

Human Mortality Depends on Streams of Cosmic Alpha Particles, some of which have Signs of Artificial Origin

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Abstract

In the present work, a dangerous phenomenon for mankind is described, increasing the mortality from the most deadly diseases on the planet – circulatory diseases, in particular ischemic heart diseases. In the joint analysis of data from satellites in orbit around the Earth and from the health statistics sources EUROSTAT and US medical statistics, it became clear that, by some mechanism, flows of positively charged particles with high energy entering the Earth's orbit increase mortality from circulatory system diseases. The increase is by an average of 5% to 15% in a zone of maximum risk in the Northern Hemisphere, parallel to the equator and bounded by the parallels of 30° and 50° north latitude. A hypothetical mechanism based on observational evidence has been proposed, according to which this dangerous phenomenon is due to solar alpha particles of high energy sufficient to overcome the resistance of the atmosphere and reach the Earth's surface in a limited area of maximum death impact. The impact is most often short-lasting – for a few minutes. In the area with maximum risk, alpha particles have a detrimental effect on the human body. The area with maximum risk is limited in area and in time by two conditions – the path of the particles through the atmosphere to the Earth's surface is as short as possible (during the local culmination of the Sun, local noon) and the direction of the incoming alpha particles coincides with the direction of the vector of geomagnetic induction at the point of maximum risk, where alpha particles are not affected by the deflecting force of the geomagnetic field. Examples are given confirming the proposed mechanism of action. In the second part of the study, attention is paid to the nature of alpha particle streams reaching the Earth's orbit. In addition to those emitted by the Sun as a result of natural processes, there are also series of pulses lasting less than 5 minutes, with strict periodicity in the series – day or week, with the same moment of registration of the pulses and coincidence of the pulses in the series by magnitude over extended time intervals, sometimes over the lifetime of the series from months to years. The alpha particles from each pulse in the series bombard the Earth's surface always in the same place. There are many such series, differing in time of recording and period, each of which is focused on a certain region of the Earth's surface. Such are, in particular, the series of pulses affecting the territory of the USA, Europe, and Central Asia. There is statistical confirmation in the US health statistics that the series of pulses affecting the country cause an increase in the mortality of ischemic heart disease by up to 5%. The lack of free access to detailed statistics on the cases of death in the other countries affected by the phenomenon does not allow a conclusion of the impact of the series of pulses of alpha particles on the health of their inhabitants. The strange characteristics of the mentioned series of pulses of alpha particles do not exclude the hypothesis that they are artificially generated from a non-human mind. The level of technological development of human civilization does not imply the possibility for it to generate such large-scale processes as the series of pulses of alpha particles, i.e. the highly developed non-human mind that generates them has nothing to do with human civilization. The series of pulses may be navigational signals causing unwitting casualties to humanity, but they may also be a form of murderous contact with a higher civilization that we have long

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sought, expecting only benefits after its realization, not suspecting that we live in this nightmarish contact indefinitely.

Keywords: GOES Satellites; Ischemic Mortality

Introduction

In a series of publications, a dangerous phenomenon of cosmic origin for mankind was described – the presence of a high correlation between the flows of positively charged particles with high kinetic energy recorded from satellites in orbit around the Earth and mortality on the Earth's surface from diseases of circulatory system – the killer number one for humanity [1 - 13]. Among the circulatory diseases, ischemic heart disease (IHD) is the main part of circulatory mortality. The phenomenon is difficult to observe because it contributes to the increased mortality from IHD among many other, more obvious reasons – heredity, age, sex, lifestyle, and other diseases. According to statistics from the World Health Organization (WHO), IHD is at the top of the list of morbid causes of death on the planet [14]. In the International Disease Classifier (ICD, 10th revision), circulatory system diseases are classified in classes I00 – I99, and IHDs are classified in classes I20 – I25. According to WHO data, 8.9 million people died worldwide from IHD in pre-pandemic 2019 [15]. According to the morbidity and mortality of IHD ("crude rate" – the number of cases and the number of deaths from IHD per 100,000 inhabitants) are not spread evenly across the planet. The highest mortality from IHD is in a region including Central and Eastern Europe [16].

The mentioned dangerous phenomenon of cosmic origin has remained undetected for a long time, despite a sufficiently long series of years of space observations and medical statistics, because it is not observed in the statistical data of all countries. It is noticeable (i.e. there is a statistically significant correlation) for several small countries in Central and Eastern Europe and the Mediterranean – in the data for Bulgaria, Greece, Austria, Hungary, South Italy, Sicily, Malta, and Balearic Islands. This phenomenon is also observable in several countries from other parts of the Northern Hemisphere - Asia, America, and even Africa [1 - 13]. In the affected countries, the phenomenon leads to an increase in circulatory disease mortality, mainly IHD mortality within wide limits, for example, for the USA, the increase was estimated at 5%, but in individual years in the Mediterranean countries, the increase in IHD mortality reached up to 40% [4, 10]. Below are more examples from a study of the effects of cosmic alpha radiation on the inhabitants of Europe and the Mediterranean.

Countries, where circulatory disease mortality is most strongly correlated with high-energy positively charged particle fluxes, are located in a zone parallel to the Equator with approximate limits between 30° and 50°N latitude. The described phenomenon is not observed in countries located near the North Pole. It is also not observed in the statistical data of large countries such as the USA, Russia, and China, which are also located in the mentioned area. This (at least for the USA) is due to masking of the phenomenon in the general statistics for the large country if the cause acts on a limited area smaller than the country and for a limited time – lasting much less than data averaging periods for statistical purposes [10]. This phenomenon would be expected to influence circulatory diseases mortality in countries south of the Equator, but mortality statistics for them are scarce, unreliable, or absent, preventing reliable inferences about such an influence in the Southern Hemisphere.

US Medical Statistics provides free access for research purposes to the world's most complete mortality information for its citizens, in particular information on each death. For some interval of years in the recent past, US mortality statistics have also collected information on an individual's date of death. This made it possible, in sync with the temporal specificity of the flows of positively

charged particles with high kinetic energy recorded by the satellites, to track the rapid changes in the number of deaths in the United States. Joint tracking of rapid processes:

1. Helped build a logically coherent picture of the interaction between the above-mentioned cosmic radiation and IHD mortality on Earth.
2. Forced the conclusion that the radiation affecting the health and life of people on Earth is a combination of radiation of natural origin and radiation with strange characteristics unusual to be generated from natural processes.

Material and methods

A prerequisite for this kind of study is the availability of reliable data – both on possible space impacts and mortality from circulatory diseases. More complex is the problem of the reliability of mortality data. Their obtainment requires a combination of good medical diagnostics covering the territory of the respective country, accurate administrative reporting, adequate national statistics, and easy access to statistical data for scientific purposes.

The analysis below is based on authoritative sources of health data, such as EUROSTAT, and US medical statistics from the National Center for Health Statistics (NCHS), for which the requirements listed above are fulfilled to the greatest extent [17,18].

Eurostat offers free access to data on mortality from causes in the countries of the European Union, the European Economic Area, and the candidate countries for membership in the union, for the interval 2011 - 2020. Geographically, these countries occupy Europe and the Mediterranean. Causes of death are grouped into 86 groups (shortlist), mostly diseases. The largest share in mortality is Diseases of the circulatory system, ICD-10, class IX (I00-I99). In the said list, Class IX diseases are grouped into 7 groups.

In the study, the parameter annual mortality rate – number of deaths per 100,000 inhabitants was used as a characteristic of mortality. Annual mortality rate data were extracted for 37 European countries and regions from each of the studied groups of circulatory diseases for the interval 2011 – 2019 (the last pre-pandemic year). The correlation coefficients between the annual averaged alpha radiation flux and the annual mortality rate for the 37 European countries and regions were calculated.

Two types of maps were created. The first type of map shows the distribution of the annual mortality for 37 European countries and regions from each of the studied groups of circulatory diseases for 2012, the year with the highest mortality in the time interval 2011 – 2019 across the territory of Europe and the Mediterranean [17]. The second type of map shows the distribution across the territory of Europe and the Mediterranean of the correlation coefficient between the annual mortality from each of the studied groups of circulatory diseases with the annually averaged alpha particle flux for the period 2011 – 2019 [19]. In both types of maps, data on the coordinates (latitude and longitude) of the centroids of the countries and regions included in the study were used [20]. Mapping was performed with Golden Software, Surfer 10, Kriging interpolation procedure was selected. In mathematical statistics the level of statistical significance is a parameter, indicating the degree of reliability of the calculated correlation coefficient. The smaller the number of this parameter, the more reliably the correlation coefficient is established, i.e. the more reliably a cause-and-effect relationship has been established, in the case between the annual flux of alpha radiation and mortality from diseases of the circulatory system. In scientific studies, a level of statistical significance no greater than 0.05 is accepted as a criterion for the reliability of the correlation coefficient. The correlation coefficient and the level of statistical significance are related. For the 9 years included in the study, a minimum correlation coefficient of 0.668 corresponds to a statistical significance level of 0.05. The isolines on the correlation

coefficient distribution maps enclose the regions with statistically significant values of the correlation coefficient. Correlation coefficients with a significance level above 0.05 are of high reliability (the higher the number, the lower the significance level) i.e. the existence of a causal relationship between cosmic alpha radiation and mortality from the relevant circulatory diseases can be considered reliably established in the mentioned areas enclosed by isolines on the correlation coefficient map.

If on the two types of maps for a given group of circulatory diseases – on the map for mortality and for correlation coefficients, there is a coincidence for some of the maxima, then in the region of these maxima the impact of alpha radiation contributes noticeably to the mortality from this group of circulatory diseases.

The United States is the only country in the world to provide records of all individual deaths within the country. They are a symbolic line of codes with a variety of information about the deceased. For the study, software was created to extract information about the location (state), month and day of death, and the cause of death by ICD. This gives the possibility to track rapid changes (per day) in mortality from IHD and to draw conclusions about the possible dependence of mortality from IHD on short-term processes in near-Earth space.

Unfortunately, the day of death was included in individual records only in data for the years before 1993, after which it was no longer monitored. This limits the study of rapid changes in mortality to only the years up to 1992.

Satellite data on corpuscular radiation – protons and alpha particles recorded by the satellites of the two series SMS (Synchronous Meteorological Satellites) and GOES (Geostationary Operational Environmental Satellites) were obtained from an NOAA site [21].

The satellites of the SMS and GOES series fly in geostationary orbit (above the Earth's equator), at an altitude of 36,000 kilometers above the Earth's surface, make one lap in 24 hours, that is, they “hang” over a certain point on the Earth's surface and are not shade by the Earth at their circumference around it.

