Fluctuations of the planetary gravitational field and nonlinear interactions with matter

Work status (2023-05-08)

Foreword

The hypothesis presented in this book arose by chance. My experience with the creation of a mathematical model for the calculation of partially coherent light waves through optical systems, applied to the planetary system, led to an algorithm which can be interpreted as a nonlinear interaction of microgravity with matter. This does not describe causalities but only correlations of a probabilistic nature. A correlation function is developed, which can describe changes of the probability for stable and unstable states in matter.

With the correlation function found, the triggering of earthquakes was investigated first.
Tidal stresses are very small, so there is still a lot of debate about whether they can trigger an earthquake at all. Several studies have found no correlation between tides and earthquake occurrence, e.g. Kennedy et al., 2004 [1]. Other studies report small positive correlations, e.g., Kasahara, 2002 [2]. Some recent research by Metivier et al. (2009) suggests evidence that tidal-induced uplift may reduce the normal stresses that hold faults together [3].
Previous studies related to earthquake triggering do not take into account planetary gravitational interactions e.g. [4,5,6,7,8].
The studies of groups of earthquakes showed significant deviations from the control groups and confirmed the assumption that the harmonics of the planetary gravitational field have an influence on the triggering of earthquakes. Surprisingly, it was not only the harmonics of the Sun and Moon. These results suggested that it might be possible to use these harmonics to predict earthquakes as well, which also confirmed that the correlation function found could be used to predict changes in the probability of earthquakes.

It was further suggested that the fluctuations of the planetary gravitational field could also have a stabilizing or destabilizing influence on other processes of evolution on Earth. The correlation function was applied to the structure formation of human intelligence and the stability of mental processes. Significant results were also found in the statistical studies.

The results so far suggest that the correlation function may be suitable for describing influences on further processes of human evolution. The method can also be applied as an element of artificial intelligence, as will be shown in chapter 4.

In the book first the derivation of the correlation function is brought, as it can result from the physical conditions of the planetary system.

The aim of this book is to stimulate further research. For this purpose, the research program is described in its application. For research, this program can be used free of charge.

The studies were presented at various international scientific meetings (see bibliography). A selection of them is listed in this book [11,15,16].

The research was done by me privately and without any support than that of my wife and my son Marc, whom I thank here for it. I thank Marc especially for the professional support in the C++ programming of the complex computer program.

Michael Nitsche

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1 The model of nonlinear interactions

1.1 Fluctuations of the planetary gravitational field

Galaxies in space, planetary systems, clouds, geological formations, plants and animals, human societies, our nervous system, quantum physical systems form simple and also complex structures on scales of different size. It is possible that the formation of such structures can be described from a model of more or less strongly coupled oscillating subsystems.
One such oscillating subsystem is the planetary system. The sun and moon are weakly coupled to the ocean system, causing it to oscillate even at low tide. Cause and effect are related in a relatively simple and proportional way. But are there also nonlinear relationships in which cause and effect are not directly proportional?
Developments in computer technology are increasingly making it possible to study complex systems with nonlinear dynamics in nature and society.
One hypothesis underlying such investigations is that nature, as well as society, can be modeled by nonlinearly coupled oscillators at many scales. Starting with quantum fluctuations and ending with the "great cosmic rhythms of our solar system" [9], the complex human organism is influenced in its evolution but also in its individual development. The mathematical model for the influence of fluctuations of the gravitational field on complex systems in nature (triggering of earthquakes) and the human organism has emerged more or less accidentally from different, originally separate investigations.
The purpose of the publication is to draw attention to this oscillating subsystem (the solar system) and to stimulate further research. The computer program developed for this purpose is available for research projects.
There are a number of indications that the relatively weak fluctuations of the planetary gravitational field affect structure formation processes in a nonlinear manner. Frequencies of the fluctuation that remain relatively stable over longer periods of time show a correlation with biological structures.
A correlation function that indicates stabilizing and destabilizing states with a certain probability is suitable for describing these processes. The underlying hypothesis is the oscillation between stable and unstable states throughout evolution. Aspiring to a stable state can only ever be a stage of evolution that maintains that state for more or less time.
Also our very stable planetary system will leave one distant day the Mercury as the first planet.
The gravitational forces themselves are very weak. The first experimental determination of the gravitational constant G was done by Cavendish in 1798. Two masses m (730g) were deflected by two large masses M (158kg) by means of a rotating balance.
Meanwhile, resonances caused by fluctuating gavitation can also be detected on small scales in the laboratory [10].
Now one can ask, how large is the gravitational force change of the planets, compared with terrestrial moving masses. An illustrative idea of this is given by the conversion of the planetary forces to equivalent acting lead balls at a distance of 10 meters from a specimen.

Force changes are illustrated by lead balls rolling on a circle at a distance of 10 m. Table 1 shows the weight and diameter of the lead balls equivalent to the planets.

"Planet"	Weight [kg]	Diameter of lead ball [m]
Sun*	8,892 10^9	114,4
Mercury	1477	0,63
Venus	21779	1,54
Moon*	50969529	20,46
Mars	1237	0,59
Jupiter	313097	3,75
Saturn	27748	1,67
Uranus	1047	0,56
Neptune	506	0,44
Pluto	0,05	0,02
** little meaningful values*		

Table 1. Conversion of the gravitational forces of the planets to equivalent acting lead spheres at a distance of 10 meters.

The structure and development of physical systems is determined by the interaction of different parts of the system with each other and between systems and environment. Four groups of interactions are distinguished: strong, electromagnetic, weak and gravitational. These interactions are not equally effective on the different scales of nature, but they are also not completely decoupled in their effect.

The human organism, especially the nervous system with its high complexity, is certainly exposed to the influences of all interactions, also gravitational ones.
If one restricts oneself in the investigations to only one interaction, then the results will always remain incomplete and take the character of more or less probable statements. It is then left to a future to bring together the separately investigated interactions without ever reaching the "power of Laplace's mind".

The aim of these investigations here is to develop a model based on gravitational interaction, which is suitable to prove an influence of cosmic rhythms of the planetary system on different complex structures and processes in nature and society.

The planetary system of the sun is on the one hand an object of research of astronomy, on the other hand also a factor of influence on the evolution of the earth and its inhabitants. Thus, the Earth's moon acts not only in the formation of romantic and mystical ideas in human consciousness, but also through its stabilizing effect on the Earth's axis. Thus he guarantees the relative stability of the climatic conditions necessary in the biological evolution.
If also for the today's cosmology the general-relativistic gravity theory of Einstein forms the basis, for investigations on the scale of the solar system the Newtonian gravity theory is sufficient.

1.2 Nonlinear interactions

The fundamental Newtonian equation of motion of N mass points has the form:

$$\ddot{r}_i = G\sum_{\substack{j=1\\ j\neq i}}^{N} M_j \frac{r_j - r_i}{\left|r_j - r_i\right|^3} \qquad (1)$$

r_i, r_j = position vectors of planets i, j with masses Mi and M_j; G = gravitational constant

This equation is the starting point for the derivation of the "Cosmic Fluctuations", however, it is not yet in the form favorable for the present problem of the fluctuations. For this purpose it becomes necessary to consider first ordering points of view, which result from the structure and dynamics of the planetary system.
These are:
A) The stability of the solar system.
The present solar system is about 4.5 billion years old and consequently must have manifested itself as a quasi-stable structure during this time.
Although Newton's equations of motion (1) are nonlinearly coupled, the structure of the planetary system persists over long periods of time.
The Lyapunov constant tL, which indicates the time in which the orbital shapes of the planets are entirely different, Laskar determined to be tL~ 5 million years. For the outer planets starting from Jupiter even larger Lyapunov periods were calculated. This gives fairly tight limits on the orbital elements of the major planets over periods as large as the age of the solar system.
B) Cosmic rhythms are considered over very long periods of evolution.
Therefore, it is mainly the cosmic rhythms (frequencies) that are stable over longer periods that will be able to exert an influence. So it is not so much the absolute forces of the major planets, but rather their periodic changes which are considered. A stable alternating part is filtered out.
C) The planets of the solar system move all on nearly in one plane circular orbits around the sun. They represent natural oscillators whose couplings generate the superposition frequencies of the cosmic fluctuations.
A cosmic cycle begins with the conjunction (seen from the earth) of two planets i, j and ends after the opposition with the next conjunction. From the ordering aspects A, B and C a model of the cosmic fluctuation can be set up.
Heliocentrically considered, circular frequencies ?i,j can be given for the cosmic cycles, which are relatively stable and change only little with the time.

$$\omega_{i,j} = \frac{2\pi}{T_{i,j}} \qquad (2)$$

$T_{i,j}$ = time duration from conjunction to conjunction of the planets i, j.

Without considering the direction of the resulting planetary forces (only directionally invariant processes are studied), one can apply for the changes of the planetary forces (in first approximation). From the geocentric point of view the cosmic cycles are not quite so stable, therefore it is easier to use the angle $\alpha_{i,j}$, under which the planets i, j appear from the earth, in (3) instead of $\omega_{i,j}(t)$.

$\mathbf{F}_{i,j} \propto \mathbf{f}_{i,j}(t) + \mathbf{k}_{i,j}(t) \cos(\boldsymbol{\omega}_{i,j})$ (3)*
t = Zeit

$\mathbf{F}_{i,j} = \mathbf{F}_i + \mathbf{F}_j$
$\mathbf{F}_{i,j}^2 = \mathbf{F}_i^2 + \mathbf{F}_j^2 + 2\,|\mathbf{F}_i||\mathbf{F}_j|\cos(\boldsymbol{\omega}_{i,j})$ (4)
$\mathbf{F}_{i,j} \propto \mathbf{f}_{i,j}(t) + \mathbf{k}_{i,j}(t) \cos(\boldsymbol{\omega}_{i,j})$ (5)

* The relation (3) follows from the vectorial addition of the forces *Fi and Fj.*

The quantities $f_{i,j}(t)$ and $k_{i,j}(t)$ contain the slowly and less regularly changing components resulting from distance changes of the planets.

For the further investigations, only the faster and more "regular" changing cosine component in (4) is considered for the cosmic fluctuations. For a conjunction ($\alpha_{i,j} = 0°$) $\mathbf{F}_{i,j}$ is maximal and for the opposition ($\alpha_{i,j} = 180°$) minimal.

The weak gravitational field variations, in particular their cosine component, can be considered as a kind of excitation field strength on matter. The quantities $f_{i,j}(t)$ und $k_{i,j}(t)$ are set approximately constant, since they change weakly and less regularly with time.

$\mathbf{F}_{i,j} = \mathbf{f}_{i,j}(t) + \mathbf{k}_{i,j}(t) \cos(\boldsymbol{\alpha}_{i,j})$ (6)

The interactions of these "waves" (5) with matter and its different structures will be nonlinear. It must be noted that these are not the gravitational waves derived from a linearization of Einstein's General Relativity. In analogy to other nonlinear interactions with matter (e.g. nonlinear optics), with

$$\gamma_1 = \frac{k_1}{k_0}; \gamma_2 = \left(\frac{k_2}{k_0}\right)^2; \ldots\ldots \quad (7)$$

A general correlation function $H_{i,j}$ for the influence of two planets i, j can be set up.

$$H_{i,j}(\alpha) = \gamma_1 F_{i,j} + \gamma_2 F_{i,j}^2 + \gamma_3 F_{i,j}^3 + \ldots \quad (8)$$

Better suited is the transformation of (8) into a Fourier series.

$$H_{i,j}(\alpha) = a_0 + a_1\cos(\alpha) + a_2\cos(2\alpha) + a_3\cos(3\alpha) + \ldots \quad (9)$$

with $\alpha = \alpha_{i,j}$

The form (9) of the correlation function shows the emergence of "higher harmonics" at the interaction of the cosmic fluctuations with matter.

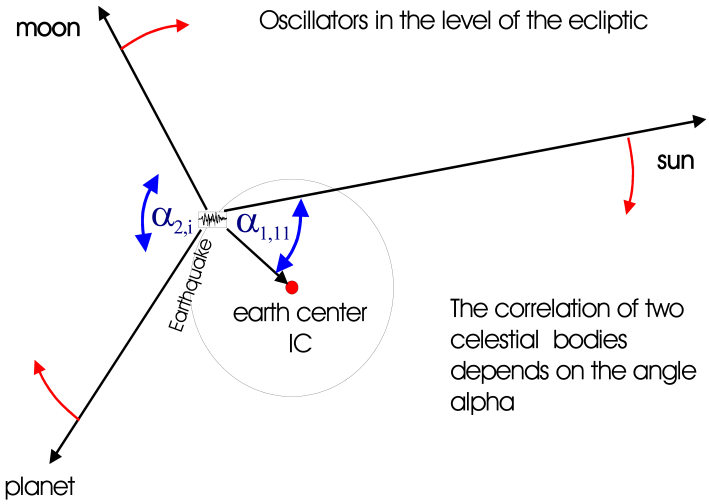


Fig.1. angle $\alpha_{2,i}$ iis the distance between the moon and planet i. angle $a_{1,11}$ gives the angular difference between the sun and the center of the earth.

1.3 The correlation function

The problem of the correlation function is the determination of the coefficients ak in (9) and the determination of the meaning of H.
It is not thought to measure with H a force or a "deflection". This would certainly cause insurmountable difficulties experimentally, if one wanted to determine the influence of the fluctuations on test specimens with rotating lead balls (approximately according to table 1).
Moreover, the evolution, which has extended over millions of years, is unlikely to be simulated experimentally.
Since the fluctuations of the planetary gravitational field are very weak in their effect, only the following areas come into question for correlations:

a) spatial structure formation processes, which are not or only very slightly determined by other effects.
b) Formation of not completely determined biological patterns.
c) Critical states in high-dimensional dissipative systems.
d) Highly complex systems, far from thermal equilibrium and on the edge of chaos.

Thus, the coefficients ak will be determined from the study of interactions with areas a) to d).
It is obvious to construct a correlation function H interacting with stable (harmonic) and unstable (disharmonic) states in regions a) to d).
Determining the coefficients ak from statistical studies of unstable or chaotic processes, where small perturbations can have an effect, is very costly. Therefore, it seems reasonable to first obtain an approximation for the coefficients ak from theoretical considerations, which can then be adjusted by optimization procedures if necessary.
Since cosmic cycles from conjunction to conjunction are concerned, one can take structural considerations of these oscillations as a starting point. If one takes the circle division (fig.2) as a basis, then the following structure points can be found:

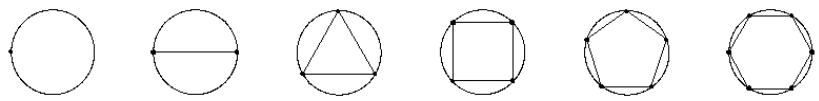


Fig.2. structures of the circle division. Starting point is the conjunction, followed by the opposition and so on.

<u>1 point:</u> "starting point" (conjunction).

2 points: polar structure; opposites which need a balance. Due to their tension and, if necessary, the impossibility of their balancing, they can nevertheless form a unity over a longer period of time.
Score: strongly disharmonic
3 points: very stable structure; especially in engineering it is a prerequisite for stability in mechanical constructions.
Scoring: very harmonic
4 points: unstable, dynamic structure; in engineering, this structure is often the basis for lever gears.
Score: disharmonic
5 points: quasi-stable pentagram structure; borderline between stability and instability. Complicated patterns and structures can be formed that do not repeat.
Scoring: indifferent
6 points: Honeycomb - structure; near-circular, relatively stable structure in the compound with good area utilization.
Scoring: harmonious

The addition of further points is possible, but the changes in the qualities become smaller as the structure becomes more similar to the circle. These qualitative statements are quantified step by step and plotted in a diagram (Fig. 3).

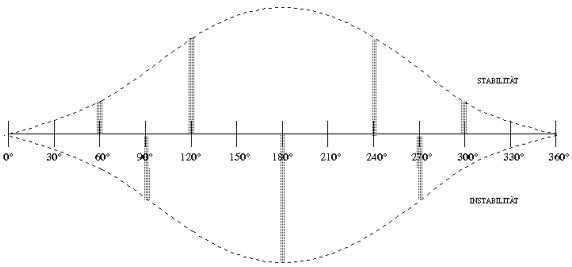


Fig.3. quantification of the circular pitch subdivided according to structural aspects. A symmetrical oscillation and decay process is assumed. The image is the basis for a Fourier transform for the 1st approximation of the coefficients a_k.

Since it is a periodic cycle, a Fourier transform can be performed.
The obtained coefficients are the first Fibonacci numbers (alternately mirrored, see 11.). The correlation function takes the following form:

$$Hi, j = \sum_{s=1}^{N \cdot 12-1} a_k \cos(s \cdot \alpha); mit(k = s \bmod 12) \quad (10)$$

$$a_k = \{0,1,-2,3,-5,0,3,0,-5,3,-2,1\} \quad (11)$$

The 1st order correlation function is shown in Fig.4. It represents a first approximation for the study of the influence of cosmic fluctuations on the stable and unstable states of complex systems.

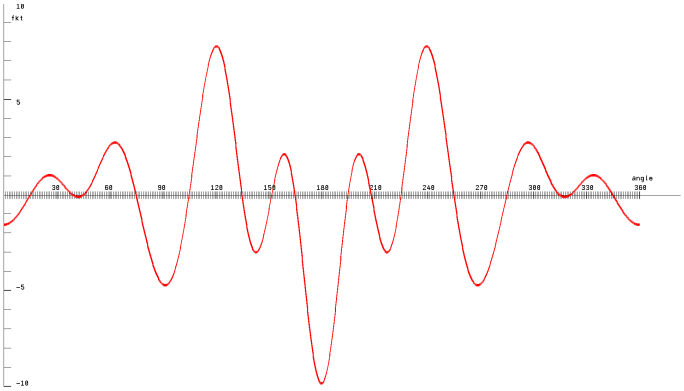


Fig.4. 1st order correlation function $H_{i,j}$ according to equation (10) with N=1. It was obtained via a Fourier transform from the structural aspects of Fig.3.

onsideration of higher orders may need to be made dependent on the problem under investigation. In general, it can be said that the higher orders will be more suitable for resonance and triggering.

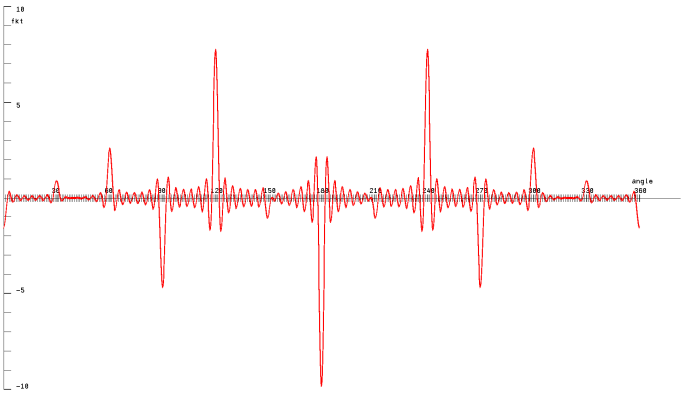


Fig.5. 7th order correlation function $H_{i,j}$ according to equation (10) with N=7. The higher orders of the correlation function are suitable for resonance problems.

It must be said at this point that the hypothesis: "Stable and unstable processes of complex systems are reflected in the structures of the circle division" seems daring at first. Only practical investigations can confirm that these assumptions are sufficient for a first approximation.
For this purpose, it must be ensured that the correlation function (10) is not only suitable for the description of one process, but also provides useful results for different processes and states. Expected values, at least in the tendency, must occur and there must be no negative correlations, for example, in that the correlation function (10) indicates a higher probability for stability, but in reality there is a higher probability for an unstable state.
Complex nonlinear processes are widespread in nature and society. High-dimensional complex systems are the rule. Far from thermodynamic equilibrium, these processes exhibit diverse spatiotemporal behavior.
The fluctuations of the planetary gravitational field are, in absolute terms, certainly very weak. However, they act on a very large scale and on all material structures of the Earth. Crucial for the proof of the influence of these fluctuations is the emergence of the "higher harmonics" in the complex structures of matter.
It is expected that the lower frequencies (1st order of correlation) will have a triggering or structuring effect on large-scale structures, and the higher frequencies on small-scale regions.

In figures 6 to 8, different orders and thus different high frequencies have been calculated. They give a first impression of the different oscillations. In fig.6 the 1st order of the correlation function $H_{i,j}$ (10) for the month July of the year 2001 is represented by curves of the row (or column) sums. Thus the curve of the Sun shows the sum of all correlations of the Sun with the other objects (Moon to Pluto). The upper sum curve is the sum of all curves or the sum of all elements of the correlation matrix $H_{i,j}$ (10).
The transition to a higher order (Fig.6 and Fig.7) sustainably shows the influence of the higher frequencies, which change the stability behavior in time.
The extent to which planetary fluctuations of the gravitational field can affect spatial growth

processes or labile equilibria of critical states that have little or no other determination will be examined with the following examples.

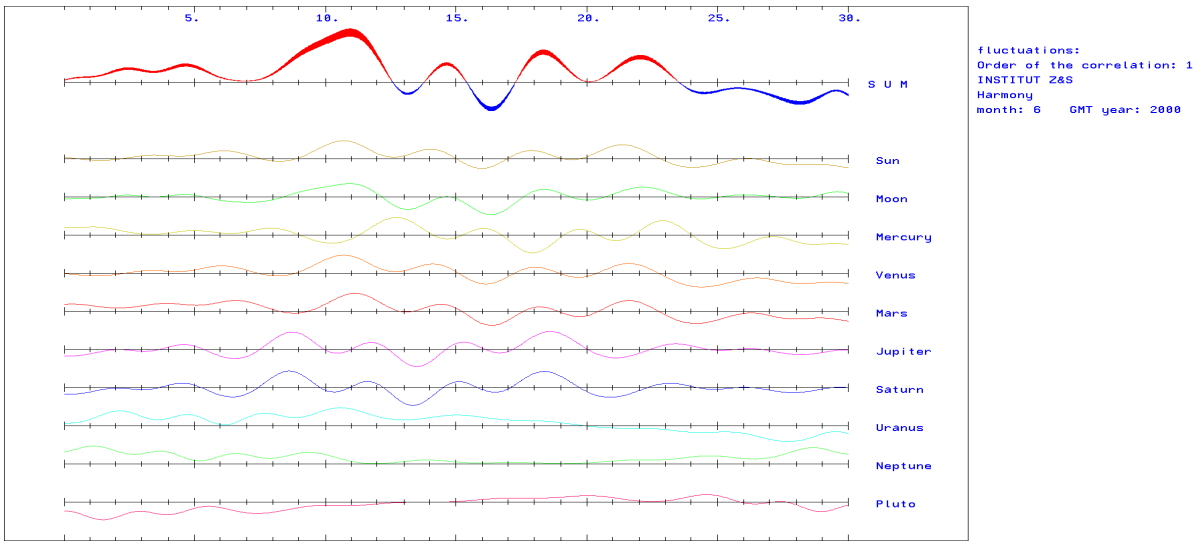


Fig.6. planetary fluctuation of sun moon and the major planets. Order of the correlation function: 1st order. The row sums and the total sum of the correlation matrix $H_{i,j}$ (10) are shown for June 2000.

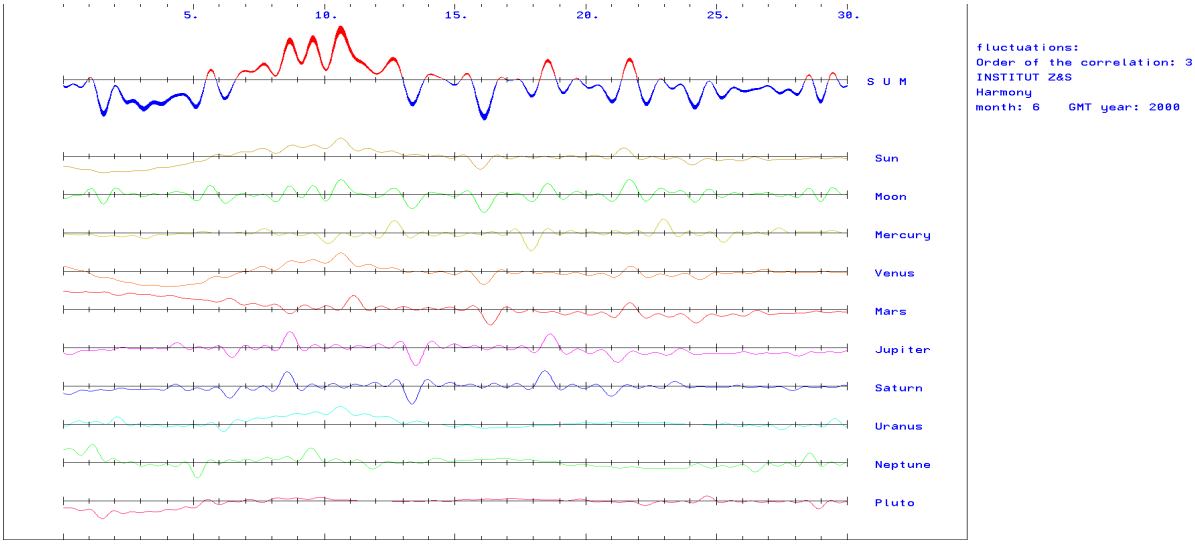


Fig.7. planetary fluctuation of sun moon and the major planets. The row sums and the total sum of the correlation matrix $H_{i,j}$ (10) are shown for June 2000.

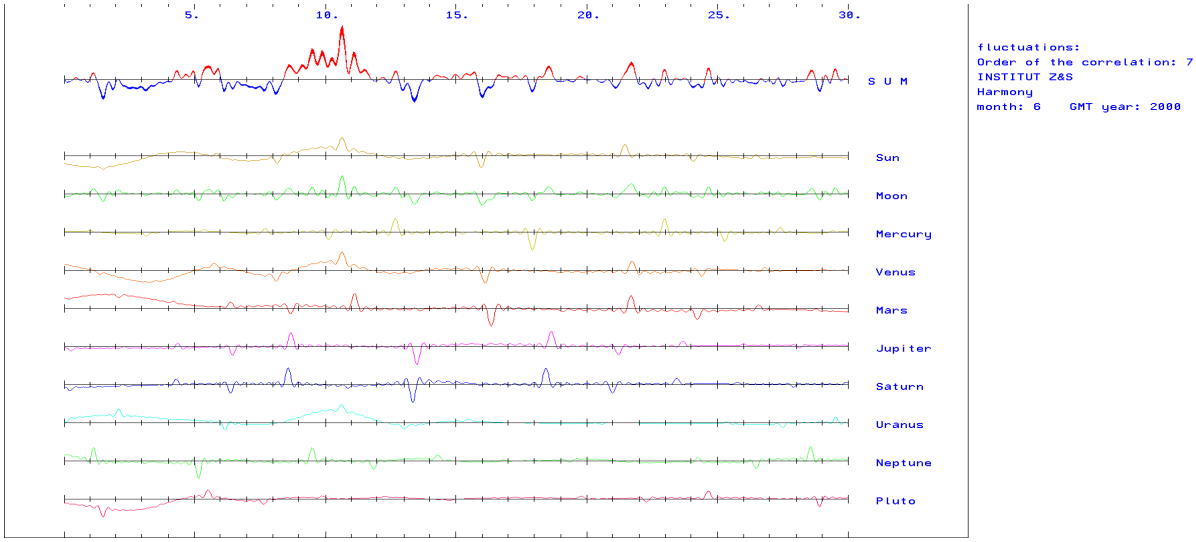


Fig.8. planetary fluctuation of sun moon and the major planets. Order of the correlation function: 7. The row sums and the total sum of the correlation matrix Hi,j (10) are shown for June 2000..

2 Earthquakes

2.1 An initial study of 41 of the strongest earthquakes

Are earthquakes triggered by the planetary gravitational field?
(For data see 9.1 The 41 strongest earthquakes)

This is particularly interesting, because when strong earthquakes occur in densely populated areas of the earth, there is usually also great damage to buildings and, above all, many human lives are often lost.
Prior to an earthquake, stresses build up in the earth's crust, which then reach a critical state after a certain time. Generally beginning with foreshocks, these tensions are discharged in an earthquake, whereby a prediction of the strength of the earthquake is not possible.

The investigations on the influence of planetary fluctuations on the triggering of earthquakes are based on the hypothesis that the reaching of a critical state of the stresses in the earth's crust happens within a certain time window. For this extremely unstable state, large-scale excitation field strengths of certain frequencies of the planetary fluctuations can then lead to the triggering of the earthquake and thus the relaxation of the earth's crust.

According to this hypothesis, the following results are expected:

Only relatively stable excitation frequencies decoupled from the Sun will show correlations. Mercury and Venus always appear close to the Sun from Earth, they are not decoupled and are dominated by the Sun. Similarly, Mars' correlations are decoupled from the Sun, but because of the relatively large changes in distance from Earth, its excitation frequencies cannot be said to be stable. (Mars would first have to be removed from the statistical studies and examined separately). The correlation function (10) will take a negative value (instability) in the coherent superposition of all relevant planets, which is significantly far from the general expected value.

Taking into account the foreshocks, the mean value of the first derivative will be positive. This means that the correlation function will be even more negative on average before the actual earthquake.
Only the frequencies of the fluctuations will show a correlation, which also gravitationally develop the largest forces. Consequently, Pluto (and the planetoids) will show hardly any correlation (see Table 1).
Can all these expectations be confirmed?

It is the "strongest earthquakes" of the last century and the earthquakes with the most victims of human lives, a total of 41 events that are studied.
To evaluate the influence of planetary fluctuations on the events "earthquakes" the following calculations were made:

1.

a) Superposition of the correlation function S Hi,j (harmonic function).
b) Superposition of the absolute amounts /S Hi,j /("energy" function)
c) Superposition of the 1st derivative after a of the correlation function S Di,j (time dynamics)
d) Superposition of the absolute amounts of the 1st derivative after a of the correlation function / S Di,j /(time dynamics absolute)

a) to d) Superposition of all 41 earthquake events related to sun, moon and selected planets.

2.

100 000 events were correlated in the period from 1900 to the end of 2000. The events are equally distributed over the period. The superposition, normalized to a group strength (here the 41 earthquakes), gives the statistically expected mean values.

3.

Monte Carlo simulation was used to calculate the density function, since an exact calculation for 41 events would lead to unacceptable computation times. As a control, the exact density function was calculated numerically for up to 6 events.
10 000 groups of 41 events each were randomly selected during the period from 1900 to the end of 2000.

4.

To test the hypothesis: "The correlation function of the 41 earthquakes is significantly discordant", a one-sided significance test is performed. The percentage of randomly selected event groups that have equal or smaller values for the superimposed correlation function S Hi,j is calculated. This percentage value represents the probability of error of the hypothesis.

If one looks first of all at the density distribution of $\Sigma H_{i,j}$ (Abb.9) (fig.9) for sun, moon and all planets and compares both with the mean value (expected values), then the sum of all 41 earthquakes S Hi,j lies quite still in the range of the expected values. The correlations of sun, moon and all planets are below the expected value also the "energy" is below the expected value but altogether one cannot speak of a significant influence of the planetary fluctuations.

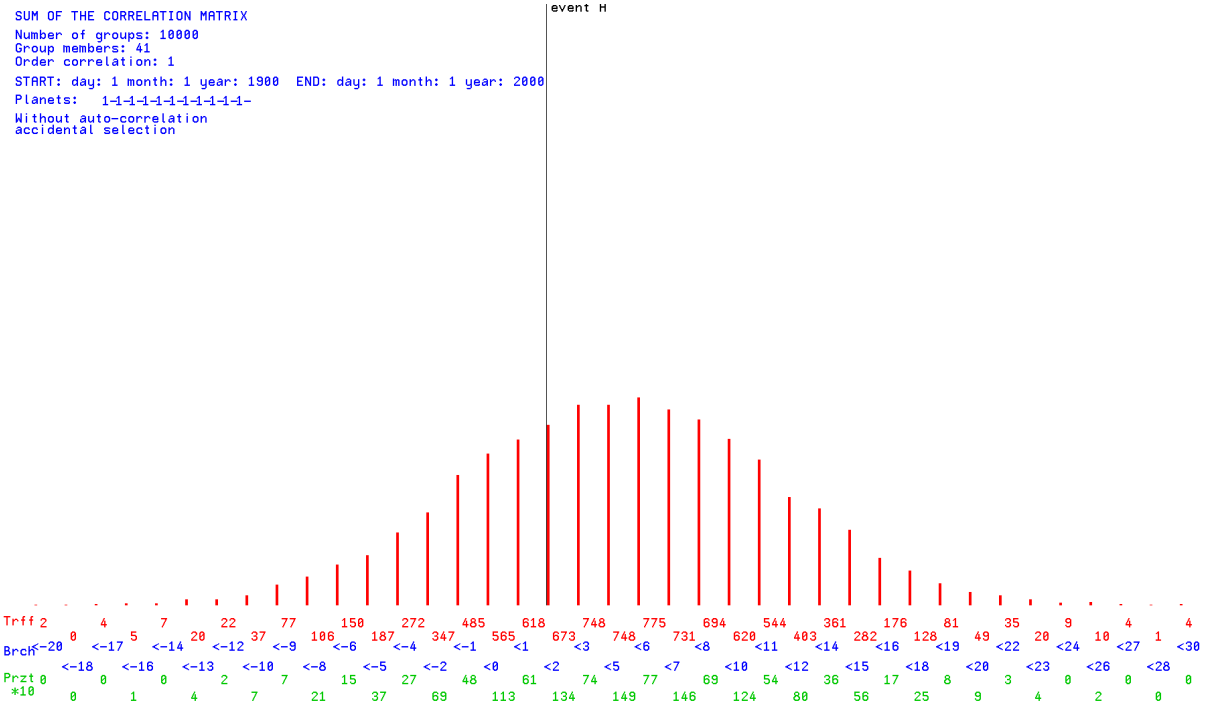


Fig.9. density function Σ $H_{i,j}$ 1st order according to equation (10) with N=1. All planets were correlated. The blue numbers indicate the range, the red numbers show the hits in this range and the green numbers indicate the relative hits in per mil.

