

THE ELECTRIC UNIVERSE

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A Synopsis of The Electric Universe

by **Wal Thornhill**
from [Holoscience](#) Website

1. Preface

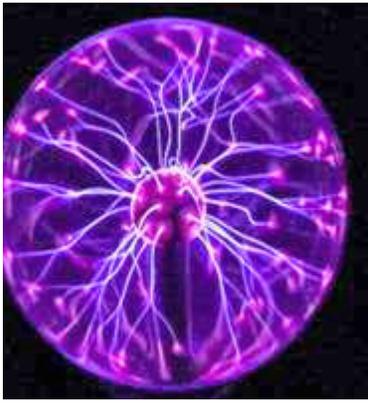
'The most merciful thing in the world ... is the inability of the human mind to correlate all its contents... The sciences, each straining in its own direction, have hitherto harmed us little; but someday the piecing together of dissociated knowledge will open up such terrifying vistas of reality... That we shall either go mad from the revelation or flee from the deadly light into the peace and safety of a new dark age.'

- **H. P. Lovecraft**

In a broadly interdisciplinary inquiry such as this, communication itself can pose quite a challenge. Typically, the greatest difficulties in communication will occur when one is questioning something already "*known*" to be true. On matters of underlying principle, the confidence behind established ideas can be so high that discussion itself may seem quite senseless. This difficulty is aggravated by fragmentation of the process by which information is gathered and evaluated. The specialization of intellectual inquiry carries with it certain risks when assumptions within one discipline rest upon prior assumptions in other disciplines. No one can be an expert on everything, and when considering possibilities outside one's personal expertise, it is only natural to defer to what specialists in other studies claim to know. But what are the consequences of this when theoretical suppositions, though perceived as fact, cannot account for compelling new fields of data'

Given the extreme fragmentation of established science today it is difficult to imagine that the enterprise as a whole could ever "correlate all its contents." Yet extraordinary strides toward that "someday" envisioned by **Lovecraft** may now be possible through a new approach - one in which electrical phenomena receive the full attention they deserve, and all appropriate fields of evidence are included. To some, the prospects may appear every bit as disturbing as **Lovecraft** imagined. But for those who instinctively seek out unifying principles, the new horizons will be at once breathtaking and hopeful.

This introduction will present a new "*deep focus lens*" for viewing the physical universe, from sub-atomic particles to galactic realms unknown before the Hubble telescope. The ***Electric Universe*** is a holistic answer to myopia * - that narrowing of vision which naturally accompanies the fragmentation of knowledge and learning. For those with the courage to see clearly, the required "unlearning" of fashionable ideas carries no real cost whatsoever. The terror **Lovecraft** envisioned is only the first rush of uncertainty, when ideas long taken for granted are thrown into question by facts and simple reasoning previously ignored. The "piecing together of dissociated knowledge" will only require us to confront the deep contradictions in things experts have long claimed to know. With the courage to see clearly, the adventure itself could well be "*the most*



merciful thing in the world," adding new insights into the greatest dramas of early human history and vital perspective to humanity's situation in the cosmos. **Lovecraft** did not realize that the "*terrifying vistas*" are but a mirage seen through an open door. The truth is always unified, and as such it can only be friendly to those who seek the truth first. As we pass through the door, it is not fear that goes with us, but the exhilaration of discovery.

* **Myopia** - a disinclination to acknowledge the existence of something.

2. The Electric Universe

The **Electric Universe model** is a coherent "*Big Picture*" of our situation in the universe, spanning many disciplines. It highlights repeated electrical patterns at all scales that enable laboratory experiments to explain the strange, energetic events seen, for example, in deep space, on the **Sun**, and on **Jupiter's** moon, **Io**. The Electric Universe works backward in time using observations rather than forward from some idealized theoretical beginning. It provides simple answers to problems that are now clothed in fashionable metaphysics and mysticism. It is more interdisciplinary and inclusive of information than any prior cosmology. It points to practical possibilities far beyond the limits set by current science.

The **Electric Universe model** grew out of a broad interdisciplinary approach to science. It is not a technique taught in universities. The *Electric Universe* is based more on observations and experiment than *abstract theory*. It recognizes connections between diverse disciplines. It concludes that the crucial requirement for understanding the universe is to take fully into account the basic electrical nature of atoms and their interactions. Strangely, this is not the case in conventional cosmology where weaker magnetism and the infinitely weaker force of gravity rule the cosmos. Such a simplification may suit a theoretical physics based on electrical neutrality of matter in Earthly laboratories but it does not apply in space where plasma dominates.

Plasma has been called the "fourth state" of matter, after solids, liquids and gases. **Most of the matter in the universe is in the form of plasma.** A plasma is formed if some of the negatively charged electrons are separated from their host atoms in a gas, leaving the atoms with a positive charge. The negatively charged electrons, and the positively charged atoms (known as positive ions) are then free to move separately under the influence of an applied voltage or magnetic field. Their net movement constitutes an electrical current. So, one of the more important properties of a plasma is that it can conduct electrical current. It does so by forming current filaments that follow magnetic field lines. Filamentary patterns are ubiquitous in the cosmos.

3. A Little History

"To be sure, nature distributes her gifts unevenly among her children. But there are plenty of the well-endowed, thank God, and I am firmly convinced that most of them live quiet, unobtrusive lives."

- **Albert Einstein**



The pieces of the *Electric Universe "Big Picture"* are supplied by some remarkable individuals, most of them unknown and who have lived or are living "quiet, unobtrusive lives" away from universities. For those with a sense of history this fact should serve to increase curiosity rather than dull it. Most revolutions in science have come from people who taught themselves outside the academic system and were not constrained by the fallacies and fashions of the day. It has been well documented that modern institutions of science operate in such a way as to enforce conformity and prevent research and publication of revolutionary ideas. **J. R. Saul** argues that medieval scholasticism was re-established during the 20th century. If so, the new "*Enlightenment*" will have to come, as before, from **outside academia**.



For me, enlightenment began with the controversial polymath and author of *Worlds in Collision*, **Immanuel Velikovsky**. In 1950 he demonstrated an interdisciplinary, comparative technique for uncovering hard evidence of planetary catastrophe from the recorded memories of the earliest civilizations. His method was forensic in that he looked for reports of physical events of a highly unusual nature that were nonetheless corroborated globally by totally separate cultures. Then by applying scientific knowledge of cause and effect, it was possible to build a very detailed model of the sequence of those events. Finally, the model enabled specific predictions to be made and confirmed - a requirement of a good scientific theory. Some of the predictions he made were outrageous at the time: **Venus** would be near incandescently hot, **Jupiter** would emit radio noise, the **Moon** rocks would be magnetized, and so on. **Velikovsky was right**, astronomers of the day were wrong. However, you will not find any textbook that gives him credit because his theory was judged to be wrong. Presumably they were all lucky guesses!

It became clear to **Velikovsky** that *Newton's concept of gravity* was insufficient to explain the reported behaviour of the planets. And it certainly could not answer the obvious question, "why do the skies look so peaceful now?" This allowed a dogmatic response by academia to **Velikovsky's** seminal breakthrough. It was said his theory didn't obey *Newton's laws*. But what did **Newton** know of electricity? And if anyone believes that Newton's laws guarantee a stable planetary system - think again! Any gravitational system with more than two orbiting bodies is unstable. Yet the question is hardly ever asked, let alone answered, "what produces the observed stability of the solar system?" **Velikovsky** was convinced that the clue lay in his discovery that electrical forces dominate the incredibly weak force of gravity at times of planetary close encounters. Although he was unable to explain at the time how this would create the observed stability of the solar system, with his uncanny prescience he had pointed the way to **the Electric Universe**.

