

## SUMMARY HEART-MATH: SCIENCE OF INTERCONNECTIVITY

### The Rise of the Field View of Reality

“Classical physics conceived of reality as elementary building blocks made up of solid objects, separated by empty space. This view continues to be most people’s view of reality, including scientists. With the discovery of radioactivity and electromagnetic fields and the development of modern quantum physics, whose validity in the understanding of elementary particles, atoms and molecules was fully established in the last century, a new view of reality has emerged.

In this new reality, especially in light of the experimental confirmation of “entanglement,” physical objects cannot be understood, or observed in isolation, but rather must be viewed as part of a holistic web of interconnectedness in which fields and relationships are pivotal.<sup>2</sup>

From this new perspective, the worldview shifts away from seeing the world only from the outside and interacting mechanistically to a participative, field-connected worldview in which there are no clear boundaries between nonmaterial fields and the physical world.

Early 20<sup>th</sup> century biologists like Paul Weiss and Alexander Gurwitsch proposed that “biological fields” play a crucial role in the development of organisms and that human beings have, in addition to a solid physical body, a field component reaching out beyond the body’s boundaries. This is a view that most pre-scientific cultures embraced.<sup>3</sup> More recently, biophysics has shown that all living organisms are indeed permeated and surrounded by a weak electromagnetic field, composed of optical photons and radio, microwave and extremely low frequencies.

Based on experimental evidence indicating the existence of bioelectromagnetic fields, or “biofields,” new biophysical models have been developed that view human existence as multidimensional. The models include one of several levels of nonmaterial “field organisms” that include the field-related aspects of our thoughts, emotions and intuitions”.

“Because every cell in every biological system on Earth is bathed in an external and internal environment of fluctuating invisible magnetic fields of a wide range of frequencies, these fields can affect virtually every cell and circuit in biological systems”.

The branch of science that studies how solar and geomagnetic activity affect living organisms, especially humans, is called heliobiology. The majority of research in this field to date has focused on how magnetic field disturbances affect physiological health and, to a lesser degree, mental health and behavior”

“There is growing evidence suggesting that magnetic fields, in addition to serving as a protective shield, also help to synchronize, energize and nonlocally interconnect living systems. The evidence suggests these fields act as carriers of biologically relevant and patterned information, which is embedded in the same field and is distributed to all other living system.<sup>12-14</sup> This implies that our attitudes, emotions and intentions are not limited to the space inside our bodies, but that they also can affect the mental and emotional states (consciousness) of others. This broadens our view of what interconnectedness means and how coherent, cooperative intent can be intentionally utilized to shape the future of the world in which we live”.

GCI is hearing from an increasing number of people from all walks of life and cultures that they are developing new sensitivities that are enabling them to perceive the subtle energy fields around their bodies, especially the perception of an “energy” (like a subtle wind) flowing in and out of their heart area and hands and interacting and flowing between people, trees and plants. If we can successfully cultivate people’s competence in perceiving their own biofields and the “frequency pitch” of the fields they are radiating, as well as the biofields of other people and establish this as a value accepted by society, it would be an enormous advancement in collective consciousness. It could certainly have a positive effect on the quality of human relationships and society once people truly know that we are not fully isolated from each other, but rather interconnected and entangled with one another. We not only

would have to accept responsibility for how our thoughts and emotions affect us, but also for what we are ‘feeding the field’ and how that affects others”.

“Embedded within the above hypotheses is a related hypothesis: *Human emotions and consciousness interact with and encode information in the geomagnetic field.* Within this field, information can be communicated nonlocally between people at a subconscious level, which, in effect, links all living systems and influences collective consciousness.

Thus, we suggest a feedback loop exists between all human beings and Earth’s energetic systems. It is further proposed that when coherently aligned individuals intentionally create physiologically coherent magnetic fields, they’re able to more effectively resonate with and encode information in the planetary magnetic fields. This information can positively affect all living systems within the field environment and help increase collective consciousness”.

“Geomagnetic disturbances are associated with significant increases in hospital admissions for depression, mental disorders, psychiatric issues, suicide attempts, homicides and traffic accidents.<sup>27,31,40-44(33)</sup> Birthrates tend to drop, mortality rates increase and migraine attacks can be triggered during periods of increased solar and geomagnetic activity”.