This changes immediately, if the influences of sun, moon, Jupiter, Uranus and Neptune, which are to be expected according to the hypothesis, are considered separately (Fig.10.). The harmonic function S Hi,j is now highly significant far below the expected value (0.03% probability of error for the hypothesis). If Saturn, whose frequencies do not play a major role here, is added, the result is still highly significant 0.85% (99.15% of the 10 000 control groups are more harmonic).
Here is the computer printout for all major planets (red and blue indicate significance):

```
Statistics 4: Probability of events: correlation matrix H

 Order of the correlation: 1 ; time shift d: 0 h: 0;
 GROUP-MEMBERS: 41 ; NUMBER OF THE GROUPS: 100000
 Julian-date-start: 2415019.458333 Julian-date-end: 2451544.458345
 Accidental selection;  TEST: Number of accidental selection >= correlation

  CORRELATION-MATRIX H AS INPUT
            1       2       3       4       5       6       7       8       9      10

  1       *      -1.07    *       *       *      -0.72    0.56   -0.52   -0.56    *
  2      -1.07    *       *       *       *       0.09    0.60   -0.73   -0.72    *
  3       *       *       *       *       *       *       *       *       *       *
  4       *       *       *       *       *       *       *       *       *       *
  5       *       *       *       *       *       *       *       *       *       *
  6      -0.72    0.09    *       *       *       *      -0.75   -0.50   -0.96    *
  7       0.56    0.60    *       *       *      -0.75    *      -0.27    1.08    *
  8      -0.52   -0.73    *       *       *      -0.50   -0.27    *      -1.05    *
  9      -0.56   -0.72    *       *       *      -0.96    1.08   -1.05    *       *
 10       *       *       *       *       *       *       *       *       *       *

  Matrix H of the probability of error:
            1        2        3        4       5          6         7         8         9       10

  1       *      97.47    *       *       *      93.26   15.43   84.00   85.56    *    PR  97.71
  2      97.47    *       *       *       *      43.76   13.44   90.97   90.57    *    PR  93.14
  3       *       *       *       *       *       *       *       *       *       *    PR   0.00
  4       *       *       *       *       *       *       *       *       *       *    PR   0.00
  5       *       *       *       *       *       *       *       *       *       *    PR   0.00
  6      93.26   43.76    *       *       *       *      91.65   82.20   96.36    *    PR  99.00
  7      15.43   13.44    *       *       *      91.65    *      72.51    1.79    *     PR  15.19
  8      84.00   90.97    *       *       *      82.20   72.51    *      81.46    *     PR  98.49
  9      85.56   90.57    *       *       *      96.36    1.79   81.46    *       *     PR  91.59
 10       *       *       *       *       *       *       *       *       *       *     PR   0.00
  bigger are:   99.15 %

 1=SUN;  2=MOON;  3=MERKUR;  4=VENUS;  5=MARS;  6=JUPITER;  7=SATURN;  8=URANUS;  9=NEPTUN; 10=PLUTO; 11=IC;
 BEGIN: year: 1900 month: 1 day: 1 hour: 0  END: year: 2000 month: 1 day: 1 hour: 0
```

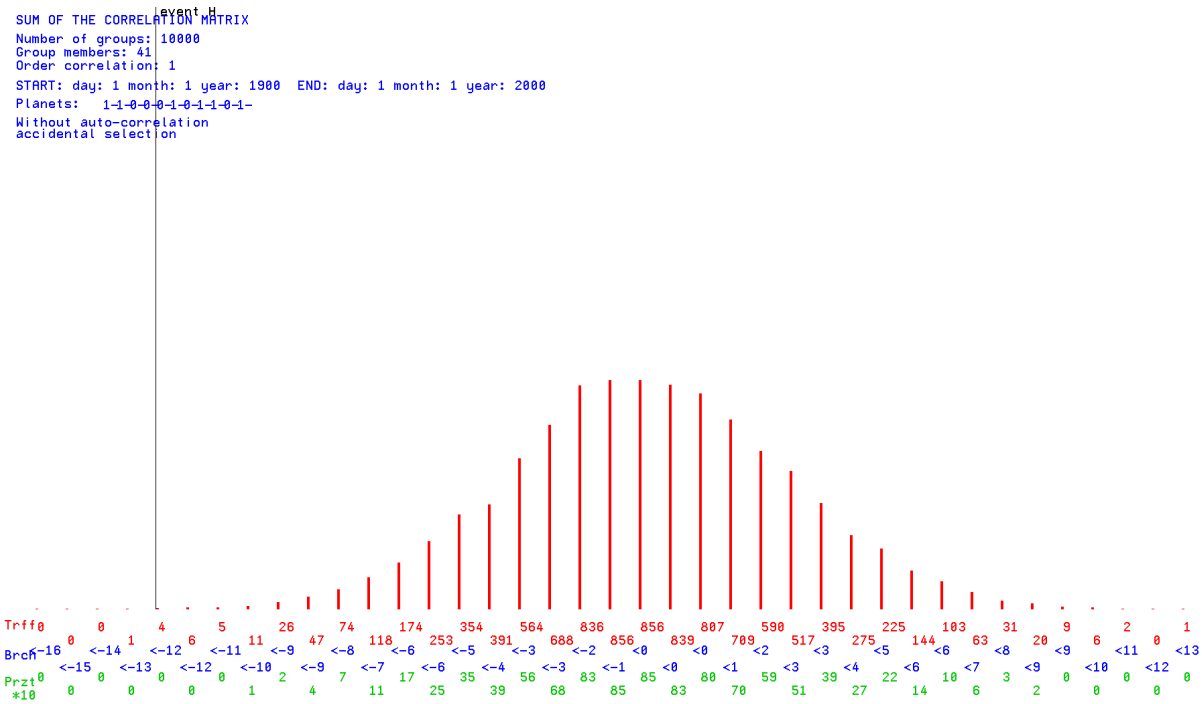


Fig.10. Density function S Hi,j 1st order according to equation (10) with N=1. Sun, Moon, Jupiter, Uranus and Neptune were correlated. The significance is very high 0.03% (99.97 % of the 10 000 control groups are more harmonic).

The expected values of the correlation Uranus - Neptune are caused by the large oscillation period (about T_1 = 172 years in the fundamental frequency) of this correlation. According to equation (10) the following shorter periods still occur for this correlation : T_2 = 86 years, T_3 = 57 years, T_4 = 43 years, T_6 = 29 years, T_8 = 22 years, T_9 = 19 years, T_{10} = 17 years and T_{11} = 16 years (all values rounded). The two planets had an opposition in the last century in 1906/1908, a trine in 1935/1937, a square in 1949/1951, a sextile in 1963/1965 and a conjunction in 1992/1994. In the last century the negative parts of the function $H_{8,9}$ predominate.

It was not the aim of this first investigation to derive concrete probabilities for the triggering of earthquakes. First of all, it is important to prove the effectiveness of planetary fluctuations of the gravitational field on highly complex processes on Earth, as represented by earthquake dynamics. This has been confirmed with the above investigations with an error probability of less than 1%. On the other hand, the correlation function derived from structural considerations of stability and instability is to be tested for its ability to describe the probability of stability and instability of complex processes and structure formation processes. It was therefore logical to apply this function also, and perhaps primarily, to a process that makes an influence of gravitational fluctuations on complex physical systems seem plausible from the outset.

Two investigations are still connected here.

. are the higher orders (harmonics) better suited to indicate a triggering of earthquakes?

2. is the period before and after the earthquake more meaningful?

3. which frequencies could be relevant for triggering?

The following table shows the probabilities for orders 1 to 12 of the correlation function for Sun, Moon, Jupiter, Saturn, Uranus, Neptune.

Order/Probability	1	2	3	4	5	6	7	9	12
Correlation	99.15	77.29	85.26	95.82	94.59	87.11	45.78	34.87	36.59
Energy	45.32	98.06	85.80	98.40	95.03	98.84	96.99	96.99	98.14
Dynamic	90.49	23.32	64.51	43.03	51.67	62.31	88.69	53.53	32.19
Dynamic absolute	44.68	43.78	36.78	83.49	52.92	95.56	81.71	82.81	80.01

Table 2: Probabilities in % for the correlation function and its 1st derivative. The significant values are drawn in blue. The correlation function shows relatively high values up to the 6th order. From the 2nd order on, the energy becomes significant (with the exception of the 3rd order).

Order 1 time-shift/ Probability	-5d	-3d	-2d	-1d	-6h	**0**	+6h	+1d	+2d	+3d	+5d
Correlation	74.90	96.95	87.26	97.84	99.18	**99.15**	99.32	93.35	91.22	95.66	63.02
Energy	67.46	87.18	86.37	56.45	46.27	**45.32**	50.21	59.80	64.61	30.93	23.89
Dynamic	30.35	73.59	31.18	76.54	90.42	**90.49**	93.60	65.70	49.11	94.54	64.58
Dynamic absolute	78.70	66.45	80.57	57.62	53.92	**44.68**	36.46	55.88	64.52	71.83	88.74

Table 3. time shift up to 5 days before and after the event for the 1st order.

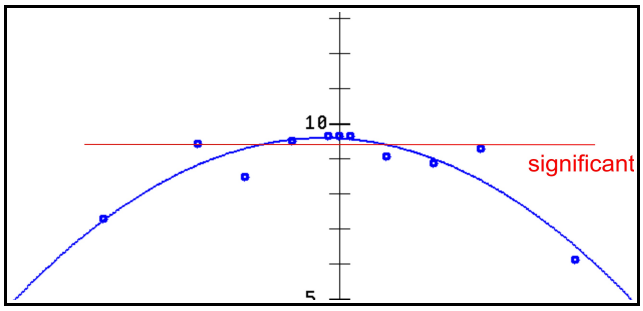


Fig.11. Graphical representation to table 3 for the correlation. The compensation curve indicates the maximum significance for 8 hours before the event. However, this is not certain and would need further verification.

Order 7 time-shift/ Probability	-5d	-3d	-2d	-1d	-6h	**0**	+6h	+1d	+2d	+3d	+5d
Correlation	66.42	77.35	52.19	26.07	67.48	**45.78**	50.14	33.28	25.50	79.75	17.83
Energy	97.87	94.69	72.97	95.27	88.58	**96.99**	97.97	96.46	98.30	63.50	69.23
Dynamic	44.61	45.91	33.62	46.74	10.58	**88.69**	64.40	17.84	42.15	40.13	98.96
Dynamic absolut	90.39	87.67	74.76	54.04	81.56	**81.71**	78.54	92.18	62.45	45.11	21.25

Table 4. Time shift up to 5 days before and after the event for the 7th order. The energy is relatively low for the entire period. A trend cannot be identified with certainty. While the 1st order correlates more strongly with the quality of time (stability-instability), the triggering effect of the higher frequencies of the 7th order is remarkable for the energy.

Generally, it is expected that the energy for triggering could be high. In addition, the high frequencies of the sun and moon should be particularly suitable. The correlation function for the 12th order does not indicate this:

```
Statistics 4: Probability of events: correlation matrix H
 Order of the correlation: 12 ; time shift d: 0 h: 0;
  GROUP-MEMBERS: 41 ; NUMBER OF THE GROUPS: 10000
  Julian-date-start: 2415019.458333 Julian-date-end: 2451544.458345
  Accidental selection;  TEST: Number of accidental selection >= correlation
   CORRELATION-MATRIX H AS INPUT
            1       2       3       4       5       6       7       8       9      10

   1        *     -0.19     *       *       *     -0.02   -0.12   -0.02    0.06    *
   2      -0.19     *       *       *       *      0.33    0.19   -0.04   -0.03    *
   3        *       *       *       *       *       *       *       *       *       *
   4        *       *       *       *       *       *       *       *       *       *
   5        *       *       *       *       *       *       *       *       *       *
   6      -0.02    0.33     *       *       *       *      0.03   -0.08   -0.11    *
   7      -0.12    0.19     *       *       *      0.03     *      0.06    0.04    *
   8      -0.02   -0.04     *       *       *     -0.08    0.06     *      0.03    *
   9       0.06   -0.03     *       *       *     -0.11    0.04    0.03     *       *
  10        *       *       *       *       *       *       *       *       *       *

   Matrix H of the probability of error:
```

	1	2	3	4	5	6	7	8	9	10		
1	*	89.47	*	*	*	57.89	80.66	57.86	31.86	*	PR	80.92
2	89.47	*	*	*	*	2.02	10.35	63.91	59.03	*	PR	22.38
3	*	*	*	*	*	*	*	*	*	*	PR	0.00
4	*	*	*	*	*	*	*	*	*	*	PR	0.00
5	*	*	*	*	*	*	*	*	*	*	PR	0.00
6	57.89	2.02	*	*	*	*	41.61	68.11	78.90	*	PR	30.23
7	80.66	10.35	*	*	*	41.61	*	27.41	41.16	*	PR	26.67
8	57.86	63.91	*	*	*	68.11	27.41	*	34.58	*	PR	47.75
9	31.86	59.03	*	*	*	78.90	41.16	34.58	*	*	PR	47.10
10	*	*	*	*	*	*	*	*	*	*	PR	0.00

bigger are: 36.59 %

1=SUN; 2=MOON; 3=MERKUR; 4=VENUS; 5=MARS; 6=JUPITER; 7=SATURN; 8=URANUS; 9=NEPTUN; 10=PLUTO; 11=IC;

BEGIN: year: 1900 month: 1 day: 1 hour: 0 END: year: 2000 month: 1 day: 1 hour: 0

Statistics 4: Probability of events: energy I

Order of the correlation: 12 ; GROUP-MEMBERS: 41 ; NUMBER OF THE GROUPS: 10000

Accidental selection; TEST: Number of accidental selection >= correlation

MATRIX I energy AS INPUT (absolut)

	1	2	3	4	5	6	7	8	9	10
1	*	0.31	*	*	*	0.21	0.33	0.24	0.29	*
2	0.31	*	*	*	*	0.65	0.32	0.16	0.34	*
3	*	*	*	*	*	*	*	*	*	*
4	*	*	*	*	*	*	*	*	*	*
5	*	*	*	*	*	*	*	*	*	*
6	0.21	0.65	*	*	*	*	0.20	0.37	0.27	*
7	0.33	0.32	*	*	*	0.20	*	0.20	0.22	*
8	0.24	0.16	*	*	*	0.37	0.20	*	0.30	*
9	0.29	0.34	*	*	*	0.27	0.22	0.30	*	*
10	*	*	*	*	*	*	*	*	*	*

Matrix I of the probability of error:

	1	2	3	4	5	6	7	8	9	10		
1	*	61.11	*	*	*	84.07	50.05	79.44	64.15	*	PR	91.69
2	61.11	*	*	*	*	5.29	55.89	98.61	50.47	*	PR	56.65
3	*	*	*	*	*	*	*	*	*	*	PR	0.00
4	*	*	*	*	*	*	*	*	*	*	PR	0.00
5	*	*	*	*	*	*	*	*	*	*	PR	0.00
6	84.07	5.29	*	*	*	*	90.71	40.01	67.73	*	PR	59.01
7	50.05	55.89	*	*	*	90.71	*	91.09	86.20	*	PR	97.17
8	79.44	98.61	*	*	*	40.01	91.09	*	66.55	*	PR	98.00
9	64.15	50.47	*	*	*	67.73	86.20	66.55	*	*	PR	91.07
10	*	*	*	*	*	*	*	*	*	*	PR	0.00

bigger are: **98.14 %**

1=SUN; 2=MOON; 3=MERKUR; 4=VENUS; 5=MARS; 6=JUPITER; 7=SATURN; 8=URANUS; 9=NEPTUN; 10=PLUTO; 11=IC;

BEGIN: year: 1900 month: 1 day: 1 hour: 0 END: year: 2000 month: 1 day: 1 hour: 0

Statistics 4: Probability of events: dynamics

Order of the correlation: 12 ; GROUP-MEMBERS: 41 ; NUMBER OF THE GROUPS: 10000

Accidental selection; TEST: Number of accidental selection >= correlation

MATRIX D dynamics AS INPUT (absolut)

	1	2	3	4	5	6	7	8	9	10
1	*	-14.64	*	*	*	-8.19	-3.41	7.55	25.65	*
2	-14.64	*	*	*	*	-39.52	13.05	7.42	6.41	*
3	*	*	*	*	*	*	*	*	*	*
4	*	*	*	*	*	*	*	*	*	*
5	*	*	*	*	*	*	*	*	*	*
6	-8.19	-39.52	*	*	*	*	6.63	10.75	-5.18	*
7	-3.41	13.05	*	*	*	6.63	*	14.83	5.91	*
8	7.55	7.42	*	*	*	10.75	14.83	*	0.32	*
9	25.65	6.41	*	*	*	-5.18	5.91	0.32	*	*
10	*	*	*	*	*	*	*	*	*	*

Matrix D of the probability of error:

	1	2	3	4	5	6	7	8	9	10		
1	*	87.19	*	*	*	75.85	61.24	26.72	2.66	*	PR	39.52
2	87.19	*	*	*	*	99.73	15.21	28.17	29.26	*	PR	82.33
3	*	*	*	*	*	*	*	*	*	*	PR	0.00
4	*	*	*	*	*	*	*	*	*	*	PR	0.00
5	*	*	*	*	*	*	*	*	*	*	PR	0.00
6	75.85	99.73	*	*	*	*	30.92	19.13	65.70	*	PR	89.97
7	61.24	15.21	*	*	*	30.92	*	15.66	35.15	*	PR	12.77
8	26.72	28.17	*	*	*	19.13	15.66	*	50.43	*	PR	9.78
9	2.66	29.26	*	*	*	65.70	35.15	50.43	*	*	PR	13.05
10	*	*	*	*	*	*	*	*	*	*	PR	0.00

bigger are: 32.19 %

1=SUN; 2=MOON; 3=MERKUR; 4=VENUS; 5=MARS; 6=JUPITER; 7=SATURN; 8=URANUS; 9=NEPTUN; 10=PLUTO; 11=IC;

BEGIN: year: 1900 month: 1 day: 1 hour: 0 END: year: 2000 month: 1 day: 1 hour: 0

Statistics 4: Probability of events: dynamics abs

Order of the correlation: 12 ; GROUP-MEMBERS: 41 ; NUMBER OF THE GROUPS: 10000

Accidental selection TEST: Number of accidental selection >= correlation

```
MATRIX DA dynamics abs AS INPUT (absolut)
          1       2       3       4       5       6       7       8       9      10

 1        *      38.47    *       *       *      31.56   34.31   31.65   40.00    *
 2      38.47     *       *       *       *      79.24   31.09   30.59   39.88    *
 3        *       *       *       *       *       *       *       *       *       *
 4        *       *       *       *       *       *       *       *       *       *
 5        *       *       *       *       *       *       *       *       *       *
 6      31.56   79.24     *       *       *       *      28.32   36.75   40.13    *
 7      34.31   31.09     *       *       *      28.32     *      35.29   36.19    *
 8      31.65   30.59     *       *       *      36.75   35.29     *      34.80    *
 9      40.00   39.88     *       *       *      40.13   36.19   34.80     *       *
10        *       *       *       *       *       *       *       *       *       *
 Matrix DA of the probability of error:
          1       2       3       4       5       6       7       8       9      10

 1        *      54.98    *       *       *      71.64   64.87   77.70   47.62    *    PR  84.09
 2      54.98     *       *       *       *       0.36   79.72   82.15   48.87    *    PR  27.81
 3        *       *       *       *       *       *       *       *       *       *    PR   0.00
 4        *       *       *       *       *       *       *       *       *       *    PR   0.00
 5        *       *       *       *       *       *       *       *       *       *    PR   0.00
 6      71.64    0.36     *       *       *       *      86.24   54.86   43.01    *    PR  23.89
 7      64.87   79.72     *       *       *      86.24     *      60.59   54.95    *    PR  91.90
 8      77.70   82.15     *       *       *      54.86   60.59     *      76.56    *    PR  93.07
 9      47.62   48.87     *       *       *      43.01   54.95   76.56     *       *    PR  67.58
10        *       *       *       *       *       *       *       *       *       *    PR   0.00
 bigger are:   80.01 %
1=SUN;  2=MOON;  3=MERKUR;  4=VENUS;  5=MARS;  6=JUPITER;  7=SATURN;  8=URANUS;  9=NEPTUN; 10=PLUTO; 11=IC;
BEGIN: year: 1900 month: 1 day: 1 hour: 0  END: year: 2000 month: 1 day: 1 hour: 0
```

The low energy (98.14% of the 10 000 control groups have a higher energy) at the time of the earthquake seems strange. It is reasonable to assume that before the time of the event the energy is higher.

An investigation can confirm this assumption for sun and moon:

Order 12 time-shift/ Probability So-Mo	-24h	-11h	-10h	-9h	-8h	-7h	-6h	-5h	-3h	**0**	+3h	+6h	+9h	+12h	+18h	+24h
Correlation	17.18	95.33	97.84	95.08	81.22	61.59	63.91	70.05	27.52	**89.45**	66.08	59.67	69.49	**99.09**	35.91	83.90
Energy	57.78	15.71	13.17	18.17	4.51	**0.95**	3.10	30.73	73.21	**60.87**	67.15	96.44	36.68	11.08	68.76	66.61
Dynamic	85.55	85.62	44.46	11.44	11.90	37.09	62.17	45.59	23.15	**86.90**	25.11	17.90	98.92	8.47	41.71	88.09
Dynamic absolute	69.35	43.28	21.45	1.80	2.80	53.10	19.60	5.58	78.23	**54.10**	44.15	61.82	29.24	60.94	73.11	74.05

Table 5. time shift for correlation of sun and moon.

According to this, 10 hours before an earthquake, the correlation is very disharmonic, with simultaneous increases in energy first in the dynamics and then in the correlation function.

Are these random oscillations? Can this be generalized? Does this only apply to these very large earthquakes?

2.2 A study of 513 earthquakes

The investigation of the strongest earthquakes of a century has shown that a correlation with the harmonics of the planetary gravitational field can be proved. This could be proved with an error probability of less than one percent.

Nevertheless, it cannot be excluded that it is an artifact. Therefore further groups of earthquakes in smaller time periods were examined. The addition in magnitude of smaller earthquakes could cause a stronger noise, so that no significant correlations can be proved.

The following studies refer to 588 earthquakes in the years 1996 to 2002, in total earthquakes with a magnitude of m = 6.5 and larger or that caused severe damage [6].

The following questions were investigated:

What order of correlation best describes possible triggering of earthquakes.

Are there specific frequencies that are suitable for triggering?

The results are shown in the following table:

Order /Probability 1996-2003 Periode	1	3	4	5	7	9	12	12 1900-2100 Periode
Correlation Harmonie; all planets only Sun - Moon all planets with gravity*	31.47 78.63 73.47	79.43 27.33 30.53	85.8 28.87 12.77	65.1 35.33 15.03	62.13 74.90 34.10	58.87 61.33 44.97	60.40 63.80 41.23	62.37
Energy; all planets only sun - moon all planets with gravity*	19.10 4.73 21.83	55.93 3.07 18.57	41.9 1.23 12.67	39.43 1.03 11.27	35.90 0.97 8.07	19.50 0.33 2.97	27.41 0.17 1.47	0.20
Dynamic; all planets only sun - moon all planets with gravity*	93.27 99.27 92.07	38.7 79.67 40.27	34.23 69.73 24.57	46.37 77.73 83.30	16.6 23.13 75.37	37.0 53.13 57.37	12.52 62.53 97.80	61.99
Dynamic absolut; all planets only sun - moon all planets with gravity*	30.7 72.10 59.47	21.13 27.47 63.33	56.7 27.53 64.07	51.0 24.03 61.90	54.97 15.60 62.17	82.47 21.73 69.27	31.40 2.00 38.69	1.97

Table 6. 513 Earthquakes unsorted; (Earthquakes of magnitude 6.5 or greater or ones that caused fatalities, injuries or substantial damage. BRK--Berkeley. PAS--Pasadena.) ; Time period 1996 to 2003. Significance is marked in red and blue.

* Weighting of the planets, oriented to the effect of gravity.	sun weight: 57.20 moon weight: 10.24 mercury weight: 0.31 venus weight: 0.77 mars weight: 0.30 jupiter weight: 1.87 saturn weight: 0.84 uranus weight: 0.28 neptun weight: 0.22 pluto weight: 0.01 IC weight: 57.20

For this list of earthquakes only the energy of sun and moon is significant and highly significant. This is also true for a larger time period (1900 to 2100) of the comparative calculations according to the Monte Carlo simulation.

The 4th order shows for the matrix of correlation (harmony and dysharmony) the largest values for disharmony. At 85%, the control groups are more harmonious than the earthquake group. A look at the matrix shows that strongly differentiated behavior of the individual correlations: strongly disharmonious are Sun-Venus, Moon-Mars, Venus-Saturn, Saturn-Uranus, Moon-Neptune, Venus-Pluto, Mars-Pluto, Venus-IC (Imum Coeli, represents the center of the Earth), Saturn-IC.

Looking at the row sums of the correlation matrix, Venus and IC are significantly disharmonious. There does not seem to be an explanation, based on the effect of gravity, for this.

```
Statistics 4: Probability of events: correlation matrix H
Order of the correlation: 4 ; time shift d: 0 h: 0;
 GROUP-MEMBERS: 588 ; NUMBER OF THE GROUPS: 3000
 Julian-date-start: 2450083.458333 Julian-date-end: 2452640.458345
 Accidental selection;  TEST: Number of accidental selection >= correlation
  CORRELATION-MATRIX H AS INPUT
          1       2       3       4       5       6       7       8       9      10      11

  1       *      0.04   -0.10   -0.06    0.06   -0.08    0.01    0.07   -0.00    0.00    0.09
  2      0.04     *      0.04    0.02   -0.13   -0.02   -0.04    0.02   -0.12    0.08   -0.02
  3     -0.10    0.04     *      0.11   -0.05   -0.06   -0.05    0.05    0.10    0.15   -0.08
  4     -0.06    0.02    0.11     *      0.06   -0.04   -0.09    0.02   -0.06   -0.08   -0.15
  5      0.06   -0.13   -0.05    0.06     *     -0.09   -0.17    0.21    0.12   -0.05   -0.08
  6     -0.08   -0.02   -0.06   -0.04   -0.09     *      0.03    0.05   -0.02    0.09    0.04
  7      0.01   -0.04   -0.05   -0.09   -0.17    0.03     *      0.10    0.32   -0.15   -0.14
  8      0.07    0.02    0.05    0.02    0.21    0.05    0.10     *     -0.00    0.56    0.02
  9     -0.00   -0.12    0.10   -0.06    0.12   -0.02    0.32   -0.00     *     -0.18   -0.04
 10      0.00    0.08    0.15   -0.08   -0.05    0.09   -0.15    0.56   -0.18     *     -0.08
 11      0.09   -0.02   -0.08   -0.15   -0.08    0.04   -0.14    0.02   -0.04   -0.08     *
```

Matrix H of the probability of error:

	1	2	3	4	5	6	7	8	9	10	11		
1	*	29.47	67.13	100.00	25.33	93.60	48.90	17.10	50.40	50.23	10.10	PR	39.53
2	29.47	*	32.37	41.20	96.83	57.60	68.43	36.63	95.10	13.40	61.10	PR	70.90
3	67.13	32.37	*	46.40	82.60	62.93	75.17	61.37	33.97	12.40	86.30	PR	64.80
4	100.00	41.20	46.40	*	50.03	88.90	94.67	42.63	62.50	98.40	97.97	PR	99.90
5	25.33	96.83	82.60	50.03	*	25.03	19.87	33.27	7.57	96.63	86.27	PR	60.70
6	93.60	57.60	62.93	88.90	25.03	*	93.27	17.10	13.70	6.83	29.73	PR	35.00
7	48.90	68.43	75.17	94.67	19.87	93.27	*	95.87	5.13	28.30	97.83	PR	81.03
8	17.10	36.63	61.37	42.63	33.27	17.10	95.87	*	90.63	47.80	44.87	PR	43.47
9	50.40	95.10	33.97	62.50	7.57	13.70	5.13	90.63	*	70.57	71.23	PR	21.47
10	50.23	13.40	12.40	98.40	96.63	6.83	28.30	47.80	70.57	*	84.97	PR	49.67
11	10.10	61.10	86.30	97.97	86.27	29.73	97.83	44.87	71.23	84.97	*	PR	97.50

bigger are: 85.80 %

1=SUN; 2=MOON; 3=MERKUR; 4=VENUS; 5=MARS; 6=JUPITER; 7=SATURN; 8=URANUS; 9=NEPTUN; 10=PLUTO; 11=IC;

BEGIN: year: 1996 month: 1 day: 1 hour: 0 END: year: 2003 month: 1 day: 1 hour: 0

9 of 55 elements of the matrix are significant with <=5% p<=0.05 Probability of error: 0.0015
2 of 11 elements are significant with p<=2% p=0.025 Error probability: 0.0296

From Table 6 it can be seen that the energy is significant over all orders for the Sun and Moon and even highly significant from order 7. The density function for the energy can be seen in Fig.12 for the 12th order.

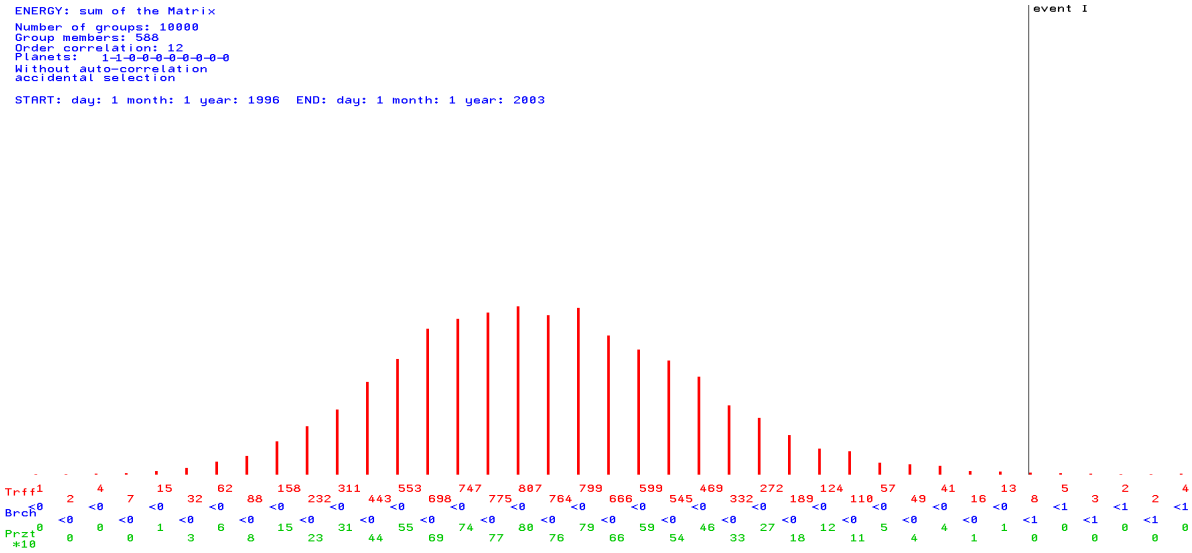


Fig.12. Density function for the 12th order energy of the Sun and Moon for 588 earthquakes.

This result suggests that for this group of earthquakes, the energy could be triggering. 588 earthquakes spread over 7 years corresponds to an average of 7 earthquakes per month. It is understandable that in such short periods the major planets show only small changes in their correlation function. The sun and the moon are better suited for this.

To illustrate this, December 2000 is examined here in more detail. During this period 8 earthquakes took place.

Number in list of earthquakes	Magnitude	Length	Latitude	Date	timet
495	7.0	54.48	39.34	06.12.2000	17:11:06
401	6.4	152.43	-4.13	06.12.2000	22:11:06
374	6.1	-82.41	6.90	12.12.2000	05:26:46
174	5.9	31.21	38.27	15.12.2000	16:44:48
532	6.5	-179.74	-21.11	18.12.2000	01:19:22
253	6.2	-74.40	-39.48	20.12.2000	11:23:54
105	6.5	154.21	-9.14	20.12.2000	16:49:43
424	6.4	151.73	-5.42	21.12.2000	01:01:28

Table 7. 8 earthquakes for the period 2000-12 from the list of 588 earthquakes.

Die Ergebnisse zeigt die Tabelle 8:

Order Probability in %	1	3	6	9	12
Correlation	1.17	0.15	0.37	0.27	0.34
Energy	1.02	0.03	0.05	0.01	0.03
Dynamic	37.12	82.59	36.09	0.23	0.91
Dynamic absolute	76.63	31.20	2.24	1.86	0.17

Table 8. correlation function after Monte Carlo simulation (10000 control groups to 8 randomly chosen events each); 8 earthquakes for the period 2000-12 from the list of 588 earthquakes.

The high significances for the high orders are remarkable.

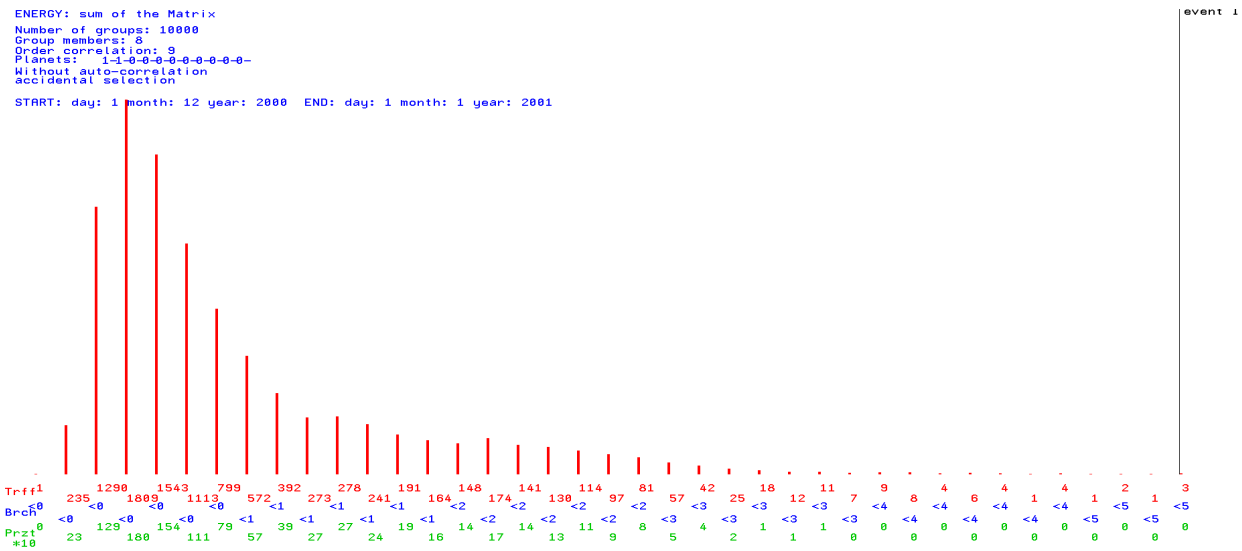


Fig.13. Curve of 9th order energy of Sun and Moon for 8 earthquakes in the period 2000-12.

Can these results be used for earthquake forecasting?

Fig.14 shows the correlation function and its first derivative. Assuming an energy level, 5 earthquakes out of 8 could be related to the correlation of the Sun and Moon. The expected value is 1.5 earthquakes out of 8 if there is no influence. Accordingly, about 3 earthquakes would be due to triggering by the Sun and Moon. However, it is only one month out of a period of 84 months (1996 -2002).

If the investigations are extended to the whole period, then 96 of 588 events are above level. The expected value for this entire period is 83 events.

Accordingly, only 13 events would be due to a triggering of the Sun and Moon, or 2.2%. This is too low for forecasting, but it clearly shows that even from the many other influences that can trigger an earthquake, there is a certain increase in probability. This probability can be increased a little bit more by adding other frequencies (those of Jupiter, Saturn and the IC) and the 1st derivative of the correlation function.

