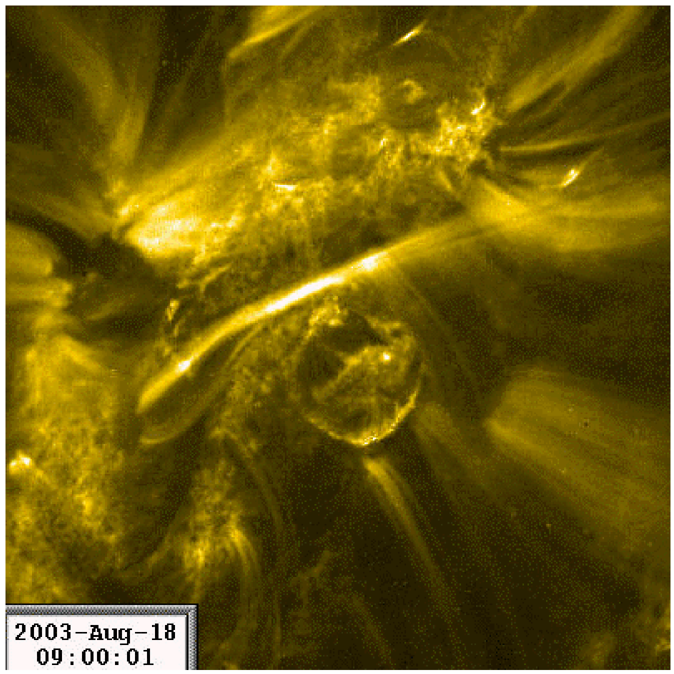
The Surface (Ferrite Layer) Of The Sun

A 21st century "solid surface" electrical model of the sun based on state of the art satellite imagery from the YOHKOH, SOHO and TRACE solar observation programs and from spectral analysis compiled by the SERTS program.



A close-up of the surface of the sun using 171A filter onboard TRACE(1)

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ABSTRACT: Galileo's 16th century observations of the sun, and the uneven rotation patterns in the sun's photosphere laid the foundation for the gas model hypothesis. Only in the past decade have we had access to technology that could verify or falsify Galileo's critical assumption that nothing solid exists beneath the photosphere, the deepest layer of the sun that he could see through his relatively primitive telescope. The evidence from the YOHKOH, TRACE and SOHO satellite programs, combined with spectral analysis compiled by the SERTS program, provides very compelling evidence to suggest that the sun has a solid, electrically conductive ferrite surface that sits beneath the visible photosphere, the layer of the sun that Galileo first observed. This information suggests that a 16th century model of the sun must now give way to a 21st century model of the sun that accounts for all of these new observations from the past few decades.

1. Introduction

Scientific Objectivity In The 21st Century

As we enter the 21st century and stand at the dawn of the information age, it becomes ever more critical that we in the scientific community keep an open mind to new ideas. We must allow for new models of the sun to emerge from the knowledge we acquire from modern computer technologies and advanced satellite imaging techniques. These emerging technologies enable us to better understand the inner workings of our own sun and provide us with the keys we will need to finally decipher and read the astronomical "Rosetta Stone" sitting in our own backyard and finally start to unlock the secrets of the quantum universe.

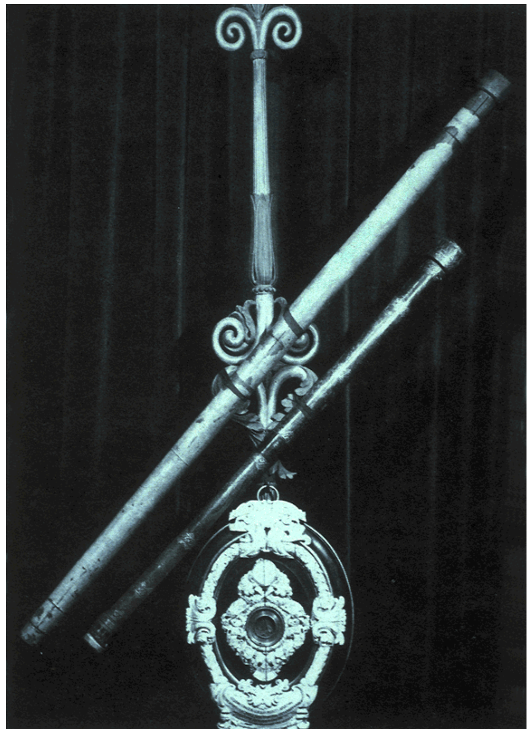
As we bring new and advanced technologies to bear on the question of the sun's complex composition, we must remain particularly vigilant in our effort to remain neutral and careful observers. We must remain detached and distance ourselves from any biases within the scientific community that may attempt to dismiss new ideas only because these new ideas buck the traditional academic models. Instead we must treat each model fairly and equally and openly. Each model that emerges must be compared to other models in terms of how the various models explain the behaviors of the sun that we observe in these powerful and profound new images. It is my intent to offer a very compelling alternative to the standard gas model based on direct photographic and video observations from three different multi-million dollar satellite programs, in the hope of generating renewed academic interest in offering competing scientific models to students and fostering a more balanced educational approach toward future research.

There is also very compelling evidence to suggest that the gas model theory has been falsified once and for all in these new satellite images and in careful analysis of the SERTS spectral data.

For that reason, I have compiled a reasonably comprehensive solid surface model of the sun based on 21st century images and technologies and modern spectral analysis. To demonstrate the worthiness of this alternative model for serious scientific and academic consideration, I will use this model to explain a wide variety of observed solar phenomenon. I offer this working model of the sun and my interpretation of the satellite evidence for peer review. It is my hope that this solid surface model, as well as other competing models will be embraced by the academic community and that future research efforts will be more evenly distributed between various possible theories and models to explain the observations we have made from 21st century technologies.

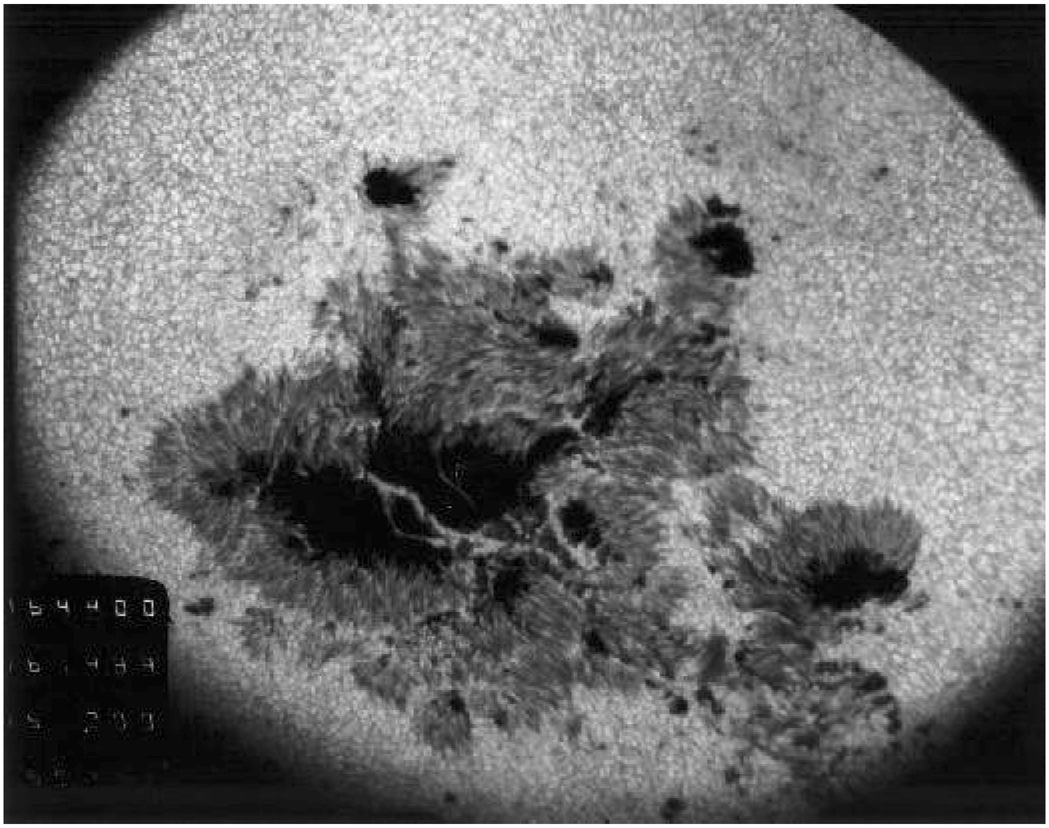
This solid surface model of the sun is based and built entirely upon observations from the YOHKOH, SOHO and TRACE satellite programs, from spectral analysis data compiled by the SERTS program and from other solar observation programs from around the world. I have focused specifically on programs that have been delving into the inner workings of the sun over the past two decades using state of the art technologies. In that relatively short period of time, our knowledge of the sun, and our understanding of the types of materials and surfaces that compose the sun, have improved tremendously. The imagery we see today through these cutting edge satellites and telescopes provide us with brand new sets of eyes and state of the art observations of the sun that were never available to Galileo, or available to gas model theorists of the last four centuries.

2. Observations And Data Analysis



Technology of the 16th Century(2)

The gas model theory originates with Galileo's 16th century observations of the sun's photosphere using relatively primitive telescopes. Telescopes of comparable power would cost no more than a few hundred dollars in today's market. Galileo's rudimentary telescopes certainly were not as powerful as the telescopes that produced the close-up images we see from powerful ground base telescopes today. He never had these kinds of images to work with or to observe. Galileo certainly never had access to any multi-million dollar satellite images or Doppler imaging systems. If he had been privy to these types of technologies and visual evidence, his model of the sun would have been vastly different than the gas model he first proposed.

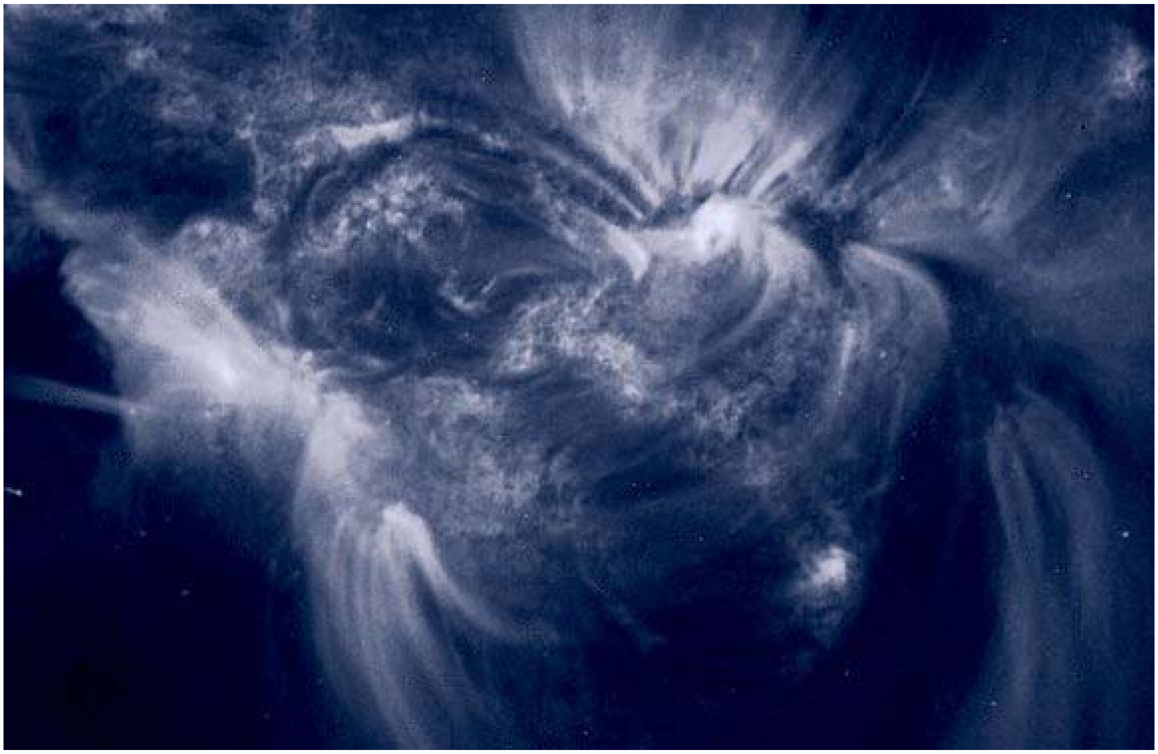


Close up(3) of the hole in the top of the photosphere

With his telescope, Galileo observed that sunspots formed holes in the visible surface of the photosphere. He observed that these sunspots rotated at different rates near the equator than they did near the poles. From this uneven rotation and erratic sunspot behavior in the photosphere Galileo deduced that he was looking at a gas. He was correct in that assessment although we know today that the photosphere is really a form of plasma.

