

## Research article

# Detection Cell Reactions on Huge Weather Upheavals During the Extreme Stormy Low-Pressure Meteorological Conditions in February 2022

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## Abstract

The proof of medical-meteorological, i.e. weather conditions-related influences on the well-being or vice versa discomfort of people was only evaluated interdisciplinarily based on (bio)statistics of comparative survey raw data plus parallelly made experiments using an additionally emitted electro-magnetic field influence (fair-weather conditions) and involved subjects. Regarding the present investigations, another way should be examined for the first time with cultured intestinal cells and additive fair-weather field emission (Sferics) during variable (extreme) weather conditions. So far, such a laboratory test method has been considered an ineffective detection method. The null hypothesis was therefore: No comparative differences in data collection between a cell control group and additive stable / constant Sferics-irradiated cells running in parallel during changing weather conditions were to be expected. This thesis was hereby refuted, since there were significant value changes in the comparative, exposed cell groups "control versus irradiation". For this purpose, four experiments were carried out with cultivated cells in selected extreme weather conditions (low pressure) and high pressure with predominantly ongoing air pressure drop and air pressure increase in February 2022 in Germany. It was also shown after the dedicated data evaluation of the stimulated cell vitality values compared to the cell control that the additive fair-weather field as a higher Sferics EMF level addition and constant stimulus 1) reveals a kind of effect-masking effect on cells under real, e.g. bad weather conditions (stimulus 2). In addition, it was also proven that an ongoing change in weather conditions or changes in weather (SFERICS online shares according to stimulus 2) towards a minimum / maximum state of low pressure / high pressure triggered clearer reactions in the exposed cell lines. On the other hand, when the weather conditions remained essentially the same (low- or high-pressure systems), only a slight reaction appears to be evident when the constant stimulus 1 was used. These results correlate with earlier empirical, medical-meteorological surveys, such as increased weather sensitivity in humans to biotrophically relevant weather conditions or beneficial Sferics effects on test subjects.

**Keywords:** nature-related electromagnetic fields, Sferics, meteorosensitivity, biotrophy, cell culture tests

## Introduction

In the past 20 years, various research projects have been verified at different research institutions mainly in Germany. Here is an excerpt of details from a research series over time: From 2002 onwards, analyzes of the natural (Sferics) and also parallelly existing synthetic-artificial alternating fields (Technics) in the earth's atmosphere were done, which were found to be of particular interest: These atmospheric EMF's were observed related to weather conditions and recorded in a X ten kilohertz frequency range down to around zero Hz. This resulted in thou-

sands of files and subsequent spectrum analyses, which specifically tracked the time signals via intensities and frequencies (three-dimensionally). the focus was on the Sferics, which represent something like a reference form of radiation for terrestrial creatures during their millions of years of evolutionary history. These "atmospheric EMF's were recorded in a natural non-urban environment as mixture of stochastically impulse discharges plus periodic Technics signal components parallelly in far field conditions to the place of origin; see origin distance more than a

few 100 kilometers to the reception and analysis site. So, these Sferics are permanently caused by thunderstorm lightning discharges and the Technics are synthetic communication signals for instance generated by the military worldwide. At that time of investigations around 20 years ago, it was researched to get a so-called "biotrophic minimally effective" Sferics alternating field occurrence and as well a digitally signal data file. Such a generated file should be recorded in the event of stable, "still" increasing high pressure or good / fair weather conditions [1, 2]; according to the past theory time; this is confirmed today. In order to determine essentially medical-meteorologically, so, where the limits to more biotrophic, unfavorable weather conditions exist (and what are they characterized by), all possible weather conditions with recordings were made worldwide with minimal radiation forms of technical-man-made origin (Technics), which finally dedicated knowledge about certain "malignant" spectral components in frequency / time / intensity. This resulted in numerous additional findings, for example:

- Where essentially something like a borderline is between firstly evolutionary technical-unknown, synthetic, so sickening radiation forms (Technics) and secondly healthful natural alternating field forms on the planet Earth or \*nature-related EMF's is (\*hint: from the nature copied and later artificially emitted EMF's). Such well-known beneficial alternating field forms (Sferics) are established and available for a common daily use now. This has or should have consequences for future developments in the area of electromagnetic transmitters or emitters of technics in the low and high-frequency (data transmitting modulation technique) range too [1, 2].

