

Geopathic Stress Zones and Their Influence on the Human Organism

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1. GEOPATHIC STRESS ZONES

Since thousands of years, the existence of specific locations where people do not sleep well, get sick more easily, or where performance is lower, was widely applied empirical knowledge (e.g., 1-3). Dowsers and geobiologists have termed such zones as “water veins” or “earth rays”; those terms are misleading and scientifically incorrect. In recent years, the expressions “geopathic stress” or “geopathic interference zones” have been used to describe the phenomenon. “Disturbed zones” or “location disturbance” are other possible terms, taking the fact into account that we speak about an accumulated phenomenon, composed by geopathy and other sources of “energies” additionally present. “Geophysical earth’s fields” is a rather neutral term which does not differentiate in between “positive” or “adverse” effects: It includes zones with possibly adverse effects and also those generally known as “power places”.



Fig. 1: Detail from the stem of a tree, growing in the Garden of Schönbrunn Castle in Vienna, Austria. The Austrian journalist expert, Prof. Gerhard KUNZE in his book „Tiergarten Schönbrunn: Zoo der glücklichen Tiere – Österreichs magischer Kraftort“ (in German language; “The Vienna Zoo of Happy Animals – Austria’s Magical Power Place“ (ISBN 3-85493-102-6) described the results of his research on geomantic features of this world famous place. Power zones might lead to wanted short-term eustress, but longer lasting on such places can induce the adverse condition of distress. The abnormal growth shown in the stem of this tree could represent a tumor. Such disorders can be frequently found when plants grow at zones judged by dowsers as being places of geopathy. Disturbed zones can, no matter if in plants, animals or humans, weaken the immune system by causing stress. If this can also lead to the development of malignant tumors, has not yet been verified but appears to be a (rare?) possibility. Apparently, in trees it is a frequent phenomenon, although also not yet studied by means of scientifically acceptable measures.

Scientific knowledge about the real reasons for geophysical location dependency is limited. We clearly speak about varying combinations of different factors that might finally lead to geopathy or also to positive influences present on certain other places. At present, for most aspects contained herein, only hypotheses can be framed - and there are many of them. Natural magnetic or electromagnetic fields (EMFs) originating from below the earth surface might be present at particular locations, “interfering” with the organism. Frequencies in between about 0,1 Hz up to the GHz-range have been suggested in public literature.

One of the reasons why an incontrovertible physical measurement of the assumedly existing electromagnetic fields appears to be impossible at present could be that any electromagnetic spectra possibly emitted might be variable, broad-banded, and only present in very low power strengths, “hidden” within the surrounding electromagnetic noise. An apparatus able to discriminate such low energy broadband EMFs from noise apparently is not yet available.

A recent technological innovation, the SQUID–technology (4), could aid us in reliably measuring another possible source of geopathy: Using Super-Conducting Quantum Interference Devices (SQUID), it is possible to quantify variations of one ten billionth of the earth's magnetic field.

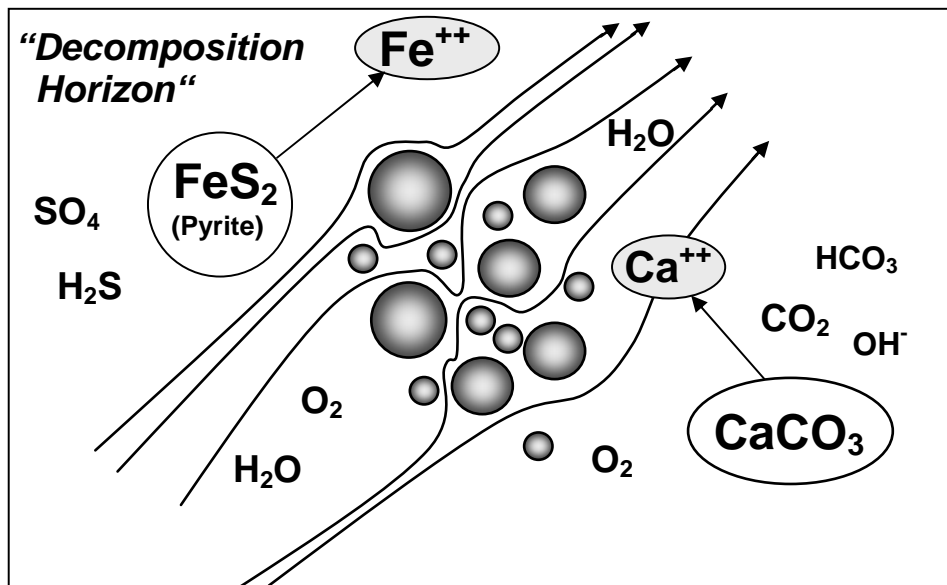
2. HYPOTHESES OF ORIGIN OF EARTH’S FIELDS

One can assume that there are many reasons for effects of different locations on humans, animals and plants. For sure it’s not one single, definite kind of “radiation”. In addition to the suggested weak, broadband transversal electromagnetic and magnetic fields assumed to originate from ground, other forms of “energies” might exist, such as the often controversially discussed longitudinal scalar waves (5). Various possibilities of combinations are imaginable. Furthermore, technically generated EMFs are present on nearly every place on earth; their likely influence on our health is presently the subject of intensive worldwide research (<http://www.bioinitiative.org>). The so called “space weather” (including „Schumann-fields“) also plays a role (6). In the following attempts of explanation, we will concentrate on natural sources possibly contained in the very outer skin of our earth.

2.1. Stringy waterways

Low energy, broad-banded and slowly but dynamically changing EMFs, sometimes creating resonance with structures of human, animal or plant organisms, may well be part of the geopathy phenomenon. Both, technical and biological systems can be influenced by EMFs, whereby numerous questions are still open. There is growing experimental evidence that EMFs - at least those of technical origin – can have significant effects on cells and the entire organism. Unwanted effects may include, for example, serious damage of the genome (including field-induced DNA strand breaks) (7-12), possible influences on certain factors connected with the bodily defense system (Hacker et al., unpublished), and adverse effects on proliferation and apoptosis, e.g. of neurons and neuro-endocrine cells (13).

But where in the ground could sources of natural EMFs exist? Physically well explainable, such fields could be induced by specific metallic ions and /or metal particles contained in ground water, sometimes flowing in streams or, most often, via so called “stringy waterways” through the pervious and anisotropic rubble-/gravel-/sand-/soil-body of the natural ground (*Fig. 2*). Certain ions and metals moved by water can – depending on their composition, concentration and flow rate – indeed lead to geoelectrically induced natural EMFs.

Fig. 2: Hypothesis for origin of certain geoelectric effects:

In varying speeds and amounts, water flows through the anisotropic, pervious ground (rubble, gravel, soil; sometimes also inside larger cavities). Thereby, it takes up decomposition products (e.g., from lime (CaCO_3) and from pyrite (FeS_2)) and, under certain circumstances, also metallic particles which, when transported by water, will induce electromagnetic fields. Thus, moved metal particles and/or ions (Fe^{++} , Mg^{++} , Ca^{++} , NO_3^-) can lead to "geoelectricity". Assumably, low energy "broadband" dynamic field changes are created. Power densities, frequency composition and course of those fields depend on flow rate, type, composition and amount/concentration of the transported metals and/or ions per volume unit. An additional source of "power" from the ground is present wherever decrystallization processes take place: During such reactions, energy is set free.