Unfortunately for science and for astronomy in particular, Galileo simply "assumed" that nothing solid existed or could exist beneath the visible layer of the photosphere. That was a critical mistake. That is a bit like looking at a world covered in water and having no ability to see beneath the surface of the water, and simply assuming from a place of pure speculation that the whole world must be made almost entirely of water. Only in the past decade have we had the technology to actually test Galileo's hasty assumption, an assumption that is critically important to relevancy of the gas model theory. If that core assumption was false to begin with, then the gas model theory is also false. Based on spectral analysis of the sun's emissions and modern satellite imagery, things don't look very promising for Galileo's assumption that nothing solid can exist beneath the photosphere.

Even in this photo, using a far more power telescope than Galileo had access to, that particular assumption seems rather dubious. If we look closely at this close-up photo of a sunspot, we can see what appear to be a series of "cracks" along a surface far below the layer of penumbral filaments.



TRACE(4) images the ferrite layer is the layer that is responsible for solar moss

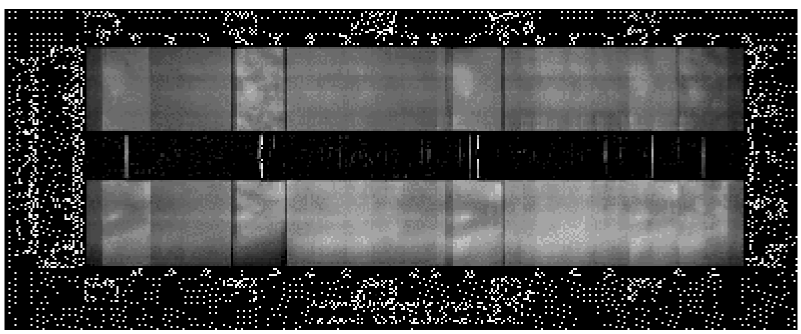
Before we consider the satellite evidence that directly refutes Galileo's gas model assumptions, we need to address the fact that the gas model hypothesis has failed to explain the more important aspects of the sun's inner workings even after 400 years of intense efforts by untold numbers of incredibly intelligent and highly dedicated scientists the world over. To this day, the gas model concept has not explained the cause of moving sunspots, nor the cause of solar flares, nor the cause of solar moss activity, nor the sun's 11 year activity cycle, etc. To date this model has produced almost no predictive abilities at all and few cause and effect relationships to explain what happens on the sun. The gas model has never really explained even the most basic and important behaviors of the sun, even after four centuries of effort.

Based on the gas model's inability to explain the sun's inner workings, and based on modern satellite imagery from the YOHKOH, SOHO and TRACE programs and from spectral analysis from the SERTS program, it is now time for the scientific and academic community to take a step back from its sole allegiance to the traditional gas model that Galileo first proposed. It is time to take a serious and skeptical look at Galileo's assumption that nothing solid exists beneath the photosphere The evidence compiled over the past few decades from these satellites and space programs suggest that a solid, electrically conductive surface oriented model of the sun must emerge to take the place of the old gas model.

Lions and tigers and ferrite? Oh my!

Spectral analysis

The SERTS program offered us the first tantalizing clues about the makeup of a new, very mysterious, and previously unknown layer of the sun based on its spectral analysis of the sun's ion emissions. To this point in time, we were familiar with hydrogen ion emissions, as well as helium and calcium ion emissions. This information allowed us to focus in on the suns photosphere and outer layers and observe the interactions between them. Careful analysis of SERTS spectrum data suggested that a lot more activity was found in the ferrite ion spectrum than anyone had ever imagined! This early evidence suggested that perhaps a more complex model of the sun was in order. The early SERTS data suggested that there could be another layer of the sun, a layer rich in ferrite and other heavy metals, a layer of the sun that no one had ever seen before. In addition to ferrite, SERTS found large quantities of silicon, magnesium, manganese, chromium, aluminum and neon in the sun's emissions! During the sun's more active cycles it also observed the presence of elevated levels of **sulfur** and nickel.



Spectral Analysis From SERTS(5)

These important efforts, started in the early 1970's, revealed to us for the first time that the sun's emissions fell into wide range of very specific categories, and included not just a few, but at least 57 different types of ion emissions from at least 10 different kinds of elements to consider, not to mention the predicted hydrogen layer. To piece together a working model of the sun's many layers requires careful thought and must address each and every one of these ion emissions. That is quite a large assortment of different elements and ions to understand and try to piece together. To construct a working model of the sun based on this new information, we must strive to determine where each type of these ions comes from, and how they interact with other layers. We need to know how all these elements interplay with each other through the various layers of the sun. Any overly simplistic model of the sun is therefore doomed to eventual failure and replacement. It is likely that more elegant, more verbose, and more accurate models and explanations will consistently emerge over time and our knowledge of the sun improves based on new technologies and new observations.

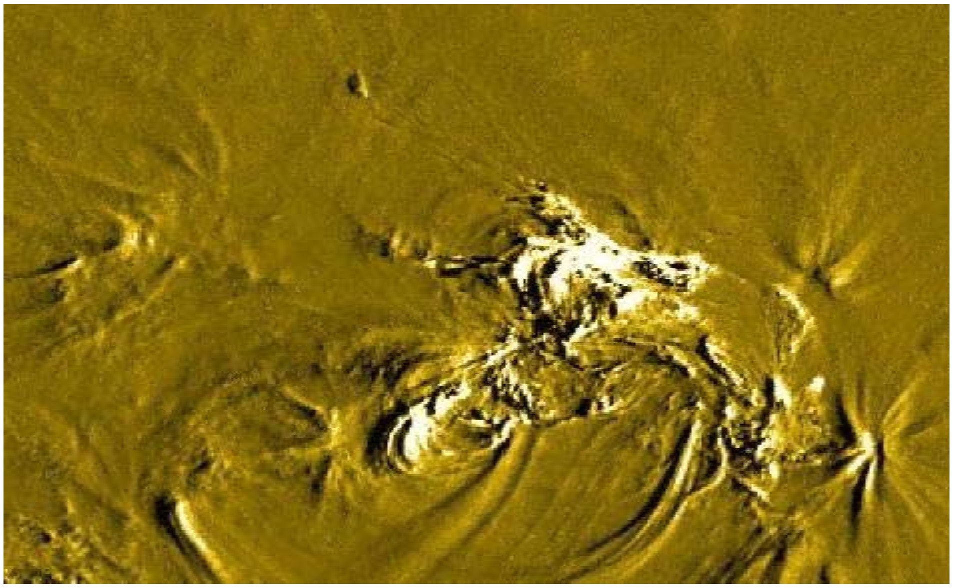
One of most startling and intriguing observations from the SERTS(5) program was its discovery of very high numbers of ferrite, chromium, magnesium, manganese and silicon ion emissions. It furthermore revealed that these metallic and silicon ion emissions came from many unique states of ionization. That revelation stood in remarkable contrast to the predictions of the gas model where iron and silicon are expected to exist only in relatively small quantities. If the sun suffers from anemia, and is iron poor, then where are all of these ferrite ions coming from? Where is all the silicon? Where is that magnesium coming from? What are all these ferrite and silicon ion emissions doing in this spectral analysis? Could the ferrite and other metal ions be coming from a completely unknown layer of the sun, one we had never “seen” before? The hunt for the source of these metallic ion emissions first began in earnest with the efforts and revelations of the SERTS program.

It is important to note here that early observation of the sun and early theorists presumed that the composition of solar wind alone might be the “best” way to guess at the composition of the sun. The obvious problem with that idea is that hydrogen, being a light material, can more readily escape the gravity of the sun than heavier elements. Therefore hydrogen will naturally be more abundant in solar wind than heavier elements like ferrite or silicon which would be far less likely to escape the gravity well of the sun. If these elements are present in the sun’s composition however, photons from their ions will certainly escape the gravity of the sun and show up in spectral analysis. Based on the tendency for inner layers to be cooler than outer layers, and the fact that lower layers push much of their heat into the outer layers, the outer, warmest layers will be better represented in the spectral analysis than lower, cooler layers. In other words, we cannot simply assume that the abundance of hydrogen in solar wind and spectral analysis precludes the sun from containing other elements, or directly relates to the sun’s actual composition. We have no idea if materials from inner layers are ionized at the same rate as outer layers, since we don’t know how all these materials interact. We know which elements are present, but we can’t be sure of the arrangement or abundance of these elements until we know a lot more about how the sun works.

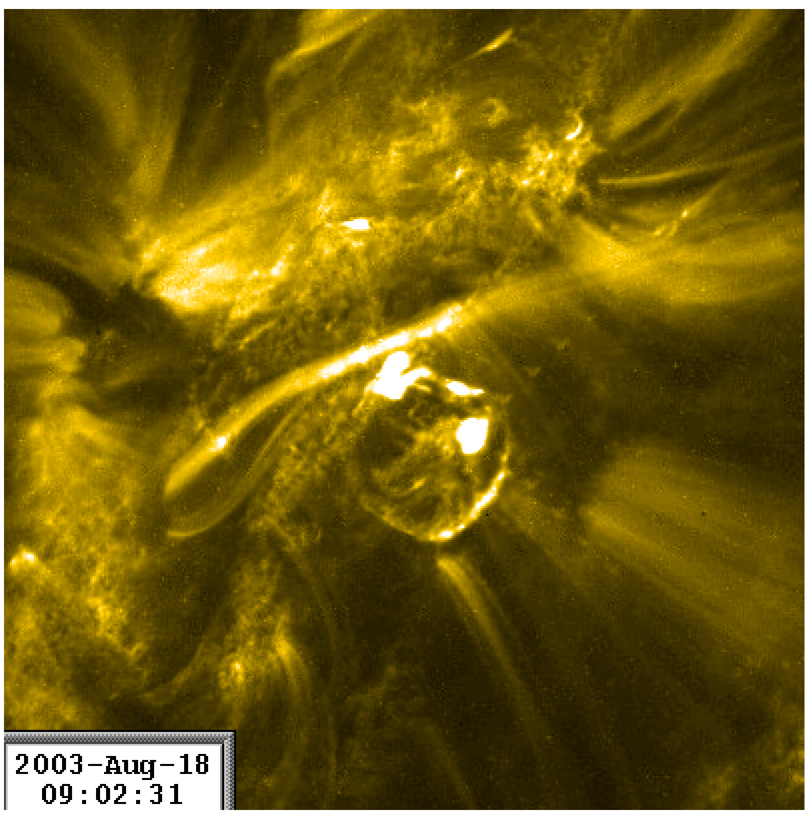
The Hunt For The Ferrite Layer Was On!