Several studies that analyzed weeklong recordings found a ~25% reduction in the very-low-frequency (VLF) rhythm during magnetically disturbed days compared to quiet days. The low-frequency (LF) rhythms also were significantly reduced, but the high frequency (HF) rhythms were not.<sup>58,62</sup> Lower activity or power in the VLF rhythm is strongly associated with increased health risk while the vagally mediated HF rhythm is not as predictive, although lower activity in HF rhythm is associated with decreased capacity to self-regulate thoughts, emotions and behaviors”

### “Interactions Between the Human Brain and Schumann Resonances

The most common tool employed to study brain waves (consciousness) is the electroencephalogram (EEG). Measurements are obtained from electrodes located over the surface of the scalp to measure the variations in the electrical currents generated by the 20 billion to 25 billion neurons in the human brain. Voltages measured with the EEG are within the microvolt range while the corresponding magnetic fields produced by the brain are measured in the 1- to 2-picotesla range.

In the mid-1950s, Winfried Otto Schumann and Herbert Koenig first measured frequencies that were consistent with a mathematical model that predicted an Earth-ionospheric resonance. The lowest frequency Schumann resonances (SR), as they are now called, is approximately 7.83 hertz, with a daily (day/night) variation of about  $\pm 0.5$  hertz. The other frequencies are ~ 14, 20, 26, 33, 39 and 45 hertz. Figure 5 shows the frequencies of the SR, which are closely overlapping with alpha (8-12 hertz), beta (12-30 hertz) and gamma (30-100 hertz) brain waves. The similarity of the electrical components of the time-varying voltages produced by the brain (EEG) with the SRs was recognized early on, and the ability for the EEG rhythm to become synchronous with SR activity was observed by Koenig.<sup>65</sup> Because the brain is a very sensitive electromagnetic organ, changes in geomagnetic activity and SR intensities appear to alter brainwave and neurohormone responses”.

## INTERCONNECTIVITY BETWEEN LIVING SYSTEMS: THE ROLE OF EARTH’S MAGNETIC FIELDS

### Magnetic Fields Carry Biologically Relevant Information

The second GCI hypotheses states: *The earth’s magnetic fields are carriers of biologically relevant information that connects all living systems.*

“We have shown in our laboratory that the heart’s electromagnetic field can be detected by nearby animals or the nervous systems of other people and can mediate several types of physiological synchronization between individuals.<sup>83,84</sup> These findings have been confirmed by a number of other investigators.

For example, in a study on interpersonal effects of nonverbal compassionate communication in which physiological effects were measured, Kemper and Shaltout found significant changes in the receiver’s autonomic nervous system.<sup>85</sup>

Russek and Schwartz found that cardiac energy and information exchange can occur between individuals and that the degree of physiological synchronization between pairs was greater in people who reported being raised in a loving environment. They showed that the EEGs of one person could synchronize to another person’s heartbeats (ECG) who was sitting across from the person at a table. They found that participants who rated themselves 40 years before the study as having been raised by loving parents had significantly more synchronization between the pairs than those that reported not being raised in a loving environment”.

## Global Information Field

“In this section, we will discuss studies and theories supporting the suggestion that bioelectromagnetic fields such as the ones radiated by human hearts and brains can affect other individuals and potentially couple to a type of “global information field.” Note that the studies discussed in the previous section support the first part of this statement, namely bioelectromagnetic fields such as those radiated by human hearts and brains can affect other individuals.

The concept of a noosphere was introduced by Vladimir Vernadsky,<sup>103</sup> founder of the National Academy of Sciences of Ukraine, although credit for coining the term noosphere is given to Pierre Teilhard de Chardin, a French philosopher, paleontologist and geologist.<sup>104</sup> The noosphere is the third phase, or evolutionary step of Earth, after the geosphere (rocks, water, atmosphere, etc.) and the biosphere (biological life).

Teilhard perceived a continuous growth in the evolution of increasing complexity and consciousness that expands in space and time. For him, the noosphere is a sphere of thought and spiritual energy encircling the earth where interaction between human minds occurs and embraces the social domain and evolution of our legal, educational, religious and technological systems.