There is one satellite of the series over each of two meridians – over the east coast and the west coast of the United States. Data on alpha-particle and proton fluxes (unit: (number of particles). $\text{cm}^{-2} \cdot \text{s}^{-1} \text{sr}^{-1} \text{MeV}^{-1}$) with energies of the range 3.8 – 21.3 MeV were used. The fluxes were recorded by the satellite high-energy particle detectors: 1. Energetic Particles Sensor (EPS), 2. Energetic Proton, Electron, and Alpha Detector (EPEAD), and 3. HEPAD (High Energy Protons and Alpha particles Detector). In particular, EPS and EPEAD detect alpha particles with energies from 3.8 MeV to 500 MeV, distributed in 6 channels. HEPAD detects alpha particles in two more channels with energy of 2.98 GeV and more than 3.4 GeV. The data are available averaged over a 5-minute interval, during which there are up to 25 reports of the instrument.

To track rapid changes in mortality, the number of deaths from IHD per day both for the entire US and for the individual state was extracted from the US data for mortality by software created for the purpose. The calculations were made for intervals of 7 days. The intervals were chosen to cover the days with satellite-recorded pulses of high-energy positive particles.

To the extent that the hypothetical mechanism proposed below explaining the observed phenomenon assumes that charged particles of high energy pass through the atmosphere and reach the Earth's surface, the energy required for this was calculated from databases and calculators PSTAR and ASTAR [22, 23]. Geomagnetic field data were obtained from the INTERMAGNET site [25].

Results

The described dangerous phenomenon is observed in the form of dependence between the annual average flux of radiation from positively charged particles with high kinetic energy, recorded by satellites in orbit around the Earth, and the annual mortality from the circulatory system in the statistics of several countries from all continents in the Northern Hemisphere. The countries in whose circulatory system mortality statistics the phenomenon is observed are located in a zone parallel to the equator with approximate boundaries along the parallels of 30° and 50° north latitude. It is observed in the annual mortality statistics of small countries. It is not noticeable in the statistics of large countries in the same zone. It can be inferred that the impact on the Earth's surface is short-lived and over a limited area the size of a small country, but is masked in large country statistics because it does not affect the entire area of the large country at the same time. This conclusion is confirmed for the USA, for which there is data on mortality in individual states [10].

For particle energies of the order of 3.8 MeV–21.3 MeV, the year-averaged fluxes of protons and alpha particles are highly correlated, i.e. the studied phenomenon of lethality is noticeable in both the mean proton flux and the mean alpha particle flux data. For the reasons set out below, an averaged stream of high-energy alpha particles is included as the incident radiation.

Figure 1 shows the time dependence in the interval 2011 - 2019 of two numerical sequences –

1. Of the recorded annual fluxes of alpha particles from satellites of the GOES series - 13, 14, and 15, orbiting the Earth at a distance of 36,000 Km above the surface, and
2. Of the annual IHD mortality for Malta, located in the Central Mediterranean. The high correlation between the two numerical sequences can be seen, indicating the existence of a causal relationship between them.

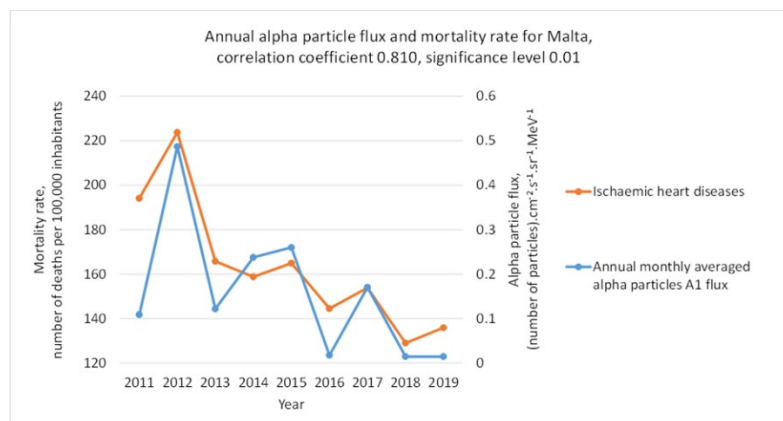


Figure 1. The high statistically significant correlation between annual fluxes of cosmic alpha radiation and IHD mortality for Malta (coordinates 35.88°N , 14.39°E , highest point 253 m, area 316 km^2 , population 518536 (2021)) indicates the presence of cause and effect relationship between the two phenomena.

Figure 2a shows the distribution of mortality from Cerebrovascular diseases (I60-I69 from ICD-10) for Europe and the Mediterranean. The maximum is in the Southern Balkans. A second maximum is located over the Central Mediterranean, with a peak around the northern coast of Tunisia. Figure 2b shows the distribution of areas with a statistically significant correlation between mortality from

Cerebrovascular diseases and cosmic alpha radiation (correlation coefficient above 0.7, with a statistical significance level of at least 0.05). It can be seen from Figure 2b that the regions of high correlation are located between the parallels of 30° and 50°N latitude. Such areas are the east coast of Spain, the Central Mediterranean, and Austria.

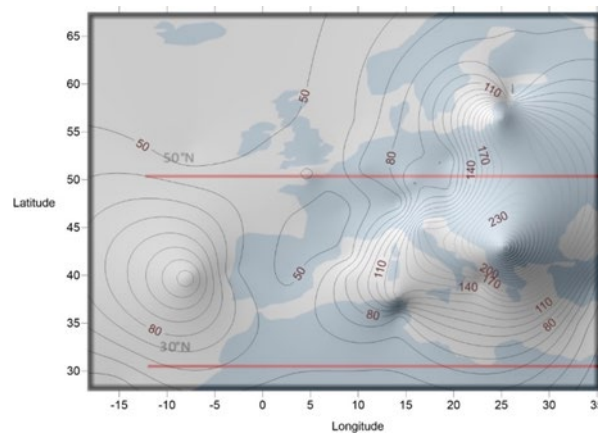


Figure 2a. Cerebrovascular diseases (I60-I69), rate (number of deaths per 100,000 inhabitants)

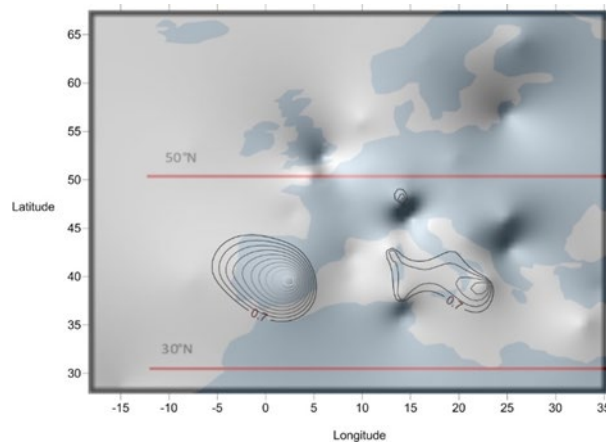


Figure 2b. Correlation of cerebrovascular diseases with alpha particle flux

Figures 2a and 2b show that the areas with increased mortality from Cerebrovascular diseases overlap with the areas with a statistically significant correlation coefficient in the Central Mediterranean region, i.e. the contribution of cosmic alpha radiation to mortality from Cerebrovascular diseases in the studied region of Europe and the Mediterranean is greatest in the area of the Central Mediterranean - Southern Italy, Sicily, Malta, Corsica and Sardinia.

Figure 3 shows the correlated time variation of mortality from Cerebrovascular diseases and cosmic alpha radiation for the Balearic Islands, Spain. In absolute terms, the death rate is not high, but there is a marked cause-and-effect relationship with cosmic alpha radiation.

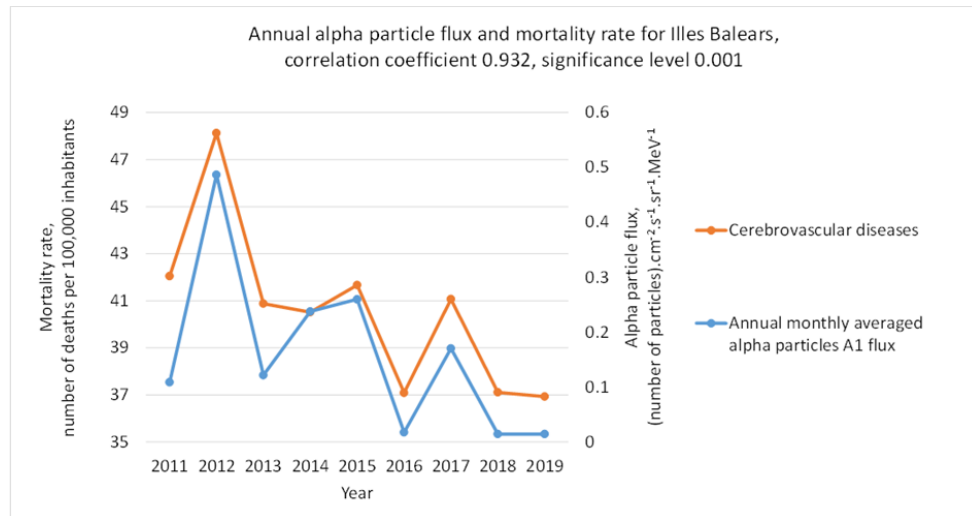


Figure 3. Between mortality from cerebrovascular diseases in Balearic Islands, Spain (coordinates 39.57°N, 2.65°E, av. elevation 57 m, area 4992 km², population 1.2 million), and the average alpha particles flux reaching Earth's orbit there is a large, statistically significant correlation.

To estimate the contribution of cosmic alpha radiation to the mortality from the group of Cerebrovascular diseases for the Balearic Islands, Figure 4 is divided into two parts –

1. The same value for all years, not exceeding 36.93, i.e. independent of cosmic alpha radiation shown in the dark rectangle.
2. Variable over years part dependent on cosmic alpha radiation. The variable part reached its maximum (48.13) in 2012, i.e. the contribution of cosmic alpha radiation to mortality in 2012 reached 23% of total mortality. The average contribution of cosmic alpha radiation to cerebrovascular disease mortality for the Balearic Islands during the study years was 11.5%.