Once SERTS(5) observed large amounts of ferrite and silicon ion emissions emanating from the sun, it revealed the obvious weakness in Galileo’s gas model theory. The presence of high numbers of ferrite ion emissions suggested the presence of large quantities of magnetized iron which must exist somewhere in sun’s various layers, somewhere in that complicated mixture was a startling amount of ferrite. The unexpectedly high quantities of ferrite, silicon, magnesium, manganese and chromium ions emissions cast the first serious doubt and provided the first scientific evidence that something was ***seriously*** wrong with the gas model theory. The gas model theory predicts that the sun contains over 90% hydrogen and relatively small quantities of iron and very little of these other elements as well. The significant number of various ferrite ions represented in SERTS spectral analysis efforts hinted at the possibility of the presence of a very large amount of previously unidentified magnetized iron crystals, ferrites that MIGHT even be a capable of forming a solid surfaces and capable of releasing ferrite particles and ferrite ions into the sun’s atmosphere.

SOHO and TRACE record this mysterious new ferrite "layer" of the sun with remarkable and stunning precision.



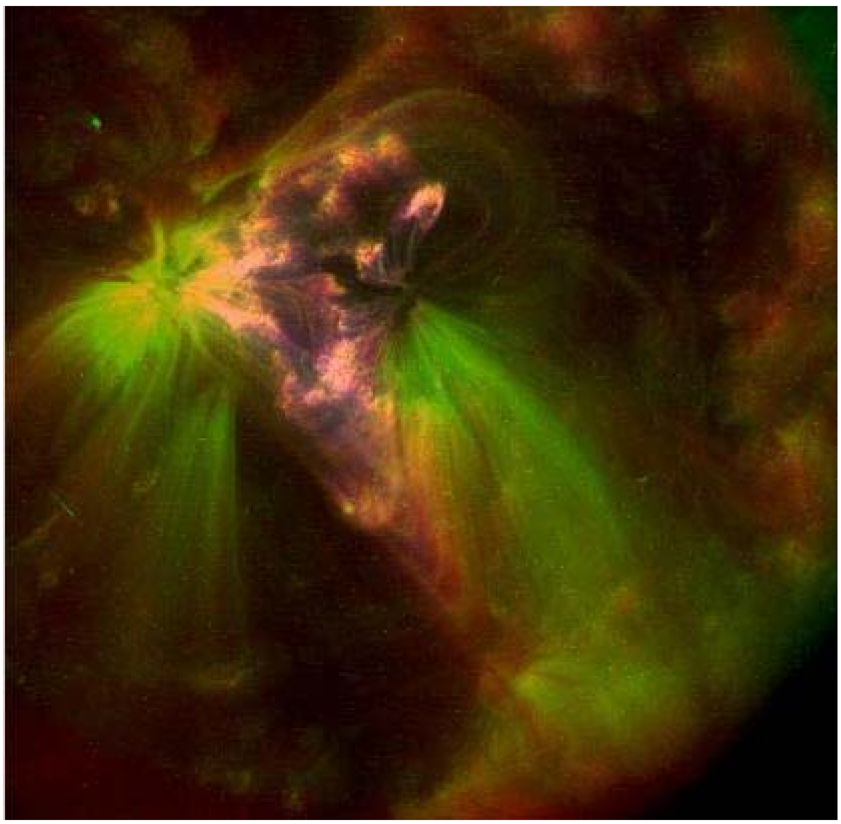
Running Difference Image By TRACE(6) at 171 angstroms.



Close-up of the ferrite surface taken by Trace(7)
at 171 angstroms

Elegant Engineering

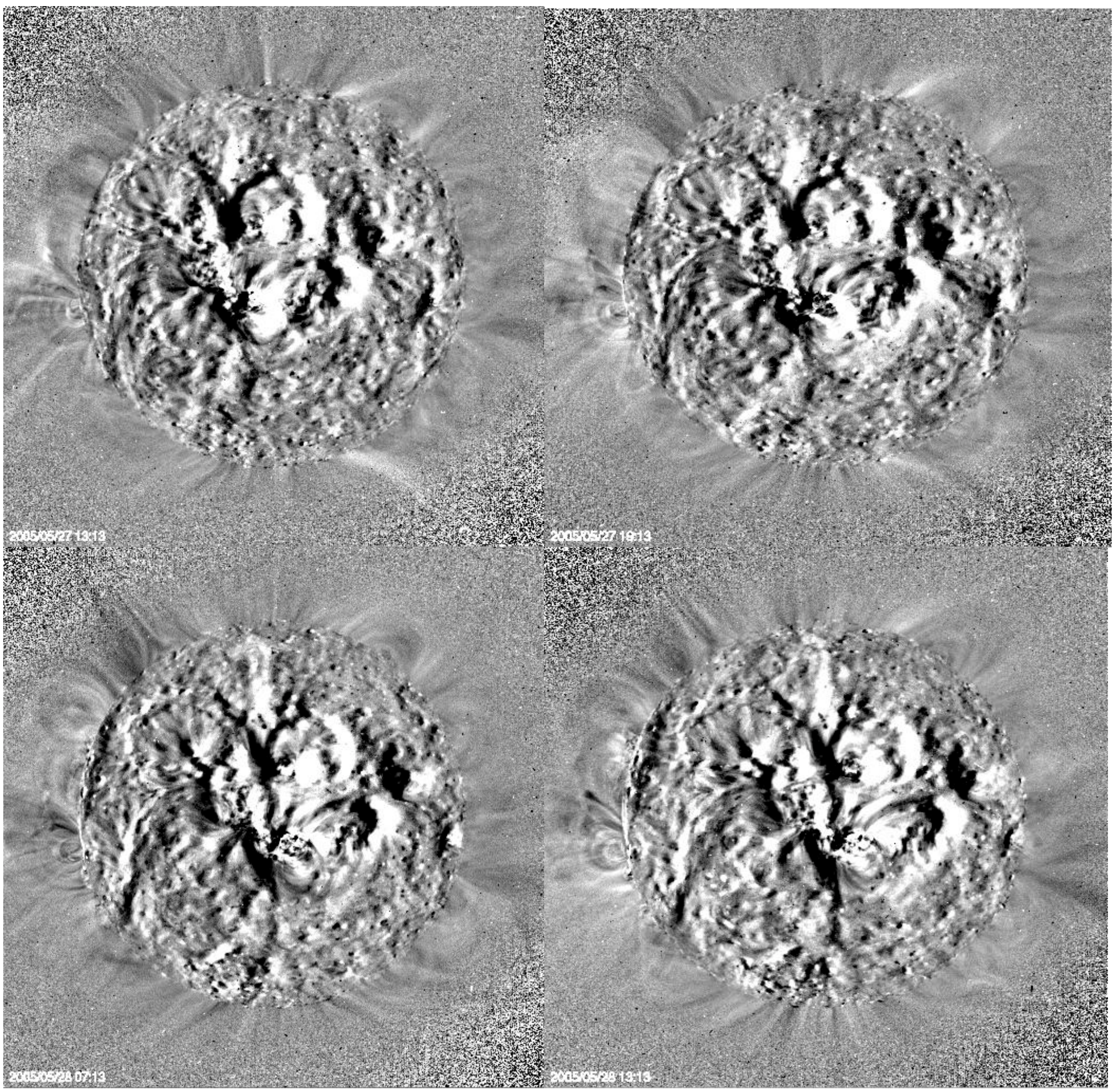
The SOHO and TRACE satellites were both intelligently engineered and beautifully designed from the start. They give us new eyes to see and study these ferrite emissions with incredible precision. These satellite programs carry a very innovative assortment of cutting edge instruments and technologies, most notably three different filters, three new sets of eyes (171, 195 and 284 angstroms) capable of viewing ferrite ion emissions in three separate wavelengths, even Doppler imaging capabilities as well! The images that TRACE and SOHO gathered and observed with these different instruments and filters, particularly in the 171 and 195 angstrom wavelengths, provide us with breathtaking images of this newly revealed ferrite layer. These photos are simply stunning in detail. But this is only one of many incredible capabilities of the TRACE satellite.



TRACE(8) takes a close up of the ferrite surface in multiple spectrums

TRACE also has the ability to "zoom in" on this layer and study this layer in multiple wavelengths. This is a composite close-up of this surface that was imaged by the TRACE spacecraft. This "close up" composite of the ferrite layer superimposes all three ferrite ion spectrums (171, 195 & 284 angstroms) on top of one another to create a composite image of the behavior of this layer and its relationship with the observed solar emissions. You'll notice that the arcs seen in these photos all originate from the same surface points. These arcs all exhibit a very similar flow pattern around a visible "hard" surface. Such an image can be explained by considering the possibility of electrical activity between these rigid surface points. The electrical arc that would pass between oppositely charged points on a solid ferrite surface would strip away ferrite particles from the surface and ionize these particles in the electrical arc. We can see in these images that all three wavelengths are well represented. Every one of them originates from the same **rigid and fixed surface formations**. All three can be observed as originating from and around the same structured points of a relatively rigid surface. The fact that all three types of ions originate from the same basic location on this "surface", demonstrates a pattern of energy FLOW between these various points. That energy flows in the form of electricity. The general up/down orientations of these electrical discharge patterns suggests their electrical orientation is related to surface elevation, at least in this particular instance.

