The Impact

What links all these things?

- the thousands of impact craters of the North American Carolina Bays
- the stars Mintaka, Alnilam und Alnitak of Orion's Belt
- Plato's dialogues of Timaeus und Critias
- the Great Sphinx as well as the Pyramids of Giza
- the Meteor Shower of the Cepheids
- the beginning of the Holocene with its mass extinction

?

The apocalyptic impact of a comet
into the Zaragoza Sea of the Atlantic Ocean
11,400 years ago!

The revised, supplemented and translated
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Contents:

The Comet-Impact 11,400 Years ago

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1. Summary

The following study describes the astronomical processes of the comet impact into the Zaragoza Sea 11,400 years ago, which led to the Atlantis catastrophe. The dating coincides with the lore of Plato's Dialogues, the ancient Egyptian monuments of Giza – the Great Sphinx and the pyramids in their correlation to the belt stars of star constellation Orion – as well as astronomical evaluations of the so-called Carolina Bays, according to which the still existing meteor shower of the Cepheids represents the remaining remnants in the orbit of the comet that impacted at the time. The reconstruction using astro-programme Guide 9.0[1] leads to the date of impact as 12 March 9,337 BC (Greg.), 10:19 true local time in South Carolina, respectively 09:27 Bahamas time.

2. The tragedy of the Carolina Bays

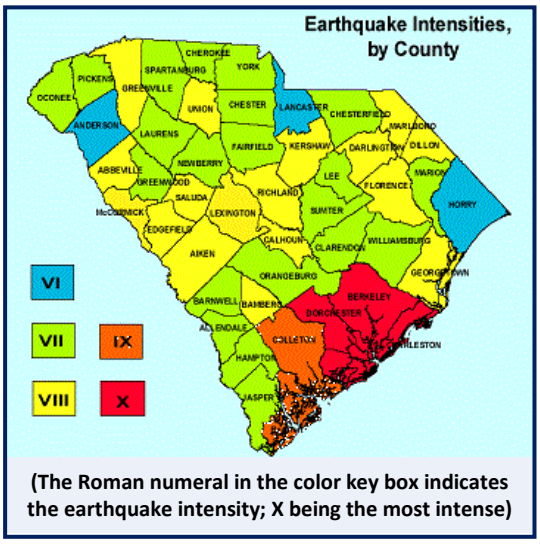
Could it be that geologic and prehistoric research do not see – or do not want to see – the forest for the trees? How long will it take to acknowledge the South Carolina funnel field with its hundreds of thousands of "bays" for what it truly is: the most obvious testimony to an apocalyptic impact of a comet? It is almost a miracle that our prehistoric ancestors survived this disaster.

Now, this subject succumbs to the scientific methodology according to which what cannot be, must not be. And certainly this story of the alleged straightforward pathway of our ancestors through prehistory, beautifully told by our school science, must not be disturbed by any cosmic impacts and the disasters they may cause. On the other hand, the existence of the Carolina Bays is a nuisance that cannot be otherwise explained and now demands the grotesque balancing act of an alternative, phlegmatic explanation of causes with truly hair-raising nonsense:

It should have been a combination of several processes that created these "bays", due to climate change, glacial low tides and so on. Sure! This is truly quite plausible and convincing! And really got going with their mental caprices, Quaternary geologists argue that the strange characteristics of the "bays" could – and very easily and without any further ado (!) – be explained by banal, well-known terrestrial processes with repeated modifications of the combined interactions of karstification, wind and water (including ocean currents while the area was still under water) and the rise of groundwater in later times.

Sorry, but that is fantasy! In any case, we can now also assume that the countless funnels of the Verdun battlefield from World War I were not caused by bombs and grenades, but (as we have now learned!) by fresh spring winds and warm summer rain in this our oh so peaceful world. But it is no longer just about ONLY the Carolina Bays, because the annoyance of their existence is exacerbated by the smashed Bahama base: should the giant holes in the continental shelf (or continental slope) of Florida (see Fig 7 as well Fig 8: 27.12°/-78.86° and 26.72°/-77.64°) also be caused by *"mild breezes and gentle waves"*?

And of course, there cannot be any doubt that South Carolina's earthquakes must also have been caused by *"mild breezes and gentle waves"*, which – as Quaternary geologists want us to believe – had caused the bays, because the most affected earthquake areas are identical to those of the Carolina Bays, see the picture, which was published by the "*South Carolina Geological Survey*": www.dnr.sc.gov/geology/index.html.[2]



(The Roman numeral in the color key box indicates the earthquake intensity; X being the most intense)

So wasn't it much more the cosmic energies of a comet impact that shattered the affected underground of South Carolina?

There remains the anti-impact argument of the different dates, if it is one at all. So everything one measures – however and wherever – leaves a wide range of interpretations open because the craters themselves do not care whether what later accumulated inside is older or younger than themselves. What nonsense would be measured if one wanted to determine the age of the bomb craters of the Verdun battlefield by the methods used! Certainly 80,000 – 140,000 years! And woe betide if a dinosaur bone would have been found in such a crater, bombed free by crumps? And by the way, a crater remains a crater no matter how old it is. Fact: the impact took place!

3. The South Carolina Crater Field

Hardly a month goes by that the Tunguska meteor is not reported again and again, especially on television, but in comparison to what is to be described here, it was not even a tiny one. There are numerous television documentaries that report in great detail about the dangers and effects of possible asteroid impacts on our Earth, but there are no TV programmes and no documentations that our human race has survived at least one such apocalypse, even in historical times. In his book *"The Secret Of Atlantis"* (German Edition: *"All About Atlantis"*), Otto Muck already referred to the huge crater field near Charleston/South Carolina, the Carolina Bays, and assigned to this testimony the greatest importance for prehistory[9]. On the other hand, this cosmic catastrophe, which caused these innumerable Carolina Bays, does not matter in the media, and it really remains completely

incomprehensible why the official archaeological and prehistoric research seems to make a huge detour around these Carolina Bays. Are they afraid of the consequences of having to rewrite the pre- and early history of mankind after "processing" this ″Carolina incident″?

The South Carolina crater field was discovered in 1931 by aerial photography as part of what was then a new state survey. The age of this crater landscape is said to have been estimated at 10,000 – 12,000 years. Studies indicate less of impacts of planetoids or asteroids, but rather of fragments of a giant comet that had broken up into a swarm. Let us remember the Shoemaker-Levy comet, which crashed into Jupiter in July 1994. Tidal forces, particularly those of Jupiter, had even rubbed the comet into 21 main fragments, which impacted into Jupiter over 6 days like a string of pearls. So we can conclude that the main fragments of our Carolina comet did not impact into the east coast of Carolina, but swarmed centrally into the Zaragoza Sea of the Atlantic. Perhaps fragments arriving later would have even shot past the Earth.

This crater landscape will now be statistically examined a little using *Google earth* and initially only north of Charleston. Crater discoveries south of Charleston down to Florida and even on the Bahamas are be disregarded for the time being, even if they were certainly partial fragments of an entire swarm, as in the case of the Shoemaker-Levy comet. This would only complicate matters. More on that later.