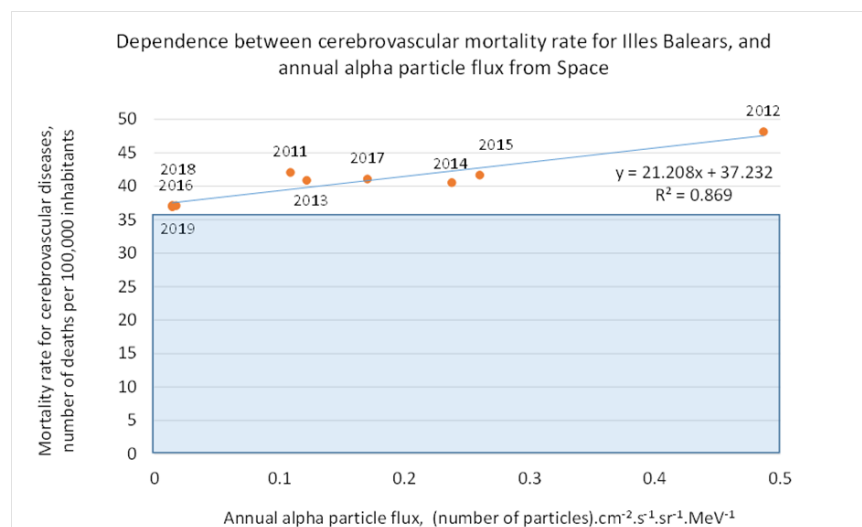


Figure 4. There is a linear relationship between cerebrovascular disease mortality and cosmic alpha radiation flux for the Balearic Islands. The contribution of cosmic alpha radiation to cerebrovascular disease mortality reached 23% in 2012.

The examples show a small part of the results revealing the influence of cosmic alpha radiation on mortality from causes mainly related to diseases of the circulatory system. Of the 7 groups of diseases of the circulatory system in the aforementioned Eurostat short list of causes of death, no statistically significant correlation was found only with the group Other diseases of the circulatory system (I00-I15, I26-I28, I70- I99 of ICD-10).

For the region of Europe and the Mediterranean, a dependence was also found between cosmic alpha radiation and the Eurostat shortlist group "external causes of death". This dependence is probably related to the influence of cosmic alpha radiation on the human psyche (Figures 5 and 6).

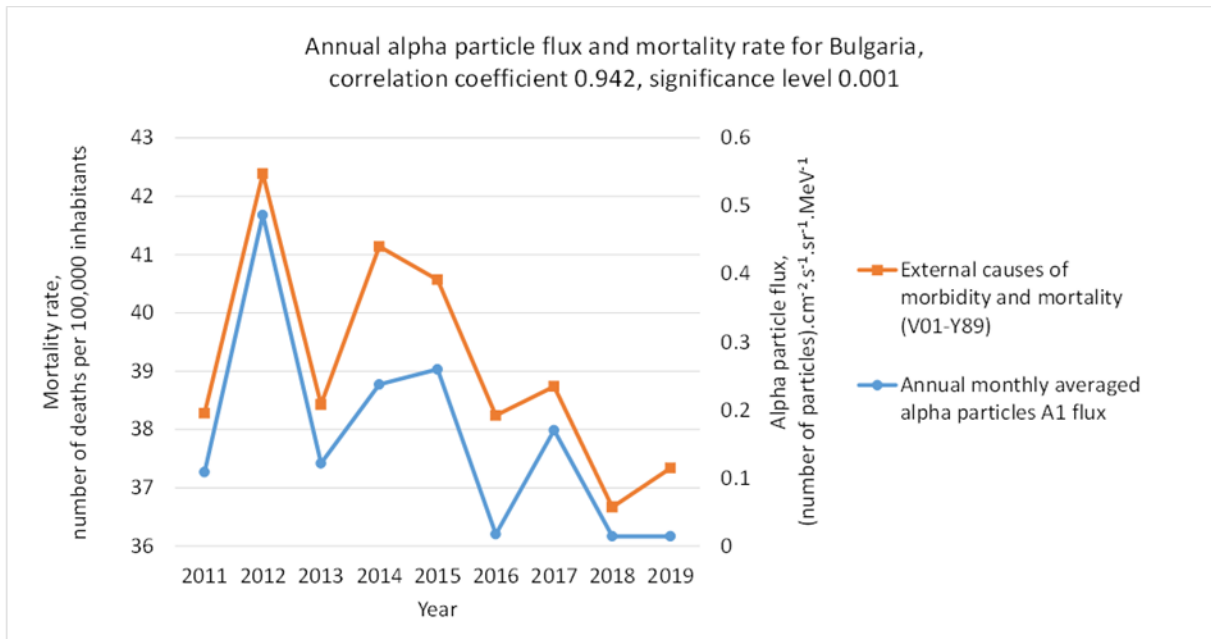


Figure 5. Between mortality from External causes of injury and poisoning (V01 – Y89 from ICD-10) in Bulgaria, Europe (coordinates 42°44'1.98"N; 25°29'8.99"E, av. elevation 470 m, area 110,994 km², population density 63/km²), and the average alpha particles flux reaching Earth's orbit there is a large, statistically significant correlation.

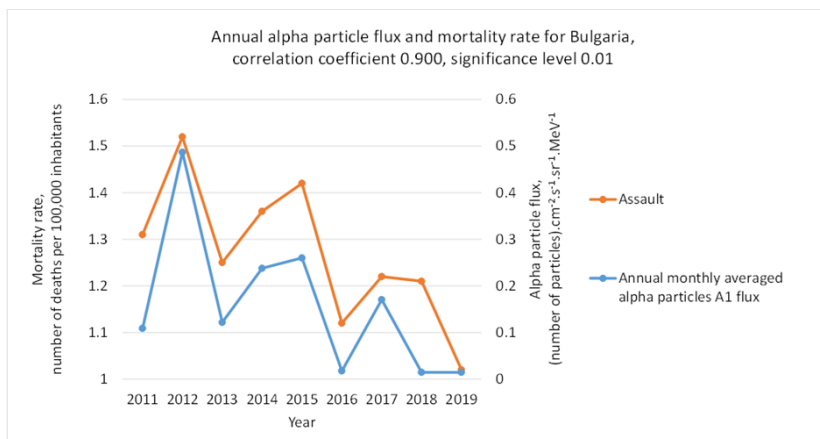


Figure 6. Between mortality from Assault (X92-Y09 from ICD-10) in Bulgaria, and the average alpha particle flux reaching Earth's orbit there is a large, statistically significant correlation.

The data averaged over a year indicate the existence of this dangerous phenomenon, but are not sufficient to clarify its mechanism. Therefore, the short-term impact processes of positively charged particle flow on human health were investigated.

The SMS and GOES series satellites have been operating in geostationary orbit, recording positively charged particles since July 1st, 1974. Figure 7 shows the monthly maxima in alpha radiation fluxes recorded by satellites up to 2019, the last pre-pandemic year. Over the years, the maxima appear to be clustered around the "increasing activity" phase within the 11-year cycle of solar activity. During the previous few cycles, solar activity was decreasing. The maxima of the alpha particle fluxes in the last 27 years decreased in magnitude and frequency of occurrence. The highest magnitudes have the alpha radiation fluxes registered in the first years of satellite operation in 1974 – 1979. Unfortunately, as mentioned above, the US, the only country providing researchers with complete and accessible statistics, stopped supporting the date of death parameter in individual death data after 1992. This limits the ability to monitor the rapid response in IHD mortality due to alpha particle fluxes up to 1992. Combined, the two constraints – high-magnitude alpha fluxes only in the interval 1974 – 1979 and individual death date only up to 1992 – determine the time frame for the study of the effects of rapid alpha particle exposure processes on health only up to the interval 1974 – 1979, marked in the figure with a double arrow, and only for the USA. The interval of years from July 1, 1974, to December 31, 1979, includes 2010 days, the data is from three satellites operating in orbit at that time – SMS-01, SMS-02, and GOES-03. Data were available at 5-minute intervals for 964 days (48% of the time studied).

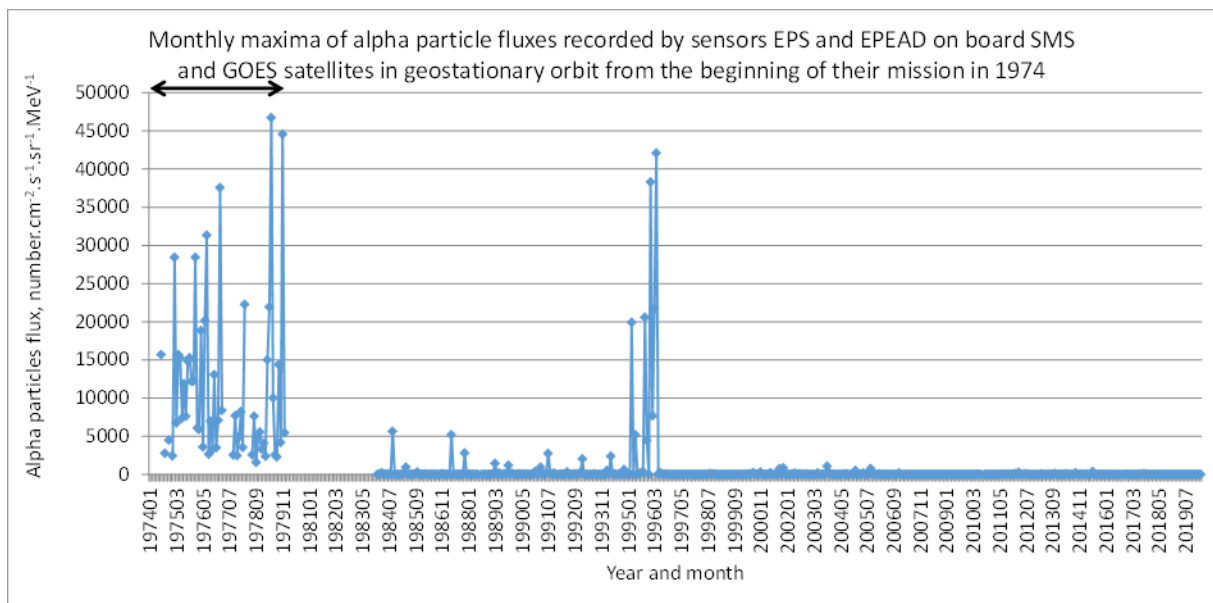


Figure 7. Monthly maxima in the recorded alpha particle fluxes during the interval 1974 - 2019. There are no data for the interval of years 1980 - 1983.

Data on the number of IHD deaths in the US for the range of years included in the study are shown in Figure 8.