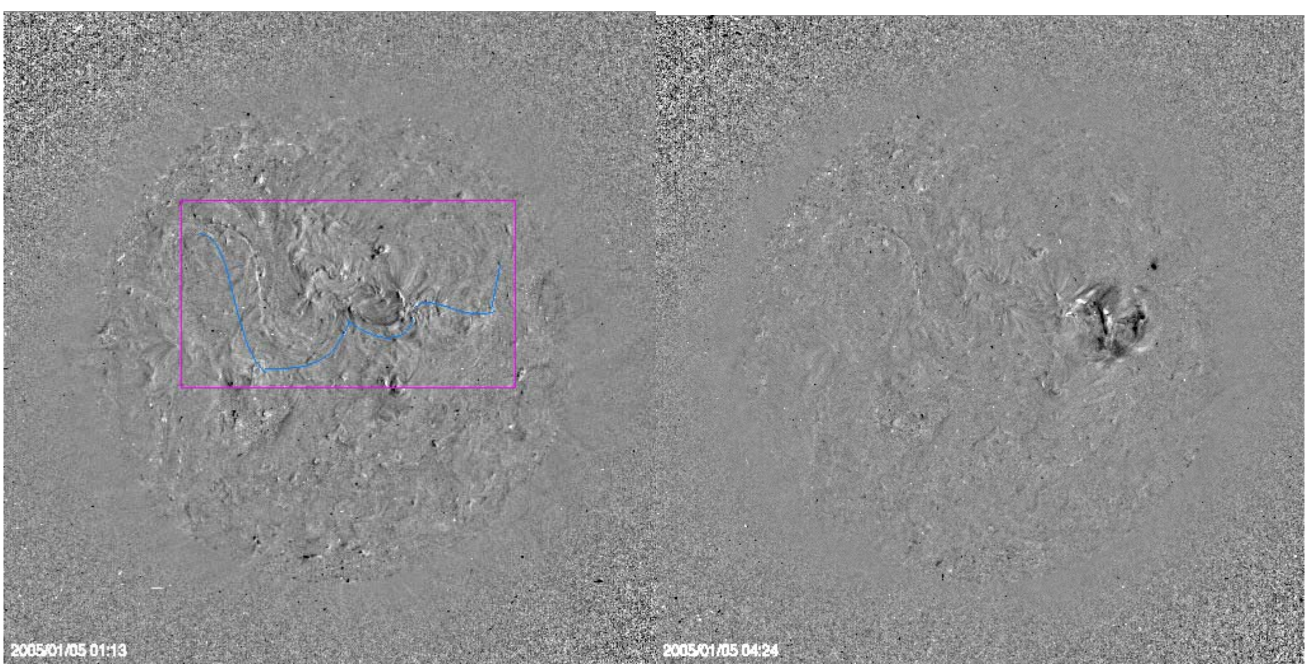
SOHO Provides Us With The Big Picture

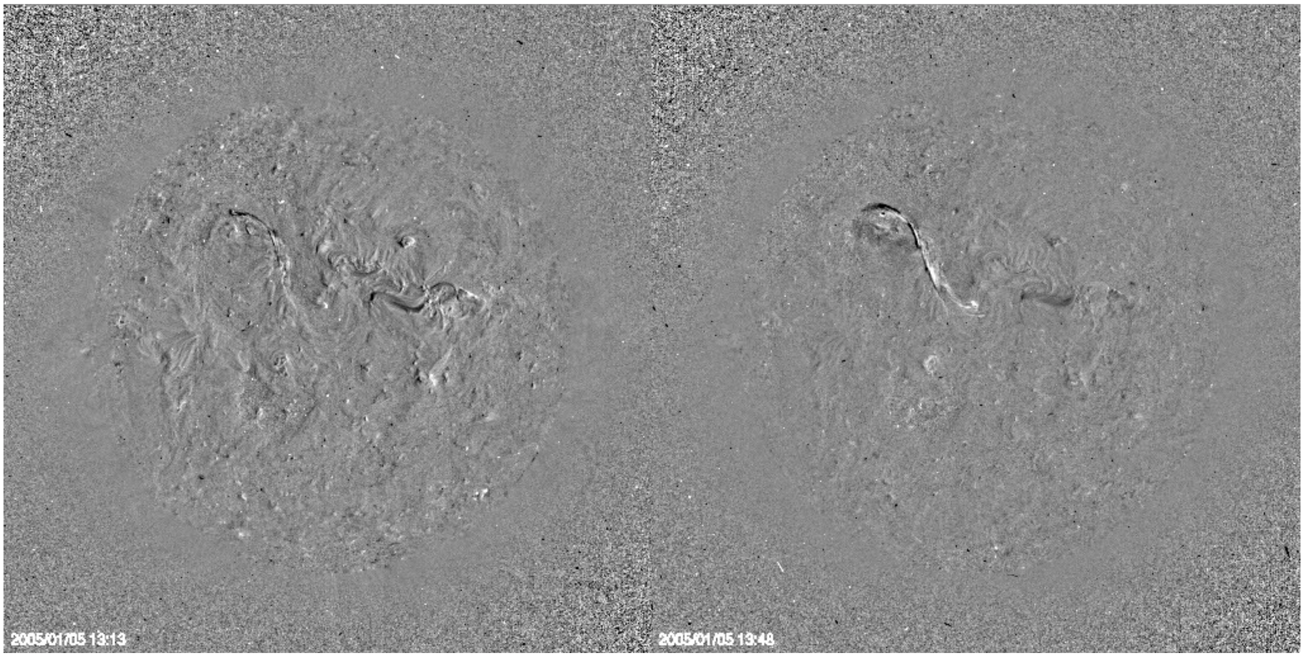


Running difference images by SOHO(9) over several days reveals that visible "structures" on the ferrite surface rotate evenly and uniformly.

SOHO routinely captures and records full surface images of this ferrite emission layer using the 195 angstrom filter and running difference imaging techniques. It reports and "sees" the same kinds of unusually rigid and highly structured surfaces in the raw EIT video. Through this processing technique, the stronger structures surrounding these ferrite emissions become highlighted and accentuated and become "visible". When these running difference images are strung together over many days, they reveal that this layer rotates UNIFORMLY and consistently from pole to equator, top to bottom. This uniformity of movement dealt another serious blow to the gas model and casts significant doubt on Galileo's assumption that nothing solid could or does exist beneath the layer of the photosphere. How will gas model proponents of the 21st century attempt to explain the uniformity of movement of the ferrite layer that is recorded in these images? Galileo based his whole gas model on the observation that the layer of the sun that he could see, did not rotate uniformly from pole to equator. These images and daily movies of the ferrite layer beneath the photosphere, suggest that Galileo simply did not have the technological ability to see beneath that upper layers of the sun that his eyes could see. His eyes only saw an outer layer of the sun. There is a solid ferrite layer beneath the photosphere however that has eluded detection until the arrival of the TRACE and SOHO satellite programs. This newly discovered layer rotates very uniformly from pole to equator. There are a lot of tough questions that must be asked, and must be answered based on the revelation of a new metallic layer of the sun, a layer that has only recently been seen and studied.

SOHO Records Enormous Sunquakes In The Ferrite Layer





RAW EIT video from SOHO(10) reveals surface cracks and sunquakes along the surface of the ferrite layer

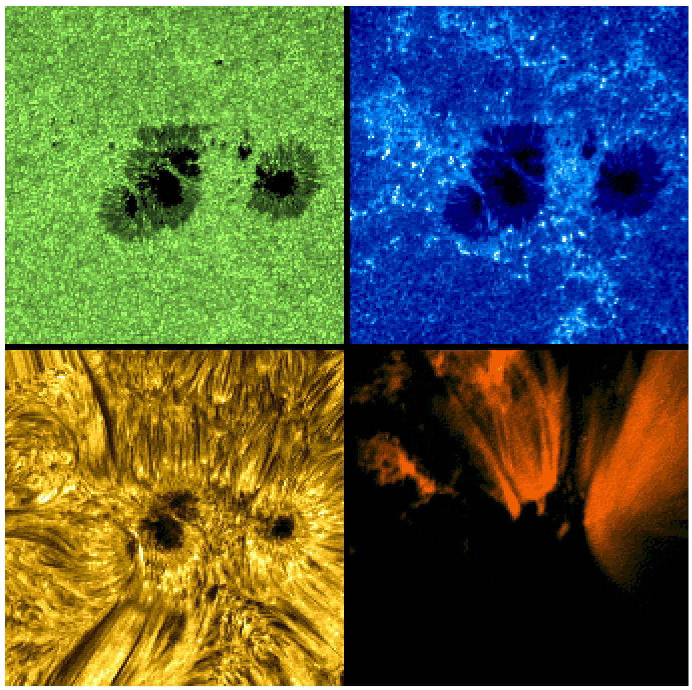
SOHO witnessed something quite remarkable on January 5th 2005 and a second time, just 10 days later on January 15th 2005. On those days, SOHO captured video of two truly MASSIVE sunquakes along a common fault line that spanned about half of the visible surface of the sun. These ruptures demonstrate compelling evidence to suggest that the sun's ferrite surface is composed of various "tectonic plates" that can and do rupture much as they do here on earth. The ruptures even appear to progress along fault lines, just as they do here on earth.

I boxed the affected area in pink in the upper left photograph and have drawn (rather crudely) a series of blue lines slightly below the fault line that ultimately ruptures. If you look very closely, you'll notice a hairline fracture in the upper left side that the rupture progresses along the fault line from right to left throughout the day. The following photographs show the progression of the sunquake on January 5th, as the fault line continues to break from right to left. Notice the sharply delineated fault line in the top photograph running from top to bottom along the left side of the pink box. Such lines are unusual on a day by day basis, but such surface cracks do occur and rupture regularly. As you'll see, when they rupture they release massive amounts of energy and trigger huge solar eruptions.

The second photo shows the first large break of the tectonic plate as the rupture begins along the right side of the sun. The black dot in the upper right corner represents the furthest point of the fault. That same dot is clearly visible in the upper photograph directly above the blue line. As you'll see in the following shots, the break in the surface follows the contour of the surface that ultimately becomes more clearly visible as the break continues and culminates in a massive rupture that occurs at 15:24.

While the photos themselves demonstrate what's going on, the actual raw video is much more dynamic and reveals much more than a few photos. You can download these 10+ Megabyte files by clicking on the links provided, or you can download these videos yourself at SOHO's website. I have not tampered with or altered any materials, except for the colored lines I added to the first photograph in to illustrate the fault line. All the other photos are directly taken from the actual SOHO video as snapshots from Apple's Quicktime video player. All of the DIT videos are available at directly from SOHO's website.

So where do we put this layer?



Lockheed Martin(12) provides images of the four identified layers of the sun.

The folks at Lockheed-Martin were kind enough to put together a composite image which shows each of the four known regions and agreed upon layers of the sun. These images are representative of the textures and defining features associated with each of these various layers. The recently discovered ferrite ion layer is shown in yellow. The natural question then becomes what order do these various layers belong in? The long established photosphere to chromosphere to corona order and interaction has been widely studied and widely agreed on. The ferrite layer is quite new however, and far less is understood about its relationship with the other layers. The first order of business is establishing where this recently discovered ferrite layer sits in relationship to the other three, better understood layers. How do we know where this ferrite layer belongs in relationship to the three known layers?

It is often said that one test is worth a thousand expert opinions. A couple of simple tests we might perform in our kitchen demonstrate that visible light from a flashlight doesn't travel very well through a common ferrite magnet like we might find holding up pictures and notes on the refrigerator. If we let go of the kitchen magnet it will fall to floor since it is much heavier than air. Ferrite would certainly be heavier than hydrogen or helium or even silicon plasmas. These very simple experiments make it highly unlikely that a ferrite layer sits above the visible photosphere.

To answer this question theoretically from a purely scientific perspective, we first need to consider the molecular weight of the various particles and layers in question and consider the affect of the sun's gravity on these various layers. We would logically deduce that since this new layer contains and emits vast quantities of ferrite ions, and possibly other heavy metals as well, it would most likely be much heavier than any of the other layers. One would expect that the powerful gravitational forces of the sun would dictate the order of the layers, causing heavier materials of the ferrite layer to "sink" to the bottom and form the lowest layer of the sun. One of the most important laws of physics would insist that this heavy ferrite layer would sit beneath all the lighter plasma layers. The laws of physics dictate the order.

If we are to explain solid structures of ferrite such as the structures we see in the three spectrum image, then we need to establish a "cool zone", a cool enough environment for ferrite compounds to form. That kind of real estate is in very limited supply on the sun. From a heat dissipation standpoint we need a reasonable and logical mechanism and ideal location to explain the presence of solid surfaces on the sun. If the sun forms a solid metallic surface, this surface must enjoy the benefit of some incredible cooling mechanisms to explain its ability to remain solid and form a solid surface.