Fig. 1 shows clearly recognizable craters, although only a rather random selection. The problem is shown in Fig. 2. If you really wanted to evaluate ALL (!) the craters, it would almost certainly be a life's work. This study is thus limited to a sample set of craters, but with a total of far more than 500 pieces. However, many of these were unsuitable for the measurement because the parameters to be measured – small main axis, large main axis together with their angular orientation – are no longer possible for many, either because several craters overlap or because the crater edges are otherwise covered, e.g. by erosion, human settlement etc. This resulted in a sample set of 467 craters, the parameters of which were be statistically evaluated.

It is striking that most craters can be found in the peripheral zones. The massive barrage inside the impact "caldera" was probably too violent to leave any individual crater marks. If one mentally transfers a similar impact density to the entire affected territory of South Carolina, the estimate very quickly comes to a total of many thousands of impact bullets. Many craters point with their thicker "egg end" to the north-west, many others show a damming wall to the south-east, so that the entire swarm of impacting comets must certainly have flown in from the north-west. And as Fig. 1 suggests, the much larger portion of the entire swarm plunged south-east into the Atlantic! In total, there must have been thousands and thousands of "projectiles"! More on that later.

The smallest craters in the sample set have diameters (small main axes) of less than 100 m. It is difficult to measure smaller objects with certainty, but of course they definitely exist. The largest object, on the other hand, has a small/large main axis of 5 resp. 9 km (!) and houses Lake Waccamaw, see Fig. 3. Regarding the specificity of Waccamaw Lake, see Section 4. Other

very large craters are also filled with lakes, whereas most of the others are probably covered by swamp or peat (see Fig. 4) because paths and streets usually lead well away and respectfully around the edges of the objects instead of right through them. For many craters, human settlement or agricultural use also ventures from the edges into the interior, as probably also in the case of the crater south of the Bay Tree Lake shown in Fig. 4.

Fig. 9 shows the size distribution of the craters. The percentage frequency is plotted against the small main axis "D" of the craters, which are shaped like an egg or an ellipse. It is clear that this distribution only applies to the sample set. Conclusions about the actual entirety or even the original distribution of the comet swarm itself are of course not permitted. The distribution in Fig. 9 shows that the most common objects have a diameter of less than 1,000 m. On the other hand, the volume associated with these "small" objects is negligible compared to the right-hand "tail" of the distribution. If one assumes that the diameter D of the ellipses in the ground is five times as big as the diameters P of the causal projectiles (see page 9), the total summarized volume of the projectiles is almost 2.3 km³ (!) with a corresponding total diameter of 1.6 km, which mainly comes from the large objects. And this 2.3 km³ is the result of just the sample set of only 467 craters! The large crater of Lake Waccamaw alone suggests a volume of almost 0.640 km³ for its causal bolide and thus makes a contribution of almost 27% of the total for the sample set, see Fig. 10.

The next aspect is the direction of impact. If one determines the length of the major main axes using the *line ruler* tool of *Google-earth*, their orientation is also specified as azimuth AZ in the horizon system, which is related to the south meridian. The measurement accuracy is, of course, dependent on "practice and sense of proportion"; however, as several repetitions have shown, it is approx. ±1° for the elongated objects. However, the shorter this main axis is, the less precise is the measurement. Nevertheless, the clear scatter for the less slim objects, is evident (see Fig. 11). It was also found that the objects located to the north seem to have lower values than those located to the south. The geographic orientation of the comet swarm thus shows a widening or "divergence", but that does not mean that this swarm itself was divergent. Rather, this apparent divergence results from spherical trigonometry, according to which an astronomical object is perceived to be more northern, the more southern the latitude of the observation site is. Actually, this "divergence" is rather a convergence of the directions to the "point" in the sky from which the comet entered, the same as the "apparent radiants" of meteor showers. Sometimes these meteor streams also show the phenomenon of being composed of several strands or sub-streams, some with considerable scattering of the respective partial radiants[3]. Fig. 11 indicates that these smaller scatterings in the case of our Carolina comet are symmetrical to the main direction, but it also results from the mean values. Despite stronger scatterings, small objects (D < 200 m) still have a similar mean value with 137.4° like the entire sample set (134.9°) or like the large objects with D > 2,000 m with 135.4°, which we will use in the calculations. These small differences are barely evident and are almost within the range of measurement accuracy. However, more precise analyses would have to include the geographic latitude of the individual objects.

This also applies to the next aspect: the impact angle against the horizontal plane. This impact angle β, also called height h above the horizon or altitude in the horizon system, can be determined from the ratio of the smaller main axis D to the larger main axis L according to β = arcsine(D/L). Fig. 12 shows the results of this evaluation with regard to the aspect ratio L/D. Here, too, scattering increases towards smaller objects, up to even circular craters with L/D = 1. The L/D average over the entire sample set is 1.60, which indicates in an impact angle of 38.7°. Small objects with D < 200 m hit the surface of the Earth at a significantly steeper angle with an average L/D = 1.48 (42.5°). However, many of these small objects follow the large objects (probably swept along by the entire swarm), impacting with an average L/D of 1.72, thus 35.5°. But many of the smaller objects were apparently slowed down by the atmosphere up to a vertical impact. As far as the astronomical trajectory of the entire comet swarm is concerned, which is needed for the following reconstructions, we use the impact angle (altitude or "height h above horizon") of the large objects of 35.5° together with the course of the entry trajectory 135.4° (towards south).

This is now becoming a little speculative, but actually one should be allowed to apply the projection geometry of the impact of an object to the impact of a swarm of objects. Already along the coast, this swarm has an extension of about 360 km, and it should be assumed that this swarm should have a cross-section of the same order of magnitude as a comet's tail. So while the first lower chunks hit north of Charleston, the upper ones were still 360 km (!) high up in space! These upper chunks must have flown correspondingly far into the Atlantic, far into an area known as the Bermuda Triangle. Let us assume that the cross-section of the swarm would have projected an ellipse onto the Atlantic with the same L/D of 1.72 (as the large Carolina craters) and would adapt a corresponding ellipse to the conditions in the examined area of Charleston we get to Fig. 6. And this ellipse with the main axes of 900 and 1500 km would come very close to the Bahama Bank! So did the Carolina comet also smash into the Bahama Bank? Or was it a somewhat southern companion flying parallel at a distance of 500 km? Or was the flight of these fragments time-shifted? According to Fig. 7, it even looks like a double projectile of huge dimensions with a diameter of 45 to 75 km (small main axis), both having our familiar ellipse with an L/D of 1.7 and course 139°! Because of the southern location of the Bahama Bank, the same astronomical events in the northern sky must of course be perceived to be more northerly for reasons of spherical trigonometry. Is this a coincidence or another explanation? Likewise, No. 3 and the dark "holes" north of Freeport/Grand Bahama Bank to Great Aboca Island (Fig. 8) also look very suspicious!

But let us stay with the impact ellipse with its dimensions of 900 x 1,500 km, which covers an area of approximately 1 million km². In relation to the swarm diameter of 900 km, the Atlantic, with its averaged depths of only 2 kilometres, is at best a "ridiculous puddle". With the astronomically estimable assumption of an impact speed of about 25 km/s, barely one minute had passed from the beginning of the bombing raid in Charleston till it reached the south-eastern end of the ellipse. One minute, in which all water[4] – about 2 million km³ –

"exploded" as a hellish mixture of fire, water, steam, rocks and mud, certainly high up into the stratosphere and all around the planet.