Since then *skeptical scholars* have shown **Velikovsky's** historical perspective of cataclysmic events to be wrong. However, his basic premise of planetary encounters has been confirmed and the details fleshed out to an extraordinary degree. Several pioneering researchers in this new field now agree that awe-inspiring planetary encounters did occur in pre-history. To the most ancient civilizations they were a culturally defining memory. They were the inspiration for pyramids, megaliths, statues, totems and sacred rock art. The survivors of global upheaval felt it imperative that the memory be preserved and passed down faithfully to future generations in the expectation that the "*gods*" would return. The memorialization took the form of architecture, ritual and story to re-enact the apocalyptic power of the *planetary gods* over human destiny.

Such a catastrophic beginning explains why civilization appeared like a thunderclap out of nowhere. Unfortunately, with no reference points in the present behavior of the planets, the stories lost their real meaning. This short explanation may seem contrived until the wealth of supporting evidence can be presented. However, it highlights the crucial distinction between the *planetary catastrophism of the Electric Universe* and that of *neo-catastrophists* who attempt to explain the evidence for planetary encounters in terms of *cometary phenomena*. Modern **comets** simply do not fit the descriptions from the past. Nor can they account for abundant evidence of fresh looking planetary cratering and scarring. Besides, in an Electric Universe comets are not the apocalyptic threat to the Earth imaginatively portrayed by artists. Such



pictures are entirely fanciful because a comet would be disrupted electrically by a cosmic thunderbolt before it hit the Earth. The only visible evidence remaining would be an **electric arc crater** like *Meteor Crater in Arizona*.

The **Electric Universe model** grew from the realization that a new plasma cosmology and an understanding of electrical phenomena in space could illuminate the new work being done in comparative mythology. In return the images of events witnessed in the prehistoric sky and their sequence could help unravel the recent history of the **Earth, Mars and Venus**. By accepting data over a far wider span of knowledge and human existence than conventional cosmology allows, the Electric Universe model began to provide pragmatic and common sense answers to many questions that seem unrelated. It followed the entreaty of the Nobel Prize winning plasma physicist and cosmologist, **Hannes Alfvén** to work backwards in time from observations rather than forward from some idealized theoretical beginning.

"We have to learn again that science without contact with experiments is an enterprise which is likely to go completely astray into imaginary conjecture."

- Evolution of the Solar System, NASA 1976,

H. Alfvén & G. Arrhenius, p. 257.

The result is now a "*Big Picture*" that emphasizes our dramatic prehistory and essential connectedness to the universe. No longer do we have to look at ourselves and the universe through the distorting sideshow mirrors of modern science.

The implications of electrical activity between planets will be profoundly disturbing for those who have built their cosmology around the weak force of gravity, acting in an electrically sterile universe. This strange, dogmatic oversight guarantees that nothing will remain in future of the *fanciful Big Bang theory* or the *simplicistic story of the formation of the solar system*.

4. What Big Bang'

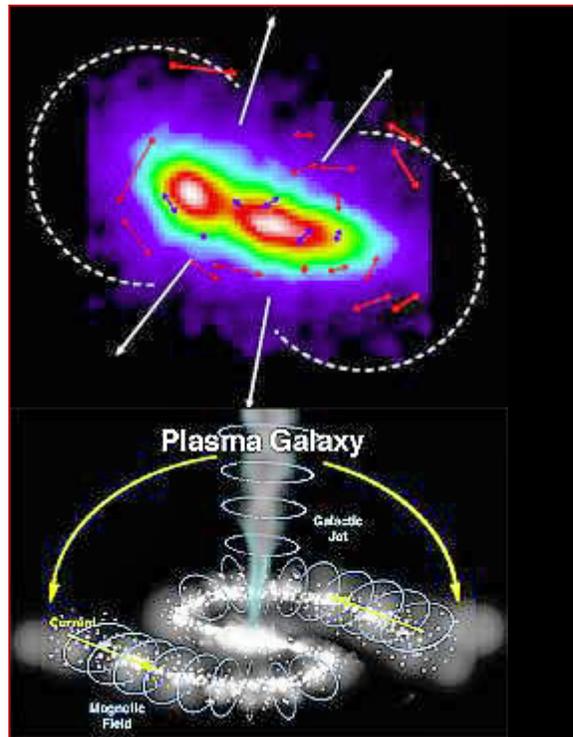
The Big Bang is already dead! The unheralded "Galileo of the 20th century", **Halton Arp**, has proven that the universe is not expanding. The *Big Bang theory* is based on a *misinterpretation of redshift*. The **redshift** of a distant galaxy is measured in the light coming from that galaxy. Lines in the spectrum of that galaxy show a shift toward the red compared with the same lines from our Sun. **Arp** discovered that high and low *redshift objects* are sometimes connected by a bridge or jet of matter. So **redshift cannot be a measure of distance**. Most of the *redshift* is intrinsic to the object. But there is more: **Arp** found that the *intrinsic redshift* of a quasar or galaxy took discrete values, which decreased with distance from a central active galaxy. In **Arp's** new view of the cosmos, active galaxies "give birth" to high redshift quasars and companion galaxies. **Redshift** becomes a measure of the **relative ages** of nearby quasars and galaxies, **not their distance**. As a quasar or galaxy ages, the redshift decreases in discrete steps, or quanta.

The huge puzzle for astrophysicists is why a galaxy should exhibit an atomic phenomenon. So we turn to particle physics. This difficulty highlights the fact that quantum "mechanics" applied to atoms is a theory without physical reality. The weirdness of quantum theory has been attributed to the subatomic scale to which it applies. But now that we have quantum effects in something the size of a galaxy, this convenient nonsense is exposed. If **Arp** is right many experts are going to look very silly. His discovery sounded the alarm in some halls of Academe and since nobody likes a loud noise - particularly if they are asleep - the knee-jerk response was to attack the guy with his finger on the alarm button. **Arp's** telescope time was denied, papers rejected, and he was forced to leave the US to pursue his work.

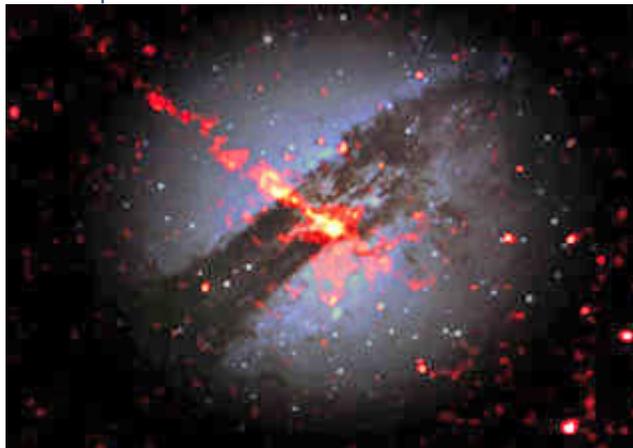
5. Electric Galaxies

For more than 10 years plasma physicists have had an electrical model of galaxies. **It works with real-world physics**. The model is able to successfully account for the observed shapes and dynamics of galaxies without recourse to invisible *dark matter* and *central black holes*. It

explains simply the **powerful electric jets** seen issuing along the spin axis from the cores of active galaxies. Recent results from mapping the magnetic field of a spiral galaxy confirm the electric model.



On the other hand, cosmologists cannot explain why **spiral shapes** are so common and they have only ad-hoc explanations for galactic magnetic fields. More recently, inter-galactic magnetic fields have been discovered which is the final straw to break the camel's back. Incredible gravitational models involving *invisible "black holes"* have had to be invented in a desperate attempt to explain how the attractive force of gravity can result in matter being ejected in a narrow jet at relativistic speeds.