- A further example to use atmospheric signal analysis results is to point out by a spectral-graphical waveform correlation which resulted or results in earthquake incomes (until now if needed or again used). This resulted empirically via statistically collected data on the part of the existence of eye-catching, periodic and long-wave pre-earthquake wave displacements with respect to an extraordinary "wavy Technics" existence (wavelengths in the range of seconds; frequencies less than 1 Hz) before earthquake hazards will arrive. This most recently resulted in a derived, mathematical (linear) formula for "pre-calculation" of earth-quake phenomena and their epicenters for expected earthquakes in the strength or according to the scale of Richter greater 5 to judge and a predicted earthquake distance more than about 500 km [1, 2]. For example, on the basis of this method, days before the media known tsunami in the Asia-Australian region towards the end of December 2004, approximately 100 hours ahead of a large-scale earthquake (tsunami) has already been predicted.

Besides, about 20 years ago, an examination of the causal connections from weather sensitivity according to electro-sensitivity of humans as bioelectrical beings should be addressed and proven in details (until now). This, because there was and is a considerable suspicion through [1,2,5,6] that the above-mentioned Sferics EMF's are involved as neuro-nerval skin surface trigger; Visioned for the future: Sferics are usable as reference EMF for new successor Technics generating devices due to less harmful radiating technologies. In summary, all of this given research facts and visions unfortunately reveals that, with a few exceptions [3, 4], only a few university institutions worldwide

are concerned with the biological relevance of Technics; as well seeing Sferics alternating field occurrences of meteorological origin.

Finally, based on a minimal biotrophic or "best Sferics EMF emitting source" starting in 2011, a pending proof study [7] was carried out to examine the individual use of additive Sferics EMF's (see fair-weather field irrigation for well-being or therapeutic purposes) in different "live" or nowcast weather conditions plus a largest possible number of test persons. Accordingly, at this research project the relevance of such natural radiation forms in connection with meteorosensitivity should be emphasized for a special group of people who classify themselves and were tests as weather-sensitive. This was already done in [4] using another research method representatively.

Anyway, starting in 2017, a headphone [8] was developed from a 2013 ongoing available, portable small device offering a fair-weather Sferics field generator [2,7] which was ultimately used as a EMF emitter for the present study.

## Materials and Methods

### Overview

In the present study, an extreme weather situation was expected over the winter weeks of 2021/2022 in order to expose selected cell cultures in a suitable laboratory [9] to the meteorological conditions then present. So, *firstly* to the associated weather conditions radiation with their ongoing Sferics occurrence (see during distinctive, biotrophic low-pressure weather conditions such as storm depressions, etc.; background stimulus 2). *Secondly*, this first experimental setup was used in parallel with the above-mentioned Sferics emitter headphones [8] as level-dominant main stimulus 1. These two experiment key elements were therefore verified in parallel and with identically cultivated cell lines as "detector of differences" and then evaluated comparatively, as it was done in previous cell studies having other stimulus for other research purposes [10, 11].

There was the ZERO hypothesis that there should be no significant data deviations in the comparison of the control to the additive Sferics radiation-exposed cells, which should be refuted as a goal of the study. This means that the suspicion of an effectiveness of Sferics alternating field exposure effects in certain weather conditions according to [6, 7], but now at cell test level (detector of differences) and not on test persons would have to be proven without mind suggestions. Therefore, it should be emphasized that in the earlier studies with test subjects who were partly weather-sensitive [1,2,5-7], the most unfavorable meteorological situation was statistically most frequently recognized with weather changes or weather-upheavals. In other words, if there were a maximum or minimum change from one "nowcast" weather situation to a very unfavorable extreme weather situation, such as a storm, ideal test conditions would exist for the study presented here.