The consequences and repercussions of this cosmic catastrophe must have been terrible worldwide and was certainly also connected with initiated earthquakes and volcanism. The videos of Shoemaker-Levy's impact into Jupiter give an idea of what the Carolina comet swarm caused at that time: the Shoemaker fragments may have been faster than our swarm of comets, but with its diameter of only 4 km it was significantly smaller. Therefore, the energy of our Carolina comet swarm must have certainly far exceeded that of Shoemaker-Levy by at least one order of magnitude, which was said to have been equal to nearly 1,000 Gt of TNT (approx. 50 million Hiroshima bombs). And the dark spots on Jupiter were as big as our entire globe. Did the impact bring the end of the ice age? The doom of Atlantis? It sounds all quite harmless considering these nearly cosmic energies. This ultimate MCA should actually have caused a lot worse than just "the doom of nice little Atlantis" and "the cute pretty end of the ice age".

4. The Energy

This chapter was revised after the craters for our statistics were simulated using the Impact Earth software of Purdue University[5]. These simulations are described in the study "Impakt Analysen der Carolina Bays" (in German, not published) by Paul-J. Hahn in 2017. The most important results are described below.

1. It is fundamentally important, that the employed software confirms that inclined impacting projectiles of low densities such as those of comets do not leave circular craters, but strike the ground in ellipses with an axis ratio corresponding to the impact angle.
2. Smaller projectiles, entering the atmosphere with a diameter up to about 250 m begin to breakup at an altitude of 100 km and burst into a cloud of fragments, although only some larger fragments of which may strike the Earth's surface. No real crater is formed.
3. For diameters > 350 m, the projectile reaches the ground in a broken condition forming a crater field – not a single crater – while the broken projectile fragments strike the ground to produce ellipses.
4. Beginning with diameters of around 500 m up to 1 km, the projectiles also break up at 100 km, but the fragments are not significantly dispersed. Initially, a simple single elliptical crater is formed, which widens to a diameter that is about 6 to 7 times larger than the diameter of the projectile as is likely the case with Lake Waccamaw, see Fig. 3.
5. The Atlantic Ocean prevents the formation of craters on its sea floor, even for comets of 1,000 m diameter (final crater diameter: < 22 m, final crater depth: < 5 m)

6. The impact of even the largest projectiles (100 km) does not shift the Earth's orbit noticeably nor does it make any change in the tilt of Earth's axis (< 5 hundredths of a degree for diameter 100 km!). Depending on the direction and location of impact, the collision may cause a change in the length of the day of up to 331 milliseconds.

So we have set the framework for the Carolina Bays: most of the craters (< 500m, roughly 55%) were not caused by "original" primary projectiles but rather by their broken up fragments, while these primary projectiles of the swarm had been in the range of 300 to about 350 m. The larger craters, even up to Lake Waccawaw with its diameter of 5 km (see Fig. 3), indicate projectiles with diameters of up to 800 m.

If we now try to calculate the total energy, we start facing the difficulty, that our sample set is not valid for all the thousands and thousands of bays. But we have no better approach than to use these data. Our sample set has a (volumetrically) averaged diameter of 1,060 m, calculated using the small axis of the craters. But what about the diameter of the impacting projectiles? For this ratio between the diameter D of the impact ellipse and that of the projectile, IMPACT EARTH indicates a medium value of 1:4.5, as could be inferred from the said study[5]. To stay on the safe side with a minimum estimate let us continue with a ratio of 1:5, which gives us the mean diameter of the projectiles and fragments striking the ground to be 1,060 m x 1/5 → 200 m. Now we still need the total number of bays respectively craters.

The total number of all South Carolina impact ellipses is given as 500,000 in the literature and on the Web. But that is only a small fraction. As Fig. 6 shows, the actual total sum must be at least one order of magnitude higher. To stay again on the safe side with a minimum estimate, we continue with a factor of only 10, which gives 5 million projectiles.

We need at least the characteristics of our comet swarm. Its speed is estimated to be 25 km/s, which is a normal, but rather low value for comets, and for its density as "dirty snowballs" we set 400 kg/m³. The results are given below:

SUMMARY:

Mean projectile-diameter:	200	m
Mean projectile-volume:	$4.2 \cdot 10^{-3}$	km³
Number of projectiles:	$5 \cdot 10^{6}$	
Total volume:	$2.1 \cdot 10^{4}$	km³
Equiv. total-diameter:	34.2	km
Density:	400	kg/m³
Total mass:	$8.4 \cdot 10^{15}$	kg
Speed:	25	km/s
Total energy:	$2.6 \cdot 10^{24}$	Joule
equivalent:	$5.8 \cdot 10^{8}$	Mt TNT
which is equivalent to	**46**	**million 15 Mt-H-Bombs:**

Because of our minimal estimate we can round up:

MORE THAN 50 MILLION H BOMBS OF CALIBRE 15 MT TNT!

The calculated equivalent total diameter of 34 km fits quite well into the range of conventional comets, also with regard to speed. Thus, even without these estimations, we would have simply obtained a similar order of magnitude using average comet data!

We have referred to the suspected impacts onto the Bahama Bank. Would a factor of 2 or 5 or even 10 be added to our result above, this contribution would not be longer relevant given the already at least 50 million H bombs. The "little bit" of Atlantis, the end of the ice age or the doom of the Clovis culture should be child's play for such cosmic energies!

5. Evaluation of the Carolina trajectory

We know the trajectory or the "radiant" of the comet swarm of Carolina – flight direction 135.4° (measured against the southern meridian) and impact angle 35.5° – as well as the trajectory of the large impact craters of the Bahamas 139°/36°. These are the data in territorial horizon coordinates with the flight direction as azimuth AZ (towards south) and the impact angle as altitude ALT. With Carolina's geographic latitude of approx. N34.5° and N24.1° for the Bahama craters, the horizon coordinates can be transformed into the celestial coordinates of the equator system using spherical trigonometric formulas with the declination δ, the "normal" angular distance to the equatorial plane and the hour angle t of the elapsed time since the object passed through the meridian. This gives:

Carolina:	$\delta = 53.8°$, t = 5.0 h
Bahamas:	$\delta = 52.9°$, t = 4.1 h

In view of our "measurement accuracy" for the initial data, the agreement between the declination values can be described as almost striking and confirms the statement that the events of the Carolina area and the Bahamas had one astronomical cause that also concern the entire Zaragoza Sea. The data also show that the impacts of the Bahamas had been about an hour earlier. The big chunks that hit Bahama Bank flew ahead, followed by the "shotgun load" that extended from Carolina into the Zaragoza Sea!

"Unfortunately", the Atlantic Ocean prevented the formation of any craters on its sea floor. Otherwise we could even roughly reconstruct the time course of the impact.

All available information has now been used. Everything else regarding the aspect "time", i.e. year, season, month, day and hour, remains open at first and requires further input. But where from?