Why do we accept such science fiction as fact when an **Electric Universe** predicts spiral shapes, magnetic fields and jets? The cosmic magnetic fields simply delineate the electric currents that create, move and light the galaxies.

6. Electric Stars

Plasma physicists argue that stars are formed by an electromagnetic "*pinch*" effect on widely dispersed gas and dust. The "*pinch*" is created by the magnetic force between parallel current



filaments that are part of the huge electric currents flowing inside a galaxy. It is far more effective than gravity in concentrating matter and, unlike gravity, it can remove excess angular momentum that tends to prevent collapse. Stars will form like beads on a wire until gravity takes over. The late **Ralph Juergens**, an engineer from Flagstaff, Arizona, in the 1970's took the next mental leap to suggest that the electrical input doesn't stop there and that stars are not thermonuclear engines! This is obvious when the Sun is looked at from an electrical discharge perspective. The galactic currents that create the stars persist to power



them.

Stars behave as electrodes in a galactic glow discharge. Bright stars like our Sun are great concentrated balls of lightning! The matter inside stars becomes positively charged as electrons drift toward the surface. The resulting internal electrostatic forces prevent stars from collapsing gravitationally and occasionally cause them to "give birth" by electrical fissioning to form companion stars and gas giant planets. Sudden brightening, or a nova outburst marks such an event. That elucidates why stars commonly have partners and why most of the giant planets so far detected closely orbit their parent star. Stellar evolution theory and the age of stars is an elaborate fiction. The appearance of a star is determined largely by its electrical environment and can change suddenly. *Plasma physicists and electrical engineers are best able to recognize plasma discharge phenomena. Stellar physics is in the wrong hands.*

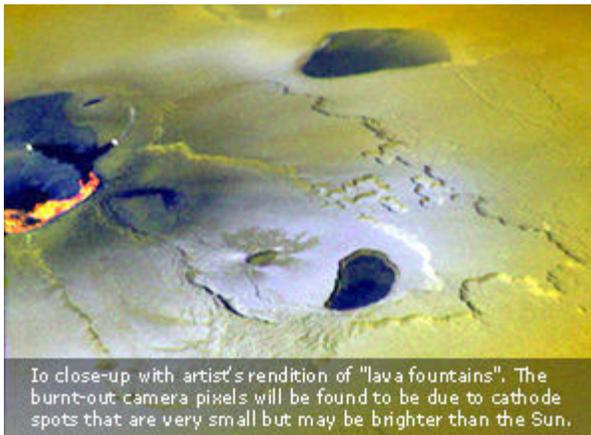
7. Planets

Earth-like planets and moons are similarly "born" by electrical expulsion of part of the positively charged cores of dwarf stars and gas giants. That explains the dichotomy between the dense rocky planets and moons and the gaseous giant planets. In the Electric Universe model, gravity itself is simply an electrostatic dipolar force. So planetary orbits are stabilized against gravitational chaos by exchange of electric charge through their plasma tails (**Venus** is still doing so strongly, judging by its "cometary" magnetotail, and it has the most circular orbit of any planet) and consequent modification of the gravity of each body. Planets will quickly assume orbits that ensure the least electrical interaction. Impacts between large bodies are avoided and capture rendered more probable by exchange of electric charge between them. Capture of our Moon becomes the only option, it cannot have been created from the Earth. Evidence of past planetary instabilities is written large on the surfaces of all solid bodies in the solar system. That evidence is in the form of *electric arc cratering*.

8. Electrical Cratering

Electric discharges between closely approaching bodies takes the form of "*thunderbolts of the gods*", or distinctively shaped *helical plasmoids*. Such **plasmoids** were sculpted by many ancient cultures when depicting *Jupiter hurling his thunderbolt*.

Jupiter's thunderbolt raises questions about the history of mankind and the **Earth** that have never before been asked. When it comes to dating planetary surfaces, **plasmoids cause characteristic electrical arc scarring in the form of sinuous channels and neatly circular craters with steep walls and occasional central peaks**. Such **craters** are universally misinterpreted as impact craters. The sinuous channels are wrongly classified as riverbeds or lava channels. Minutes or hours of electrical scarring can produce a surface like that of the **Moon**, which is later interpreted in ad hoc fashion to be billions of years old. Hemispheric differences in **cratering** are expected in this model. And for the skeptics, subdued electric arc machining of a planet-sized body continues to this day on *Jupiter's innermost moon, Io*. See the many successful predictions about the discoveries that would be made as close-up images of Io became available.



Planetary geologists are not trained to recognize electric arc scarring otherwise they would have seen at a glance the characteristic **cathodic surface erosion** and **cathode jets on Io**. They are definitely not volcanos as we know them from *geology textbooks*.

9. Electrical Weather

Most people are unaware that we have no understanding of how *lightning is created in clouds*. The simplest answer is that lightning is not generated there at all. Clouds merely form a convenient path to Earth for **electricity originating in space**. Without clouds it is possible to have a "bolt from the blue". That is happening on **Venus** (although the sky certainly isn't blue). Weather systems are driven primarily by external electrical influences.

Consequently the **Sun** has weather patterns. And the most distant planet, **Neptune**, *has the most violent winds in the solar system though it receives very little energy from the Sun*. Electric discharges from space cause **Mars'** huge dust devils and planet-wide dust storms. They are responsible for **Jupiter's Great Red Spot** and the **"spokes" in Saturn's rings**. It is why **Venus** has lightning in its smog-like clouds and *its mountain-tops glow with St. Elmo's fire*. It is why the **Earth** has lightning stretching into space in the form of "red sprites" and "blue jets", and why tethered satellites *"blow a fuse"*.

However, nobody is trained to consider electrical energy input to weather systems.

The image on the right is **NASA** artist's view of lightning on **Venus** during the descent of one of the *Pioneer probes*. **Venus** has smog-like clouds that are not expected to generate lightning and yet the planet suffers intense lightning. This argues against the *popular notion of what causes lightning*.

10. Life Itself

It seems that when a **dwarf star** or **gas giant planet** "gives birth" to a rocky satellite, parent and child usually remain closely bound. Our solar system, with its widely spaced orbits and chaotic features, appears to be the result of a recent cosmic *"traffic accident"*. This seemingly wild conjecture is supported by the global stories of *prehistoric planetary encounters*. So to use our situation as a measure of a normal planetary system will give wildly misleading ideas of how life begins and estimates of the likelihood of life elsewhere in the universe. The most benign situation for life in an **Electric Universe** is inside the electrical cocoon of a brown dwarf star. Radiant energy is then evenly distributed over the entire surface of any planet orbiting within the **chromosphere** of such a star, regardless of axial rotation, tilt, or orbital eccentricity.

The exceedingly thin atmosphere of such stars has the essential water and carbon compounds to mist down onto planetary surfaces. The *reddish* light is ideal for *photosynthesis*. Such a



model provides one reason why the *Search for Extra-Terrestrial Intelligence (SETI)* project is unlikely to succeed. Any advanced civilization on such a planet will be unaware that the universe exists outside its own stellar environment, and radio communication through the glow discharge of the star is impossible!

Our education systems are not suited to the broad interdisciplinary knowledge required in an ***Electric Universe***.

11. Some Basics

"The machines that are first invented to perform any particular movement are always the most complex, and succeeding artists generally discover that with fewer wheels, with fewer principles of motion than had originally been employed, the same effects may be more easily produced. The first philosophical systems, in the same manner, are always the most complex."