Thus, not only are the tangible meteorological factors, such as difference / delta values on the part of air pressure, temperature, humidity, wind, rain, etc. These are main influencing variables, but not the only one's; see the associated air masses that penetrate through them are also "highly biotrophic negative" changing (stochastic) Sferics pulse sequences. Such natural Sferics

impulse sequences should then be conditioned with a synthetic, additive, higher level fair-weather field emission on target lines via headphones [8] in a laboratory incubator by [9].

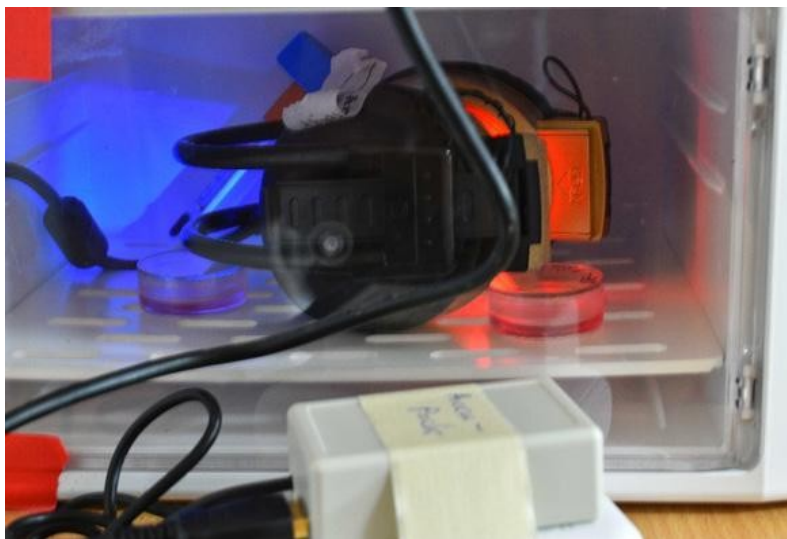
In the test setup, a technical form of irradiation of natural origin with an overlay effect was created, whereby the natural "on-line Sferics" in extreme weather conditions were replaced (hint: masking effect) by the artificially emitted, stronger "non-bad weather Sferics" with a "fair-weather noise signal" (alternating field preserve and emitter device according to headphones) were covered. The related experimental setup is shown in Figure 1. Accordingly, in other words, two recognized theses have been combined and applied in the present proof test procedure, which has been realized for the first time:

- The first of natural, electrophysical phenomena, such as in established electro- / psychoacoustics and the well-known, so-called "hearing masking effect" or "cocktail party effect" as well

- Secondly, the previous, reproducible, significant test results and evidence with Sferics emissions on subjects according to [1,2,6,7], but realized via a cell test method; see cells as mind suggesting free detector.

#### Cell culture and experimental design

The intestinal epithelium, which is only one cell layer thick, has two essential tasks. The first is to create a physical barrier between the contents of the intestinal lumen and the rest of our body. The second is to ensure an efficient absorption of essential nutrients from the gut lumen and to produce mucus, anti-micro-



**Figure 1.** An open mini-incubator can be seen, in which two cell dish dishes are placed underneath, which are very close to the back left with a Sferics alternating field emitter headphone [8] (transmitter/fair-weather field emitter verified via the bracket) acts on the cell lines (blue color); red color front-right you can see another cell dish. In front of the incubator, slightly hidden, is a battery pack (box below) with an AC sieve device, partly realized according to and fixed/glued on top for the direct current supply of the headphone Sferics emitter electronics.



