Galactic Man: Shadow versus Principle

The following is a transcript of the May 6, 2015 New Paradigm for Mankind show (https://larouchepac.com/new-paradigm), featuring Megan Beets, Ben Deniston, and Liona Fan-Chiang of the LaRouchePAC Science Team.

Megan Beets: The topic of our discussion today is the responsibility for defining a clear conceptual direction for the mission of mankind. And that's not something that 99% of the population even comes close to thinking about, or believe that they should be thinking about. But that's human. That's a human responsibility. That's the responsibility of a kind of creature, a kind of species, which is an immortal species, which has the possibility to contribute something and define something after their mortal life is over.

So that's what we're here to discuss today. What are the true principles, what are the true controlling universal principles, which define our actions here on Earth, and will define new, and open up new, possibilities for action, perhaps beyond the Earth? And that's why Lyndon LaRouche has put so much emphasis on the recent work that you've been doing, Ben, on the water cycle, and locating the terrestrial water cycle within a larger system which is governed by a principle which we have yet to completely master and discover, which is this galactic principle. So I'll let you elaborate.

We Live in a Galactic System

Ben Deniston: I thought today it would be good to go through a bit of an elaboration of this. For maybe a little more than a month now, we've been developing this renewed focus on the role of the galaxy in shaping the water cycle, climate, weather on Earth, especially in the context of the drought in California, and the growing water crisis. We've put a lot on the table in the last month. I thought, given the work we've done, it would be a good opportunity to go through, and add some more depth to various aspects.

What I'm going to go through is broken up into three parts. I have a lot of graphics and visuals to go

LPAC-TV

Ben Deniston

through this. We really want to continue to develop this as a coherent picture. We've started to develop, and Mr. LaRouche has picked up on, a revolution, an understanding in a completely new way, that we exist not just on Earth, obviously—people have known that. We live in the Solar System. You can't isolate Earth from the Solar System. Kepler showed us that. It's not new.

We've known that we live in a galactic system, but the way that's been treated and understood, is that there's this vague, big, empty space out there that we're kind of in the middle of, that has no real relation, or influence, on what we do here on Earth. It's kind of "out there," outside. Maybe some academic people will talk about it, but when it comes to day-to-day activity, people don't think about the fact we're living in a galaxy.

Well, what we're seeing now, with this water crisis, is the failure to approach it from a competent standpoint—we have to understand this. And the failure right now to understand these processes on Earth, including the water cycle, as being driven by these higher processes—it is mankind's challenge now, today, at this point in history, to begin to tackle that, and understand that.

With that new capability, as I want to really develop here today: We're talking about a completely new relationship that mankind can have to the system. We're not talking about just how to get a little bit of water. This is not some small thing, where we can just kind of quickly get a little bit of water here, and help out a little bit. We're talking about opening up a whole new potential where mankind can manage the system in a completely new way, from a completely new standpoint.

And it is this galactic standpoint: from the standpoint of the principle of the galaxy, as a subsuming system, which encompasses and defines the Solar System as a subsumed process, and then the Earth therein, as a subsumed process. That it's really mankind making a certain creative leap, understanding the role of the galaxy, which enables us to then act differently, to have new powers here on Earth, and then to solve all these problems.

So, I want to go through three phases of developing this for people, so we can have a solid presentation of what we have so far, as the picture of this new galactic frontier. We're in the galactic frontier; we just have to *realize* we're in the galactic frontier.

To start, picking up from some of what we discussed on the Friday webcast, I think it's by emphasizing the concept of shadow versus principle. People see weather phenomena, people see aspects of the water cycle. You see clouds, you see evidence for how water behaves in the atmosphere. You experience rainfall. You experience these things.

But these are really shadows. They're things created. They're not self-determined. They don't create themselves. We depend upon their effects, and we depend upon our ability to manage their effects. That's what's enabled us to grow and develop as a species. But they are effects. They're shadows of something.

Up until this point, it has been assumed, largely, that you're just talking about an Earth-Sun interaction. The Sun evaporates water; it heats the atmosphere. It provides atmospheric water vapor by evaporating from the oceans. And then various processes on Earth are involved in how that water behaves, and how it moves through this cyclical system.

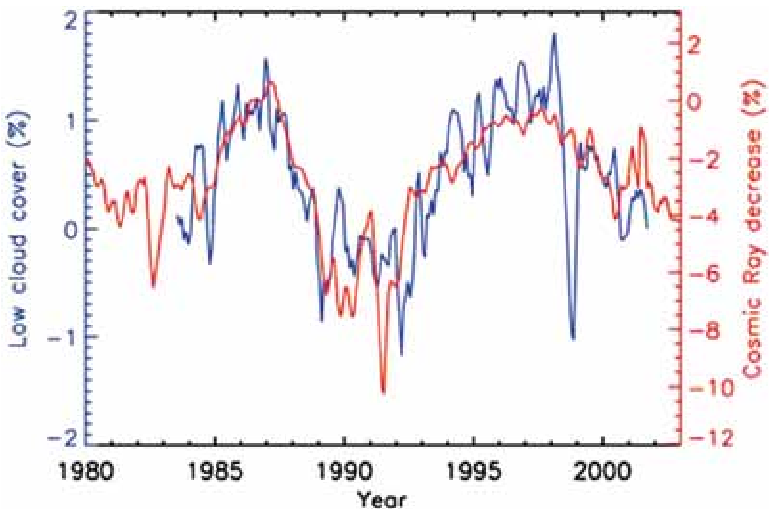
Until recently, aside from the work of a relative handful of scientists, that's been it. It's an Earth-Sun system. Those are the factors at play. There's nothing else going on. That's what defines the system. You have a lot of variations. You have the role of the oceans on Earth; you have the role of life on Earth, but these are all sort of subsets, or components, of this Solar System process. This interaction of what the Sun's doing and what the Earth's doing, which creates these shadows, these effects. They determine what the water cycle does, how the water cycle behaves.

But, what we see is that we have deviations in these shadows. These shadows behave differently than we would expect, by this prior hypothesis. We see variations in how these shadows behave, how the water cycle expresses itself, which we cannot attribute to just this current conception of how the Sun and the Earth interact.

Outside the Solar System

Just to really make this clear, I have a series of studies here that I want to go through. The first sequence here, is just to illustrate how we see this deviation, this variation, in the activity of the water cycle, of these shadows, across all time-scales: in the course of short time-scales—years, decades; on the scale of centuries; on the scale of thousands of years; on the scale of millions and hundreds of millions of years. Over this huge, vast sweep of different time-scales, we see variations which we cannot attribute to the current understanding of the activity of a Sun-Earth interaction, but point us instead to the galaxy, to the galactic system, to

FIGURE 1



Now, again, by the prior conception, the role of this magnetic activity of the Sun should have no effect on how the water cycle behaves, how the climate works, how weather behaves. They limit it just to the heating effect of the Sun, the direct sunlight; that's supposed to be the only influence the Sun has on the Earth's water system, the climate, etc. The magnetic field shouldn't have an influence, according to the prior conception.

But we see that the magnetic field *does* have an influence in modulating how much of this galactic effect comes in.

