

BlogBooker

From Blog to Book.

'[HTTP://PIRATE.IS/ROVEMONTEUX/](http://PIRATE.IS/ROVEMONTEUX/)'

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Chapter 1

2010

1.1 January

The size of our own littleness, and an insight of our very own surroundings (2010-01-11 16:55)

Regarding the subject of Science as Existence, this video from the [1]National Geographic shows how small are we as a planet, as a living organism, as a microcosmos in itself - how much of a moment in time are we - when compared to the quantity and vastness of all of the objects and matter that surround us, in a variety of manners.

[youtube=http://www.youtube.com/watch?v=Fbt7dKGS6ow]

Much work is and have been done into making sense of "what is it all", how it all started, and how do we actually relate to it.

[2]Einstein's [3]Theory of Relativity from 1915 for example, worked out how this same objects correlate to each other and how gravity and speed work to keep each other in alignment - for example the Earth rotating around our Sun.

The [4]theory of relativity, or simply relativity, generally refers specifically to two theories of [5]Albert Einstein: [6]special relativity and [7]general relativity.

General relativity or the general theory of relativity is the [8]geometric [9]theory of [10]gravitation published by [11]Albert Einstein in 1915. It is the current description of gravitation in modern [12]physics. It unifies [13]special relativity and [14]Newton's law of universal gravitation, and describes gravity as a geometric property of [15]space and [16]time, or [17]spacetime. In particular, the [18]curvature of spacetime is directly related to the [19]four-momentum ([20]mass-energy and linear [21]momentum) of whatever [22]matter and [23]radiation are present. The relation is specified by the [24]Einstein field equations, a system of [25]partial differential equations.

Special relativity (SR) (also known as the special theory of relativity or STR) is the [26]physical theory of measurement in [27]inertial frames of reference proposed in 1905 by [28]Albert Einstein (after the considerable and independent contributions of [29]Hendrik Lorentz, [30]Henri Poincaré and others) in the paper "[31]On the Electrodynamics of Moving Bodies".^{[32][1]} It generalizes [33]Galileo's principle of relativity—that all [34]uniform motion is relative, and that there is no absolute and

well-defined state of rest (no [35]privileged reference frames)–from [36]mechanics to all the [37]laws of physics, including both the laws of mechanics and of [38]electrodynamics, whatever they may be.^{[39][2]} Special relativity incorporates the principle that the [40]speed of light is the same for all inertial [41]observers regardless of the state of motion of the source.

[youtube=<http://www.youtube.com/watch?v=IUPVK08G8Fk>]

The String Theory for example, expands the initial concept in order to explain the dimensions where such objects interact among themselves and what is their relation with each other, space, and time,

[42]String theory is a developing branch of [43]quantum mechanics and [44]general relativity with the aim of merging and reconciling the two areas of physics into a [45]quantum theory of gravity.^{[46][1]} The [47]strings of string theory are one-dimensional oscillating lines, but they are no longer considered fundamental to the theory, which can be formulated in terms of [48]points or [49]surfaces too.

[youtube=http://www.youtube.com/watch?v=_B0Kaf7xYMk]

The key to discover the start of it all tho, lies in finding the [50]Standard Model particle - called "[51]Higgs boson", or the "God Particle" - proven its existence, it would help explain the origin of [52]mass in the universe.

This effort is being currently coordinated and executed at the [53]CERN (the European Organization for Nuclear Research), with its Large Hadron Collider.

The Large Hadron Collider (LHC) is the [54]world's largest and highest-energy [55]particle accelerator, intended to [56]collide opposing [57]particle beams of either [58]protons at an energy of 7 [59]TeV per particle, or [60]lead [61]nuclei at an energy of 574 TeV per nucleus. It is expected that it will address the [62]most fundamental questions of [63]physics, hopefully allowing progress in understanding the deepest laws of nature. The LHC lies in a tunnel 27 kilometres (17 mi) in circumference, as much as 175 metres (570 ft) beneath the Franco-Swiss border near [64]Geneva, [65]Switzerland.

The [66]Higgs boson particle is visually explained in the following video, "'The God Particle': The Higgs Boson".

[youtube=http://www.youtube.com/watch?v=1_HrQVhgbeo]

The subject is very complex, but its basics are not, by no end nor means.

As Science makes progress and opens the way, the most obvious and clear to understand the entire subject becomes - including the ability for humanity to understand, and look at itself, its environment and its very own surroundings.

Explaining all around us and who we are with "God created it", without trying to understand anything else further - at this day and age - is nothing but a simplistic and ignorant way of explaining happenings through dismissal.

1. <http://www.youtube.com/user/NationalGeographic>
2. <http://en.wikipedia.org/wiki/Einstein>
3. http://en.wikipedia.org/wiki/Theory_of_relativity
4. http://en.wikipedia.org/wiki/Theory_of_relativity
5. http://en.wikipedia.org/wiki/Albert_Einstein
6. http://en.wikipedia.org/wiki/Special_relativity
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15. <http://en.wikipedia.org/wiki/Space>
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17. <http://en.wikipedia.org/wiki/Spacetime>
18. <http://en.wikipedia.org/wiki/Curvature>
19. <http://en.wikipedia.org/wiki/Four-momentum>
20. <http://en.wikipedia.org/wiki/Mass-energy>
21. <http://en.wikipedia.org/wiki/Momentum>
22. <http://en.wikipedia.org/wiki/Matter>
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32. http://en.wikipedia.org/wiki/Special_relativity#cite_note-electro-0
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36. <http://en.wikipedia.org/wiki/Mechanics>
37. http://en.wikipedia.org/wiki/Laws_of_physics
38. <http://en.wikipedia.org/wiki/Electrodynamics>
39. http://en.wikipedia.org/wiki/Special_relativity#cite_note-Rindler0-1
40. http://en.wikipedia.org/wiki/Speed_of_light
41. http://en.wikipedia.org/wiki/Observer_%28special_relativity%29
42. http://en.wikipedia.org/wiki/Strings_theory
43. http://en.wikipedia.org/wiki/Quantum_mechanics
44. http://en.wikipedia.org/wiki/General_relativity
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50. http://en.wikipedia.org/wiki/Standard_Model
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52. <http://en.wikipedia.org/wiki/Mass>
53. <http://en.wikipedia.org/wiki/CERN>