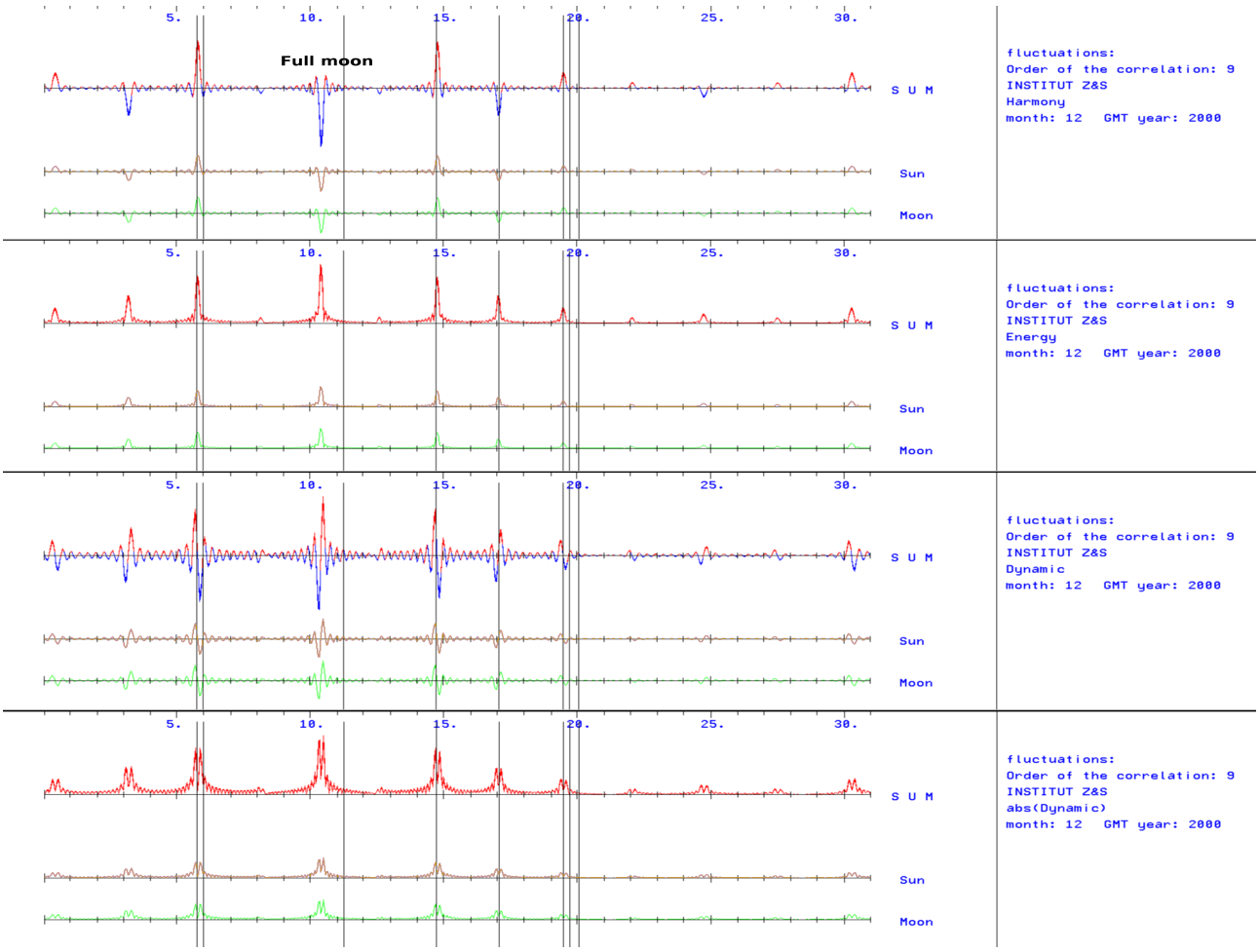


Fig.14. 9th-order correlation function and first derivative of the Sun and Moon for 8 earthquakes during 2000-12. The solid vertical black lines indicate the events.

The same research applied to the first study of 41 earthquakes gives similar results. Of the 41 earthquakes, 8 are above the level for energy, the expected value is 5.9 earthquakes. There could be 2 of the 41 earthquakes triggered by the sun and moon.

These first investigations are only to show that further investigations seem reasonable.

As can be seen in fig.15, in such a small period of time only high frequencies, as they are given by sun and moon, are suitable for a possible triggering of earthquakes. At the time of the full moon no earthquake took place. However about 24 hours later. Further investigations would have to show whether this is significant. Figure 14 shows the correlation function for the 1st order for comparison. It does not seem to be suitable for triggering.

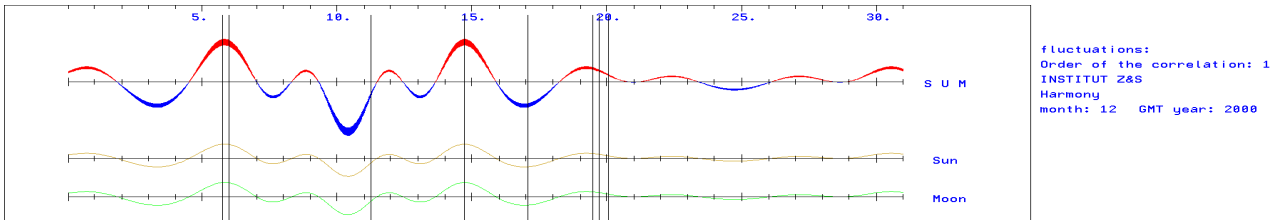


Fig.15. Correlation function (harmonic) for 1st order Sun and Moon for 8 earthquakes during 2000-12.

Do the 588 earthquakes show a similar behavior as the group of 41?

Very many smaller earthquakes are certainly not to be compared with few, very large ones. Also, no groups have been formed according to depth or location!!

Order 12 time-shift/ Probability So-Mo	-24h	-11h	-10h	-9h	-8h	-7h	-6h	-5h	-3h	**0**	+3h	+6h	+9h	+12h	+18h	+24h
Correlation	53.60	94.54	84.98	33.52	4.72	4.42	22.16	48.72	35.86	**63.20**	53.42	17.44	98.88	90.28	99.78	19.30
Energy	71.26	98.96	96.12	92.14	96.20	89.80	67.06	27.30	61.00	**0.30**	6.90	10.78	2.34	6.46	26.42	81.86
Dynamic	30.26	43.22	6.66	1.26	15.34	80.86	93.16	70.38	35.80	**62.86**	23.28	91.20	33.70	65.64	83.86	19.14
Dynamic absolute	79.70	65.24	90.64	98.06	85.74	67.26	58.32	77.82	25.20	**2.38**	0.30	1.50	0.24	0.20	0.36	53.88

Table 9. time shift for 588 earthquakes

In table 9 it can be seen at least that at the time of the event the energy in the correlation function was very high, as well as the energy in the dynamics.
A low energy (-11h) is driven to a high energy by a high dynamic (1st derivative), likewise the energy of the dynamic increases until the event. Can this scenario also be stated for the much larger period from 1900 to 2100. The results are shown in table 10.

Order 12 time-shift/ Probability So-Mo	-6h	-3h	-2h	-1h	**0**	+1h	+2h	+3h	+6h
Correlation	20.28	34.63	35.40	51.18	**64.58**	66.40	61.74	54.10	16.32
Energy	67.96	63.24	67.66	29.32	**0.22**	**0.00**	**0.86**	7.16	10.78
Dynamic	93.08	34.72	63.38	74.16	**63.88**	51.18	39.88	21.78	91.14
Dynamic absolute	58.10	25.08	15.32	1.78	**1.96**	32.78	**0.06**	**0.30**	1.86

Table 10. Time shift for 588 earthquakes in the period from 1900 to 2100.

Despite the much larger time period, the characteristics remain the same. This is astonishing. If we add the earth rotation as another high frequency, we get the results in table 11.

Order 10 time-shift/ Probability So-Mo-IC	-6h	-5h	-4h	-3h	-2h	-1h	**0**	+1h	+2h	+3h	+4h	+5h	+6h
Correlation	66.72	36.08	64.64	41.16	32.96	25.90	**38.98**	69.78	61.64	66.18	9.12	7.36	61.38
Energy	92.06	35.04	64.60	56.82	81.02	30.72	**0.10**	1.75	19.46	3.24	4.90	80.32	5.70
Dynamic	85.62	95.04	92.36	32.72	6.36	84.56	**74.78**	84.66	42.46	1.84	4.22	60.60	79.40
Dynamic absolute	65.26	41.40	63.12	48.20	6.98	1.92	**60.54**	27.70	2.38	17.02	2.92	66.82	4.46

Table 11. time offsets for 588 earthquakes in the period 1996 to 2002. They are the correlations of the Sun, Moon and IC (Earth's rotation).

The expected value for high energy is 203 earthquakes. 222 have a higher energy in the correlation function. According to this, 19 earthquakes could be triggered by sun, moon and IC, which is 3.23%. This is an increase of 1%. The IC, as expected, brings an increase in the probability of triggering because the local energy maxima indicated by the IC with the Sun and Moon occur at different times than those of the Sun and Moon.
Certainly the major planets Jupiter and Saturn (lower frequencies) in interaction with the high frequency of the Earth's rotation are also of influence.
This is shown in table 12:

Order 10 time-shift/ Probability Ju-Sa-IC	-6h	-5h	-4h	-3h	-2h	-1h	**0**	+1h	+2h	+3h	+4h	+5h	+6h
Correlation	55.02	7.54	26.24	71.50	64.88	56.24	**61.08**	69.78	3.16	88.48	55.96	69.50	62.68
Energy	20.76	65.46	83.54	72.32	58.30	43.56	**0.58**	1.75	0.02	10.30	23.62	84.92	28.32
Dynamic	41.70	26.12	98.00	41.92	78.18	25.58	**89.82**	84.66	95.94	57.84	83.06	47.34	91.90
Dynamic absolute	36.00	75.98	84.02	72.58	26.74	14.56	**14.58**	27.70	1.38	19.46	34.08	63.14	14.44

Table 12. time offsets for 588 earthquakes in the period 1996 to 2002. They are the correlations of Jupiter, Saturn, and IC (Earth's rotation).

The energy peaks between the IC and the planets Jupiter and Saturn are on different points of the time axis than those of the IC with the Sun and the Moon. The expected value is 159 earthquakes. 176 earthquakes show higher energy, which is 2.9% above the expected value.

Summary

According to the calculations, it seems possible that about 6% of the 588 earthquakes are triggered by the Sun, Moon, IC, Jupiter and Saturn. This 6% figure can certainly be increased if the energy level is optimized and other elements of the correlation function are added. For further investigation, it can be hypothesized that a trigger or threshold energy exists that is constantly decreasing. Before this threshold energy becomes zero, small external disturbances (e.g., weather events) may be triggering. But this can also be the fluctuations of the planetary gravitational field in the higher frequencies. Earthquakes occur at all times. When the threshold energy drops, they can also be triggered by harmonics of the gravitational field. This seems to be a characteristic of highly complex nonlinear systems that small external energies can trigger large changes.

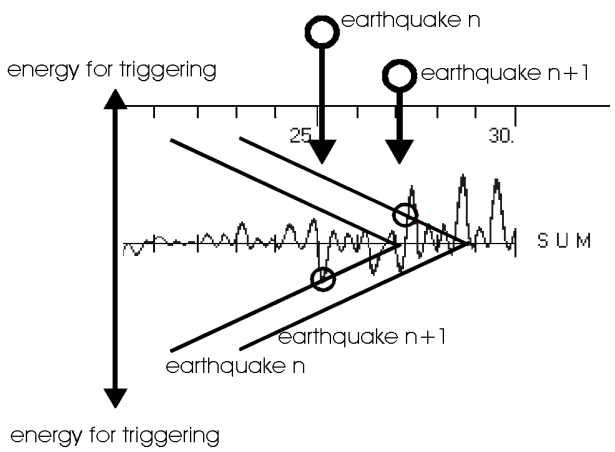


Abb.16. Modell der Triggerung von Erdbeben.

Our planetary system is highly complex. The nonlinear dynamics of this system also has an influence on the triggering of earthquakes. This now appears to be a fact and opens the door for further investigation.

3 Structure formation of biological patterns

3.1 A first study on the IQ of 186 persons

The human brain is a highly complex system of neurons whose organization and interconnection via synapses is not completely determined, genetically or otherwise. Thoughts, feelings and strategies of the human intellect are not predetermined in all details. In the course of the evolution of the human brain, the ability to learn has emerged as an important element of human development. Learning due to synaptic plasticity is a lifelong process.
To what extent planetary fluctuations could possibly gain influence on the structural formation of the brain during evolution will be investigated in the following calculations. Here, the intelligence of the brain is assumed to be a complex system performance for survival strategy characterized by stability and instability of the neuronal structures. A generally accepted definition of intelligence does not exist today.
The development of intelligence of a human individual depends on many influencing factors. Very important is the genetic constellation, which is given by the parents. In addition, many factors of the environment have an effect on this development. Last but not least, the psychological personality concept is also significantly involved in the further development of intelligence.
The observation of children whose intelligence quotient was measured at about 10 years of age and whose further school career was followed clearly indicate the great influence of such personality factors as ambition, diligence, motivation and others on the formation of intelligence.
Thus, it is not expected that planetary fluctuations will have a dominant influence on structural formation processes of the brain. In fact, it is doubtful that such influences can be detected at all and are not simply an artifact. If planetary fluctuations have an effect on structure-forming processes of the brain, then this will certainly take place throughout life.
The following hypothesis is assumed for a proof of this influence.

Hypothesis:

1.Planetary fluctuations affect structure-forming and stabilizing processes of the brain throughout life.

2.Especially in times of great synaptic plasticity the influence will be greatest.

3.To a special degree formative on the structure formation of the brain will be the short period of the individual's becoming autonomous - his birth period.

4.A harmonious correlation function at the time of birth will have a positive stabilizing effect on intelligence development.

5.A positive 1st derivative of the correlation function will also have a positive effect on intelligence development.

6.It is expected that especially the higher frequencies in smaller spatial areas (the human individual) will have an influence.

The 5th point of the hypothesis emphasizes the importance of the period immediately before and after birth.
Since there is no generally accepted definition of intelligence, there are the most different methods and procedures to measure the intelligence of a person with an intelligence quotient (IQ). We cannot go into this problem here, although it would certainly lead to new insights if, for example, the connection between personality type and intelligence form were also examined. That there can be such a connection is also shown by the following investigations.

Baseline data:

1. a group of 160 children for whom IQ was determined with the PSP (according to Horn).
2. a group of 14 low intelligent people who have "special school level". The IQ is not known.
3. a group of 12 higher intelligent people, mainly academically active. The IQ is not known.

(The birth times are listed under 9.2. The group of children was tested in the Pedagogical Center Hechingen. Groups 2 and 3 are a compilation of the teacher Walter BÃ¶hr).
The group of 160 children is not representative with respect to the cross-section of the population. They are all children who were tested with learning problems in a therapeutic institution for dyslexia and dyscalculia for diagnostic reasons. At the same time, not all children are dyslexic. Among the children tested, there were also no "special education" students and certainly very few will later pursue an academic career.
From group 1 the hour of birth is not known, therefore the correlation were calculated for 12 o'clock. For groups 2 and 3, the hours of birth and places of birth are known.
Regarding group 1, group 2 is beyond the lower intelligence level and group 3 is above the upper intelligence level.

<u>Remarks on the research method:</u>

The group of children was sorted into 20 subgroups (8 children each) according to ascending IQ score.
For each child, the correlation matrices $H_{i,j}$, $I_{i,j}$, $D_{i,j}$ and $DA_{i,j}$ were calculated at the time of birth and superposed within the subgroup. Table 13 shows the sums over i and j as H, D, I, and DA in columns 5, 7, 9, and 11, respectively. All values in the table were calculated for the 3rd order correlation function.
For each subgroup, 10000 control groups were calculated, each with 8 randomly selected birth times. This was done to test how many groups had a smaller value than the group of 8 children. These values calculated with the control groups are listed in percentages under H[%], D[%], I[%] and DA[%] in columns 5, 6, 7 and 8. They indicate how rare this group is and are the probability of error for the corresponding hypothesis. The control groups were selected from the same period in which the 8 children were born.
The third column contains the mean IQ of the group's IQ scores, and the fourth column contains the range of IQ scores.
The 1st row contains the values for group 2 of the 14 less intelligent individuals. Row 23 contains the less intelligent 12 persons of group 3.

Probability/Nr.:	Number of people	IQ mean	IQ area	H [%]	I[%]	D[%]	DA[%]
1	14	70*		98.50	1.43	27.31	17.52
2	8	77,2	70-80	88.78	17.87	75.72	58.44
3	8	83,8	82-86	77.47	94.10	26.09	35.19
4	8	87,3	86-88	91.87	22.82	84.68	34.92
5	8	90,3	89-91	0.08	64.22	99.25	85.71
6	8	93,3	92-94	97.68	25.01	6.83	10.49
7	8	95	94-97	9.67	62.92	10.13	37.42
8	8	97,4	97-98	95.48	82.92	81.06	57.09
9	8	99,3	98-100	85.75	27.09	46.65	29.47
10	8	100,8	100-101	6.80	90.81	76.58	79.29
11	8	101,7	101-102	74.88	79.59	57.33	34.42
18	8	102,9	102-104	65.45	64.69	55.19	80.57
19	8	104,9	104-106	52.62	85.31	59.88	89.22
14	8	106,9	106-107	6.49	69.74	83.96	57.76
15	8	108,3	107-109	5.75	55.97	18.59	82.82
16	8	110,0	109-111	11.15	45.63	8.86	92.28
17	8	111,6	111-113	80.82	97.31	44.31	84.26
18	8	114,1	113-115	37.07	27.46	19.62	19.41
19	8	115,8	115-117	72.35	76.38	91.96	37.55
20	8	119,1	117-124	15.87	65.94	65.04	81.65
21	8	128,9	125-135	15.20	18.33	90.71	37.21
22	160		70-135	36.05	91.55	78.11	90.19
23	12	135*		5.30	33.37	72.39	6.69
* estimated value							

Table 13. Results of the investigation on the influence of planetary fluctuations on IQ measured according to Horn. Shown are the values of frequency H[%], D[%], I[%] and DA[%], compared with randomly chosen control groups of this period. The description of the table is included in the text. Note: Since exact birth times are not known, IC (earth rotation) was not included in the calculation, nor was the examination of time shift.

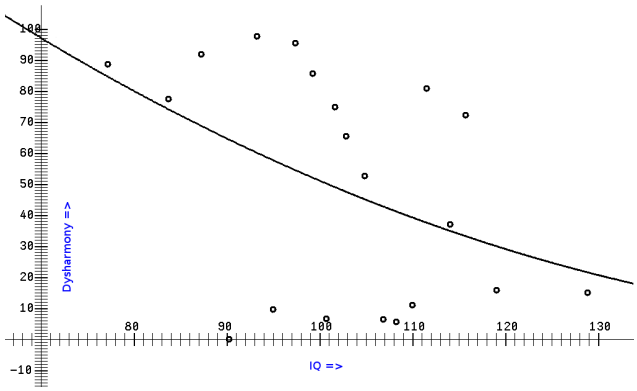
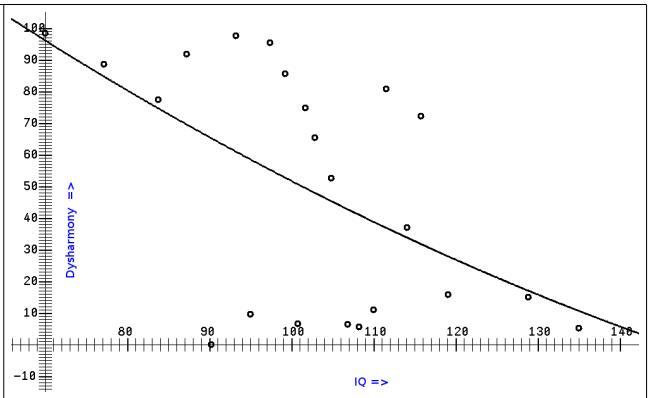


Fig.17. Trend of harmony with the increase of IQ of the 160 tested children. Despite the fluctuations caused by the small groups, a trend can be seen: The higher the IQ, the more harmonious the correlation function H becomes.



The trend strengthens when the marginal groups of special education students and academics are added.

If the individuals from table 13 are divided into 4 equally strong groups, then the strong fluctuations are balanced and the trend becomes more visible.

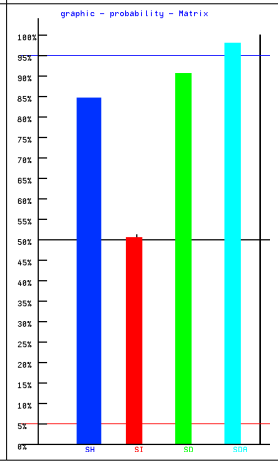
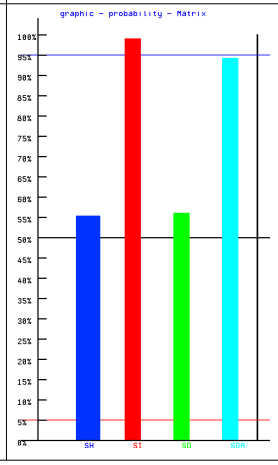
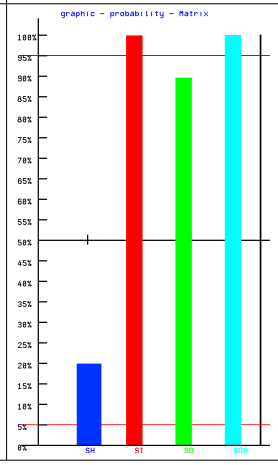
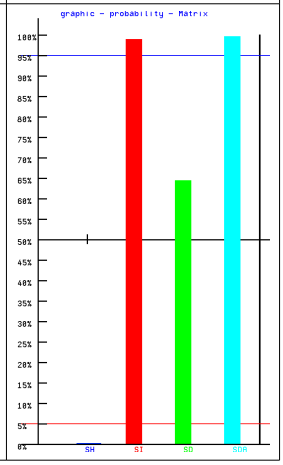
Grupp/ Probability	1	2	3	4
Correlation	84,67	55,31	19,45	**0,23**
Energy	50,54	**99,03**	**99,75**	**98,92**
Dynamic	90,60	56,06	89,05	64,48
Dynamic absolute	**98,02**	94,29	**99,95**	**99,63**
medium IQ	96	100	109	122
				

Table 14. subdivision of table 13 into 4 groups ordered by IQ.

A very clear trend is the increase in Harmony H with increasing IQ. The rapid decrease in energy is astonishing. This, in conjunction with the weak dynamics, indicates a maximum at the time of birth. It is hard to imagine that these planetary constellations alone should affect the structural formation of the brain. After all, this harmony applies to all persons in the environment of the born child. One can speak of a harmonious quality of time, which can have a favorable effect also on the later intelligence of the child.

Of course, it must be emphasized again and again that these are statistical statements which cannot say anything about individual cases.

If one forms two marginal groups, one group consisting of the 16 lowest IQ scores of the children and one group consisting of the 14 persons with special education level of group 2, then the probability of error is 1.05% for the statement. "Individuals with low IQ scores have a greater probability of a discordant correlation function at birth" .

If we proceed in the same way with the marginal groups of higher IQ scores and form a new group from the 16 children with the highest IQ scores and group 3 of academics, the probability of error is 1.51% for the hypothesis: "Individuals with a higher IQ score have a greater probability of a harmonic correlation function at the time of birth" .

A summary of these results is presented in Table 15.

3. Ordnung	Anzahl	H [%]	I [%]	D [%]	DA [%]
lower IQ	30	**98,95**	29,67	44,27	85,6
high IQ	28	**1,51**	54,47	92,77	61,57

Table 15. Results of the correlation of IQ score and correlation matrix for 30 subjects with low IQ score and 28 subjects with high IQ score. The error probabilities for H confirm a highly significant relationship. All calculations were performed for the 3rd order of the correlation function. To interpret the numerical values: for the group of 30 persons with low IQ, H[%] = 98.95. This means that 98.95% of the control groups have a higher value for harmony.

Which oscillators are essential for the differences between the two groups of IQ?

The sums of the matrices do not give any information about this. The following pictures give exemplary error probabilities for the row sum for comparison.

Matrix H

In fig.18 8 of 10 oscillators (planets) are above 61%. The error probability that 8 and more are above 61% is 0.01.

In Fig.19 9 out of 10 oscillators are below 46%. The probability of error that 9 and more are below 46% is 0.005.

Matrix I

Fig.20 and Fig.21 show a similar picture for the energy. Striking is the low energy of Mars, Saturn and Uranus for both groups of events. Moon and Pluto have a lot of energy for the low IQ group.

Matrix D

Noticeable is the high dynamic for Moon and Uranus in Fig.23 The dynamic indicates the speed of change, compared to the control groups

Matrix DA

Mars Saturn and Uranus have little energy in the dynamics for the low IQ group. Similar is the case for the higher IQ group. Here it is Jupiter, Saturn and Uranus that bring little energy to the dynamic.

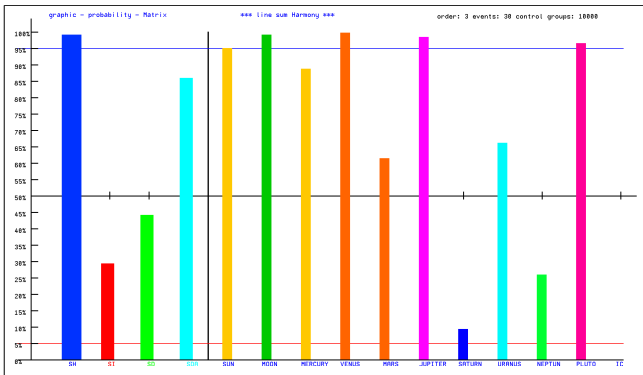


Fig.18. Matrix and row sums for H with low IQ.

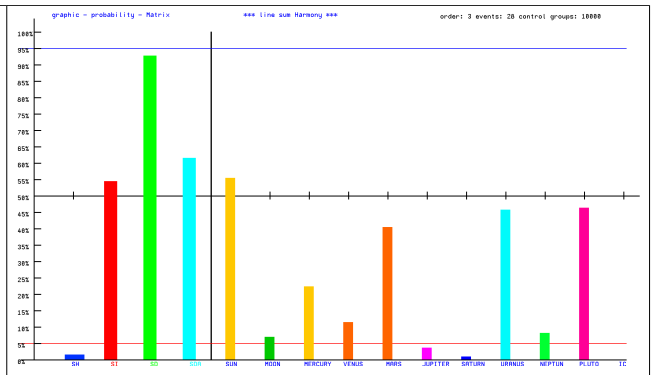


Fig.19. Matrix and row sums for H with high IQ.

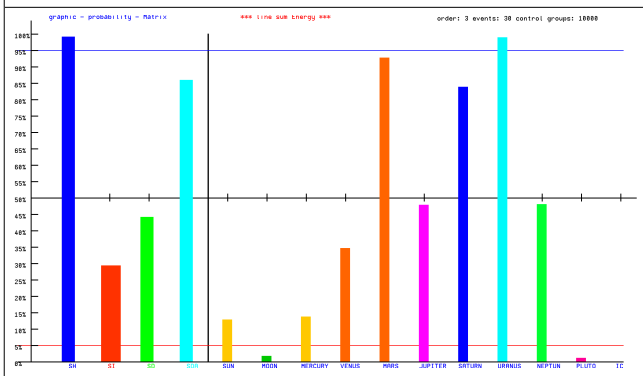


Fig.20. Matrix and row sums for I with low IQ.

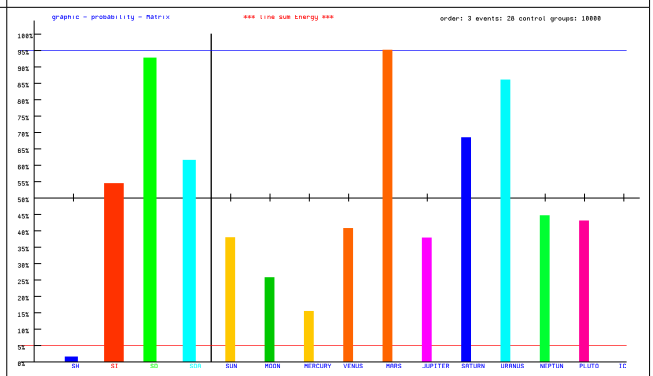


Fig.21. Matrix and row sums for I with high IQ.

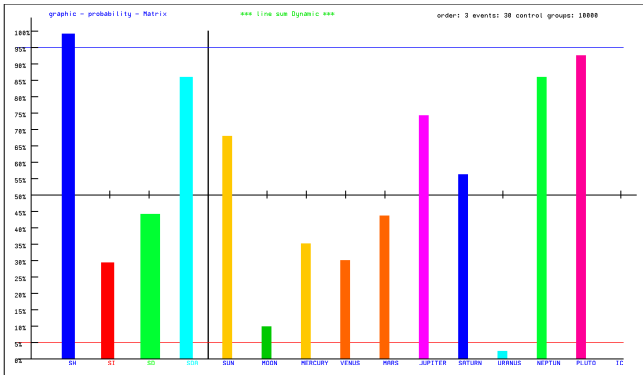


Fig.22. Matrix and row sums for D with low IQ.

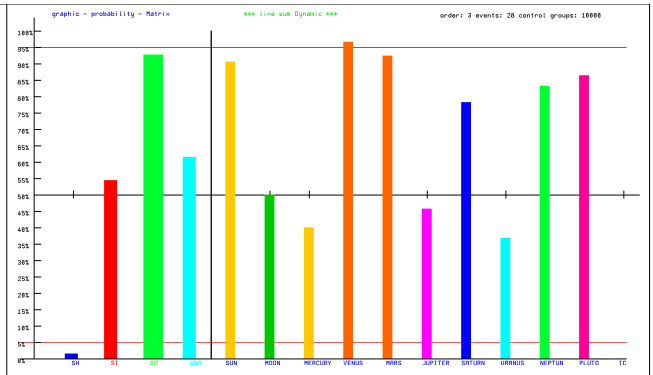


Fig.23. Matrix and row sums for D with high IQ.

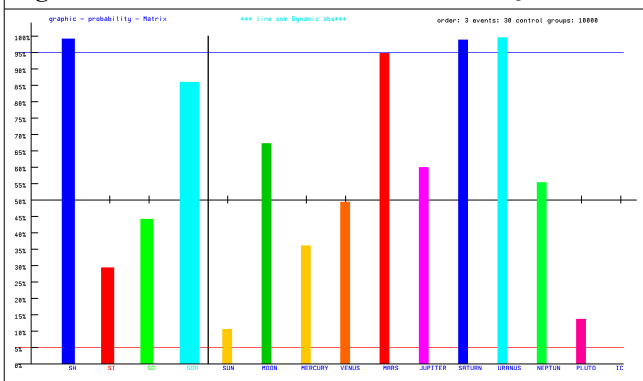


Fig.24. Matrix and row sums for DA with low IQ.

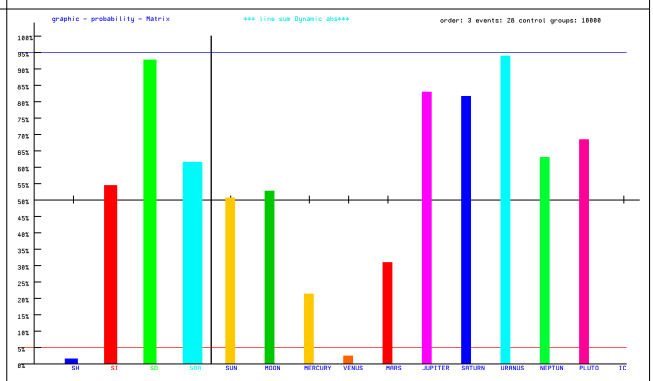


Fig.25. Matrix and row sums for DA with high IQ.

It is still interesting to examine the different orders of the correlation function on the marginal groups for high and low IQ values. Not only will the correlation function at birth be influential, but the period immediately before and after birth will also be influential. These ratios are described by the 1st derivative of the correlation function.
However, it must be noted at this point that a harmonic correlation function, around birth, will also have an effect on the environment, e.g. the mother. Thus, harmonizing influences from the environment may also have additional significance. These results are hardly understandable and were not expected at all, if one allows only the micro fluctuations of the gravity as explanation. Is the evolution of the brain stimulated by these fluctuations? These results allow the conclusion. Nevertheless, there is still the probability for an artifact.

Order Probability	1	3	6	9	12	Group 28 high IQ
Correlation	9,14	1,51	**0,36**	1,96	5,82	
Energy	51,64	29,67	28,25	17,9	21,59	
Dynamic	14,64	44,27	93,21	98,9	85,69	negative
Dynamic absolute	77,46	85,60	78,23	72,96	52,94	

Table 16. The influence of the order of the correlation function on the comparison with the control groups for the group of individuals with a higher IQ. A weak dynamic is noticeable, which is slightly negative. This is, of course, the case when a maximum value for harmony is reached, it will go back towards disharmony in the future.

Order Probability	1	3	6	9	12	Group 30 low IQ
Correlation	84,23	98,95	95,64	98,57	**99,11**	
Energy	74,33	29,67	10,82	16,75	18,25	
Dynamic	67,60	44,27	11,72	20,30	5,98	positive
Dynamic absolute	92,41	85,60	39,38	12,93	15,65	

Table 17. The influence of the order of the correlation function on the comparison with the control groups for the group of people with lower IQ. A strong dynamic, which is positive, shows that there is a minimum (dysharmony). In the future, it will return to the direction of harmony.

These investigations have shown that also for the very complex process of the development of the intelligence of a human being the planetary oscillations of the gravitational field are of importance with high probability. Here, first of all, an optimization of the calculation was renounced. So it is not taken into account that the individual correlations certainly do not enter into the correlation function H with the same weighting. All planets were always included in the calculations with equal weighting. This optimization is reserved for further, more profound investigations. Also not examined was the relevance of individual correlations and frequencies. This is also left to further investigations, which then directly calculate probabilities for the correlation function. Such statements are then e.g. : "A person with a higher IQ score will have a harmonic correlation quality above the statistical mean with probability p."

Detailed examination of individual subgroups of the 160 children, sorted by individual factors of the IQ test, also show indications of further correlations. The following example illustrates this.

3.2 Investigation of a factor in an IQ test

One factor (no. 12) of the used intelligence test measures the fast guessing of garbled words. It has a high correlation (0.88) with the overall result of the IQ test. Observations of children for whom this factor was lowest revealed that these children were usually somewhat shy, insecure, and unwilling to take risks. Therefore, it could be conjectured that this very "risk factor" might have a correlation with a function describing stable and unstable states of structure formation. It is not clear at first whether the correlation exists for harmonic or disharmonic states.

To investigate this question, 25 children were selected from the 160 tested for whom the factor (no. 12) had the relatively lowest values.