So, this created a big stir. It got a lot of the people who are part of the Church of the IPCC [Intergovernmental Panel on Climate Change] really freaked out, these religious adherents to the doctrine of Prince Philip and his like, that mankind is having catastrophic, devastating effects on the climate by driving cars, and trying to provide electricity for people. That whole insane, genocidal framework was rather worried when it came out that we're seeing the evidence that major variations in climate are not attributed just to man's activity, but to the activity of this cosmic process, this cosmic input.

People probably know something about this, probably heard something about this role of cosmic rays, galactic cosmic radiation, in affecting cloud formation.

Beets: And these low-level clouds have an effect on global temperature, right?

Deniston: Right. They showed that a very small—a couple percentage points—change in the amount of low-level cloud cover, can have a huge effect on the global temperature. So the crazy Church of the IPCC goes into these crazy twists and turns, to try and amplify the effects of CO_2, to try to come up with some scheme to claim that the increase of this tiny trace gas in the atmosphere is having catastrophic effects.

Meanwhile, a tiny variation in cloud cover plays a huge role in controlling how much sunlight comes into the Earth.

the input from the galactic environment creating the conditions which control these shadows, control these effects.

So, I have a series of graphs from studies which show this across these successive time-scales. We're going to take our minds back in increasing lengths of periods of time, to show that we keep seeing these variations, pointing to this other principle, this other factor, outside of the Solar System itself.

Figure 1: This is a graphic showing the relation between galactic radiation, radiation coming in from the galaxy, as the effect of the galactic system impinging on our atmosphere, affecting Earth's environment, showing the variation of that, with the variation of low-level cloud cover.

This is something that really stirred a lot of excitement when it was published, led by the work of Henrik Svensmark, a Danish professor, and some of his associates. It showed that variations in the flux of galactic cosmic radiation, activity from the galaxy, directly relates to variations in low-level cloud formation and cloud cover.

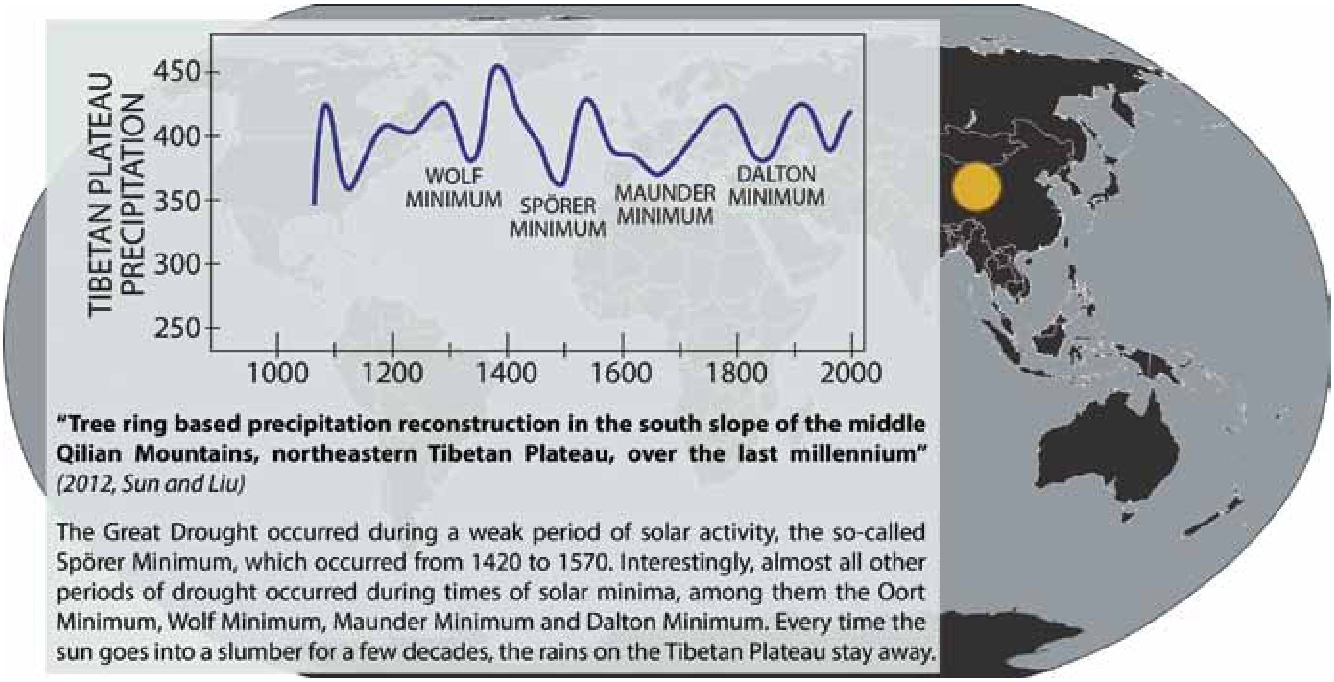
This, in particular, is also related to variations in solar activity, because the Sun plays a major role by its magnetic influence, in shielding the Solar System from this galactic influence. So, think of the Sun as creating a force field, a magnetic environment, around the Solar System; and as the Sun strengthens or weakens, that force field, that surrounding magnetic field, changes how much influence we get from the galaxy. So this is the Sun playing a certain role in modulating the amount of this galactic influence on the system.

The Sun's Magnetic Activity

Beets: And the magnetic activity of the Sun varies a lot more than its light.

Deniston: Yes. According to our current ideas, the amount of sunlight, technically, the electro-magnetic radiation, the radiation that comes at the speed of light—infrared, visible light—the total amount of energy

FIGURE 2



coming from that, doesn't seem to vary too much. But the magnetic field goes through wild fluctuations.

It's pretty incredible that the Sun's magnetic field reverses about every decade. You think of the size of the Sun. If you've seen the Sun compared to the Earth in scale, you're thinking of a system that big, on not a geological time-scale, but on a human time-scale. In ten, eleven, twelve years the Sun goes through a complete pole reversal in its magnetic field. It's really a remarkable process going on.

So the Sun—you look at it in the sky, it doesn't look as if it's doing too much. It's doing the same thing today that it was doing yesterday. But if you look at it with the increasing sophistication of our new instruments, to measure its magnetic effect, to measure its atmosphere, and various other conditions created by solar activity, you see it's going through wild variations. It's a pretty active player.

But our interest here is in the fact that it plays kind of a gatekeeper role in modulating the galactic influence, which is what we're most interested in, and we'll get into in the second and third parts of this discussion. This galactic influence is the critical factor that's giving us new insight into what the system is, but then also, a new potential to manage that system, from this galactic insight, from the insight into the principle of the galactic system.

Anyway, to set that up, we have these things. These are deviations. These are anomalies. What you're looking at here is an anomaly relative to the current understanding. There shouldn't be a relationship, under the current mainstream framework, between cosmic ray flux, and cloud cover. And because of the danger this poses to the man-made global warming scare, you see people going nuts, and trying to attack this thing, but, we see the effects.

So this is an anomaly, and this is one, again, that stirred up a lot of commotion over the past couple of decades now—that people can demonstrate this effect.

I want to take this as a starting point. This is from 1980 to 2003-04—this is a couple decades of activity, where we see the behavior of clouds, which are part of the water cycle in the atmosphere—the behavior of clouds varying with these variations in the galactic influence, the amount of influence we get from our galactic system.

Broader Time-Scales

Let's take this to broader time-scales, one or two examples from a succession of time-scales, where you see a consistent expression of these deviations, these so-called anomalies, from the earlier framework.