6. Is there a remaining meteor shower?

Can such a powerful swarm of comets have completely and in its entirety crashed into Earth and totally disappeared from the sky without leaving any remnants in its orbit? Should there not be many small or even larger fragments as well as countless "star dust" along its orbit around the Sun, producing the spectacle of a meteor shower year after year as soon as our Earth crosses this orbit again? Astronomers usually search for the comet that caused a meteor shower, so here is the opposite task: the search for the meteor shower of a former comet.

At first glance, the selection seems overwhelmed by the large number of known meteor showers. To make matters worse, the comet impact must have taken place many thousands of years ago so that the coordinates of the radiants of these showers have now been completely changed by the precession of the Earth's axis. However, a closer look reveals that many of these showers can be excluded. All meteor showers with small declinations of their radiants can be disregarded because they can never be raised to the required 53.8° (for Carolina) due to the up and down of the equatorial plane. This includes e.g. the *Hydrids, Velaids, Librids, Corvids, Sculptorids, Virginids* and many more. Also excluded are meteor showers, whose currently high declination always remains < 53° due to the movement of the equator, e.g. the *Geminids, Taurids* and *Sep.-Perseids*. Or the declination is already > 53° and can only get higher in future, as in the case of the *κ-Cygnids*. Meteor showers whose comets are known can also be disregarded. Not excluded, but rather unlikely is the possibility that even larger remnants of our Zaragoza comet could have remained in orbit and still enjoy the status of "comet". Of the known meteor showers, only the following remain with their radiants[6]:

α-Bootids:	RA 218° (14h32m),	DEC 19°, max. 28 April	(EQX 2000)
Cepheids:	RA 308° (20h32m),	DEC 64°, max. 18 August	(EQX 1950)
Cygnids:	RA 324° (21h36m),	DEC 51°, max. 16 August	(EQX 1950)
α-Cygnids:	RA 305° (20h20m),	DEC 47°, max. 18 July	(EQX 2000)

Initially, the *Quadrantids* shower was also shortlisted but since the comet of origin of the shower is now known, this shower was not considered further[7].

The further procedure was as follows: using the astro-programme Guide 9.0 the respective radiants were "moved back in time" until their declination reached the required 53.8° (for Carolina), with the following results[8]:

α-Bootids:	8,268 BC (Greg.),	RA 03h46m35s
Cepheids:	9,337 BC (Greg.),	RA 16h39m24s
Cygnids:	11,618 BC (Greg.),	RA 14h12m59s
α-Cygnids:	8,810 BC (Greg.),	RA 14h53m25s

Of course, these precise results are purely theoretical and arithmetical. In reality the radiants are not only relevant for a few years and, on top of that, they do not have only a punctual extension. This means that these data are to be understood as mean values overlaid with a tolerance range.

Now the question remains: Which of these meteor showers is the remnants of the swarm of comets that impacted at the time? Which of the four determined years "fits"?

7. The historical Timing

With his date 5 June 8,498 BC (Greg.) for the Atlantis catastrophe, Otto Muck[9] followed the Mayan calendar with its zero point worked out by Robert Henseling, who linked this zero point with a (lower) conjunction of Venus and new moon at that time. This is not an exceptional constellation; moreover it is invisible next to the Sun and thus certainly not a suitable astronomical constellation to set up a calendar system. This constellation of -8,498 can actually be reproduced with Guide 9.0, with Mercury standing right behind the Sun, about 10 days before its upper conjunction. However, Guide indicates this constellation for 10/11 August, -8,498. No other peculiarities can be observed in the starry sky of that year, only a partial solar eclipse around sunset on 4 August (Bahamas/Central America).

A newer(?) determination of the zero point of the Mayan calendar[10] refers to 11/13 August 3,114 BC which corresponds to the Mayan count 13 baktun, 0 k'atun, 0 tun, 0 uinal, 0 k'in. At this date, 13 baktun of 144,000 days each had already passed, giving 1872,000 days. And divided by 365.256 we get 5,125 years and exactly 63 days. We must count this time period backwards initially to 13 August 8,239 BC. With the further 63 days (9 weeks) we reach 11 June 8,239 BC. Guide 9.0 finds that there are no special planet constellations near this date and that the moon and all planets are widely distributed in the sky. Only Mercury and Saturn come closer together (to approx. 5°) and rise shortly before the Sun in the early morning, but without being able to assert themselves through the dawn. There are no other special constellations with Guide 9.0 for the year -8,239, apart from a total solar eclipse on 21 December, but this takes place after sunset (Bahamas/Central America). For the year -3,114 (zero point of the Mayan calendar mentioned above) Guide 9.0 finds only a weak partial solar eclipse and two coverings of Venus and Mars by the moon.

Muck's hypothesis that the Maya had based their calendar on the great apocalypse is hard to dismiss but it cannot be decided here which zero date the Mayan calendar is really based on. And it is difficult to imagine that the Maya had nothing better to do on the day of the comet's impact – this day of the world's apocalyptic end – than to start their calendar and the impact would have happened to coincide, by pure chance, with an extraordinary, rather rare astronomical planet constellation. It is more likely, however, that the Maya had set up their calendar on a special planetary constellation, but calculated the elapsed time between this constellation and the impact of the comet separately. With Guide 9.0, a variety of spectacular constellations of the moon and the classical planets can be found in the period

under consideration, i.e. between -9,000 and -8,000, without being able to argue whether and which of these many constellations started the Mayan calendar. This requires separate studies of this calendar. Could the Maya have started their calendar count with the special constellation of Fig. 13: 13 April 8,564 BC (Greg.)? On this day the moon and all historical planets started "from the same line"! A singularity in that time range!

Ultimately, however, Muck does not justify why he does not follow the traditional sources with his dating. Rather, when quoting Plato's dialogues, he simply omits Plato's repeated statement "9,000 years ago" – without any explanation! This is not scientific behaviour! To date, an almost infinite number of hypotheses have been developed about dating the Atlantis catastrophe, ranging from "serious" to the greatest nonsense. But it is actually a basic scientific requirement to first and foremost adhere to the sources, as long as it is not inevitable to have to deviate from them. Such a "necessity" must not become an arbitrary game ball of taste. This would open the door to all arbitrariness and Atlantis could not only have taken place on Thera/Santorin or Helgoland but even in a bottle[11]. So it is necessary to start from the only sources – the two famous dialogues of Plato.

8. The Egyptian Dating

The tradition of Atlantis was handed down by Plato in his two dialogues of TIMAEUS und CRITIAS. If we take into account the life data of the participants[12] of these dialogues (in addition to others, Socrates, Critias, Timaeus, Hermocrates and probably also Plato himself), we can fix the time of these dialogues at around 400 BC. Repeatedly it says:

"9,000 YEARS AGO"!

If we add the two dates together we get the date of the Atlantis catastrophe:

AROUND 9,400 BC

Already at this point we can make the decision that the comet shower we are looking for must be the *Cepheids* with the time calculated by us: 9,337 BC (Greg.). This match is almost frightening!

But are there any other clues? What do the "Ancient Egyptians"[13] still tell us? The search begins, even if the following must meet with violent reluctance and rejection from "mainstream Egyptology".