The dipolar nature of H_2O -molecules can also be part of the origin of electromagnetic fields originating from ground-contained water. As an extremely dielectric medium, water favors the formation of potential vortices, which immediately after their formation contract swiftly. Taking its electric charge distribution into account, turning a water molecule will result in a changed field composition. If thus in a pipe a hydrodynamic flow vortex is produced, an electric and a magnetic vortex, the potential vortex and the eddy current, are the result (5).

2.2. Piezoelectricity

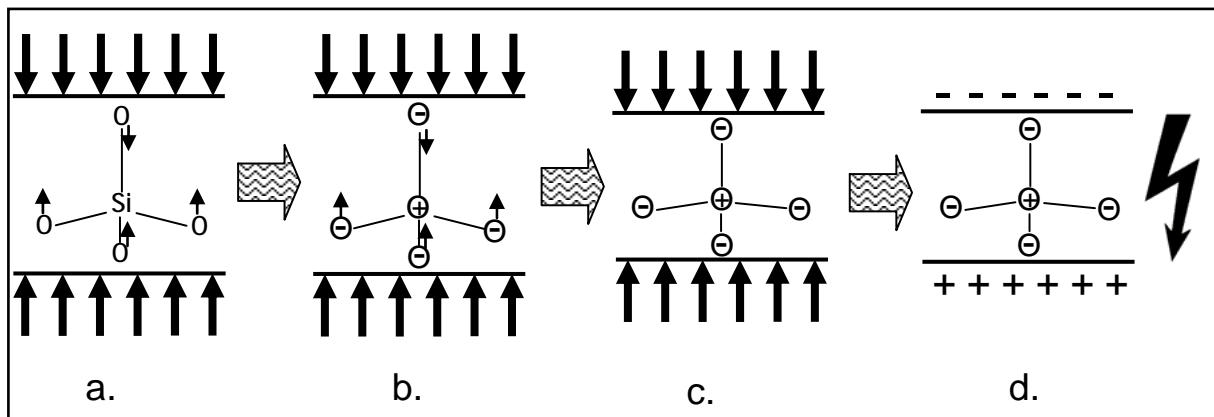
Piezoelectricity is the ability of certain crystals and ceramic materials to generate electrical and magnetic signals in response to applied mechanical stress. In nature, piezoelectrical discharges can occur in some areas of geological "warps" containing quartz sand particles. Those may be understood as another plausible cause of geopathic stress effects (14). Already discovered in 1824 by David Brewster, the piezoelectric effect was experimentally elaborated by Pierre and Jacques Curie in 1880. Piezoelectricity is also known from tourmaline, topaz, cane sugar and Rochelle salt (sodium potassium tartrate tetrahydrate), but became particularly famous for quartz. With a proportion of 12 % of the upper earth's crust, quartz is the most frequent mineral after feldspar.

Inside an ideal quartz crystal, the electrical charge of the elements silicon and oxygen cancel each other out. When a crystal lattice cell is compressed by mechanical pressure, an

imbalance is the result, manifesting itself in the development of a tiny electrical voltage (Fig. 3). *Vice versa*, quartz can be triggered to oscillate by applying a voltage to it (“quartz oscillator crystal”; in use for example in crystal controlled clocks).

Another well known use of piezoelectricity is found in lighters using piezoelectric ignition: There, sudden mechanical pressure onto a synthetic quartz crystal block (containing high amounts of exactly aligned synthetic lattice crystal cells) leads to the generation of high voltage. The resulting spark is able to ignite the burnable gas. It is understandable therefore that sudden or variable heavy mechanical pressure on a great many of quartz crystal particles, as continuously present in many places of our earth skin, is able to create discharges of remarkable size (see also: <http://en.wikipedia.org>).

Fig. 3: The piezoelectric effect.



“The piezoelectric effect is caused by movement of ions in crystals with non-symmetric elementary cells. While contracting (as shown in a.), the ions in every elementary cell are displaced (b.), thereby causing a drift of the gravity center of the negative and positive ions, relative to each other (c.). This leads to electrical polarization. As a result of the regular crystalline structure, these effects intensify so that they develop an electrical “difference of potential” between several surfaces of the crystal (d.)“. Source: <http://www.thch.uni-bonn.de/pc/bargon/sensorik/Piezoelektrizitaet.html>, with kind permission of Prof. Dr. Joachim Bargon, Institute for Physical and Theoretical Chemistry, University of Bonn, Germany. (Slightly modified scheme; Hacker 2006).

2.3. Longitudinal Scalar Waves

A perhaps largely underestimated aspect of the geopathy phenomenon might be found in the potential presence of “longitudinal scalar waves” (5). According to Professor Konstantin Meyl (Furtwangen University, Germany), those are directed waves spreading into the direction of a field pointer. The scalar wave is carried by scalar particles or field vortices. In the case of plasma waves, they are charged particles, and in the case of sound waves, they are air particles. Already in 1904, E.T. Whittaker showed mathematically that the known and accepted Laplace Wave Equation of the year 1787, besides indicating transverse electromagnetic waves, also can describe longitudinal scalar waves (15).

The existence of longitudinal wave proportions, as also present in the near field of a dipole antenna, was already shown experimentally by Nikola Tesla (1856-1943) (16-17). In spite of the fact that scalar waves in the field theory of Maxwell are usually neglected and set to zero, numerous experiments may lead to the conclusion that they do really exist and influence the human organism (5). Professor Meyl explains that to a measurement technician, scalar waves would experimentally manifest as (antenna-) noise, a “diffuse” mixture of frequencies and wavelengths. Interaction with an appropriate partner or medium might take place by going

into resonance. In that case, both sources attract each other, which can be explained and calculated by the occurrence of field changes during that process (5).

2.4. Natural Radioactivity

Of course, natural radioactivity also plays a role in the geopathy phenomenon: it often exists in areas with a lot of granite and gneiss, and in zones where radon gas is present (e.g. thermal springs etc.). However, an extensive discussion of the origin and effects of radioactivity from the ground would go far beyond the scope of this manuscript.

3. “GEOPATHIC INTERFERENCE” AND THE ORGANISM

3.1. Physical Interactions and Resonance

To influence an organism, an extrinsic energy source has to come into interaction with the body, organs, cells, cell organelles and/or molecules in some way or another. The presence of pure physical interactions and in addition also of “physiologic sensors” located inside the body can be assumed. Below we will go into detail on their possible interactive nature.

Physically, for instance, we could point to a reciprocal build up by resonance. To be more precise, from outside, we have “extrinsic” (external) field sources (e.g. those from the ground). Inside our body, there are the “intrinsic” (internal) structures and molecules of the organism, which are either “resonating” because of their physical nature (as with stringed instruments: compare the vibration of the string alone *versus* string with resonator sound box), or create a certain frequency themselves. Examples for the latter are the physiological “pace making” of the heart muscle, or that of the central nervous system (e.g., the 10 Hz-clocking of brain waves).

