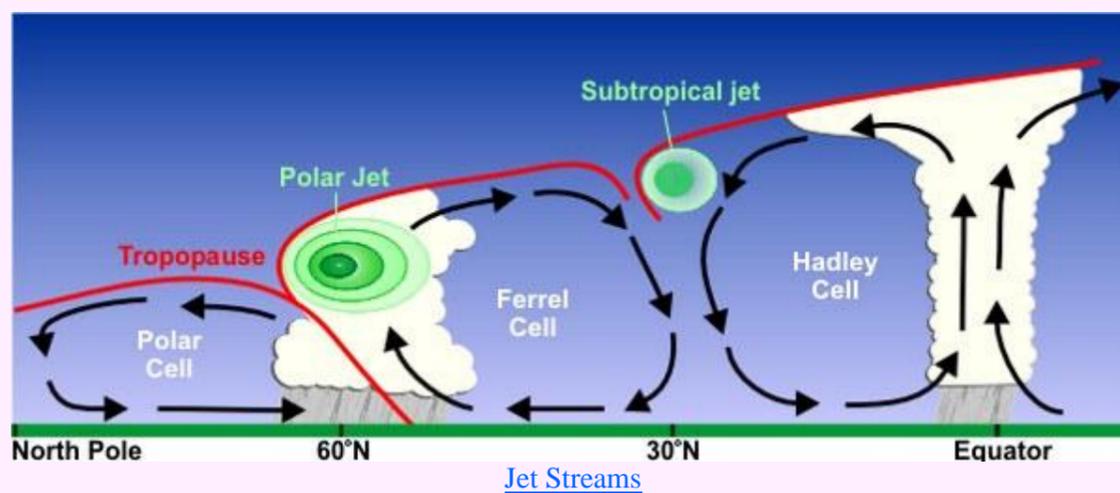
A rational NAWAPA development project for the coming Ice Age glaciation period would involve the large-scale mobilization of the human potential for massive industrial applications of automated high-temperature processes, utilizing nuclear power (thorium) and basalt as the typical feed stock, with which to mass produce the needed Ice Age Renaissance infrastructures. Some of the resulting products would serve the submerged water diversion projects to irrigate the southern deserts. Other products would serve the automated production of high quality housing at a 'cost' so low that they can be given away for free as an investment by society into itself - for example, for the building of new cities in the deserts. A vast expansion of low-cost (ideally free) high-quality housing is currently urgently required to meet a critical need in human development and to end rent-slavery. This need can be easily met with nuclear powered automated industrial production, and basalt as a feedstock. The cost would be so low that the needed houses would be provided for free as an investment by society into itself. A single well-optimized plant, powered by the heat of a one gigawatt nuclear reactor, would be able to mass produce completely manufactured modules for 15 million houses per year, if not more.

The same automated production processes would also be able to mass produce large-scale modules for floating agriculture to be staged in the tropical oceans. Such infrastructures are potentially ideal since they are more easily produced in automated processes than the deserts would be converted to food production by conventional means. Also the tropics are ideal for plant growth as the jungles testify. In addition, the water resources for the floating tropical agriculture are plentifully available, such as from the outflow of the Amazon River and Congo River. Thus, in the tropics, where water, warmth, and sunlight are plentiful, and where the CO₂ concentration is higher than anywhere else in the world - all critical factors come together for a rich agriculture with multiple harvests per year. These conditions are evidently the reason why the profusely rich jungles are all located in the tropics. It is evidently highly advantageous to locate much of the global agriculture into this region in preparation of the coming glaciation environment, and even before it, for the CO₂ factor.