We can assume that we will find testimonials from the monuments of "Ancient Egypt" that need to be "PROPERLY READ". Let us start with the Great Sphinx of Giza, a lion with the head of a human being, facing east, a typical alignment of prehistoric monuments to the vernal equinox. The Great Sphinx is said to have been built between 2,600 and 2,700 BC, but this is hard to believe. The Sphinx must be much, much older since its body shows far too damage from weathering, even though it was covered by desert sand for a very long time. And obviously its head is not original either. It is much too small in relation to the body's proportions and hardly weathered at all, in full contrast to the body! None of these arguments

are new in any way, but discussed by various researchers for already lots of years. But official Egyptology keeps the ears blocked like a stubborn kid.

Some researchers even suspect that the original head was that of a jackal once representing the god Anubis. But we cannot follow this hypothesis since the jackal was mainly native to the western desert and therefore associated with the realm of the dead in the west in the Egyptian world of gods. So it really makes no sense to let it look to the east. And the tail of the Sphinx is that of a cat and not of a dog, and most certainly not the tail of a jackal, just as the Egyptian illustrations of the god Anubis show. This tail alone proves the hypothesis of the god Anubis as nonsense. So we can safely assume that the original head of the sphinx was that of a lion, much larger than the current head, which was later – after most severe weathering – reworked for self-use by a pharaoh.

But let us start with the supposed time: built between 2,600 and 2,700 BC. GUIDE 9.0 determines that the vernal equinox during that time was in the star constellation Taurus, in fact between the Pleiades and the head of the bull (see Fig. 14), which actually makes no sense. Such an age would rather be a homage to the bull cult and the shape of the sphinx should better be that of a Taurus! The construction of a lion sphinx only makes sense if the vernal equinox lies in the same constellation, i.e. in the constellation Leo. And that is e.g. the case in 9,048 BC (Greg), Fig. 15. Here the main star Regulus of constellation Leo stands directly and exactly on right ascension 0° and the Sun with the coordinates (0/0) almost scrapes past it. The corresponding star map of the sunrise on 20 March -9.048 is shown in Fig. 16. In this Fig. 16, which is the star map of the rising vernal equinox, we can see on the far right the star constellation Orion with its three belt stars. These have been repeatedly associated with the pyramids of Giza[14]. We test this by placing this star map as an overlay on the pyramids in *Google earth*. To do this, the star map must of course be swivelled by 180° in order to orient star Regulus on the left of the map in Google earth eastwards, towards the sunrise. And by this way the northern star Mintaka with its lower brightness matches now with the southern smaller pyramid Menkaure. A first proof that we are on the right track? After adjusting the size true to the angle, we see that our star map, together with star Regulus, is oriented exactly west-east (see Fig. 17). This match is definitely overdue!

But is the west-east orientation really exact? We test this with high magnification using the section concentrated on the pyramids (Fig. 18) and find that an exact match is only achieved after a gradual rotation of the overlay of 1.8°[(15)]. Since the ancient Egyptian builders certainly mastered an orientation < 1°, it can only be concluded that they obviously did not depict or document the Regulus equinox of 9,048 BC but another. But which equinox?

To find out this, we now vary the time, i.e. the year of the equinox, until we find an exact match between Orion's belt stars in the GUIDE overlay and the pyramids, without the need of further angle correction. The equinox determined this way refers to the year 9,320 BC (Greg.) (Figs. 19 and 20). Whereas the Sphinx alone defines the equinox as being "*somewhere in the star constellation Leo*", at worst in the range of ± 1,000 years, the belt stars function more or less like the vernier on a slide gauge and narrow the equinox to a time range according

to the angular accuracy that can be achieved in terms of construction. As we have seen, precession plus geometric mathematics have tilted Orion's belt by 1.8 degrees within 272 years (from -9,320 to -9,048). If the mentioned angular construction accuracy is e.g. ± 0.5°, the belt stars narrow the equinox to approximately ±76 years! An amazing, brilliant idea! The alignment of the Menkaure-Cheops line thus defines the equinox of 9,320 BC (Greg.)! And the strange, incomprehensible, even randomly senseless alignment of the three pyramids finally gets a plausible meaning. We should always assume that the ancient Egyptian builders built nothing without ulterior motives.

Note: The fact that the Khafra pyramid does not exactly match the central belt star Alnilam may be seen as a minor flaw, even though its lateral offset is only 25 m. But as Fig. 20 shows, this deviation is surprisingly small because we have to take into account that these 25 m summarize the construction tolerances of ALL three pyramids in ONE number! By rule of thumb and divided into the three pyramids this gives an offset of 8 m each – and related to their bases these are tolerances of only some few percent! In fact, these 8 m should be refered even to the entire extent of the 1.2 km long Giza complex. This would result in a precision of even < 1 percent! Fantastic!

We claim that the Egyptian builders used the Great Sphinx and the pyramids to depict and document the equinox in 9,320 BC (Greg.). What did they want to express? The date of the Atlantic catastrophe? The beginning of a "NEW AGE"? The agreement with Plato's dialogues couldn't be better!

9. THE RECONSTRUCTION OF THE COMET IMPACT

This equinox in 9,320 BC – derived from the Egyptian monuments – now leads us to the same decision that only the *Cepheids* can be the meteor shower that we are looking for (see Section 6). With our hypothesis that the *Cepheids* are the remnants of the comet that had crashed into Earth, we are now able to access the last missing aspects (season, month, day and hour) by taking the radiant's data of the *Cepheids* back into the past – to 9,337 BC – with help of the astro-programme GUIDE 9.0 – the year when the *Cepheids* matched our target coordinates, see page 11.

For this we stay in Carolina and place the observation site on the coast, for example on NORTH MYRTLE BEACH, W78.7° / N33.8°. We had already fixed the position of the *Cepheids's* radiant in the GUIDE star map of the equinox 1950, which is needed for the above recalculations, i.e. the coordinates of the radiant of the *Cepheids* fixed as "Marker Radiant" on the starry sky. This position in the sky is fixed and unaffected by the coordinate shifts caused by the precession of the Earth's axis. (Long-term changes in the orbits of Earth and comet must unfortunately be neglected).

Likewise, we mark the position of the Sun at the equinox time of the radiant on 18 August 1950 with "Marker Sun". This marked and fixed position of the Sun later serves as a

time or triangulation mark for the intersection of the orbits of the *Cepheids* and Earth, i.e. the ecliptic, because regardless of the position of Earth's equator swivelled by the precession, the Earth in the ecliptic always crosses the orbit of the *Cepheids* as soon as the Sun passes this marker again, which is the prerequisite for a collision. However, we will notice another influence, namely the marginal change in our ecliptic. Because not even the ecliptic is fixed over such periods.

Next we move the star map to the year 9,337 BC (Greg.) to let us show the position of the Sun in vernal equinox 0/0 of the ecliptic in equatorial coordinates. It lies slightly to the left, just 4° east of Regulus, the main star of the constellation Leo. It is 21 March, 18:53 UT. Just 5° to the right – west of the Regulus – we notice the triangulation mark "Marker Sun", which the Sun had passed 9 days previously. We shift the time back these 9 days so that the sun reaches this "Marker Sun". Because of the mentioned long-term drift of the ecliptic, the Sun remains 1.3° north of it. The Earth is now at the intersection point with the orbit of the *Cepheids* and the prerequisite for a collision is fulfilled: It is Thursday, 12th of March.