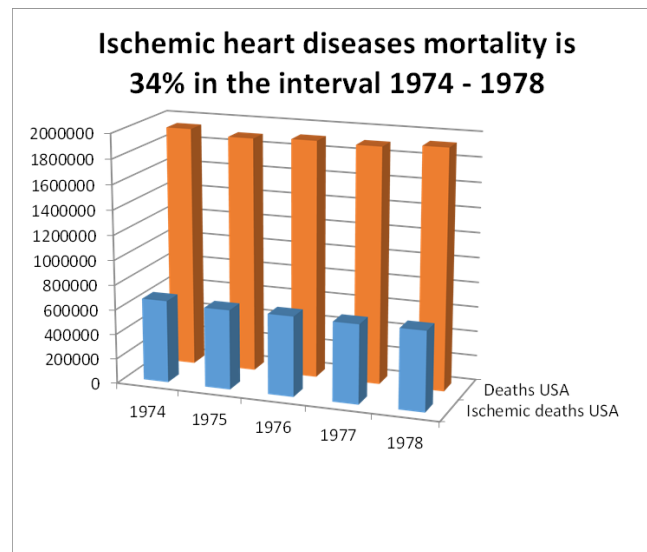


Figure 8. The relative share of IHD deaths in the US relative to all deaths for the study years remained constant at 34%. [14].

The alpha radiation recorded by satellites is not continuous over time but is the result of individual short-term impulses. It is natural to expect that it is during these impulses that the harmful effects linking alpha radiation to IHD mortality occur. Figure 9 shows the recorded alpha radiation fluxes in September 1978.

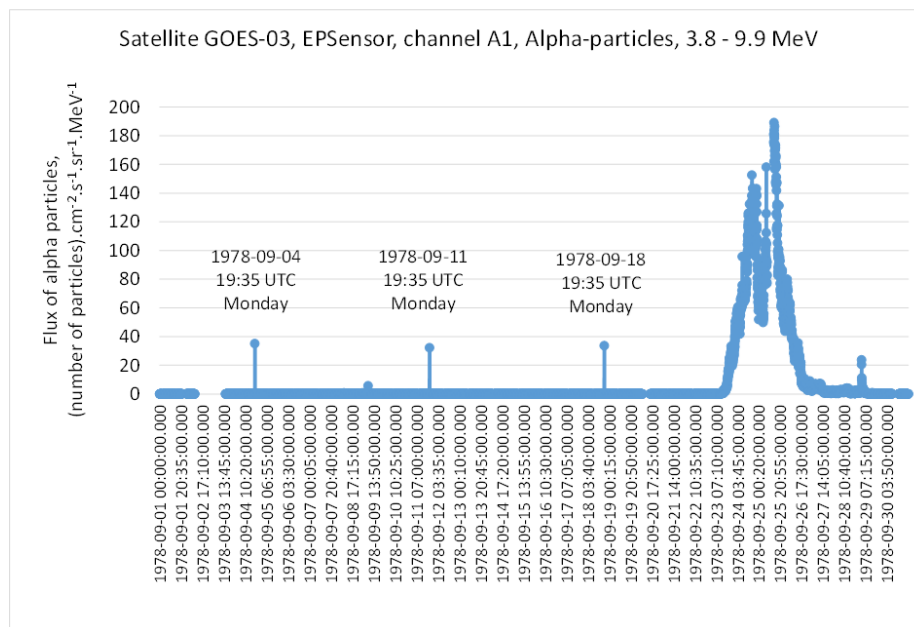


Figure 9. Fluxes of alpha particles with energies between 3.8 and 9.9 MeV were recorded in September 1978 by channel A1 of the EPS sensor on board the GOES-03 satellite.

The alpha particle streams shown in Figure 9 are of two types:

1. Alpha radiation resulting from a natural process on the solar surface, possibly a Solar Mass Ejection (SME), between September 23 and 27. It is characterized by a smooth continuous change in the magnitude of the flow over days.

2. Short pulses lasting less than 5 minutes. This is the main type of alpha particle fluxes for the studied interval of years. Their exact duration cannot be estimated because the available data from the sensor are averaged values within a 5-minute interval. The pulses shown in Figure 9 have the same moment of appearance – at 19:35 UTC (Universal Time Coordinated) on three consecutive Mondays, i.e. have a period of exactly one week and have almost the same flux values. Series of pulses of this kind, differing in times of occurrence and having a variety of periods, from 24 hours to a week, were present throughout the years included in the study, from 1974 to 1979. In the four following years, from 1980 to 1983, no data were available from the EPS sensors on board the satellites in orbit at the time. In the following years since 1984, the frequency of occurrence of pulse flows and their magnitude have decreased. It increased again in the mid-1990s. These kinds of pulses have the characteristics of being artificially generated. Without the additional information, the main version about the source of these pulses was that they were electronic interference generated during the joint operation of the various instruments on the satellite board or were service information generated in the course of the operation of the sensor on alpha particles, i.e. are not associated with real alpha particle streams. The data on the day of death in the records of individual deaths in the US statistics gave new information, allowing on the one hand to development of a putative mechanism of the studied phenomenon, and on the other hand, raised questions in an unexpected direction about the source of the impulses. Below are set forth: 1. the putative mechanism mentioned, which the author believes explains the phenomenon described, and 2. data on the various series of pulses, some of which affect IHD mortality on the Earth's surface, i.e. they are a series of real pulses of alpha particles detected, not generated by the sensor, and have characteristics that cannot be explained by a natural origin of the pulses of alpha radiation.

3.1. Hypothetical mechanism of the described phenomenon

1. The study of the factors affecting mortality from IHD for several countries showed that it increases with increasing altitude with which the flow of positively charged particles – protons and alpha particles with high energy entering the atmosphere from space should also increase [4, 10]. I.e. the most likely mechanism of the studied phenomenon – death from IHD on the Earth's surface in connection with positively charged particles registered in near-Earth space is a direct impact on living organisms of positively charged particles that managed to pass through the atmosphere and reach the Earth's surface.

2. Only particles whose energy is above 2.4 GeV for protons and over 6.2 GeV for alpha particles could penetrate the atmosphere to Earth's surface. These indicative kinetic energies were obtained using calculators PSTAR [22] and ASTAR [23], applied with data for a homogeneous atmosphere – an atmospheric model with constant density, temperature, and pressure decreasing with height [4].

Figure 10 shows the average fluxes of alpha particles and protons measured by the EPEAD and HEPAD detectors on board the GOES-13 satellite within December 2017, 3922 records. It can be seen from the figure that as the energy of the particles increases, their flux decreases. For protons the flux decrease is monotonic and for energies above 0.7 GeV the proton flux is negligible, i.e. for energy on the order of 2.4 GeV, which would allow protons to reach the Earth's surface, their flux is practically zero. Another is the behavior of the alpha particle flux. After its initial decrease, for energies above 3.4 GeV the alpha particle flux increases again, reaching values exceeding those characteristic of small energies. A stream of alpha particles with energies above 3.4 GeV probably also contains those with energies of the order of 6.2 GeV, capable of penetrating the Earth's atmosphere and reaching the Earth's surface. Since the detection of alpha particles with energies of the order of 6.2 GeV goes beyond the design parameters of the detectors of the GOES satellites, the existence of streams of alpha particles with such high energy remains hypothetical.

Based on this analysis a conclusion can be made that the hypothetical positively charged particles, which, entering the human body, are capable of causing death from circulatory system diseases, are alpha particles. For these reasons, only alpha particle fluxes are included in the examples above, and proton fluxes are excluded from consideration below as a potential risk for death from circulatory system diseases.

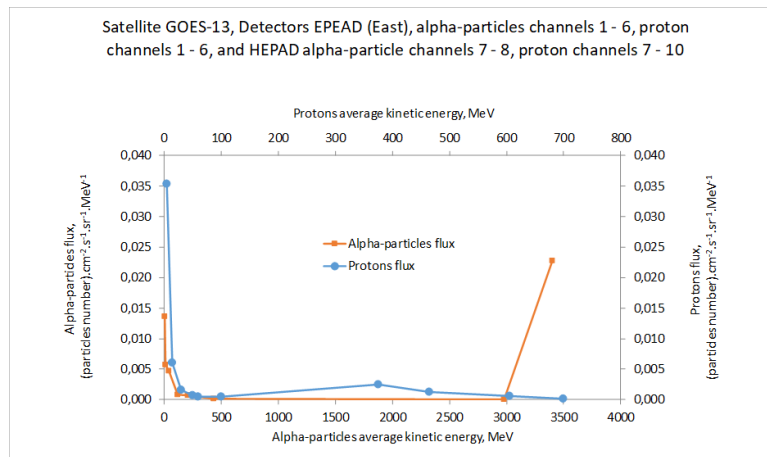


Figure 10. Averaged data for December 2017 from the GOES-13 satellite shows that alpha particles are the only positively charged particles that have energies above a few GeV, allowing them to penetrate the Earth's surface.

3. Streams of high-energy alpha particles affecting the physiology of humans on the surface of planet Earth and causing death from circulatory system diseases are emitted by processes on the Sun.

Evidence in favor of this claim is the increasing number of deaths from IHD simultaneously with the increased flux of alpha particles from SME (a phenomenon on the solar surface that could be observed with other astronomical means) directed to Earth [4, 8]. This does not exclude other, significantly shorter-lived solar phenomena from emitting fast alpha particles – such could be, for example, solar flares, coronal holes, or another phenomenon on the Sun.

The Alpha Magnetic Spectrometer (AMS-02) on the International Space Station measures cosmic rays, excluding those of solar origin (when shielded from the Sun by the station's solar panels). In particular, it measures the flow of ^3He and ^4He (alpha particles) in cosmic rays. The measurements show increasing annual flux of alpha particles in cosmic rays for the interval of years from 2011 to 2017 (last available data), while the flux of GOES registered (solar?) alpha particles for the same interval of years is decreasing (figures 1, 3, 5, and 6) [24].

Indirect evidence for the Sun as a source of high-energy alpha particles is that this assumption convincingly explains the downstream processes that ultimately lead to death from IHD.

Streams of high-energy alpha particles have nothing to do with the solar wind, whose particles are constantly emitted in all directions and move tens of times slower.

It is assumed that alpha particles with very high energy – several GeV – reach the Earth's orbit. They remain not registered by the satellites because their energy exceeds the energy range for which their sensors are designed. Undetected high-energy alpha particles

likely arise as a result of an explosive process on the Sun simultaneously or around the time of occurrence of the alpha particles detected by the satellite sensor. An alpha particle energy of the order of a few GeV means that it is moving at a speed close to the speed of light. For example, one can calculate that an alpha particle with a rest mass of $6.64465723 \cdot 10^{-27}$ kg, with an energy of 7 GeV ($1.12152411 \cdot 10^{-9}$ J) moves at a speed of 281000 km/s and travels the distance from the Sun to the Earth ($149.6 \cdot 10^6$ km) in 8.87 min. That is, the alpha particles capable of passing through the Earth's atmosphere are so fast that they arrive at the observation point on the Earth's surface directly from the center of the Sun's disk, minutes after being emitted from the Sun's surface.

