



ORIGINAL RESEARCH

The Global Coherence Initiative: Creating a Coherent Planetary Standing Wave

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Citation

Global Adv Health Med.
2012;1(1):64-77.

Key Words

Global Coherence Initiative, geomagnetic, Schumann resonances, coherence, heart-based living, global health

ABSTRACT

The much anticipated year of 2012 is now here. Amidst the predictions and cosmic alignments that many are aware of, one thing is for sure: it will be an interesting and exciting year as the speed of change continues to increase, bringing both chaos and great opportunity. One benchmark of these times is a shift in many people from a paradigm of competition to one of greater cooperation. All across the planet, increasing numbers of people are practicing heart-based living, and more groups are forming activities that support positive change and creative solutions for manifesting a better world. The Global Coherence Initiative (GCI) is a science-based, co-creative project to unite people in heart-focused care and intention. GCI is working in concert with other initiatives to realize the increased power of collective intention and consciousness.

The convergence of several independent lines of evidence provides strong support for the existence of a global information field that connects all living systems and consciousness. Every cell in our bodies is bathed in an external and internal environment of fluctuating invisible magnetic forces that can affect virtually every cell and circuit in biological systems. Therefore, it should not be surprising that numerous physiological rhythms in humans and global collective behaviors are not only synchronized with solar and geomagnetic activity, but disruptions in these fields can create adverse effects on human health and behavior.

The most likely mechanism for explaining how solar and geomagnetic influences affect human health and behavior are a coupling between the human nervous system and resonating geomagnetic frequencies, called Schumann resonances, which

occur in the earth-ionosphere resonant cavity and Alfvén waves. It is well established that these resonant frequencies directly overlap with those of the human brain and cardiovascular system. If all living systems are indeed interconnected and communicate with each other via biological, electromagnetic, and nonlocal fields, it stands to reason that humans can work together in a co-creative relationship to consciously increase the coherence in the global field environment, which in turn distributes this information to all living systems within the field.

GCI was established to help facilitate the shift in global consciousness from instability and discord to balance, cooperation, and enduring peace. A primary goal of GCI is to test the hypothesis that large numbers of people when in a heart-coherent state and holding a shared intention can encode information on the earth's energetic and geomagnetic fields, which act as carrier waves of this physiologically patterned and relevant information. In order to conduct this research, a global network of 12 to 14 ultrasensitive magnetic field detectors specifically designed to measure the earth's magnetic resonances is being installed strategically around the planet. More important is GCI's primary goal to motivate as many people as possible to work together in a more coherent and collaborative manner to increase the collective human consciousness.

If we are persuaded that not only external fields of solar and cosmic origins but also human attention and emotion can directly affect the physical world and the mental and emotional states of others (consciousness), it broadens our view of what interconnectedness means and how it can be intentionally utilized to shape the future of the world we live

in. It implies that our attitudes, emotions, and intentions matter and that coherent, cooperative intent can have positive effects.

GCI hypothesizes that when enough individuals and social groups increase their coherence baseline and utilize that increased coherence to intentionally create a more coherent standing reference wave in the global field, it will help increase global consciousness. This can be achieved when an increasing number of people move towards more balanced and self-regulated emotions and responses. This in turn can help facilitate cooperation and collaboration in innovative problem solving and intuitive discernment for addressing society's significant social, environmental, and economic problems. In time, as more individuals stabilize the global field and families, workplaces, and communities move to increased social coherence, it will lead to increased global coherence. This will be indicated by countries adopting a more coherent planetary view so that social and economic oppression, warfare, cultural intolerance, crime, and disregard for the environment can be addressed meaningfully and successfully.

摘要

令人期待的2012年已经到来。在诸多的预言和宇宙调整运动之中，许多人确信有一件事是肯定的：这将是有趣和激动人心的一年，变化速度持续增长，在制造混乱的同时，也带来了巨大的机遇。这个伟大时代的一个标志，就是人们需要从成熟的竞争者转变为更加伟大的合作者。在这个世界上，越来越多的人正在尝试基于内心的生活方式，越来越多的团体正在为改善世界而提倡支持积极的改变和创造性的解决方案。全球相干性启动计划（GCI）是一个立足于科学的合作创造性

项目，其目的是联合关注心脏领域和有此方面意图的人。GCI与其他机构协同工作，以实现集体力量和意识的增强。

多条独立的证据线呈现出收敛性，能够有力地支持通用信息场的存在，该通用信息场能够连接所有有生命的系统和意识。我们身体内的每一个细胞都沐浴在外部和内部环境的无形的磁力波内，这种磁力波能够影响几乎每个细胞，并对生物系统内的电路产生影响。因此，我们不应感到奇怪，人类大量的生理节律和全球集体行为不仅仅与太阳活动和地磁活动同步，而且当这些场被破坏时，会对人类健康和行为产生不利影响。

能够解释太阳和地磁场如何影响人类健康的一个最好的机制，是建立人类神经系统和地磁场频率的共振，这种机制称为舒曼共振，出现在地球电离层共振腔和Alfvén波中。这些共振频率能够直接与人类大脑和心血管系统重叠，这一点已经得到公认。如果所有有生命的系统都是相互联系的，并且通过生物、电磁和非本地场进行彼此交流，则我们有理由相信人类能够以一种共同创造性的关系共同工作，不断增加通用场环境的相干性，该环境反过来将这些信息分布到该场内的所有的生命系统。

GCI致力于促进全球意识从不稳定和不调和状态转变为平衡、合作和持久的和平状态。GCI的一个主要目标，是检验处于心脏相干态并持有同一个意图的大量人群能够对地球的能量和地磁场进行编码的假说，而地球能量和地磁场是这一生理-成像和相关信息的载体波。为了能够实施这一研究，有12到14台特别设计的用于测量地球磁共振的超灵敏磁场探测仪被有计划性地安装到地球的不同位置。GCI更重要的一个目标，是鼓励尽可能多的人以更具相干性和合作的方式共同工作，以提高人类集体意识。

如果我们相信，除了太阳的外源场和宇宙起源之外，甚至人类注意力和情感也能够直接影响物理世界以及其他人的精神和情感状态（意识），这将有助于开拓我们对交互连通性的认识，以及如何主动地利用其来塑造我们将来所生活的世界。这意味着我们的态度、情感和注意力都很重

要，而且相干、合作的意图能够产生积极的影响。

GCI的假说认为，当足够多的个体和社会团体提高他们的相干性基础水平，并利用升高后的相干性在通用场中有意地创造一个相干性更高的参考驻波，则将有助于提高全球意识。当越来越多的人向着更加平衡和情感、反应自我调节的方向努力时，该假说就可以实现。反过来，这也将有助于促进人类在解决创新性领域问题的合作，提高解决重大社会、环境和经济问题的直觉洞察力。随着更多的个体对通用场的稳定作用，以及家庭、工作场所和社区形成更牢固的社会相干性，迟早会形成更高的全球相干性。国家采用更具相干性的全球视野，则社会和经济压迫、战争、文化偏狭、犯罪以及无视环境的问题都将得到积极和成功的解决，通过这种方式能够对该假说进行证明。

RESUMEN

Finalmente llegó el tan anticipado año 2012. Entre las predicciones y alineamientos cósmicos que muchos conocemos, una cosa es segura: será un año interesante y fascinante a medida que la velocidad de los cambios que se suscitan siga en aumento, ocasionando caos y grandes oportunidades. Un punto de referencia de estos tiempos es el cambio de actitud que se produce en muchas personas, desde un paradigma de competencia a uno de mayor colaboración. En todo el mundo, una creciente cantidad de personas practican una existencia basada en el corazón y más grupos participan en actividades que apoyan los cambios positivos y soluciones creativas para tener un mundo mejor. La Iniciativa de Coherencia Global (GCI, por sus siglas en inglés) es un proyecto científico y cocreativo, orientado a unir a las personas a partir de atenciones e intenciones centradas en el corazón. La GCI trabaja en conjunto con otras iniciativas para poner de manifiesto el creciente poder de la intención y conciencia colectiva.