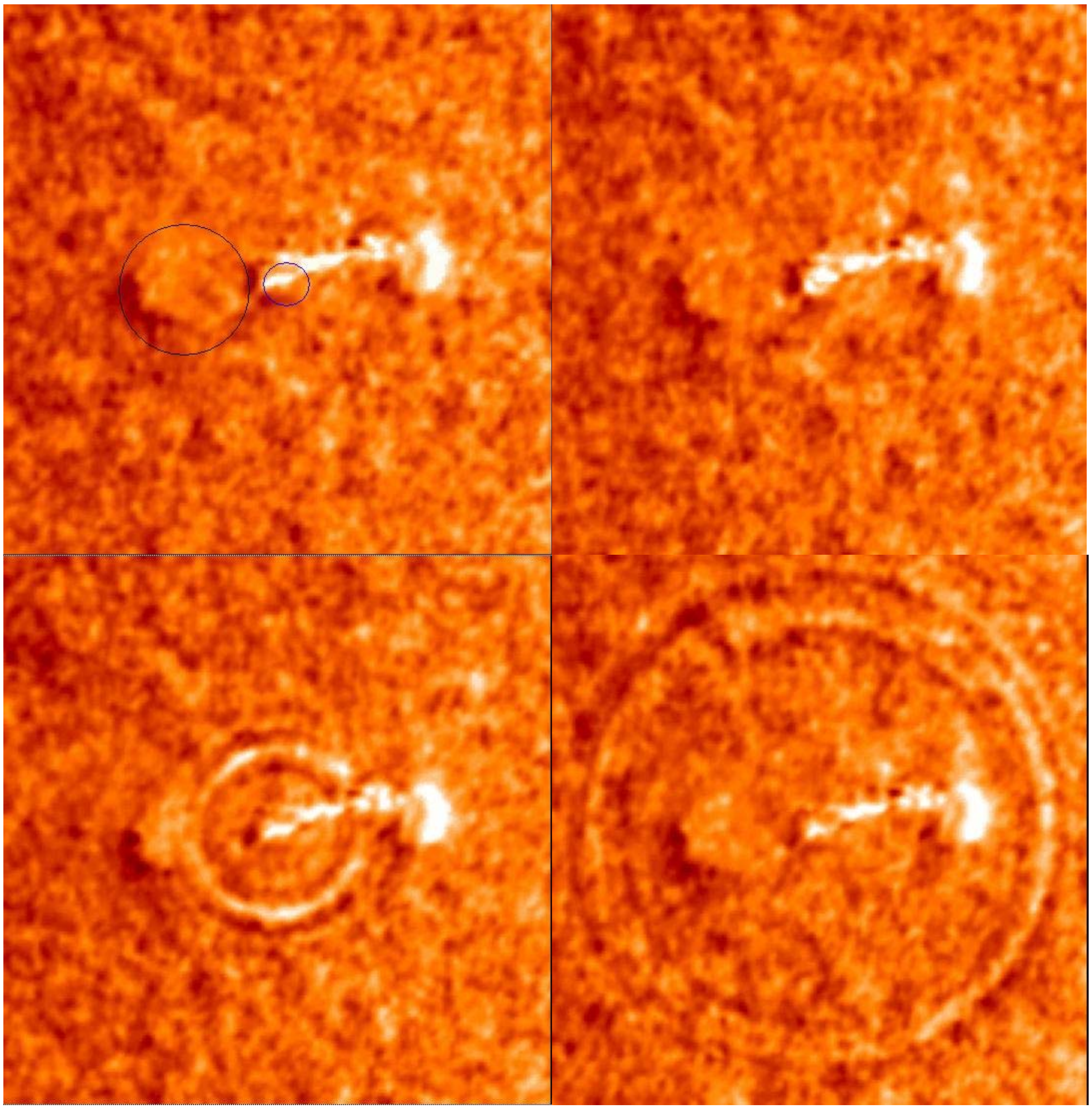
We already know that the sun's inner layers are progressively cooler than its outer layers. We know with great certainty that the corona is much "warmer" and more energetic than the chromosphere. Solid ferrite would never survive in million degree temperatures for more than an instant. The chromosphere is cooler than the corona, but this layer is still much too hot an environment to explain solidified ferrite structures, and more than triple the temperature of the photosphere.

Each outer layer of the sun acts much like a heat sink, a refrigeration system of sorts for the inner layer, helping inner layers stay "cool". We have evidence from observation that the sun's photosphere cools itself very efficiently though convection, passing along massive amounts of heat into the chromosphere and creating the granular patterns we see at the surface of the photosphere's penumbral filament layer. If there is ANY logical place we might hope to find a metallic layer, based on its cooling requirements, it would have to be in the coolest regions (bottom or floor) of the photosphere.

Both these theoretical avenues of thought are based on well understood laws of physics and both trains of thought lead us to the same logical conclusion as our simple experiments. We've checked our experimental results and have double checked our answer from a theoretical point of view. How do we now cross check our work using observational data from satellite imagery from our fleet of solar satellites? Is that possible?

Doppler Imaging

It turns out that the answer is yes. We also can and do find visual evidence from these satellites to demonstrate that we have correctly established the proper order of these layers using a very sophisticated Doppler imaging systems onboard TRACE.



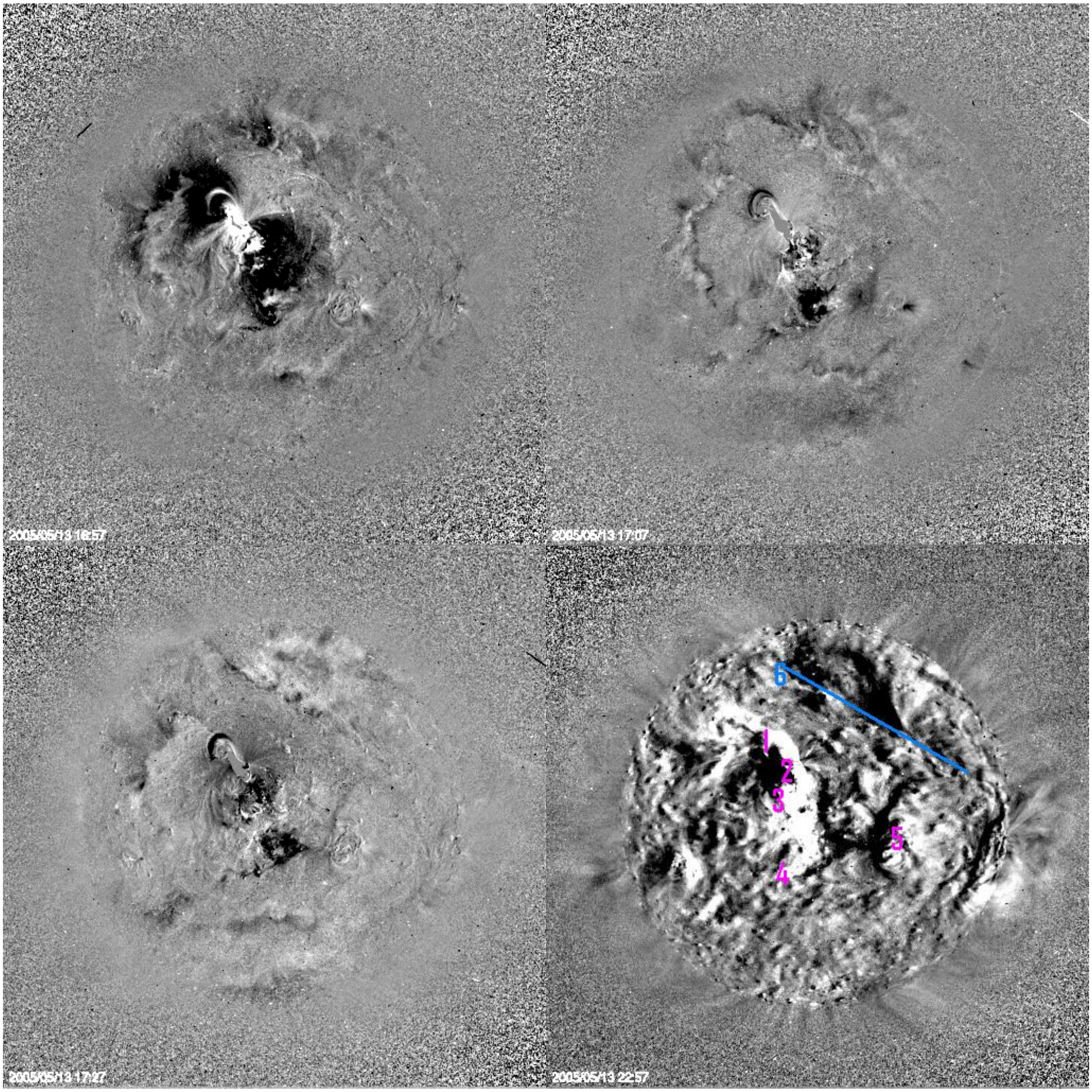
Doppler Images from Trace(13) show a sunquake that forms a tsunami across the surface of the photosphere

We find visual evidence that this heavier ferrite layer does indeed sit beneath the visible photosphere in the work of Dr. Kosovichev. Dr. Alexander G. Kosovichev, from Stanford University, and Dr. Valentina V. Zharkova from Glasgow University have already demonstrated evidence of seismic activity using data collected by the Michelson Doppler Imager onboard the SOHO spacecraft following a flare on July 9, 1996. These images and this video show us a very clearly outlined "rigid structure" that sits beneath the photosphere. As the wave propagates through the photosphere, it can be seen passing OVER this structure, leaving the structure undisturbed by the wave. The wave, and our view of this wave, is not disturbed by the position of this structure. This outline of the jagged structure is not changed in any permanent way by the flow of the wave across the surface of the photosphere. The wave clearly passes OVER the structure, not under the structure in these Doppler images. Doppler images can and will reveal three dimensional surfaces, provided there is a solid surface to reveal. These images do capture a highly organized and rigid, three dimensional "surface structure" at a relatively shallow depth relative to the top of the photosphere. We now have compelling observational evidence to suggest that a rigid layer sits underneath the photosphere. It should be noted that this structure is fixed and highly organized, especially compared to the constant movement we observe in the liquid-like plasmas of the photosphere that propagates this wave. That is visual conformation from the TRACE satellite, but that's only the beginning.

SOHO Compares Outlines of Shockwaves With Running Difference Images Of The Ferrite Surface

SOHO witnessed and recorded another remarkable solar eruption on May 13th, 2005. The eruption sequence that SOHO captured includes a rare combination of footage, most notably, visible shock waves moving through the corona and across the surface of the photosphere and across the surface of the sun itself. This was immediately followed by an ideally timed "running difference" image of the surface at the very end of the eruption sequence. This well timed image captured in considerable detail, the very same surface features that are outlined by the shockwaves that traversed the sun just moments earlier.

At the end of the sequence of eruption photos is the running difference image with pink and blue highlights where surface features revealed in the shockwave propagation and interaction correspond perfectly to surface features recorded in the running difference image that followed. This cannot be a coincidence. This sequence of events provides visual evidence that the ferrite surface sits underneath the layers of the chromosphere and photosphere.



RAW EIT video from SOHO(11) **captures a solar eruption. The eruption sends shock waves over the surface of the sun which bump into and outline "solid" surface structures. In the next image is a well timed running difference image of the ferrite layer taken only moments later. These, show a strong correlation between structures on the ferrite layer, and the shock wave outlines. This would suggest the ferrite layer is beneath the photosphere**.

The outline of the very same surface features that are recorded in the running difference image are also clearly visible in the outline of the shock waves that moved across the photosphere just moments before. This is most noticeable by comparing last two shockwave images (1707 and 1727 frames) with the processed surface image. In the last processed image (the running difference image), we can see a clear and detailed view of the same "fuzzy" surface features that are outlined by the shockwave in the 1727 frame. In essence, SOHO witnessed and recorded the "perfect storm" and the perfect wave and then took a very well timed snapshot of the surface right afterwards. This gave us a very detailed look at the surface features that actually caused the shock wave interaction patterns seen in previous images.

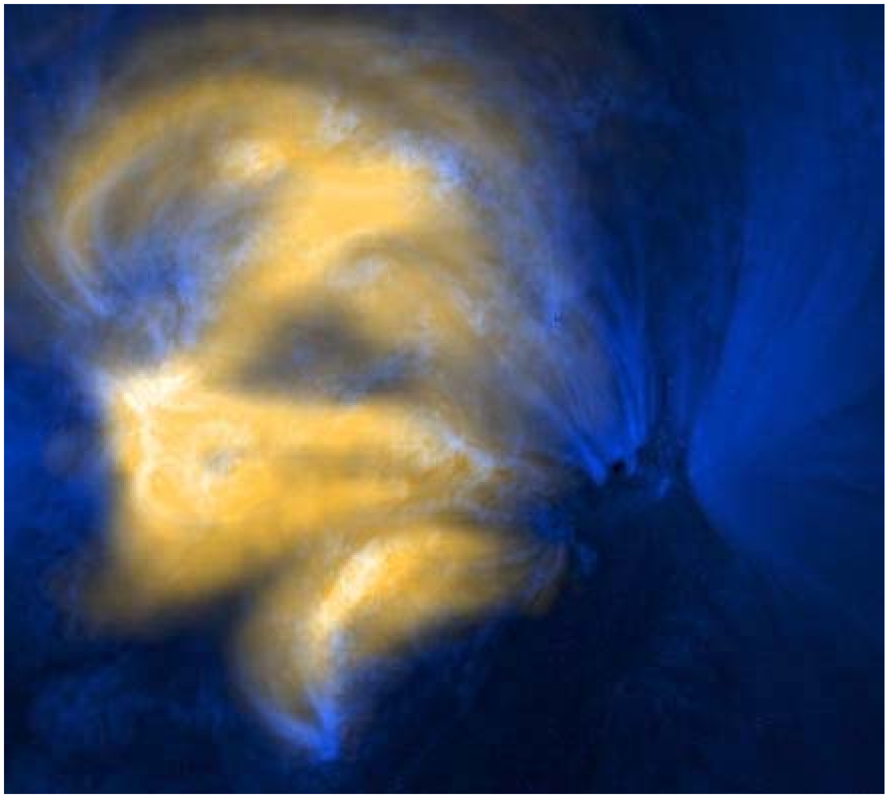
The eruption, and the shock waves that followed, allow us to watch the interaction patterns and the propagation patterns of these energy waves as they interact with and reveal clearly definable surface features below.