Water plays an important role in physiological functionality of the organism and therefore also in the context to geopathy: The above discussed amplitude vibrations of the electrically charged potential vortices associated to the dielectric water molecules very likely enable resonance of bodily / cellular water with different external fields. Physical resonance is defined as a synchronization of two sources which vibrate with the same pulse frequency but with contrary polarity. In the case of resonance, information is being exchanged, energies are transmitted and, in fact, a component of balance between the sources is being formed (from personal communication, A. Schrod, 2006).

3.2. Physiologic and Biochemical Sensors

Besides the role of water inside the body, and with the understanding that the human head contains 70% water (care: not “simple” H₂O is meant here; it is a kind of “structured water” of colloid nature), some kind of “receptors” or “antennas” in our bodies must be present, reacting to geopathic fields. Of the numerous possibilities, only some examples shall be mentioned here.

Proteins and most other bio-molecules are not at all “nonrigid” structures; in order to fulfill their functions, they possess the ability to dynamically change their shapes within certain limits. Internal protein dynamics can potentially affect protein function through a variety of mechanisms, some of which are tautological or obvious in nature while others are subtle and remain to be fully explored and appreciated (18). Certain processes of proteins as parts of their 3-D conformation have the ability to oscillate or rotate. Such only a few nanometers sized processes have been discussed as possible sites of resonance induced by external EMFs, acting as “**protein-antennas**” (19). When experimentally irradiated by EMFs of frequencies

in between about 1-2 GHz, they displayed a changing of conformation, respectively changing in their manner of oscillation, even when only very low field strengths had been applied (19).

Huge amounts of very tiny magnetic crystals (**magnetite crystals**) have been found in the brain, and these could react very sensitively to the slightest changes in magnetic fields (20). Black dots on magnetic resonance imaging pictures (MRI) of human brain tissue led researchers to the idea that these could be magnetic particles. From post mortem brains, magnetite crystals of a size of 50 nm could be isolated, and their magnetic field could be measured. The research was done in a special laboratory room that was completely shielded from the natural magnetic field of the earth by tons of steel. Actual measurements were carried out using a SQUID-System. The magnetite-particles could also be visualized and further analyzed using a high-definition transmission electron microscope. The most exciting result of those experiments was that, most of the regions of the brain appear to contain about five million biogenous “single-domain” magnetite crystals per gram wet weight on average, and the meninges (*pia* and *dura mater*) contain even more than 100 million.

The meaning of those magnetic crystals, however, is largely unexplained yet. Evidence that these microscopically small magnetite particles would function for some kind of sensory perception in humans could not yet been confirmed. However, speculations are that the presence of magnetite crystals in brain might be understood as proof of a “submerged magnetic sensor”, similar to that of carrier pigeons, bats or whales, theoretically easing human orientation and direction – thus a kind of “relict of evolution”. But, if it would really be a relict, those particles would not exist in such a high quantity anymore. Magnetic particles in the brain could turn out to be one of the reasons why dowsing can work. In any case, magnetite crystals in the brain could possibly be a hint to explain how (certain qualities of) geopathic zones may affect the body: Magnetite reacts more than one million times stronger to an external magnetic field than every other biological material. Recently, in the *Annals of the New York Academy of Sciences*, an article describes possible roles that magnetic ferrous amalgamations could play in neurological disease (21).

When analyzing possible effector sites of fields from natural and/or technical origin, it appears likely that **cell membranes** may also play a role. It has been experimentally shown that already relatively low field strengths of low frequency, as well as high frequency electro/magnetic fields can lead to changes or disturbances of information transfer at the ion channels of cell membranes (22-23).

4. CAN GEOPATHIC ZONES HAVE ADVERSE EFFECTS?

Even though in today's popular media, pseudo-scientific and quasi-medical reports on the topic of geopathy are presented to the public, no “peer reviewed” medical journal indexed in MedLine had published statistically firm and sound *provable* evidence of geopathic effects on humans until most recently. Previously described effects and descriptions of the pioneers (1, 3 and others) in this area unfortunately aren't available in the standardized, scientifically acceptable nor reproducible format required for peer-reviewed medical journals, but rather as monographs. Nevertheless, this doesn't reduce their importance and relevance: Those pioneers in research on the geopathy phenomenon neither had the kind of scientific methods that are available today, nor was the time mature for such publications in the kind of medical journals we know today. Nonetheless, what these people achieved, and their courage, as well as of the publishers who rightly published their works, deserve high credits.

Our first concepts how to address the geopathy phenomenon were based on the descriptions and personal discussions with the late Otto Bergsmann († 2004) and Alois Stacher (medical doctors, both from Vienna, Austria) and carried out in close co-operation with Adolf Wiebecke and his team (Salzburg and Oberalm, Austria). Because of the lack of “direct” physical measurement techniques for the doubtlessly existing „energy fields” at least partly originating in the ground, we decided to use the human body as an indicator. In our first approaches, we utilized methods from complementary medicine (bio-resonance, kinesiology,

heart-rate variability, etc.). Although successful in some areas addressed, the effects found had not the high statistical significance required, and the methodology used was not a generally accepted one, guaranteeing medical relevance and reproducibility.

4.1. The GDV System and its Use in Measuring Geopathic Influences

A few years ago, we came across the *gas discharge visualization (GDV)* technology. Being fascinated by its highly sensitive ability to detect stress effects, and also by the fact that this method is being used world-widely for manifold applications combining “pure physics” with complimentary evaluation of apparently high accuracy, we could reproducibly show using this method that different zones above ground do exhibit different effects on the human organism. The associated manuscript went through a thorough peer-reviewing process and was published in the renowned professional journal „*Forschende Komplementärmedizin*” (*Research in Complementary Medicine*; www.karger.com/fkm) (24).

The GDV-method Prof. Konstantin Korotkov (National Technical University of St. Petersburg, Russia), as used in that work, delivers a number of sensitive and reproducible parameters (25-46). For us, the mean “area-of-glow” was the best possible means for sensitively indicate stress. Furthermore, one can acquire “corona diagrams” in the manner of complementary medicine from the individual allocation of the “corona” gas discharge from the different fingertips, following the principles of the energy–meridian theory and of acupuncture. Using that particular aspect, we were able to indicate which organ systems of the body might be affected by geopathic stress. The accordant calculations and projections were done interactively using specific software for analysis, based on the *energy-emission-analysis* according to Mandel (47-48), the *Su-Jok-System* of acupuncture (49) and clinical data of thousands of test persons from the St. Petersburg institute of Prof. Korotkov.

4.1.1. Is GDV a Reliable Instrument for Measuring Stress?

The question may arise if it is really justified to use GDV for stress measurements. In addition to the promising data presented in numerous publications before, including our own, we are presently in the middle of an evaluation targeting a validation of GDV mean area-of-glow as a reliable measure of certain aspects of stress. Although not yet completed, our tests appear to show that this is indeed the case: Parallel measurements of the diurnal time courses of GDV mean area of glow and of biochemical parameters collected from saliva (50-53) indicate that the diurnal curve progressions of GDV image areas and the levels of immunoglobulin A (IgA) go parallel, whilst another accepted parameter of stress, saliva alpha-amylase, progresses just the opposite to IgA and GDV. In other words, a higher GDV mean area of glow value corresponds to a higher IgA level (to be understood as an sign for lower stress or relaxation), and a lower GDV mean area of glow value can be understood as an indication for higher levels of alpha-amylase, i.e. for higher stress. A third marker, salivary cortisol, although displaying its very own rhythmicity, also appears to fit into the concept that GDV could be reliably used for biophysical stress measurement (54).