La convergencia de varias líneas independientes de evidencia brinda un sólido sustento a la existencia de un campo de información global que

conecte todos los sistemas vivos y la conciencia. Cada célula de nuestro cuerpo circula en un ambiente externo e interno de fuerzas magnéticas fluctuantes e invisibles que pueden afectar prácticamente cada célula y circuito presente en los sistemas biológicos. Por esta causa, no debería sorprender que una gran cantidad de ritmos fisiológicos en los humanos y los comportamientos colectivos a nivel mundial no sólo estén sincronizados con la actividad solar y geomagnética, sino que los trastornos que se producen en estos campos pueden crear efectos adversos en la salud y el comportamiento de los humanos.

Los mecanismos con más posibilidades de explicar cómo la influencia solar y geomagnética afectan la salud y el comportamiento de los humanos son una combinación del sistema nervioso humano y las frecuencias resonantes geomagnéticas, denominadas resonancias Schumann, las cuales se producen en la cavidad resonante terrestre, en la capa de la ionosfera, y las ondas de Alfvén. Es bien sabido que estas frecuencias resonantes se superponen directamente con las que se producen en el cerebro y el sistema cardiovascular. Si, de hecho, todos los sistemas vivos estuvieran interconectados y se comunicaran entre sí a través de campos biológicos, electromagnéticos y no locales, sería razonable pensar que los humanos pueden trabajar juntos en una relación cocreativa, para aumentar de manera conciente la coherencia en el campo del ambiente mundial, el cual a su vez distribuye esta información a todos los sistemas vivos dentro del campo.

La GCI fue creada para ayudar a facilitar el cambio en la conciencia global, desde la inestabilidad y la discordia al equilibrio, la colaboración y la paz duradera. El objetivo principal de la GCI es poner a prueba la hipótesis de que una gran cantidad de personas, cuando se encuentran en un estado de coherencia cardíaca y comparten una misma intención, pueden codificar la información de los campos energéticos y geomagnéticos de la tierra, los cuales actúan como ondas portadoras de esta información fisiológicamente diseñada y relevante.

Con el fin de llevar a cabo esta investigación, una red mundial de 12 a 14 detectores de campos magnéticos ultrasensitivos, diseñados específicamente para medir las resonancias magnéticas de la tierra, se están instalando estratégicamente en el planeta. Pero más importante es la meta fundamental de la GCI de motivar a la mayor cantidad de personas a trabajar en conjunto, de manera más coherente y conjunta para estimular la conciencia colectiva.

Si nos convencemos de que no sólo los campos externos de los orígenes solares y cósmicos, sino también la atención y emoción humana pueden afectar directamente el mundo físico y los estados mentales y emocionales de los demás (conciencia), esto nos permite ampliar nuestra visión de lo que significa la

interrelación y cómo se puede utilizar en forma intencional para moldear el futuro del mundo en que vivimos. Esto implica que nuestras actitudes, emociones e intenciones tienen importancia y que la intención coherente y conjunta puede tener efectos positivos.

La GCI plantea la hipótesis de que cuando suficientes individuos y grupos sociales incrementan sus puntos de partida de coherencia y utilizan dicho aumento para crear deliberadamente una onda de referencia permanente más coherente en el campo mundial, esto ayudará a incrementar la conciencia global. Tales efectos se pueden lograr cuando una creciente cantidad de personas se orienta hacia emociones y respuestas más equilibradas y autorreguladas. Esto a su vez, puede ayudar a facilitar la cooper-

ación y colaboración en métodos innovadores de resolución de problemas y de discernimiento intuitivo, para hacer frente a los problemas sociales, ambientales y económicos importantes que aquejan a la sociedad. Con el tiempo, a medida que más personas logren estabilidad en el campo global y sus familias, en sus lugares de trabajo y las comunidades se dirijan hacia una creciente coherencia social, esto conducirá a una coherencia global creciente. Los países indicarán esta tendencia mediante la adopción de una visión del mundo más coherente, de modo que la opresión social y la económica, la guerra, la intolerancia cultural, los delitos y la falta de preocupación por el medio ambiente sean cuestiones que se puedan abordar en forma significativa y exitosa.

Many people perceive that humanity has reached a critical juncture in these early years of the 21st century. We are on the threshold of a new stage of social, spiritual, and cultural evolution. We are evolving out of nationally based industrial societies toward an interconnected, information-based social, economic, and cultural system that spans the entire planet. The path of this transition is not certain; it is proving to be filled with numerous shocks and surprises. Worldwide, people are experiencing mounting concerns about climate change, terrorism, energy and water shortages, food and product safety, and economic instability. Such concerns are justified with the extreme volatility in global financial markets and the increase in frequency of record-breaking destructive weather, fires, and floods, as well as earthquakes, tsunamis, and volcanic eruptions. There is also an increase in social unrest and the number of revolutions, insurrections, and uprisings. This accelerating pace of change in the world is contributing to a momentum of global incoherence, stress, and instability. All too often, this results in stress, confusion, lack of focus, a narrowing field of perception, frustration, anxiety, and depression—all of which negatively impact relationships, health, productivity, and the global energetic field environment. When multiplied by the number of people who are affected, the growing insecurity has become a global paradigm that permeates our political, financial, social, educational, and natural environments.

We are at a choice point, and it is arguably the most important ever faced. It is defined by technological sophistication that is not matched by an evolution in consciousness and social development. We see the social and environmental devastation that has been brought by the application of science and engineering

to conquer the natural world.

At the same time, there is an increase in the number of individuals, groups, and organizations around the world who are longing and working for peace, environmental improvement, and social change. We are on the verge of a shift in human consciousness, one in which we are co-creators and more in control of our own evolution. As a shift is instated, it brings new models for living together on the earth in cooperative and collaborative union, but increasing stress makes it more difficult for individuals, groups, and organizations to carry out their intentions and actualize their missions. While practices to increase balance and peace through personal and collective efforts, such as prayer, meditation, affirmations, focused intention, and other methods can positively add to the field environment, due to the stress of the current times, people often still find it difficult to calm down, focus, and quiet the mind, thereby compromising the effectiveness of their efforts.