- **Adam Smith**

The ***Electric Universe*** takes a simplifying leap by unifying the nuclear forces, magnetism and gravity as manifestations of a near instantaneous electrostatic force. Instead of being "spooked" by the concept of action-at-a-distance, like most physicists this century, the Electric Universe accepts it as an observational fact. Anyone who has tried to force two like poles of magnets together has demonstrated action-at-a-distance. "***Electromagnetic***" ***radiation*** is then simply the result of an oscillating electrostatic force.

At the level of the atom, the Electric Universe model takes a lead from the work of **Ralph Sansbury**, an independent New York researcher. Foremost is the simple recognition of the basic electrical nature of matter and the primacy of the electrostatic force** in matter interactions. It also rests upon the simple assumption that the proton, neutron and electron are composed of smaller charged particles, orbiting each other in a classical sense in stable, resonant orbits. That is, the energy exchanged between those sub-particles in elastic deformation during each orbit sums to zero. Being charged, the sub-particles interact via the electrostatic force. A simple calculation shows that ***the sub-particles that form an electron must travel at a speed far in excess of the speed of light*** - some 2.5 million light-years per second, or *from here to the far side of the Andromeda galaxy in one second!*

So the ***electrostatic force*** must act at a speed which is almost infinite on our scale for the electron to be stable. It is the stable orbital resonances of these sub-particles, both within and between particles that give rise to the phenomena of *protons, neutrons, electrons and atoms*. Other denizens of the ***particle "zoo"*** are merely transient resonant states of the same charged sub-particles. The so-called "*creation*" of matter from energetic photons is an illusion in which pre-existing matter is reorganized into new resonant states that give the impression that a particle has suddenly materialized. ***Antimatter*** is a misnomer since it too is formed from the same sub-particles as "*normal*" matter except that the total charge is mirrored. ***Matter cannot be created or annihilated.***

A Conventional View of Forces in Physics

1. Nuclear forces keep the nucleons (protons and neutrons) together in the atomic nucleus. They are the dominating forces in the nucleus, but of no importance at large distances from it.

2a. Electric forces. A positive charge and negative charge attract each other, but similar charges repel. Electric forces keep the atoms together ("*bind*" the electrons to the nucleus). They are of a certain importance in the nucleus. At large distances electric forces are usually not so important because of a screening effect. For example, a positive charge attracts negative charges to its neighborhood so that they screen off the field from the positive charge.

2b. Magnetic forces are closely related to the electric forces. Because they cannot be screened very easily, they are efficient at larger distances than electric forces. Example: the Earth's magnetic field.



3. Gravitation is much weaker than electric forces and therefore of no importance in the atom. As the gravitation cannot be screened, it is the dominating force at large distances. The orbits of the planets and the motions of stars and galaxies are ruled by gravitation.
- H. Alfvén

Quantum Theory

For the first time the highly successful **quantum theory** gains a physical explanation in terms of resonant motion of charged particles, mediated by a near-instantaneous electrostatic force. A quantum electron orbit is one in which the exchange of energy between all of the sub-particles in the nucleus of an atom and those in an orbiting electron, sum to zero over the orbit. Exchange of energy takes the form of distortion of a particle to form an electrostatic dipole or a move to a new resonant orbit.

Relativity Theory Einstein's Special Theory was designed to define simultaneity in a universe where the fastest force or signal was restricted to the measured speed of detection of light from a distant source. With an electrostatic force of near-infinite speed acting between the sub-particles of all matter, relativity theory reduces to classical physics. This leaves open the question of what we are measuring when we determine the speed of light. The speed of light in galactic terms is exceedingly slow, requiring about 150,000 years to cross our galaxy. However, the astronomer **Halton Arp** has shown that the **redshifts** of entire galaxies are quantized which requires some form of near instantaneous, galaxy-wide communication at the sub-atomic level. There are now several reported experiments that demonstrate faster than light effects.

With **the Special Theory gone**, and the **universe in communication with its parts effectively in real-time**, there can be no time travel as space and time are independent. Common sense has always suggested that this was so. **Einstein's General Theory** was devised to explain gravity. It attempts to discard the observed action-at-a-distance of gravity by proposing a counter-intuitive warping of space in the presence of massive objects. This unnecessary complication of space is then added to the current *metaphysical concepts* of what constitutes the mass of an object. But space must also "warp" at near infinite speed to produce the observed planetary orbits. Common sense, observation, and parsimony of hypotheses all suggest that **the electrostatic model of gravity** (see below) is superior. There is now experimental evidence from gravity measurements at the time of a total solar eclipse that supports the Electric Universe model and *discounts the General Relativity model*.

E = mc²

Einstein's famous mathematical expression **E=mc²**, equating energy and mass is known by almost everyone. However, most textbooks go on to use the word 'matter' in place of 'mass.' *But nowhere has it been shown that mass and matter are interchangeable*. In fact, we are entirely ignorant of what constitutes the **mass of an object**. So it is inadmissible to imply that energy and matter are interchangeable. The ultimate expression of this idea led to the nonsense of the big bang. It seems simpler and more sensible to suggest that both nuclear and chemical energy is released or absorbed by the rearrangement of the resonant orbits of charged particles. It is then common sense to suggest that **mass is the measured response of a system of charged particles to an external electrostatic force**.

The more massive an object, the more the electrostatic force contributes to the elastic deformation of its protons, neutrons and electrons, rather than their acceleration. This is the phenomenon seen in particle accelerators and conventionally attributed to relativistic effects. But relativity reduces to classical physics in a universe where the electrostatic force has near-infinite speed. The first question to be asked is - if it is that simple, why hasn't it been thought of long ago? The answer seems to lie in the propensity for mathematical theory to supersede common sense and observation. There is also a problem of language *when mathematicians attempt to provide real meaning for their symbols*.

12. So What'

The consequences and possibilities in an *Electric Universe* are far-reaching. First we must acknowledge our profound ignorance!

- We know nothing of the origin of the universe.
- There was no Big Bang.
- The visible universe is static and much smaller than we thought.
- We have no idea of the age or extent of the universe.
- We don't know the ultimate source of the electrical energy or matter that forms the universe.
- Galaxies are shaped by electrical forces and form plasma focuses at their centers, which periodically eject quasars and jets of electrons.
- Quasars evolve into companion galaxies.
- Galaxies form families with identifiable "parents" and "children".
- Stars are electrical 'transformers' not thermonuclear devices.
- There are no neutron stars or Black Holes.
- We don't know the age of stars because the thermonuclear evolution theory does not apply to them.
- Supernovae are totally inadequate as a source of heavy elements.
- We do not know the age of the Earth because radioactive clocks can be upset by powerful electric discharges. The powerful electric discharges that form a stellar photosphere create the heavy elements that appear in their spectra.
- Stars "give birth" electrically to companion stars and gas giant planets.
- Life is most likely to form inside the radiant plasma envelope of a brown dwarf star!
- Our Sun has gained new planets, including the Earth. That accounts for the 'fruit-salad' of their characteristics. It is not the most hospitable place for life since small changes in the distant Sun could freeze or sterilize the Earth.
- Planetary surfaces and atmospheres are deposited during their birth from a larger body and during electrical encounters with other planets.
- Planetary surfaces bear the electrical scars of such cosmic events.
- The speed of light is not a barrier.
- Real-time communication over galactic distances may be possible. Therefore time is universal and time travel is impossible.
- Anti-gravity is possible.
- Space has no extra dimensions in which to warp or where parallel universes may exist.
- There is no "zero-point" vacuum energy.
- The invisible energy source in space is electrical.
- Clean nuclear power is available from resonant catalytic nuclear systems.
- Higher energy is available from resonant catalytic chemical systems than in the usual chemical reactions.
- Biological enzymes are capable of utilizing resonant nuclear catalysis to transmute elements.
- Biological systems show evidence of communicating via resonant chemical systems, which may lend a physical explanation to the work of Rupert Sheldrake.
- DNA does not hold the key to life but is more like a blueprint for a set of components and tools in a factory.
- We may never be able to read the human genome and tell whether it represents a creature with two legs or six because the information that controls the assembly line is external to the DNA.
- There is more to life than chemistry.