4.1.2. GDV Study Showing Evidence for Location-Dependent Effects

To detect geopathic stress, we applied the design of a randomized, double-blinded non-clinical trial (55-56), in accordance to the ethical guidelines of the expanded Helsinki Declaration (57). All test persons had been informed about the GDV system and related safety issues, and about the possibility that they may feel a slight “crawling” in their finger tips. Fifty-two voluntary test persons were measured at two locations, one of which has been identified by a group of six distinguished dowsers as being a “geopathic zone” and the other a

“neutral zone”. All persons were tested with and without the “Geowave” device invented by Adolf Wiebecke (Salzburg and Oberalm, Austria; www.geowave.at). The exact test design, as well as the way how dowsers independently labeled the different zones in the laboratory test room, have been described in detail (24). Altogether, more than 137,000 individual fingertip GDV corona images were captured, interpreted by means of *computer-aided image analysis* and statistically analyzed. **Table 1** shows a summary of the experimental details and results obtained.

Table 1: Summary of the experiments carried out and results obtained in (24).

Number of Test persons:	N = 52
Gender distribution:	28 women, 24 men
Age distribution:	17-68 years; mean 44,2 years; median 46 years.
2 zones:	“Geopathic” and “more neutral” zone, non-persuasively labelled with black dots on the floor
4 phases:	Randomized change in between: “Geopathic” or “more neutral” zone, with and without the “Geowave”
Phase duration:	15 minutes each, sitting quietly on a wooden chair above one of the two zones. Then (whilst still sitting), GDV measurements
Placement of the “Geowave”:	Blindly; horizontally mounted or de-mounted in adjacent room of the above story, at an angle of about 60° and about either 8 or 11 m away from the position of the test person. Randomized change of sequence.
Daytime of tests:	On forenoons only; 2 possibilities: 8-10 or 10-12 hours
GDV-system and settings:	GDV Camera Pro. 10 kV, 1.024 Hz, square pulses. “Static images” (0,5 s) and “dynamic images (30 s). For static images: all 10 fingertip corona images were done 5 times after each of the 4 test phases.
GDV Software:	GDV Capture (version 1.9.9, 2004); GDV Meridian Analysis and GDV Diagram (both version 1.9.9). GDV Scientific Laboratory (version 1.1.5).
GDV parameters:	Main parameter: Mean glow image area (= mean area of glow). 50 single static measurements (each finger measured 5 times for 0,1 s after each test phase. Then, dynamic GDV measurements for both ring fingers, repeated 3 times each (thus, measuring 3 x 2 x 100 single images, i.e. 600 images per test sub-period. The mean GDV image area is derived from the single areas of glow (the number of pixels with non-zero intensity in each single corona image), calculated as the mean obtained from the sum of all single finger images captured during one specific measurement circle, divided by their number. In addition to the mean, a number of standard values of descriptive statistics are being calculated internally, such as the standard error of the mean (SEM). Additional parameters referred to as complementary data: spatial fractality (fractal dimension of isoline of the image); images and diagrams of the whole body “energy field”, i.e. corona projections and corona diagrams (whole body and circular beograms).
Results: static GDV image glow area	More neutral zone, without Geowave: M = 10.152 px, SEM 190 Geopathic zone, without Geowave: M = 9.354 px, SEM 170 More neutral zone, with Geowave: M = 11.792 px, SEM 169 Geopathic zone, with Geowave: M = 11.393 px, SEM 160 paired two-sample t-test for dependent variables and u-test, both $p < 0,0001$
Results: dynamic GDV image glow area (ring fingers only):	More neutral zone, without Geowave: M = 9.635 px, SEM 133 Geopathic zone, without Geowave: M = 8.780 px, SEM 113 More neutral zone, with Geowave: M = 10.722 px, SEM 118 Geopathic zone, with Geowave: M = 10.461 px, SEM 113 paired two-sample t-test for dependent variables and u-test, both $p < 0,0001$
Results: GDV Image Fractality:	More neutral zone, without Geowave: M = 1.897, SEM 0,0036 Geopathic zone, without Geowave: M = 1.903, SEM 0,0030 More neutral zone, with Geowave: M = 1.896, SEM 0,0036 Geopathic zone, with Geowave: M = 1.895, SEM 0,0036 $p < 0,012$ for comparison geopathic zone with and without Geowave $p < 0,056$ for comparison geopathic and neutral zone without Geowave

A *GDV Camera Pro* (<http://www.korotkov.org/>), specifically designed for high stability and reproducibility as required for scientific measurements, had been applied. In practice, to capture one “static GDV image”, a very stable high voltage (10 kV, 1.024 Hz, square pulses) is pulsed on and off every 10 ms for a duration of 0,5 s. The electric field produces a visible gas discharge glow around the fingertip (Kirlian image), and such corona discharges have been recorded from each of the 10 fingertips of the test person repeatedly. The *GDV Camera Pro* was connected to a notebook computer, and the recorded glow images were digitally transferred using *GDV Capture* software (at that time, we used version 1.9.9. from 2004). For further calculations and analyses, the *GDV Meridian Analysis* and the *GDV Diagram* software (both with version no. 1.9.9.), and the *GDV Scientific Laboratory* software (version 1.1.5.) were applied.

During the experiments, the complete GDV system was mounted on a trolley, in order to measure the effects of the two different zones in the laboratory room directly “on site” without moving the test person to another place. For each test person and test phase, 50 single static measurements were performed (each finger tip was measured 5 times for 0,5 s). In addition, we have recorded dynamic GDV images from both ring fingers, repeated 3 times during each test period. In the specific setup for the static GDV images used in our study, the overall GDV image area values calculated are to be understood as mean values of 50 single finger GDV images in total, per test period. In randomized manner, four test phases were examined: “Geopathic zone” with and without a blindly mounted “Geowave” device, and “neutral zone” with and without the “Geowave”. The latter device had been mounted or de-mounted in another room at an upper floor, and neither the test persons nor the examiners could see if the device was present or not. In order to minimize chronobiologic influences to a sensible degree, the experiments were carried out only in forenoons, and also in that respect, phase randomization in time was an important prerequisite (24).

4.1.3. Safety and Reproducibility Issues

To gain reliable data, we paid careful attention to a number of issues influencing stability, reproducibility and safety (24, 30, 37, 45): Throughout the whole study, the very same GDV system was used. Before use, the GDV camera (kept inside the laboratory at constant room temperature) was switched on at least 30 minutes prior to measurement and careful pre-test calibrations were performed. Each test person was asked to thoroughly wash their hands using a pH neutral laboratory soap (without re-fattening properties), followed by wiping the fingertips with alcohol. It was not allowed to use hand cream or lotion. The glass plate surface of the GDV camera was cleaned using alcohol frequently, and it was taken care that none of the test persons had wet hands. The test persons were advised to keep their fingers still and relaxed during measurements and not to apply undue pressure when putting their fingers onto the glass plate at an angle of approximately 30-degrees to the instrument axis (28).