COHERENCE

One of the scientific understandings that emerged from the last century is that the universe is wholly and enduringly coherent.¹⁻³ The phenomenon of coherence is well known. It indicates a quasi-instant connection among the parts or elements of things, whether an atom, an organism, or a galaxy. This kind of coherence is observed in fields as diverse as quantum physics, biology, cosmology, and brain and consciousness research. The new picture that has emerged is that all living systems are interconnected at a deep fundamental level and communicate with one another via biological fields and nonlocal mechanisms.^{4,5} Although the nature of these interconnecting fields is not yet

fully understood, there is considerable scientific data that substantiate their existence through observation of their effects.^{6,7} It also has become increasingly clear that invisible magnetic influences emanating from the sun and earth profoundly affect life on earth from birth to death. It has been reliably shown that solar and geomagnetic cycles not only correlate with human health indicators, but also with such major societal conflicts as violence, crime, terrorism, and war.⁸⁻¹¹

The concepts and understanding of coherence in physics is not new. It is our increasing understanding of how coherence functions in the human system that is relatively new, as well as scientific studies on how we can increase it. The Institute of HeartMath (IHM) has identified a psychophysiological state that is the underpinning of optimal function they termed heart coherence.^{5,12-14} This has led to the development of practical techniques, tools, and technologies that help empower people to better manage stress, increase performance, and connect with a deeper intelligence and intuitive awareness.¹⁵⁻¹⁷ Numerous studies have shown that learning how to shift into this psychophysiological state quickly improves cognitive performance, focus and effectiveness, self-responsibility, and social cohesion.^{5,12,18-21} Although people are able to achieve and increase heart coherence in a variety of ways—breathing exercises, heart-focused meditation, and listening to uplifting music among others—studies at IHM and elsewhere have shown one of the quickest and most effective ways is through emotional self-regulation and generating positive emotions, such as compassion, love, appreciation, and care.¹³

At the individual level, a person's level of heart coherence can be assessed by monitoring the rhythmic patterns that are reflected in their heart-rate variability (HRV), the beat-to-beat changes in heart rate. Positive emotions such as love, appreciation, and compassion generate a heart-rhythm pattern that is more ordered and coherent, whereas negative emotions such as anxiety, anger, and fear generate a disordered, incoherent heart-rhythm pattern.¹² Ongoing feelings of impatience, frustration, irritation, worry, or blame throw our inner rhythms out of sync and have a negative carryover effect on our hormonal and nervous systems.

Studies have found that the combination of emotional self-regulation techniques with heart rhythm coherence monitoring technology (emWave) has proven to be highly successful for reducing stress, anxiety, anger, chronic pain, fatigue, and burnout, as well as many other stress-related conditions.^{5,12,18-21} By practicing the heart-focused self-regulation techniques and using heart rhythm coherence monitoring devices, people can learn how to quickly reset their emotions and shift into a balanced inner rhythm that the rest of the body will harmonize to, allowing more ease and flow. The inner rhythm and state of heart coherence is what many meditation techniques are trying to achieve. The emWave helps people quickly get into a meditative state and provides feedback when they lose

focus. It also signals when they return to a coherent state. The emWave helps to slow the mental/emotional vibratory rate and increase the heart coherence baseline (ie, when the heart, brain and nervous system operate more in sync and with increased efficiency). As a person's heart coherence baseline increases, he or she will experience more mental clarity, creativity, and focus during the day. The carryover effect helps users to be more conscious and intuitive at choice points, allowing them to choose their actions and reactions rather than automatically responding in the same old stress-producing behavior patterns.

THE GLOBAL COHERENCE INITIATIVE

IHM, a nonprofit research and education organization, established the Global Coherence Initiative (GCI) as a science-based, co-creative initiative to unite people in heart-focused care and intention and to facilitate the shift in global consciousness from instability and discord to balance, cooperation, and enduring peace. A primary goal of GCI is to determine the effects of collective emotional responses that are reflected in the earth's energetic fields (ionosphere and geomagnetic field).

The first overarching hypothesis of GCI is that all living systems are interconnected at an energetic level and communicate with one another via biological fields, including nonlocal fields, when certain conditions are met. From this general hypothesis, the second overarching hypothesis is that not only are humans affected by planetary energetic fields, but conversely the earth's energetic systems are also influenced by and act as a carrier wave for collective human emotions and consciousness (positively or negatively). Thus, much of the planetary "information field environment" is made up of the collective consciousness of the inhabitants. The third hypothesis is that large numbers of people intentionally generating heart-coherent positive emotional states of care, compassion, love, and appreciation will generate a coherent standing wave that can help offset present and future planetary-wide standing waves of stress, fear, discord, and incoherence.

Embedded within the above overarching hypotheses is a related hypothesis that human emotions and consciousness interact with and encode information in planetary energetic fields, including the geomagnetic field, thereby communicating information between people at a subconscious level, which in effect, links all living systems and gives rise to a form of collective consciousness. Thus, a feedback loop exists between all human beings and the earth's energetic systems.

It is further proposed that when coherently aligned individuals are intentionally creating physiologically coherent waves, they encode information in the planetary scale energetic fields, which act as a carrier wave, thereby positively impacting all living systems contained within the field environment and the collective consciousness. This in turn will create a mutually beneficial feedback loop between human beings and the earth's energetic systems. The intention

of GCI is to be a catalyst that will instigate, facilitate, and support the maintenance of an upward spiral of this feedback loop for the mutual benefit of human beings and the planet we call home. To support these efforts, GCI has established an international web-based membership of individuals which as of early 2012 has more than 37,000 members (see glcoherence.org). GCI is also working with various partner groups and organizations committed to increasing planetary coherence. The current focus of the initiative is the deployment of the Global Coherence Monitoring System to measure and explore fluctuations and resonances in the earth's magnetic field and in the earth-ionosphere resonant cavity in order to

1. conduct research on the mechanisms of how the earth's fields affect human mental and emotional processes, health outcomes, and collective human behavior;
2. explore how collective human emotional states and intentions are reflected in the earth's electromagnetic and energetic fields;
3. determine if changes in the earth's energetic fields occur prior to natural catastrophes such as earthquakes, volcanic eruptions, floods, storms, and human-made events such as social upheaval, unrest, and terrorist attacks; and
4. monitor global events to determine where GCI members' collective heart-coherent prayers, meditations, affirmations, and intentions can be directed.

It is anticipated that by investigating how individual and collective emotional energy affects the earth's fields that, it will facilitate a growing awareness of humanity's interdependence with the earth and with each other.

Earth's Energetic Systems and Human Health and Behavior

Every cell in our bodies is bathed in an external and internal environment of fluctuating invisible magnetic forces.⁹ It has become increasingly apparent that fluctuations in magnetic fields can affect virtually every circuit in biological systems to a greater or lesser degree, depending on the particular biological system and the properties of the magnetic fluctuations.^{9,12,22} Therefore, it should not be surprising that human physiological rhythms and global behaviors are not only synchronized with solar and geomagnetic activity, but disruptions in these fields can create adverse effects on human health and behavior.²³⁻²⁵

Changes in geomagnetic activity are correlated with hospital admissions and mortality from heart attacks and strokes, as well as numerous other adverse health effects such as depression, fatigue, mental confusion, and number of traffic accidents that occur. There is a voluminous scientific literature indicating important biological processes take place such as altered blood pressure, heart rate, HRV, melatonin lev-

els, increased occurrence of cancer, balance of hormonal system, reproductive system, cardiac and neurological disease, and death.^{2,6,15-19} An important finding is that of all the bodily systems studied thus far, changes in geomagnetic conditions most strongly affect the rhythms of the heart.^{7,9,16,20}

Historically, many cultures believed that their collective behavior could be influenced by the sun and other external cycles and influences. This belief has proven to be true. On a larger societal scale, increased violence, crime rate, social unrest, revolutions, and frequency of terrorist attacks have been linked to the solar cycle and the resulting disturbances in the geomagnetic field.²⁵⁻³¹ The first scientific evidence of this belief was provided by Alexander Tchihevsky, a Russian scientist who noticed that more severe battles during World War I occurred during peak sunspot periods.³¹ He conducted a thorough study of global human history and constructed an index of Mass Human Excitability dating back to 1749, which he then compared to the solar cycles over the same time period until 1926. Figure 1, constructed from Tchihevsky's original data, plots the number of significant human events compared to the solar cycle from 1749 to 1926.³¹