Entering the human body, these particles are capable of causing massive ionization, damaging biological tissue, and even nuclear reactions, causing the appearance of a beam of many other particles that also damage tissue through ionization. Probably the most sensitive to such damage is the circulatory system, in which, as a result of ionization, clots can form, carried by the bloodstream to vital organs. There, the clots can cause blockage of a vital blood vessel. Elderly people with already damaged and narrowed blood vessels are especially at risk.

4. During the year, the solar culmination (the angle of maximum elevation of the Sun above the horizon during local noon at the point of observation), which is different for different geographical latitudes, changes its magnitude in time as well. For the Northern Hemisphere from a minimum value on December 21 (early winter) reaches a maximum value on June 21 (early summer), then decreases back. When for the observation point from the Earth's surface the Sun is at its culmination, the invading particles from the Sun move through the thinnest part of the atmosphere, i.e. the probability of penetration to the Earth's surface is greatest. The alpha particles that the detectors on the satellites register do not have the necessary energy to pass through the atmosphere and reach the Earth's surface. It can be calculated that alpha particles detected by the satellite with energy in the range of 5 – 10 MeV reach the Earth's orbit about two hours later than the hypothetical fast particles in the example above. Registered particles cannot penetrate the atmosphere, i.e. they are only an indicator, delayed by two hours, of the hypothetical very high-energy particles that reach the Earth's surface (if both the hypothetical and the indicator alpha particles are emitted simultaneously in a common blast process of the Sun). This means that the meridian with the solar culmination at the time of registration of the indicator radiation by the satellite is 30° west of the meridian at which the hypothetical alpha radiation reached the Earth's surface two hours earlier (the Earth rotates at an angular velocity of $15^\circ/\text{hour}$). That is, the damage to humans from the hypothetical alpha radiation would have occurred 2 hours before the detection of the indicator radiation by the satellite and the center of the deadly spot would have been 30° east of the meridian of registration.

5. Both indicator alpha particles and hypothetical fast alpha particles with energies of the order of GeV irradiate the entire sunlit part of the Earth's atmosphere. Indicator alpha particles do not reach the Earth's surface. Hypothetical fast alpha particles can penetrate to the Earth's surface only in a limited region where favorable penetration conditions are combined, the first of which was noted above – the layer of atmosphere for the particles to overcome is thinnest during the solar culmination (local noon). The most permeable for hypothetical fast particles is the atmosphere above the point on the Earth's surface, for which during the solar culmination there is a coincidence between two directions – of the geomagnetic induction vector at the point and of the invading alpha-particles. Alpha particles are then unaffected by the deflecting force of the geomagnetic field and are most likely to penetrate the atmosphere to the Earth's surface, creating a deadly spot around the "point of impact" where these two directions coincide. The geomagnetic induction vector (geomagnetic vector) for a given point on the Earth's surface has a constant direction relative to the Earth's surface at the point.

For the Northern Hemisphere, the geomagnetic vector points down to the point and northward and lies in the plane of its meridian (if the slight misalignment between the geographic North and South magnetic poles is ignored).

The direction of the geomagnetic vector is characterized by the angle (inclination) between the geomagnetic vector and the horizontal surface at the observation point. The further north the observation point is located on the Earth's surface, the greater the inclination of the geomagnetic vector at the point. Along the apparent path of the Sun to the north and then to the south during the year, depending on the latitude of the point of observation, the culmination of the Sun aligns with the inclination of the geomagnetic vector twice, once, or never. Calculations show [4] that for the Northern Hemisphere, the highest latitude for which a coincidence between the solar culmination and the inclination of the geomagnetic vector is possible is 48°N (about June 21st), and the smallest – 28°N (about December 21st).

Due to the energy losses that alpha particles suffer during their interaction with the particles of the Earth's atmosphere, the magnitude of the flux of alpha particles decreases with the increase of the length of their path through the Earth's atmosphere to a given point on the Earth's surface. The flow of the hypothetical alpha particles to the Earth's surface is weakest around December 21st when their path through the atmosphere is least inclined and therefore longest. It can be summarized that in each point in the zone on the Earth's surface parallel to the equator, between the parallels 48°N and 28°N, twice a year at noon, conditions are created for coincidence in the directions between the geomagnetic vector and the invading solar alpha particles if any occur at this time. In Figure 2 this zone is shown with boundaries along the parallels between 50°N and 30°N. These conditions probably allow a part of the solar alpha particles with high energy to reach the Earth's surface and affect living organisms. Those living in the zone are at maximum risk of damage from fast alpha particles. These two geographical parallels 28°N and 48°N also delineate the northern and southern borders of Central and Eastern Europe and the Mediterranean where, as stated above, the morbidity and mortality rate of IHD is highest. Outside the said zone, these conditions disappear. This explains the lack of correlation between IHD mortality and the flux of alpha particles for the Nordic countries, whose latitudes are above 48°N. The increased risk of an IHD incident outdoors around local noon is a further argument for the healthfulness of the indoor midday break ('siesta') practiced in Mediterranean countries. It is not excluded that the impact of the solar alpha particle flows in the zone, in addition to endangering the lives of individuals, may also have a stimulating effect on the human population and development. It is hardly a coincidence that historically the oldest civilizations with the greatest traditions in human culture are located in this zone, and in modern times, the countries with the most developed economies and the most numerous and educated populations are located in this zone.

6. The point of impact and the deadly spot around it are unobservable. "Registration point" below is the point on the Earth's surface for which the culmination of the Sun coincides with the inclination of the geomagnetic vector at the time of registration of the alpha particle flux from the satellite detector. The detector registers the time continuously, so this moment is known. That is, the registration point can be determined, and tentatively it could serve to determine the location of the impact point and the deadly spot around it, since, as mentioned above, the impact point is about 30° east of the registration point (the moment of impact is about two hours before the moment of registration). To determine the geographic coordinates of the registration point, the hour and minutes of registration in UTC (Universal Time Coordinated) were converted to longitude, and the date to latitude [4 and 10].

7. The moments of invasion of alpha particles are unpredictable, but the dates of the maximum risk from them (the dates of coincidence of the two directions – of the movement of the alpha particles and the direction of the geomagnetic vector) can be

calculated according to the proposed hypothetical mechanism from the latitude data of the observation point in the zone 28°N – 48°N [4, 10].

3.2. Strange pulses of alpha radiation

The alpha pulses recorded in September 1978 by the GOES-03 satellite, shown in Figure 9, have registration points falling within the United States territory. The coordinates of the registration points are calculated by the date, time, and minutes of the moment of their registration by the satellite. If alpha radiation associated with these pulses had reached the Earth's surface, increased IHD mortality would be expected in the US territory on pulse days. To examine how pulse timings were associated with the number of deaths in the US territory, seven-day intervals centered on the day of pulse registration were examined. For each of the seven days in the interval, the number of deaths per day from IHD in the US as a whole and separately for each of the nation's constituent states was calculated. The correlation coefficient between alpha radiation fluxes and the number of deaths during the seven-day interval was calculated.

No increased US mortality was found for the pulses in Figure 9. This may be due to a lack of association between recorded pulses and US IHD mortality, for example, due to spurious pulses being generated by the detector which no alpha radiation is associated with.

As it turned out later, the pulses of the example were weak alpha radiation – of small magnitude, and as a result with negligible influence on the mortality from IHD in the territory of the USA. This example shows that there should be proportionality between the indicator alpha radiation recorded by the satellite and the hypothetical alpha radiation reaching the Earth's surface – when the indicator radiation is weak, the observed effect on IHD mortality due to the proportionally weak hypothetical alpha radiation is also weak. And vice versa, with strong indicator radiation a strong effect on mortality should also be expected. The observation has shown that a statistically demonstrable increase in mortality is observed when indicator alpha particle fluxes are above $1000 \text{ particles.cm}^{-2}.\text{s}^{-1}.\text{sr}^{-1}.\text{MeV}^{-1}$.

Confirmation of this logic of reasoning is Figure 11, where the indicator pulses of alpha radiation registered in the following month – October 1978 are shown. It can be seen that the magnitude of the fluxes of indicator alpha radiation is a hundred times greater than the pulses shown in Figure 9. Again the observed fact that 5 of the pulses obeyed a strict periodicity – with the same moment of occurrence – at 19:35 UTC (one at 19:40 UTC), Monday, for exactly 7 days, is surprising. In nature, natural processes with such a cycle are not observed (unlike the Bible, in which this is God's working week). Three of the pulses have the same flux value: $2566.8 \text{ particles.cm}^{-2}.\text{s}^{-1}.\text{sr}^{-1}.\text{MeV}^{-1}$ which is also contrary to what is observed in natural processes. The longitude of the registration points of the discussed 5 pulses depends on the hour and minutes of the registration of the alpha radiation pulse, and for the same registration time 19:35 UTC falls in the region of the western USA, on the same meridian with coordinates -114°W. According to the mechanism of the phenomenon described above, if real streams of alpha particles are associated with the pulses, then their point of impact is about 30° east (two hours earlier than the time of registration), on the territory of the eastern United States, where an increased number of deaths from IHD should be expected at that time. Fully consistent with the above-described hypothetical mechanism of the phenomenon, for the pulses in Figure 11, distinct correlations are observed between the alpha particle fluxes and the number of suspected cases of IHD in the US territory, for the seven-day intervals around the dates of the pulses.