This particular eruption was then followed by a very timely running difference image shown at the top and bottom of this page. The lighting angles and intensity conditions of this snapshot were nearly ideal for revealing the underlying surface features that were responsible for these wave propagation patterns and the unique collisions patterns seen in earlier photos.

The massive surface eruption began around 16:37. The eruption sent huge shockwaves through the sun's air-like plasma of the corona, and liquid-like plasma of the photosphere striking surface features as it expanded. As these energy waves "bumped" into the sun's ferrite surface features, a clear and unique outline of the high and low points of the surface emerged. The surface boundaries that are revealed in the wave propagation patterns are identical to the surface features revealed in the running difference image that followed.

This unique combination of events provided a rare and unusual opportunity to compare a surface snapshot with the outline of shock waves bouncing off SOLID solar surface features. This was a real stroke of luck followed by an extremely well timed running difference image. We now have visual conformation from two satellites. Two down, one to go.

YOHKOH's INCREADIBLE X-RAY VISION



TRACE/YOHKOH(14) composite image showing arcs from the ferrite layer rising through the photosphere and into the warmer chromosphere

Superman had nothing on YOHKOH! She could fly and had x-ray vision and gamma vision too! Thanks to YOHKOH there is another way to visually verify that we have established the proper order of these various layers using her cool satellite technology. The folks at TRACE and YOHKOH teamed up to study "solar moss", a phenomenon they observed in the ferrite layer. This composite image overlays the view from the TRACE satellite program with the images that YOHKOH produced of this same event. As the solar moss peels off the surface of the ferrite layer at the bottom of this photo, the arcs containing these ferrite ions first pass through the relatively "cool" layer of the photosphere. In this region, the emissions from the arc are barely visible or completely invisible to YOHKOH's x-ray vision. Only in the very warmest regions of this "blue", cool photosphere layer can YOHKOH see any significant signs of x-ray emissions. Once these arcs pass into the chromosphere however and finally rise up into the corona, these ferrite ions pick up huge amounts of energy in the form of heat and begin to emit soft x-rays that are visible to YOHKOH. Again, we see a clear pattern of energy flow, from a cool region, up into a warmer region. This is completely consistent imagery with the notion of a ferrite layer sitting beneath the lighter layers of the photosphere. It creates a 3D affect, allowing us to "peer down" through the plasma layers to the ferrite surface below.

We have now have experimental evidence, two scientific theories based on the laws of physics and thermodynamics to "predict" the proper arrangement of these layers and have demonstrated three unique methods to verify this arrangement via satellite imagery from three different satellites. Experimental data, scientific theory and observational evidence all agree the ferrite layer sits beneath the upper layer of the photosphere.

So what do we do about the missing neon and silicon?

Let's take another look at the SERTS(5) list of ions for a moment. During quite times, SERTS records at least ten different types materials from ten different sources of elements that must make up the sun other than just hydrogen. It records hydrogen of course, but also ions from helium, neon, silicon, chromium, aluminum, manganese and magnesium, and ferrite. During more active phases is also records nickel and sulfur.

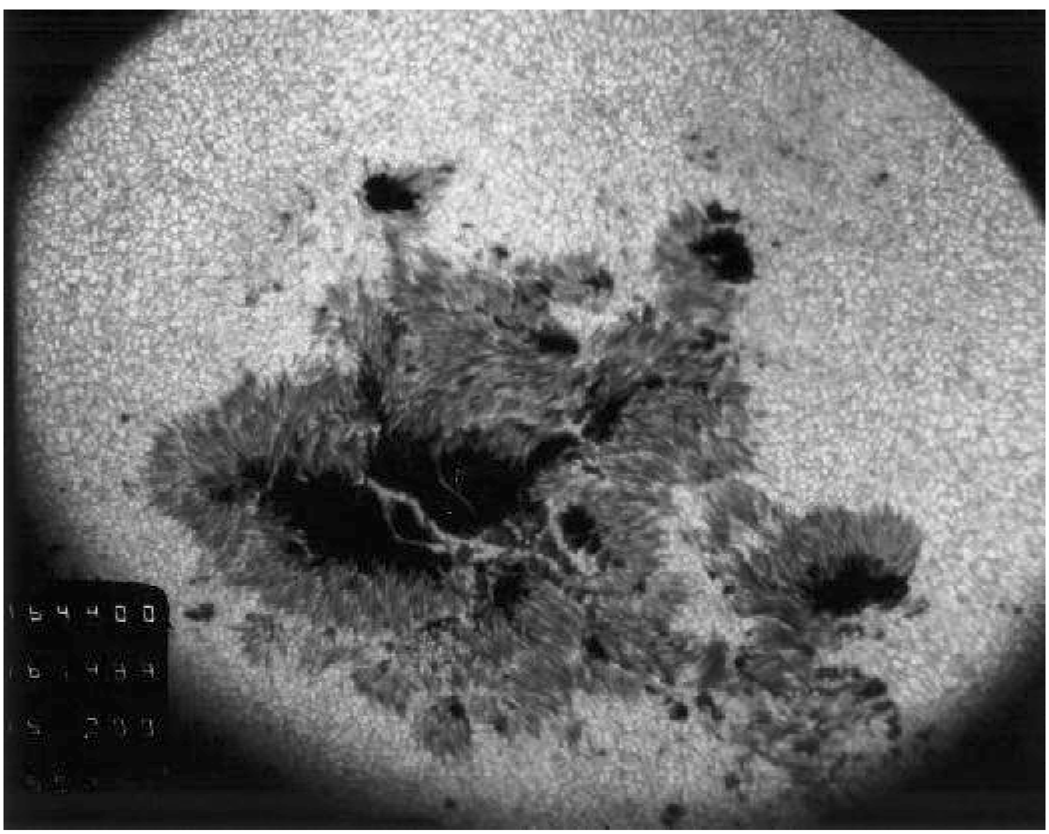
For the time being, we'll lump all the metals into the "ferrite layer" and assume they are accounted for in this layer and we'll assume at least some of the calcium emissions are accounted for as well. We'll blatantly ignore the nickel and sulfur ion emissions for the time being since they are usually associated with "active phases". The presence of sulfur in particular would make complete sense in a solid surface model. The presence of sulfur combined with a heavier element than ferrite would actually provide pretty good evidence of volcanic activity and surface eruptions and only strengthens the solid surface model. We see lots of helium in the chromosphere, so we can cross helium off our list as well. We still have two very important and key ions that are left in this spectral analysis from SERTS that have not yet been accounted for in our model, specifically silicon, and neon. What do we do about the source of these ions which are clearly visible in SERT'S spectral analysis reports? How do we account for these elements in our new and improved 21st century model of the sun?

There is one relatively simple and very intriguing possibility, namely that there are at least two types a plasma layers between visible photosphere and the ferrite surface below. The heavier layer, and therefore the lower layer is made of silicon, while the upper region of the photosphere, the layer associated with light from penumbral filaments, is actually made of neon. In other words there aren't just four layers as we presume at the moment, but rather there are at least five, actually six, since calcium forms a thin crusty layer between the ferrite and the silicon. Calcium ferrite and other metals make up the lowest "surface". On top of that rigid ferrite surface sits a layer of silicon, a layer of neon, a helium layer, finally followed by hydrogen. This model is intriguing for two primary reasons. Neon helps us explain the sun in two primary and important ways. It provides us with the source of visible light since neon lights up orange/white in an electrically charged vacuum tube. Neon also happens to be one of the most efficient refrigerants in the universe. Liquid neon is used as a cryogenic refrigerant. It has over forty times the refrigerating capacity per volume unit than liquid helium, and more than three times that of liquid hydrogen. In other words, neon not only conducts heat away from the surface in an extremely efficient manner, it also provides us with a logical and plausible mechanism to explain visible light at the same time. It makes sense to think that the penumbral filaments might be composed of neon since this "layer" is typically the layer of the photosphere that is associated with the "light" we see. This layer acts like a neon light bulb and a refrigeration system all in one. What a marvelous improvement to our model. There are three major benefits of adding a plasma layer of neon to our model. For one thing, we know from the SERTS program that neon is certainly present in the output spectrum and we need to account for that specific element if our model is to be taken seriously. In the second place, neon adds a major cooling element to the model, something we desperately need if we are ever to explain solid ferrite on the sun. The third thing it does for our model is give us a mechanism to explain visible light, with electricity from the surface lighting up the neon plasma along the way.

The Missing Element

This leaves just one element, and only one logical place left for it to be located, specifically, it must sit between the calcium ferrite surface and the neon layer. How do we verify this "theory" observationally? Our first clue is that the penumbral filaments compose the "convective top" of the photosphere and are the visible layer we see with our eyes. These filaments do not go on forever, since we see the bottom edge and the flared top of this "layer" during sunspots. What suspends them there in mid-air like that? Silicon would do just the trick.

The "hole" we see in sunspots represents a "hole" in the neon plasma, where rising superheated silicon from underneath pushes it out of the way, leaving temporary concave punctures in the neon until the surface underneath cools and the silicon stops rising. Then the neon layer covers over the "hole" again and things go back to normal. The presence of neon not only helps us explain the cooling mechanism we were looking for, it lines up perfectly with observational data, and explains why we see a big gaping black hole directly above the visible cracks in the surface below in the following photo.



Close up(3) of the penumbral filament layer with a gaping hole

The Silicon Layer

We cannot see the silicon layer in this photograph. It's invisible to the naked eye. It's the material that is sitting between the neon penumbral filament layer at the top of this photo and the crack in the surface below. Directly in the middle of the hole in the neon layer is an obvious crack in the ferrite layer running from the 10 o'clock position to the 4 o'clock position. There is another crack along the right side as well, but it's partially obscured by the penumbral filaments. Everything in between the visual layer of the penumbral filaments, and the crack in the surface below is filled with silicon. At the moment this photo was taken, the silicon plasma is so hot from the surface rupture below, it begins to rise up in a column, and pushes the neon out of the way. Once it hits the light lighter layer of the chromosphere however, gravity takes over and silicon sinks back into its own layer again. Once things cool off, and the silicon stops rising, the layer of neon covers up the hole, and life on the sun goes back to business as usual.

Silicon also serves to insulate the electrified ferrite materials inside the arc, allowing them to form even curves and smooth flowing arcs. All the pieces fit together and all the layers serve a specific function. The ferrite later is releasing the ferrite ions. These ions are insulated in silicon as they rise from the surface. This stream of ions then arcs to a positively charged surface structure. Every layer is accounted for, and every layer serves a vital role, including the insulating layer of silicon.