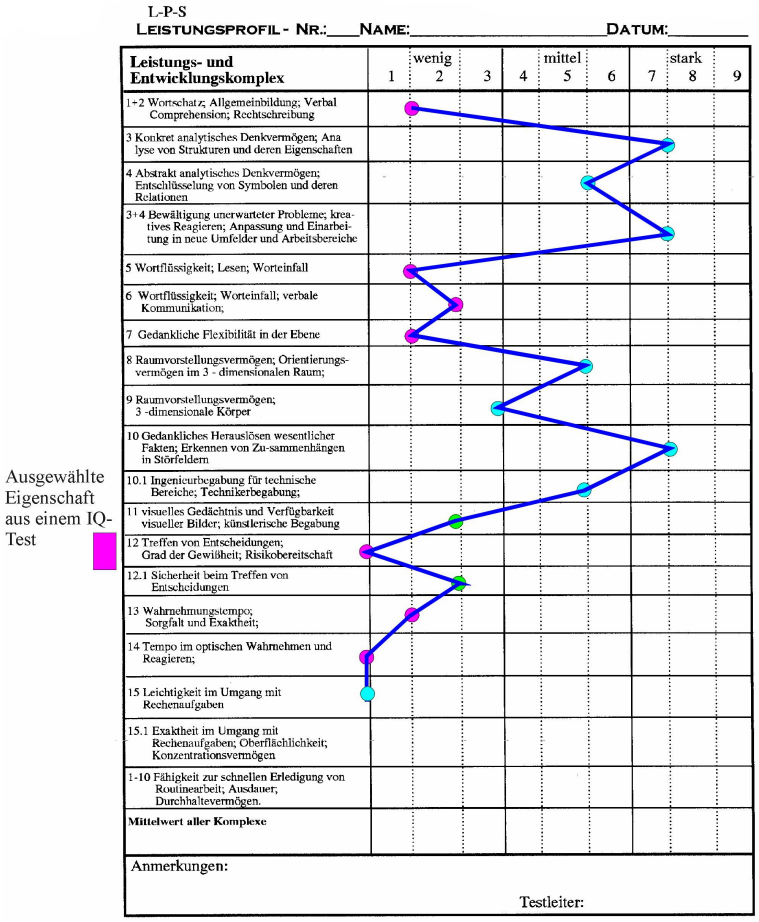


Fig.26. Example of IQ test

The results for the different orders of the correlation function are shown in Table 18.

Korrelation/ Ordnung	H[%]	I [%]	D [%]	DA [%]
1	1,39	26,13	38,59	54,03
2	**0,2**	15,6	83,38	32,97
3	6,44	19,57	74,97	18,89
6	5,4	12,63	86,12	28,14
9	5,75	6,2	93,78	25,89
12	10,06	13,78	97,41	10,99

Table 18. Results of the investigation on the influence of planetary fluctuations on the factor "guessing garbled words" measured according to Horn for 25 (out of 160) children who had relatively low performances for this factor. Shown are the values of the sums of the frequencies H[%], D[%], I[%], and DA[%], compared with randomly selected control groups of this period. IQ spans a range from 77 to 127 with a mean of IQ = 107.

From Table 18, first important conclusions can be drawn regarding the interpretation of the correlation function [10] with respect to the structuring of personality factors. If we assume that the children are less willing to take risks than the statistical mean, then the positive correlation with the "harmonic" values of the correlation function [10] suggests that these children have a predisposition for harmony and they avoid processes that can lead to disharmony, which can always be the case with higher risk.

These are only initial hypotheses, and further research needs to follow. It is interesting that the significant results are obtained for the small orders of the correlation function. This suggests a larger period around birth, which could be of influence in this particular case.

Which oscillators contribute significantly to this harmonic?

From table 18 it can be seen that the correlation function H has a maximum for the 2nd order. This shows that certain frequencies have a dominant significance. On the other hand, if we look at the first derivative D, the correlation is greatest for the 5th order.

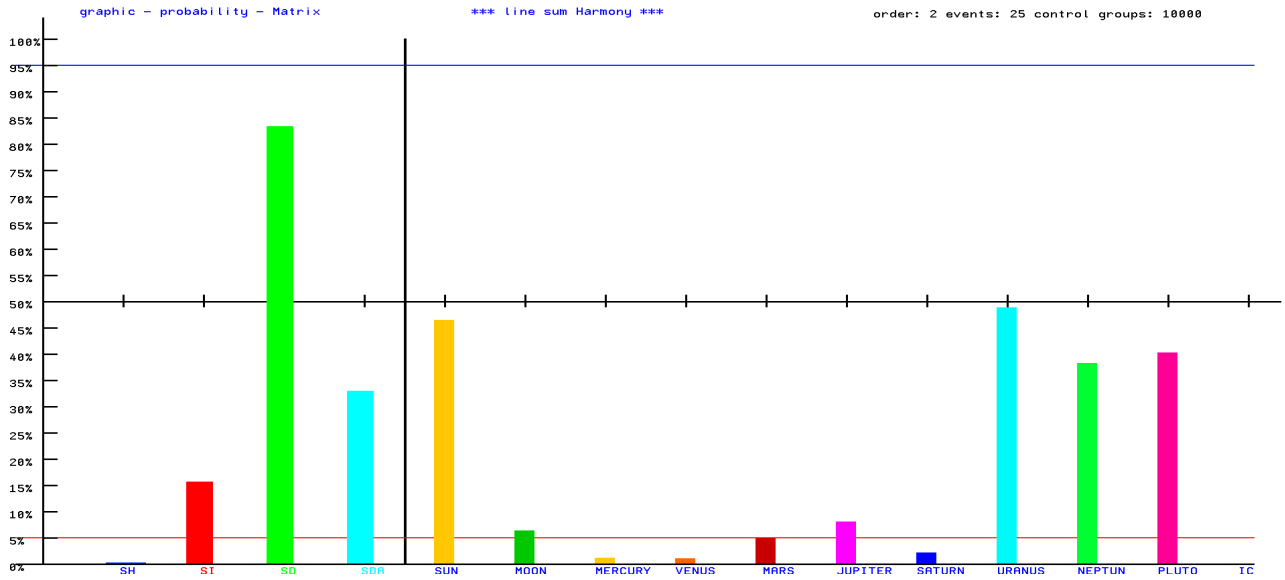


Fig.27. Differentiated influence of the oscillators (planets)

This means that also the change of the correlation function in a small period around the birth is not to be neglected.
Since in the table 18 all 10 celestial bodies with relevant gravitational influence were considered, the question naturally arises whether all these celestial bodies are also of influence in this case. The correlation matrix shows, and this is quite to be expected, not for all 10 celestial bodies the same importance. Especially of influence are the moon, Venus, Mars, Jupiter and Saturn.
If only these planets are admitted to the correlation, then the following result results in table 19.

Correlation/ Order	H[%]	I [%]	D [%]	DA [%]
2	**<0,005**	12,72	75,45	28,05

Table 19. Results of the investigation on the influence of planetary fluctuations on the factor "guessing garbled words" measured according to Horn [8] for 25 (out of 160) children who had relatively low performances for this factor. Selected were: Moon, Venus, Mars, Jupiter, and Saturn.

Computer printout for Table 19:

```
Statistics 4: Probability of events: correlation matrix H
 Order of the correlation: 2 ; time shift d: 0 h: 0;
 GROUP-MEMBERS: 25 ; NUMBER OF THE GROUPS: 10000
 Julian-date-start: 2443874.458333 Julian-date-end: 2447527.458345
 Accidental selection;  TEST: Number of accidental selection >= correlation
  CORRELATION-MATRIX H AS INPUT
            1       2       3       4       5       6       7       8       9      10

  1         *       *       *       *       *       *       *       *       *       *
  2         *       *      0.63    0.88    1.02    0.05   -0.02    *       *       *
  3         *      0.63     *      0.07    0.27    0.06    0.52    *       *       *
  4         *      0.88    0.07     *      0.63    1.27    0.97    *       *       *
  5         *      1.02    0.27    0.63     *      0.25    0.12    *       *       *
  6         *      0.05    0.06    1.27    0.25     *      0.25    *       *       *
  7         *     -0.02    0.52    0.97    0.12    0.25     *      *       *       *
  8         *       *       *       *       *       *       *       *       *       *
  9         *       *       *       *       *       *       *       *       *       *
 10         *       *       *       *       *       *       *       *       *       *


Matrix H of the probability of error:
```

	1	2	3	4	5	6	7	8	9	10		
1	*	*	*	*	*	*	*	*	*	*	PR	0.00
2	*	*	9.79	3.89	1.66	46.20	51.99	*	*	*	PR	1.14
3	*	9.79	*	75.19	31.52	53.16	15.95	*	*	*	PR	12.08
4	*	3.89	75.19	*	18.85	**0.74**	1.31	*	*	*	PR	**0.01**
5	*	1.66	31.52	18.85	*	39.16	33.43	*	*	*	PR	2.91
6	*	46.20	53.16	0.74	39.16	*	28.26	*	*	*	PR	6.26
7	*	51.99	15.95	1.31	33.43	28.26	*	*	*	*	PR	2.81
8	*	*	*	*	*	*	*	*	*	*	PR	0.00
9	*	*	*	*	*	*	*	*	*	*	PR	0.00
10	*	*	*	*	*	*	*	*	*	*	PR	0.00

bigger are: **0.00 %**

1=SUN; 2=MOON; 3=MERKUR; 4=VENUS; 5=MARS; 6=JUPITER; 7=SATURN; 8=URANUS; 9=NEPTUN; 10=PLUTO; 11=IC;

BEGIN: year: 1979 month: 1 day: 1 hour: 0 END: year: 1989 month: 1 day: 1 hour: 0

According to Table 19, the probability of error for the statement is:
"*Children with a relatively low performance of the IQ factor -guessing mutilated words (risk factor)- have particularly harmonic correlations of Moon, Venus, Mars, Jupiter and Saturn at birth"* < 0.005% !

Of course, further optimizations of the correlation of the 10 celestial bodies can be carried out. However, this would go beyond the scope of this publication. It should be shown here only that optimizations, which do not change the correlation function, already bring clearly better correlations, which can be used then also practically.
The above example shows how and in which direction further investigations are to be connected. The correlations contain a large number of the most different frequencies, which can all be examined for their special effect and meaning. The rough selection of the frequencies can be done by the correlating celestial bodies and by the order of the correlation function. At the same time, the large number of correlation frequencies reveals the great complexity of planetary fluctuations.

Another factor for the optimization of the correlation function are the weightings of the single celestial bodies, which was shown here only hintingly by the selection of the planets.

3.3 Persons with high giftedness

A list of 62 children tested for giftedness forms the birth data for the study. The children were tested at the UNI Munich or the Children's Center Munich. The results are listed in Table 8 for different orders of the correlation function.

Order/ Probability	1	1 mit IC	3	6	9	12
Correlation H	1,80	13,65	12,73	17,31	18,61	5,40
Energy I	3,8	2,27	2,38	4,45	4,84	10,03
Dynamic D	92,15	97,91	83,64	83,99	86,87	89,09
Dynamic absolute DA	81,50	73,80	1,04	**0,89**	3,04	3,98

Table 20: The correlation function for the group of 62 highly gifted persons.

If we assume that highly gifted persons have an IQ >130, this group can be included in the group examined before. Does the trend remain?

This trend for harmony H is also preserved, additionally the calculations show a significantly higher energy. The calculations were made without considering the IC (center of the earth).

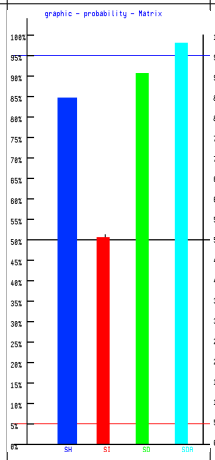
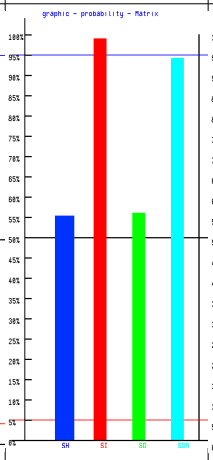
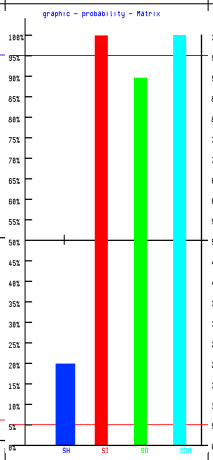
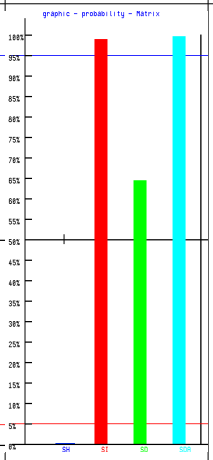
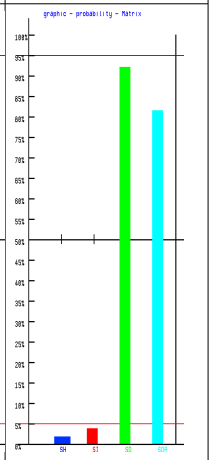
Grupp/ Probability	1 (46 Personen)	2 (46 Personen)	3 (47 Personen)	4 (47 Personen)	5 (62 Personen) hochbegabt
Correlation	84,67	55,31	19,45	**0,23**	1,80
Energy	50,54	**99,03**	**99,75**	**98,92**	3,80
Dynamic	90,60	56,06	89,05	64,48	92,15
Dynamic absolute	**98,02**	94,29	**99,95**	**99,63**	81,50
medium IQ	96	100	109	122	>130
					

Table 21. Trend of correlation function for increasing IQ. The probability of error for the harmony and energy (p = 0.038) of the highly gifted is only **0.008231.**

Adding the IC as the oscillator with the highest frequency and shifting the time before and after birth gives Table 22.

Order 1 with IC Probability	-12h	-9h	-6h	-4h	-3h	-2h	-1h	0	+1h	+2h	+3h	+4 h	+6h	+9h	+12 h
Correlation H	31,74	11,72	12,08	1,07	3,6	3,27	5,24	13,65	3,83	4,25	9,11	2,33	9,13	2,93	20,00
Energy I	15,65	13,26	11,88	6,2	4,61	9,81	6,74	2,27	2,85	9,07	3,01	1,49	2,45	4,03	11,34
Dynamic D	95,48	86,04	85,68	96,75	93,42	88,3	96,09	97,91	77,61	92,98	82,45	71,38	73,32	82,81	55,54
Dynamic absolute DA	84,82	91,84	87,88	92,09	86,05	87,98	85,93	73,80	73,81	74,69	70,96	64,41	56,11	73,15	77,85
IC H	98,79	82,01	85,17	8,24	43,26	44,35	65,29	93,73	51,79	61,69	86,81	38,98	88,53	57,55	98,60

Table 22. correlation for with time shift the group of highly gifted. The significance for harmony is maintained only for the period from 4 hours before birth to 9 hours after birth. The contribution of IC to the significance of harmony is present only for 4 hours before birth. It cannot be assumed that the frequencies of the IC make a significant contribution overall.

The special nature of the gifted group can be seen if the IC is omitted. The time around birth is relatively stable for a larger period of time.

Order 1 Probability	-192h	-144h	-96h	-24h	-9h	-4h	-1h	0	+1h	+4h	+18h	+24h	+96h	+192h	+336h	+432h
Correlation H	29,32	6,63	3,46	3,92	3,46	2,54	2,30	1,80	1,91	1,79	1,99	2,96	2,01	1,18	3,85	21,16
Energy I	63,68	73,54	41,00	23,76	6,72	3,86	3,44	3,80	4,17	4,62	16,05	22,11	16,20	23,83	64,00	57,61
Dynamic D	84,27	94,38	91,70	93,77	95,98	94,21	93,04	92,15	90,92	85,85	53,45	45,19	43,34	14,98	18,54	10,67
Dynamic absolute DA	56,85	66,32	55,79	72,08	83,66	85,95	82,44	81,50	80,96	83,84	59,48	54,18	56,92	51,28	67,22	80,95

Table 23. unlike table 10, a range of 4 days before and 14 days after birth, 18 days in total, the correlation function is significantly harmonic.

The energy is significantly high 4 hours before to 4 hours after the time of birth.

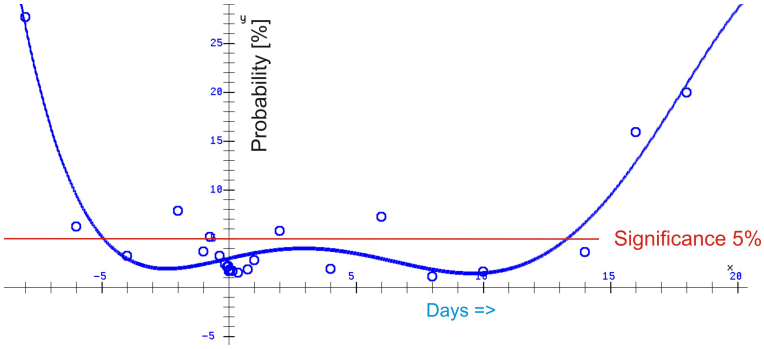


Fig.28. Significance range before and after birth for the gifted group.

This clearly shows that it cannot be a triggering. There is a larger window of stability. This means that in individual cases it can be important that it is still harmonious days after the birth. Since the harmonious quality of time affects not only the baby, but also all the people who are present at the birth, it seems more likely that the starting conditions for a good development of the child's brain are laid here. This is very surprising, but it coincides with the experience from birth psychology.
The high energy indicates that relatively many oscillators (planets) are in a harmonious state.
It is imperative to note, however, that these are only statistical results, which need not be true in individual cases. Correlations are not causalities!

What do concrete individual cases look like?

From the list of 62 highly gifted people, the correlation function around birth (1966-8-12-1h:45m) looks very harmonious in this month. That is very rarely so.

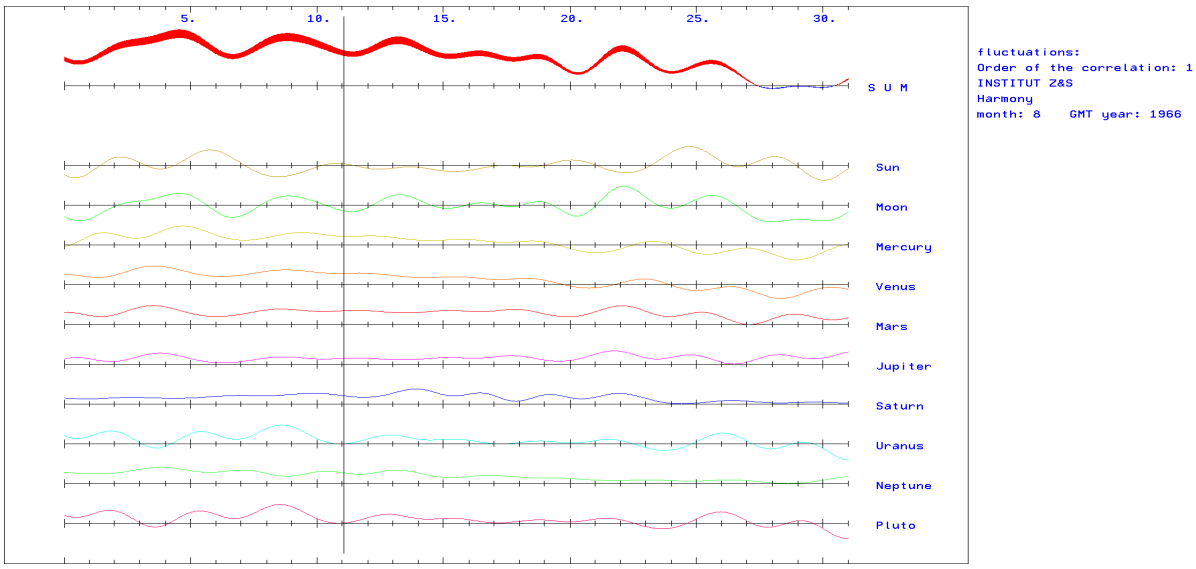


Fig.29. Correlation function 1966-8. Only the moon is slightly disharmonious at the time of birth (1966-8-12-1h-45m). The time of birth is marked by the vertical line.

The harmonic correlation function in Fig.28 does not apply to all birth times of the gifted. In Fig.29 the birth times for the year 1966 are marked.

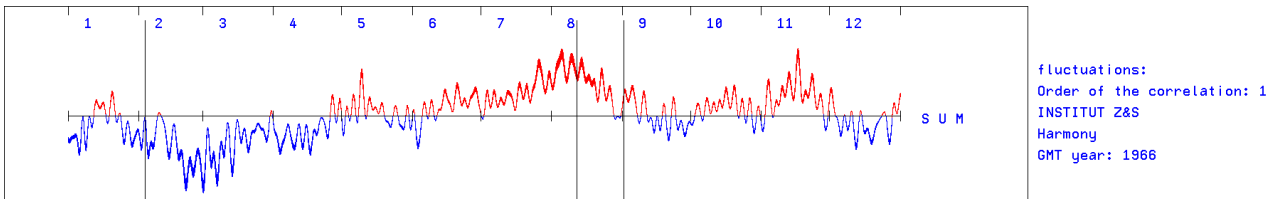


Fig.30. Correlation function for the year 1966. The birth times of the 3 highly gifted persons from the list are marked by vertical lines. In this year there are harmonic times (marked red) and disharmonic times (marked blue).

Of course the birth is not freely selectable and bound to a natural time frame. The following pictures (31 and 32) show the environment of the 2 birth times more clearly. The third birth time can be seen in fig.28.

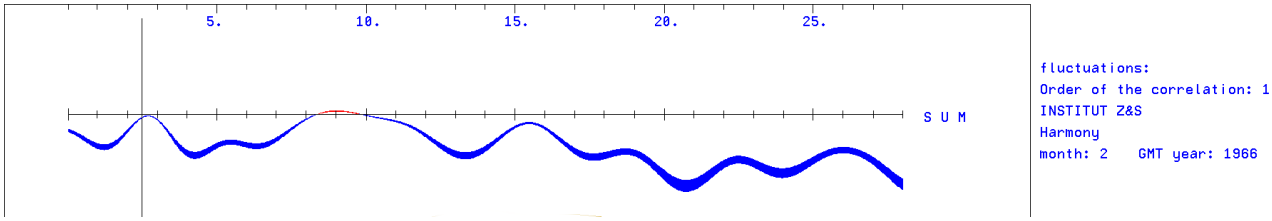


Fig.31. Environment of the time of birth 1966-2-3-11h-57m. Zoom from Fig.30.

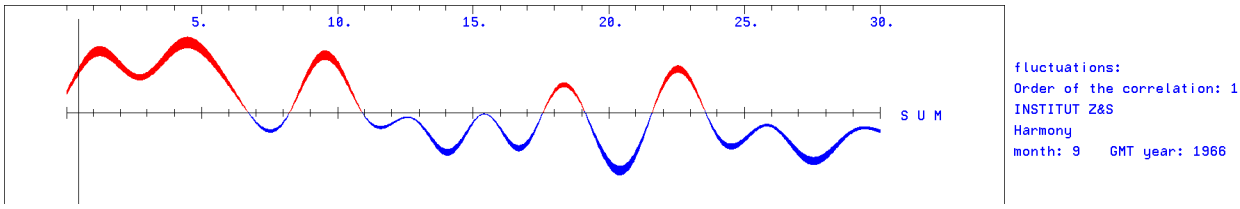


Fig.32. Environment of the time of birth 1966-9-1-10h-58m. Zoom from fig.29.

The matrix of probabilities shows which oscillators (planets) are important for the group of 62 high gifted people here:

Statistics 4: Probability of events: correlation matrix H
Order of the correlation: 1 ; time shift d: 0 h: 0;
GROUP-MEMBERS: 62 ; NUMBER OF THE GROUPS: 10000
Julian-date-start: 2434012.458333 Julian-date-end: 2451910.458345
Accidental selection; TEST: Number of accidental selection >= correlation
CORRELATION-MATRIX H AS INPUT

	1	2	3	4	5	6	7	8	9	10
1	*	-0.63	-0.27	0.14	0.22	0.03	-0.09	0.20	0.24	-0.26
2	-0.63	*	-0.28	0.21	0.90	-0.08	0.05	-0.36	0.63	0.03
3	-0.27	-0.28	*	0.15	-0.77	1.18	0.42	0.11	0.14	-0.68
4	0.14	0.21	0.15	*	0.28	-0.47	0.59	0.07	-0.26	0.63
5	0.22	0.90	-0.77	0.28	*	1.10	0.32	0.46	0.35	0.34
6	0.03	-0.08	1.18	-0.47	1.10	*	0.77	0.41	0.36	-0.06
7	-0.09	0.05	0.42	0.59	0.32	0.77	*	-0.70	0.50	0.39
8	0.20	-0.36	0.11	0.07	0.46	0.41	-0.70	*	-0.44	0.39
9	0.24	0.63	0.14	-0.26	0.35	0.36	0.50	-0.44	*	2.34
10	-0.26	0.03	-0.68	0.63	0.34	-0.06	0.39	0.39	2.34	*

Matrix H of the probability of error:

	1	2	3	4	5	6	7	8	9	10		
1	*	92.73	93.16	14.73	40.68	51.35	59.99	33.48	29.10	73.51	PR	70.38
2	92.73	*	74.28	32.67	2.02	56.16	44.80	79.59	7.81	48.09	PR	36.47
3	93.16	74.28	*	98.17	99.45	**0.27**	17.14	40.30	36.82	94.54	PR	67.88
4	14.73	32.67	98.17	*	40.81	87.86	7.18	44.09	70.80	8.21	PR	27.08
5	40.68	2.02	99.45	40.81	*	**0.20**	10.35	16.72	16.84	24.88	PR	**0.46**
6	51.35	56.16	0.27	87.86	0.20	*	4.04	20.33	25.75	52.70	PR	**0.53**
7	59.99	44.80	17.14	7.18	10.35	4.04	*	91.36	9.89	28.40	PR	2.45
8	33.48	79.59	40.30	44.09	16.72	20.33	91.36	*	51.74	82.02	PR	48.84
9	29.10	7.81	36.82	70.80	16.84	25.75	9.89	51.74	*	90.59	PR	6.17
10	73.51	48.09	94.54	8.21	24.88	52.70	28.40	82.02	90.59	*	PR	51.76

bigger are: 1.80 %
1=SUN; 2=MOON; 3=MERKUR; 4=VENUS; 5=MARS; 6=JUPITER; 7=SATURN; 8=URANUS; 9=NEPTUN; 10=PLUTO; 11=IC;
BEGIN: year: 1952 month: 1 day: 1 hour: 0 END: year: 2001 month: 1 day: 1 hour: 0

Statistics 4: Probability of events: energy I
Order of the correlation: 1 ; GROUP-MEMBERS: 62 ; NUMBER OF THE GROUPS: 10000
Accidental selection; TEST: Number of accidental selection >= correlation
MATRIX I energy AS INPUT (absolut)

	1	2	3	4	5	6	7	8	9	10
1	*	2.96	0.82	0.57	1.98	2.36	2.28	2.97	2.69	2.15
2	2.96	*	2.87	2.78	2.58	2.77	2.95	2.94	2.53	2.65
3	0.82	2.87	*	0.89	2.19	2.34	2.48	2.99	2.68	2.53
4	0.57	2.78	0.89	*	1.85	2.31	2.69	2.44	2.98	2.66
5	1.98	2.58	2.19	1.85	*	2.46	3.02	2.65	2.73	2.08
6	2.36	2.77	2.34	2.31	2.46	*	2.55	2.16	2.91	2.16

7	2.28	2.95	2.48	2.69	3.02	2.55	*	2.58	2.03	2.77
8	2.97	2.94	2.99	2.44	2.65	2.16	2.58	*	1.96	1.26
9	2.69	2.53	2.68	2.98	2.73	2.91	2.03	1.96	*	2.34
10	2.15	2.65	2.53	2.66	2.08	2.16	2.77	1.26	2.34	*

Matrix I of the probability of error:

	1	2	3	4	5	6	7	8	9	10		
1	*	8.88	45.27	28.56	41.35	51.25	73.97	6.72	31.30	89.39	PR	27.88
2	8.88	*	14.01	21.34	43.45	24.17	9.47	9.77	49.74	35.97	PR	2.85
3	45.27	14.01	*	72.85	10.06	54.84	49.53	3.96	21.65	42.40	PR	6.99
4	28.56	21.34	72.85	*	82.61	63.01	28.96	62.56	7.33	30.39	PR	27.55
5	41.35	43.45	10.06	82.61	*	61.06	5.26	36.36	30.41	85.18	PR	30.14
6	51.25	24.17	54.84	63.01	61.06	*	43.26	66.54	7.73	72.69	PR	45.50
7	73.97	9.47	49.53	28.96	5.26	43.26	*	44.02	78.74	26.49	PR	19.98
8	6.72	9.77	3.96	62.56	36.36	66.54	44.02	*	**0.32**	**0.76**	PR	1.34
9	31.30	49.74	21.65	7.33	30.41	7.73	78.74	0.32	*	90.59	PR	4.76
10	89.39	35.97	42.40	30.39	85.18	72.69	26.49	0.76	90.59	*	PR	58.62

bigger are: 3.80 %

1=SUN; 2=MOON; 3=MERKUR; 4=VENUS; 5=MARS; 6=JUPITER; 7=SATURN; 8=URANUS; 9=NEPTUN; 10=PLUTO; 11=IC;

BEGIN: year: 1952 month: 1 day: 1 hour: 0 END: year: 2001 month: 1 day: 1 hour: 0

A comparison of the matrix for harmony (group of 62 gifted) with the matrix for harmony of group 4 in table 14 shows that it is not always the same oscillators that produce harmony. If it were, then only at certain times could children be born with giftedness (with a higher probability).

Matrix of the correlation function for the group (high IQ) from table 15 for comparison:

Statistics 4: Probability of events: correlation matrix H

Order of the correlation: 1 ; time shift d: 0 h: 0;

GROUP-MEMBERS: 28 ; NUMBER OF THE GROUPS: 10000

Julian-date-start: 2419037.458333 Julian-date-end: 2447527.458345

Accidental selection; TEST: Number of accidental selection >= correlation

CORRELATION-MATRIX H AS INPUT

	1	2	3	4	5	6	7	8	9	10
1	*	0.41	-0.27	0.17	0.97	-0.35	0.94	0.18	0.42	-0.98
2	0.41	*	0.27	-0.39	0.77	-0.67	0.83	-0.94	-0.79	-0.78
3	-0.27	0.27	*	0.57	0.87	-0.47	0.91	0.95	0.44	0.25
4	0.17	-0.39	0.57	*	-0.21	-0.04	-0.26	-0.15	0.74	-1.48
5	0.97	0.77	0.87	-0.21	*	0.21	-0.03	0.09	0.10	-0.43
6	-0.35	-0.67	-0.47	-0.04	0.21	*	0.56	0.76	1.53	0.65
7	0.94	0.83	0.91	-0.26	-0.03	0.56	*	0.31	0.15	0.75
8	0.18	-0.94	0.95	-0.15	0.09	0.76	0.31	*	0.54	0.07
9	0.42	-0.79	0.44	0.74	0.10	1.53	0.15	0.54	*	1.90
10	-0.98	-0.78	0.25	-1.48	-0.43	0.65	0.75	0.07	1.90	*

Matrix H of the probability of error:

	1	2	3	4	5	6	7	8	9	10		
1	*	26.71	83.98	19.20	5.62	73.50	7.57	40.02	25.69	93.92	PR	20.72
2	26.71	*	33.98	72.26	12.18	85.46	10.50	92.22	88.30	88.84	PR	74.98
3	83.98	33.98	*	28.20	6.60	80.25	8.85	7.26	25.58	34.26	PR	3.29
4	19.20	72.26	28.20	*	77.64	56.01	64.10	61.10	13.82	99.00	PR	87.19
5	5.62	12.18	6.60	77.64	*	33.75	47.48	47.59	48.67	80.72	PR	15.38
6	73.50	85.46	80.25	56.01	33.75	*	20.02	12.96	1.08	15.06	PR	15.41
7	7.57	10.50	8.85	64.10	47.48	20.02	*	34.02	46.08	11.03	PR	1.50
8	40.02	92.22	7.26	61.10	47.59	12.96	34.02	*	38.13	71.18	PR	30.92
9	25.69	88.30	25.58	13.82	48.67	1.08	46.08	38.13	*	20.69	PR	7.92
10	93.92	88.84	34.26	99.00	80.72	15.06	11.03	71.18	20.69	*	PR	88.74

bigger are: 9.14 %

1=SUN; 2=MOON; 3=MERKUR; 4=VENUS; 5=MARS; 6=JUPITER; 7=SATURN; 8=URANUS; 9=NEPTUN; 10=PLUTO; 11=IC;

BEGIN: year: 1911 month: 1 day: 1 hour: 0 END: year: 1989 month: 1 day: 1 hour: 0

For this group, the 6th order correlation for H indicates higher significances at birth.

Statistics 4: Probability of events: correlation matrix H

Order of the correlation: 6 ; time shift d: 0 h: 0;

GROUP-MEMBERS: 28 ; NUMBER OF THE GROUPS: 10000

Julian-date-start: 2419037.458333 Julian-date-end: 2447527.458345

Accidental selection; TEST: Number of accidental selection >= correlation

CORRELATION-MATRIX H AS INPUT

	1	2	3	4	5	6	7	8	9	10
1	*	0.13	-0.14	-0.01	0.18	-0.34	0.08	-0.04	0.22	-0.07
2	0.13	*	0.09	0.44	0.09	-0.10	0.56	0.19	0.29	-0.50
3	-0.14	0.09	*	0.03	0.26	0.12	0.06	0.12	0.34	0.47
4	-0.01	0.44	0.03	*	-0.05	0.21	0.09	-0.23	-0.05	0.46
5	0.18	0.09	0.26	-0.05	*	-0.06	-0.20	0.08	-0.19	0.10
6	-0.34	-0.10	0.12	0.21	-0.06	*	0.62	0.05	0.54	0.17
7	0.08	0.56	0.06	0.09	-0.20	0.62	*	-0.03	0.08	0.25
8	-0.04	0.19	0.12	-0.23	0.08	0.05	-0.03	*	0.26	-0.08
9	0.22	0.29	0.34	-0.05	-0.19	0.54	0.08	0.26	*	0.82
10	-0.07	-0.50	0.47	0.46	0.10	0.17	0.25	-0.08	0.82	*

Matrix H of the probability of error:

	1	2	3	4	5	6	7	8	9	10		
1	*	28.80	90.12	61.35	21.41	91.41	36.46	57.89	19.15	63.07	PR	48.43
2	28.80	*	35.40	5.13	35.17	65.75	2.00	22.79	12.75	96.56	PR	6.83
3	90.12	35.40	*	65.23	11.54	32.58	41.40	32.49	9.74	3.98	PR	3.14
4	61.35	5.13	65.23	*	68.06	20.43	35.87	82.28	60.04	4.12	PR	13.98
5	21.41	35.17	11.54	68.06	*	60.03	79.92	37.71	80.19	33.07	PR	43.98
6	91.41	65.75	32.58	20.43	60.03	*	1.16	39.18	3.98	27.71	PR	7.59
7	36.46	2.00	41.40	35.87	79.92	1.16	*	52.52	41.63	16.42	PR	3.48
8	57.89	22.79	32.49	82.28	37.71	39.18	52.52	*	20.37	76.11	PR	40.75
9	19.15	12.75	9.74	60.04	80.19	3.98	41.63	20.37	*	4.07	PR	1.64
10	63.07	96.56	3.98	4.12	33.07	27.71	16.42	76.11	4.07	*	PR	8.35

bigger are: **0.36** %

1=SUN; 2=MOON; 3=MERKUR; 4=VENUS; 5=MARS; 6=JUPITER; 7=SATURN; 8=URANUS; 9=NEPTUN; 10=PLUTO; 11=IC;

BEGIN: year: 1911 month: 1 day: 1 hour: 0 END: year: 1989 month: 1 day: 1 hour: 0

Pluto is always considered here, although its gravitational effect, physically seen, is negligible. Obviously, however, an oscillator with this frequency is not to be neglected.
The question is only, can the small planet Pluto be regarded as a pointer of this oscillator? Here further investigations must follow.