Figure 2: This is one that I've identified a couple times on these shows. It's one of a number of studies

that show precipitation, also climate and temperature, varying in direct correspondence with the amount of galactic influence, which, again, is associated with how active the Sun is.

But here we're not talking about the last two and a half decades. We're talking about the last 1,000 years. So, we looked at one small time-scale, decades; now we're looking at 1,000 years, a larger time-scale, within which we would still expect these decadal variations to occur. But on top of that, we now see evidence of large variations, within which the smaller variations are nested.

So, we see over the past 10 centuries, the past 1,000 years, here in particular, variations in precipitation, the amount of rainfall on the Tibet Plateau in China, corresponding directly with periods when you get very low solar activity, and high galactic influence. And when you get this high galactic influence, in this particular region, you get lower precipitation; you get drought. And you see that consistently across these minimums, these periods when the Sun got really weak, that allowed the galaxy to have a stronger role in the system. And, corresponding with that, we see variations in rainfall, precipitation, and periods of drought corresponding to this increased galactic influence.

Again, let's take a kind of trip across these time-scales. We see the decadal variation; now we see variations corresponding to the time-scales of centuries.

We can keep going farther. **Figure 3:** This is a depiction of the variation in the galactic, cosmic radiation, and the variation in rainfall, measured in Oman on the Arabian Peninsula, from a period of about 7,900 years ago, to about a little over 8,300 years ago. So again, going back ten to twelve thousands of years, you still see there's a very close, direct relationship between variations in the amount of galactic influence, and how these shadows of the water cycle, precipitation, occur on Earth.

This is a total anomaly from the standpoint of the prior framework.

Take another step back. This is now looking at the whole timespan of the last 12,000 years (**Figure 4**). So again, decadal time-scales, time-scales of hundreds of years, and now we're looking at thousands of years.

Now again, we see indications—we have measurements of the amount of galactic influence, the galactic cosmic radiation flux, here in the purplish color. And very tightly associated with that, we see variations in the glaciation effects, the amount of ice flow, and the movement of ice in the North Atlantic.

In particular, this is measuring the amount of debris and stuff brought down into the oceans by ice. As ice moves across the land, into the oceans, it deposits the dirt

FIGURE 3

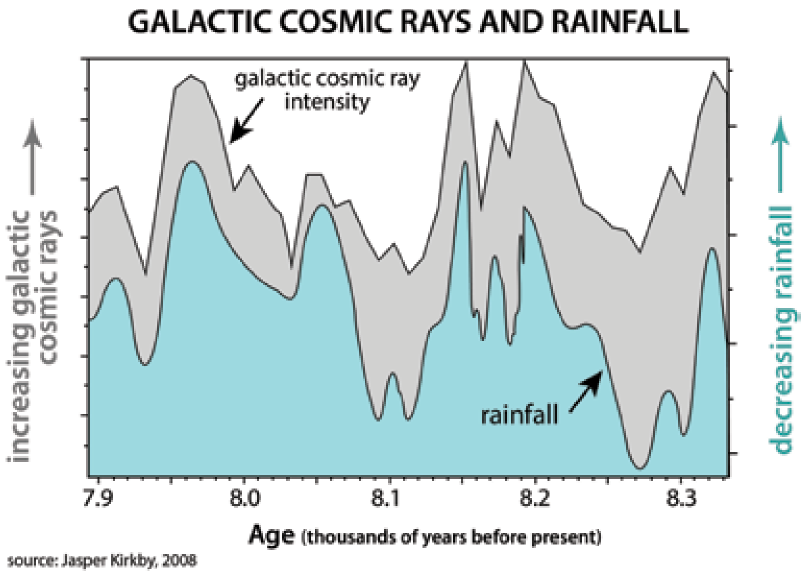


FIGURE 4

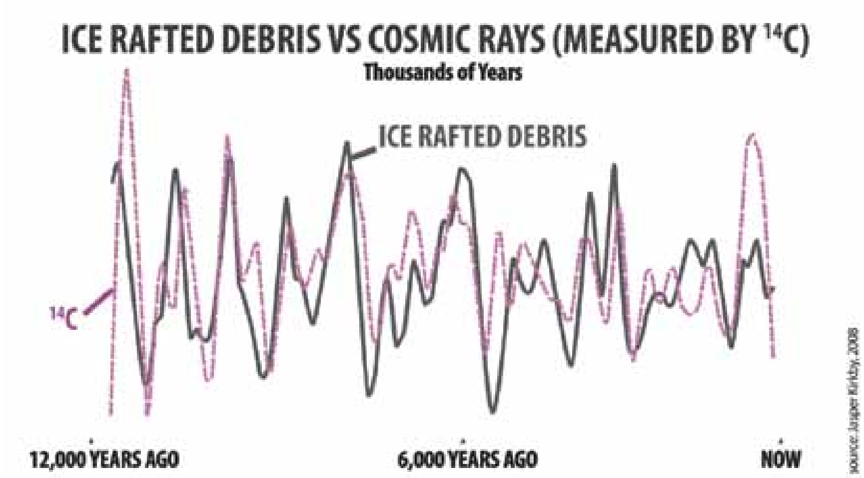
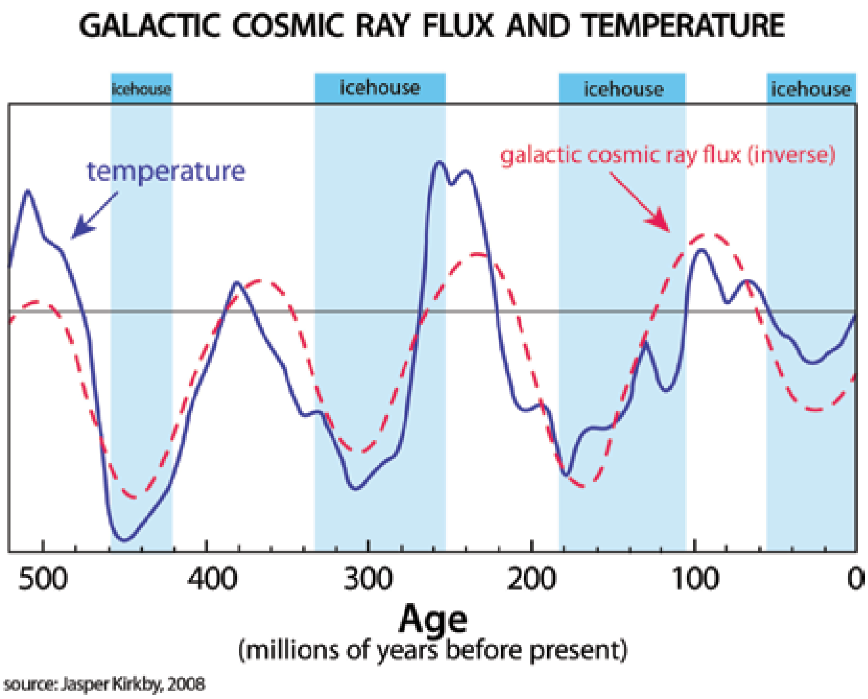


FIGURE 5



and the rocks and the stones that it brings. We're looking at different proxy records, and shadows, that indicate these variations in the climate, and the environment.

So, in this one, in particular, you see a very close relationship between, again, the influence of the galaxy, the galactic system, and how much glaciation and the motion of ice in the northern regions, and North Atlantic, in particular, as recorded by how much stuff it deposits in the ocean.