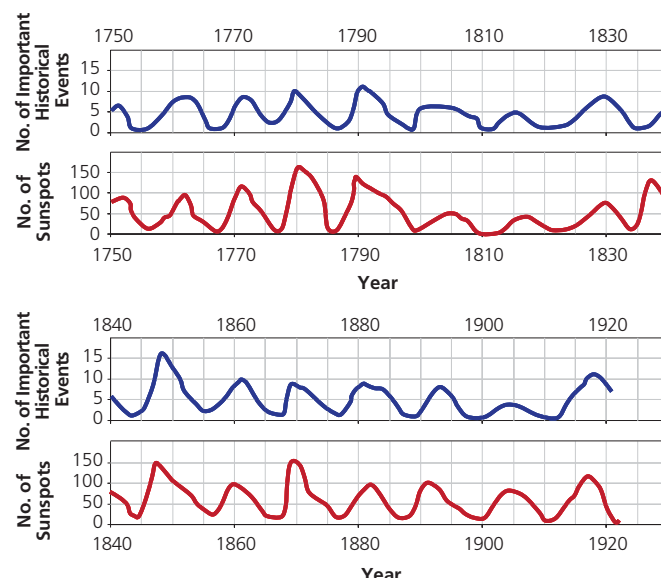


Figure 1 Tchihevsky's original data. The blue line plots the yearly number of important political and social events such as the start of a war, social revolutions, etc, while the red line plots the solar activity as indicated by the number of sunspots from 1749 to 1922. The histories of 72 countries were compiled, and it was found that 80% of the most significant events occurred during the solar maximum, which correlates with highest periods of geomagnetic activity.

In Figure 2, the last 2 solar cycles (22 and 23) are plotted, along with the beginnings of solar cycle 24 where it can be seen that Iraq invaded Kuwait during the peak of the solar cycle 22. The 9/11 terrorist attacks on the World Trade Center occurred during the peak of the solar cycle 23. Solar cycle 24 started in early 2011, and increased social unrest (especially in the Middle East, Tunisia, Egypt, and Libya) started to occur in synchronicity with

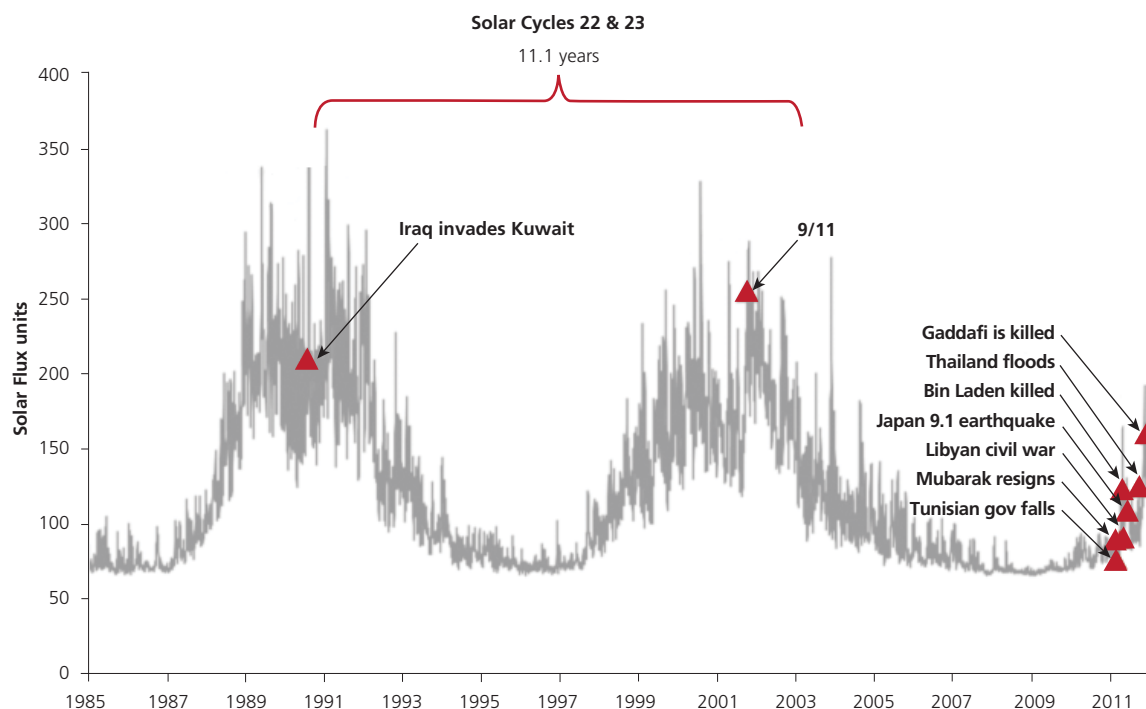


Figure 2 The last 2 solar cycles and the onset of the current solar cycle. Events during the last 2 solar peaks had a profound impact on the world. The occurrence of the recent social unrest in the Middle East can be associated with the increase in solar activity and geomagnetic disturbance.

the increased solar activity. Solar cycle 24 will continue to pick up in activity and reach its peak sometimes in 2013 or 2014. It follows then that social activity, increased mass excitement, and social unrest will also continue in the years to come.

Energetic Influxes and Human Flourishing

Solar activity has not only been associated with social unrest; it has also been related to the periods of greatest human flourishing with clear spurts in architecture, arts and science, and positive social change.³² When old structures that do not serve humanity collapse, an opportunity opens for them to be replaced with more suitable and sustainable models. Such positive change can affect the political, economic, medical, and educational systems, as well as relationships of individuals at work and home and in communities. At times of such pertinent energy influx, we have the greatest opportunity to instate positive change in our world. We can learn from past mistakes and consciously choose new ways of navigating energy influxes to create periods of human flourishing and humanitarian advances.

The most likely mechanism for explaining how solar and geomagnetic influences affect human behavior and health are a coupling between the human nervous system and the resonant frequencies generated by geomagnetic field line resonances and the globally propagating magnetic waves called Schumann resonances (SR) that occur in the earth-ionosphere resonant cavity. It is well established that the earth and ionosphere generate a symphony of resonant frequen-

cies that directly overlap with those of the human brain and cardiovascular system. Figures 3 and 4 provide examples of the earth's resonant frequencies.

The central hypothesis is that changes in these resonances can in turn influence the function of the human autonomic nervous system, brain, and cardiovascular system. It has not been possible to test this central hypothesis scientifically until now due to the unavailability of reliable, continuous measures of ionospheric and field line resonances in combination with monitoring of peoples' HRV as a measure of nervous system activity along with health and social indicators. Fortunately, this limitation has recently been resolved with the installation of the first 3 of 12 to 14 planned GCI monitoring sites designed to measure these resonances.

The Global Coherence Initiative Monitoring System

When completed, the global coherence monitoring system will have a network of 12 to 14 sensor sites placed strategically around the planet. Each site will include ultrasensitive magnetic field detectors specifically designed to measure the magnetic resonances in the earth/ionosphere cavity, resonances that are generated by the vibrations of the earth's geomagnetic field lines, and ultra-low frequencies that occur in the earth's magnetic field, all of which have been shown to impact human health, mental and emotional processes and behaviors.