3.4 Correlation with Psychic Instabilities

Resonances of cosmic fluctuations are understood as interactions with existing patterns. These patterns have arisen in an earlier structure-forming process of the planetary fluctuations and then have been "frozen". So the hypothesis. An indication that such patterns exist is shown by the following two investigations.
The correlation function (10) is referred in this case to a time t0. This point in time represents, so to speak, a "birth state" to which the correlations refer. In addition to the cross-correlations of the planets Hi, j, the self-correlations Hi,i are now added.
Is the stability or instability of mental processes influenced by planetary fluctuations?
The dynamic system of the brain, in order to be as adaptive as possible, must operate near a chaotic state. Such a point of instability could be the alternation between concentration and inattention.
There is a dissertation by Sara Klein Ridgley published on the Internet at: http://safire.net/sara/ that looks at work accidents and their timing relative to the accident victim's birthday. It evaluated 1005 accidents that resulted in hospitalization. The results of this study are shown in Fig.33 and Table 24.
The original data of the birthdays and the accidents could not be obtained, so that the calculations with the correlation function (10) must be based on the figures given here. The disadvantage is that the accidents were each summed out to 1/12 of the year. This grid does not allow to investigate higher frequencies. The influence of a possibly disharmonious moon in autocorrelation is therefore not detectable.

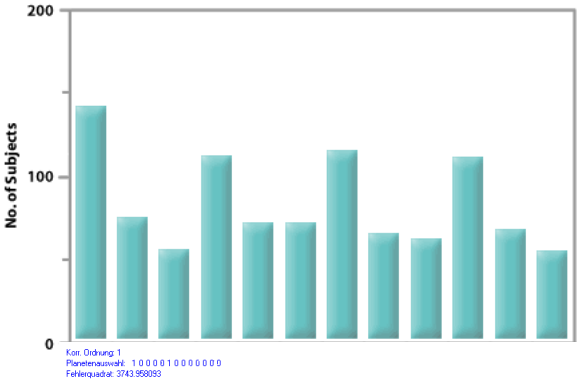


Fig.33. Accident frequency relative to birthday according to a study by Sara Klein Ridgley.
The number 1 indicates the period (1/12 of the year) around the birthday. The number 7 denotes the period (1/12 of the year) half a year away from the birthday. The deviations from the expected values are highly significant (according to Sara Klein Ridgley).

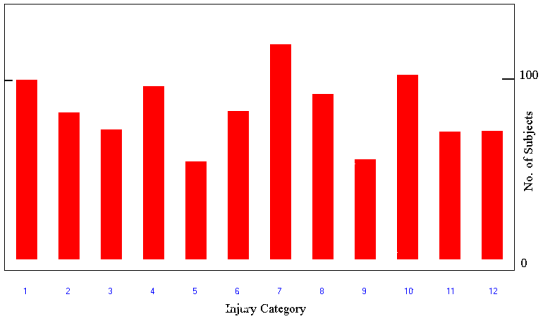


Fig.34. Accident frequency relative to the birthday. This fig.was calculated with the correlation function (10) for qualitative comparison with fig.33. They are the autocorrelations of sun and Jupiter. The number 1 marks the period (1/12 of the year) around the birthday. The number 7 represents the period (1/12 of the year) , which is half a year away from the birthday. The calculated values are shown in Table 24.

For the pattern published by Sara Klein Ridgley, only Sun has an influence.
It is interesting to compare the values for the birth day period (number 1). In the pattern of Sara Klein Ridgley the frequency of accidents in this period is relatively high, while the values with the correlation function do not show such high values. A cause, which was already discussed by Sara Klein Ridgley, is the assumption that the accident frequency can be so high around the period of the birth, because here birthday parties, connected with a higher alcohol consumption and the "birthday depression" could play a determining role:
"...They all answered without hesitation that being injured around one's birthday could be expected for reasons such as being drunk, being tired from too many parties, general excitement around the birthday, and lowered spirits due to the feeling of getting older, etc. ..." (Sara Klein Ridgley)

Injury Category	Number of Subjects	Expected Value	$H_{i,i}$
1	139	83.75	99,5
2	72	83.75	80,3
3	55	83.75	72,8
4	113	83.75	100,8
5	72	83.75	54,6
6	72	83.75	82,2
7	117	83.75	120,4
8	66	83.75	89,4
9	63	83.75	50,5
10	114	83.75	102,8
11	67	83.75	72,7
12	55	83.75	79,0
Total	1005	1005	1005
		Mean relative error:	+- 5,24

Table 24. Accident frequency relative to birthday according to a study by Sara Klein Ridgley. The number 1 indicates the period (1/12 of the year) around the birthday. The number 7 represents the period (1/12 of the year) that is half a year away from the birthday.
birthday. The deviations from the expected values are highly significant (according to Sara Klein Ridgley).

In columns 4, 5 and 6 are the values calculated with the 1st order correlation function. Dominant for the rhythm of the relative accident frequency is the
self-correlation of the sun. Of the other celestial bodies, only Jupiter and Saturn have an effect on this rhythm. The influence of the moon cannot be proved, because its "frequencies" are too high for the interval division. If one considers these socially conditioned influencing factors of the "birthday circumstances" then the correlation brings even better values. So the Chi-square value for column 5 (autocorrelation of sun and Jupiter) is still 43,66.

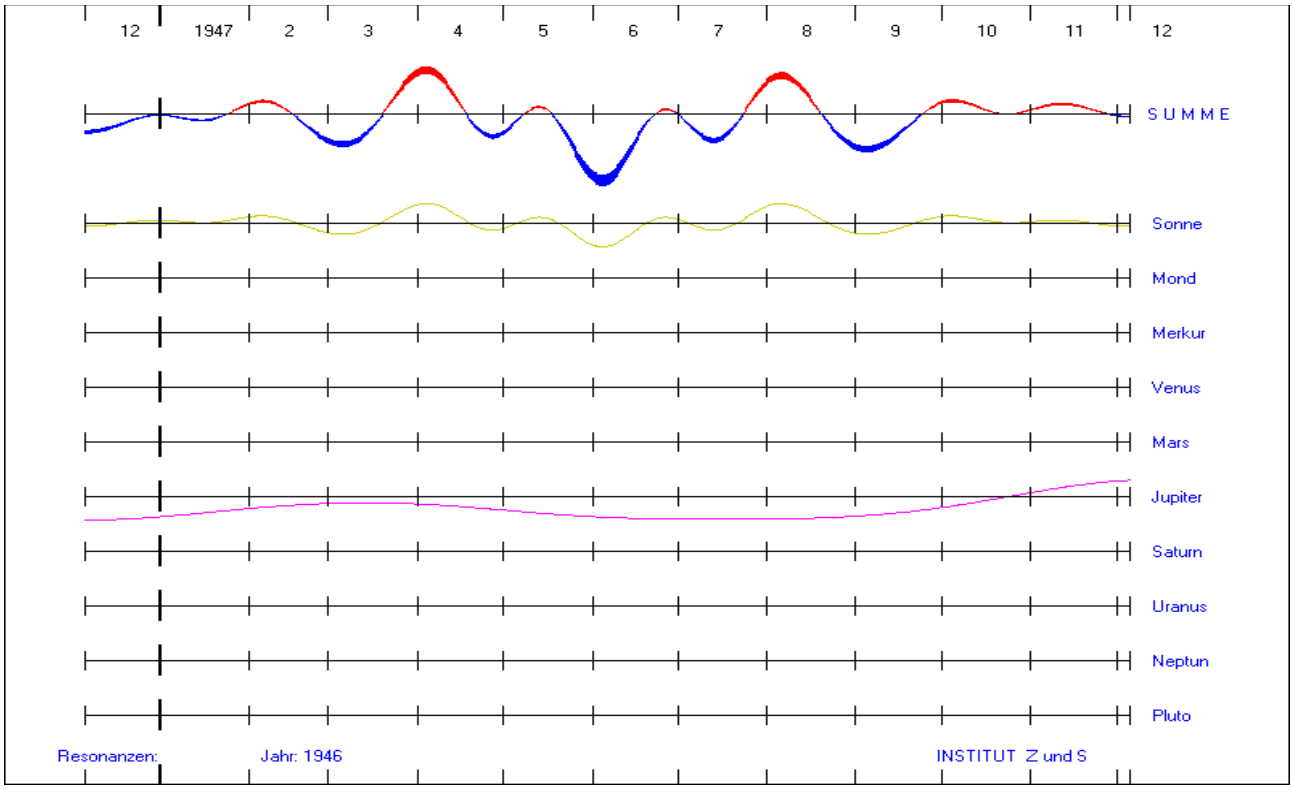


Fig.35. Calculated autocorrelation function 1st order of sun and Jupiter relative to the birthday (here 6.12.1946). For comparison with fig.33 and 34).

Since the accident statistics of the 1005 industrial accidents are not expected values of a theoretical distribution, the correlation quality between the recorded distribution and the distribution calculated according to the correlation function is better suited for an assessment. To be able to calculate this quantity, the expected value of the uniform distribution (83.75) is subtracted from each of the recorded and calculated accidents.
The correlation quality is then calculated in this case from the sum of the products of the recorded with the calculated deviations from the expected value of the uniform distribution, normalized with the sum of the squares of the deviations from 83.75 of the recorded values. The thus calculated value for the autocorrelations of Jupiter and Sun is: correlation quality = 0.533 (correlation between recorded and calculated accident distribution. This value is positive if there is a correlation and negative if there is an opposite trend).
The result clearly shows that, in addition to other factors influencing the frequency of accidents, an influence of planetary fluctuations appears to be possible.

4. pattern formation for an AI

4.1 Earthquakes (41)

Can large earthquakes be predicted?

Earthquakes are part of a highly complex, nonlinear process. For such a process, only statements of the character of a probability can be made. Just like a weather forecast can give a probability of rain for a certain area and a certain time.
Can this also be done for earthquakes?
For this purpose, the oscillation patterns of the planetary gravitational field of the preceding earthquakes must be examined for commonalities. If there are commonalities, then it seems reasonable to form a pattern of these commonalities by superposition (a kind of learning effect). This pattern, compared to a current pattern in the future, can then indicate an increased probability of a future earthquake.
Calculating the harmonics of the planetary gravitational field [4] yields a matrix in which each element in turn consists of the superposition of several oscillations. These oscillation patterns of the individual earthquakes can in turn be superimposed to form the characteristics of this group. If these group characteristics are compared with very many randomly selected comparison groups, it is possible to assess whether the group of earthquakes differs significantly from the expected values. For the group of 41 strongest earthquakes of the last century (1900-2000), this pattern for the matrix of harmony looks as follows.

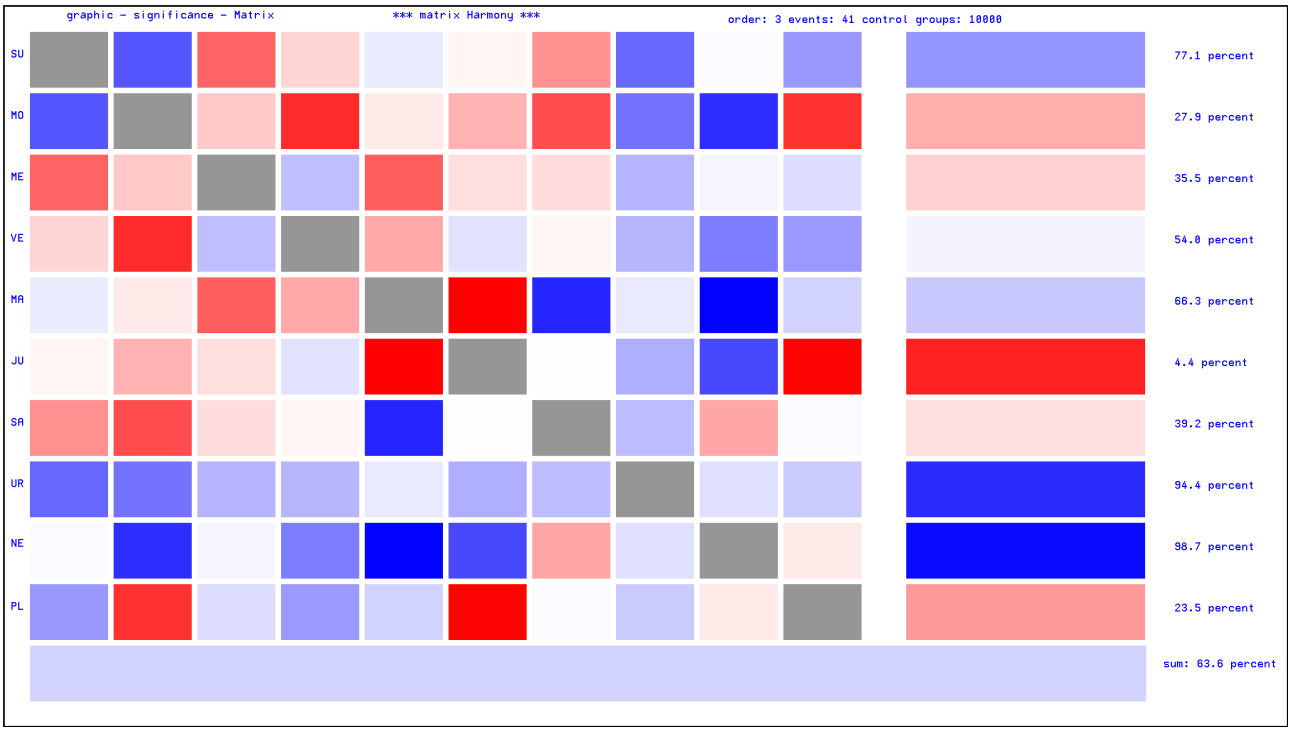


Fig.36 shows the deviations of the pattern from the expected values for each correlation. In this example, the disharmonic correlation of the Sun and Moon has the value of 87.7 (87.7% of the control groups have higher harmony).

Besides the matrix for harmony, the vector of planets is also a criterion for pattern formation. In Fig.36 it can be seen that Neptune is significantly disharmonious with 98.7% (98.7% of control groups have higher harmony).
The value for the whole matrix (superposition of all elements) is weakly disharmonic.

Thus, the following elements are possible for pattern formation:

<u>Harmony-Disharmony</u>

- the matrix of correlations for harmony and disharmony $\mathbf{H_{i,j}}$
- the vector of superpositions of correlations for each planet $\mathbf{VH_i}$
- the superposition of all elements of the matrix **MH**

<u>Energy</u>

- matrix of correlations for harmony and disharmonies $\mathbf{I_{i,j}}$
- vector of correlation superpositions for each planet $\mathbf{VI_i}$
- the superposition of all elements of the matrix **MI**

The investigations have shown that the matrices $\mathbf{H_{i,j}}$ and $\mathbf{I_{i,j}}$, supplemented by the matrices of the 1st derivative of the correlation function $\mathbf{D_{i,j}}$ and $\mathbf{DA_{i,j}}$ determine the pattern formation.

The matrix of energy for the selected example shows stronger deviations from the average of the control groups (Fig.37).

Fig.37; Vibration patterns (energy) for 41 of the strongest earthquakes of the last century. Blue are weak energies, red are strong energies. A strong color indicates a strong deviation from the statistical mean.

An evaluation of time with respect to the probability of an earthquake is composed of the pattern elements listed above. For the matrix the correlation function as given by Linfoot for the object-image comparison is suitable. (*Linfoot criteria: fidelity, correlation, relative structure content)*

Probability = $a_1 * \mathbf{H_{i,j}} + a_2 * \mathbf{I_{i,j}} + a_3 * \mathbf{D_{i,j}} + a_4 * \mathbf{DA_{i,j}}$

The coefficients ai are determined according to an optimization procedure. Here, the coefficients ai indicate the significance of the matrices for the examined group of events. If the harmony or disharmony is significant for a group, then the matrix Hi,j will be particularly weighted.

The following assignment applies:
$H_{i,j}$ - for the harmony and disharmony
$I_{i,j}$ - for the absolute value (energy) of the superimposed waves
$D_{i,j}$ - for the velocity of the change of the oscillation state (1st derivative)
$DA_{i,j}$ - for the acceleration (force) of the velocity change

The pattern used here finds 100% from the list of 41 strongest earthquakes. However, 25.8% of the events are also identified as earthquakes from a randomly selected list. The discriminatory power (difference) from the continuum is 74.2 .
41 strong earthquakes in a century are not very many compared to the many earthquakes that also still occur, albeit weaker and with less personal injury. Therefore, it is not expected that the probability of a strong earthquake will have local maxima only slightly above the number 41 in 100 years.

The temporal environment to the 1st earthquake from the list of 41 strong earthquakes can be seen in Fig.38.
Earthquakes, as the investigations show, take place in a characteristic temporal environment, which often starts with foreshocks. Therefore it seems to be reasonable to include the temporal environment in the considerations (Fig.39).

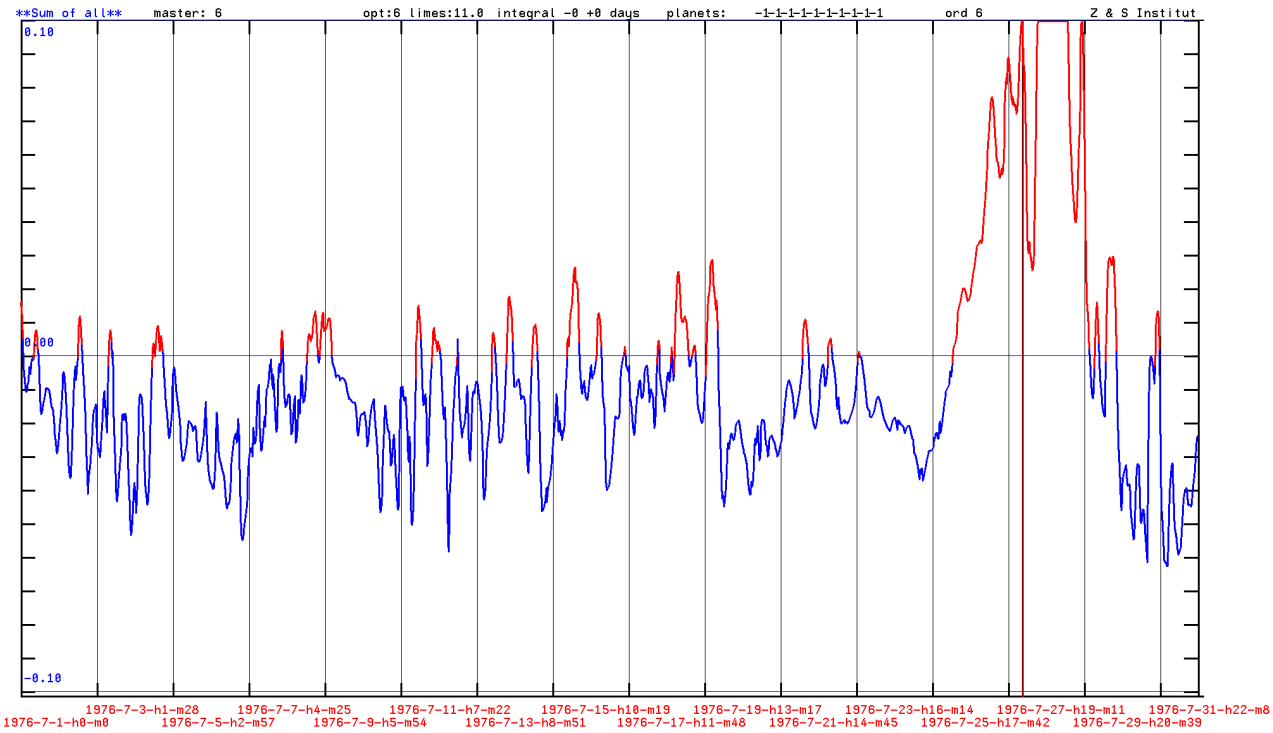


Fig.38; The month of the first earthquake (China; Tangshan; 28.7.1976; 03:42:00) from the list of 41 earthquakes. The time of the earthquake is indicated by the vertical red line. The curve indicates the change in the probability of an earthquake according to the pattern of the 41 earthquakes.

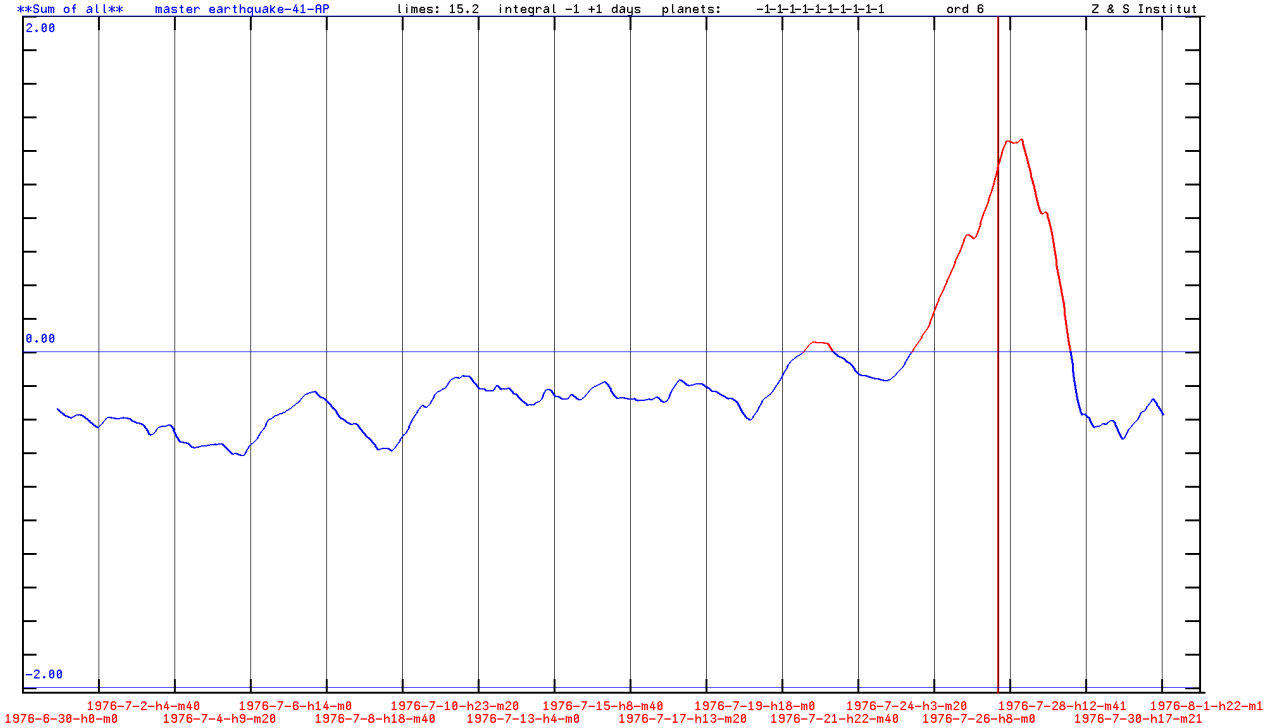


Fig.39; The month of the first earthquake (China; Tangshan; 28.7.1976; 03:42:00) from the list of 41 earthquakes. The time of the earthquake is indicated by the vertical red line. The curve indicates the change in the probability of an earthquake following the pattern of the 41 earthquakes. In contrast to Fig. 38, here the sum was formed over the pattern one day before the event to one day after the event.

Initially, only the correlation function was used for pattern formation. However, as the studies on the probability of different event groups have shown, the addition of the 1st derivative of the correlation function can improve the quality of the patterns. Obviously, the 1st derivative and its absolute value is also a characteristic feature of an event group, as it indicates what the rate (dynamics) of change is at the time of the event. Table 25 lists the results for the optimization of the patterns depending on the order of the correlation function and the addition of the dynamics.

Correlation order	The "earthquakes" detected from the list in percent	The "earthquakes" detected from a randomly chosen comparison list in percent.	The difference (discriminatory power) is the value for the optimization of the pattern
1st order 41 Earthquakes without dynamics	93 %	31 %	62 %
1st order 41 Earthquakes with dynamics	83%	12%	71%
3rd order 41 Earthquakes without dynamics	85 %	21 %	64 %
3rd order 41 Earthquake with dynamics	90%	18%	72%
6th order 41 Earthquake without dynamics	100 %	26 %	74 %
6th order 41 Earthquake with dynamics	95%	20%	77%

Table 25; Results of the optimization for the different orders of the correlation function.

The 6th order correlation function with the 1st derivative was selected because the pattern it produced had the greatest distance from the continuum (77%).

4.2 Earthquakes (513)

A list of earthquakes [(Earthquakes of magnitude 6.5 or greater or those that caused fatalities, injuries or substantial damage. BRK--Berkeley. PAS--Pasadena.) ; time period 1997-01-05 to 2002-06-18], which contains major earthquakes in a relatively small time period, presents a particular challenge for pattern formation. A function that indicates a change for the probability of earthquakes must show the earthquakes from the list but not very many from randomly selected events. 513 earthquakes in 112 months, an average rate of 4.58 earthquakes per month.
Table 26 shows the process of optimization.

Cumulation	Matrix H	+ Matrix D	+ Matrix I	+ Matrix DA	All matrices
Difference/Sharpness Comparison period 1900 to 2100	18%	23%	45%	49%	55%

Table 26; <u>The result of the optimization:</u> 82% from the group 513 earthquakes were identified as earthquakes. From a randomly selected comparison group of 1000 events, 27% were identified as earthquakes. The comparison group of 1000 events was randomly selected in a period from 1900 to 2100. This 27% may include events in which an earthquake has occurred or will occur.

Considering only the comparison period 1997 to 2002-6 in which the earthquakes occurred, the pattern is: 52% are identified from the group of 513 Earthquakes. 35% are identified as earthquakes from the comparison group of 1000 events. This results in a discriminatory power of only 17% .

The expected value that an event from the comparison group of 1000 randomly chosen events coincides with an earthquake from the group of 513 earthquakes is 255. Of the 1000 randomly chosen events for comparison, possibly about 255 events fall within the range of +- 12h of an earthquake. This of course explains the low discriminatory power of 17%.

The comparison with the 41 very strong earthquakes shows that for the creation of patterns it is absolutely necessary to differentiate the earthquakes into groups according to a characteristic (strength, depth, type, location). Only in this way a further improvement of the patterns for the change of the earthquake probability can be achieved.

In February 2023 (2023-02-06-01-17) a strong earthquake took place in areas of Turkey and Syria. Are these indicated by the two patterns 41 and 513 earthquakes? The study of earthquakes has shown that the time preceding the event is also characteristic. Therefore, the preceding day is also included in the following images.

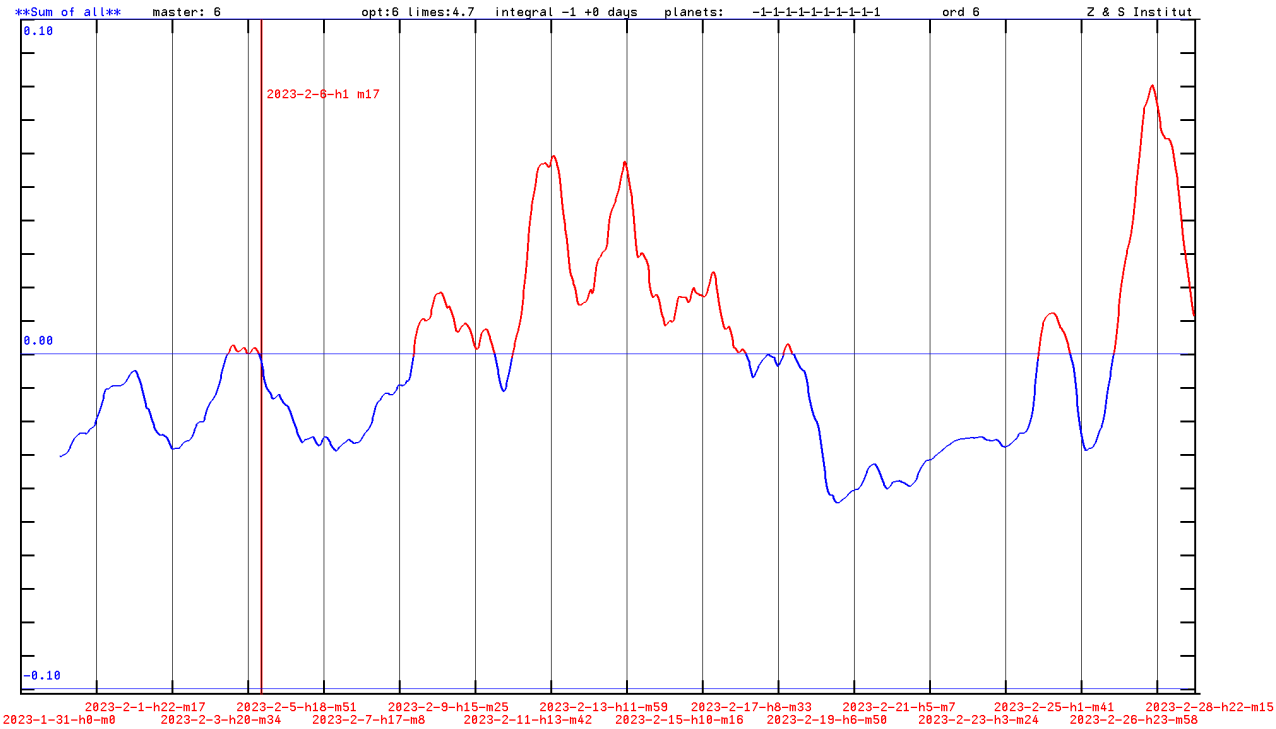


Fig.40; Curve of pattern-41 for the period 2023-2. The vertical red line marks the 2023-2-6-1-17 earthquake in Turkey and Syria.

From the curve it cannot be seen that this earthquake was very probable. It does not fall under the recognized earthquakes. Probably the tensions were so large here that small events were already sufficient for the triggering to occur.

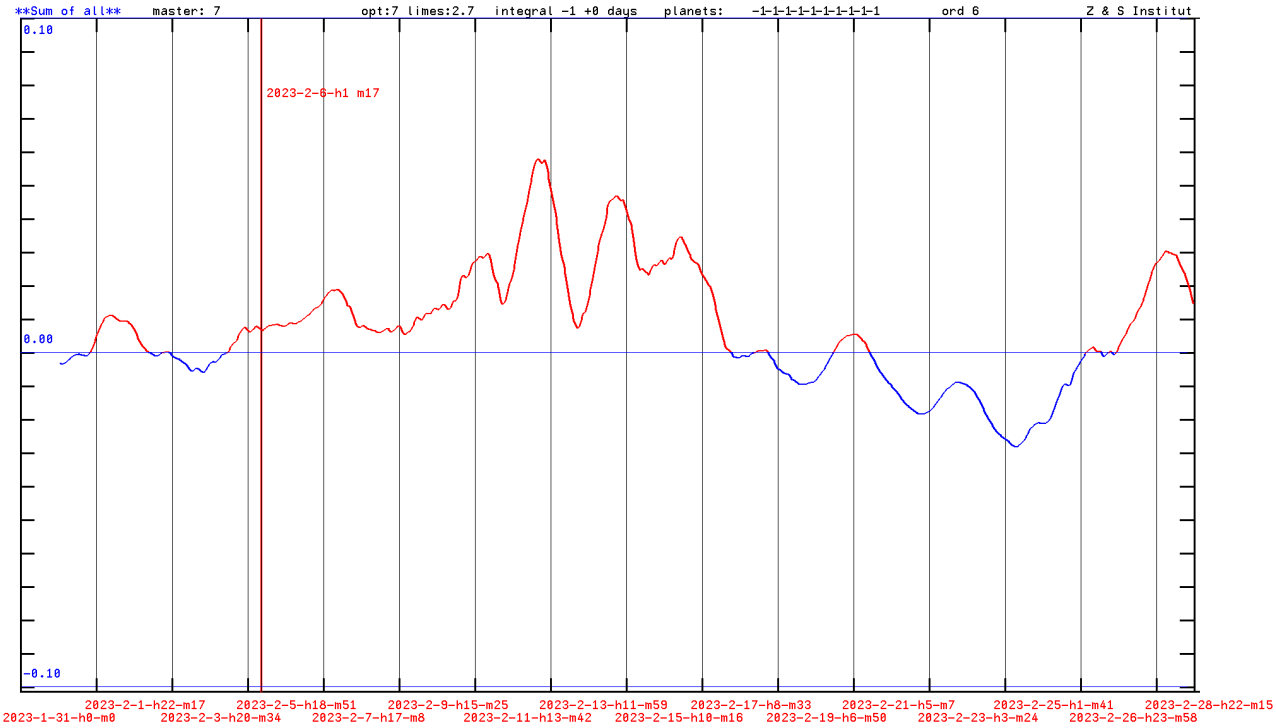


Fig.41; Curve of pattern-513 for the period 2023-2. The vertical red line marks the 2023-2-6-1-17 earthquake in Turkey and Syria.

The curve of pattern-513 (Fig.41) shows an area of increasing probability for an earthquake. The event thus falls into the group of earthquakes identified by the pattern.
Although both patterns have recorded very different earthquakes, there is a very clear similarity in the curves. The 2023-2 period is well outside of the period in which patterns 41 and 513 were created.

Important: Also at this point it must be said that these patterns cannot predict earthquakes! However, they show the increased probability for earthquakes from the oscillation patterns of the planetary gravitational field.

4.3 Individuals with high giftedness and with a low IQ

Children are born at all times. On the same day, a child who will later be highly intelligent can be born, but so can a less intelligent child.
But are there times in which preferentially intelligent children are born? When do the constellations of sun, moon and planets favor the disposition to intelligence of the born child?

Important: Already at this point it must be pointed out that besides the genes of the parents, other factors also play a role in the development of intelligence!

However, patterns can be created from the oscillations of the planetary gravitational field that indicate a change in the probability of a higher or lower IQ. Thus it can be predicted for the future in which direction the intelligence of the born child will possibly develop.
child will possibly develop.