The noosphere evolves in steps with the mass consciousness of the human population. and Teilhard believed consciousness could expand beyond the earth and out into the universe. His focus was to “connect the two energies of the body and the soul in a coherent manner.” He believed love was the principal driver of what he called “noogenesis” and that evolution would reach an omega point: an apex of thought and consciousness, which he identified with the return of a Christ consciousness.

Coherent with Teilhard’s concept of the noosphere is “morphic resonance,” a term coined by Rupert Sheldrake who defined it as a type of interconnection between all similar organisms across time and space.<sup>105</sup> Sheldrake’s morphogenic field theory states that once one member of a group that shares the same biological structure acquires a new skill in performing a task, the same skill can be acquired more quickly by other members of the group in successive order.<sup>106</sup> He states that our minds extend into time and space and that members of social groups are linked together through an invisible morphic field even when they are far away.<sup>105</sup>

There is evidence to suggest an energetic field connection is formed among individuals in groups through which communication among all the group members can occur simultaneously. In other words, there may well be a “group field” that connects all the members”.

“Ervin László, a Hungarian philosopher of science and systems theorist suggests, that a field of information is the substance of the cosmos. Using the Sanskrit term for “space,” akasha, he calls this information field the “akashic field” or “A-field.”<sup>110</sup> He suggests that the “quantum vacuum” is the fundamental energy and information-carrying field similar to that of Brizhika, and Del Giudice.

László believes that such an information field can explain why our universe appears to be fine-tuned so as to form conscious life forms and why evolution is an informed process, rather than a random one. He believes the hypothesis solves several problems that emerge from quantum physics, especially nonlocality and quantum entanglement”.

### Collective Effects on the Global Field Environment

Our fourth hypothesis states: *Large numbers of people creating heart-centered states of care, love and compassion will generate a more coherent field environment that can benefit others and help offset the current planetary wide discord and incoherence”*

“When we experience true feelings of compassion, we tend to shift into a more coherent physiological state <sup>82</sup> and are thus radiating more coherent cardiac-related magnetic waves into the environment.<sup>84</sup> Compassion 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”.

### Social Coherence

“Numerous studies have found that people undergoing social and cultural changes or who are living in situations characterized by social disorganization, instability, isolation or disconnectedness are at increased risk of acquiring many types of disease.<sup>137</sup> James Lynch provides a sobering statistic on the effects of social isolation on one’s health. His research shows that social isolation and the resulting loneliness produces a greater risk for heart disease than smoking, obesity, lack of exercise and excessive alcohol consumption *combined*”.

In contrast, there is an abundance of research that shows close relationships and coherent social networks are highly protective. Numerous studies of diverse populations, cultures, age groups and social strata have shown individuals who are involved in close and meaningful relationships have significantly reduced mortality, reduced susceptibility to infectious and chronic disease, improved recovery from post-myocardial infarction and improved outcomes in pregnancy and childbirth”.

“We have found that collective coherence is built by first working at the individual level. As individuals become more capable of self-management, a group increases its collective coherence and can achieve its objectives more effectively”.

### Global Coherence

“How can we have such an influence on each other at a distance? There are no clear answers yet, but we hypothesize that 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 collective coherence, a more coherent standing reference wave is created and amplified in the global field environment that will help lift individual, social and global consciousness. 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.

Global coherence will greatly accelerate cooperation, collaboration, innovative problem-solving and intuitive discernment for addressing society's significant social, environmental and economic problems. This will become increasingly apparent as countries adopt a more coherent and inclusive planetary view. This planetary view will be critical for meaningfully and successfully addressing social and economic oppression, wars, cultural intolerance, crime and disregard for the environment".

"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 current conflicts on the planet and negative predictions about the future. This helps them realize that their actions can make a difference and that by increasing their own coherence, they can become "coherence builders" and contribute to the shift that many now perceive to be occurring.

The personal benefits of greater emotion self-regulation and self-responsibility, enhanced well-being and improved health and relationships are powerful motivators that reinforce the individual's efforts to achieve the greater planetary good. As more and more individuals become increasingly self-regulated and grow in conscious awareness, their 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".