Although there are several networks of ground-based fluxgate magnetometers which measure the strength of the earth magnetic field and geomagnetic disturbances (Kp), as well as several space weather satellites, there has

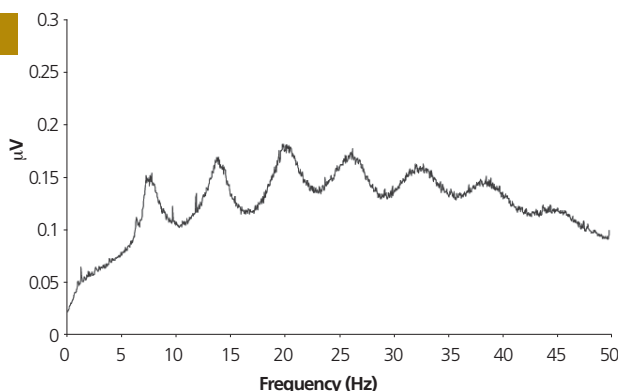


Figure 3 Schumann resonance data recorded from the Global Coherence Initiative sensor site in Boulder Creek, California. Note that all the resonant frequencies directly overlap human brainwave frequencies.

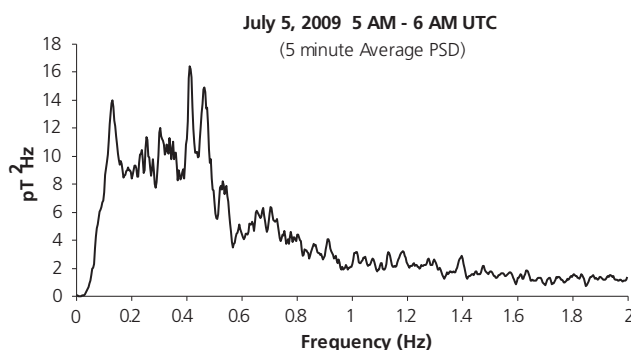


Figure 4 Geomagnetic field line resonance data recorded from the Global Coherence Initiative sensor site in Boulder Creek, California. Note that all the resonant frequencies directly overlap human cardiovascular system frequencies and that there is a clear standing wave frequency at 0.1 Hz, which is the same resonant frequency of the cardiovascular systems and thus coherent heart rhythms in humans and many animals.

not been a global network of detectors that continuously measure the time varying signals such as the SR and other signals that occur in the same range as human physiological frequencies such as the brain and cardiovascular systems. The monitoring system adds the missing component required to better understand how we are affected by the earth's fields as well as enabling us and other researchers to better understand the interconnections between solar and other external forces on the planetary field environment.

Figure 5 shows the relative positions of monitoring sites, and Figure 6 illustrates the actual setup of a monitoring site. As of the beginning of 2012, 3 sites—one at the HeartMath Research Center in northern California, one in the eastern province of Saudi Arabia, and another in southern England—are operational. Three additional sites will be installed in 2012: one each in New Zealand, Canada, and South Africa. Each monitoring site will detect and send the local alternating magnetic field strengths in 3 dimensions over a relatively wide frequency range (0.01–300 Hz) while maintaining a flat frequency response. The data acquisition infrastructure captures, stamps with time and global positioning data,

and transmits the data to a common server. In addition, each site has a random number generator (RNG) that is part of the Global Consciousness Project (GCP) network (described below).

The monitoring system will track changes in geomagnetic activity due to solar storms, changes in solar wind speed, disruption of SRs, and, potentially, the signatures of major global events that have a strong emotional component. A growing body of data also suggests that changes occur in ionospheric activity prior to earthquake activity. We make our data freely available to other research groups who wish to explore how it may be utilized to predict earthquakes and related events. Thus, the network will provide a significant research tool to further understand how solar and earth-generated fields and rhythms affect human health, emotions, behaviors, and consciousness and vice versa.

Global Coherence Initiative Interconnectedness Study

In 2010, we conducted a study in which 1643 GCI members from 51 countries completed a biweekly survey at random times 6 days each week over a 6-month period. The survey contained 6 valid scales: positive affect, well-being, anxiety, confusion, fatigue, and physical symptoms.



Figure 5 Proposed locations for the global network of monitoring sites. These sites will be specifically designed to measure the magnetic resonances in the earth/ionosphere cavity, resonances that are generated by the vibrations of the earth's geomagnetic field lines, and ultra-low frequencies that occur in the earth's magnetic field.



Figure 6 The monitoring site located at the HeartMath Research Center in Boulder Creek, California.

Table Global Coherence Initiative Interconnectedness Results

	Physical Symptoms	Fatigue	Anxiety	Confusion	Positive Affect	Well-being	Dreams
Solar wind speed	-0.01	.32 ^a	.17 ^b	.30 ^a	-.22 ^a	-.17 ^b	-0.14
Kp-index ^c	-0.05	.28 ^a	0.11	.20 ^b	-.25 ^a	-.21 ^a	-0.04
Ap-index ^d	-0.05	.27 ^a	0.10	0.15	-.24 ^a	-.20 ^b	-0.05
Solar radio flux (F 10.7 index)	0.09	-.34 ^a	-.17 ^b	-0.15	.28 ^a	.20 ^b	.21 ^b
Polar Cap Magnetic Activity	-0.06	.32 ^a	.19 ^b	.24 ^a	-.32 ^a	-.24 ^a	-0.01

^a Correlation is significant at the 0.01 level (2-tailed).^b Correlation is significant at the 0.05 level (2-tailed).^c The Kp-index is a "planetary" index derived by calculating a weighted average of K indices from a network of magnetometer readings. K is a code letter related to a magnetometer horizontal component.^d The Ap-index is an averaged planetary A index based on data from a set of specific Kp stations. The A index is a 3-hourly "equivalent amplitude" index of local geomagnetic activity (a). In short, Ap-index is a geomagnetic "planetary activity" index.

The survey data were subjected to correlation analysis with a number of planetary and solar activity variables such as solar wind speed, magnetic field and plasma data, measures of energetic protons, solar flux, and geomagnetic activity indices. The Table shows the results of the correlation analysis. A positive correlation coefficient represents positive linear correlations, and a negative correlation coefficient (indicated with a minus sign) represents negative correlations.

Positive affect was negatively correlated to the solar wind speed, Kp, Ap index, and polar cap magnetic activity. (The Ap index is a mean, 3-hourly "equivalent amplitude" of magnetic activity based on K index data from a planetary network of 11 northern and 2 southern hemisphere magnetic observatories between the geomagnetic latitudes of 46° and 6° by the Institut für Geophysik at Göttingen, Germany; Ap values are given in units of 2 nT.) In other words, when solar wind speed, Kp, Ap, and polar cap activity increased, positive affect among the participants decreased. As expected, well-being scores were also negatively correlated with solar wind speed, Kp, Ap-index, and polar cap magnetic activity. Thus, when solar wind speed increased and the geomagnetic field was disturbed, the levels of fatigue, anxiety, and mental confusion increased. The study also uncovered some unexpected findings. For example, the solar radio flux index was correlated with reduced fatigue and improved positive affect, indicating that there are mechanisms affecting human well-being that are not fully understood and additional research needs to be conducted in order to understand the effects of the various variables and the time sequence of their effects.³³

Another study performed at the Prince Sultan Cardiac Hospital in Saudi Arabia, entitled "Effects of Changes in Geomagnetic and Ionospheric Fields on Human Heart Rate Variability" recently began to more rigorously test the hypothesis that SRs and field line resonances are primary mechanisms mediating the interactions between geomagnetic activity and the human nervous system. This study has 2 major components. First, sequential, 24-hour HRV recordings will be obtained each day over a 1-year period. Changes in the participants HRV data will be correlated with variations in planetary and solar activity, including solar

wind speed, magnetic field, plasma data, protons, geomagnetic activity indices like AE, Dst, Kp, solar radio flux (F 10.7 index), locally recorded SRs, and geomagnetic field line resonances. It is expected that we will find strong correlations between increased solar activity, geomagnetic activity, and SR intensities and disturbances. It is also expected that we will find that the SR intensities and disturbances have strong correlations with changes in the participants HRV indices, especially with changes in the VLF rhythms of HRV. The longest time frame of any study so far has been a 6-week period.³⁴ The second aspect of this study involves studying the impact of solar and geomagnetic activity on a societal level. We will map the time structures of the solar and magnetic variables listed above along with indicators of the larger, local population's social and physical health indicators such as social unrest, mood disorders, fatigue, depression, hospital admissions, and traffic accidents. If the hypothesis can be validated, it will significantly increase our understanding of the mechanisms by which geomagnetic disturbances affect human health and behavior and thus significantly increase our ability to predict and take steps to counteract the impact of energetic disturbances on individuals and society.