**Figure 2.** The shown bars illustrate relative changes in cell vitality values obtained (unsigned mean value / mean of 5 reading samples each), which came about from the difference or DELTA value calculations regarding "control case values" minus "exposed cells case values". They are given in percent each over four trial days repeated. The blue bars illustrate DELTA values seeing the exposed cultured cell groups (cell dish) very closed to the Sferics emitter antenna by a headphone. Additionally, the orange bar (right side) show DELTA a value as an additional experiment scheduled at the same time on the 4th day of the experiment but the cell dish was placed remote from the Sferics emitter antenna.

bial peptides and cytokines with both protective and immune-regulatory properties. Thus, a reduced barrier function may have far reaching consequences, not only for intestinal, but also for systemic health [12].

Prompted by this background cultured intestinal cells were used to examine the effect on the regenerative potential of the epithelial barrier. According to Vergauwen [13] "IPEC-J2 cells are intestinal porcine enterocytes isolated from the jejunum of a neonatal unsuckled piglet. The IPEC-J2 cell line is unique as it is derived from the small intestine and is neither transformed nor tumorigenic in nature. IPEC-J2 cells mimic the human physiology more closely than any other cell line of non-human origin". The cells were originally isolated in 1989 by Helen Berschneider at the University of North Carolina [14]. The advantage of the IPEC-J2 cell line as an *in vitro* model originates from its morphological and functional similarities with intestinal epithelial cells *in vivo*.

### Cultivation of intestinal epithelial cells

The investigations presented here were conducted with IPEC-J2 cells (ACC-701; Leibniz Institut, DSMZ, Braunschweig, Germany). Cells were routinely grown in Dulbecco's Modification of Eagles Medium (DMEM with low glucose) containing 10 % growth mixture and 0.5 % gentamycin. Cells were routinely cultivated in an incubator at 37 °C in an atmosphere of 5 % CO<sub>2</sub> and 95 % air at nearly 100 % humidity. The cells were routinely cultivated as mass cultures and were regularly sub-cultured twice a week with fresh culture medium. For the experiments, cells were taken from 80-90 % confluent mass cultures.

### Cell regeneration during Sferics exposure

Cells were seeded at a density of 100,000 cells/ml into the four individual compartments of a silicone 4 well-culture insert made (ibidi, Gräfelfing, Germany). The single compartments of the inserts are separated by a 500 µm thick silicone bar with an outer silicone frame of 700 µm. Due to the special adhesion area, an insert adheres firmly to the bottom of a culture dish and forms a distinct cell-free area (artificial wound), which the cells can colonize by migration and proliferation.

Upon reaching confluency within 48 hours after cell seeding, the silicone frames were removed and the culture dishes with and without the Sferics device were placed in two mini-incubators in different parts of the laboratory. To avoid any pH changes during exposure at normal air conditions, the routine culture medium was replaced by Leibowitz L-15 medium with 1 % growth mixture and 0.5 % gentamycin. Cells were allowed to migrate and proliferate for another 10 hours.

Finally, cells (see cell samples in five perforations of the cell dish) were fixed with methanol, stained with Giemsa's Azur eosin methylene blue solution (Merck, Darmstadt, Germany), air-dried and examined by micrographs and a specialized software with artificial intelligence from KML Vision, Graz, Austria (IKOSA AI software).

### Research results during extreme-weather conditions

First of all, it should be pointed out that the location of the biochemical laboratory is about 150 kilometers away from the North Sea coast. This is relevant because, as is known to the me-

dia, a series of three extreme storms hit the North German lowlands from mid-February 2022 and caused considerable damage to the infrastructure. As mentioned, a longer period of time was required to wait for the maximum possible meteorologically extreme and thus biologically "unfavorable" weather situation (hint: highest biotrophy) for the desired special test moments to be scheduled at that time. These then each test day contained five inferred cultivated cell lines probes (see five cell samples with exposed intestinal epithelial cells) in cell dishes were made, which then offered five values in the subsequent multiple evaluation by cell analyses; this compared "control versus Sferics additional radiation". Later-on it was calculated the mean and standard deviation as values each daily data set. Fortunately, this was successful for the four test runs or test days between February 16th until 25th. The following content shows the mean daily test *characteristics of the essential weather situations* including the start times for the four test days:

- Timing of the cell lines on test day 1 and meteorological characteristics: February 16, 2022 (10 hours exposure of the cells until 8:30 p.m.) with < 987 hPa (hecto-pascal) air pressure; "extreme storm low pressure situation" 1 with violent hurricane wind and high water on the German North Sea coast. The experimentation before the minimum air pressure of the monster low pressure system. The cells were thus exposed before the minimum after the late evening from Wednesday to Thursday as control and Sferics-irradiated cells. Hint: This is essential for the reasons mentioned above, because the meteorological deterioration in the weather conditions still had a "negative" increasing gradient or decreasing air pressure value (delta value).

- Timing of the cell lines on test day 2 and meteorological characteristics: February 18, 2022 between the two storm lows on February 16/19, 2022 with low air pressure of a good 1002 hPa, slightly plus-minus fluctuating. The monitoring moment of the exposed cell cultures was not on a clearly marked hPa path towards a minimum (see values for this not hours, but only about 2 days later), so that no extreme weather maximum (as minimum clearly decreasing air pressure) could be registered (see air pressure delta value inconsistent on the 2nd cell observation day). Hint: This meteorological constellation is important for later content when discussing cell value differences!

- Timing of the cell lines on test day 3 and meteorological characteristics: February 19-20, 2022 (storm low 2, minimum after the night from Sunday to Monday) with < 989 hPa. The monitoring moment of the exposed cell cultures was also before the extreme weather maximum, i.e. before the decreasing air pressure minimum value (delta value after the cell exposure evening on the 3rd cell observation day).

- Timing of the cell lines on test day 4 and meteorological characteristics: On February 25th, 2022, a comparative moment of how the exposed cells in the control and Sferics groups would react resulted in a reasonably pronounced, not strong high-pressure area with 1035 hPa. The gradient of the air pressure (see increase) was still running I a positive values path.

Below is a table-like overview of the *comparison cell data's as results* from the 4 test days (Figure 2):

- **Test day 1, February 16, 2022** (before storm depression



minimum value in hPa):

MW1a = 89.64% mean, control (mean value of 5 trials)

SD1a = 3.55% standard deviation, control (SD mean value of 5 trials)

MW1b = 83.38% mean value of 5 trials, additive Sferics EMF's; EMF transmitter taken as a headband antenna above the cell dish; so, at the back side in the mini-incubator.

SD1b = 1.88% standard deviation, control (SD mean value of 5 trials)

DELTA ("control values" minus "add. Sferics EMF values" = MW1a-MW1b; unsigned amount value here and following) = 6.26%

• **Test day 2, February 18, 2022** (between two (after/before storm depression minimum value in hPa, i.e. within a low-pres-sure area that is not developing seriously):

MW1a = 79.75%, control mean (mean value of 5 trials)

SD1a = 2.34% (SD mean value of 5 trials)

MW1b = 80.69% additive Sferics EMF's (taken from behind)

SD1b = 1.75% (SD mean value of 5 trials)

DELTA (= MW1a-MW1b) = 0.94%

Comment: This is below the standard deviation, no meteorological effect on the exposed cells since there was no strong weather change.

• **Test day 3, February 19, 2022** (before the slightly weaker storm low minimum):

MW1a = 78.34% control mean (mean value of 5 trials)

SD1a = 4.78% (SD mean value of 5 trials)

MW1b = 73.56% additive Sferics EMF's (taken from behind) SD1b = 11.14%

DELTA (= MW1a-MW1b) = 4.78%.