54. http://en.wikipedia.org/wiki/List_of_accelerators_in_particle_physics#Hadron_colliders
 55. http://en.wikipedia.org/wiki/Particle_accelerator
 56. <http://en.wikipedia.org/wiki/Collider>
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 58. <http://en.wikipedia.org/wiki/Proton>
 59. <http://en.wikipedia.org/wiki/TeV>
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 61. http://en.wikipedia.org/wiki/Atomic_nucleus
 62. http://en.wikipedia.org/wiki/Beyond_the_Standard_Model
 63. <http://en.wikipedia.org/wiki/Physics>
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 66. http://en.wikipedia.org/wiki/Higgs_boson
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1.2 February

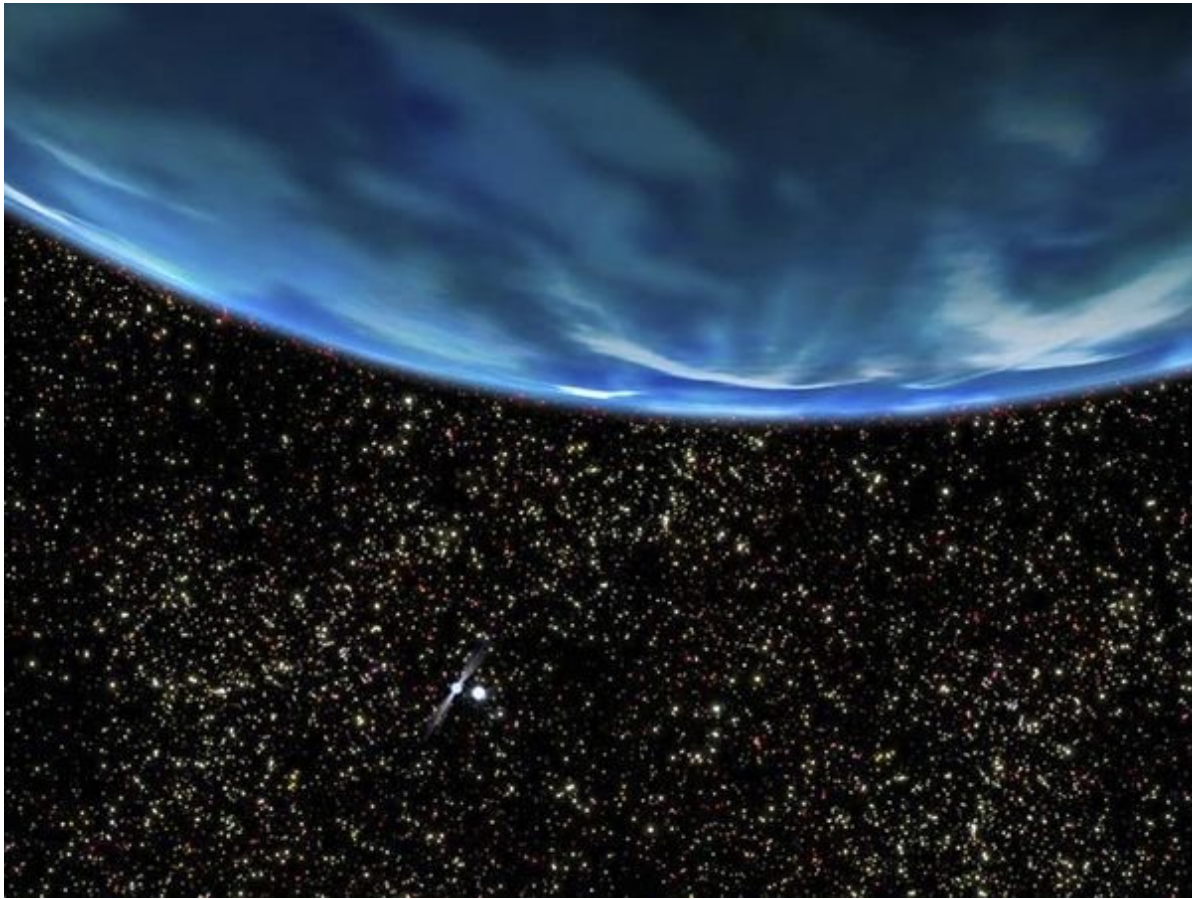
The origins of water (2010-02-21 16:27)

A short documentary by the [1]National Geographic, exploring the latest theories on how water came to exist in our planet.

[youtube=<http://www.youtube.com/watch?v=BvrzM-BavDg>]

Most astronomers believe a rogue planet collided with Earth about 4.5 billion years ago. The impact sent molten debris into orbit around Earth, some of which coalesced to form the moon.