Again, another deviation, another anomaly. We're starting to see a pretty consistent and clear picture here.

We make a leap, a big leap, and we go to time-scales of not thousands of years, but millions, tens of millions, hundreds of millions of years. We again see variations in the climate, climate records, associated with changes in the galactic environment.

Figure 5: This is one we've discussed a number of times, where we have indications according to our current ideas of how the Solar System moves through the galaxy. When we move through the spiral arms, experience different environments, we see changes in the climate system. In particular, very large glaciation, major global cooling events, associated with regions of more active galactic activity. Associated with the spiral arms, for example, in this study.

You also see variations in the climate, the temperature, corresponding to the motion of our Solar System, above and below the galactic plane (**Figure 6**).

Again, for our viewers who've been watching these shows, these are things we've covered before, but I wanted to go through this sequence, just to make it really clear that you see this on all these time-scales. You see this on time-scales of tens, and hundreds of millions of years, and variations of galactic influence, we see the imprints, the shadows, of that galactic influence embedded in climate records. Nested within that, on time-scales of thousands of years, we see variations in galactic influence imprinted on variations of measurements of the water cycle, glaciation, these things. And nested within that, on hundreds of years, you see the same thing. Within that, on decades, you see evidence for the same thing.

FIGURE 6

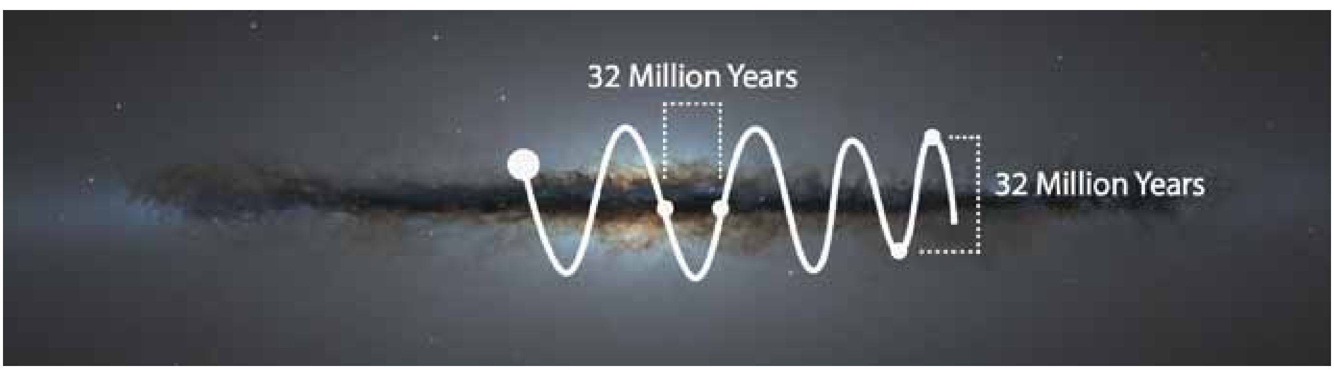
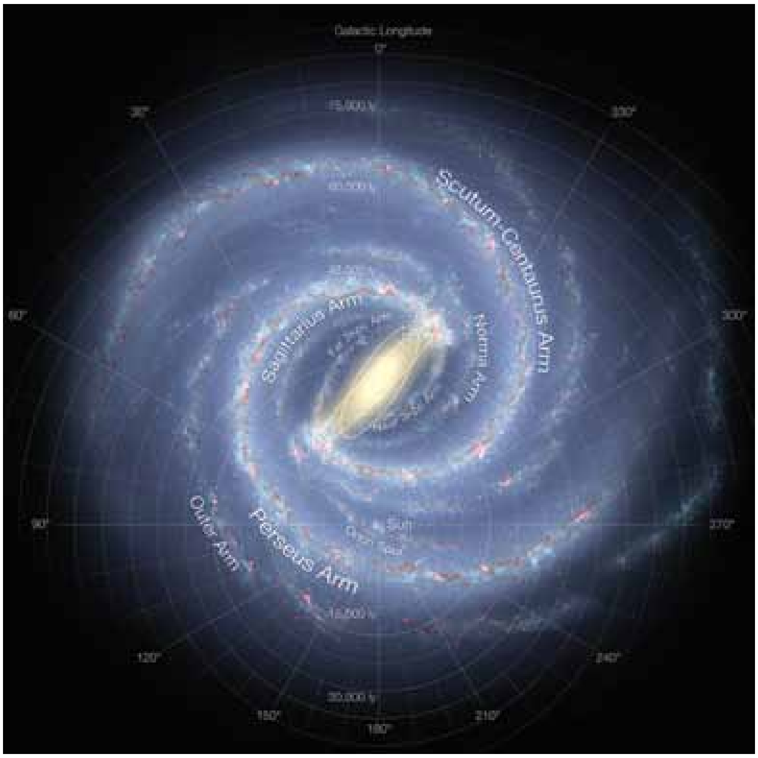


FIGURE 7



So you have this kind of nested system of deviations, variations, which all point to the role of galactic activity, as playing a major role in affecting how the Earth's atmospheric system, our water cycle, our water system, and the associated processes of climate and weather, are expressed.

Figure 7: This is our environment now. This is our starting place for understanding what is our environment. What are the environmental conditions that we're dealing with, that we want to improve and manage, as mankind? We have to start here now, looking at the galaxy.

Simulating Ionization: Svensmark's Study

Now, I want to go through something which I haven't gone through on these programs before, which is taking a further step in examining how this galactic influence is expressed in our atmospheric system, in particular. What is the nature of this expression of galactic activity, influencing and contributing to our climate, weather, water cycle systems, here on Earth? And the key to this, the main thing, is recognizing this continuous flux of high-energy radiation.

Again, this is something that's been known for over a century now: that we're being flooded from all around, with high-energy radiation coming from beyond the Solar System, coming from the galaxy. And this is penetrating us right now. It's literally showering throughout the entire atmosphere. And the amount of this influence, again, varies with how active the Sun, how active the galaxy is, where in the galaxy we are, what type of galactic environment, but it's always there as a factor affecting the characteristics of the atmosphere.

And what we're most interested in here, right now, is how it affects the ionization characterization of the atmosphere.

So the atmosphere is mostly a neutral gas; it's not charged. If you want to take it in reductionist terms, all the molecules are balanced between their electrons and their protons. There's no charge to the atmosphere.