The CO₂ factor is as critical to plant growth as are warmth and sunlight. The current global CO₂ average, in the 350-ppm range, is a starvation level for plant growth, which is evident by greenhouse operators achieving 50% increases in plant growth by merely doubling the CO₂ concentration. During the glaciation environment the CO₂ level becomes typically diminished with the corresponding effect on agricultural yield. At the 200 level plant growth grinds to a halt. While we won't likely see that kind of massive reduction any time soon, as this occurs typically only during the deep glaciation period, we won't know how much of a reduction in plant growth the colder climates will impose on us during the transition period. We only know that the richest concentration will always be found in the tropics for reasons that colder arctic waters absorb CO₂ from the atmosphere that typically becomes released again in the warm waters of the tropics in an endless and rather massive natural cycle. There is 50-times as much CO₂ absorbed in the oceans than is contained in the atmosphere from where it supports plant growth. The CO₂ that becomes used up by plant growth typically becomes re-supplied into the atmosphere from the oceans in the tropics, and from other sources. Some CO₂ is naturally lost in the oceans through chemical processes of mineralization. A portion of that is returned through volcanic action. In early times the atmospheric CO₂ concentration was significantly higher.

Jaworowski states that the CO₂ concentration was 18 times higher, 440 million years ago, during the Ordovician period when the major land-based plant growth began, and was still 6 times larger than now in the Eocene period 50 million years ago when vast forests covered much of the world that later gave way to the grass lands as the CO₂ concentration diminished. This consideration makes the focus onto the tropics, where the CO₂ concentration is the highest, of special importance for agriculture in preparation for the coming glaciation.

The tropics are also rich in natural irrigation due to the converging of the air currents from both the North and the South and the air currents rising in the intertropical convergence zone.



With the coming glaciation transition potentially near, it makes no sense at all to put the development focus onto the arctic, especially for water diversion from the North as precipitation is modest to low in the higher regions in the range of 20 inches per year, while it makes a lot of sense to direct the development focus onto the tropics. The NAWAPA focus should be on the tropics, at least until it becomes possible to derive nearly 100% of our food requirements from self-contained indoor agriculture with scientifically controlled artificial environments.

If an honest NAWAPA approach would be pursued, its focus would be onto the tropics. In this case all the northern nations would invariably join the project, whose territory would become agriculturally disabled almost immediately during the onset of the glaciation transition period. Such a partnership would include Canada, Russia, all of northern Europe, China, Korea, and Japan. Many of these countries would see their territories quickly becoming snow and ice bound and too cold for agriculture, for which they would find their future located in the tropics and in the tropical regions of Africa.

A global tropical development project would naturally also include the laying of floating bridges across the oceans linking the continents of Africa, the Americas, and Asia, both to serve the tropical development, and to serve the development of Africa. To focus onto the Bering Strait tunnel project for a link between the continents, makes absolutely no sense under current climate dynamics, when the focus needs to be away from the Arctic and onto the tropics. Apart from this critical factor in focus, it would be far quicker to lay a floating fridge across the Pacific with modules produced in automated, nuclear-powered processes, than building the northern route by drilling a 50-Km long tunnel under the Bering Sea. Also, the floating bridges would be more capable to meet the transportation needs between the continents in a vibrant economic environment. But more importantly, the floating bridges would serve as a vital support infrastructure for the development of the floating agriculture across the tropics.

Considering that these kinds of infrastructures are critically needed, even now, especially in a world in which we have over a billion people living in chronic starvation already in the most ideal climate that is still prevailing, it makes no sense to ignore these needs and pour large development resources into the arctic instead in a potential dead-end process. The currently intended massive diversion of resources into these mis-oriented potential dead-end projects, should be deemed a crime against humanity under the present circumstances, while a correct orientation would open the door to the greatest renaissance ever developed. This re-orientation towards a real future, with free universal housing, secure and ample food resources, and unlimited energy supplies from nuclear and galactic sources, would open the gate to a future with a humanist power that is barely imaginable, in which the next glaciation cycle would not pose a problem and have no sting. Until this necessary shift in focus occurs, however, the politics of the present age, the age of empire, will likely remain tied into knots, for no major incentive exists in the current dynamics to increase the humanist intensity.

Rolf A. F. Witzsche

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