4.1.4. Statistics

Raw data from the GDV image glow area and *fractality* were analyzed by the software programs Sigma-Plot 2002 (Systat; San Jose, CA, USA) and Excel 2003 (Microsoft; Redmond, WA, USA). Descriptives (mean, median, standard deviation etc.) and Gaussian normality tests were calculated. Subsequently, two-sample t-tests for dependent variables were calculated, to determine whether there are significant differences between the 4 experimental sub-period results. Two-sided p-values were classified statistically significant if they were < 0,01. A number of further statistical analyses were performed, also including distribution-independent tests (Mann Whitney U-Test).

4.1.5. Additional Precautions

As overlaying technical fields possibly influencing the results may have been present, we used sophisticated calibrated equipment to scan and record low and high frequency EMFs, potential acoustic noxae [noxious influences] or vibrations during the whole study period, as well as a variety of additional physical parameters. The two measurement areas in the laboratory used for the experiments turned out to be indistinguishable from the aspect of technical fields and acoustic background noise, and the field strength and loudness levels present were far below existing (safety) guidelines.

4.2. Results of GDV Measurements for Geopathic Influence

A distinct location dependency was found (*Tab. 1*): On the area dowsed as a possible “geopathic zone“, significantly lower values of the “area-of-glow” parameter were found than those obtained from the “neutral zone” ($p < 0,0001$). At the “neutral zone”, the mean static GDV glow area was 10.152 pixels (SEM: 190), whereas the corona image areas obtained from the “geopathic zone” were smaller (mean: 9.354 pixels; SEM: 170). From the results of our studies it can be concluded that geopathic zones do cause stress in nearly all of the persons tested.

When the “Geowave” device was mounted, both locations yielded much larger GDV glow image areas: The more “neutral zone” gave a mean value of 11.792 pixels (SEM: 169), and the “geopathic zone” yielded 11.393 pixels (SEM: 160). Statistical significance again was enormously high: On the geopathic zone, the horizontally mounted “Geowave” gave a statistically significant increase of the GDV glow image area when compared to “no Geowave” ($p < 0,0001$). On the more neutral zone too, horizontal mounting of the “Geowave” yielded statistically significant GDV glow image area increase compared to the situation without the “Geowave” ($p < 0,0001$) (24). Thus, the “Geowave” device appears was able to de-stress / balance / harmonize energy in nearly all test persons, at the geopathic and also at more neutral zone tested in our laboratory.

Further analyses were carried out for complementary medical parameters included in the GDV software package. We calculated corona projections (“energy field”) (*Fig. 4*), whole body corona diagrams, and circular corona diagrams (*Fig. 5*). The corona diagrams directed into a weakening of the energies of the immune system and the pineal gland (which might be understood as an indication of possible changes of the melatonin production) (compare to: 58-61), the cardiovascular and the urinary system in many of the test persons.

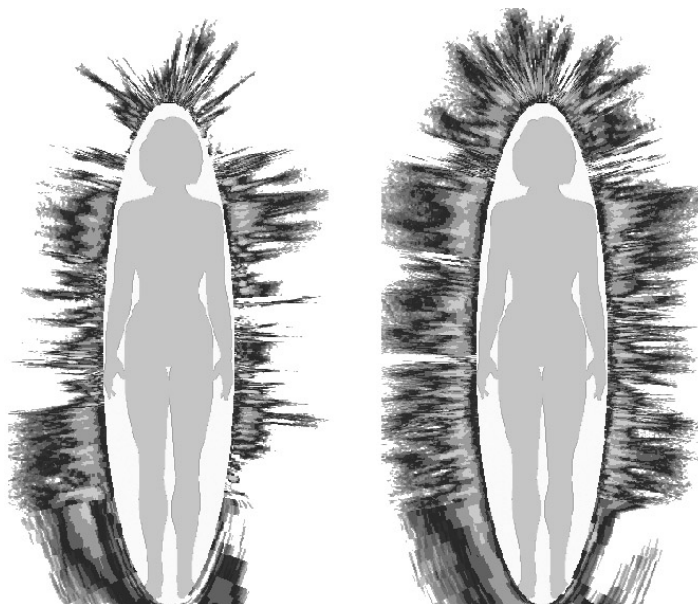
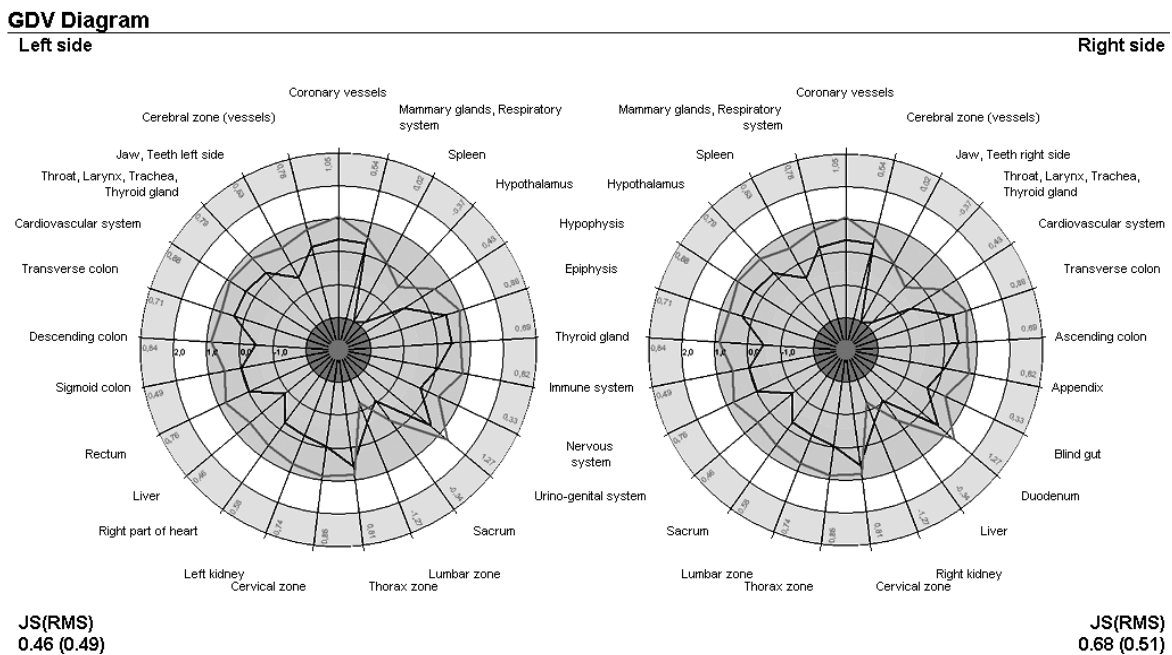


Fig. 4: Corona Projections:

Example pair of a comparison in between two corona projections (energy field images) of a female test person obtained on a “geopathic zone” without (left) and with the “Geowave” device (right) of Adolf Wiebecke. The energy harmonizing effect of the “Geowave” is clearly seen: Whereas the left image shows energy deficits at many places, the right image shows a general increase and “smoothing” of the energy field.