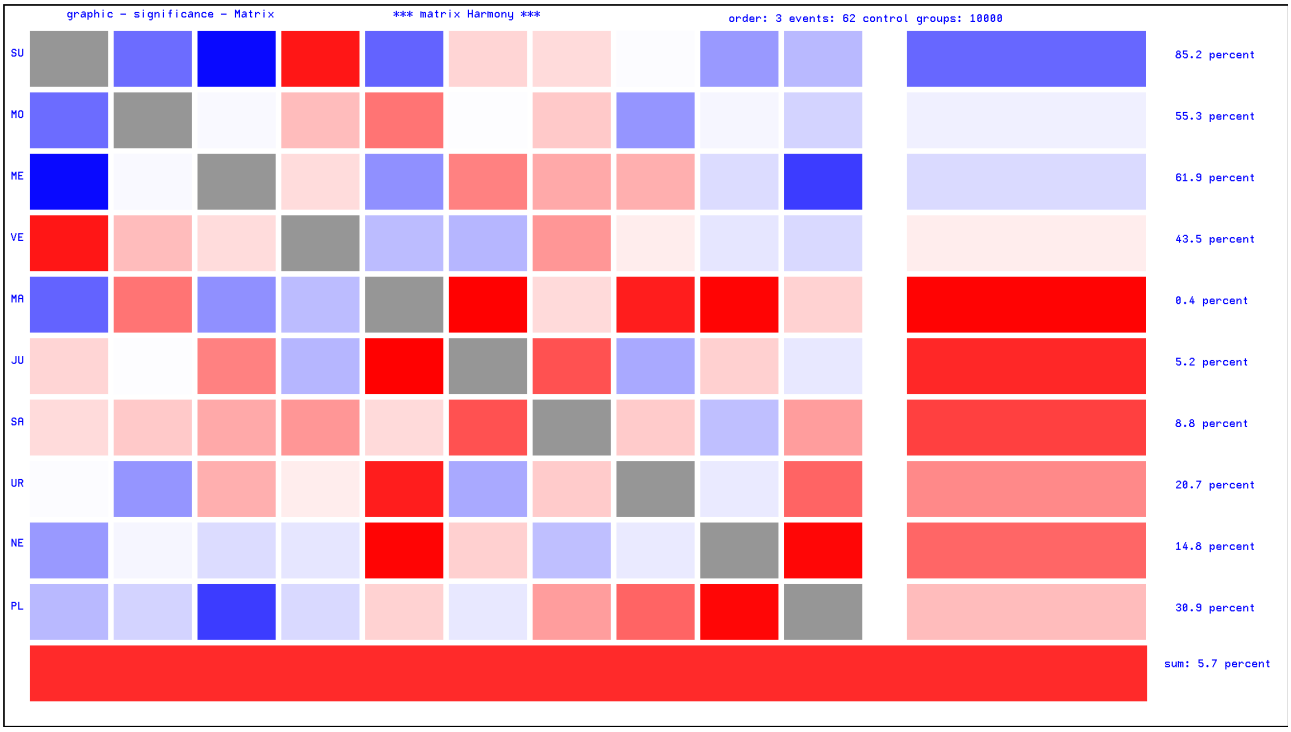


Fig.42; Vibration pattern (harmony) for 62 persons with a high intelligence. Blue are disharmonies, red are harmonies. A strong color indicates a strong deviation from the statistical mean.

Parents normally want their child to develop well. However, what they mean by "good" does not necessarily have to concern intelligence. There are other qualities that can be desired for the child. In principle, it is possible to form groups of people who have such desired characteristics. These groups can be tested to see if they have common oscillatory patterns that significantly distinguish them from control groups.

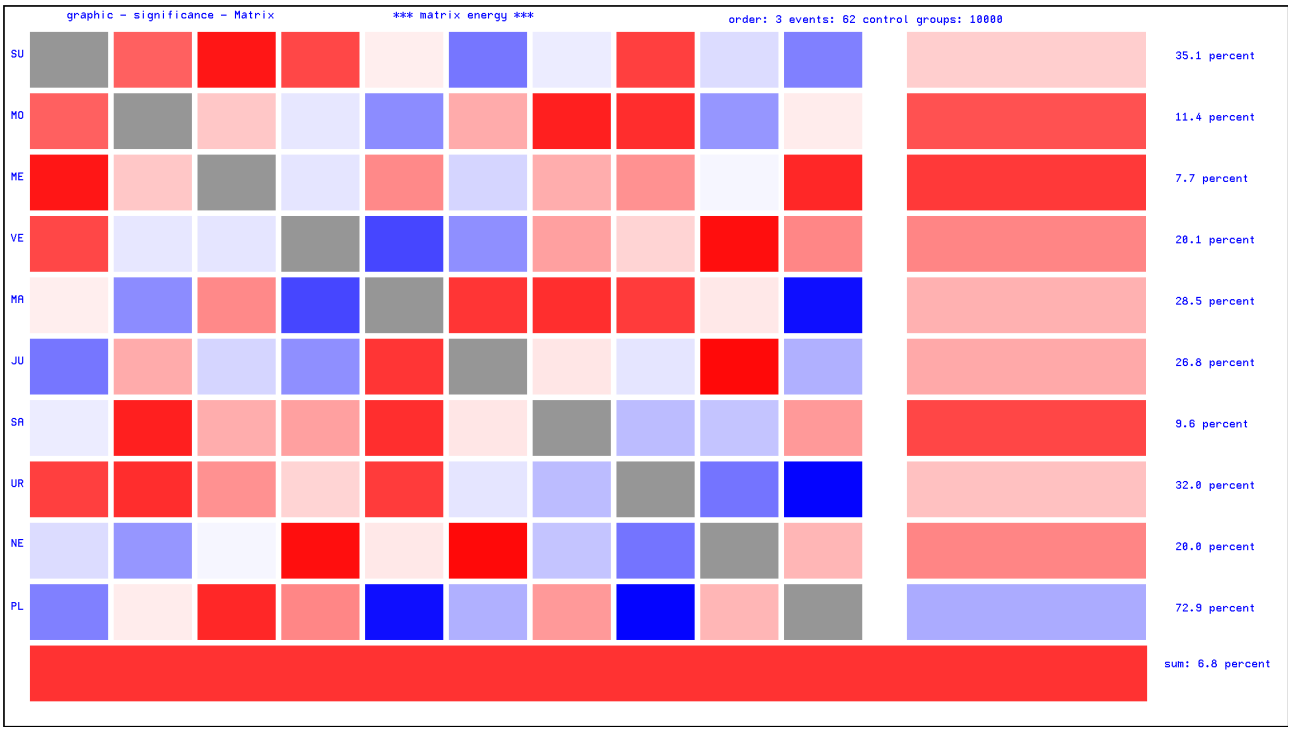


Fig.43; Vibration pattern (energy) for 62 persons with a high intelligence. Blue are weak energies, red are strong energies. A strong color indicates a strong deviation from the statistical mean.

The vibration patterns for this group of 62 highly gifted individuals can be seen in Fig.42 and 43.

Looking at the entire matrix, only 5.7% of the control groups have higher harmony (Fig.49) and 6.8% have higher energy.
It is interesting to note that the sun is relatively disharmonic at 85.2% (85.2% of the 10000 control groups have a more harmonic sun), while the energy is not very far from the continuum (50%) at only 35.1%. Equally remarkable is the high significance of Mars (only 0.4% of the control groups have a higher harmony) also it is energetically close to the continuum with 28.5 %...

The detection patterns for affecting the probability of intelligence formation in the birth period were optimized over both the distance from the continuum (as in the earthquakes) and the distance between the pattern for high intelligence and the pattern for low intelligence.
The oscillation patterns for low intelligence are shown in Figs. 44 and 45 for comparison.

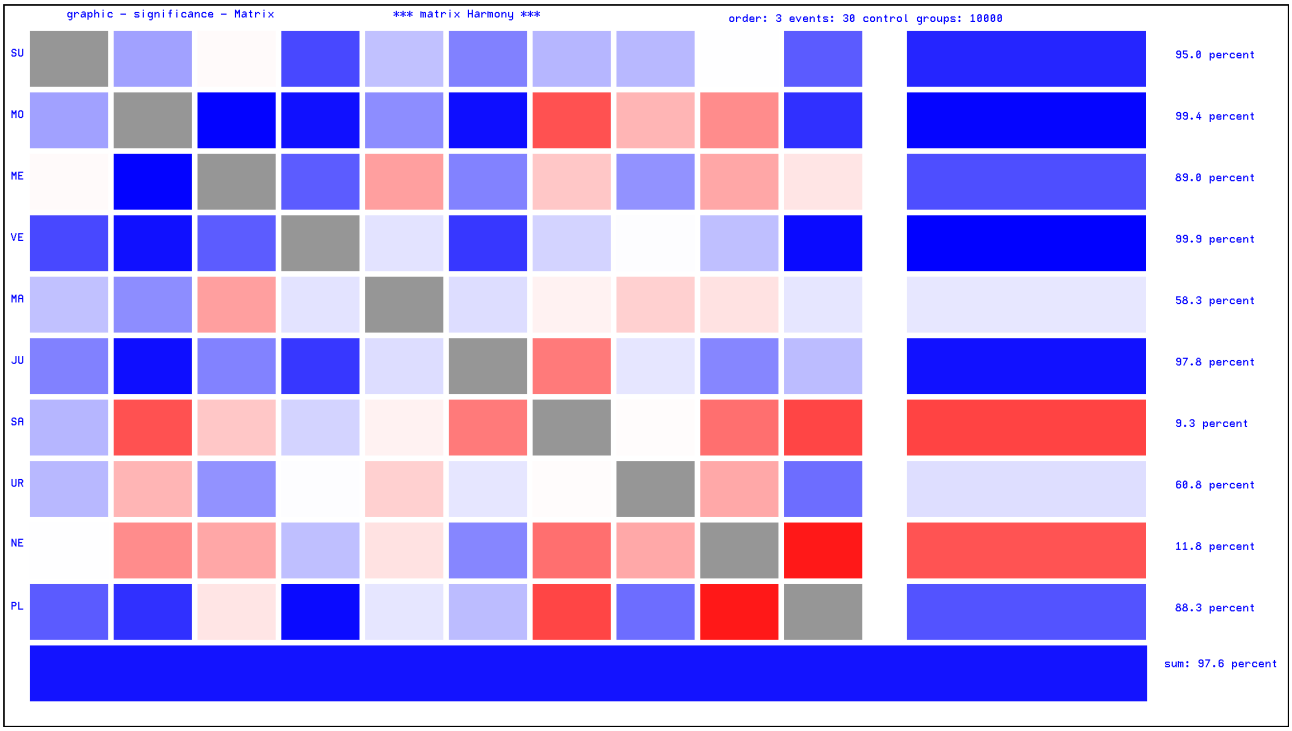


Fig.44; Vibration pattern (harmony) for 30 persons with a lower intelligence. Blue are weak energies, red are strong energies. A strong color indicates a strong deviation from the statistical mean.

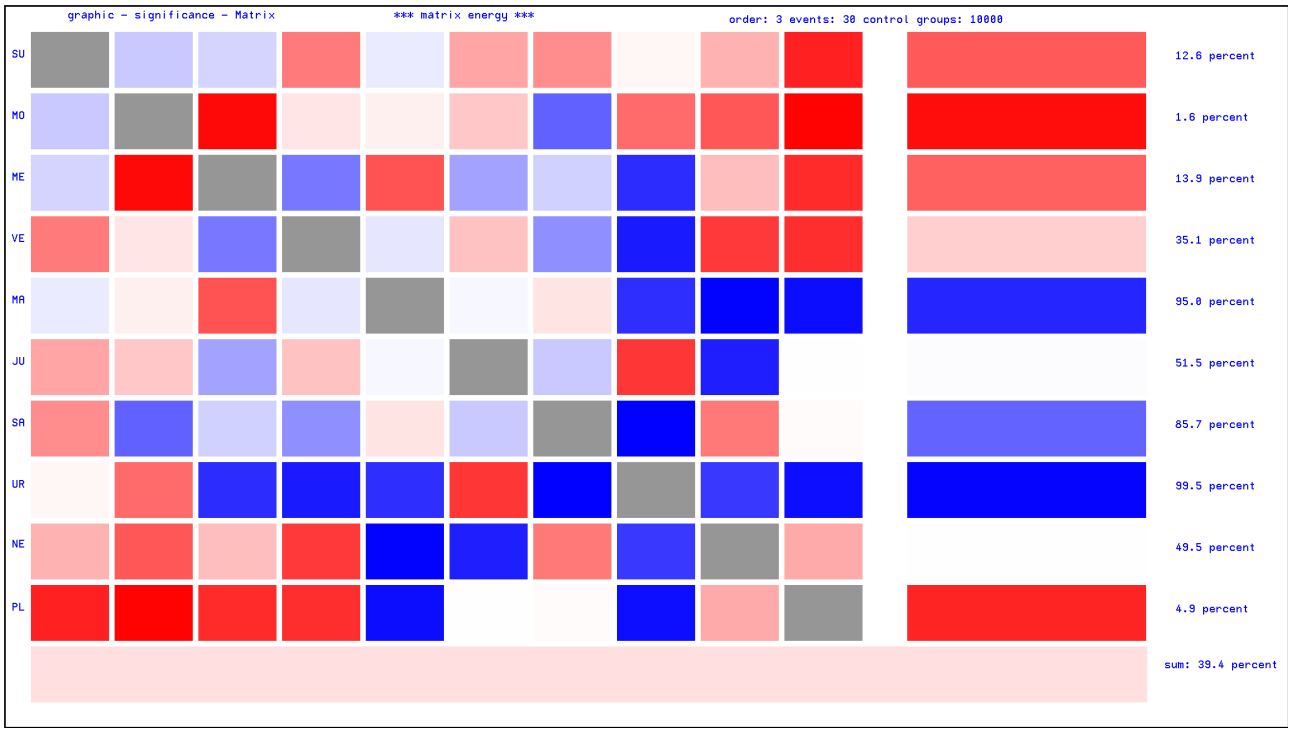


Fig.45; Vibration pattern (energy) for 30 people with a low intelligence. Blue are weak energies, red are strong energies. A strong color indicates a strong deviation from the statistical mean..

The visual comparison of the oscillation patterns alone clearly shows that the overall state of the oscillation pattern (total value of the matrix) is by far not sufficient to judge how the probability behaves with respect to intelligence.

Comparison after approx. 10000 optimization cycles	Out of 62 individuals with high IQ are recognized (%)	Out of 1000 randomly selected events are recognized (%)	Difference/separability in percent
1948 - 2001; period of birth of the 62 persons with high IQ	91,94%	41,30%	50,64%
1900 - 2100; period of 200 years for the control group	82,26%	25,10%	57,16%
1906 - 1988; period for the 30 low-IQ individuals	95.16%	30.00% of 30 persons with low IQ	65.16%

Table 27; Patterns for high IQ. Comparison of optimization results for different control periods.

The discriminatory power (High IQ pattern) in Table 26 varies for the different control periods. Although the 200-year period has the lower discriminatory power compared to the low IQ comparison group, it seems to be more appropriate for different time periods because it represents the distance from the continuum.
The particular pattern does not recognize all of the events in the list. Of course, this also means that highly gifted children are born at all times. The intelligence of a child is not exclusively dependent on the oscillation pattern of the planetary gravitational field. An important factor for the intelligence of a child are the genes of the parents.

4.4 Example of the Time Quality of the Month of May in 2023

a) Earthquake pattern 41 and 513

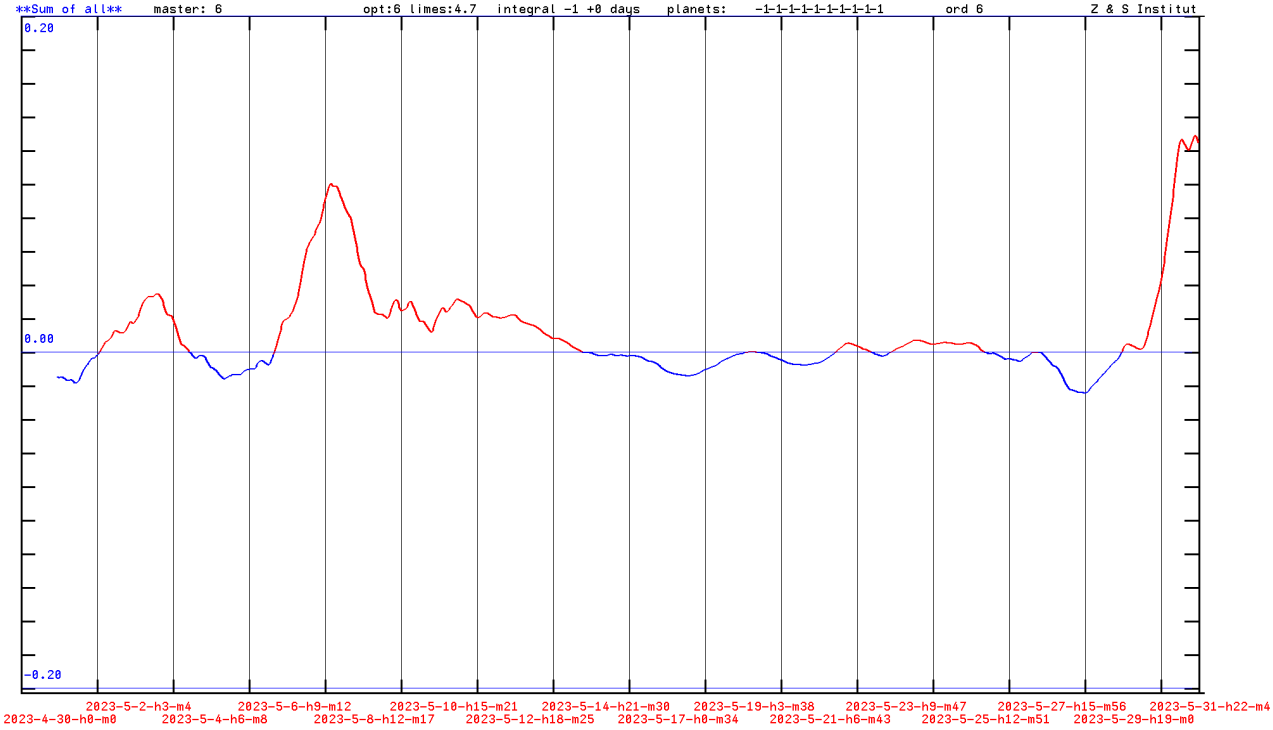


Fig.46; Change in probability for major earthquakes following the Earthquake 41 pattern.

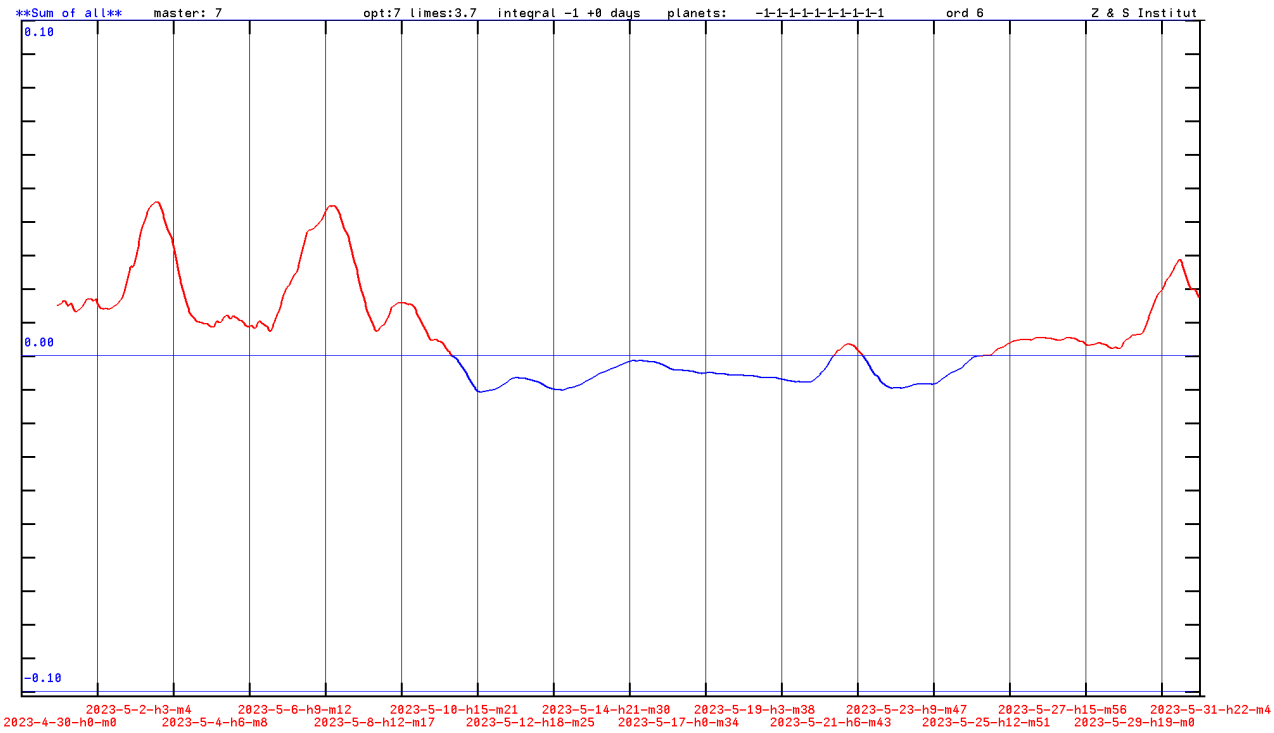


Fig.47; Change in probability for earthquakes following the Earthquake 513 pattern

Comparing the change in probabilities in Fig. 46 and Fig. 47, the similarity is immediately apparent. The patterns were established in different time periods with very different numbers of earthquake events. Larger earthquakes seem to follow a pattern that is always nearly the same.

b) Time quality at birth

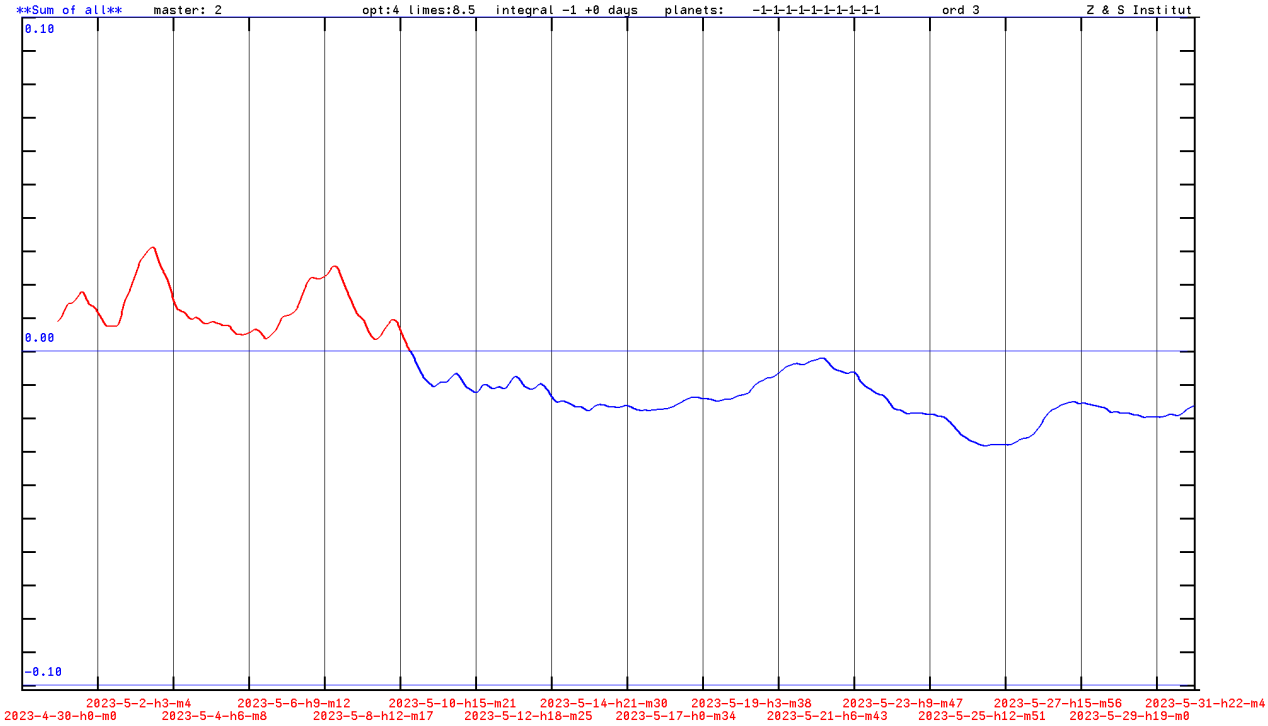


Fig.48; Change in probability of being born with a high IQ. The comparison period is 1900 to 2100 for 1000 randomly chosen events.

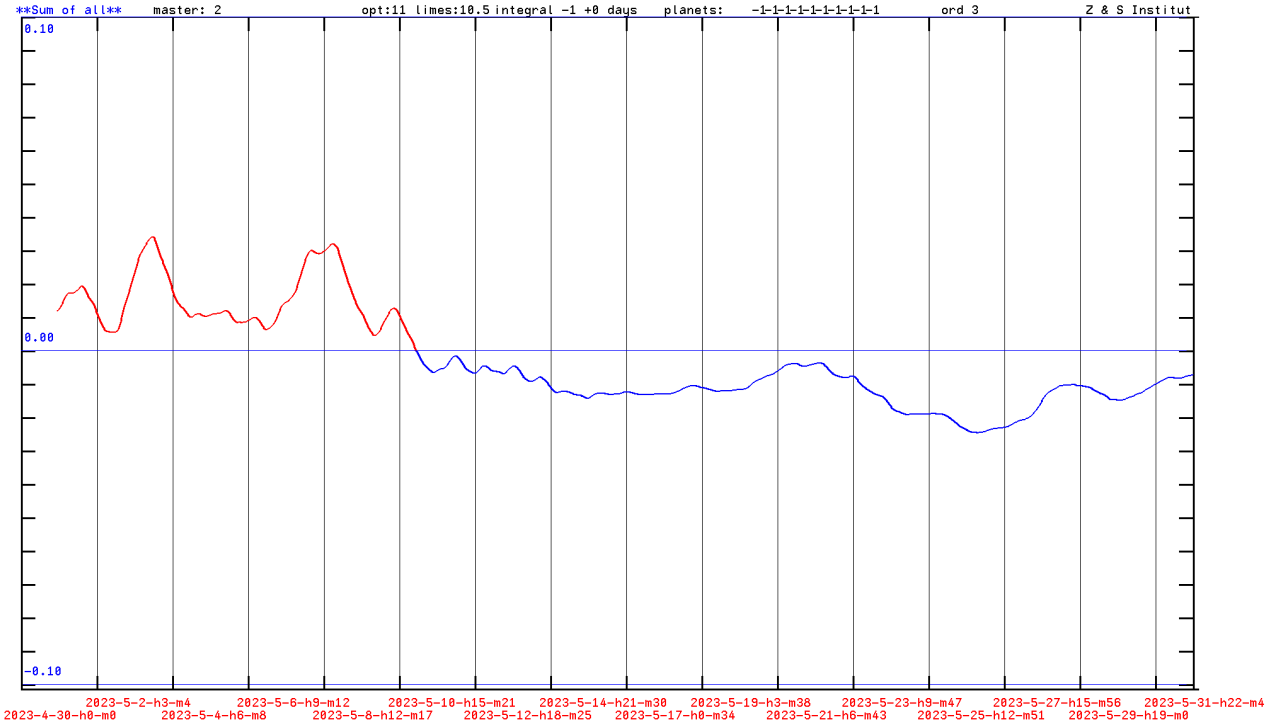


Fig.49; Change in probability of birth with a high IQ. The optimization was done with 30 individuals of a low IQ.

The curves in figures 48 and 49 are of a striking similarity. Again, it is reasonable to assume that a high IQ value follows a fixed pattern. For comparison, figure 50 shows the changes in probability for a low IQ.

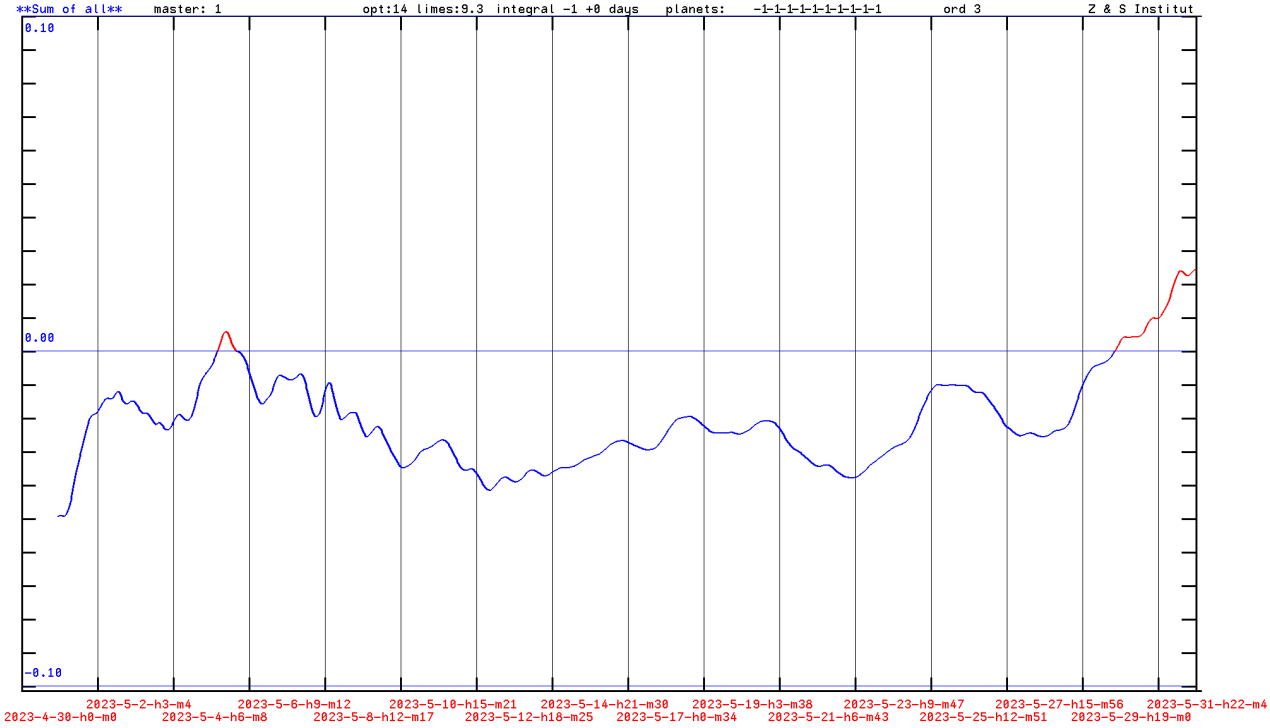


Fig.50; Change in probability of being born with a lower IQ. The optimization was done with 1000 randomly chosen events (continuum) in the period from 1900 to 2100.

The entire month of May 2023 has a relatively low probability of being born with a low IQ. The second half of May also has a lower probability of being born with a high IQ.
Important: Children with high and low IQ are born at all times! However, the probability changes.

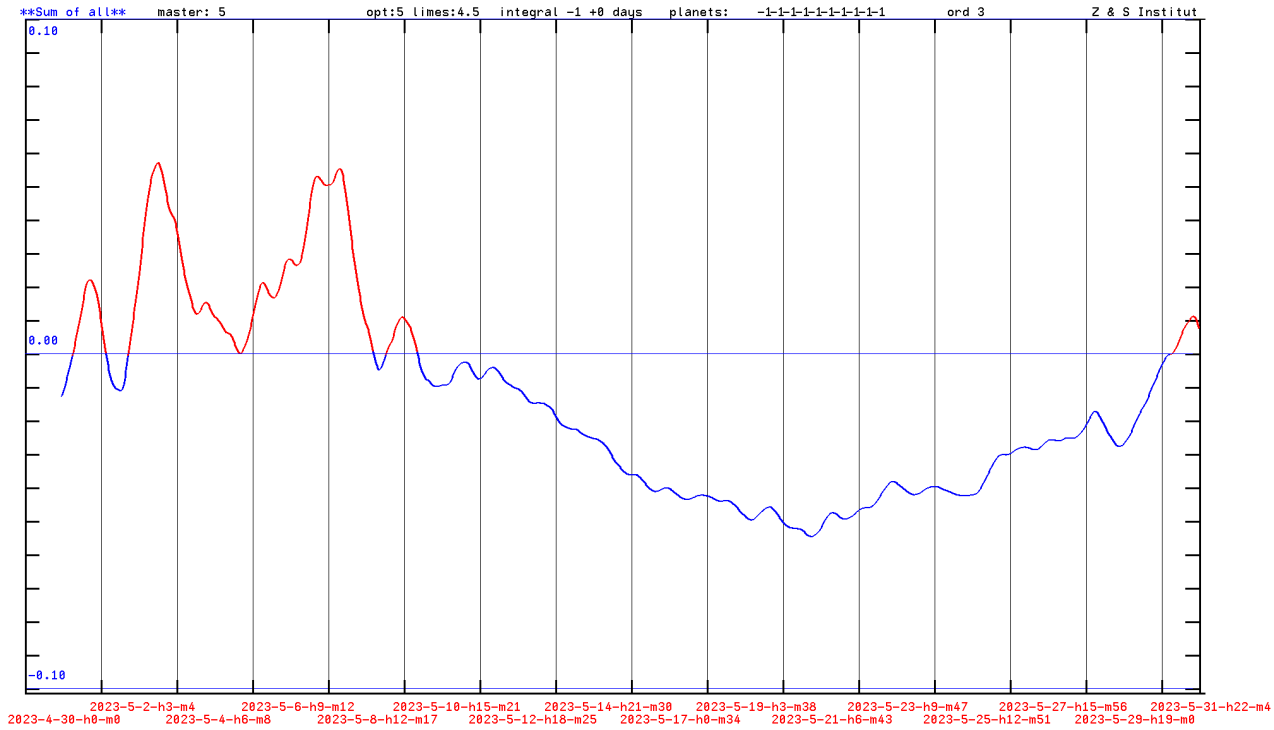


Fig.51; Change in the probability of birth with a low risk propensity. The optimization was done with 1000 randomly chosen events (continuum) in the period from 1900 to 2100.

The similarity of figure 51 (low risk tolerance/strong need for harmony) with earthquake pattern 513 (fig. 47) is striking.

Summary
Children are always born, but the probability with which intelligence quotient they will later shape their lives is not statistically equally distributed. There are e.g. time qualities, in which preferentially more intelligent children are born. The oscillations of the planetary gravitational field influence these probabilities.

5 Temporal rhythms in society

We live in a time when crises are booming.
All these crises also have a name, but the reassuring thing is: they are over!
But what will the future bring? We humans are endowed with the gift of being able to think about the future. And so we naturally ask ourselves: Is that all there is to it? Or is there worse to come?

We are already talking about a scientific apocalyptic today. When will the climate kill us? When will the distribution battles over rapidly diminishing raw materials plunge us into a global war of annihilation? Is it perhaps a super volcano or a large comet that will finish us off?
Or is it "no possible outside influences, such as comet impacts or a pandemic" that will lead to a crisis of humanity. Are they perhaps even only well-intentioned developments, which are however no longer stoppable in their complex interaction.
If we as mankind are not yet at the end, we have at least already scientifically researched it. In "The world without us" by Alan Weisman it is scientifically meticulously listed which traces will still be visible and for how long after humans have disappeared from the earth.
Is there now already a crisis model which, like the climate model, calculates for us the next catastrophes on the way to the apocalypse with a certain probability?
We know, after all, that weather forecasts calculated by supercomputers are getting better and better. And when these computers predict bad weather, you can count on it coming - unfortunately. There is less and less room for hope that the computer is wrong.

There are economic models and also attempts to relate economic activity to cycles. The Kondratjev cycle is one such model which, following the seasons, speaks of an economic winter, for example, which is then followed by a spring.
The problem with this is always the great complexity, which has to take into account so many influencing factors that it is certainly very difficult to make reliable statements about the future of the economy. Especially since today the central banks are also trying to slow down these cycles and make them less severe by taking control measures. But will they succeed?

It can also be assumed as a scientific hypothesis that the 4 billion year stability of the planetary cycles of the gravitational field has an influence on global events. In the biographical rhythms, as for example the midlife crisis, they are also to be proved.

It takes little time to find out that the rhythms of the planets Jupiter to Pluto, Neptune excluded, indicate a very great disharmony for the years 2009/2010/2011. The curves calculated with the program for the time quality of the planetary rhythms are shown in Fig.52.