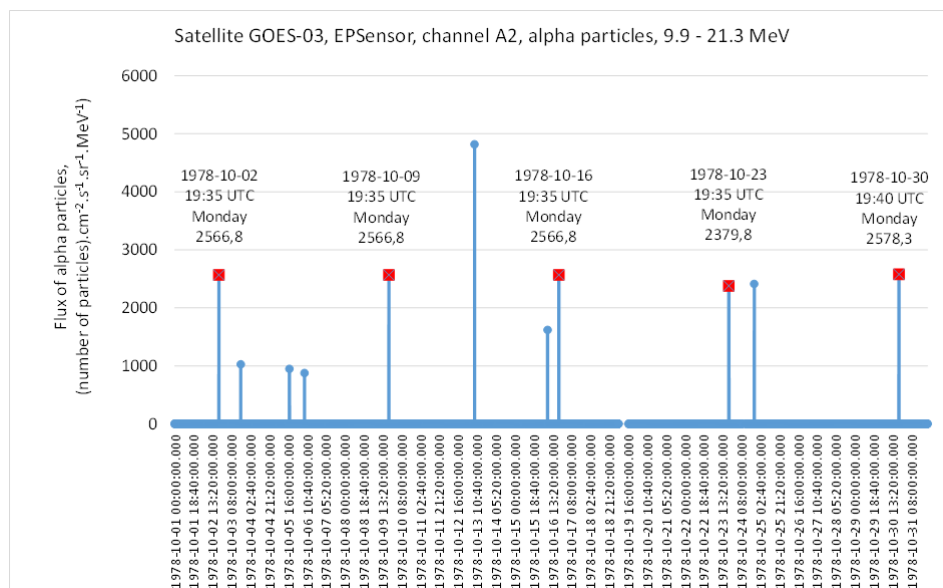


Figure 11. Streams of alpha particles with energies between 9.9 and 21.3 MeV were recorded in October 1978 by channel A2 of the EPS sensor on board the GOES-03 satellite. Between the pulses marked in red, there is a strange periodicity of exactly one week and they are of the same magnitude.

Examples of two such dependencies concerning the pulses of Figure 11 are shown in Figures 12 and 13. These dependencies are proof that the recorded pulses are real streams of alpha particles, with a strange periodicity (a week). The time of registration 19:35 UTC shows that the indicator radiation falls over the western regions of the USA and its corresponding hypothetical high-energy radiation capable of causing death by IHD falls over the densely populated eastern parts of the USA. For the seven-day interval around October 2, 1978, for which there was a high correlation between alpha radiation pulses and the number of IHD deaths for the US as a whole, correlations were also obtained between alpha radiation fluxes and the number of death cases for each of the states separately. The numerical values of the correlations above 0.4 combined with the coordinates of the centers of the respective states are shown in Figure 14. From the figure, it can be seen that, in full accordance with the predictions of the above-proposed mechanism of the described phenomenon, a deadly spot appeared at noon on October 2, 1978, in the eastern United States and resulted in a simultaneous increase in IHD death with a large enough number of cases to affect the national IHD death toll statistics for October 2nd (Figure 12).

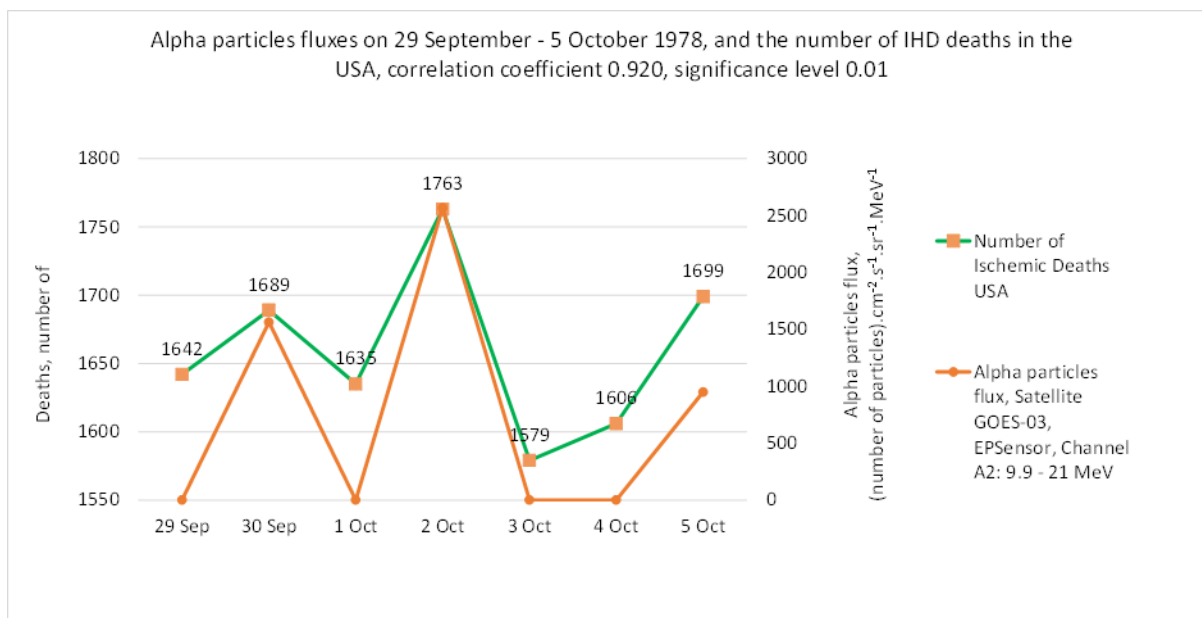


Figure 12. Between the fluxes of alpha particles with energies between 9.9 and 21.3 MeV for the seven-day interval September 29–October 5, 1978, recorded by channel A2 of the EPS sensor on board the GOES-03 satellite and the number of IHD deaths in the United States for the same interval there is a high, statistically significant correlation.

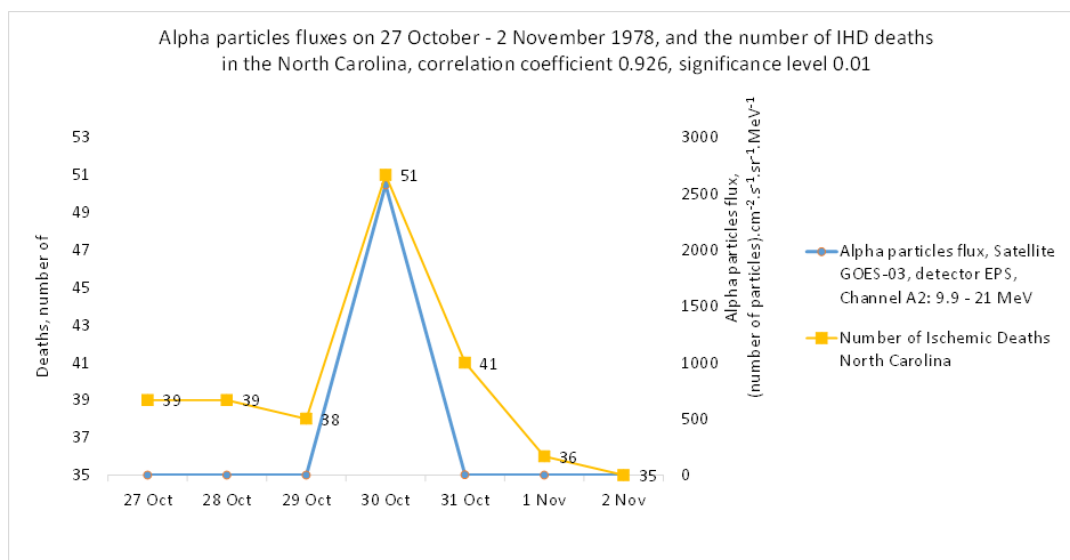


Figure 13. Between the fluxes of alpha particles with energies between 9.9 and 21.3 MeV for the seven-day interval October 27 – November 2 1978 recorded by channel A2 of the EPS sensor on board the GOES-03 satellite and the number of IHD deaths in North Carolina for the same interval has a high, statistically significant correlation.

The strange periodicity of alpha particle pulses rules out their natural origin. If the alpha particle pulses are of artificial origin, the question arises as to who produces them. This would have to be a highly intelligent non-human mind since the generation of powerful

streams of alpha particles recorded at 36000 km from the Earth's surface is not within the capabilities of human civilization at the modern stage of its development. Are these not the long-awaited signals of an inhuman civilization with an incomprehensible concept of contact related to the slaughter of people? Is it possible that a cosmic phenomenon deadly to humans on Earth was deliberately caused, or is its deadly side effect of navigational or communicational signals of unknown origin to mankind?

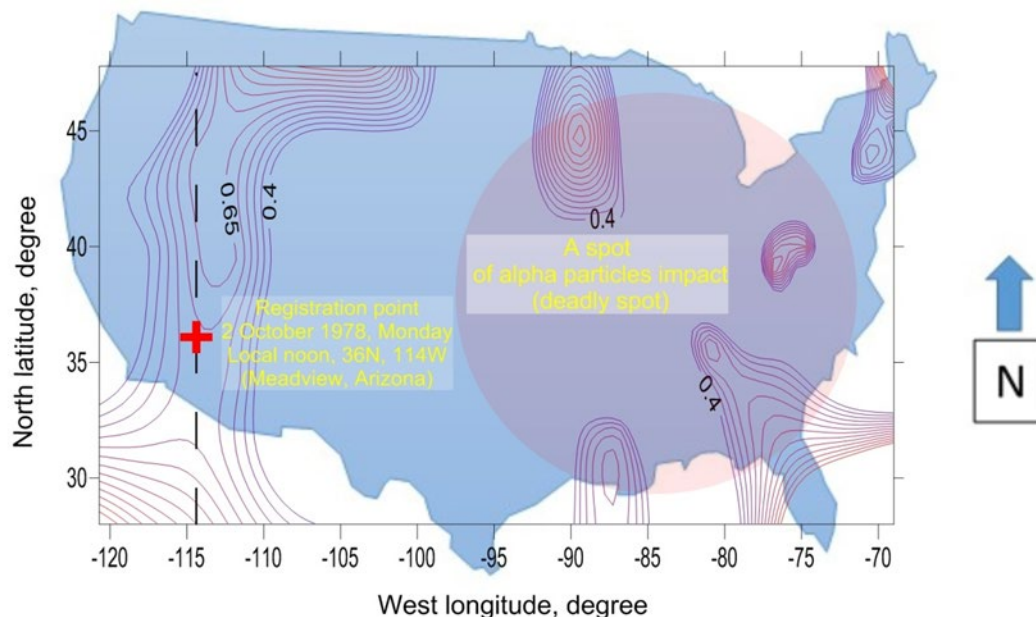


Figure 14. The point of registration of the indicator pulse of alpha radiation on October 2, 1978, is shown in the figure with a red cross. The hypothetical radiation associated with this pulse forming a death spot 30° east of the registration point is shown as a circle. The death spot covers areas with increased IHD mortality (increased correlation coefficient between radiation and IHD deaths for individual states), in full agreement with the above-proposed mechanism of the studied phenomenon.

Figures 15 and 16 show pulses of alpha radiation recorded by a satellite at the time 19:35 UTC for the studied interval years 1974 – 1979. Initially, the period of the pulses was 24 hours, then it was changed to a week during the operational activity of the same orbit satellite – SMS-02. The magnitude of the pulse is constant for long time intervals.