We now switch the GUIDE star map to terrestrial coordinates "altitude/azimuth", looking north-west 315° (against North), respectively 135° against South. Our "Marker Radiant", the position of the *Cepheid* radiant, should already appear here if the imaging level is not too high. We let the time of the day run and after a few time corrections we have reached the situation that the marker coincides exactly with the target altitude 35.5° for our location, while the azimuth 315.4° is shifted by 1.3° to 316.7° due to the drift of the ecliptic, see above. But this deviation is within the tolerance range of our determined azimuth of 315.4° and therefor needs no further corrections, see next page. It is 15:24 UT, 10:10 LMT.

A final check applies to this local time. At 12 noon, the Sun should be at 180° in the south meridian. It stands at 182.26°, nine minutes after noon. The true local time (LAT) is now 10:19 and the reconstruction is complete (see Fig. 21)

THURSDAY, 12 MARCH 9,337 BC (GREG.), 10:19 CAROLINA-LOCAL TIME

respectively

09:27 BAHAMAS LOCAL TIME

It should also be noted that projectiles which flew hours ahead would have struck the ground more steeply and out of more northerly directions due to the radiant's diurnal arc, see Fig. 22. Perhaps such impact ellipses could be found.

With this time-distant result of our reconstruction, the GUIDE 9.0 astro-programme is certainly strongly burdened, but the results prove to be fully resilient. Furthermore, all plausibility checks are passed, and even the marginal shift of the ecliptic over the millennia is considered. The same applies to the precession-related shift in the radiant date from 18 August (1950) to 12 March (-9.337), which also results from a flat-rate calculation over the

Platonic year[16]. But just as the orbit of the earth is not fixed over the millennia, this also applies to the *Cepheid's* orbit, to name just one more unknown.

Overall, our reconstruction provides a coherent general view, free of internal contradictions or astronomical incompatibilities. This astronomically underpins the hypothesis that a swarm of comets impacted into the Atlantic Zaragoza Sea, which is in best and contemporary agreement with the tradition of the Atlantis catastrophe.

Finally, we have to admit that all of our basic data are affected by fault tolerances, which means that our exact reconstructions are theoretical and mathematical and are therefore also overlaid by tolerances. Due to the slow shifts in precession, the coordinates of the *Cepheid's* radiant are relevant for many years, which means that our year -9.337 BC is overlaid by a tolerance that is even up to ± 100 years.

We learn from the current meteor showers that their maximum extends over a day or two. Let us add our fault tolerances of the same order of magnitude, which means that we will probably have to extend our "12th of March" to just under a week.

The last aspect is the reconstructed time 10:19 (Carolina). If we consider the whole constellation of Sun, Earth and radiant, the daytime seems to be the less affected by the fault tolerances. Since our angular error tolerance is certainly well below 10 degrees, the angular velocity of the Earth's rotation leads to a deviation from the determined time of day of less than ± 1 hour.

This results in a realistic reconstruction of the impact:

IN THE FORENOON
AROUND THE FIRST THIRD OF MARCH
ABOUT 11,400 YEARS AGO

Example: If we wanted to run the impact of the *Cepheids* using GUIDE 9.0 in a different year, i.e. 9500 BC, to adjust the impact to the beginning of the HOLOCENE (see next Section 10, assuming that 9500 BC is indeed correct!), the date of the impact would be shifted to Tuesday, 9 March, 10:16 am LMT with an azimuth error of only 1.8 degrees, which represents a shift of 2 days and 6 minutes and confirms our estimated tolerances.

10. THE ACID TEST: ICE CORES AND TREE RINGS

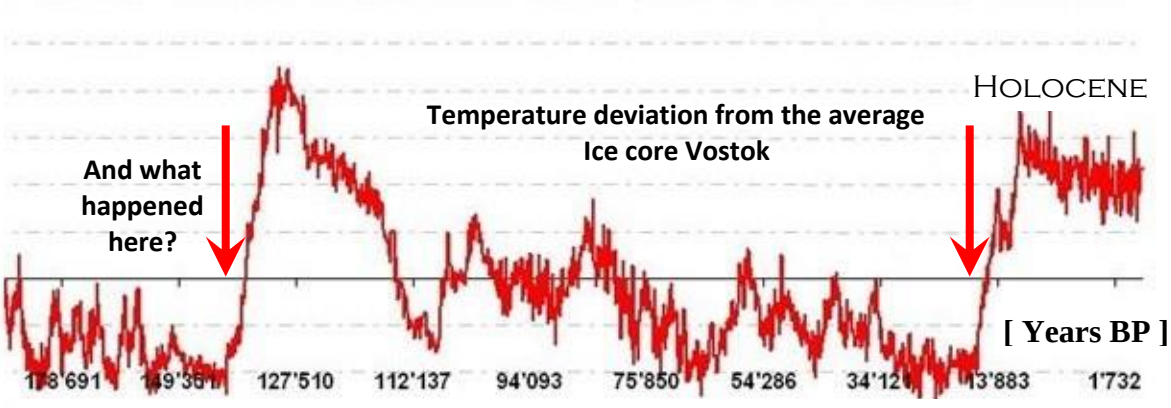
What do climate researchers tell us? If we don't get support from their ice cores and tree rings all our written pages can be thrown away as a nice fantasy! But the answer can be read in WIKIPEDIA, cited here briefly:

The FRIESLAND PHASE was a rapid global warming in the Northern Hemisphere at the beginning of the HOLOCENE – and thus of the PREBOREAL, the oldest period of the HOLOCENE in geological history. This beginning is usually associated with the period from 9,700 to 9,610 BC and in a recalibration, the period from 9,530 to 9,500 BC. The end of the

FRIESLAND PHASE was between 9,480 and 9,400 BC, dated/recalibrated as 9,430 to 9,350 BC. It marks the end of the last Ice Age. This fits quite well enough with our reconstruction of the impact, which furthermore provides the explanation for that climate change too: the start of the HOLOCENE! A new geological age!

Pardon? The comet's impact caused a sudden climatic warming and finished off the Ice Age? But what about the shock-frozen mammoths of Siberia? It is said that a sudden drop in temperature of about 15 degrees would have wiped them out. But this is illogical. Was the climate warming up or cooling down? See the figure below, which shows the result of the ice core of the VOSTOK project. So where is this sudden drop of 15 degrees around 13,000 BP? We can only find the rapid Preboreal global warming(!), the FRIESLAND PHASE mentioned above. If this drop in temperature cannot already be found, then its explanation as a sudden tilting of the Earth's axis or something similar becomes all the more stranger. Our experiences with the impact analysis using IMPACT EARTH (see Section 4) shows that asteroid and comet impacts, even those 100 km in diameter, have virtually no influence on our globe and its axis. So how did the mammoths become shock-frozen?