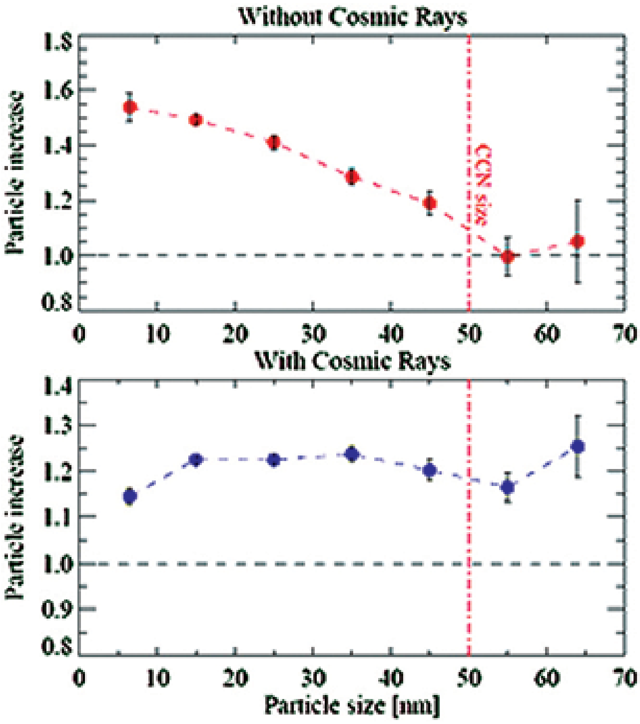
With the influence of this high-energy radiation from the galaxy, it has an effect of ionizing a certain portion of the atmosphere. It changes the characteristics; it changes the properties of the atmospheric system. Normally, minus the effects from the Earth and certain natural sources of radiation, much of the atmosphere would be neutral. It wouldn't be ionized at all. It wouldn't have any of these ionization effects from the galaxy.

We have this constant input from the galactic system, which is creating a certain level of ionization, and that affects all kinds of things. That affects how the global electric circuit operates. We're starting to realize that it actually affects how lightning occurs, a fascinating thing—kind of a side note. But what we want to home in on here, is that this ionization effect, the creation of these charged ions in the atmosphere, actually plays a very significant role in influencing and controlling how water behaves in the atmosphere. And this is critical.

And to illustrate some of this, because this is still something of a hotly debated topic, I want to go through a couple of experiments that illustrate this process: that ionization actually plays a key role in affecting how water vapor behaves in the atmospheric system.

So again, the Sun has pumped the atmosphere full of water vapor. It has evaporated water, and changed it from a liquid state, to a gas state, and filled the atmo-

FIGURE 8



sphere with water vapor. But then we're seeing that the galactic influence plays a critical role in affecting and determining how that water vapor behaves when it's in the atmospheric system, by controlling the properties and characteristics of the atmospheric system. It creates a galactic environment, within which the water system acts, and reacts, and expresses itself.

Let's go through a couple of experiments investigating these properties.

This is a study by the Danish professor [Henrik] Svensmark (**Figure 8**), illustrating the role of ionization, simulating the effect of high-energy ionization, high-energy radiation, from the galaxy, and showing experimentally, that with an increase in the ionization effect, an increase of galactic, cosmic radiation, you get an increase in the growth of aerosols, and the condensation of water vapor, to lay the basis for cloud formation.

So again, go back to the earlier graphic (Figure 3) I showed, of the cosmic ray flux and the cloud cover changing, in direct relationship to each other. This was an experiment demonstrating some of the underlying physics of that: that when you get an increased ionization effect, you get the formation of the constituent parts of clouds. You accelerate the ability for clouds to form, by creating these little aerosols, and particles that grow to become the basis for the formation of cloud droplets. They show experimentally: On the top, you see, without the effect of cosmic rays, the size—the horizontal scale is the size of the particles, the aerosols. So, without the role of cosmic rays, you see the number of them declining, as the size grows. They're not growing to the size where they can be the basis for cloud formation.

In the bottom graphic, in the blue, you see, with the influence of cosmic rays—a simulated effect, similar to cosmic rays—you see that, as the particle size grows, the number of the particles continues to increase. You get more of these larger particles, which lay the basis for the formation of clouds. And this vertical red line here, is kind of a cut-off point where you start to reach a certain critical size, which is very, very important for the formation of clouds.

So, you start to get the buildup of these things to a certain size, where they can start to form clouds. And you see that, again, without the role of a simulated galactic ray influence, the size drops off; the amount of these things drops off, as you approach that critical size.

But when you do introduce the role of a simulated galactic influence, the ionization effects of galactic cosmic radiation, you continue to get a production of these particles, up to this critical size and beyond it.

So this is one experiment demonstrating that the role—again, we're looking at what is the nature of the influence of this galactic effect on the atmosphere. Here we're seeing indications of how the galactic influence, the ionization effect, directly helps to facilitate processes leading to cloud formation, which involves, again, how water vapor behaves in the atmosphere, the kind of collection and dispersal of evaporated molecules of water to form clusters, and eventually droplets. So again, the role of cosmic rays affecting directly how this process occurs.

So, this is one experiment which demonstrated this process.

Other Ionization Experiments

Another experiment approached it in a different way, taking on a little bit of a different question (**Figure 9**). Not concerned so much with cloud formation, particularly, but just concerned with the process of condensation of water vapor, in particular. And in this case, they were interested in the ionizing effects of radon, which is a radioactive gas. How the ionizing effects of radioactive radon help to facilitate the process of the condensation of water vapor. And, in particular here, they're more

FIGURE 9

interested in how this effect actually relates to the precursors to earthquakes, but that's a second subject. We already have plenty to go through today.

But what they're looking at here was, you add a source of ionization—in this case, radon, instead of galactic cosmic rays. They were able to measure the increase of the condensation of water vapor. So again, we're looking at how these conditions of the atmosphere, governed by ionization, how that affects how water behaves. And in the large, how the water cycle behaves in the atmosphere.

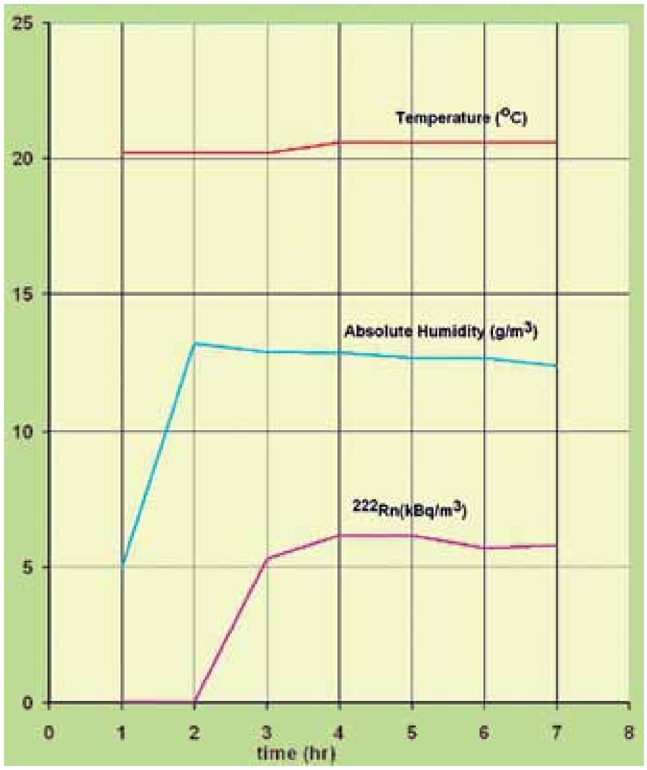
And they showed, that when you increased the ionization with radon, in this case, you get a slight, but clear decrease in humidity, so the water, instead of being dispersed as vapor throughout the chamber, starts to condense, and you get lower humidity measured. And they also measured a slight increase in temperature, which is associated, again, with this condensation process.

This is an important factor. The Sun puts in a huge amount of energy to evaporate ocean water, and when that water is in a vaporous state, when it's evaporated, it has some extra energy to it. When it condenses back to liquid, when it changes from a gas state back to a liquid state, it re-releases that energy as heat. Sometimes you've heard of this as latent heat release.