Under this scenario, the heat of the impact should have vaporized light elements, including the hydrogen necessary for water to form.[1]

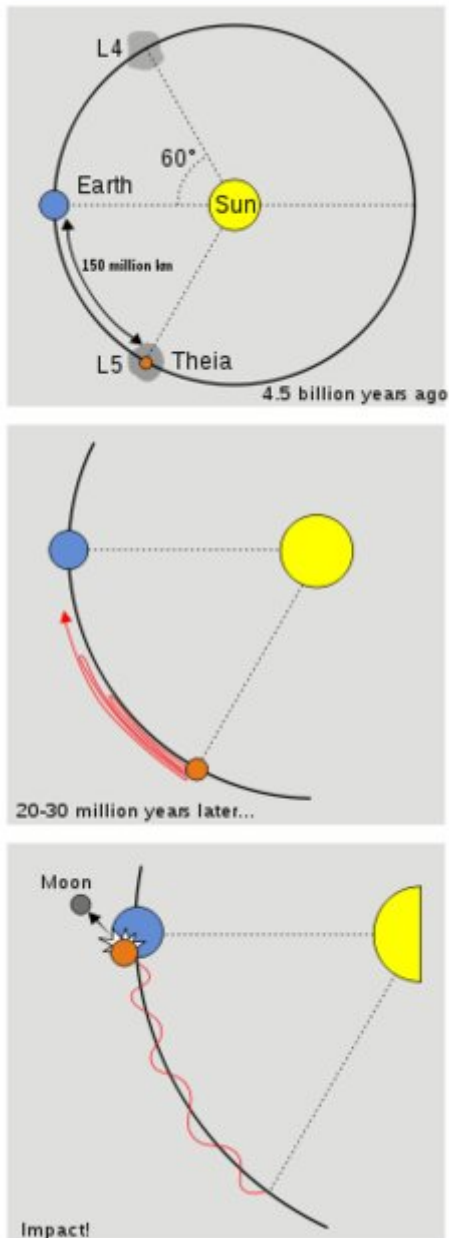


The im-
pactor, sometimes named [2]Theia, is thought to have been a little smaller than the current planet [3]Mars. It could have formed by accretion of matter about 150 million kilometres from both the Sun and Earth, at their fourth or fifth [4]Lagrangian point. Its orbit may have been stable at first, but destabilized as Theia's mass increased due to the accretion of matter. Theia oscillated in larger and larger orbits around the Lagrangian point until it finally collided with



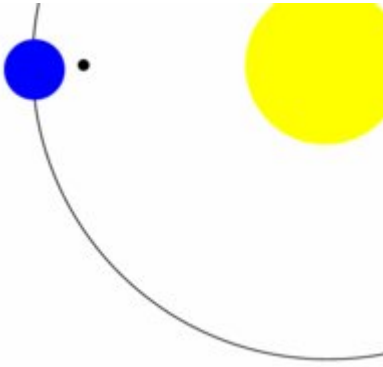
Earth about 4.533 [5]Ga.

Models show that when an im-
pactor this size struck the proto-Earth at a low angle and relatively low speed (8–20 km/sec), much material from the mantles (and proto-crusts) of the proto-Earth and the impactor was ejected into space, where much of it stayed in orbit around the Earth. This material would eventually form the Moon. However, the metallic cores of the impactor would have sunk through the Earth's mantle to fuse with the Earth's core, depleting the Moon of metallic material. The giant impact hypothesis thus explains the Moon's abnormal composition. The ejecta in orbit around the Earth could have condensed into a single body within a couple of weeks. Under the influence of its own gravity, the ejected material became a more spherical body:



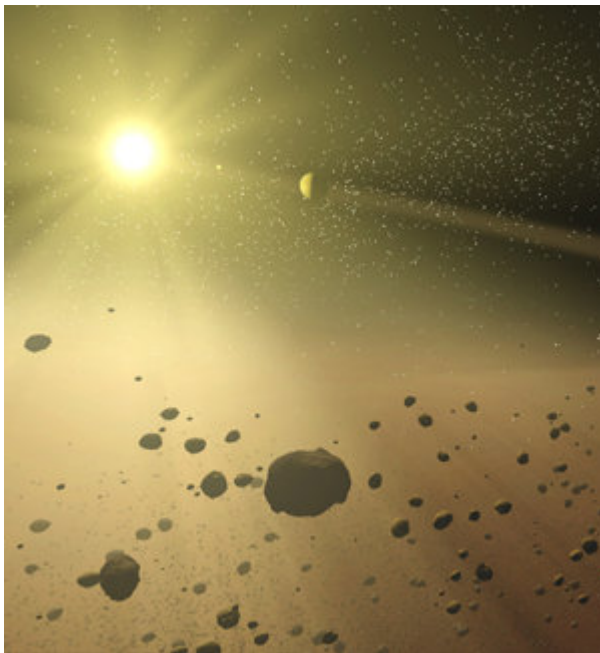
the Moon.

The radiometric ages show the Earth existed already for at least 10 million years before the impact, enough time to allow for differentiation of the Earth's primitive mantle and core. Then, when the impact occurred, only material from the mantle was ejected, leaving the Earth's core of heavy siderophile elements untouched. The impact had some important consequences for the young Earth. It released a gigantic amount of energy, causing both the Earth and Moon to be completely molten. Immediately after the impact, the Earth's mantle was vigorously [6]convecting, the surface was a large [7]magma ocean. Due to the enormous amount of energy released, the planet's first atmosphere must have been completely blown off. The impact is also thought to have changed Earth's axis to produce the large 23.5° [8]axial tilt that is responsible for Earth's seasons (a simple, ideal model of the planets' origins would have axial tilts of 0° with no recognizable seasons). It may also have sped up Earth's rotation.



Because the Earth lacked an atmosphere immediately after the giant impact, cooling must have been fast. Within 150 million years a solid crust with a [9]basaltic composition must have formed. The [10]felsic [11]continental crust of today did not yet exist. Within the Earth, further differentiation could only begin when the mantle had at least partly solidified again. Nevertheless, during the early Archaean (about 3.0 Ga) the mantle was still much hotter than today, probably around 1600°C. This means the fraction of partially molten material was still much larger than today.