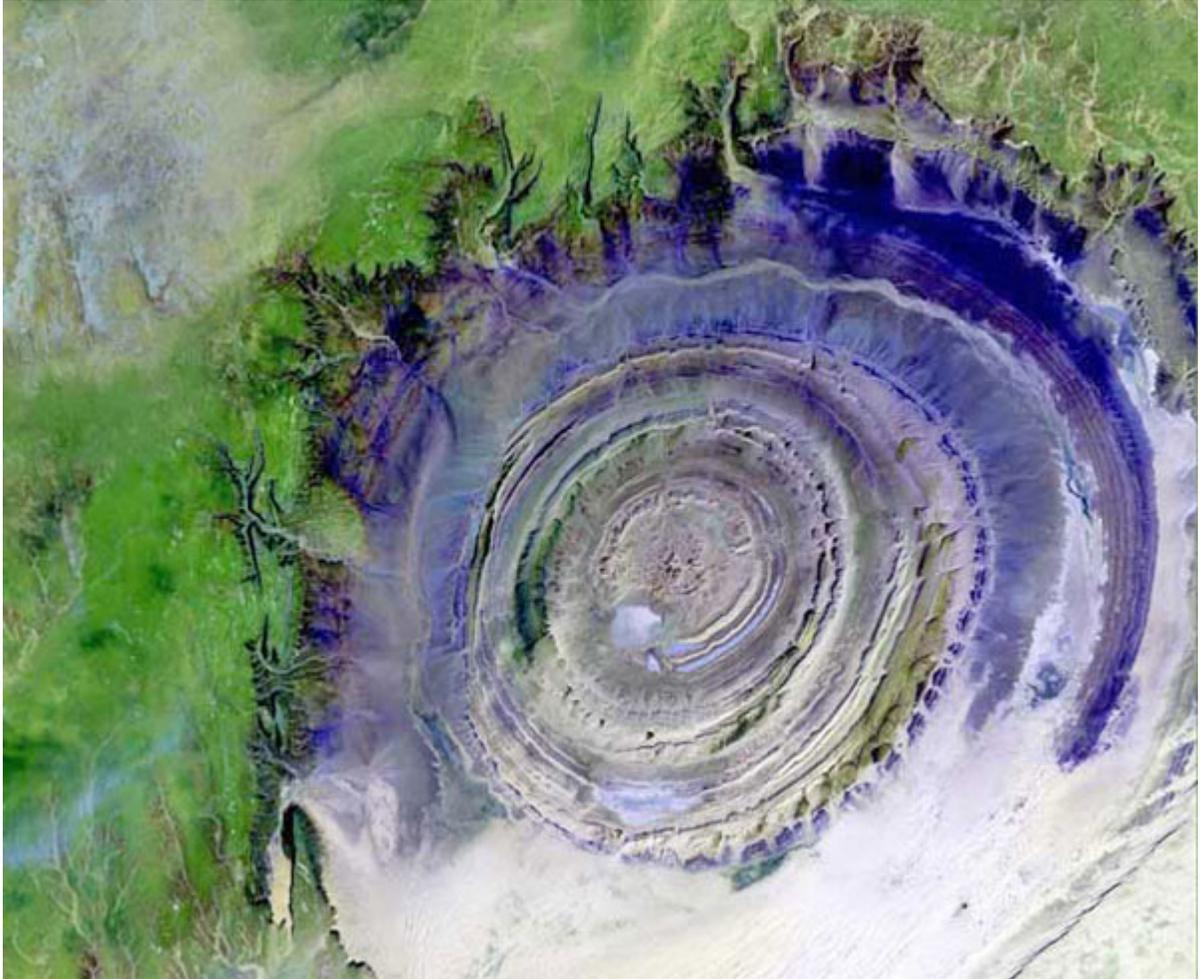
We are not hopelessly isolated in time and space on a tiny rock, orbiting an insignificant star in an insignificant galaxy. We are hopefully connected with **the power and intelligence of the universe**.

The future in an *Electric Universe* looks very exciting indeed!

Earth's Richat Crater

by David Talbott
from [Thunderbolts Website](#)

Apr 07, 2005

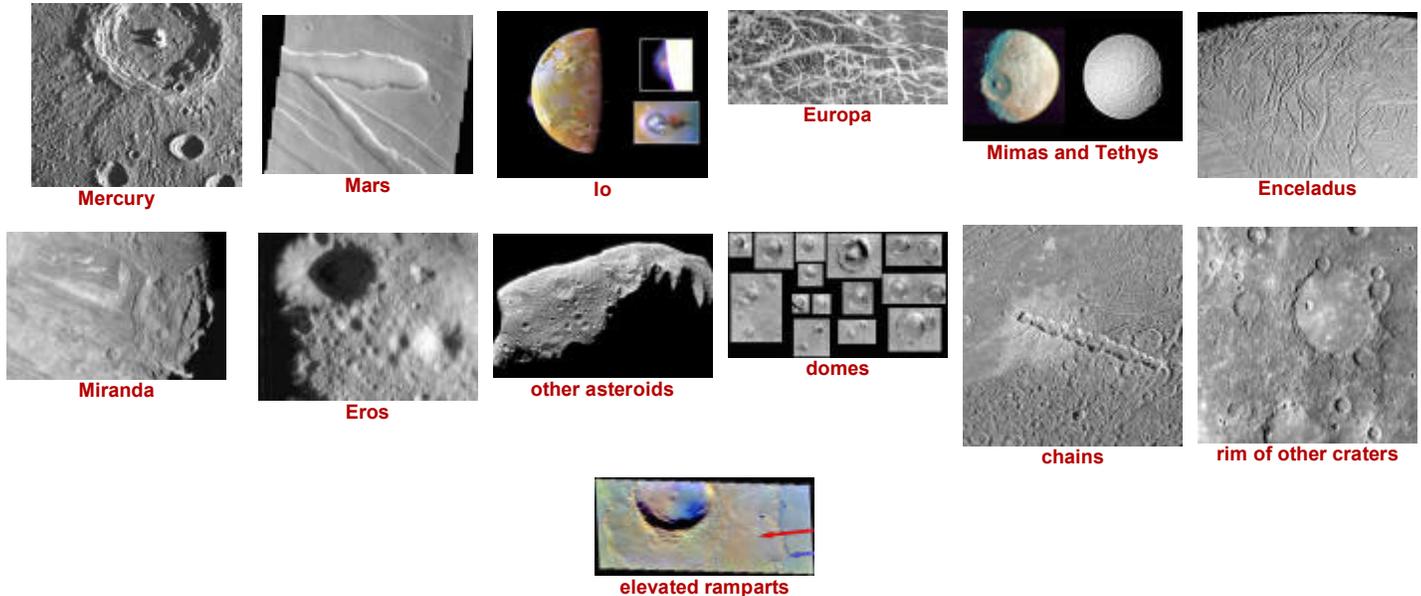


What was the cause of this uplifted region on the *Saharan desert floor* cut by a circular crater with concentric terraces? Geologists speculate that erosion by wind and water must have worked its magic on the upraised dome. Electric theorists see something else—the scar left by electric discharge.