Figure 10: So, here we see a relatively small, but clearly identifiable increase in temperature, in this relatively small experiment, showing that latent heat has been released, and water is being condensed. So again, a second experiment showing us that these ionization effects are important factors telling us how water behaves in the atmosphere.

We have a third experiment, which shows this in an even different way, an independent way (**Figure 11**). In

FIGURE 10



this experiment, they used electricity to generate the ionization effect. So, we're looking at these different sources of ionization: galactic/cosmic rays; radon; now electricity. And what they show here (**Figure 12**), in my very simplified illustration—just to try to show the basics of what they did—they ran a high-voltage current through a needle, which discharged some of the

FIGURE 11

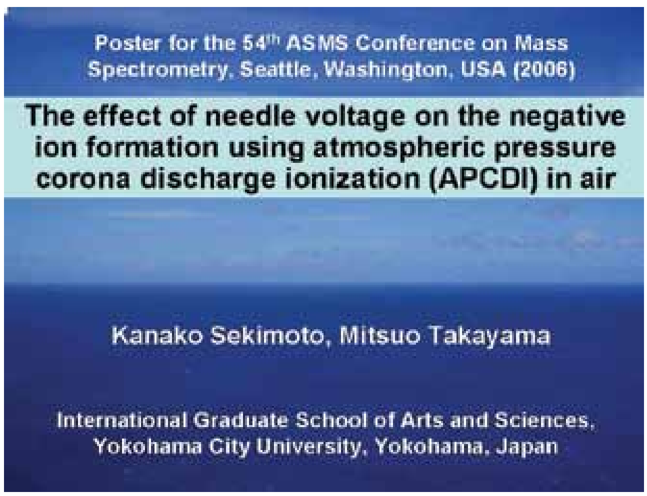
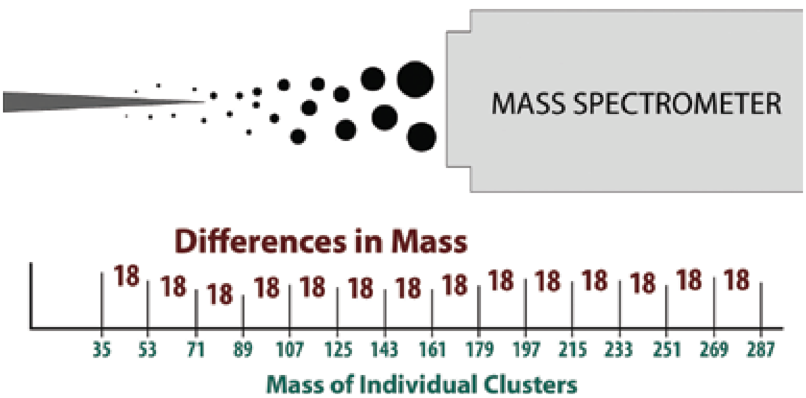


FIGURE 12



electricity into the surrounding atmosphere, and increased the ionization of the air in the chamber. And they measured then, the mass, the weights, of the different particles and clusters in their chamber, to see what the effect was.

And what they measured was that the mass of the clusters in their chamber, under the effect of this ionization—in this case, electrically induced ionization—they got clear, discrete jumps in the increase of the mass of the clusters. And those jumps were of the atomic mass of 18, which is the mass of a water molecule. So they were able to directly measure the increase of the mass of these clusters, in steps which were, in effect, the measurement of each water molecule jumping onto the cluster. And they showed that when you increase the ionization, now you see an increase in number of water molecules condensing, onto larger and larger clusters, growing clusters.

So, three different experiments, kind of taking different approaches, utilizing different sources of ionization, all pointing to the same results: that the ionization conditions of the atmosphere play a critical role in affecting how water behaves in the atmospheric system. How the water cycle expresses itself in the atmosphere.

So, in effect, what we're doing with these things, we're kind of playing with the cosmic environment of the atmosphere. The atmosphere in a certain condition, a certain environment—certain conditions of that are created by this galactic influence. And these experiments were playing with that type of influence, were modulating that cosmic environment called the atmospheric system, and demonstrating and showing that we change how water behaves, or acts, under these conditions.

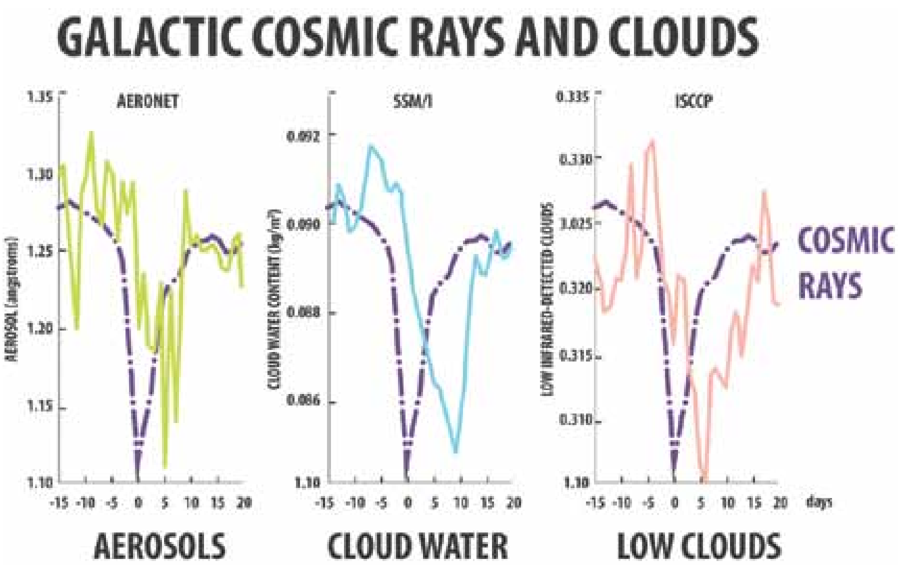
So these are three controlled experiments, showing that the behavior of the atmosphere of water vapor, that the behavior of atmospheric water vapor is directly responding to this ionization effects.

Cosmic Ray Flux

But we also see direct evidence of this, in a much larger experiment, which is the whole planet, when we measure the effects of variations in ionization, variations in the amount of galactic influence, and we can measure changes in certain properties or expressions of how the water behaves in the atmosphere.

Here we have a rather fascinating illustration (**Figure 13**), where the scientists looked at periods when you get a very sharp reduction in the flux of galactic activity. These are attributed to when the Sun—the Sun is kind of a wily figure, it's doing stuff, surprising us, doing different things. Sometimes the Sun releases very large explosions of plasma, of activity, that can kind of sweep past the Earth. And they can temporarily increase the shielding of the entire Earth system from this galactic influence.