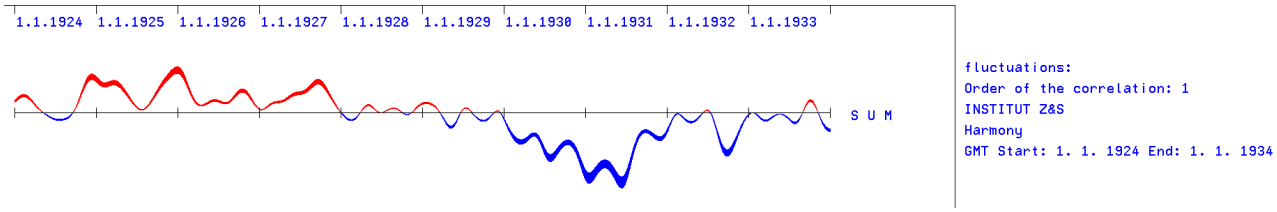


Fig.52. Time quality H from 1924 to 1933 of the planets Jupiter, Saturn, Uranus and Pluto.
If the uppermost curve is below the center line (blue area) it indicates disharmonies. Above the center line (red area) harmonics determine the planetary rhythms.

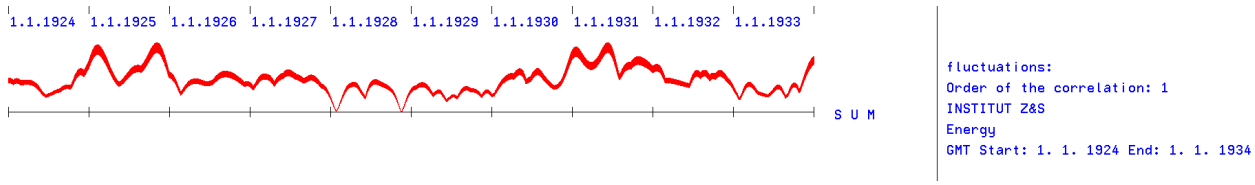


Fig.53. Time quality I from 1924 to 1933 of the planets Jupiter, Saturn, Uranus and Pluto

It can be clearly seen in Fig.36 that the stock market crash was only the trigger for the global crisis that followed. The year 1929 gave the crisis its name.
The energy in the period 1924 to 1933 shows high values for the year 1931. This means that many of the planets involved contribute to disharmony just as many planets contribute to harmony in 1925.
Can we find a repetition of this crisis at a later time?

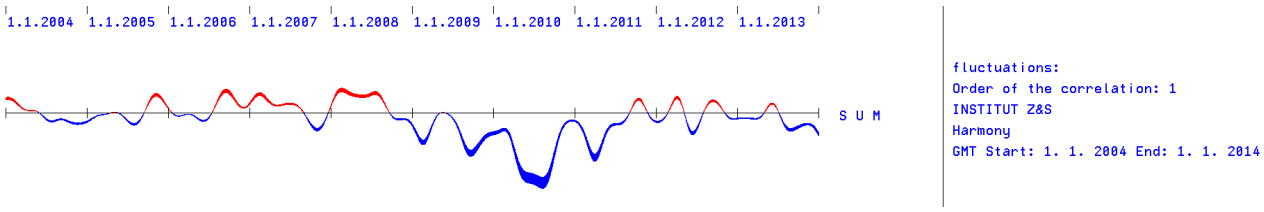


Fig.54. Time quality H from 2004 to 2014 of the planets Jupiter, Saturn, Uranus and Pluto.

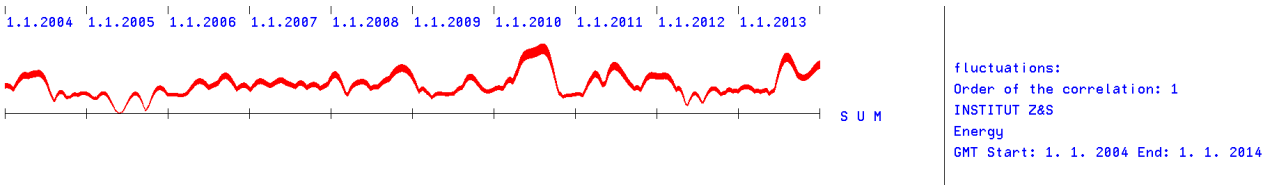


Fig.55. Time quality I 2004 to 2014 of the planets Jupiter, Saturn, Uranus and Pluto.

Characteristic for the crises of 1929 and 2008 is the relatively slow descent into disharmony.
To what extent a triggering by higher frequencies is significant here, too, must be left to further investigations.
How do these crises behave in a larger period of time? For this purpose 100 years are calculated.
Fig.56. shows the results:

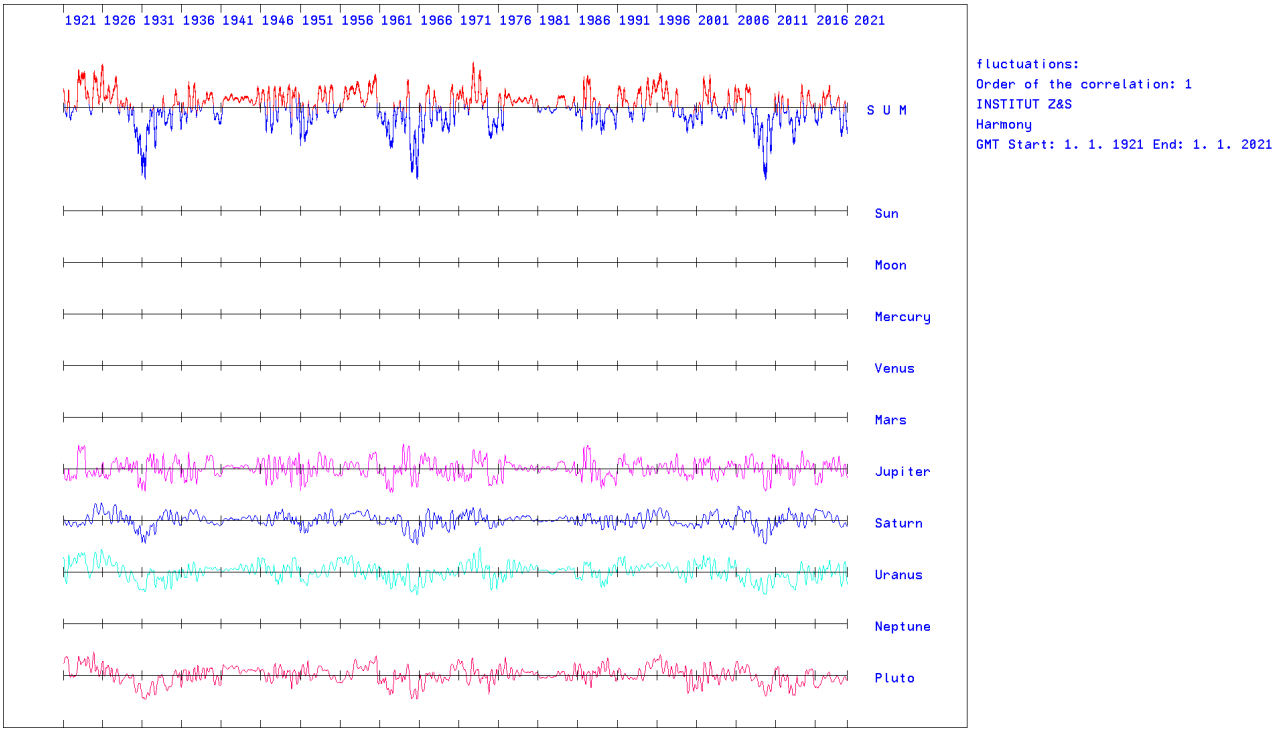


Fig.56. The three major disharmonies of the major planets (except Neptune) in the planetary gravitational field of the last 100 years.

The greatest crisis of civilization lies in the years 1961 to 1968, which is the culmination of the Cold War between the then militarily leading world powers.
The two financial and economic crises of 1929 and 2008 are also clearly visible.

Can a similar great disharmony in the planetary rhythms be recognized for the future?

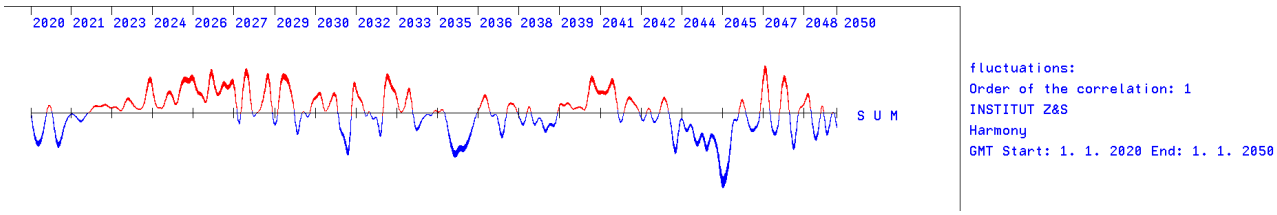


Fig.57. Time quality H from 2020 to 2050 of the planets Jupiter, Saturn, Uranus and Pluto

In fact, a strong disharmony can be seen for the years 2043 to 2045. It is even the strongest disharmony of the whole century. If the oscillator Neptune, which played only a marginal role in the financial crises, is added, the character of the crisis changes.

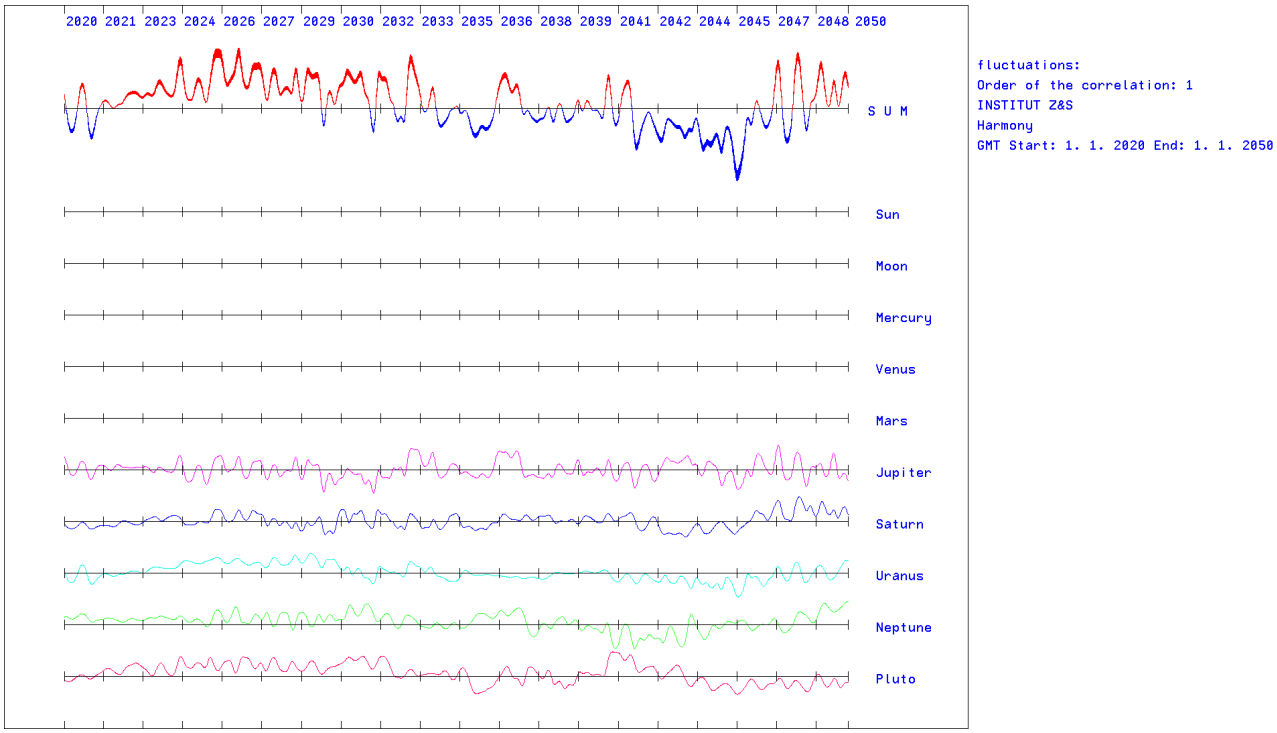


Fig.58. Time quality H 2020 to 2050 of the planets Jupiter, Saturn, Uranus Neptune and Pluto.

The year 2045 is the year of the apocalypse for the Fermi Paradox and also the year of the Technological Singularity according to Raymond Kurzweil.
The next 30 years will go down in history as a watershed time.
Ian Morris, in his book, Who Rules the World? Why Civilizations Rule or Are Ruled" he mentions five Apocalyptic Horsemen by name that can serve as signs of a world turning point. He arrives at these 5 cardinal signs from an analysis of the past ten thousand years of human development.
Are these Morris Horsemen really able to initiate an age of darkness in their entirety or are already less, but therefore all the more terrible horsemen sufficient?
The Apokalyptischen horsemen after Morris are:

1. famines
2. epidemics
3. uncontrolled migration
4. political instability
5. climate change

From the experiences of the previous investigations, which are not all listed here, there is indeed an increased probability of an apocalypse due to the planetary disharmony. However, an apocalypse does not have to mean the end of mankind.

6. correlations in the individual development of humans

In biology, it is almost impossible to derive realistic models from a few basic differential equations. An unmanageable number of parameters leads to models which are no longer practicable. Infinitesimal observations or even measurements lose their meaning in biography. Therefore, a low-dimensional minimal model is developed, which can reproduce the phenomena to be observed, oscillations in life stages. Simple elements of the model, through their combinations and variable

orders, create the possibility to capture the manifoldness of observable phenomena.
The background of the model is first of all the purely pragmatic assumption that processes of change in personality development are at least partly endogenously pre-programmed. Primarily, however, it is not intended to depict a theoretically justifiable personality approach. However, this could then result from the practical investigations.

The object of investigation in this section are developmental stages of human biography and their modeling as a psychodynamic process with nonlinearly coupled oscillators (the planets). Such developmental stages are phases of enhanced growth in childhood and adolescence, periods of psychological instability, but also stability.

The results of the investigations suggest that the whole variety of the human-psychic can be traced back to the effectiveness of few factors (here oscillators). However, these factors are not to be understood statically in such a way that only their individual degrees of expression determine the human being in psychological respect. Rather, they have a dynamic, impulse-giving effect on the autogenesis of a person. The knowledge of these dynamically acting factors in the past and future of the individual can then support the striving for self-optimization and self-management in their awareness.

6.1 Development from birth to 12 years of age

In these investigations, the interdisciplinary range is very much claimed. The origins of these examinations lie in a textbook for painters with the title:" Der nackte Mensch - Künstleranatomie". There I found the sentence:" Between the 3rd and 5th year of life, the infant takes on a charm that never returns. . . " This indicates a stable state of development at this age.

Fig.59. The charm of the four-year-old child will never be reached again later. (Pictures by Anselm Feuerbach and Liesel Lauterborn)

This is then followed by a change in shape that is accompanied by instabilities, which are thus in the 6th and 7th year of life. This rhythm of stability and instability in development is also visible in the body forms during childhood. Thus, artists of earlier times preferred the phases of relative stability, harmony and balance for the depiction of child and adolescent angels.

These studies favor a developmental model that involves a psychodynamic process between crisis and crisis resolution. Some preliminary remarks on the following figures: The mean orbital periods of the planets were used to calculate the curves.
Thus, at best, they are statistical averages. In the concrete, individual case, the curves can deviate by up to two years.

Fig.60. The physical harmony of the 11-year-old child, the climax of childhood *(Fig: "Cupid as Victor" by Michelangelo da Caravaggio).*

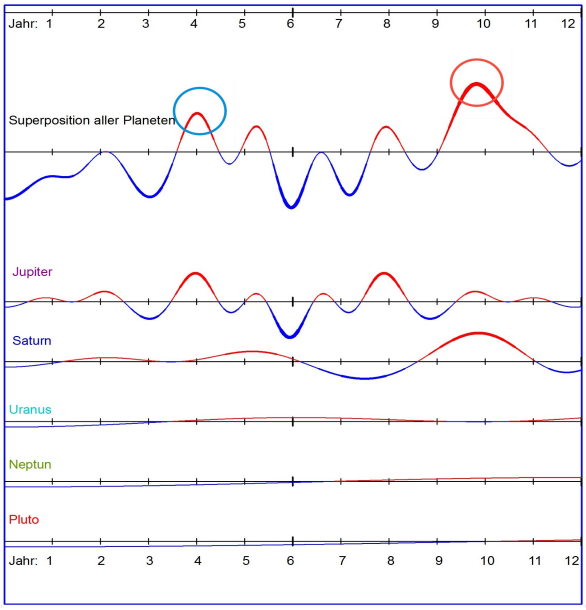
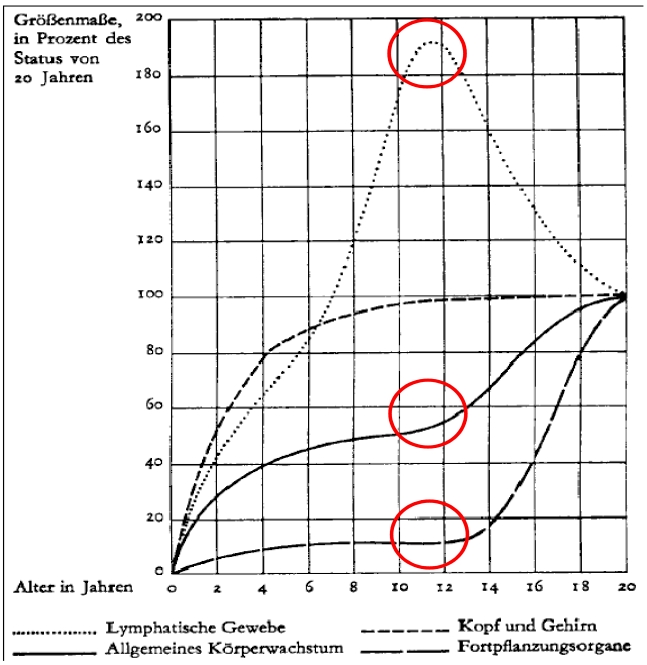


Fig. 61. shows the superposition of the (slow, biographic) planets Jupiter up to and including Pluto. Dominant in this period are only Jupiter and Saturn. Three major instabilities or crises of development can be discovered. This is birth, which is undoubtedly a crisis for the individual. The second crisis initiates the "defiance phase" around the third year of life.



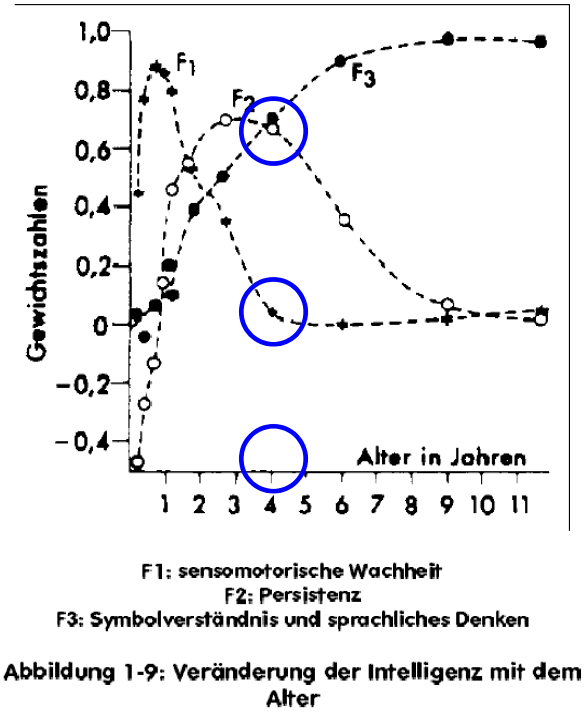


Fig.62. Autocorrelations of major planets with different types of development curves. The development curves are from M. TÃ¼cke, "Developmental Psychology of Childhood and Adolescence. . . "[14]

The first phase is the "charm" of the child around the age of 4. This is just the time when the annual increase in length growth has slowed down. It will not increase again until puberty. Also, sensorimotor wakefulness has come to rest. The second phase is the "peak of childhood" around the 10th and 11th year. The body proportions are relatively harmonious. The lymphatic tissue has reached its maximum. It is the calm before the storm of the following puberty.
A third phase of instability begins around the 6th year of life. The external appearance of the children also changes a lot. The period around the 6th and 7th year of life is a major turning point for all children around the world. In most cases, school enrollment and the change of teeth are associated with this. In addition to the phases of instability and disharmony, however, there are also two phases of particular stability and harmony.

Of course, there are differences between boys and girls but also individual developmental differences. These curves were obtained from the autocorrelations. The addition of the cross correlations leads to a first individualization. A second individualization is achieved by triggering the higher frequencies of Mars and Venus. Possibly these frequencies also affect the different onset of puberty. There are, of course, many other circumstances that affect the onset of puberty. But at certain intervals the planetary fluctuations trigger. Whether puberty starts then or at a later (triggered) time also depends on the environment, nutrition and genetic predispositions. However, these studies are still in their infancy.

6.2 Development from the 13th to the 24th year of life

he peak of the pubertal period is around the age of 15. The childlike facial forms are in the process of dissolution. The grace of adolescence, a stable phase, does not emerge until about the16th /17th year of life. Whereas in childhood the stable and unstable phases can still be well associated with physical growth processes, in adolescence the influence shifts increasingly to psychological processes.

Fig.63. The grace of the 16-year-old youth the climax of youth. (Illustration by Hans Thoma)

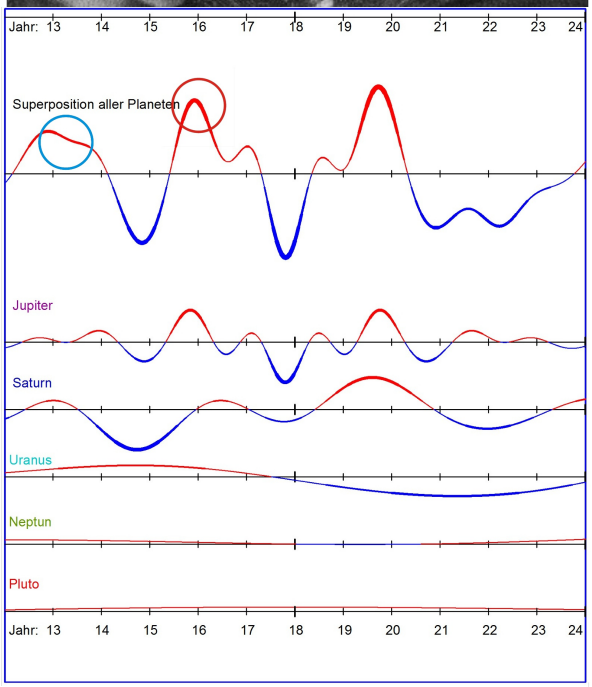


Fig.64. Autocorrelation of the major planets during pupation.

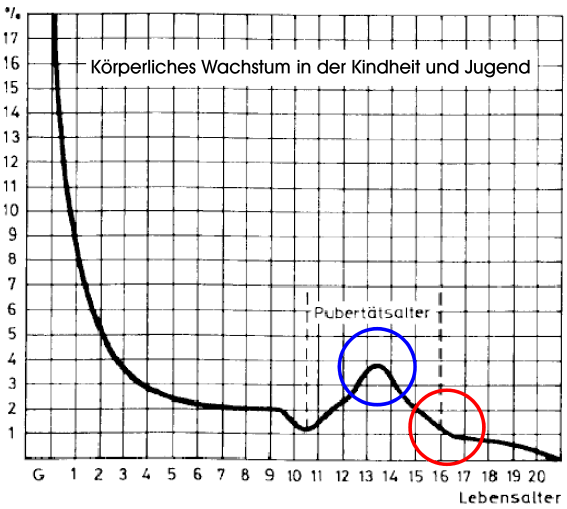


Fig.65. The curve is from M. TÃ¼cke, "Developmental Psychology of Childhood and Adolescence. . . " [14]

6.3 Particularities in the biography from the age of 25 onwards

In adult biography, one may raise the following question: Can the controversial but very popular midlife crisis be identified in planetary fluctuations? It seems indeed to be the longest and greatest unstable phase in the life course. While in childhood the planets Jupiter and Saturn were able to exert an influence, now the planets Uranus and Neptune have been added. The superposition of all these planets shapes the character of this unstable phase. (Figure 66)

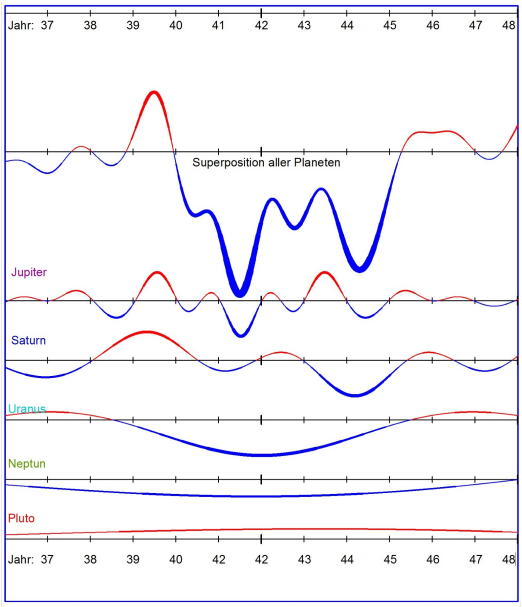


Fig.66. The midlife crisis and its reflection in the autocorrelations of the major planets. Besides Jupiter and Saturn, the oscillators Uranus and Neptune are important now.

What follows the midlife crisis, some of you surely already know: It is the equally popular "Best Years". These are also depicted in the planetary fluctuations as a long-lasting stable and harmonious time. Individual exceptions are of course always possible!

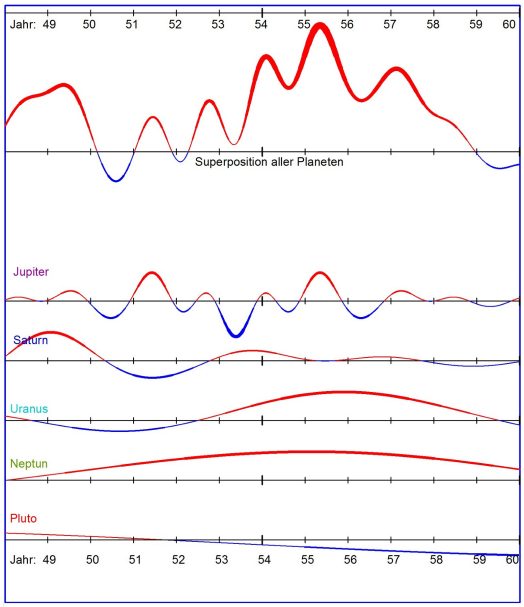


Fig.67. The "best years" in the biography of a person. Exceptions are always possible!

7 Concluding remarks

Finally, a few remarks on further research. Already the research on the earthquakes has shown that not all correlations have the same weight. For example, Pluto had no influence on the triggering of the earthquakes. But also the other examples suggest to introduce a factor which allows an adjustment to the studied problem. This factor has the function of a frequency filter. Possibly, it will have a dependence on the gravitational force, frequency and resonance frequencies. Such optimization is necessary if this correlation theory is to be used to make predictions with a higher probability. The goal of this research was to provide evidence that planetary fluctuations exert an influence that is not always negligible. If one defines coincidence in evolution as a lack of complete information, then with the inclusion of the fluctuations of the planetary gravitational field this lack can be reduced a little.

The simulation hypothesis of the philosopher and astrophysicist Nick Bostrom has a probability different from zero. Possibly also the investigations to the microgravity of the planetary system have less to do with gravity than with a simulation hypothesis. In my opinion, the probability for this is also not zero.

Abb.68. God_the_Geometer. Aus Wikipedia.

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9. selected data

9.1 The 41 strongest earthquakes 1900 to 2000

NAME,C,200		ORT,C,200	LAENGE,	BREITE,	ZEIT,	DATUM,C,20	ZEIT,C,20	SOMMERZEIT,C,
China	Tangshan	Peking	116.25	39.55	8	28.7.1976	03:42:00	0
Japan	Yokohama	Yokohama	141.15	41.4	10	1.9.1923	11:58:00	0
China	Gansu	Peking	116.25	39.55	8	16.12.1920	20:06:53	0
Peru	Norden	Lima	-77.3	-12.3	-5	31.5.1970	11:23:00	0
Iran	Nordwesten	Teheran	51.26	35.4	3	21.6.1990	00:30:00	0
Tuerkei	Osten	Ankara	32.52	39.56	2	27.12.1939	01:57:00	0
Chile	Chillan	Santiago	-70.4	-33.27	-5	24.1.1939	23:32:00	0
Iran	Nordosten	Teheran	56:55	33:35	3	16.9.1978	19:38:00	0
Armenien	Nordwesten	Jerewan	44.30	40.11	4	7.12.1988	11:41:00	0
Guatemala	Guatemala	Guatemala City	90.77	14.6	-6	4.2.1976	03:02:00	0
Indien	SW	Bombay	72.5	18.58	5	30.9.1993	03:56:00	0
Chile	Valparaiso	Santiago	-70.4	-33.27	-5	16.8.1906	19:55:00	0
Mexico	Mexico	Mexiko City	-99.9	19.24	-6	19.9.1985	07:18:00	0
Japan	Kobe	Tokyo	139.46	35.42	9	17.1.1995	05:46:00	0
Afghanistan	NO	Kabul	70.0	35.0	4	4.2.1998	10:33:00	0
Tuerkei	XY	Ankara	32.52	39.56	2	17.8.1999	03:02:00	0
L1-1	Nordjapan	Nordjapan	148.50	44.30	9	6.11.1958	22:58:00	0
L1-2	Kurilen	Kurilen	161.0	53.0	10	3.2.1923	16:01:00	0
L1-3	Mitteljapan	Mitteljapan	144.50	39.20	9	2.3.1933	17:30:00	0
L1-5	Mongolei	Mongolei	98.0	49.0	6	23.7.1905	2:46:00	0
L1-4	Mongolei	Mongolei	99.0	49.0	6	9.7.1905	9:40:00	0
L1-6	Molukken	Molukken	130.50	-5.20	9	1.2.1938	19:04:00	0
L1-7	Chile	Chile	-70.0	-28.50	-4	11.11.1920	4:32:00	0
L1-8	Kurilen	Kurilen	149.50	44.80	10	13.10.1963	5:17:00	0
L1-9	Nordindien	Nordindien	96.50	28.60	6	15.8.1950	14:09:00	0
L1-10	Aleuten	Aleuten	178.60	51.30	13	4.2.1965	5:01:00	0
L1-11	Kolumbien	Kolumbien	-81.50	1.0	-5	31.1.1906	15:36:00	0
L1-12	Nordkurilen	Nordkurilen	161.0	52.30	12	4.11.1952	16:58:00	0
L1-13	Aleuten	Aleuten	-175.80	51.30	-11	9.3.1957	14:22:00	0
L1-14	Alaska	Alaska	-147.60	61.10	-10	28.3.1964	3:36:00	0
L1-15	Chile	Chile	-74.50	-39.50	-4	22.5.1960	19:11:00	0
L2-1	China	China	77.0	40.0	8	22.8.1902	3:00:00	0
L2-2	Japan	Japan	143.0	42.50	9	4.3.1952	6:03:00	0
L2-3	Ecuador	Ecuador	-76.80	-8.0	-5	16.11.1907	10:10:00	0
L2-4	Marianen	Arianen	143.0	22.0	10	24.11.1914	11:53:00	0
L2-5	Samoa	Samoa	-173.0	-15.50	-10	26.6.1917	5:49:00	0
L2-6	Nicobaren	Nicobaren	92.50	12.50	5	26.6.1941	11:52:00	0
L2-7	S	S	131.0	28.0	10	15.6.1911	12:00:00	0
L2-8	S	S	-158.0	55.50	-10	10.11.1938	20:18:00	0
L2-9	Westchina	westchina	77.50	43.50	8	3.1.1911	23:25:00	0
L2-10	Nordneuseeland	Nordneuseeland	-176.40	-28.10	-12	20.10.1986	6:46:00	0

9.2 List of highly gifted people

	A	B	C	D	E	F	G
1	NAME,C,200	LAENGE,C,12	BREITE,C,12	ZEITZONE,C,8	DATUM,C,20	ZEIT,C,20	SOMMERZEIT
2	HB	10.00	50.00	1	04.11.1952	01:30:00	0
3	HB	10.00	50.00	1	07.10.1953	07:50:00	0
4	HB	10.00	50.00	1	24.07.1953	08:49:00	0
5	HB	10.00	50.00	1	27.01.1954	19:35:00	0
6	HB	10.00	50.00	1	05.09.1954	21:00:00	0
7	HB	10.00	50.00	1	09.09.1954	08:00:00	0
8	HB	10.00	50.00	1	07.11.1955	01:30:00	0
9	HB	11.35	48.08	1	03.03.1957	15:20:00	0
10	HB	10.00	50.00	1	26.09.1957	23:22:00	0
11	HB	10.00	50.00	1	15.07.1958	10:35:00	0
12	HB	11.35	48.08	1	17.03.1959	16:26:00	0
13	HB	10.00	50.00	1	27.03.1959	09:45:00	0
14	HB	10.00	50.00	1	20.02.1963	11:47:00	0
15	HB	10.00	50.00	1	10.07.1965	21:45:00	0
16	HB	10.00	50.00	1	28.11.1963	02:33:00	0
17	HB	10.00	50.00	1	22.06.1963	07:10:00	0
18	HB	10.00	50.00	1	25.09.1963	10:25:00	0
19	HB	10.00	50.00	1	21.12.1961	15:21:00	0
20	HB	10.00	50.00	1	04.08.1968	14:38:00	0
21	HB	13.30	52.30	1	03.02.1966	11:57:00	0
22	HB	10.00	50.00	1	12.08.1966	01:45:00	0
23	HB	10.00	50.00	1	01.06.1969	09:03:00	0
24	HB	10.00	50.00	1	01.09.1966	10:58:00	0
25	HB	10.00	50.00	1	06.04.1967	02:47:00	0
26	HB	10.00	50.00	1	30.01.1962	21:00:00	0
27	HB	10.00	50.00	1	24.07.1969	16:00:00	0
28	HB	11.35	48.08	1	13.02.1968	21:36:00	0
29	HB	11.35	48.08	1	21.05.1962	10:10:00	0
30	HB	10.00	50.00	1	04.01.1964	15:00:00	0
31	HB	10.00	50.00	1	02.04.1964	08:05:00	0
32	HB	10.00	50.00	1	01.03.1965	12:50:00	0
33	HB	10.00	50.00	1	12.12.1964	21:00:00	0
34	HB	10.00	50.00	1	16.08.1967	16:50:00	0
35	HB	11.35	48.08	1	21.09.1985	09:22:00	1
36	HB	10.00	50.00	1	19.09.1993	08:15:00	1
37	HB	10.00	50.00	1	01.09.1991	20:00:00	1
38	HB	10.00	50.00	1	05.12.1996	00:39:00	0
39	HB	10.00	50.00	1	01.07.1983	06:00:00	1
40	HB	11.35	48.08	1	20.01.1997	10:08:00	0
41	HB	11.35	48.08	1	08.11.1995	07:20:00	0
42	HB	10.00	50.00	1	22.01.1988	10:07:00	0
43	HB	11.35	48.08	1	27.07.1995	01:23:00	1
44	HB	11.35	48.08	1	30.04.1993	09:44:00	1
45	HB	11.35	48.08	1	06.10.1981	01:31:00	0
46	HB	11.35	48.08	1	13.01.1999	12:58:00	0
47	HB	11.35	48.08	1	26.04.1997	01:29:00	1
48	HB	10.00	50.00	1	15.09.1992	02:47:00	1
49	HB	10.00	50.00	1	31.01.1987	01:00:00	0
50	HB	10.00	50.00	1	22.04.1984	13:00:00	1
51	HB	10.00	50.00	1	25.10.1980	14:44:00	0
52	HB	11.35	48.08	1	27.05.1996	06:21:00	1
53	HB	11.35	48.08	1	13.08.1992	14:35:00	1
54	HB	11.35	48.08	1	05.09.1994	16:45:00	1
55	HB	10.00	50.00	1	11.09.1991	17:30:00	0
56	HB	10.00	50.00	1	21.06.1986	23:30:00	0
57	HB	10.00	50.00	1	23.09.1995	10:32:00	1
58	HB	11.35	48.08	1	20.02.1997	07:28:00	0
59	HB	10.00	50.00	1	10.10.1988	05:14:00	0
60	HB	11.35	48.08	1	13.05.2000	01:27:00	1
61	HB	11.35	48.08	1	01.12.2000	13:05:00	0
62	HB	10.00	50.00	1	23.03.1978	04:55:00	0
63	HB	10.00	50.00	1	24.09.1948	05:50:00	1

10 Manual ASTRO-basis

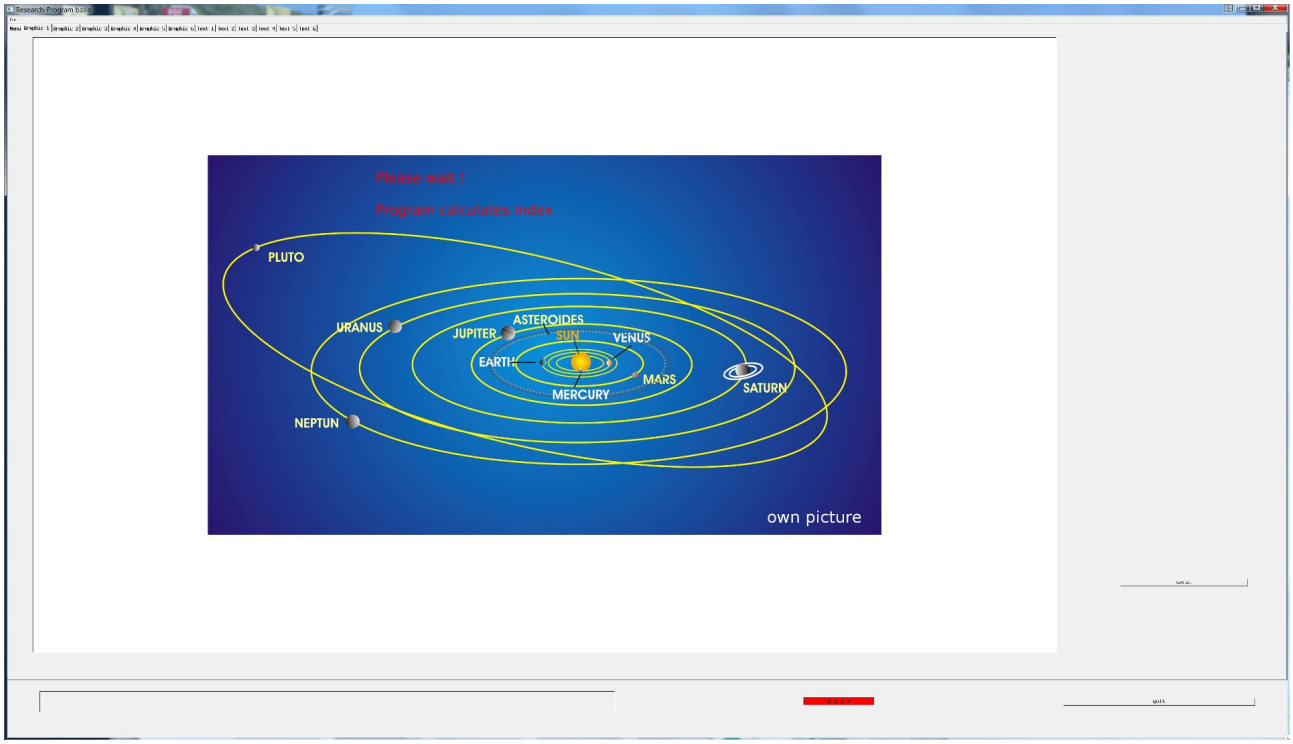
The program calculates the gravitational interactions of the Sun, Moon and the planets up to Pluto. Asteroids are not calculated. The calculated correlation function can be interpreted as a vector field with higher harmonics.