In the *October 28, 2002 Astronomy Picture of the Day* the "explanation" goes like this: "What on Earth is that? The [Richat Structure in the Sahara Desert of Mauritania](#) is easily visible from space because it is nearly 50 kilometers across. Once thought to be an *impact crater*, the **Richat Structure's** flat middle and lack of shock-altered rock indicates otherwise. The possibility that the *Richat Structure* was formed by a *volcanic eruption* also seems improbable because of the lack of a dome of igneous or volcanic rock. Rather, the layered sedimentary rock of the *Richat Structure* is now thought by many to have been caused by uplifted rock sculpted by erosion.... Why the **Richat Structure** is nearly circular remains a mystery."

Electric Universe proponents consider the *circularity of the Richat Structure to be predictable*. So they pose a different question for planetary scientists: What on Earth and Moon, **Mercury** ([click on below images](#)), Venus, **Mars, Io, Europa**, Phobos, **Mimas and Tethys, Enceladus**,

Miranda, *Eros*, and *other asteroids*, etc. are these? Geologists have never adequately explained why almost all craters everywhere are circular. This has only been dismissed as a feature of impacts, something that has never been demonstrated, but only surmised. Other features of various circular craters -- *domes*, spheres, steep walls, *chains*, central peaks with strata consistent with the walls or surrounding terrain, undisturbed strata in the floor, unexpected size distribution, unexpected placement distribution (such as location on the *rim of other craters*), *elevated ramparts* -- all defy coherent explanation under the impact model.



Advocates of the EU model claim that craters like *the Richat* were not formed by impacts but were "*machined*" by *electric discharges*, Birkeland currents that rotate around a "sticking" point and excavate material by electrically accelerating it upwards without disturbing the surrounding or underlying strata, unless the whole area is raised in a *fulgamite blister--hence Rampart Craters*. Specific effects will depend on a wide variety of soil conditions including chemical composition, material type, density, moisture, and conductivity. Discharge factors, including diameter, voltage, current, and duration will also affect the crater configuration.

In contrast to conventional theorists, *advocates of the electric universe* contend that *planets moved under the influence of electrified plasma*, a medium that can easily overwhelm gravity. Orbits changed, and catastrophic electrical encounters altered the terrain, the climates, and the atmospheres of planets, including our Earth.

In the case of the *Richat Structure*, it is evident that the force uplifting the area also cut the concentric crater walls. In crater formation, the electrical forces constrain the arc to contact the surface at a 90-degree angle. Because the arc typically consists of one or more pairs of channels rotating around a common axis, a stationary arc will etch a circular crater and, in stratified terrain, will machine out concentric circles.

Electric Dust Devils

by Wal Thornhill
from [Holoscience](#) Website

25 April 2004

.. it may sometimes be that not to know one thing that is wrong could be more important than knowing a hundred things that are right.'

Halton Arp, Quasars, Redshifts & Controversies
The electrical character of dust devils and tornadoes is rarely mentioned. In fact, researchers only recently began to examine the **electrical nature of dust devils** in an effort to understand what is happening on **Mars**. Mysteries still surround electrical activity in our atmosphere. For example, the Earth has a vertical electric field, in the order of 100 volts per meter in dry air, whose origin is unknown. And scientists do not know what causes the most obvious electrical phenomenon in the atmosphere: lightning. See '*The Balloon goes up over lightning!*' ([image right](#)) for a discussion of the Electric Universe model of lightning.



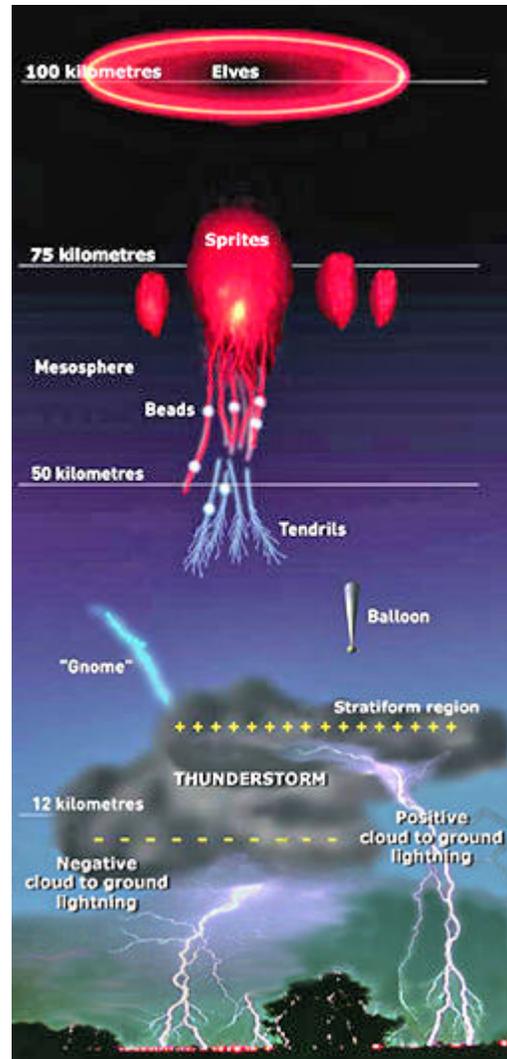
The artist seems to have intuitively included a glow discharge near the base of the dust devil.
Credit: University of Michigan

However, last week saw another success for the **Electric Universe model**. It's now official that dust devils on Earth exhibit strong electric fields, in excess of **4,000 volts per meter**. They generate magnetic fields as well. The

researchers who made the discovery added the qualification 'on Earth' because the discovery was a surprise. They cannot be certain that it applies to the dust devils on **Mars** because their purely mechanical model did not predict the electrical effects found in earthly dust devils. However the tentative connection was made and resulted in the following artist's impression ([click above left image](#)) of what an electrified Martian dust devil might look like.

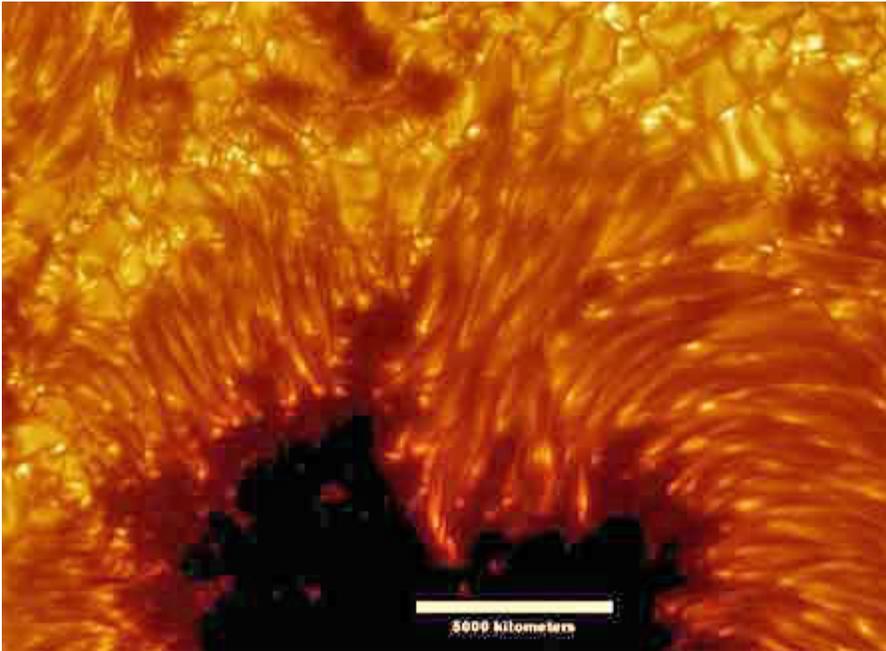
In July, 1999, I wrote:

'The 5 mile high **dust devils on Mars** and the global Martian dust storms are, I believe, a *manifestation of electric discharges on Mars*. In the very low atmospheric pressure lightning would be more like a diffuse auroral glow. The problem of generating dust storms on Mars is how to get the particles on the surface to "*saltate*", or *leave* the surface, with such little force in the wind. Electrostatic forces could easily do the job.'