(www.geowave.at)

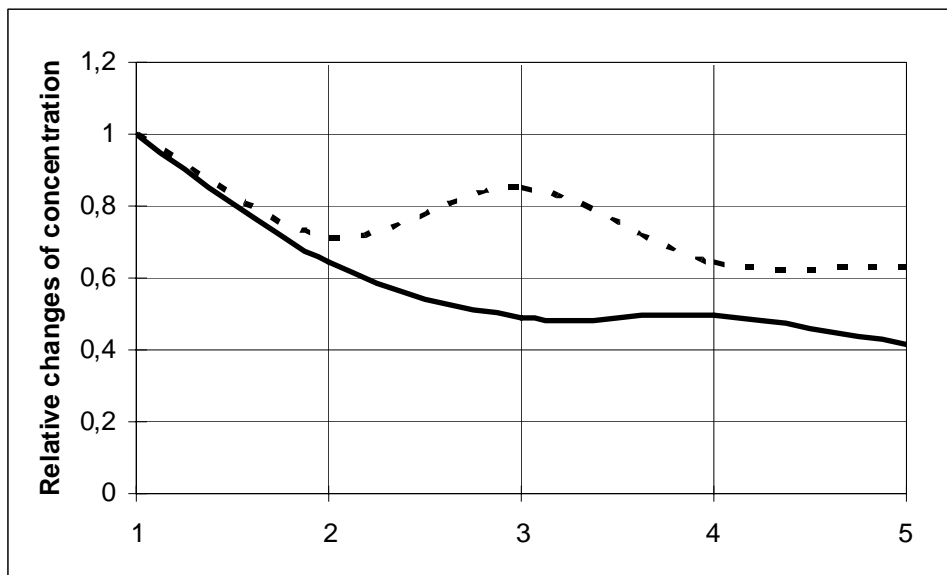
Fig. 5: The circular corona diagram

The circular corona diagram shown here compares the GDV results of the same person as presented in Fig. 3 and gives a diagrammatic representation of the energy deficits becoming visible on a geopathic zone without the “Geowave” device (black curve) and with the device (grayish, outer curve). Clearly, an improvement of the whole energetic situation is visible.

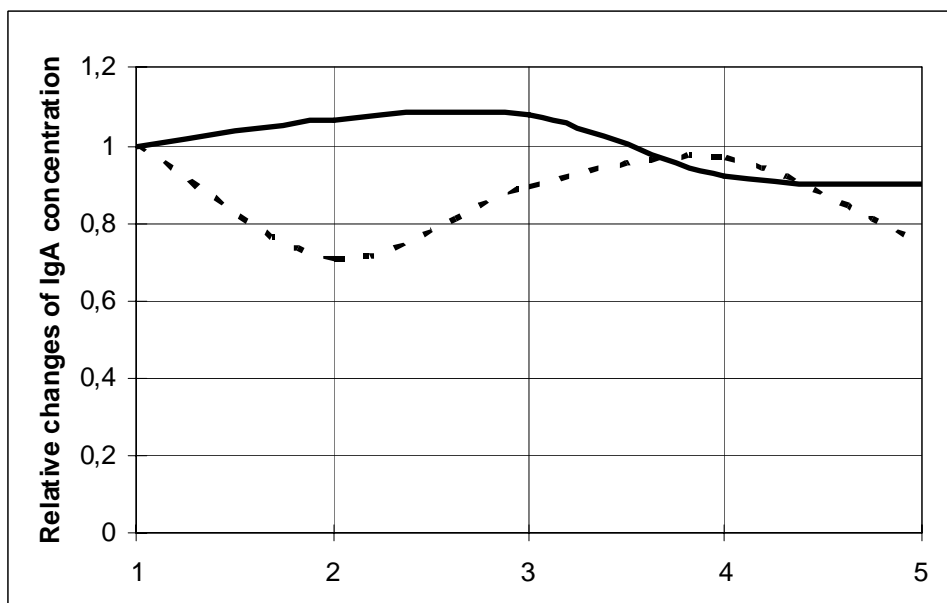
5. PRELIMINARY RESULTS OF BIOCHEMICAL PARAMETERS

Biochemical data obtained during the Ph.D. studies on location dependency by Mag. Annabell EDER seem to underline what was found before using GDV methodology. Test persons had to remain sitting on one of two blindly labeled zones in a room that had been independently screened before by two experienced dowzers. As in (24), wooden chairs had been permanently mounted at two locations for which the dowzers had indicated a possible presence of a “more stressing” and a “more neutral” zone. Test persons were asked to remain sitting at those chairs for altogether five hours, for chronobiological reasons always starting at 9:00 a.m. Once every hour, i.e. after every 55 minutes, the test persons were asked to leave the room and use the rest room. Every 20 minutes of the five consecutive periods, saliva samples were taken using Salivette devices (Sarstedt, Nuembrecht, Germany). After each sampling of saliva, a glass of tap water was offered. Every test person had to take the whole procedure on two days, one day at one zone, and the other day at the other zone, with at least one week in between the two test scenarios. It was our goal to check whether it would be possible to detect possible changes in the time course of biochemical parameters contained in saliva whilst sitting either on a more neutral or a possibly disturbed zone.

Biochemical analyses were performed for the stress hormone cortisol (RE52611; IBL Hamburg GmbH, Hamburg, Germany) and the immunological marker immunoglobulin A (IgA) (K8870; Immundiagnostik AG, Bensheim, Germany), using enzyme-linked immunoadsorbent assays (ELISA). Only preliminary examples of results can be shown yet, which however, appear to go in line with our indication of stress reactions of geopathic zones onto the human organism:

Fig. 6: Time Course of Salivary Cortisol:

The normalized time course (9:00 a.m. to 1:00 p.m.) of the cortisol concentration in saliva obtained from a female test person aged 36 is shown, at one day at a potential “neutral zone” (black line), and at another day at a potential “geopathic stress zone” (dotted line). Note that the stress zone in times lead to increased cortisol levels compared to those obtained from the more neutral place.

Fig. 7: Time Course of Salivary Immunoglobulin A:

The normalized time course (9:00 a.m. to 1:00 p.m.) of salivary IgA measured from a 39 years old male test person is shown, one day obtained at a potential “neutral zone” (black line), and during another day at a potential “geopathic stress zone” (dotted line). The potential stress zone gave a slightly different time course to that obtained at the more neutral place.

The biochemical data presented here point into the direction that a geopathic zone might cause stress as indicated by salivary cortisol, i.e. an increased level of this typical stress marker (Fig. 6). In fact, such was seen in several test persons checked so far, but the effect was individually different from person to person. An opposite effect was seen in salivary IgA from a male test person (Fig. 7): Compared to the time course obtained at the more neutral place, the time course of the normalized IgA concentration showed a slight decrease after about one hour sitting at the stress zone. After prolonged remaining on the assumably

geopathically disturbed zone, the normalized IgA concentration came back to the values obtained at the more neutral zone.