Creating Positive Change in the Planetary Field Environment

The evidence that human health and behaviors are globally influenced by geomagnetic activity is quite strong and convincing. However, there is experimental evidence that human bioemotional energy can have a subtle but significant (scientifically measurable) nonlocal effect on people, events, and organic matter. It is becoming clear that a bioelectromagnetic field such as the ones radiated by each human heart and brain can affect other individuals and the "global information field environment." For example, research conducted in our laboratory has confirmed the hypothesis that when an individual is in a state of heart coherence, the heart radiates a more coherent electromagnetic signal into the environment that can be detected by nearby animals or the nervous systems of other people.³⁵ Of all the organs, the heart generates the largest rhythmic electromagnetic field, one that is approximately 100

times stronger than that produced by the brain. This field can be detected several feet from the body with sensitive magnetometers. This magnetic field provides a plausible mechanism for how we can “feel” or sense another person’s presence and emotional state independent of body language or other factors.

We have also found that there is a direct relationship between the heart rhythm patterns and the spectral information encoded in the frequency spectra of the magnetic field radiated by the heart. Thus, information about a person’s emotional state is encoded in the heart’s magnetic field, which is communicated throughout the body and into the external environment. Further support for this hypothesis was provided in a study examining the possibility that people trained in achieving high states of heart coherence could facilitate coherence in other people in close proximity. The results showed that the coherence of untrained participants was indeed facilitated by others who were in a coherent state. In addition, evidence of heart rhythm synchronization among group participants was revealed through several evaluation methods, and higher levels of coherence correlated to higher levels of synchronization among participants. Also, there was a statistical relationship between this synchronization and relational measures (bonding) among the participants. The authors concluded that “evidence of heart-to-heart synchronization across subjects was found which lends credence to the possibility of heart-to-heart bio-communications.”³⁶

In another study, Kathi Kemper at Wake Forest University, Winston-Salem, North Carolina, conducted a blinded study to evaluate the direct psychophysiological benefits of the nonverbal communication of loving kindness and compassion to others. The study participants were unaware of the true purpose of the study and did not know that the practitioner was at the time practicing being in a more heart coherent state of loving kindness and compassion. After the periods the practitioner was in this state, the participants had significantly reduced stress and increased feelings of relaxation and peacefulness. The participants also had significant improvements in their measures of HRV, which was used as an objective measure of autonomic activity. The study concluded that extending compassion to others has measurable affects and is “good medicine.”³⁷

Group Coherence

Anyone who has watched a championship sports team or experienced an exceptional concert knows that something special can happen in groups that transcends their normal performance. It seems as though the players are in sync and communicating on an unseen energetic level. Many teams, including Olympic and professional sports teams and Special Forces military units, understand the importance of team coherence. While they may refer to coherence as “team spirit” or “bonding,” they instinctively know there is a pal-

pable “team energy” that affects a team or a group’s performance. A growing body of evidence suggests that an energetic field is formed among individuals in groups through which communication among all the group members occurs simultaneously. In other words, there is a literal group “field” that connects all the members.⁵

Sociologist Raymond Bradley in collaboration with neuroscientist Karl Pribram developed a general theory of social communication to explain the patterns of social organization common to most groups independent of size, culture, degree of formal organization, length of existence, or member characteristics. They found that most groups have a global organization and a coherent network of emotional energetic relations interconnecting virtually all members into a single, multilevel hierarchy. They found a direct relationship between the number and structure of reciprocated positive emotional bonds among the members that predicted group stability and performance 2 years later. The only model that best fit and explained the data was one based on a field concept where information about the group as a whole was distributed to all members in such a way that information about the group’s global organization could be obtained from any member within the field—ie, a collective consciousness or a “social hologram.”³⁸ It requires energy to shift a system into a more coherent mode, and the key to creating stable, coherent groups is related to establishing positive emotions and dissipating negative emotional tensions, interpersonal conflicts, and other stressors among the individuals in that group.

Michael Persinger, a well-known neuroscientist at Laurentian University, Sudbury, Ontario, has conducted numerous studies examining the effects of magnetic fields with the same magnitude as the geomagnetic field on brain functions.^{39,40} Not only has he shown that by applying external fields similar to the SRs that can induce altered states of consciousness, he has also suggested in a detailed theory that the space occupied by the geomagnetic field can store information related to brain activity and that this information can be accessed by the human brain.⁴¹ Furthermore, Persinger suggests that the earth’s magnetic field can act as a carrier of information between individuals and that information rather than the signal intensity is important for interaction with neural networks.⁴²

Interconnection Between Collective Human Emotions and Random Number Generators

There is also a substantial body of evidence indicating an interaction between human emotions and global fields when large numbers of people have similar emotional responses to events or organized global peace meditations. Research conducted by the GCP, which maintains a worldwide network of RNGs, has found that human emotionality affects the randomness of these electronic devices in a globally correlated manner. Roger Nelson, director of the GCP states,

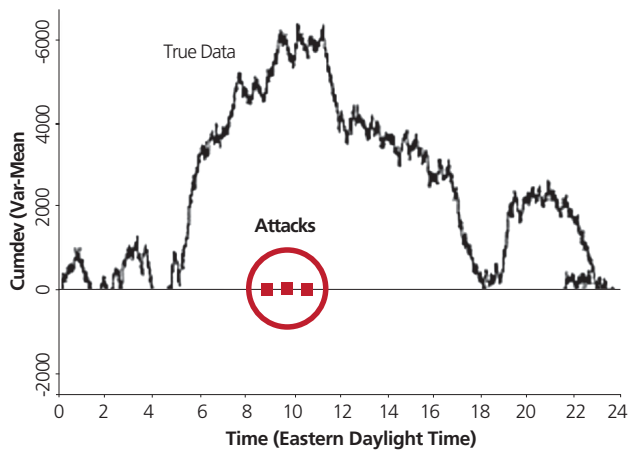


Figure 7 The shift in correlated output of a global network of random number generators during the terrorist attacks on September 11, 2001.