[youtube=http://www.youtube.com/watch?v=-x8-KMR0nx8] Steam [12]escaped from the crust, and more gases were released by [13]volcanoes, completing the second [14]atmosphere. Additional water was imported by [15]bolide collisions, probably from asteroids ejected from the outer [16]asteroid belt under the influence of [17]Jupiter's gravity.



The asteroid belt is a ring of rocky debris between Jupiter and Mars, thought to have been created when Jupiter's mass made the area too unstable for planet formation. The debris is not evenly distributed, and the belt has zones where there are far fewer asteroids than expected, said Minton. Some of those gaps, called Kirkwood gaps, are in zones where Jupiter or Saturn's gravitational influence destabilises the asteroids so much that they are ejected from the belt, but many are in areas that are currently stable. Jupiter is thought to have formed slightly further away from the Sun than it is today, and Saturn, Uranus and Neptune were once closer, Minton said. The planets were subsequently dragged into their present positions by the gravity of large objects ejected from the Kuiper belt, a ring of icy debris lying beyond the planets. Once the Kuiper belt was depleted of large objects, the planets settled into their current orbits. The researchers designed a computer simulationThe large amount of water on Earth can never have been produced by volcanism and degassing alone. It is assumed the water was derived from impacting [18]comets that contained ice. Though most comets are

today in orbits farther away from the Sun than [19]Neptune, computer simulations show they were originally far more common in the inner parts of the solar system. However, most of the water on Earth was probably derived from small impacting protoplanets, objects comparable with today's small icy moons of the outer planets. Impacts of these objects can have enriched the terrestrial planets ([20]Mercury, [21]Venus, the Earth and Mars) with water, [22]carbon dioxide, [23]methane, [24]ammonia, [25]nitrogen and other [26]volatiles. If all water in the Earth's oceans was derived from comets alone, a million impacting comets are required to explain the oceans. Computer simulations show this is not an unreasonable number. As the planet cooled, [27]clouds formed. Rain [28]created the oceans. Recent evidence suggests the [29]oceans may have begun forming by 4.2 Ga, or as early as 4.4 Ga. In any event, by the start of the Archaean eon the Earth was already covered with oceans.[3] The [30]National Geographic released a full, 1 hour version of this documentary in 2008, which is a must watch for anyone interested in the history of our planet. It is being broadcasted today on [31]France 5 in the program '[32]Superscience', for viewers in France. - Sources: [1] [33]National Geographic [2] [34]Cosmos Magazine [3] [35]Wikipedia

1. <http://www.youtube.com/user/NationalGeographic>
2. http://en.wikipedia.org/wiki/Theia_%28planet%29
3. <http://en.wikipedia.org/wiki/Mars>
4. http://en.wikipedia.org/wiki/Lagrangian_point
5. <http://en.wikipedia.org/wiki/Annum>
6. <http://en.wikipedia.org/wiki/Convection>
7. http://en.wikipedia.org/w/index.php?title=Magma_ocean&action=edit&redlink=1
8. http://en.wikipedia.org/wiki/Axial_tilt
9. <http://en.wikipedia.org/wiki/Basalt>
10. <http://en.wikipedia.org/wiki/Felsic>
11. http://en.wikipedia.org/wiki/Continental_crust
12. <http://en.wikipedia.org/wiki/Outgassing>
13. <http://en.wikipedia.org/wiki/Volcano>
14. http://en.wikipedia.org/wiki/Earth%27s_atmosphere
15. <http://en.wikipedia.org/wiki/Meteoroid#Bolide>
16. http://en.wikipedia.org/wiki/Asteroid_belt
17. <http://en.wikipedia.org/wiki/Jupiter>
18. <http://en.wikipedia.org/wiki/Comet>
19. <http://en.wikipedia.org/wiki/Neptune>
20. http://en.wikipedia.org/wiki/Mercury_%28planet%29
21. <http://en.wikipedia.org/wiki/Venus>
22. http://en.wikipedia.org/wiki/Carbon_dioxide
23. <http://en.wikipedia.org/wiki/Methane>
24. <http://en.wikipedia.org/wiki/Ammonia>
25. <http://en.wikipedia.org/wiki/Nitrogen>
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28. http://en.wikipedia.org/wiki/Origin_of_the_world%27s_oceans
29. http://en.wikipedia.org/wiki/Origin_of_water_on_Earth
30. <http://www.national-geographic.com/>
31. <http://www.france5.fr/>
32. <http://www.france5.fr/programmes/articles/sciences/1021-superscience.php>
33. <http://news.nationalgeographic.com/news/2008/07/080709-moon-water.html>
34. <http://www.cosmosmagazine.com/news/2592/asteroid-belt-mystery-solved>
35. http://en.wikipedia.org/wiki/History_of_Earth

1.3 March

João Magueijo's Big Bang and Cosmology (2010-03-01 15:56)

João Magueijo is a [1]Portuguese [2]cosmologist and professor in [3]Theoretical Physics at [4]Imperial College London. He is a pioneer of the [5]varying speed of light (VSL) [6]theory.

In this excellent documentary from [7]Discovery Science, João Magueijo explains Cosmology, the Big Bang theory and the latest related theories in an easy, logical and practical way, making the topics something accessible, easy and natural to understand, all at a glance.

[youtube=http://www.youtube.com/watch?v=P_mvEd9VN6g]

[youtube=http://www.youtube.com/watch?v=TZCUbg4inXk]

[youtube=http://www.youtube.com/watch?v=twbop8MnliY]

[youtube=http://www.youtube.com/watch?v=wnJBIP6uaP8]

[youtube=http://www.youtube.com/watch?v=rhvC0tYFgDY]

The notion that our planet has the perfect conditions for humans to exist is a flawed notion of fine-tuners. Life adapts to conditions; conditions do not adapt to life.