Gnomes, sprites and elves stretch into space above powerful thunderstorms. Their fanciful names may reflect the fact that airline pilots reported them but for many years no one would believe them.

Several years ago, the *electrical nature of dust devils* and *tornadoes* was suggested in the [Electric Universe Synopsis](#). And a fuller explanation of the electromagnetic effects of a *tornadic electric discharge* was presented in [Sunspot Mysteries \(below image\)](#). There I wrote, 'Make no mistake, the Martian dust devils are tornadoes that dwarf their earthly counterpart.



Researchers at the Royal Swedish Academy of Sciences in Stockholm, led by Goran Scharmer, discuss the images in the Nov. 14 issue of the journal Nature:

Team member Dan Kiselman told what he sees in the new views of the Sun: "A dark-cored filament looks like a glowing snake with a dark stripe painted along its back," Kiselman said. "The 'head' of the snake is often a complicated feature where the stripe splits up among many bright points."

The pictures were taken with academy's recently installed solar telescope at La Palma, in the Canary Islands off the coast of Africa. Movies made by putting sequential images together show that the dark cores of the filaments are long-lived and possibly more stable than the brighter portions. The scientists also identified canal-like structures in the so-called penumbra of sunspots that "could also be described as a pattern of cracks," Kiselman said. The penumbra straddles a sunspot's dark core and brighter regions elsewhere on the solar surface. "Whatever metaphors we use for these features, one should remember that everything is just glowing gas."

It shows that clouds are not required to generate them. **They are an atmospheric electric discharge phenomenon.'**

More recently I suggested that the *Mars Exploration Rover, Spirit*, which landed in a dust devil scarred area, suffered electrical interference severe enough to cause computer problems.

Now in a report from *Astrobiology Magazine*, Dr. **William Farrell** of *NASA's Goddard Space Flight Center* says, 'Dust devils are common on *Mars*, and *NASA* is interested in them as well as other

phenomena as a possible nuisance or hazard to future human explorers.'

'If *martian dust devils* are highly electrified, as our research suggests, they might give rise to increased discharging or arcing in the low-pressure martian atmosphere, increased dust adhesion to space suits and equipment, and interference with radio communications.'

Farrell is the lead author of the paper about this research published in the *Journal of Geophysical Research*.

"Two ingredients, present on both *Earth* and *Mars*, are necessary for a dust devil to form: rising air and a source of rotation," said **Dr. Nilton Renno** of the University of Michigan, Ann Arbor, Mich., a member of the research team and expert in the fluid dynamics of dust devils. "Wind shear, such as a change in wind direction and speed with altitude, is the source for rotation. Stronger updrafts have the potential to produce stronger dust devils, and larger wind shear produces larger dust devils," **Renno** said.

Comment: In the words of **Halton Arp**, 'not to know one thing that is wrong could be more important than knowing a hundred things that are right.' In this case it is the confusion of cause and effect. It is simply assumed that the Earth and its environment in space is electrically neutral. Therefore some energy is required to cause charge to separate and produce the strong electric field in the dust devil. The only energy available is solar radiation and the movement of air (fluid dynamics). However, in an electrified universe charge is already separated on the macroscopic scale and the movement of air in a dust devil is an effect of charge recombination, not a cause of charge separation.

Dust particles become electrified in **dust devils**, when they rub against each other as they are carried by the winds, transferring positive and negative electric charge the same way you build up static electricity if you shuffle across a carpet. Scientists thought there would not be a high-voltage, large-scale electric field in **dust devils**, because negatively charged particles would be evenly mixed with positively charged particles, so the overall electric charge in the dust devil would be in balance.

Comment: It is clear from laboratory experiments that different size dust grains can charge to opposite polarities upon collision. However, the electric force between oppositely charged grains would tend to prevent their separation. That is what scientists expected and it explains their surprise when the opposite was found. But it may not be so surprising if we stop treating a **dust devil as a fluid dynamics problem** and consider it instead as weakly ionized plasma subject to the Earth's vertical clear-air electric field. In such circumstances the electric field may be strongest (and the electric field reversed) at the base of the dust devil due to the formation of a plasma 'double layer' or 'virtual cathode.'

However, the team's observations indicate ***smaller particles become negatively charged, while larger particles become positively charged.*** ***Dust devil winds*** carry the small, negatively charged particles high into the air, while the heavier, positively charged particles remain near the base of the dust devil. This separation of charges produces the ***large-scale electric field***, like the positive and negative terminals on a battery. Since the electrified particles are in motion, and a magnetic field is just the result of moving electric charges, the **dust devil also generates a magnetic field.**

Comment: The earth and all other bodies in the universe are not isolated and electrically inert. They are intimately connected to and influenced by the **Electric Universe**. This means that **dust devils** are not a local event, but ***are driven like motors by a cosmic current.*** ***Dust devils*** and ***storm clouds*** do not act as 'batteries' or 'dynamos' to provide power to a global atmospheric circuit. As for the magnetic effects of a tornado or dust devil, they will be very strong because the charges are moving at meters per second instead of centimeters per hour, as happens in a current-carrying wire.

If **martian dust grains** have a variety of sizes and compositions, ***dust devils on Mars should become electrified*** the same way as their particles rub against each other, according to the team. Martian dust storms, which can cover the entire planet, are also expected to be strong generators of ***electric fields***. The team hopes to measure a large dust storm on Earth and have instruments to detect atmospheric electric and magnetic fields on future ***Mars landers***.

Comment: In the ***electrical model of the solar system***, all planets must contrive to supply electrons to the **positively charged Sun**. ***Mercury*** probably does it in a similar way to our ***Moon***, through photoelectric and cold-cathode emission. Occasionally the emission may be strong enough at certain '***hot spots***' to cause the anomalous glows seen on the ***Moon***. The next planet from the ***Sun***, ***Venus***, has an ionosphere entwined in current 'ropes' from the solar wind. It causes powerful '***super bolts***' of lightning to fly ***between the planet's ionosphere and the surface***. It seems the electric field at ***Venus***' hot surface is so strong that above a certain altitude the atmosphere hugging the surface glows with a surface discharge known as ***St. Elmo's fire***. Being dense plasma it reflected the radar signal from the ***Magellan Orbiter*** as if the mountains of ***Venus*** were plated with metal, much to the puzzlement of planetary scientists.

On ***Earth*** we have water clouds to charge up between the ionosphere and the Earth and spare us the ***super bolts of Venus***. Although there are rare reports of '***bolts from the blue***,' the ***Earth*** contrives to discharge in two stages, by lightning from ground to cloud and by ***glowing jets from the cloud to the ionosphere***. The latter stage has only recently been recognized and the flashes given whimsical names like '***sprites***,' '***elves***' and '***gnomes***,' which probably reflects the scientists' disbelief before they were finally acknowledged. On rare occasions, a powerful lightning bolt strikes directly from the cloud tops to Earth. Such **super bolts** rip electrons violently from the earth and may form small-scale furrows like those seen on all other solid bodies in the solar system.