• **Test day 4, February 25, 2022** (non-distinct high-pressure zone builds up; before high pressure system maximum value in hPa):

MW1a = 83.08% control (mean value of 5 trials)

SD1a = 6.72% (SD mean value of 5 trials)

MW1b = 75.60% additive Sferics EMF's, EMF transmitter as headband antenna above the cell dish; Values in the incubator at the back left of the headphone bracket antenna.

SD1b = 1.70 %

DELTA (= MW1a-MW1b) = 7.48%

Seeing all this cell test results herewith a **medical-meteorological commentary**: These tests have been proven the level dependency of the cell cultures on additive Sferics EMF's (strong Sferics level behind, antenna proximity/headphones) and the given masking effect compared to "online weather" as a not too strong or extreme high-pressure zone. Apart from that, this is a superposition of the online ("now-cast") high pressure plus fair-weather Sferics existences. This results accordingly in comparison to experiments 1 and 3 with the negative effect of a given online gravure printing system on "apparently weather-sensitive cell cultures" plus additive Sferics or fair-weather

EMF's, which are not 100% effective as EMF's and only have a partially concealing effect.

• And now the following test results of a second parallelly made trial on February 25, 2022 (Hint: fair placed cell cultures to the Sferics EMF antenna):

MW2a = 82.17 % (mean value of 5 trials) additive removed Sferics EMF's, EMF transmitter as headband antenna NOT taken above the left-rear cell dish. Cell delta data were taken from the front-right cell dish; Sferics emitter antenna placed farther from the cell tray in the mini-incubator.

SD2a = 6.08 % (SD mean value of 5 trials)

DELTA (= MW2a-MW2b) = 1.63%

This is below standard deviation, no effect on exposed cells; Sferics emitter antenna is placed too far from the cell dishes. **Medical-meteorological commentary** of the two test trials on February 25 in comparison: This proves the level dependence of the Sferics EMF's on cell cultures and the NO masking effect of Sferics EMF's. Experiments 1 to 3 were carried out with data determinations via the cell dish at the back left, i.e. not measured/evaluated at the front. The frontal positioning in the mini-incubator (see figure 1) of the cell culture dish plus data collection offers no effect. The cells are located too far away from the Sferics transmitter according to the EMF emitting headband or headbow antenna with an additive fair-weather field.

Additional Assumption: Perhaps a stronger effect (a higher DELTA value) would have arisen in the event of a pronounced rising low-pressure weather situation. This test was necessary in order to show the maximum effect of optimal fair-weather field preservation with ongoing, medium high-pressure conditions during the cell tests.

## Discussion

In summary, the given results obtained from earlier laboratory studies with cell lines [15, 16, 17] should be compared at first. Accordingly, the following test result key elements should be mentioned:

• Cell migration over (20 hours in total) various short controls at 5, 15 and after 30 minutes; there was a difference percent-age  $\Delta$  cell regeneration in percent =  $26.8 \pm 4.5\%$  (after 30 min = see control = reference/standard value 1; means 100%) with "additionally effecting devices" as trigger elements [15].

• Cell migration over 24 hours control  $29.1 \pm 9.3\%$  and "additionally effecting device" =  $MV 37.8 \pm 8.9$  SD [16]  $\Delta$  cell regeneration or difference value =  $8.7\%$  ( $\Delta$  means Delta).

• Cell migration over 21 hours,  $\Delta$  in relation to the control value  $\gg \Delta$  cell regeneration or cell vitality difference caused by an "additionally effecting device" =  $+23.9 \pm 8.8\%$  SD [17].