A number of additional factors can potentially influence the results shown here. Therefore, it is far too early now to conclude that geopathic zones cause biochemically measurable stress and changes of the immune system parameter IgA. However, we feel it justified to present those data as preliminary indicators what might happen. It is planned to continue those biochemical tests with at least 25-30 test persons, and results will be presented in due course.

6. RELEVANCE AND WAYS OF HARMONIZATION

Stress is known to adversely affect health as soon as it is present for longer periods (e.g., 62-66). Our study has shown that certain areas above the ground can indeed induce stress. Such zones might cause distress (“malignant stress”) even when present for a short time, but there are also reports that (not scientifically proven) energetically stimulating zones (“positive energy zones”) might exist, often also referred to as “power places”. Such areas have been dowsed within some churches and other buildings constructed centuries or often thousands of years ago. “Positive stress” (eustress) under certain circumstances is a “wanted” bodily reaction, as it can stimulate us to best possible performance. If present for a prolonged time, however, eustress may soon turn to distress and thereby suppress the immune system.

Because of the energetic weakening of the immune and other bodily systems detected in our study, it appears highly likely that in some individuals, the development of various diseases is eased when people again and again stay for longer times at geopathic zones (e.g., if present at their sleeping area, or at the area where their working chair is usually placed). Effects on general health, healing processes (e.g. in hospitals or convalescent homes), on sleeping quality, and (according to unpublished results of a pre-study carried out by us in a home for behavioral conspicuous children) also on interpersonal relationships, especially in interaction with partners (e.g. aggression), and also performance at work are possible consequences of location-dependent stress. The “Geowave” device investigated in our study could therefore, by its balancing effect, not only aid in lowering of stress, but also be understood as a tool for disease prevention.

Those people who are already in the beginning stages of poor health may sense an added sensitivity for diseases of different kinds when staying longer on geopathic locations, as well as notice that healing processes may take longer than usual. In later stages, it may not be impossible though that chronic stress caused by geopathic locations may finally even forward the development of malignant disease.

6.1. Conventional Measures to Reduce Geopathic Stress

6.1.1. Constructional Possibilities

A number of effective actions can be taken to keep one's body healthy and vital. Concerning geopathy, first of all, constructional adjustments are to be considered. During the planning stage in construction of new buildings, the geopathy phenomenon should be taken into account, so as to consciously design and construct buildings and rooms in a manner that, in areas where people will stay for longer periods of time, geopathic exposure should be as low as possible. Within existing rooms, often a relatively little adjustment of beds and often used seats may contribute to better living quality and health (bedrooms / beds, offices / desk seats, living rooms / television seating; hospitals / sickrooms, surgical theaters, etc.).

As there are no reliable measuring instruments available so far, it presently makes sense to take advice from an experienced dowser. However, according to the Munich barn-experiments (67-69) and other independent investigations, only a low percentage of the people claiming to be successful dowsers are actually capable of making reproducible and

reliable conclusions. Therefore it makes sense to consult with a competent building environment engineer who has experience, skill and expertise in geopathy matters too.

If constructional arrangements are not possible before erecting a building or before starting a reconstruction, which is supposedly the case in most instances, there are also other practical possibilities: provided that there is a will to do so, it should be possible to move beds or desk seats, in order to get them out of interference zones. This is still the cheapest and a rather efficient action at the same time.

6.1.2. Stress Prevention

Everyone can do something to prevent negative influences by sources that cause stress: anything that reduces stress in general also helps one deal with specific stress factors, and zones, from any origin. This includes methods of stress-management and relaxation techniques, such as meditation, tai chi, guided imaginative journeying, and also certain hypnotherapeutic approaches (70-74). Likewise, prayer and spiritual practices can lead to inner harmony (75-76). Mental components are just as important: the more someone lives consciously, and even optimistically, in a state of positive thought, the less external stress factors can influence the person somatically.

Furthermore, many studies confirm that people who “live a healthy life” – who manage their weight, refrain from smoking, enjoy the outdoors, participate in sports, etc. – have a stronger immune system, a better well-being and experience less stress than others who do not engage in so called “health behavior”.

A decisive component in this healthy lifestyle is, to what extent and type of nutrition one follows: concentrating on organically derived foods, lots of vegetables, fruit, and fish, less meat, paying attention to one’s weight, as well as including periodic “purification” and/or fasting times, are some of the factors that lead to staying healthy and dealing more consciously with the environment. Interestingly, these positive lifestyle choices may also show up indirectly and in the subconscious: During an experimental study on technically derived microwave EMFs we observed that even those potentially very harmful energies seem to have less of a negative effect with people who prefer such an “aware” way of life.

6.1.3. The “GeoWave” of A. Wiebecke

For those who cannot (or do not want to) adopt many of the above mentioned choices, due to illness, age, or some other reasons, things could become more difficult. However, in our study (24) we obtained scientific evidence that the “GeoWave” device of A. Wiebecke (Fig. 8; www.geowave.at) has a harmonizing effect on the human organism. Other claimed “devices for suppression of earth rays / water veins” have, to our knowledge, not yet been tested scientifically; at least, no indexed and peer-reviewed publication cited in MedLine could be found so far. In our own measurements with a number of devices, such as various types of pyramids, special plugs, holograms or bed heating devices, we found no positive effect. Not surprisingly, adverse magnetic fields were created by some of those devices tested by us.

Concerning the “Geowave”, positive effects were reproducibly present. That device is especially interesting because the fact, that it substantially reduces stress in people also on “neutral zones”, a finding which might indicate that pure “neutral zones” do not exist. We would therefore suggest using a terminology towards a “more geopathic” and “geologically more neutral” zone in this context. As already stated above, technical fields and noxae of different kinds are additionally present everywhere on earth. As we could show, the “Geowave” device in fact can help, and its exceptional promise as a preventive measure is of great interest.

Fig. 8: Adolf Wiebecke's "GeoWave" Device.



The "Geowave" device (patent pending) is a sigmoidally bent device made of special aluminum alloy sized about 50 centimeters, inheriting a wavy macrostructure and a certain microstructure at its surface. The Golden Geowave shown here has been thick-coated with pure gold and apparently has additional effects to those given with the standard aluminum alloy type, harmonizing the influence of certain types of technical electromagnetic fields too.

6.2. Relevance for Everyday Life

Our studies show that it does matter on which location one stays for a longer period of time. Reports about sleeplessness or higher rates of occurrence of different diseases have been with us for many years. It is clear that the accumulation of different factors of stress can have strong effects on humans, animals and even plants. Possibilities to minimize the effects of geopathy on our organism in general have already been discussed above. In the following, we will briefly show how geopathy, but also its harmonization could affect health care facilities, public places, and economy.