Think of severe thunderstorms: strong thermals cause the moisture to rise high up into the stratosphere, where it condenses, freezes out, and falls back down to Earth as sleet and hail. This is no different to our comet impact into the Zaragoza Sea. The huge amounts of evaporated Atlantic water were certainly thrown high up to the stratosphere, even into space, where they condensed, froze to ice and fell back down to Earth. What followed must had been a monstrous cosmic thunderstorm: smaller bodies were blown and washed away. However, the huge mammoths that were left behind became shock-frozen and covered in huge amounts of ice that had rained down from the sky to leave them covered in layers certainly as high as houses or even higher, in more southerly latitudes maybe even only as iceless rain, just as the Bible writes: *"And the rain fell upon the Earth for forty days and forty nights."* (Genesis 7:12). Therefore, the extinction of the mammoths was not caused by a general drop in temperature but by massive ice rain. And quite obviously these enormous ice masses influenced the slowed down Preboreal warming while the end of the Ice Age was still cold enough to hand over these shock-frozen mammoths to the permafrost.



Data Source: http://www.kosmosimwandel.at/ereignisse-vor-13000-jahren.html

It should also be mentioned that some of the facts revealed by the various autopsies of the carcasses have turned into fantastic stories. So it is said that a mammoth carcass that had been recovered from the permafrost even still had a pretty bouquet of buttercup flowers in its mouth because there were not enough seconds left to swallow them. Isn't it worth noting that some wildflowers of the genus "Ranunculaceae" (buttercups) – e.g. Eranthis (Winter Aconite) – begin to bloom with the end of the winter season which corresponds to the result "March" of our reconstruction, see section 9? The impact did not happen in summer, not in autumn, not in winter. It happened in early spring when the buttercups of Siberian's tundra began to bloom in the first warm rays of the sun.

Isn't it surprising that our comet impact marks almost exactly the beginning of the Holocene at 9,500 BC, as well as the associated so-called *"Holocene mass extinction"*? Have our climate researchers forgotten Plato and his Atlantis? And has anyone ever and at all wondered what catastrophe happened on this globe 140,000 years ago, see figure above?

11. Addendum: Review: IAU Meteor Showers

The selection of the meteor showers in Section 6 was mainly based on *ALPO Meteor Shower List*[17]. In recent years, however, a large number of further weak meteor showers have been discovered, which suggests a revision to re-examine our previous selection. For this we use the probably most extensive *List of all meteor showers* of the *IAU Meteor Data Center*[18] which includes 828 showers (as of August 2020). In fact, in this list we find a large number of meteor showers whose declination in the past reached our "target" declination of 53.8° – caused by the precession of the Earth's axis. All these meteor showers in question were checked by Guide 9.0 with the result that most of these affected showers had crossed the 53.8° much later than our time frame of 9,000 to 10,000 BC. Only two showers fall into this frame, as shown in the table below. As the results show, our decision in favour of the *Cepheids* with their 9,335 BC remains unaffected and is supported all the more.

IAU Meteor Showers on Declination 53.8°					
IAU No.	Abbrev.	Designation	RA [°] *)	DE [°] *)	Year of DE 53.8°
040	ZCY	*zeta Cygnids*	299.0	40.2	8,132 BC (Greg.)
409	NCY	*nu Cygnids*	305.2	39.4	9,125 BC (Greg.)
599	POS	*72 Ophiuchids*	277.5	10.0	9,518 BC (Greg.)
830	SCY	*63 Cygnids*	317.1	50.9	10,570 BC (Greg.)

*) J2000.0

The 72-*Ophiuchids* meteor shower (599 POS), which could still appear possible too, is hardly an option because this shower is far too weak for our demands[18,19]. Spread over 12 days (from 30 March to 11 April), only 18 meteors occur, so only 1.5 per day. The reconstruction of an impact would lead to the date: 24 October 9518 BC (Greg.), 11:29 LMT (South Carolina). But are the *Ophiuchids* with their only 1.5 meteors per day still a meteor "shower" at all?

12. Addendum: Coincidences, coincidences ... nothing but coincidences!

Of course, we could also book the hypotheses about belt stars and pyramids under the category and heading "coincidences", including their connection with the equinox of 9,320 BC, as well as the fact that the small pyramid Menkaure also corresponds to the lower brightness of Orion's belt star Mintaka. So let us put another "coincidence" on top.

Our first "coincidence" above led us to the equinox on 20 March 9,320 BC (Greg.) with the congruence of Orion's belt stars with the pyramids. Now the question arises when and where the belt stars themselves appeared on the horizon at that time – *again so absolutely randomly*!

This is quickly shown with the Guide 9.0 astro programme, see Fig. 23. If the lower of the belt stars Alnitak reaches exactly the height above horizon zero, the middle of the star group Alnilam is exactly in azimuth 151.16° against north. And what "coincidence" are the ancient Egyptians (or whoever those people were) giving us again now?

The canal "Al Mansoureya" (see *Google earth,* Fig. 23)! Its exactly linear section, which is 3.5 km long, is too exposed to justify an accusation of arbitrariness. Its azimuth is not approximately "*somewhere around 150 degrees*", but actually exactly (!) between AZ 151.1 and 151.2°! So not only the alignment of the pyramids points to the year 9,320 BC, but also the orientation of the canal which shows us exactly the direction to the rise of Orion's belt stars in the year 9,320 BC. Is each and everything just coincidence?

Interesting in this canal measurement or direction-bearing method is, of course, the use of a reflecting surface of water, provided the water is standing and there is no wind. Incidentally, the "standing water" is supported by the fact that the canal area has hardly any slope (see the contour line in Fig. 24). It is also ingenious, to level the topography of the terrain between 15 and 23 meters by putting this bearing direction – in the truest sense of the word – directly into water so that it acts like a giant spirit level and determines an exact height above the horizon of 0°. This water line also acts like a vertical bearing slot due to the reflecting images of the stars, which is strongly reminiscent of the mirror scales of modern analogue pointer measuring instruments!

Of course, the hypothesis that the canals were built exclusively for the Egyptian astronomers is not be put into the room here. Rather, this entire canal system was a large-scale social infrastructure project, in which all the interests involved were incorporated (water management, agriculture, transport, etc.) and thus certainly the interests of the astronomers too, and one may even assume that these astronomers with their orientational skills played a decisive role in this construction work. And we can even assume that the ancient Egyptians used this high-precision measuring device to observe and study the long-term effects of precession. So it will hardly come as a surprise if further orientations of exposed canal sections

are found that correspond to particular astronomical bearings (see below). It is probably just a psychological issue of acceptance.

Attention is drawn to another oddity: in the south, the above-mentioned section of the canal merges again with an exact (!) circular arc with a radius of 480 m into a 1.5 km long section pointing to the north-east, not swivelled around 90° or even exactly directed to the east. With its "arbitrarily oblique" angle of 67.25°, it once again points "*exactly and randomly*" to a special horizon rise of 9,320 BC: the second main star Scheat (Sheat) in the star constellation Pegasus!