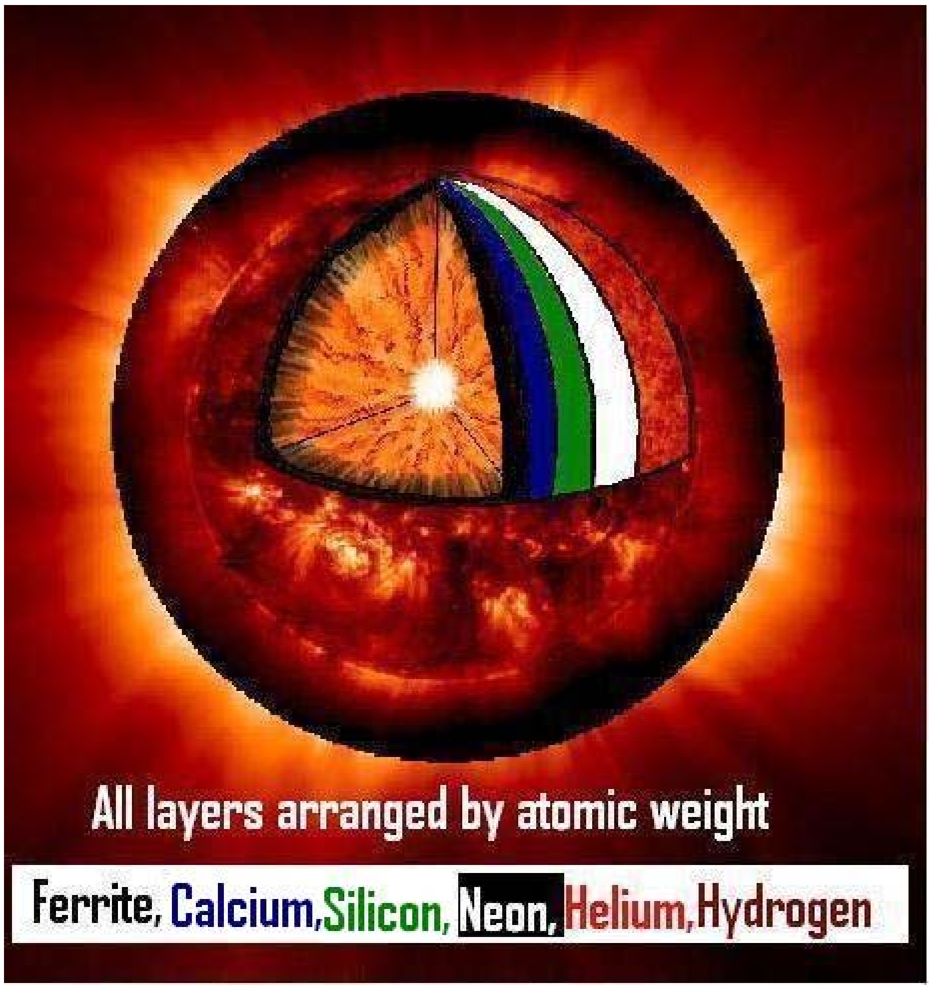
3. Predictions And Falsifications

Comparing competing models

So how **do** we compare and grade two competing models of the sun from a scientific perspective? If we establish and accept that this solid ferrite layer exists, and we verify through the laws of physics and through observation that it exists beneath the visible layer of the photosphere, how does this information help us to explain the sun's activities? How will we know if this particular model of the sun represents a more "accurate", "better", more comprehensive interpretation of the observed behaviors of the sun compared to any other model? More to the point, what makes this 21st century model of the sun that is based on spectral analysis and modern satellite imagery worthy of consideration as a serious alternative to the gas mode of the 16th century?

Any reasonable model of the sun must be able to predict something useful. Any model must be able to demonstrate a method to falsify or validate the predicted behavior, and it must predict a range of behaviors that are born out in observation. What might we predict and validate with a shiny new 21st century, solid surface electrical model that leaves Galileo's gas model-"T" of the 16th century sitting in the dust?

Let us set aside for the moment that this solid surface model benefits from over four centuries of advances in technology. To adequately and scientifically answer these questions, we must first establish some objective criteria by which we can fairly and objectively grade the performance of competing models. We must somehow determine the usefulness of each model as it relates to "performance". If a model can explain and does explain a whole range of solar behaviors, then it is more "useful" than a model that cannot. Somehow we need a way to "grade" competing models in terms of their usefulness in offering complete explanations of current observations. Even if we compare two very similar models, one might be more detailed, and in that sense, more "accurate" than the other. We must have a way to measure this "attention to detail" and how that relates to direct observations and useful explanations and predictions.



A solid surface electrical model of the sun(16)

Predictions Of A 21st Century Solid Surface Electrical Model

1. We might predict visible light from the neon layer. Prediction matches evidence.

2. We might predict that an electrical arc from one surface point to another in a huge gravitational field would form a visible arc. Prediction matches evidence.

3. We might predict and expect in a solid surface model that intense electrical activity between oppositely charged points on a solid surface will cause huge electrical discharges

and cause electrical surface erosion which might be observed as areas of increased ferrite ion emissions near the ferrite surface. The solar moss phenomenon validates this prediction.

4. We might predict that this electrical activity would likely ionize particles off the ferrite surface and become visible in emission patterns like we find in the SERTS output. Prediction matches the evidence.

5. We might predict volcanic activity will result in sulfur and other emissions that might be found in the spectral analysis from SERTS and be seen by SOHO and TRACE. Prediction matches the evidence. SERTS found elevated levels of sulfur and nickel in "active" cycles.

6. We might predict that these surface eruptions and electrically heated areas of the surface would cause an upwelling in the plasma layer of the photosphere, punching holes in the neon penumbral filaments above the hot spots as it crashes into the layer of the helium in the chromosphere.

7. We might predict that once these thick rising columns of plasma in the photosphere reach the lighter layer of the chromosphere, gravity will take over, and this plasma will flare out and sink back down as it cools off, leaving a visible concave pattern in the penumbral filament (neon) layer.

8. We might predict that this would cause the heated plasma of the chromosphere to rise and eventually punch a hole into the corona, leaving a similar flared patterned in the chromosphere and resulting in a solar flare.

9. We might predict that everything will eventually cool off below, and things will go back to normal at the top of the photosphere and any holes in the neon penumbral filaments will eventually close.

10. We might predict that we could find evidence of tectonic plates in the ferrite layer. Prediction again matches observation.

11. We might predict that since the magnetic field of the sun rotates once every 22 years relative to it's spin axis, (or perhaps the sun rotates relative to an existing external magnetic field every 22 years), once every 11 years we should expect to see an increase in electrical activity and electrical discharge near the equator as the magnetic poles point toward the equator.

12. We might predict that the layers of the sun are directly related to the atomic weight of the materials in question, and therefore predict that calcium sits directly on top of the ferrite layer.

13. We might predict that the arcs themselves contain silicon ions as well as ferrite ions since the arcs will cause the silicon plasma to rise.

14. We might predict that the neon layer releases much of the energy it receives in the form of visible light, and heat and predict that it pushes a large body of heat into the upper layers through convection.

15. We might predict that since the bulk of the heat is passed to the outer layers, causing the hydrogen layer to emit many more photons from this layer. The amount of photons released by hydrogen should be far greater than the number of photons from ionized neon.

16. We might predict that cooler silicon plasmas will tend to sink toward the calcium ferrite surface and rush in to fill any upwelling caused by a surface eruption.

17. We might predict the existence of a silicon layer which sits below the neon layer.

18. We might predict the helium layer sits above the neon part of the photosphere.

19. We might predict that the calcium layer is located beneath the neon layer.

20. We might predict the calcium layer is beneath the helium layer.

21. We might predict that the neon layer cools the lower layers.

22. We might predict that the temperature within the silicon layer is highest near the top of the layer, and highest near the base of electrical arcs.

23. We might predict this silicon layer to be "thicker" and contain more mass than the neon layer.

24. We might predict that the lower regions of the cooled silicon layer are conducive to the formation of solid ferrite structures.

25. We might predict that silicon "blobs" are occasionally flung into space from the surface from the momentum of violent electrical activity and/or surface eruptions.

26. We might predict that the bulk of the fusion reactions of the sun take place between the ferrite and calcium layers during high energy discharges.

Predictions of a 16th Century Gas Model

1. The sun is mostly made of hydrogen.

2. There are no solid surfaces or rigid ferrite layers beneath the visible photosphere.

3. No layer of the sun rotates evenly and uniformly from pole to equator.

4. No rigid or solid surface would be seen at shallow depths beneath the photosphere.

We might as well stop right here with these first few testable assumptions since it is clear there is a major problem with this 16th century model based on 21st century observations. The "mostly hydrogen" idea flies in direct opposition to the observations of the SERTS(5) program which found significant amounts of ferrite ion emissions, as well as chromium, magnesium, and silicon. The ferrite layer of the sun revealed by SOHO spans almost the whole width of the snapshot. In other words, we don't see ferrite ions originating from a tiny little ball in the center of the core. Instead we see a rigid surface that is covered by a very thin "atmosphere" of plasma, not unlike the way the earth looks from space, where the atmosphere of earth looks paper thin compared to the earth's surface. The first prediction doesn't fly without a really good explanation of these very wide, side to side ferrite surfaces that SOHO captures day in and day out. According to SOHO's running difference imaging equipment, there certainly is a rigid layer that moves uniformly from pole to equator, and trace sees this layer too.

Unless and until these new observations from the YOHKOH, SOHO and TRACE satellites are addressed by the gas model proponents, the gas model of the 16th century seems to be showing its age and is looking a little rusty around its ferrite edges. ☺

3. Usefulness

Explanatory Capabilities Of A Solid Surface Model

The real strength of any model is found in its ability to explain and predict the observed behaviors of the sun. A solid surface model delivers because the model is based upon observation alone. It therefore has the unique ability to correlate very well with observational data. Most importantly it offers us logical and rational ways to EXPLAIN what we see using our new technologies. What does the solid surface model allow us to predict, and explain that the gas model cannot?

The Sun Is A Fusion Battery And Neon Sign All In One!

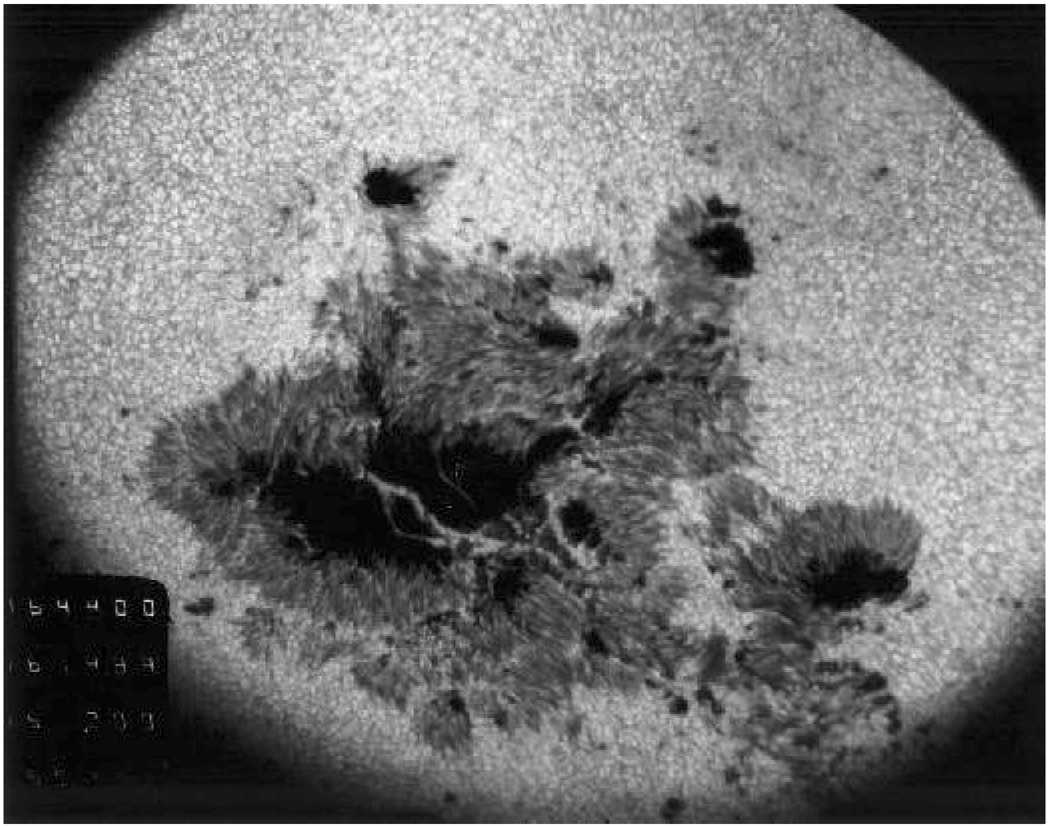
The sun's core produces a constant series of fusion reactions. These reactions are continually releasing free positrons and free electrons. The rigid ferrite structures with their magnetic composition necessarily make them great conductors of electricity.