The Universe certainly is a marvel. That such complexity can arise from very basic physical interactions is amazing, but, nonetheless, it is capable of being understood from whole naturalistic means.

1. <http://en.wikipedia.org/wiki/Portugal>
2. http://en.wikipedia.org/wiki/Physical_cosmology
3. http://en.wikipedia.org/wiki/Theoretical_Physics
4. http://en.wikipedia.org/wiki/Imperial_College_London
5. http://en.wikipedia.org/wiki/Varying_speed_of_light
6. <http://en.wikipedia.org/wiki/Theory>
7. <http://science.discovery.com/>

Was Einstein right ? General Relativity confirmed ? « Rove Montoux (2010-03-12 10:20:41)

[...] theories – two I have never heard about – so they seem to have left many out, including João Magueijo's VSL theory, the theory that pointed flaws in General Relativity, implying that the speed of light is not [...]

The earthquake that struck Chile on Saturday may have shifted the Earth's axis and created shorter days (2010-03-03 01:26)

[1]The Guardian - The earthquake that struck [2]Chile on Saturday may have shifted the Earth's axis and created shorter days, according to scientists at Nasa. Richard Gross, a geophysicist at Nasa's Jet Propulsion Laboratory in Pasadena, California, said the 8.8 magnitude quake could have moved the Earth's axis by 2.7 milliarcseconds (about 8cm) – enough to shorten a day by about 1.26 microseconds.

✕

The diving tectonic plate at the epicenter of the magnitude 8.8 Chile earthquake Saturday helped to temporarily redistribute mass on Earth.

A large quake can shift huge amounts of rock and alter the distribution of mass on the planet. When that distribution changes, it changes the rate at which the planet rotates, which determines the length of a day.

"The length of the day should have got shorter by 1.26 microseconds," Gross told the Bloomberg news agency. "The axis about which the Earth's mass is balanced should have moved by 2.7 milliarcseconds."

Gross previously used the technique to estimate the shift caused by the 2004 Sumatran quake that caused the Indian Ocean tsunami. That 9.1 magnitude quake shifted the Earth's axis by 2.3 milliarcseconds and shortened a day by 6.8 microseconds.

David Kerridge, a seismologist with the British Geological Survey, said the Chile and Sumatra earthquakes were based on subduction, in which one tectonic plate slides under another, redistributing the Earth's overall mass. The effect was similar to that for an ice dancer who moved their arms in and out to accelerate and slow their spin.

"As the ice skater puts when she's going around in a circle, and she pulls her arms in, she gets faster and faster. It's the same idea with the Earth going around if you change the distribution of mass, the rotation rate changes."

Earthquakes caused by plates sliding past each other, such as the recent event in Haiti, do not have the same impact on the Earth's rotation.

Gross said the Chilean earthquake shifted the Earth's axis a greater distance than the larger Sumatran event because it was further from the equator. The fault that caused the Chilean quake also dips into the Earth at a steeper angle, which meant it moved more mass.

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Will the earth's axis move back after the Chile earthquake ? Apparently, no. According to scientists, the changes to the earth's axis and time are permanent.

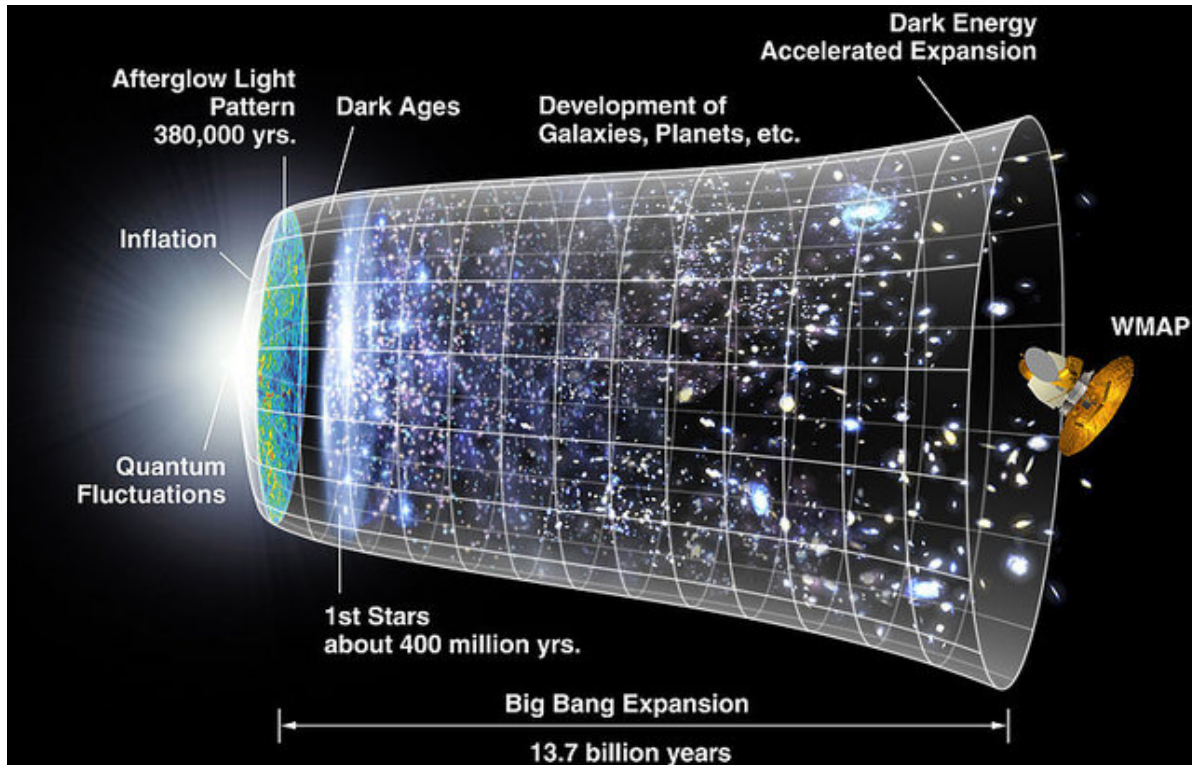
1. <http://www.guardian.co.uk/world/2010/mar/02/earthquake-chile-earth-axis>