10.1 Starting the program

The program "astro-basis.exe " is started by double-clicking in the ASTRO directory.

Important: The files already existing in the directory must not be changed.

The start screen appears

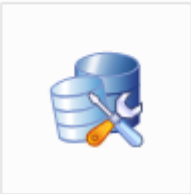


Before the input can be started, the program calculates the lists for the orders 1 to 12 of the correlation function.

This calculation is displayed in the upper left corner and in the lower right corner.
The duration of these calculations depends on the performance of the computer.
Once these calculations have been completed, the actual investigations can begin.
The following example is calculated for this purpose.

10. 2 Calculation for the 41 earthquakes

10. 2. 1 Statistics 1 - Continuum



events1-41-1900-2000n.dbf

The file of the earthquakes is saved in the database format dbf. It can also be edited with the OpenOffice.org Writer. Other formats are not processed.
It is useful to label the database with the number of events and the time period. Calculations on this in "Microgravity; Chapter 2.1 An initial study of 41 of the strongest earthquakes".

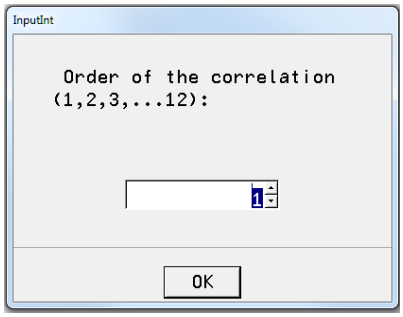
	A	B	C	D	E	F	G	H	I	J	K	L
1	NAME,C,200	VORNAME,C,20	ORT,C,200	LAENGE	BREITE	ZEIT	DATUM,C,2	ZEIT,C,20	S	KATEGORIE	TYP,C,30	NOTIZEN,C,0
2	China	Tangshan	Peking	116.25	39.55	8	28.7.1976	03:42:00	0			
3	Japan	Yokohama	Yokohama	141.15	41.4	10	1.9.1923	11:58:00	0			
4	China	Gansu	Peking	116.25	39.55	8	16.12.1920	20:06:53	0			
5	Peru	Norden	Lima	-77.3	-12.3	-5	31.5.1970	11:23:00	0			
6	Iran	Nordwesten	Teheran	51.26	35.4	3	21.6.1990	00:30:00	0			
7	Tuerkei	Osten	Ankara	32.52	39.56	2	27.12.1939	01:57:00	0			
8	Chile	Chillan	Santiago	-70.4	-33.27	-5	24.1.1939	23:32:00	0			
9	Iran	Nordosten	Teheran	56:55	33:35	3	16.9.1978	19:38:00	0			
10	Armenien	Nordwesten	Jerewan	44.30	40.11	4	7.12.1988	11:41:00	0			
11	Guatemala	Guatemala	Guatemala City	90.77	14.6	-6	4.2.1976	03:02:00	0			
12	Indien	SW	Bombay	72.5	18.58	5	30.9.1993	03:56:00	0			
13	Chile	Valparaiso	Santiago	-70.4	-33.27	-5	16.8.1906	19:55:00	0			
14	Mexico	Mexico	Mexiko City	-99.9	19.24	-6	19.9.1985	07:18:00	0			
15	Japan	Kobe	Tokyo	139.46	35.42	9	17.1.1995	05:46:00	0			
16	Afghanistan	NO	Kabul	70.0	35.0	4	4.2.1998	10:33:00	0			
17	Tuerkei	XY	Ankara	32.52	39.56	2	17.8.1999	03:02:00	0			
18	L1-1	Nordjapan	Nordjapan	148.50	44.30	9	6.11.1958	22:58:00	0			
19	L1-2	Kurilen	Kurilen	161.0	53.0	10	3.2.1923	16:01:00	0			
20	L1-3	Mitteljapan	Mitteljapan	144.50	39.20	9	2.3.1933	17:30:00	0			
21	L1-5	Mongolei	Mongolei	98.0	49.0	6	23.7.1905	2:46:00	0			
22	L1-4	Mongolei	Mongolei	99.0	49.0	6	9.7.1905	9:40:00	0			
23	L1-6	Molukken	Molukken	130.50	-5.20	9	1.2.1938	19:04:00	0			
24	L1-7	Chile	Chile	-70.0	-28.50	-4	11.11.1920	4:32:00	0			
25	L1-8	Kurilen	Kurilen	149.50	44.80	10	13.10.1963	5:17:00	0			
26	L1-9	Nordindien	Nordindien	96.50	28.60	6	15.8.1950	14:09:00	0			
27	L1-10	Aleuten	Aleuten	178.60	51.30	13	4.2.1965	5:01:00	0			
28	L1-11	Kolumbien	Kolumbien	-81.50	1.0	-5	31.1.1906	15:36:00	0			
29	L1-12	Nordkurilen	Nordkurilen	161.0	52.30	12	4.11.1952	16:58:00	0			
30	L1-13	Aleuten	Aleuten	-175.80	51.30	-11	9.3.1957	14:22:00	0			
31	L1-14	Alaska	Alaska	-147.60	61.10	-10	28.3.1964	3:36:00	0			
32	L1-15	Chile	Chile	-74.50	-39.50	-4	22.5.1960	19:11:00	0			
33	L2-1	China	China	77.0	40.0	8	22.8.1902	3:00:00	0			
34	L2-2	Japan	Japan	143.0	42.50	9	4.3.1952	6:03:00	0			
35	L2-3	Ecuador	Ecuador	-76.80	-8.0	-5	16.11.1907	10:10:00	0			
36	L2-4	Marianen	Arianen	143.0	22.0	10	24.11.1914	11:53:00	0			
37	L2-5	Samoa	Samoa	-173.0	-15.50	-10	26.6.1917	5:49:00	0			
38	L2-6	Nicobaren	Nicobaren	92.50	12.50	5	26.6.1941	11:52:00	0			
39	L2-7	S	S	131.0	28.0	10	15.6.1911	12:00:00	0			
40	L2-8	S	S	-158.0	55.50	-10	10.11.1938	20:18:00	0			
41	L2-9	Westchina	westchina	77.50	43.50	8	3.1.1911	23:25:00	0			
42	L2-10	Nordneuseeland	Nordneuseeland	-176.40	-28.10	-12	20.10.1986	6:46:00	0			

To create your own databases, it is important that at least column A (name), D (longitude), E (latitude), F (time zone) G (date) and H(time of the event) are entered.

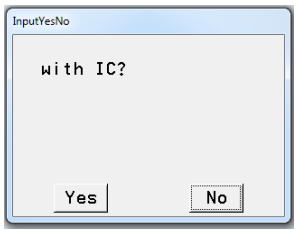
	A	B	C	D	E	F	G	H	I	
1	NAME,C,200	VORNAME,C,20	ORT,C,200	LAENGE	BREITE	ZEIT	DATUM,C,2	ZEIT,C,20	S	KA
2	China	Tangshan	Peking	116.25	39.55	8	28.7.1976	03:42:00	0	

For statistical investigations, the calculations always start with the Statistics 1 - Continuum program.

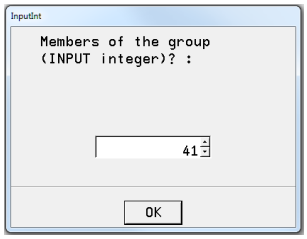
Statistics 1 – Continuum



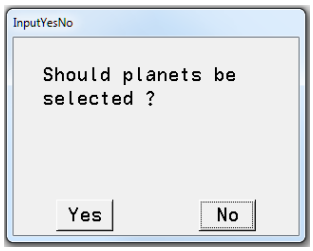
First the order is requested. For general time qualities the lower orders are used, for triggering events the higher orders.



Query for the IC (direction to the center of the earth). The IC is only calculated if the earth is to be examined. It brings the highest frequencies in the correlation function and is not suitable for trends.

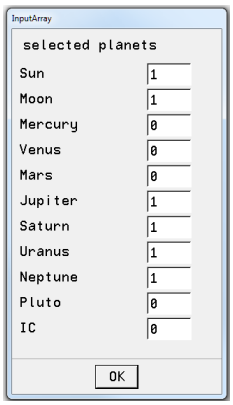


Next, the number of events is requested.

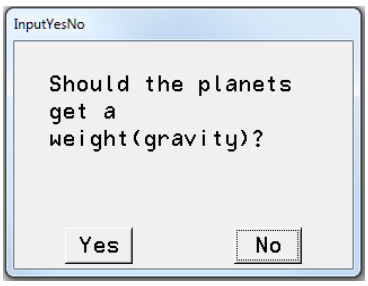


Should only certain planets be selected?

If this question is answered with Yes:

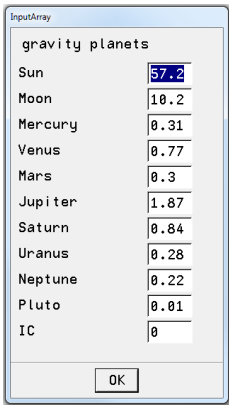


If this question is answered with No:

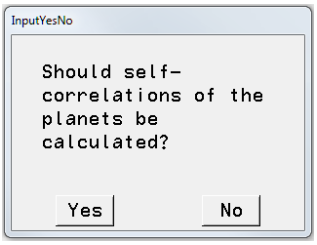


Planets can be selected here with 1 or deselected with 0.
However, there can also be a weighting in the Number format 12.05 must be entered.

If this question is answered with Yes, appears:



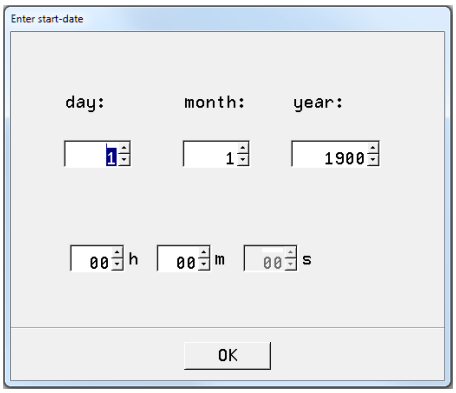
These are approximately the square roots of the gravitational effect. However, this weighting has proved to be of little use, as other interactions are relevant here. These numbers can be changed.



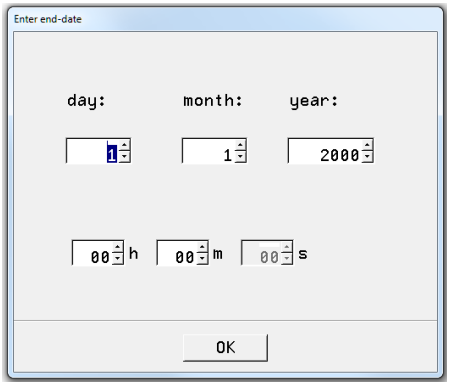
This query is usually answered with **No** for statistical studies.

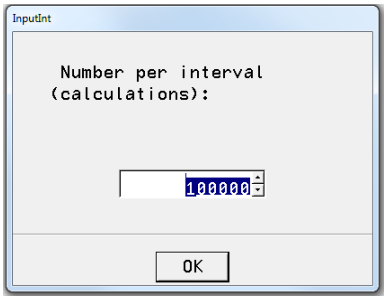
The following entries define the time period in which the mean value for the correlation function is to be calculated.

Start of calculations:

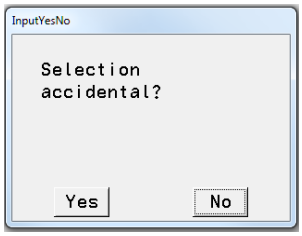


End of calculations:





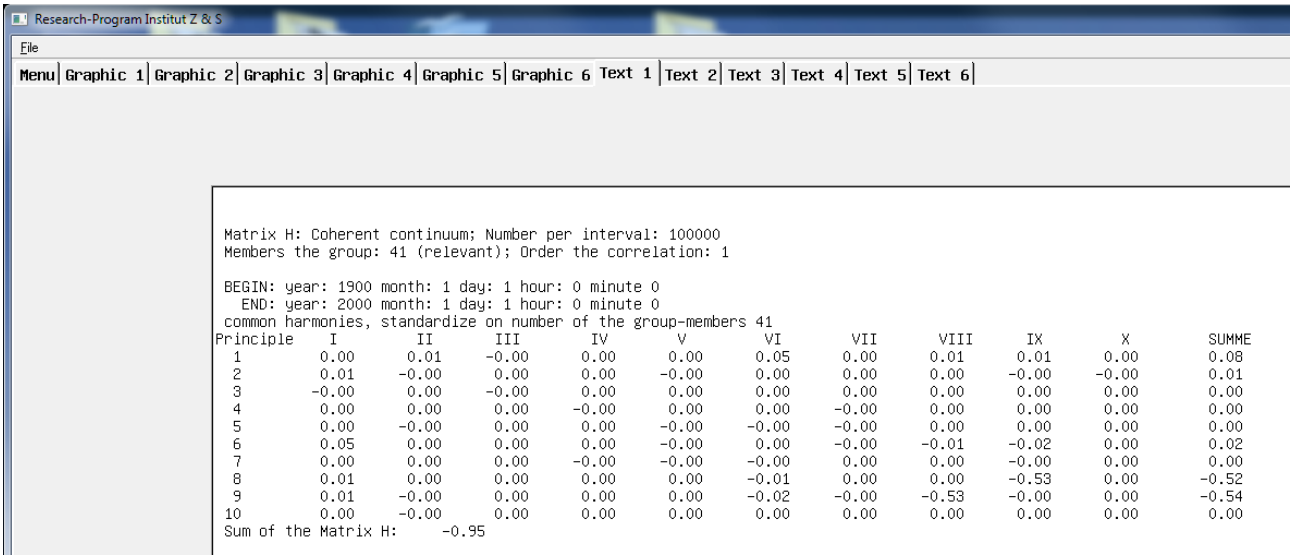
This input determines the number of calculations in the previously selected time interval. The size 100 000 is preselected and is calculated by most computers in a reasonable time.

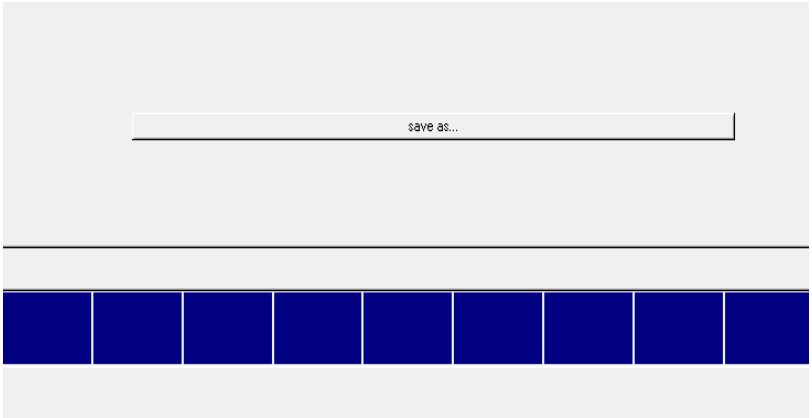


One last question is asked before the calculation begins. Should events in the period be calculated randomly or continuously (with equal intervals)? This question can be answered with No. The differences are small.

The blue bar shows the progress of the calculation:

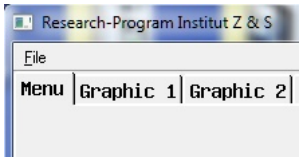
The results can be found in the text field Text 1:



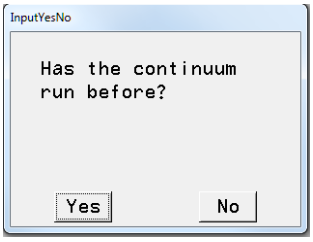


The results of the calculation can now be saved as a text file with "save as..."

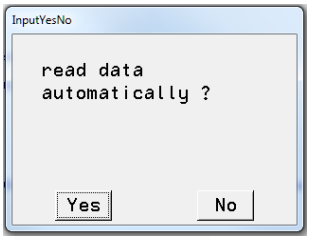
10.2.2 Event Analysis



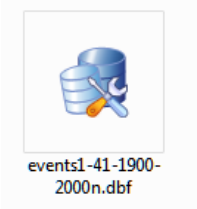
After the program Statistic 1- Continuum is finished, the program "Event Analysis" is called via the button Menu.



If the continuum has already been calculated, the queries are simplified and the already stored values are taken over. If the question is answered with No, the entries must be made again.
Please run the Statistics 1 - Continuum program beforehand so that the event analysis can be evaluated.

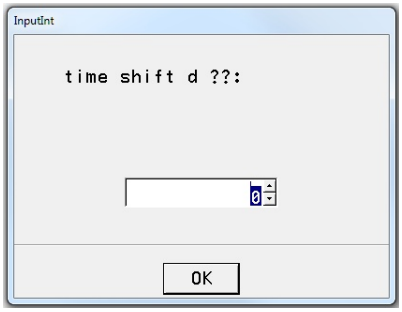


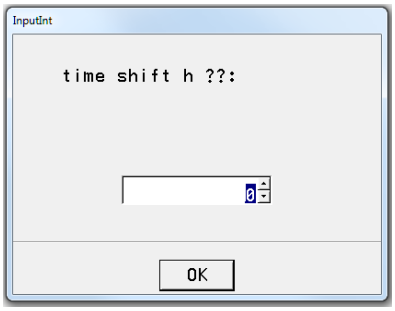
The events are read in automatically if this query is answered with Yes. If the answer is No, the events must be selected by double-clicking.



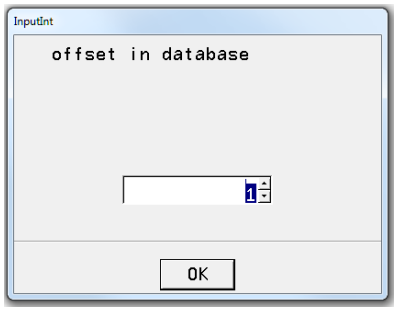
Double click or click once and then click open at the bottom to open the file.

Before the calculations start, it is possible to postpone the calculation of the correlation function before or after the actual event. With these following boxes the events can be shifted by days and hours.

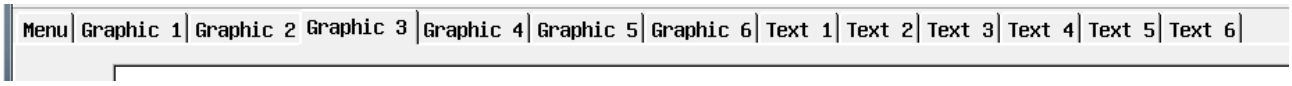




The following query determines the beginning of the data in the events file.



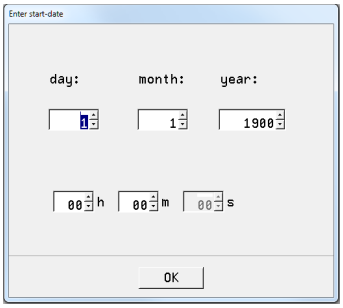
If the file contains only the events to be examined, the offset will usually be 1. However, several groups can also be combined in one file. Then the offset is the line where the group starts.
The results are in Graphic 3 and Text 2 and can be saved with save as...



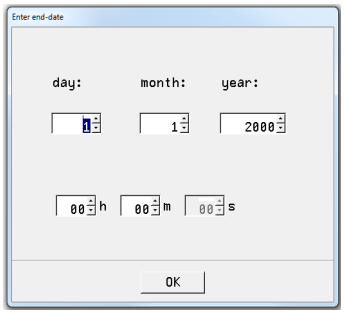
10.2.3 Statistics 2 - Density Function

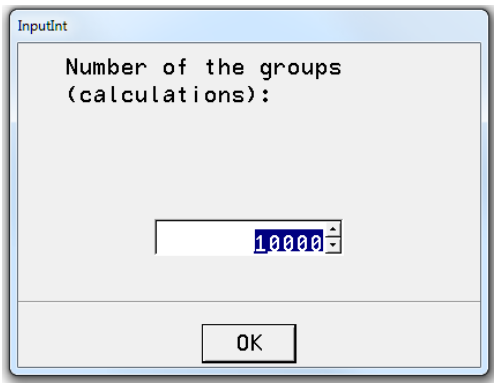
This module calculates the density function and thus gives a first pictorial representation of the special properties of the events under investigation. If the correlation function lies at the edge of the (almost Gaussian) distribution, then the group of events is not random in this time period.

This module does not need to be calculated if only the probabilities are to be calculated. This module is not a prerequisite to start the ***Statistics 3 - probability*** module.



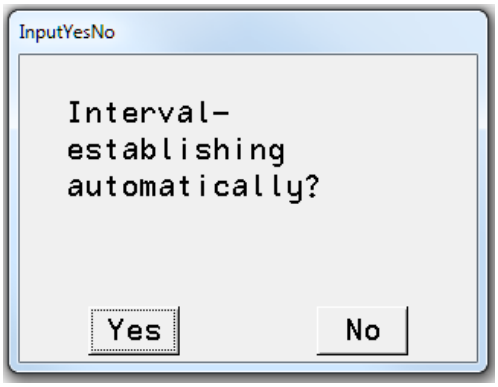
At the beginning the time range of the events is queried again. If no changes to the time period are necessary (normal case), the displayed data need only be accepted with OK.





Next, the control groups to be calculated are queried.
The number of control groups should not be less than 1000 (*per mille range*), otherwise the probabilities become uncertain.

Should the intervals for the tests be set automatically?

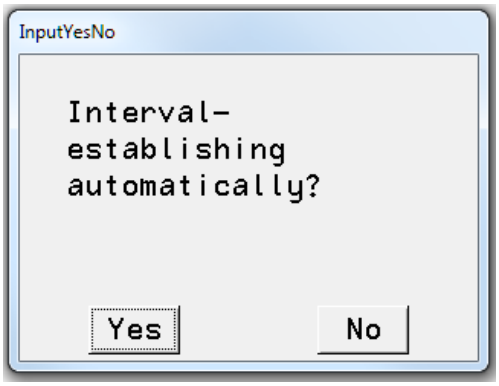


This question must normally first be answered with Yes. If the results in the graphs do not meet expectations because the density curve is too narrow or too wide, the program must be started again.
The program has remembered the maximum and minimum values during the calculation. These values can now be entered manually to better fit the curves into the given graphic.

```
!!! Limits:
  minH: -15.97 maxH : 16.02
  minI: 64.78 maxI: 88.82
  minD: -109.76 maxD : 85.65
  minDA: 445.34 maxDA: 590.25
```

These values can be found in the Manuel. For this case it is recommended to enter the following values:

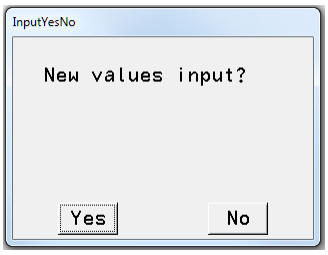
H:	-16	16.1
I	64.5	89
D	-109	86
DA	445	591



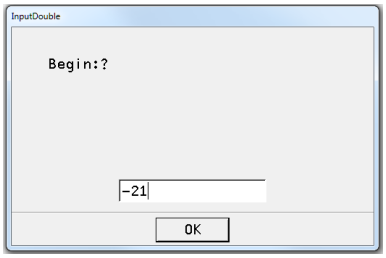
The module is now restarted. The query for the interval setting is now answered with No. The automatically generated values appear in the Manuel (lower left corner):

```
automatically generated values (matrix-sum - Amplitude)
Begin= -25.014753  End= 23.300213
```

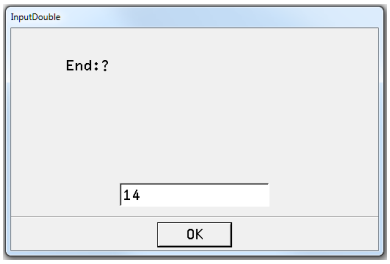
The following window asks whether these values should be entered again.



If the values are to be entered again, this question is answered with Yes and the input window for the start of the interval appears.



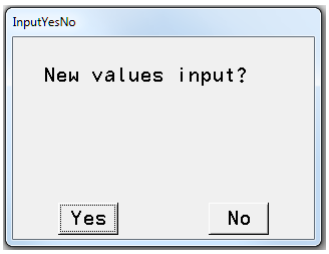
The new value can now be entered here.
For the above example -16



After OK the window for the end of the interval is opened.

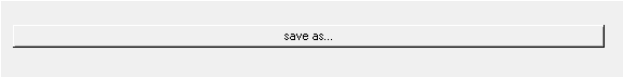
According to the above example, 16.1 is entered here

This concludes the input for correlation function H (matrix harmony) and prompts for correlation function I (matrix I).



This is repeated until the values for the matrix DA (dynamics absolute) are entered.

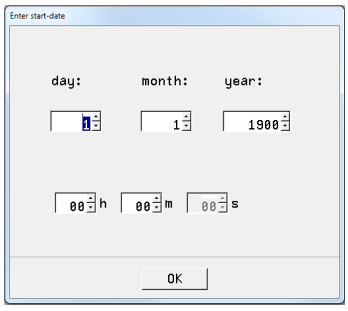
After the somewhat longer calculation, the results are in the graphic fields Graphic 1 to Graphic 4. These graphics can each be selected individually with the button:



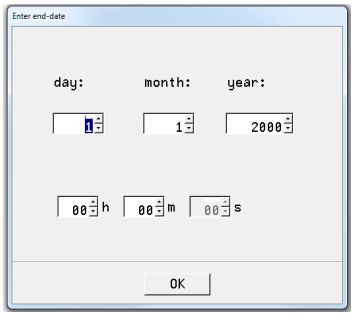
are stored.

10.2.4 Matrix Probability

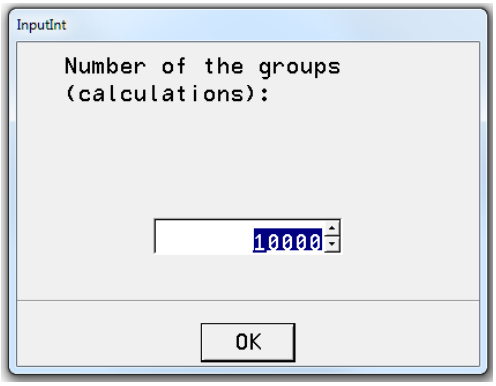
This module compares the group of events with randomly selected groups of the same strength in the selected time period (Monte Carlo simulation).



At the beginning the time period is queried again. *If the Continuum module has run, this only needs to be confirmed with OK.*
The **Event Analysis** module must have been calculated before (at some point!).

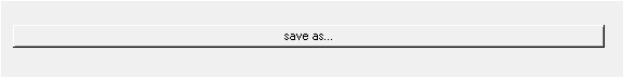


The final query is:



The program was now calculating and with a high number of events per group it can take a little longer.

The results can be found in Text 3 and Graphic 1 to Graphic 4. They can be displayed again with the button

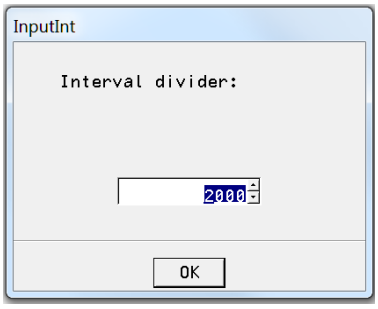


stored individually.

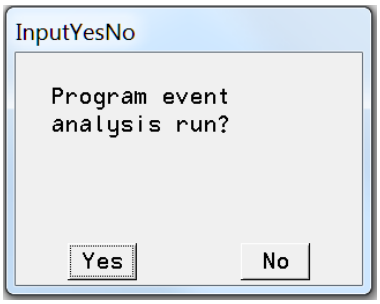
10.2.5 Planetary Fluctuations - time quality

This module calculates the correlation function for a selected time period.

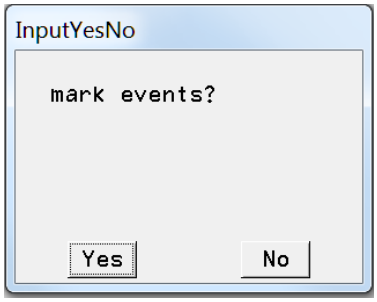
The first query defines the interval to be calculated. Attention: The resolution of the graphic is limited (1920 x 1080). Therefore it must be noted that the high frequencies (IC Moon, Mercury, Venus) can only be calculated meaningfully for small time periods such as day and month. In the example **one year is** chosen.

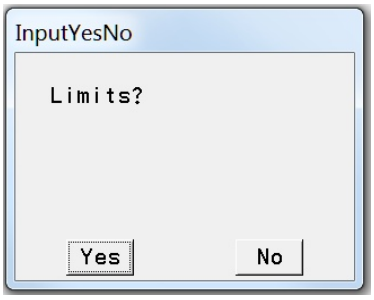


The graph has a horizontal extension of 1920 bits. It is normally not necessary to increase the interval divider. However, it should not be smaller than 1920 either.

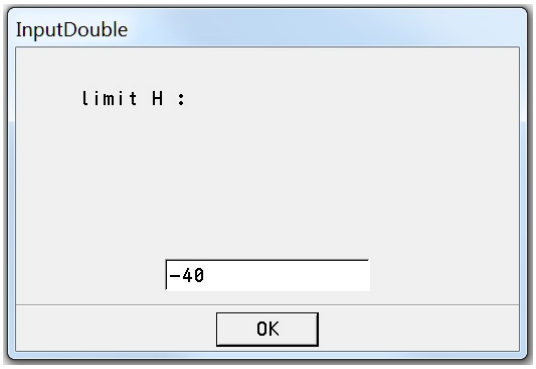


If the program "event analysis" has run before, the events can be displayed as vertical lines in the graphic. To do this, the following entry must be answered with Yes.





This module can calculate for the events in this period how many events overwrite a limit value. Here it can be useful to select the "Interval divider" larger (up to 100 000).



The limit values for H, then for I, D and DA are queried.
In this example:
limit H = -40
limit I = 80
limit D = -220
limit DA = 750

```
year 1911.00 month 6.00 day 15.00 hour 1.00 minute 59.00
i=37  event H    -41.319
year 1911.00 month 1.00 day 3.00 hour 15.00 minute 24.00
i=39  event H    -38.072

** limit H: -40.00 events: 2 *  1 events over limit **
```

The curves are in Graphic 1 to 4, the limits in Text 1 to Text 4.
The numbers of the events in the list and the value of the matrix are given.

Good luck with the application of the program!
If you have any problems or suggestions for improvement, please contact:
michael.nitsche@lettris.de
or go to the homepage: www.planetare-korrelation.eu

The book and the program are free.
If you think it's worth it, I would appreciate a donation!
https://www.paypal.com/donate?hosted_button_id=MF7RSPA943W2J