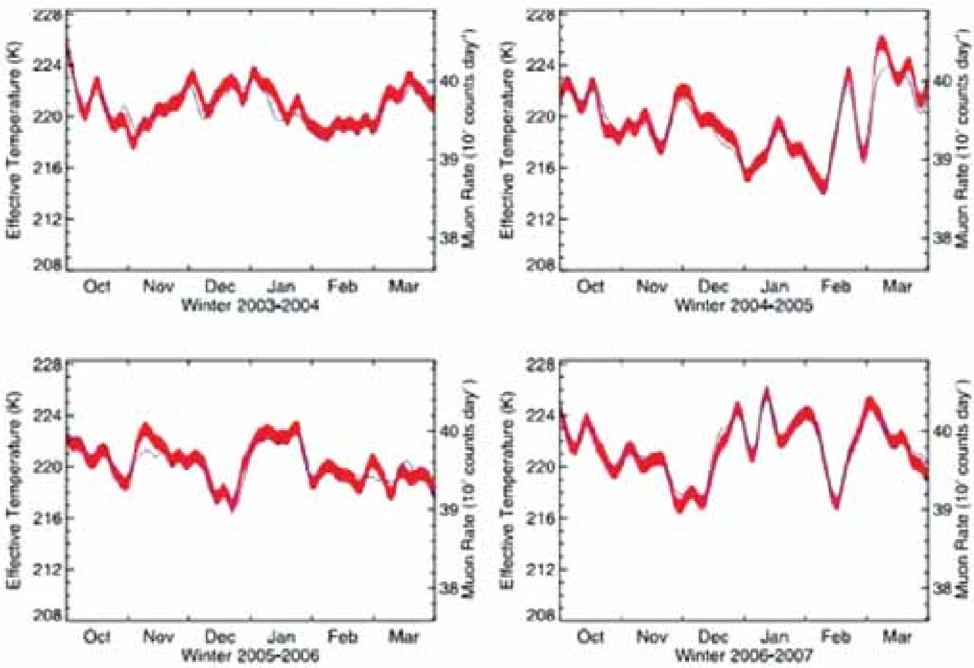
FIGURE 13



As a result, what we measure on Earth, is a very sharp reduction in the amount of galactic cosmic rays. So on Earth, we see this Solar outburst, this coronal mass ejection, shooting past us. We see a sharp reduction in the amount of galactic influence, and what these scientists did, was they took five of the largest of these events, the largest of these sharp drops in cosmic ray flux (these are technically called Forbush decreases—named after the guy who found this relationship). So they took five of these largest events, and showed that by then looking at satellite measurements, and various conditions in the atmosphere, you get a direct correspondence in a variation in how the water is behaving in the atmosphere, following these decreases in cosmic ray flux, decreases in the resulting ionization effects.

FIGURE 14

Short-Term Correlation of Temperature in the Stratosphere and Secondary Cosmic Rays



Scott Osprey et al., 2009

On the far left: In each of these, the dotted-dash line, the purple line, is the cosmic ray flux. So, it's the same for all of these. You see the sharp drop in the amount of cosmic rays. But then on the right, you also see a corresponding drop a couple of days later, of the amount of aerosols in the atmosphere, pointing us back to this earlier experiment by Svensmark, the Danish experiment showing that the aerosol formation is directly influenced by the effects of cosmic rays.

So, as we would expect, we see a decrease in the aerosol formation in the atmosphere, as measured by satellites.

We also see, a couple of days after the decrease in cosmic ray flux, a decrease in the amount of water measured in clouds. So the amount of water being condensed and forming and building up in clouds, decreases. Again, consistent with what we were just looking at, what these experiments showed us.

And then we also see a decrease in low-level cloud cover generally, the third graphic there, another confirmation, indicating this relationship between cosmic ray flux and cloud formation. That condensation of water vapor, the formation of aerosols, the amount of water condensing on these aerosols is an expression of this cosmic environment, so to speak.

Figure 14: Here we have another independent indication of this process. These are a little bit hard to see, because the correlation is so good. You see a very clear correlation between the variations in temperature, up in the stratosphere, and variations in cosmic ray flux.

Now again, coming back to what I was saying earlier, when you increase the rate of condensation of water vapor, you release heat. So it makes sense that if we get variations in the amount of cosmic radiation, varying the amount of condensation of water vapor, you get a direct relationship to how much heat is released in the process.

Again, a very clear correlation. You can't even really tell that it's two lines, because they line up so well. You kind of see some deviation in it in a couple of them. You get this very clear relationship between cosmic ray flux, and temperature, because again, cosmic rays are governing the rate of condensation, and the rate of release of latent heat.

FIGURE 15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ADVANCES IN SPACE RESEARCH (a COSPAR publication)

Solar, geomagnetic and cosmic ray intensity changes, preceding the cyclone appearances around Mexico

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Figure 15: There's one other study to cite in the process, which is a paper written by scientists in Mexico, showing that there's a clear relationship between the variations in cosmic ray flux, and the formation of cyclones and hurricanes, and their strength, their intensity. So, another pretty fascinating relationship.

One mechanism that's been proposed to help to illustrate this, goes to this release of latent heat process. Cosmic ray flux is an important factor facilitating condensation, releasing latent heat, and that helps to warm the upper atmosphere. So, if you get sharp variations in the amount of warming of the upper atmosphere, you can get sharp changes in the temperature difference, between the ocean and the upper atmosphere, which can increase or decrease the convection rate, which is critical in helping cyclones form, or grow in strength. I'm covering this pretty quickly, but again, we see evidence that, in studying a number of cyclone formations, and when they occur, they see that they tend to occur after you have these sharp variations in the cosmic ray flux.

The Next Step: Managing the Galaxy

So, that's a lot, I know. We ran through a bunch of things on these variations on these long time-scales, but also these experiments and these studies indicating just how much the galactic environment is constantly an active factor in determining the conditions here on Earth.

What we have to take out of this, is that we are living in a galactic environment (Figure 7). We're literally living in a galactic atmosphere. This cosmic ray flux is the expression of the galactic system. It doesn't end on the outskirts of our Solar System. It comes in, it's there, it's everywhere, and it's shaping certain critical characteristics of the atmosphere. And these characteristics, as we just went through these studies to show, play a critical role in determining how the water cycle behaves; how atmospheric water vapor behaves; cloud formation; temperature of the atmosphere. Even such things as strong as cyclones and hurricanes are indeed, at least in part, expressions of the activity of this galactic factor.

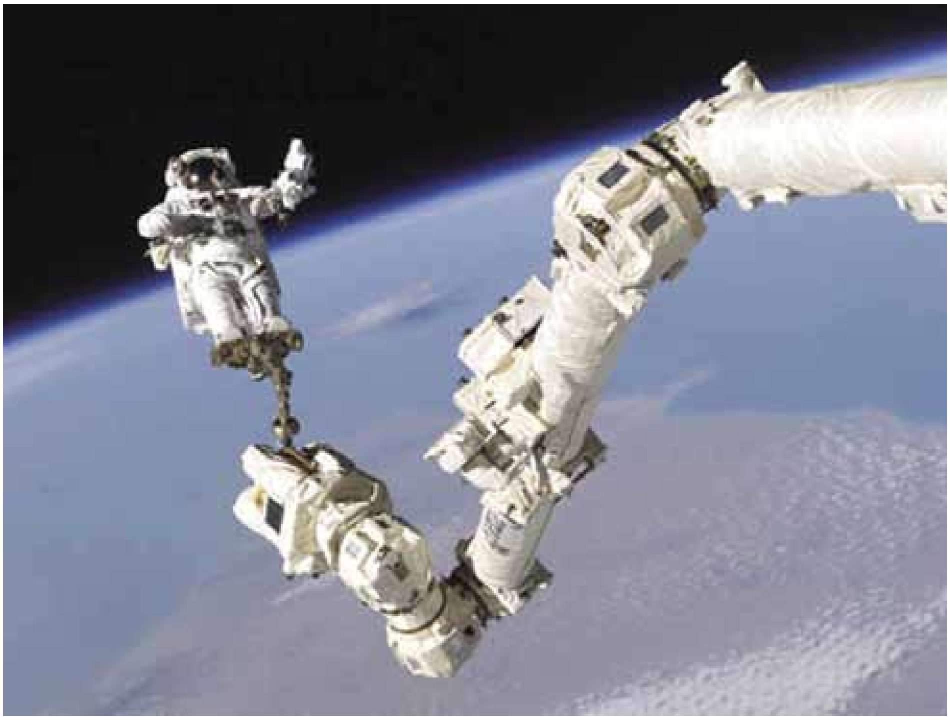
So, the conditions which we exist in, which we're living in, are driven by, again, not just the Sun-Earth interaction, but are caught in this galactic influence. We see the indications of the principle of the galactic system as a whole, is an active factor in shaping and determining the environment in which we live. And I think for today, we'll leave it there.