In contrast to this and in a different way, in the present experiments, firstly after 10 hours exposure to cell cultures with a Sferics alternating field and no signals or EMF influences of purely technical origin (Technics) were used. Secondly, the cell lines were exposed to the respective different or over time differing (hint:  $\Delta$  hPa) weather conditions and a comparison "control without Sferics but the same "actual" (and "now-cast") weather conditions. So, the basic situation as control versus ad-

ditive fair-weather field irrigation" (and it's correlating Sferics) was four times repeatedly done. These received difference values arose at medical-meteorologically more effective test moments (see weather conditions variable as well as cell dishes placed closer or far away from the Sferics emitting device):

- Trial 1, DELTA mean value = 6.26%; on the other hand a
- trial 2, DELTA mean value = 0.94%; later then a
- trial 3 DELTA mean value = 4.78% (trial 1-3, back side cell cultures closer / nearer placed to Sferics EMF antenna of the headphone)
- In addition, received the same for trial 4a (back side placed cell culture closer to the Sferics emitter) = 7.48%.
- On the other hand, the parallel running experiment or trial 4b; a "cell test in front /right side" (Figure 1) just the Sferics EMF source more distance from cells placed having a mean value of 1.43%.

With regards to the experiments by [16, 17], the cell activity changes (see delta regeneration values) are more than half lower probably caused by 21 versus 24 hours experimental time scheduling instead of only given 10 hours having exposed cell lines (fibroblasts). A longer exposition and observation time should induce higher DELTA values in %. This was even clearer or more effective with the earlier tests [15] with, among other things, only 30 minutes of exposure time. Consequently, the recorded DELTA regeneration values are = 6.26%, 4.78%, 7.48% (mean) including a significantly changing weather conditions towards storm depression maximum (low pressure, air pressure in hPa is still decreasing and is not at minimum) or high-pressure moments (air pressure in hPa increased and it wasn't given a maximum) had a relevance too. These facts are correlating with clear value changes in percent and, with a reproduction factor like  $n = 3$ , that underlines a significance for the above-mentioned percentage values rounded up from around 5 to 8%. On the other hand, with the already existing low-pressure weather situation and essentially no continuous changes in hPa, the value result is insignificant at around 1%. In other words, the result correlates with a reduce biotrophy for humans [5, 7]. This can be seen particularly well in comparison in Figure 2, because the test result on the second test day (low pressure; values taken from the rear of the cell dish) is almost identical to the result on the fourth test day (high pressure). This came because the cell vitality readings were taken over a cell dish placed in front (further away from the Sferics EMF emitter). Thereby, did exist no significant effect when the additionally emitted fair weather fields (as Sferics EMF) were placed too far away during the given weather conditions (the visual comparison of the bars in Figure 2).

In order to get a better overview of studies new knowledge based on above presented results (cf. higher significance), it would be advisable for the future to repeat the experiments inherently at first carried out over a longer period of exposure; secondly with renewed weather change situations (including more varying biotrophies) and third to compare them in more detail with less incisive meteorological conditions (see borderline in meteorology causes correlated in clear effects by significant DELTA values). At least probably the investigation time of exposed cells should be enlarged up to 20 and more hours. This must be done

always with additive Sferics alternating field emissions imprinted on cultivated cell cultures because:

- Firstly, there otherwise would be no comparison or difference in values (no Sferics EMF's = no stimulus or no difference to the control) only among the cells exposed to laboratory locations (see "control versus exposed cells"). In other words, without additional Sferics EMF's an influencing or differing stimulus is therefore missing! Compared to the exposed control cells, this is achieved by the described, additive fair-weather field irradiation [1, 2, 6] from a dish with cultured cells placed suitably close to the fair-weather EMF emitter in the mini-incubator.

- Secondly, the natural stochastic "live" Sferics EMF (correlating to the "now cast" weather conditions) arrived at the cell test laboratory site according to [1, 2, 3, 4, 6] and penetrated all materials or biological based living things; why: It is well known due to their long long-wave length at alternating fields character (see magnetic fields of pregnant given weather conditions having distant thunderstorm discharges; wave-length up to some kilometers). The usual meteorological measured values such as air pressure, temperature, humidity are not sufficient as indicators for biologically effective weather conditions like weather upheavals alone [2, 7]. This also applies to the artificial environment in labs and the done tests with cultivated cells.