Above: This is a section of a prominent lunar rille, Schr's Valley, which also shows the tortuous path of the lightning along the floor of the wider trench

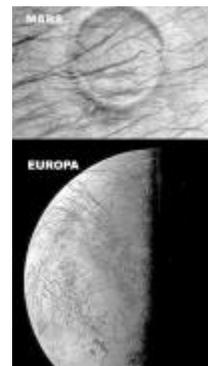
Left: This 40 foot rille was torn out by lightning. The more tortuous path of the narrow lightning stroke can be seen as a groove in the bottom of the trench. Credit: National Geographic, June 1950

Usually the cloud to ground discharge takes the form of the multiple sparks we call lightning. However, in some parts of the world the lightning switches to the slower discharge of the tornado. Then, instead of the electric charge rushing directly between the ground and the cloud along a thin lightning channel, it is constrained by powerful electromagnetic forces to rotate in a long, thin cylinder or vortex. Measurement of the magnetic field and earth current near touchdown of a tornado shows that it is electrically equivalent to several hundred storm cells. It is this **concentrated electrical power** in the central vortex that creates damage far in excess of that possible for a simple wind vortex. It also explains the burnt surfaces and objects sometimes found after the passage of a tornado.

The thin dry atmosphere of **Mars** and the large temperature gradient near the surface is certainly conducive to the formation of dust devils. However, like the other planets, **Mars** has to supply electrons to the solar discharge. The high electron density above **Mars** was remarked upon when the first orbiting spacecraft arrived there. Images from **Mars landers** of a dust laden pink sky were also a surprise. Scientists expected a deep blue-black sky because the atmosphere is about a hundred times thinner than ours and less able to hold dust suspended. In the thin, practically cloudless air of Mars, the **dust devils** provide the best means of moving electrons from the surface toward the Martian ionosphere. The dust particles, becoming charged, would be suspended in Mars atmospheric electric field to give the pink sky. In other words, **Martian dust devils** are more akin to tornadoes. Towering up to 8 kilometers into the sky their destructive capability at the surface would be far more powerful than that of a simple spinning wind in Mars' thin air.

When these **Martian tornadoes** pass over the surface of **Mars**, they often leave dark, criss-crossing streaks on the land. It is simply assumed that the wind removes bright dust from the terrain, revealing a darker surface underneath. It is possible however, that electrical damage to the surface, and therefore erosion, is being caused by the Martian tornadoes. They certainly pose a much greater risk to landing craft and future visiting astronauts than scientists expect.

Meanwhile there is another example of an electrically damaged body



whose surface patterns bear a strong resemblance to those formed by the electric tornadoes on *Mars*. It is *Jupiter's moon, Europa*.

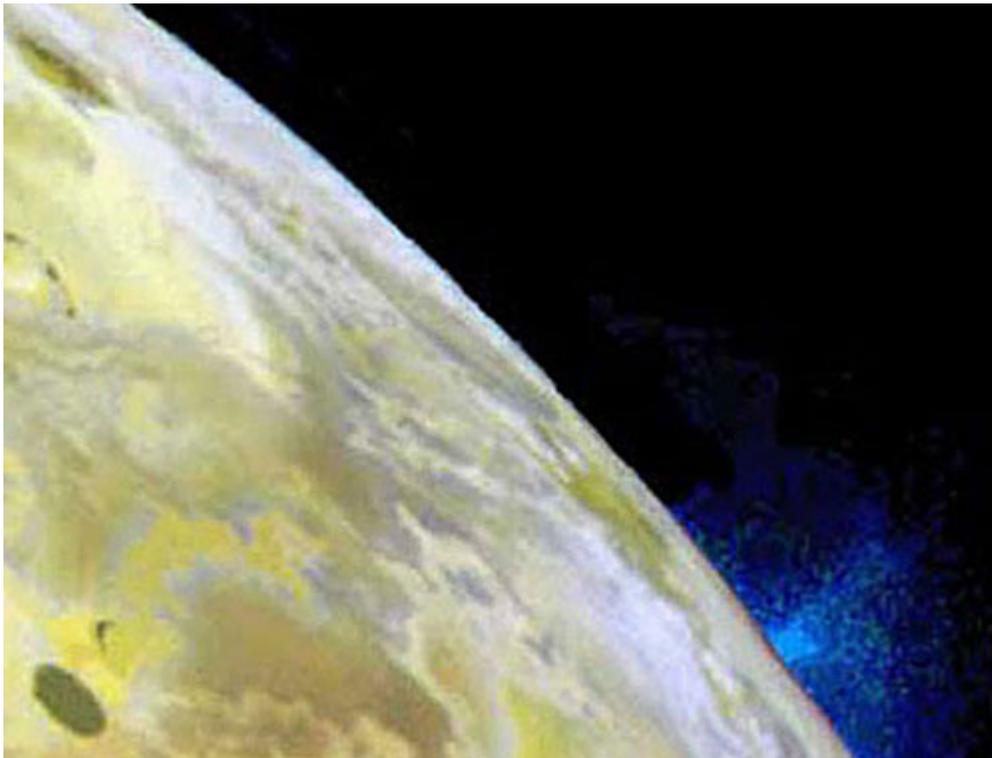
Traveling discharges created giant furrows on *Europa* reflecting the great strength of those wandering arcs compared to the diffuse discharges on *Mars* today. The furrows on *Europa* are not cracks in the ice. They are instead a frozen record of the catastrophic power of Jupiter's thunderbolt, when unleashed by that electrical powerhouse of a planet.

The *Electric Universe model* provides a unifying concept for understanding the solar system by simply accepting the overwhelming evidence for the primary role of electricity and the electric force in the mechanism of the cosmos. Future historians will find the science of the 20th century extraordinary for its insistence on a cosmology based on pre-industrial-revolution thinking. Electricity was a mystery then and remains so into the 21st century for astronomers and geologists. Once again, *to not know this simple fact is more important than all things they do know*.

Electric Jets on Io

by David Talbott
from [Thunderbolts Website](#)

July 28, 2004



Credit: The Galileo Project, JPL, NASA

This photograph, taken by the *Galileo space craft*, is one of many images showing plumes of *plasma jetting* from the surface of *Jupiter's* closest moon *Io* and reaching up to hundreds of kilometers into space. The first to suggest that these *plumes* were electrical discharge was *Cornell University astrophysicist Thomas Gold*, whose article on the "*Electric Origin of the Outburst on Io*," was published in the journal *Science*, *November 30, 1979*. In 1987 *Gold's*

interpretation was supported by *plasma physicists* **Alex Dessler** and **Anthony Peratt** in an article published in the *journal Astrophysics and Space Science*. **Dessler** and **Peratt** observed that both the filamentary penumbra and the convergence of *ejecta* into well-defined rings are characteristic plasma discharge effects that have no counterpart in *volcanoes*.

Further evidence was returned by the *Galileo probe*, which found the source of the *plumes* to be hotter than any lava on Earth - a predictable discharge feature in the *electric model*. But perhaps the biggest surprise was that the "volcanoes" had moved tens of kilometers in a few years, another predictable feature of the electric model.

For the proponents of the "electric universe", the arcing on *Io*, in its electrical connection to Jupiter, is analogous to the *arc* on a *comet nucleus* as it penetrates deeply into the electrical field of the *Sun*. The one produces streams of plasma and dust that flow from the *Jovian domain* into the rest of the solar system, while the other produces the familiar comet tail.

- <http://spaceflightnow.com/news/n0005/04joviandust/>
- <http://www.holoscience.com/news/inferno.htm>