Figure 16 shows only the weekly cyclicality of the recorded alpha pulses at 19:35 UTC, on Monday. As mentioned above, only 48% of satellite information contains processable data. Data for the rest of the time are missing. The fact that the recorded alpha pulses with a time of registration of 19:35 UTC are on a Monday suggests that the other Mondays during the year for which satellite data are missing also have alpha particle pulses that influence IHD mortality in the USA. This can be checked if the number of deaths from IHD is calculated for each day of the year (there are no missing data in the health statistics) and the number of deaths on Monday is compared to the average number of deaths on the other days of the week. This calculation was made for 1978. The result is shown in Figure 17. The difference between the number of deaths on Mondays and the average number of deaths on other days of the week is statistically significantly different from zero (t-Test: Paired Two Sample for Means). This difference may be attributed to the influence of alpha particle pulses on the number of IHD deaths in the US. The relative share of this impact for the US is a 5% increase

in IHD mortality due to the alpha particle pulses recorded at 19:35 UTC causing death spots to appear over the US territory. The point of registration of these pulses is in the western regions of the USA, therefore the victims of the discussed phenomenon through the mentioned pulses, as predicted by the mechanism proposed above and confirmed by the example of figures 12 and 14, are the residents in the densely populated eastern regions of the USA.

Figure 16 shows the presence of long time intervals during which the magnitude of the alpha radiation pulses is constant. The combination of alpha radiation pulse periodicity of exactly one week and constant magnitude is characteristic of artificially generated pulses. As the examples above make clear, these artificial pulses kill people on Earth's surface.

Pulses of alpha radiation are almost always grouped in series, differing from each other in time of registration, period, and magnitude. The 19:35 UTC check-in series discussed above is just one of them. It has the largest number of pulse registrations and is one of two or three series whose effect on IHD mortality can be examined with data on individual death dates available only for the US. The different series of impulses for the studied interval of years are shown in Figure 18.

Figures 19, 20, and 21 show the registration points for pulses with an alpha particle flux of at least $1000 \cdot \text{cm}^{-2} \cdot \text{s}^{-1} \cdot \text{sr}^{-1} \cdot \text{MeV}^{-1}$. In addition to the time series pulses from 19:35 UTC that influence IHD mortality along the US East Coast, the time series pulses from 21:35 UTC also have an influence. Death spots associated with its pulses cover the west coast of the USA and affect mortality there [8]. The calculation of US mortality above does not include the victims of the group of impulses, with a time of registration at 21:35 UTC.

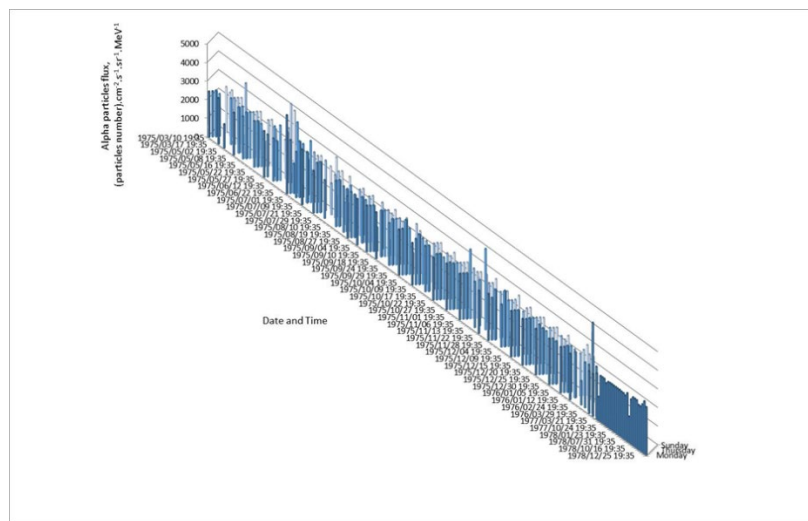


Figure 15. For the survey period of years 1974 - 1979, pulses of alpha radiation with a registration time of 19:35 UTC have an invariable magnitude for large time intervals and change their periodicity from daily to weekly, within the operation of the same satellite, SMS -02.

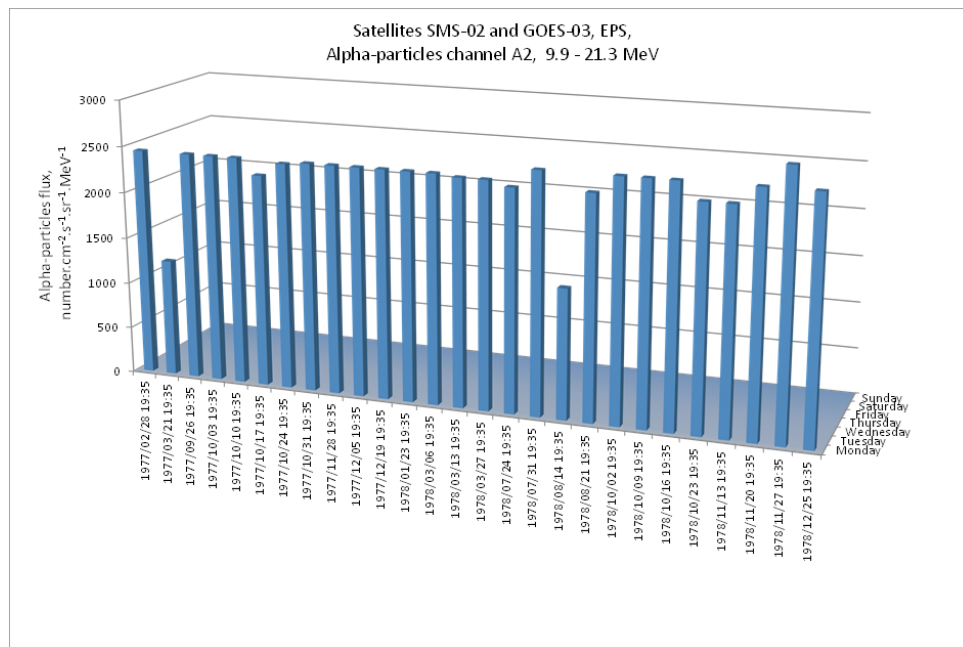


Figure 16. Pulses of alpha radiation recorded by a satellite at 19:35 UTC after February 1977 are strictly periodic with a period of one week, for long intervals they do not change in magnitude and do kill people on the Earth's surface.

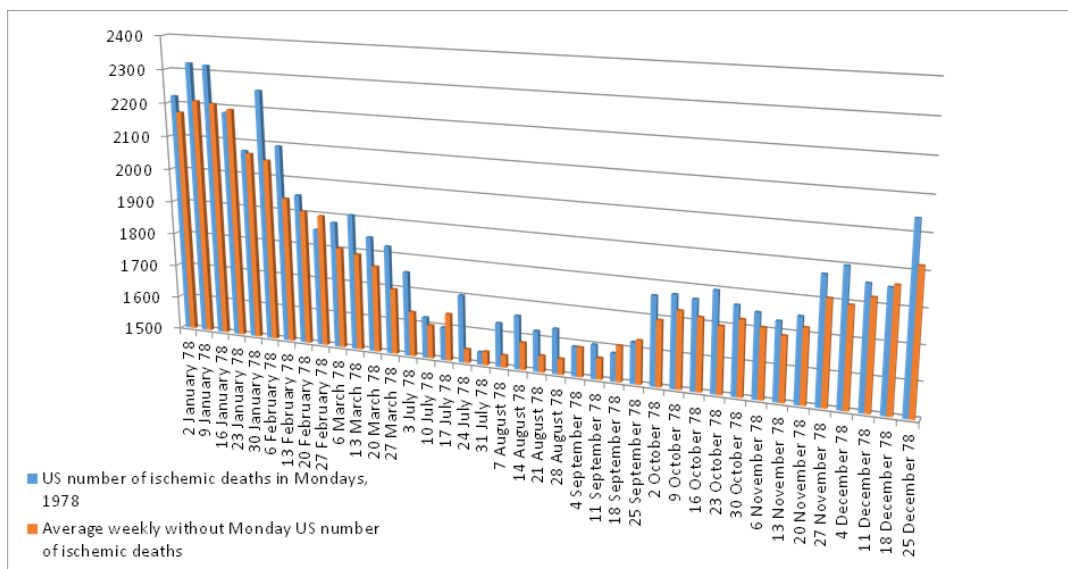


Figure 17. Between the number of deaths in the United States on Mondays in 1978 when pulses of alpha particles were recorded from the series with a time of registration at 19:35 UTC (Figure 16) and the average number of deaths on the other days of the week there is a statistically significantly different from zero difference.

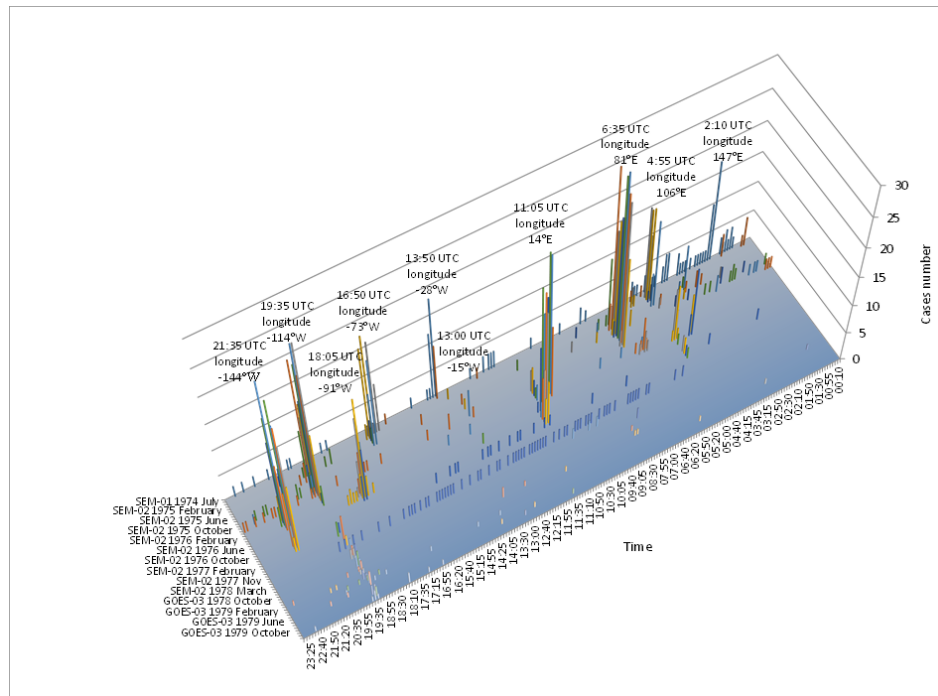


Figure 18. Series of pulses of alpha radiation recorded by a satellite in Earth orbit with the longitude of their point of registration. The most numerous are the series with a registration point over China, the European Atlantic coast, the Western regions of the USA, and the eastern Pacific.