2. <http://www.guardian.co.uk/world/chile>

NiceArtLife (2010-03-13 21:00:25)

That scares a lot, incredible the effect of an earthquake of this magnitude. I also read that this quake and that of Haiti was caused by the mysterious H A R P project in Alaska, freaky. Thanks for posting this interesting story!

Was Einstein right ? General Relativity confirmed ? (2010-03-12 10:20)



Artist's concept of the Universe expansion, where space (including hypothetical non-observable portions of the Universe) is represented at each time by the circular sections.

Someone just pointed me to this article released yesterday by Fox News, '[1]Einstein Was Right: General Relativity Confirmed',

Score one more for Einstein. A new study has confirmed his theory of general relativity works on extremely large scales.

The study was one of the first rigorous tests of this theory of gravity beyond our solar system. The research found that even over vast scales of galaxies and clusters of galaxies, the equations of general relativity predict the way that mass pulls on other mass in the universe.

The new work also helps rule out a competing theory of gravity that seeks to do away with the need for bizarre concepts like dark matter and dark energy that have irked some scientists. This research indicates those pesky ideas may be here to stay.

Well, I know there are many theories in debate atm, but by what I can see in this article, they tested two of all the adverse theories - two I have never heard about - so they seem to have left many out, including [2]João Magueijo's VSL theory, the theory that pointed flaws in General Relativity, implying that the speed of light is not always a constant.

So, I am not sure if this study stands enough in order for it to deserve a big blinking headline saying 'Einstein Was Right: General Relativity Confirmed'.

I was discussing the subject with fellows in varied Cosmology dedicated groups, and the common sense is that,

All they are really saying is that gravity behaves the way Einstein said it would on large scales, the other models say it would be general relativity on the short distances, but different over large distances. Also as far as I can tell this is just one of such tests, and it would really need at least 3 separate independent tests before it should be considered anywhere near proof.

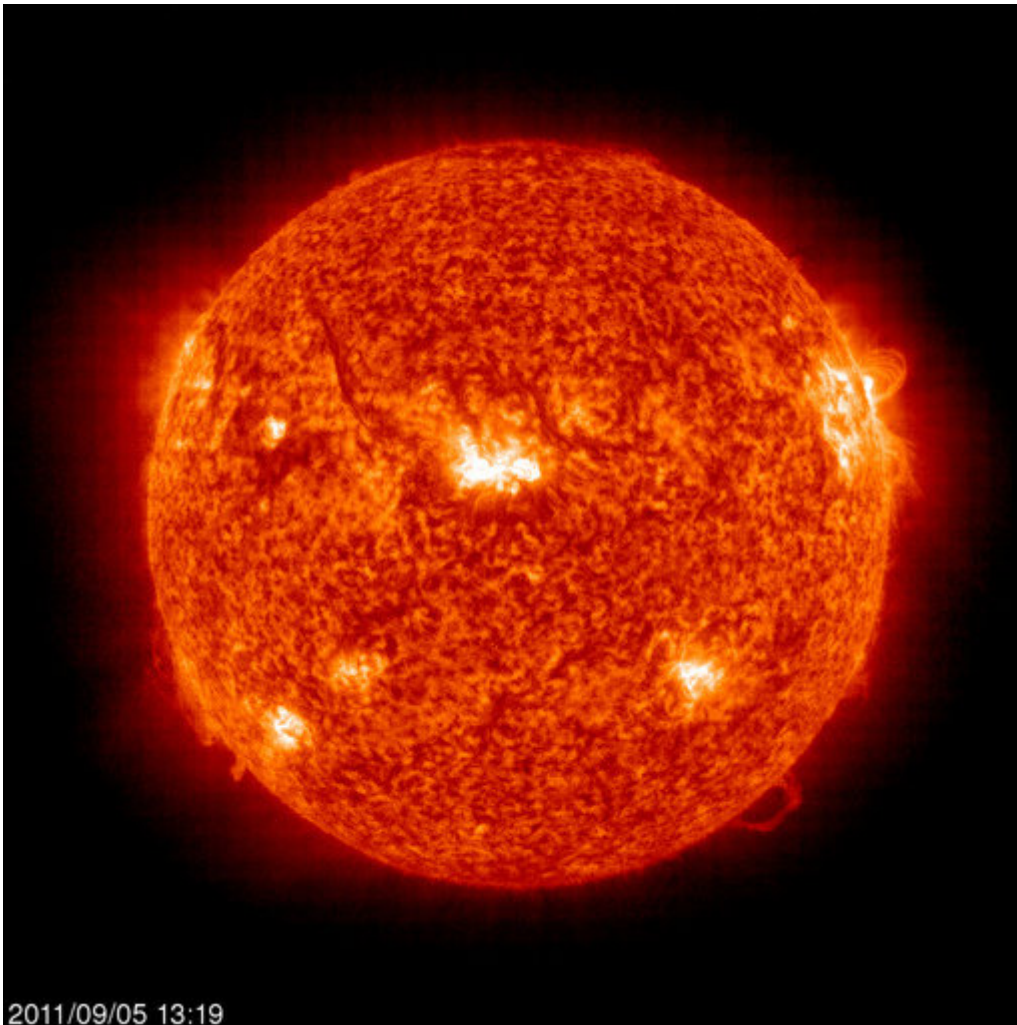
1. <http://www.foxnews.com/scitech/2010/03/10/einstein-was-right-relativity-confirmed/>