It is now possible and reasonable to explain the arcs we see in these images as simple electrical interaction between two solid points of an electrically charged and electrically conductive surface. The electrical current flows between oppositely charged points along a rough and varied magnetic ferrite surface. Free electrons from the sun's core will naturally take the path of least resistance to the surface, therefore any low lying areas on the surface will "tend" to emit electrons, while higher regions on this surface will "tend" to become positively charged, and draw in electrons from the universe and the surface streams and transport them back to the free positrons within the sun's core. This movement of electricity forms solid pathways in and out of the core that are literally crystallized within the cooled ferrite structure. Higher elevations tend to act as a lightening rod for all free electrons coming into the sun from the universe and attract any upwelling electron streams that are being emitted from lower regions on the surface. This electrical attraction and current flow logically and elegantly explains the huge electrical arcs we coming from the sun and explains why these arcs have magnetic properties associated with them. Such powerful electrical activity must certainly ionize pieces of the rigid ferrite surface during these electrical exchanges between surface points and light up and resemble “solar moss” as they liquefy surface features in the current flow. The electrical arc raises the temperature at the surface from thousands to millions of degrees almost instantly.

Solar Moss

Since we just talked about solar moss in the previous example, and this phenomenon was observed only after we could actually SEE this ferrite surface, this phenomenon seems like a logical issue to look at. Such activity can be explained in a solid surface model by recognizing these are “hot points” on the surface of the ferrite layer where electricity is eroding and peeling off ferrite particles form the outermost layers of the surface. These particles are ionized by the electrical flow and enter the arc stream pulled along the by electrons and their electrical attraction toward any positively charged surface structure. The streams of electrons flowing from the core ionize surface particles which heat up and are carried into the arc with the electrical flow. These ionized particles are then attracted to positively charged areas of the surface and arc back to oppositely charged surface points, typically found at higher elevations. The charge at the surface is determined at least in part by elevation and magnetic orientation of the crust itself. As these ionized particles pass into and through the photosphere and chromosphere, they eventually enter the corona and pick up vast amounts of heat and begin to “glow” in the soft x-ray spectrum.

Solar Flare



Close up of hole in the top of the photosphere(3)

The solar flare event can be explained in a solid surface model as a surface eruption, or surface fracture from electrical erosion. The fractures and holes form in the surface of the neon layer as a direct result upwelling of silicon plasma from the heat released by electrical discharges between surface points, or from heat rising from cracks in the surface. Once the magma from below is exposed to the silicon, the heat from this cooling magma is transferred to the plasma layer of the silicon. This heat creates huge plumes of rising heat columns to push through the neon layer of the photosphere. Once this column hits the chromosphere, it releases some of its heat into the chromosphere. Gravity ultimately takes over and the rising silicon plasma settles back into this own layer again. The concave shape of the hole pattern is caused by rising plasma column pushing through the penumbral filaments into the chromosphere and having nowhere else do go but back down again. The silicon flares out once it hits this region, pushing up and out, and creating this concave pattern. The chromosphere plasma is heated up in this region and this plasma layer experiences a similar process of passing its rising column of heat up into the corona where this hydrogen plasma forms back into pure hydrogen gas and ignites and erupts through the outer atmosphere of the sun.

Moving, Rotating, And Changing Sunspots

A sunspot is simply the absence of penumbral filaments at the top neon layer of the photosphere. The penumbral filaments are the actual “structures” that emit light in the visible spectrum.

Sunspots are areas of the top of the photosphere where gaping holes appear in this filament layer because of the rising heat columns from below. The penumbral filaments at the top of the photosphere re pushed aside by the rising column and can only reform again when things cool off in that region.

Sunspots emerge from at least two separate processes that both begin at the solar surface and work their way through the photosphere. When cracks form in the ferrite surface, these cracks expose heated magma from beneath the surface which rushed in to fill in the gaps. This magma cools off and solidifies by passing its heat into the photosphere. This creates a rising column of heat within the photosphere which pushes upwards as a rising plasma column and pushes through the penumbral filaments at the top of the photosphere. Once this rising plasma column reaches the thinner atmosphere of the helium layer gravity takes over and the heavier plasma of the photosphere sinks back down, while passing enormous amounts of heat into the chromosphere.

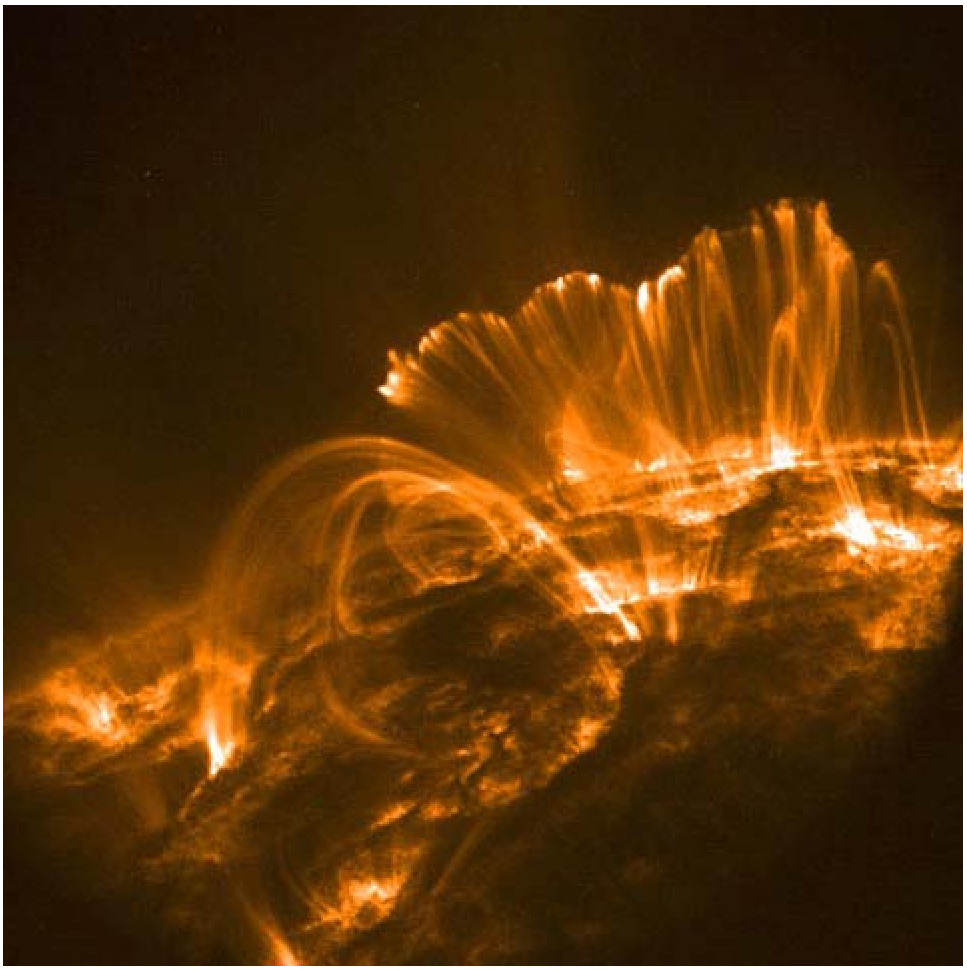
Another, more common cause of sunspots is related to the heat produced by the sun's continuous electrical activity. Heat is created from intense, electrically active areas of the surface. These areas create rising plasma columns which can also punch temporary holes in the penumbral filaments. Once these regions "settle down" and become less active, and experience less electrical activity, this heat is more evenly distributed into the photosphere and the top layer cools and the neon layer reforms over the silicon layer of the photosphere.

11 Year Active Cycles

We know from a number of solar studies that the sun's magnetic field rotates perpendicular to its axis of rotation, completing a full rotational cycle once every 22 years. This creates a condition every 11 years where the north and south magnetic poles are perpendicular to the suns axis of spin and point toward the surface equator. This creates conditions that we describe as an "active phase". These are times where we see increased electrical activity near the equator, and unusual electrical interactions between points slightly north and south of the equator. This results in increased numbers of sunspots as columns of heated plasma rise up in the photosphere and punch holes in the penumbral filaments in the process. This is most noticeable just north and south of the equator where this increase in electrical activity originates. The increase in electrical activity reaches its maximum when the magnetic poles are aligned slightly north and south of the equator. When this alignment occurs, surface structures in one hemisphere become generally oriented in one direction, and surface structures in the other hemisphere become generally aligned in the opposite direction. Oppositely charged surfaces form all along the equator and giant electrical discharges become common and persist until the magnetic alignment is parallel to the spin axis and the sun reaches its most "quiet" phase.

While it seems likely that most of the free electrons that arc across the surface come from the sun's inner fusion reactions, it is also probable that SOME of the electrical discharges are a result of magneto effects due to the rotation of the magnetic field relative to its magnetic surface. This rotational friction would likely result in very interesting and complex magneto discharge affects at the surface, most noticeably when the magnetic field is perpendicular to the spin axis. It may be that these magneto affects contribute large amounts of the electrical flow at the surface, particularly during the sun's active phase.

6. Summary



TRACE(15) shows the path of the electrical arcs that are composed of ferrite materials which are insulated within silicon

This solid surface electrical model of the sun is derived from direct observations provided by three different, 21st century, state of the art satellite programs as well as spectral analysis from the SERTS program. It is possible to offer a very compelling explanation of the sun's activities using this model because it is based entirely on observation, and direct evidence using the very latest technologies that science has to offer, not upon any sort of allegiance to "tradition".

My hope in offering this new model of the sun for peer review is that will awaken renewed interest within the academic community to provide students with competing models to choose from rather than proving students with a single myopic viewpoint. We must be willing to change our thinking based on the evidence provided by our modern technologies. These satellite images and the implications of these images warrant careful consideration within the scientific community. In light of this new evidence and these new observations, we need to entertain a range of possible alternatives to the gas model theory of the sun. It is my hope that 21st century technologies, academic freedom and scientific neutrality will lead us bravely forward in our understanding of our universe and help us go where no one has gone before. Competition has always been good for science and science is one field that should always be willing to keep an open mind to new ideas based on new evidence, and new information. Either these ideas and observations will pass the peer review process and warrant careful consideration, or this peer review process will demonstrate them to be false. I humbly offer this work to this organization and the peer review process so others could make up their own minds and provide relevant feedback.

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Website: http://lasco-www.nrl.navy.mil/daily_mpg/
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Gif: http://sohowww.nascom.nasa.gov/gallery/MDI/mdi026.gif
Movie http://sohowww.nascom.nasa.gov/gallery/MDI/flare.mpg

14. YOHKOH/TRACE
Photo: http://www.solarviews.com/browse/sun/moss8.jpg

15. YOHKOH/TRACE
Photo: http://www.solarviews.com/browse/sun/moss8.jpg

16. Modified Model
This photo is a modified version of the model NASA provides.
Original: http://chippewa.nascom.nasa.gov/TRACE/trace_cd/html/peel_front.html