What that brings it to, which is what I think we'll get into next week, is a discussion of how we can then manage that. What we're seeing here is all these kinds of shadows, experiments, illustrations. The point is not to get caught up in the details of any one of these, but to paint this broad picture, paint this specific picture, that we're living in a galactic environment; but it's a galactic environment that we can actually manage and control, which we can get into next week. And that is what will enable us to control the water cycle in a completely new way.

We've talked about these so-called ionization systems being used to create rainfall, to create canals in the sky of water vapor, to move water vapor in the sky, to where we want it. To induce it to fall where we want it. To begin to control various aspects of the weather, control various aspects of the water cycle, by managing what is really the galactic, cosmic environment of our own atmospheric system. With an understanding of these processes, these relationships, and the role they play in shaping the quality of the atmosphere, that determines how the water cycle behaves, we can act in that domain.

Next week, I think it would be good to go through some details of that process, and some of the experiments that have occurred—directly controlling weather, increasing rainfall, and some of the potential of these systems. But this is where we have to go. And under this type of program, California, other places, we can solve these droughts. We have the potential to do these types of things. But it's moving to this higher insight into managing the galactic, cosmic environment of the atmosphere, which gives us this highest potential.

So, that can be kind of a teaser for next week, to get into what we can begin to do with these systems.



American astronaut Stephen Robinson takes a walk off the Space Shuttle to the International Space Station in 2005.

the effect of, man, as he understands himself now, is merely a projection, a shadow, of what mankind actually is. And it's that tantalizing existence above, which is projecting down on what we think our power is now, that we should reach for, and learn to discover, that has to guide the actions of nations and scientists and leaders today. It's just the temptation of discovering the true higher nature of man, and in that processing, *creating* the true and higher nature of man.

I was thinking back to Kepler. Before Kepler, the Solar System was not a physical system; it was not something you interact with. It was something you observed. And for the first time, with Kepler, it became a physical system, which means what? That we could eventually manage it. And there's more to the Solar System, clearly, than what Kepler knew 400 years ago, but we're filling out what he unleashed, and that's exactly what you're beginning with this galactic system. It's that we have to turn it into a *human* system, a physical system.

Clearly, with these initial steps in understanding this electrical-ionization characteristic of the atmosphere as a whole, and then, being able to create mimic effects, but also create new effects—that perhaps the galactic system doesn't do explicitly—we're beginning to bend and manage, and could yoke and harness this galactic force, and turn it into, shape it into something which is a human power.

Fan-Chiang: Yes. And it really does point out that we've already become a global species. That's already occurred. Vernadsky pointed it out, at the beginning of World War I. And we're very, very slowly becoming a Solar System species.

But, you're right. Kepler already laid out the boundaries. He already laid out the fact that we are a Solar System species, and in some sense, already laid out the galactic [principle] too. But, I think that is going to be a *huge* point of contention—or it is already a huge point

There Is Plenty of Water

Liona Fan-Chiang: I think the breakthrough will be not just being able to solve droughts. We'll be able to see droughts as almost an arcane word, in the sense that, as you said, this idea of a water crisis is a misnomer. Because there's no lack of water. Actually, you had this funny number, I thought. You said there were trillions of times [the amount] of water in some other galaxy?

Deniston: They measured the amount of galaxy water coming out of the different galactic systems, and they came up with 140 trillion times the amount of water on Earth. So, water's not exactly a rare commodity in our universe.

Fan-Chiang: So, the idea of being able to—well, first of all, you mentioned the ionization systems, which I guess we'll go through next time, but these experiments also show that we can directly influence these processes, and that the processes are all interconnected. And so, the idea of just treating a land drought, separately, or even rain, or even weather, separately, seems like a very *old* idea. It will become as ancient as the rain dance.

Beets: I think that gets to the larger point about this process of the human species. You know, Mr. LaRouche said something yesterday that I found so striking. He said that—it's a terrible paraphrase, but something to of contention: which is, that we not only already live in the galactic process, but that we *can*, and therefore must, control it.

That's really going to be a huge point—we have to take that on very strongly. Because not only the idea that these correlations exist, can be proved scientifically, and so on, but the fact that we have to control it, is going to be a moral question. And that's really—that determines everything.

Redefining Mankind

Deniston: That goes back to this point about redefining what mankind is. Again, we went through a lot of detail here today, because I thought it was important to put this on the record, and give something for people to chew on. But the point is to work through this, and come out of it with a single conception. And the challenge is to see this—you see effects, you see shadows. But what governs those is principles—single, defined principles. You see the water cycle, as we experience it, is a shadow and effect of the intersection of the galactic interacting with the Solar System: the principle of the galactic system as a unity, interacting with the Solar System, and the processes on Earth.

And the effects you see of that, are shadows created by those principles, those activities.

Mankind, in moving to manage these things in the way we're talking about—it's creating new shadows, which are on the scale of the galactic system, in effect. We're talking about looking at beginning to operate on a galactic level. People are so brainwashed, in terms of thinking of things in reductionist terms, in sense-perceptual terms. You talk about operating on a galactic level, they imagine you have to be like buzzing around from star to star, or something.

That's not how mankind operates. It's not about these reductionist terms, these sense-perceptual terms. It's about the principles governing the processes that we experience as shadows. We're seeing that these phenomena are shadows of a galactic principle, and we're demonstrating that mankind uniquely can see behind the shadows, can generate a conception of what the principle is, but then generate his own effects, his own shadows, which correspond to a uniquely creative mental relationship to the universe, on a galactic level.

Our relationship to the universe, under this type of direction, is a galactic relationship. That doesn't mean we're flying around the galaxy doing things. It means that mentally, creatively, again, we're subsuming any animal, biological capabilities of just the human biology, and we're going to a level of the principle of the galactic system, and then changing our behavior and operating from that standpoint.

Fan-Chiang: One of the things that Mr. LaRouche brought up yesterday was this idea that individuals can have an effect on, for example, the species as a whole, through the human mind. And people know that you can have a global effect, without being everywhere on the globe at once, or ever. You could have never traveled to places on the globe, and still have a global effect.

And that is something that is a process of evolution. We create conditions such that each individual can have an ability to have more and more of an effect on a larger and larger process. And that's the process of evolution, of mankind. And create societies such that individuals can have an effect in that way.

Beets: In transforming the species as a whole. And then each individual can express that new higher characteristic.

Fan-Chiang: This is the next step. Where each individual is acting on a galactic scale.

Beets: I think that's a great place to leave it for this week.