2. <http://rovemontoux.net/2010/03/01/joao-magueijos-big-bang-and-cosmology/>

rmontoux (2010-03-15 20:48:27)

<http://www.sciencecentric.com/news/article.php?q=100315114-foiling-a-n-attack-on-general-relativity>

New Solar Cycle of activity begins this year (2010-03-16 12:13)



[1] 2011/09/05 13:19

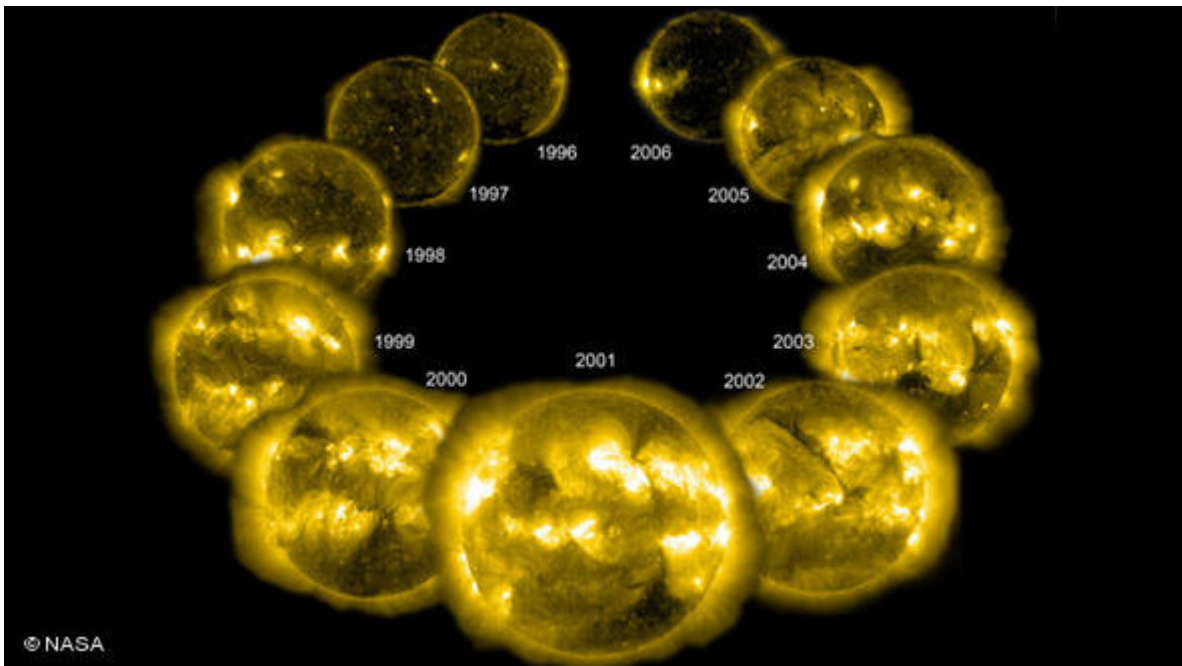
Latest image of the Sun as seen from the SOHO observatory

As a new [2]solar cycle of activity begins this year, the Earth will once again be bombarded with increased radiation from the sun. This effect may damage satellites and interfere with GPS, television and communications, while in the other hand the solar activity increases short wave propagation, making worldwide radio communication easier during its active period.

Over an 11-year cycle, sunspots become more prevalent and then less and less so. The

last period of heightened solar activity was between 2000 and 2002.

That activity means that by 2015, more charged particles from the sun will be interacting with the ionosphere in the Earth's upper atmosphere. This can lead to the ionosphere thickening and interfering with orbiting satellites.



[3]

Every 11 years, the sun goes through a cycle of varying activity

Scientists from [4]SOHO first spotted the new solar cycle had begun in early 2008, by observing the appearance of a very special solar spot on the sun surface. This solar spot also produced two solar blasts, and the new solar cycle have been named 'Cycle 24', as it is the 24th observed Solar Cycle, and officially started on the 4th of January 2008, when the event scientists have been anticipating for about a year was then observed.

The [5]ESA reported that Solar Cycle 24 is expected to build gradually, with the number of sunspots and solar storms reaching a maximum by 2011 or 2012, although intense solar activity can occur at any time.

1. http://sohowww.nascom.nasa.gov/data/realtime/eit_304/512/latest.jpg
2. <http://www.dw-world.de/dw/article/0,,5323618,00.html>
3. http://www.dw-world.de/image/0,,5318999_1,00.jpg
4. http://www.esa.int/esaCP/SEMT1J3MDAF_index_0.html
5. http://www.esa.int/esaCP/SEMT1J3MDAF_index_0.html

The Neuroscience of Creativity (2010-03-19 14:08)



Susan Adele Greenfield

In this lecture from [1]Baroness Susan Greenfield, a British scientist, writer, broadcaster, member of the [2]House of Lords and Professor of [3]Synaptic [4]Pharmacology at [5]Lincoln College Oxford, the neurological and psychiatric scenarios where individuals are more creative than the norm, are explored.

Could there be common features in these diverse cases that could give a clue to the creative and even the "aha" moment of creative insight itself ?