- Thirdly, this inevitably results in proof of the test design are demonstrating herewith, that fair-weather Sferics as used as an additive radiation source (device) cause a comparison "difference factor" based on a biological benefit function effect. And finally, impulsive Sferics EMF's as an alternating nature-related field occurrence in themselves represent an essential factor (stimulus) parallelly existing to the aforementioned air pressure, temperature and humidity for descriptions (or tests) of a biological or biotrophic effect of meteorological weather conditions on humans and probably for all earth living things (see evolution on earth).

- Fourth, and as mentioned above, a type of masking effect with an additive Sferics EMF use is possible and has been shown to be significantly effective at lab conditions again as the given empirical data from earlier experiments [1, 2, 3, 4, 7].

## Conclusions

In summary, it should be emphasized that the initial hypothesis, "there would be no effects of weather conditions" on seeded cell cultures and additive alternating fields (according to emitted fair-weather Sferics EMF) do not trigger any effect, was refuted.

There is therefore a clear tendency outside of the value noise and statistical randomness according to the DELTA or comparison regeneration values (in the single-digit percentage range) and leads to the final test result:

- Tests with cultivated cells are suitable for testing meteorological as well as biological medical-meteorological factors of influence. This is particularly important because no mentally suggestible people are used as test subjects or indicators.

- This was demonstrated herewith by an experimental (science dry) cell tests method in a laboratory [9] without probands and all won results are correlating in detail by key factors as exposed cell culture are individually reacting on (extreme) weather

conditions like a huge and decreasing low pressure moments. Consequently, the given test results are presenting tendencies (just by individually differing cell DELTA values) to the earlier, medical-meteorological surveys, such as increased sensitivity to varying weather conditions in humans regarding their neuronerval and physical body reactions as shown by relevant earlier done biostatistical evaluations about associated bio-meteorological correlations [2, 4, 7]; see biotrophic weather conditions like a weather changes / weather-upheaval.

•The proximity of the additional Sferics beneficial alternating field influence with an "optimal fair-weather field" [7] on exposed cell cultures is just as relevant or represents a counterpart (factor), such as a huge weather change with significant air pressure fluctuations towards a low-pressure minimum or on the other hand high-pressure maximum.

•This suggests a EMF masking effect or cocktail party effect known from acoustics or psychoacoustics. Perhaps this is a biological law (or in general the "electro-sensitivity") of the planet earths nature and living beings (as correlation) in electromagnetic and acoustic wave propagations [18].

•Lower air pressure fluctuations, a preferably constant low / high pressure zone [6, 7] or rather constant weather conditions or in particular less biotrophic earth surface climatic conditions [4] seem to be less pregnant for weather-sensitive humans (and probably for all living things of the earth); see fewer / lower mood disorders in weather-sensitive people than in extreme weather conditions and weather changes.

Finally, the often-ascertainable opinion in medical or the public or common opinion, that weather influences or weather-sensitivity (or meteorosensitivity) is only something like imagination or a psycho-somatic illusion was refuted as well.

## Abbreviations

EMF: electro-magnetic field; Sferics: weather-related stochastic discharging electromagnetic fields on the earth in the kilo Hertz frequency range;  $\Delta$  means DELTA or difference values.

## Acknowledgement

This article is dedicated to the mother Christl E. S. König of the author Florian König. Personal comment of Florian König: She supported me in everything I did professionally and died at the age of 92 on April 30, 2021 one year ago. Besides in memorial, the official manuscripts reception day was exactly one year later after we saw us the last time personally enjoying the sunny nature for an outdoor walk together 2021. Furthermore, to underline, I and my brother named Christian (weather expert) were able to get to know playfully a clear connection to nature through our mother as teacher, which was related to the observation of phenomena's; for example: 50 years ago, we often

fetches non-homogenized and pasteurized milk directly from the farmer. In very unfavorable weather conditions, this was sometimes sour or gassy after an hour. We have known why for well over 20 years now: Sferics EMF influences on pure milk.

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