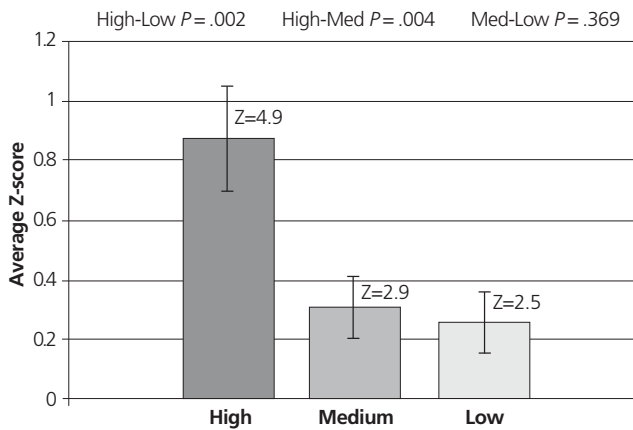


Figure 8 Global Consciousness Project vs level of emotion. Level of emotion determined by categorizing the events significantly affects the network variance effect size.

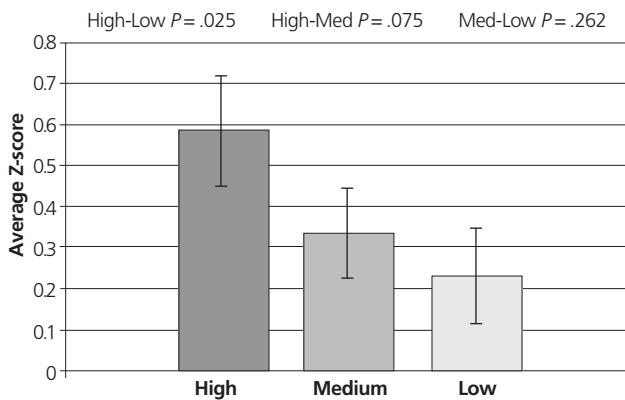


Figure 9 Effect of compassion. The degree of love and compassion evoked or embodied in an event significantly affects the network variance effect size.

The GCP is a long-term experiment that asks fundamental questions about human consciousness. It provides evidence for effects of synchronized collective attention—operationally defined global consciousness—on a world-spanning network of physical devices. There are multiple indicators of anomalous data structure which are correlated specifically with moments of importance to humans. The findings suggest that some aspect of consciousness may directly create effects in the material world. This is a provocative notion, but it is the most viable of several alternative explanations.^{43(p16)}

The research conducted by GCP has found that there is a significant correlation between global events that elicit a high level of emotionality from a large part of the world's population and periods of nonrandom order generated by the RNGs.⁴⁴ For example, multiple independent analyses of the network during the terrorist attacks that took place in the United States on the morning of September 11, 2001 (Figure 7), correlate with a large and significant shift in the output of the global network of RNGs.⁴⁵ The mechanisms for why human emotions create more coherence in the randomness of this global network are not yet fully understood; the data, however, clearly show that they do have such affects and data now have an odds-against chance ratio of over a billion to one.⁴⁶

Dr Nelson also found clear evidence that larger events defined by the number of people engaged and their level of “importance” produces larger effects on the global network. Figure 8 shows large differences depending on the level of emotion associated with events.

Figure 9 shows that when an event is characterized by deep and widespread compassion, the GCP effects are stronger.⁴³ This makes sense as compassion is related to interconnection and positive emotional engagement. As demonstrated, when we experience true feelings of compassion, we tend to shift into a more coherent physiological state¹² and are thus radiating more coherent magnetic waves into the environment.⁴⁷ Compassion by definition is an emotional state that brings us together and makes us coherent; we invest a small part of our individual being to connect with others and, as the GCP data indicate, with the global field environment.

The CGP group has investigated a number of theoretical models that could potentially explain the global effect they are detecting with the network. Most have been rejected and the following statement provides a summary of their analysis.

The picture is more promising when we look at field-type models associated with human consciousness. A simple version is similar to ordinary physical models of fields generated by a distribution of sources. In this case the field sources are associated with individual conscious humans,

while the field dynamics that might explain the random number generators correlations derive from the coherence of human activity during events. This proposal can accommodate all the inter-node correlations and structure seen in the data, but it remains phenomenological since it does not explain how the field arises in terms of underlying principles. Finally, a non-linear dynamic field model proposes that individual minds are mutually interactive, and that the interactions are responsible for an emergent field which depends on individual consciousness but is not reducible to it. The model implies that the dynamic and interactive qualities of consciousness also involve subtle interactions with the physical world and that these are responsible for certain anomalous phenomena such as are found in the GCP experiment. The proposal can be construed as embodying in a formal way the ideas of such thinkers as Teilhard de Chardin, describing a “noosphere” of intelligence for the earth, (1961) or Arthur Eddington, conceiving a “great mind.”^{43(p12)}

In a study that examined GCP data between 1998 and 2008, matched satellite-based interplanetary magnetic field (IMF) polarity with GCP defined world events such as meditations, celebrations, natural catastrophes, or violence. He found that such RNG deviations may depend on a positive IMF polarity coinciding with emotionally significant conditions and/or entropy changes.⁴⁸

Since we are still in the infancy in the field of consciousness research modulated by solar activity, sun/earth distance, and mass human emotionality, an important line of research is to develop a better understanding of processes influencing RNG data in comparison with solar and magnetic field data.

Mass Emotional Responses and the Geomagnetic Field

Another line of evidence for human emotional energy interacting with earth's energetic fields was provided from measures of the earth's geomagnetic field during the September 11, 2001, terrorist attacks. Figure 10 shows data recorded from 2 separate space weather satellites in geosynchronous orbit in the days before and after the attacks. The data from the magnetometers on these two satellites, which are positioned over the east and west coasts of the United States, reveal that a large shift occurred in the earth's geomagnetic field at the same time as the attacks. Note the difference in the fields in the days before and after the attacks. The incoherence and discord in the fields during the days after the attacks may reflect the mass emotional turmoil that occurred as news of the attacks spread around the globe. The same patterns were also observed in ground-based magnetometers.

Although the data shown in Figure 10 does not prove that human emotion modulated the earth's geomagnetic field, combined with the GCP and other

data, they support the overarching hypothesis that the earth's energetic systems are coupled with and exchange information in a bidirectional manor with the collective emotional energy of humanity. One of our goals at GCI is to test the hypothesis that large numbers of people in a heart-coherent state and holding a shared intention can encode information on the earth's energetic and geomagnetic fields that act as carrier waves of this physiologically-patterned and relevant information. If living systems are indeed interconnected and communicate with each other via such biological and electromagnetic fields, it stands to reason that humans can work together in a co-creative relationship to consciously increase the coherence in the global field environment which in turn distributes this information to all living systems within the field. Of course, the idea is not new that shared intentions can influence others at a distance; such ideas have been the subject of numerous studies that have looked at the effects of prayer, meditations, and groups sending intentions in various experimental contexts.^{6,49-51}

Quantum physicist John Hagelin has conducted research on the “Power of the Collective” and concluded that “Since meditation provides an effective, scientifically proven way to dissolve individual stress, and if society is composed of individuals, then it seems like common sense to use meditation to similarly diffuse societal stress.”⁵² A study conducted in 1993 in Washington, DC, showed a 25% drop in crime rate with 2500 meditators,⁵³ which means that a relatively small group of a few thousand was influencing a much larger group, a million and a half. The question posed itself that if crime rates could be decreased, could a group of meditators also influence social conflicts and wars? A similar experiment was done during the peak of the Israel-Lebanon war in the 1980s. Drs Charles Alexander and John Davies at Harvard University organized groups of experienced meditators in Jerusalem, Yugoslavia, and the United States to meditate on the area at various intervals over a 27-month period. After controlling statistically for weather changes; Lebanese, Muslim, Christian, and Jewish holidays; police activity; fluctuation in group sizes; and other variant influences during the course of the study, the levels of violence in Lebanon decreased between 40% to 80% each time a meditating group was in place, with the largest reductions occurring when the numbers of meditators were largest. During these periods, the average number of people killed during the war per day dropped from 12 to 3, a decrease of more than 70%; war-related injuries fell by 68%, and the intensity level of conflict decreased by 48%.⁵⁴