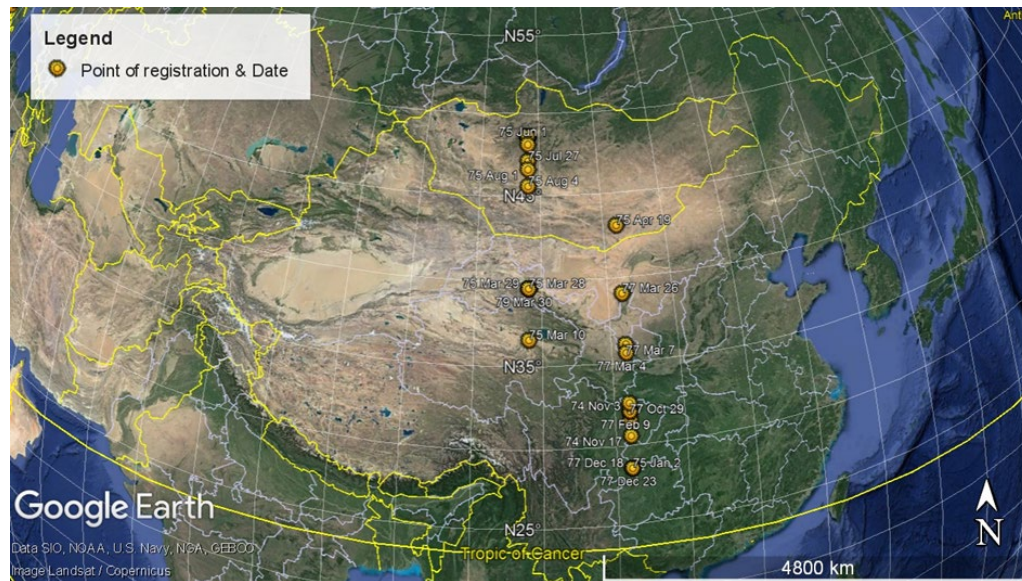


Figure 19. Points of registration of pulses of alpha particles with a flux of not less than $1000.\text{cm}^2.\text{s}^{-1}.\text{MeV}^{-1}$ on the territory of central Asia. A Google Earth map was used.



Figure 20. Points of registration of pulses of alpha particles with a flux not less than $1000.\text{cm}^{-2}.\text{s}^{-1}.\text{sr}^{-1}.\text{MeV}^{-1}$ off the western coast of Europe. A Google Earth map was used.



Figure 21. Points of registration of pulses of alpha particles with a flux of not less than $1000.\text{cm}^{-2}.\text{s}^{-1}.\text{sr}^{-1}.\text{MeV}^{-1}$ in the western parts of the USA, as well as in the eastern Pacific. A Google Earth map was used.

Figure 22 shows a plot of the impact on IHD mortality of two alpha particle pulses separated by two days – one with a point of registration in the western United States, the other with a point of registration in the Pacific Ocean near the west coast of the United States. If these are artificially created pulses of alpha particles, it is intended that the death spots associated with them cover the most densely populated areas of the country, i.e. lead to the death of the maximum number of people in the US area. This is hostile behavior by a non-human intelligent force. Nothing can be said about the influence of the other pulse series in Figure 18 since there are no available data on individual deaths and the day of death elsewhere in the world except for the USA. It can only be added that a series of pulses of alpha particles also falls on a meridian along the western coast of Europe. Their respective death spot covers Central and Eastern Europe, where IHD mortality is maximal [16].

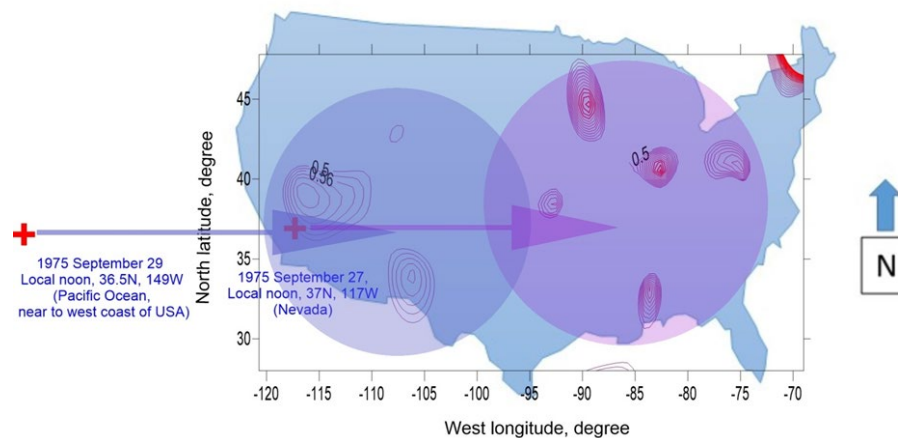


Figure 22. Example of the influence of two pulses of alpha particles. One was recorded on 27 September 1975 with a point of registration 37°N, 117°W over the western US. Its corresponding death spot is located 30° east, covering the eastern United States. The other pulse had a registration point in the Pacific Ocean on September 29, 1975. Its corresponding death spot was located 30° east, covering the western United States.

Conclusions

The paper examines a phenomenon dangerous to human health, representing the dependence of human mortality on the Earth's surface from circulatory system diseases, in particular, IHD, from high-energy solar alpha radiation entering the Earth's orbit. The existence of such a phenomenon was established by joint examination of data from satellite observations and health statistics of several countries. Free access to data from the United States Health Statistics, in particular on individual deaths and date of death, allowed the analysis of the rapid processes of the effects of alpha radiation fluxes on IHD mortality at the Earth's surface. A mechanism of the phenomenon is presented, according to which the impact on the human organism is carried out directly by solar alpha particles invading the Earth's surface. They have enough high energy sufficient to overcome the losses of interaction with the particles that make up the atmosphere. Particles are most likely to reach the Earth's surface under two conditions – at local noon and in a location where there is a coincidence of two directions – of the incident alpha radiation and the geomagnetic vector at the point. In this case, the alpha particles do not experience the deflecting geomagnetic force, capable of changing the direction of their movement. The streams of alpha radiation are of two types – of natural origin with continuous change in time on the order of hours and days, and short-term pulses in less than 5 minutes that have strange characteristics – appear in the form of series with a fixed period – day or week, with the same magnitude, remaining unchanged for long time intervals, the same moment of registration of the pulse. These pulses, when of sufficient magnitude, also cause IHD deaths on the Earth's surface. The pulses follow in series directed to certain points of registration on the Earth's surface – where the solar culmination coincides with the inclination of the geomagnetic vector at the moment of registration of the pulse. Due to the same moment of registration, all points of registration are located on the same meridian, i.e. the impact of the pulses of the entire series is aimed at the same region of the Earth's surface where they cause death by IHD. The origin of pulses with similar characteristics cannot be explained by natural processes. It is more likely that these series of pulses were caused by a reasonable force, but the scale of the phenomenon – the magnitude and power of the pulses, their consistency with the daily and annual course of the Sun (i.e., it is not excluded that the Sun is also technologically manipulated), shows that such

intelligent intervention is beyond the power of human civilization at the present moment of its development. Who could emit them and how he uses them remains an open question. This is not humanity.

The fact that the series of pulses are continuously directed to certain areas on the Earth's surface and have a constant magnitude for a long time allows us to make three assumptions:

1. That pulses are navigational signals, and the non-human mind which produces them is indifferent to the loss unintentionally inflicted on mankind by them. For example, an area with frequent sightings of Unidentified Aerial Phenomena (UAP, UFO) – Uintah Basin, Utah, USA, is located close to the meridian -114°W , where the points of registration for a series with registration moment 19:35 UTC are clustered around (in western US, figure 21). These pulses have produced notable increases in IHD mortality along the eastern edge of the United States. At the northeast end of the Uintah Basin is the Skinwalker Ranch, popular for its mysterious phenomena.
2. The terrible possibility – that pulses are an imperceptible for humanity way to deliberately cause death in the human population, which speaks eloquently of a hostile attitude to the humanity inhabiting the Earth, and
3. Since death from IHD predominantly affects the elderly, it is possible that the non-human mind should exercise monitoring and some "sanitary logging" in the human population. The impact of solar alpha particle flow in the area might also have a stimulating effect on the human population and development. It is hardly a coincidence that historically the oldest civilizations with the greatest traditions in human culture are located in this zone, and in modern times, the countries with the most developed economies and the most numerous and educated populations are located in this zone.

Discussion

The phenomenon described in the present work, dangerous for humans, is observable in an area of the planet's surface where a significant part of the human population is concentrated. The source of the threat is alpha particles with high energy – of natural origin, but with a high probability and generated artificially for a reasonable mind, not related to human civilization.

Human thinking is slowly freeing itself from its anthropocentric notions. It was only 500 years ago out of 10,000 years of human civilization that the idea that the Earth was not the center of the world began to take hold. We still live with the idea that in the Cosmos accessible to us we are the only sentient species, and it will take many years of effort to find a signal from a kindred spirit somewhere in the distant Cosmos, contact with which humanity would only benefit. For decades, the SETI (Search for Extra-Terrestrial Intelligence) team has been looking for such a signal, and who knows why they think that the expected signal can only be communication, coming from distant Space and only electromagnetic. As it became clear above, such a signal can also be a series of unmodulated pulses of alpha particles through which a sentient force "contacts" humanity, killing its members. Some bright minds of humanity like Stephen Hawking, reflecting on the "upcoming" meeting with intelligent beings in the vague future, invite caution. In a popular show, he made the analogy that a future visit by extraterrestrials to Earth would turn into a nightmare for Earthlings similar to that for Native Americans after the arrival of Columbus. Similar skepticism about a future encounter with non-human intelligence was expressed by many other thinkers, the most popular of which was H. W. Wells with his novel War of the Worlds. The data presented in this work show that such an encounter is not somewhere in the future, we unknowingly live in contact with

cosmic intelligence for an unknown number of years in the past to the present, and perhaps co-use the Earth. Unfortunately, all we can conclude from the data presented is that contact with an un-human reasonable mind increases mortality from IHD.

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