6.2.1. Relevance for Healthcare Facilities and Spas

What is the relevance of our findings for hospitals, convalescent homes and rehabilitation centers? Although others neglect the necessity of protection from geopathic zones (77), our findings and observations made in thousands of years strongly suggest that the geopathy phenomenon is a really existing one. In hospitals, observant physicians and nurses sometimes learnt by experience that there appear to be locations of sickbeds where, remarkably, many patients have a delayed recovery, or in especially severe cases they may not recover at all. However, it is often not possible to move beds in hospital rooms. Thus, for this practical reason it may be worth considering installing a device that has a balancing effect here. At the Salzburg University Clinics so far, more than 100 "Geowave" devices have been installed to harmonize critical locations - especially in the intensive care unit and in the entire surgical ward), and at other major hospitals in Salzburg and, e.g. in Vienna and Innsbruck (Austria). Aachen (Germany), Chur (Switzerland) seem to show positive influence on well-being, but

also on healing and even on social factors. Unfortunately, a thorough study performed according to appropriate scientific criteria, is not yet available.

Another closely related issue is wellness. Wellness enhancing methods and applications aim to increase physical, psychological and spiritual well-being. An essential component is the so called “stress management“. The results of our research are of great relevance for spas, too: sustainable success in relaxation and stress management methods essentially depends upon the particular location of sleeping and of therapy beds. Such facilities, therefore, should be planned and managed very consciously: When there are known interference zones of geopathic origin (and/or of technical origin too), very soon this would have financial effects, because customers hearsay will tell everybody that the stay only was of moderate or no profit to them. Thus, especially in already existing establishments, the purposeful placement of “Geowave” devices can be of great benefit.

6.2.3. Relevance for Public Buildings and Workplaces – and Costs of Geopathy

In a pilot study (unpublished findings), we have found indications that disturbed zones might contribute to a more aggressive behavior by children living or working on such locations. “Geowave” devices were installed and de-installed in randomized and blinded manner, and the result was a distinct dilution of undesirable behavior patterns. One of the tests, taken in a care center for children displaying behavioral problems additionally showed, amongst other changes, that the incidence of bedwetting [nocturnal enuresis] definitely decreased when the “Geowave” was present, and that the learning ability and the quality of sleep changed for the better (unpublished findings). Also, there were remarkable improvements in interpersonal relationships. By inference, if these results are applied to public facilities in general, the “Geowave” could probably have a number of desirable effects in schools, offices, banks, supermarkets, etc. Very favorable positive field reports already exist, e.g. at Salzburg airport, several major banks, editorial offices and shopping malls.

As a result, the negative effects of geopathic stress zones also have considerable commercial impact. Individual performance increase on harmonized, “interference reduced” zones, and all parties - superintendents, managers and employees - would possibly benefit. When individuals feel better, they will perform better and also stay healthier and happier at work too – facts that would also have economic consequences. The number of staff on sick leave will probably decrease in the long run, when all employees work at more balanced work places. Contrarily, at “highly burdened” workplaces, performance will decrease, discontentment grows, and the vulnerability to diseases and the resulting rise of employees' illnesses will be greater. The aggregate economic success of a company or institution can very well be in the balance; responsible (and visionary) managers should take heed of the results of our studies in their plans and act accordingly.

The follow-up costs associated with longer “chronic” stays on geopathic interference zones are probably enormous: As said before, geopathy is a matter of “burdened work places” leading to decreased ability of the employees to concentrate on work and to increased probability of employees' illnesses. This can produce enormous costs for our social and health systems.

6.2.4. Relevance for Competitive Sports

Very impressive results are also to be found in highly competitive sports. The motto, “winners slept better!” is of specific relevance in this area. A serious athlete who doesn't sleep well before a competition is far from being as able-bodied as someone who has had “a good night's rest”. Individual beds, free from stress-causing zones, are enormously important. But unfortunately, usually the athlete cannot choose in which room or bed she/he will spend the night. Again this means that, the installation of “Geowaves” by the affected sports clubs and

hotels would help to create a more just / equal base level for each sportsman. Alternatively, an athlete could conceivably bring along a “Geowave” and use it in her/his bedroom – and this would help the entire team.

7. FURTHER STUDIES / THE FUTURE

So far, the present scientific evidence of effects of geopathic zones on humans has been mainly found using complementary medical methods. As partly included into this manuscript and during another study only published in Russian language yet (54), we have already obtained data underlining the validity of the GDV apparatus used in our study as a reliable instrument for measuring stress, provided that all pre-cautions are taken into account and that well-trained and experienced persons use it. Parameters measured in saliva in parallel to GDV, such as IgA, alpha-amylase and cortisol, appear to change in level in direct relationship to the GDV mean “area of glow” (54). Soon, we shall have completed those experiments testing enough test persons for good-practice statistical examination.

At the same time, we have already started experiments above different geological zones to test such key parameters contained in saliva, using biochemical assaying well accepted by orthodox medicine: various hormones, neuropeptides and immunological relevant substances are going to be tested “non-invasively”. Initial data of that larger study are shown in Fig. 6 and 7.

Long-term studies are being planned too, which, as randomized double-blinded trials, would also include testing of sleeping behavior, examining abilities to concentrate / perform at work, and psychological questionnaires to assess subjective well-being. However, this will only be possible for us if we can find innovative and generous sponsors. We also hope that the work of our team will encourage many other study groups to start working on scientifically well founded studies in this field “on the boundary” with pertinent and verifiable investigations in the arias of geology, medicine, biology, psychology (in particular, als industrial psychology) and in commerce and finance.

8. CREDITS

The authors extend thanks for their great help in conducting the quoted research and its essential components to this manuscript. We cordially thank (in alphabetical order – unless otherwise noted, all are in Austria): Univ.-Prof. Dr. Alfred AIGNER (sports medicine specialist doctor; Salzburg); Mag. Matthias FLORIAN (biologist; IGGMB, University Clinics of Salzburg); Sr. Dipl.-Ing. Dr. Josef AUMAYR (nuclear physicist; Vienna Krankenanstalten Verbund, Socio-Medical Center, Otto-Wagner-Hospital, Vienna); Dr. Wolfgang GADERMAYER (geologist; Salzburg/Hallein); OA Dr. Jörg HUTTER (surgeon; Department of Surgery, University Clinics of Salzburg); Prof. Bruno KLAUSBRUCKNER (environmental specialist; Vienna, emerited); Günther KRAIBACHER (GDV-specialist; Salzburg); Prof. Dr. Ing. Konstantin MEYL (nuclear physicist; Furtwangen University, Germany); Dr. Elisabeth PAWLAK (physicist; Madrid, Spain); Gabriele POSCH (measurement technologist; Salzburg); Dr. Angelika SCHRODT (psychologist; Network Psychology Radolfzell, Germany, and Klothen/Zürich, Switzerland), Univ.-Prof. Dr. Gottfried TICHY (paleontologist and geologist; Salzburg University).

Furthermore, we thank Mr. Adolf WIEBECKE (Oberalm bei Salzburg), whom we want to congratulate for his most promising invention of the “Geowave” device, for the possibility of doing experimental research using his device. Gerhard W. Hacker especially thanks his wife, Mrs. Ursula DEMARMELS-HACKER, for her love and support, and for abandoning many evenings and weekends of togetherness to find time for investigation and creation of this manuscript.

For their innovative and far-seeing pioneering work and active scientific exchange in the field of geopathy we gratefully thank Mrs. Käthe BACHLER (Abtenau, Austria), Univ.-Doz. Dr. Otto BERGSMANN († 2004) and Univ.-Prof. DDr. Alois STACHER (both: Vienna).

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