How can we have such an influence on each other at a distance? There are no clear answers yet; however, we hypothesize, that there is a unified field and universal consciousness that allows individually coherent waves to be coupled to the larger collective field environment. The GCI theory of change states that as

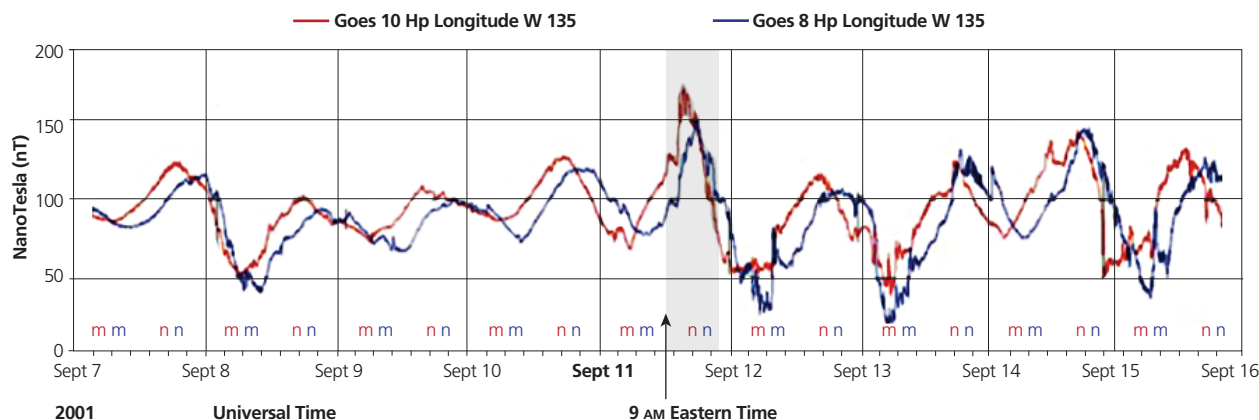


Figure 10 The data recorded from the Geostationary Operational Environmental Satellite 8 and 10 weather satellites in geosynchronous orbit over the east and west coasts of the United States in the days before, during, and after the September 11, 2001, terrorist attacks.

enough individuals increase their personal coherence, it can lead to increased social coherence (family, teams, organizations), and as increasing numbers of social units (families, schools, communities, etc) become more coherently aligned, it can in turn lead to increased global coherence, all of which is facilitated through self-reinforcing feedback loops between humanity and the global field environment (Figure 11). As more and more people increase their personal coherence, it strengthens and stabilizes the standing waves and coherent information in the planetary information field. Once a coherent standing wave is established, reinforced, and amplified through collective coherent intention, it in turn facilitates the amplification of the collective heart, mind, and consciousness, making it easier for more and more people to increase their coherence and expand their consciousness.

Every individual contributes to the global field environment, and each person's attitudes, intentions, and emotional experiences count. This is empowering for many individuals who often feel overwhelmed by the current negative predictions and conflicts on the planet. They come to realize that their actions can make a difference and that by increasing their own coherence, they can make a contribution that can help facilitate the shift that many now perceive to be occurring.

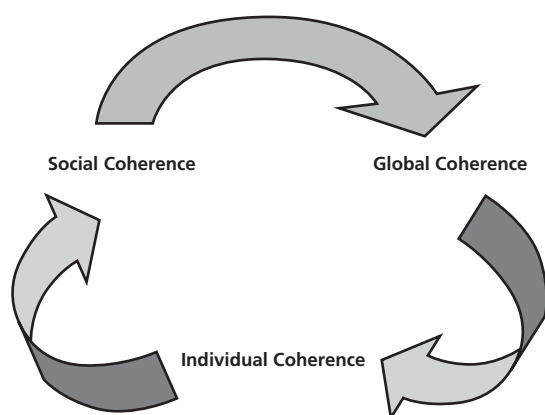


Figure 11 Global Coherence Initiative theory of change.

The personal benefits of better emotional self-regulation, enhanced well-being, more self-responsibility, better health, and improved relationships people experience are powerful motivators that reinforce the process for the individual. As more and more individuals become increasingly self-regulated and grow in conscious awareness, the increased individual coherence in turn increases social coherence, which is reflected in increased cooperation and effective co-creative initiatives for the benefit of society and the planet.

It is our perspective that a shift in consciousness is necessary in order for a significant shift to occur that enables new levels of cooperation and collaboration in innovative problem solving and intuitive discernment for addressing our social, environmental, and economic problems. In time, global coherence will be indicated by more communities, states, and countries adopting a more coherent planetary view.

CONCLUSIONS

GCI is a science-based, co-creative project to unite people in heart-focused care and intention and to facilitate the shift in global consciousness from instability and discord to balance, cooperation, and enduring peace. A primary goal is further study the interconnectedness between humanity and the earth's energetic systems. There is a substantial body of evidence that humans are affected by planetary energetic fields. GCI hypothesizes that human emotions and consciousness interact with and encode information in planetary energetic fields, including the geomagnetic field, thereby communicating information between people at a subconscious level, which, in effect, links all living systems and gives rise to a form of collective consciousness. Thus, a feedback loop exists among all human beings and the earth's energetic systems.

Our basic hypothesis is that when enough individuals and social groups increase their coherence and utilize that increased coherence to intentionally create a more coherent standing reference wave in the global field, it will help increase the global consciousness. This can be achieved when an increasing ratio of people move towards more balanced and self-regulated

emotions and responses. This in turn can help facilitate cooperation and collaboration in innovative problem solving and intuitive discernment for addressing society's significant social, environmental, and economic problems. In time, as more individuals stabilize the global field and families, workplaces, and communities move to increased social coherence, it will lead to increased global coherence. This will be indicated by countries adopting a more coherent planetary view so that social and economic oppression, warfare, cultural intolerance, crime, and disregard for the environment can be addressed meaningfully and successfully.

In order to conduct research on the mechanisms of how the earth's fields affect human mental and emotional processes, health outcomes, and collective human behavior and explore how collective human emotions and intentions may be reflected in the earth's electromagnetic and energetic fields, a global network of ultrasensitive magnetic field detectors specifically designed to measure the magnetic resonances in the earth/ionosphere cavity and resonances and earth's geomagnetic field lines resonances are being installed at strategic locations around the earth.

The monitoring system and the research studies it will make possible are only one aspect of a much larger goal, which is bringing people together for the purposes of improving their lives and creating a new more coherent standing wave in the planetary field environment.

The studies demonstrating that a relatively small number of the population who are intentionally meditating to create positive benefits supports the hypothesis that humanity is connected via a global field. Hence, we believe that the scientific research investigating how we are both impacted by the earth's energetic fields and the potential for detecting effects of collective human emotion and intention in the field environment is an important aspect of the GCI's goals. However, even if we are not able to prove the encoding of human intention in the global fields in the next few years, we are confident that we can facilitate a deeper understanding of the mechanisms by which human health and behaviors are modulated by the earth's fields and further clarify which aspects of the field environment mediate the varied and specific effects. More important is GCI's primary goal, which is to motivate more people to work together in a more coherent and collaborative manner to increase harmony in the collective consciousness to alleviate social conflicts and to improve the environmental impact we have on the planet and assist in planetary evolution.

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