[youtube=<http://www.youtube.com/watch?v=Rj4goSnBcyo>]

[youtube=<http://www.youtube.com/watch?v=3Spxfkhh7HE>]

[youtube=<http://www.youtube.com/watch?v=7KGyUHPqy-I>]

[youtube=<http://www.youtube.com/watch?v=Lfx90mieAaE>]

[youtube=<http://www.youtube.com/watch?v=hnARGJKORwE>]

[youtube=<http://www.youtube.com/watch?v=d51cRGt1oG4>]

[youtube=<http://www.youtube.com/watch?v=oQPFGmLg1bc>]

[6]Baroness Susan Greenfield is also Chancellor of [7]Heriot-Watt University in [8]Edinburgh and has worked to research and bring attention to [9]Parkinson's and [10]Alzheimer's disease.

As well as several honorary degrees, Greenfield has been awarded the Royal Society's Michael Faraday Prize, and in January 2000, received the CBE for her contributions to the public understanding of science. Dimpleby Lecturer 1999. Hon Australian of the Year 2006. She is a Patron of the Alzheimer's Research Trust. In 2003, she was given the French Légion d'honneur, and in June 2001, she was created a life peer, as Baroness Greenfield, of Ot Moor in the County of Oxfordshire.

1. http://en.wikipedia.org/wiki/Susan_Greenfield
2. http://en.wikipedia.org/wiki/House_of_Lords
3. <http://en.wikipedia.org/wiki/Synapse>
4. <http://en.wikipedia.org/wiki/Pharmacology>
5. http://en.wikipedia.org/wiki/Lincoln_College,_Oxford
6. http://en.wikipedia.org/wiki/Susan_Greenfield
7. http://en.wikipedia.org/wiki/Heriot-Watt_University
8. <http://en.wikipedia.org/wiki/Edinburgh>
9. http://en.wikipedia.org/wiki/Parkinson%27s_disease
10. http://en.wikipedia.org/wiki/Alzheimer%27s_disease

Creative Synthesis; Creativity, Innovation and Neuroscience | NEWLOGIC (2010-07-13 17:30:48)
[...] RoveMonteux.net Filed under Creative Synthesis Click here to cancel [...]

Chapter 2

2011

2.1 February

Solar Flare, 16-17.02.2011 (2011-02-17 18:04)

I just assembled and published this time-lapse image of the [1]Solar Flare set to reach Earth on the 17-18.02.2011 as seen by [2]SOHO; each [3]Solar Flare is marked as orange dots ("FL"), [4]Coronal Waves (bright fronts propagating from the location of the eruption) are marked as red dots ("COR"), and Spray Surges (a type of eruption associated with [5]Solar Flares which involve faster ejections of material rather [6]eruptive prominences, and reach velocities of 500 to 1200 kilometers per second) as blue dots ("SP").

A Solar Flare is a large explosion in the [7]Sun's atmosphere that can release as much as 6×10^{25} [8]joules of [9]energy (about a sixth of the [10]total energy output of the Sun each second).

When the ejection is directed towards the [11]Earth, as now, and reaches it as an interplanetary CME (ICME), the [12]shock wave of the traveling mass of [13]Solar Energetic Particles causes a [14]geomagnetic storm that may disrupt the Earth's [15]magnetosphere, compressing it on the day side and extending the night-side [16]magnetic tail. When the magnetosphere [17]reconnects on the night side, it releases [18]power on the order of [19]terawatt scale, which is directed back toward the Earth's [20]upper atmosphere.

This process can cause particularly strong [21]auroras in large regions around Earth's magnetic poles. These are also known as the Northern Lights (aurora borealis) in the northern hemisphere, and the Southern Lights (aurora australis) in the southern hemisphere. Coronal mass ejections, along with solar flares of other origin, can disrupt [22]radio transmissions and cause damage to [23]satellites and [24]electrical transmission line facilities, resulting in potentially massive and long-lasting [25]power outages.

Humans in space or at high altitudes, for example, in airplanes, risk exposure to intense radiation. Short-term damage might include skin irritation. Long-term consequences might include an increased risk of developing skin cancer.

[youtube=<http://www.youtube.com/watch?v=etBZpS0-17Y>]

1. http://en.wikipedia.org/wiki/Solar_flare
2. <http://sohowww.nascom.nasa.gov/>

3. http://en.wikipedia.org/wiki/Solar_flare
4. http://en.wikipedia.org/wiki/Coronal_mass_ejection
5. http://en.wikipedia.org/wiki/Solar_flare
6. http://en.wikipedia.org/w/index.php?title=Eruptive_prominence&action=edit&redlink=1
7. <http://en.wikipedia.org/wiki/Sun>
8. <http://en.wikipedia.org/wiki/Joule>
9. <http://en.wikipedia.org/wiki/Energy>
10. [http://en.wikipedia.org/wiki/Orders_of_magnitude_\(energy\)#1024_and_above](http://en.wikipedia.org/wiki/Orders_of_magnitude_(energy)#1024_and_above)
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12. http://en.wikipedia.org/wiki/Shock_wave
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19. <http://en.wikipedia.org/wiki/Watt>
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22. <http://en.wikipedia.org/wiki/Radio>
23. <http://en.wikipedia.org/wiki/Satellites>
24. http://en.wikipedia.org/wiki/Electrical_transmission_line
25. http://en.wikipedia.org/wiki/Power_outage

World Spinner (2011-02-18 06:56:34)

Solar Flare, 16-17.02.2011 « Rove Monteux... Here at World Spinner we are debating the same thing.....

Riva Dubeau (2011-02-19 02:29:53)

You must be a genius. I love your posts, will come back later.

BlogBook v0.4,
L^AT_EX 2_ε & GNU/Linux.
<http://www.blogbooker.com>

Edited: September 5, 2011