Since the exact circular arc with a radius of 480 m lacks topographical justifications, for example, to run the canal around a hill or valley, the only reason is obviously to "get around the bend", even with very long barges and rafts having a shallow draft because their water displacement due to the tons of stone blocks can be realized only over their length. If the canal with its upper width of around 15 m had an effectively usable width of 5 m in terms of draft, lengths of nearly 100 m could have been manoeuvered through the radius of 480 m! Alternatively, a huge turning basin with a correspondingly large diameter would have been necessary, which would have led to incomparably higher construction costs!

Epilogue

- Around 9,400 BC, derives from Plato's dialogues.
- 9,337 BC, derives from the necessary impact declination of the Cepheids.
- 9,320 BC, derives from the exact equinox of Orion’s belt stars.
- Around 9,500 BC, the beginning of the Holocene.

How much more coincidences will it take, till we will dive to Atlantis?
"The answer is blowin' in the wind"
(Bob Dylan)

Acknowledgements

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13. Illustrations

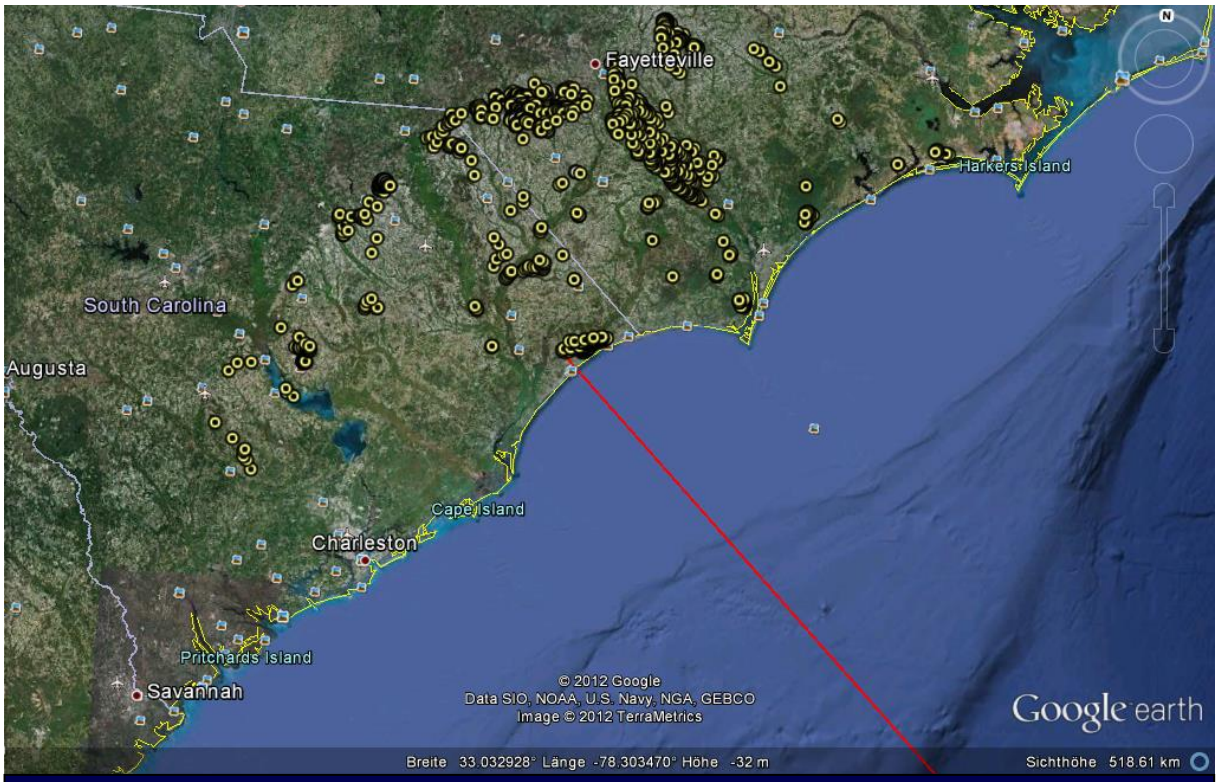

Fig. 1: The Carolina Bays, extension on the coast ca. 360 km

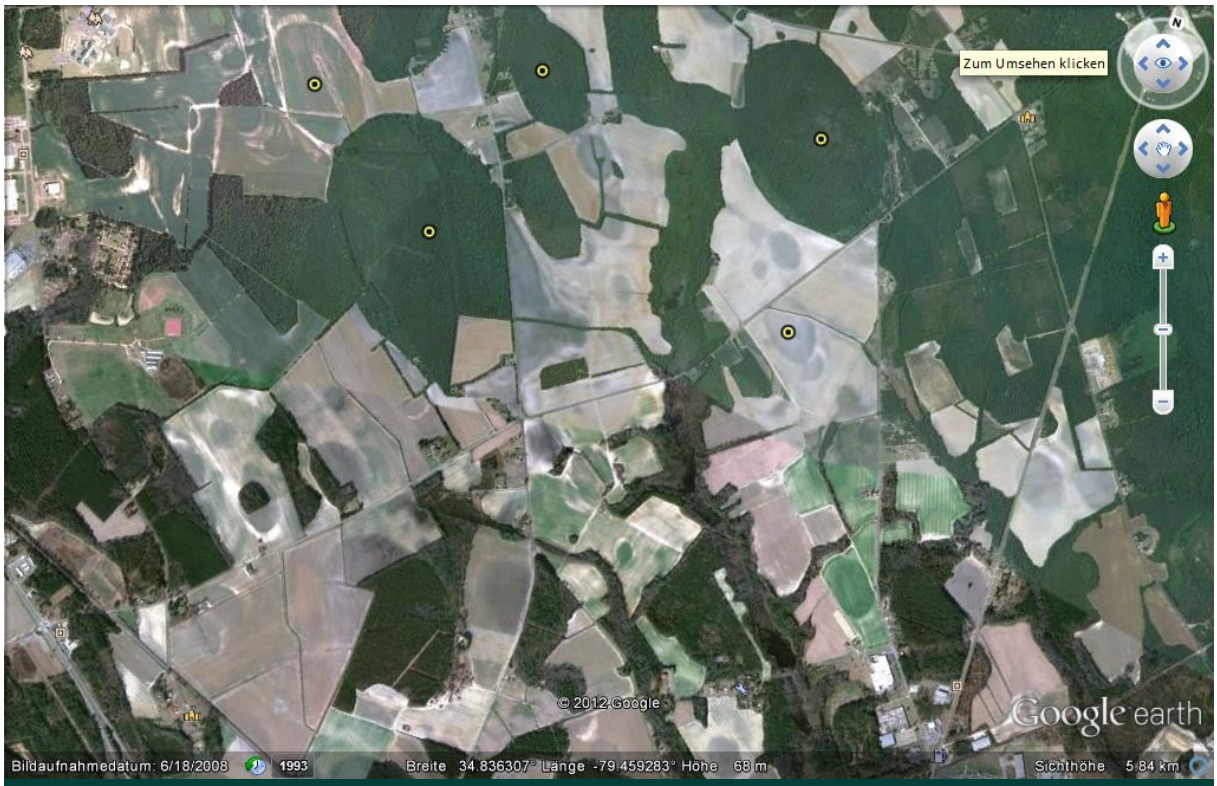

Fig. 2: Crater landscape; image width 6.7 km; marked craters of the evaluation

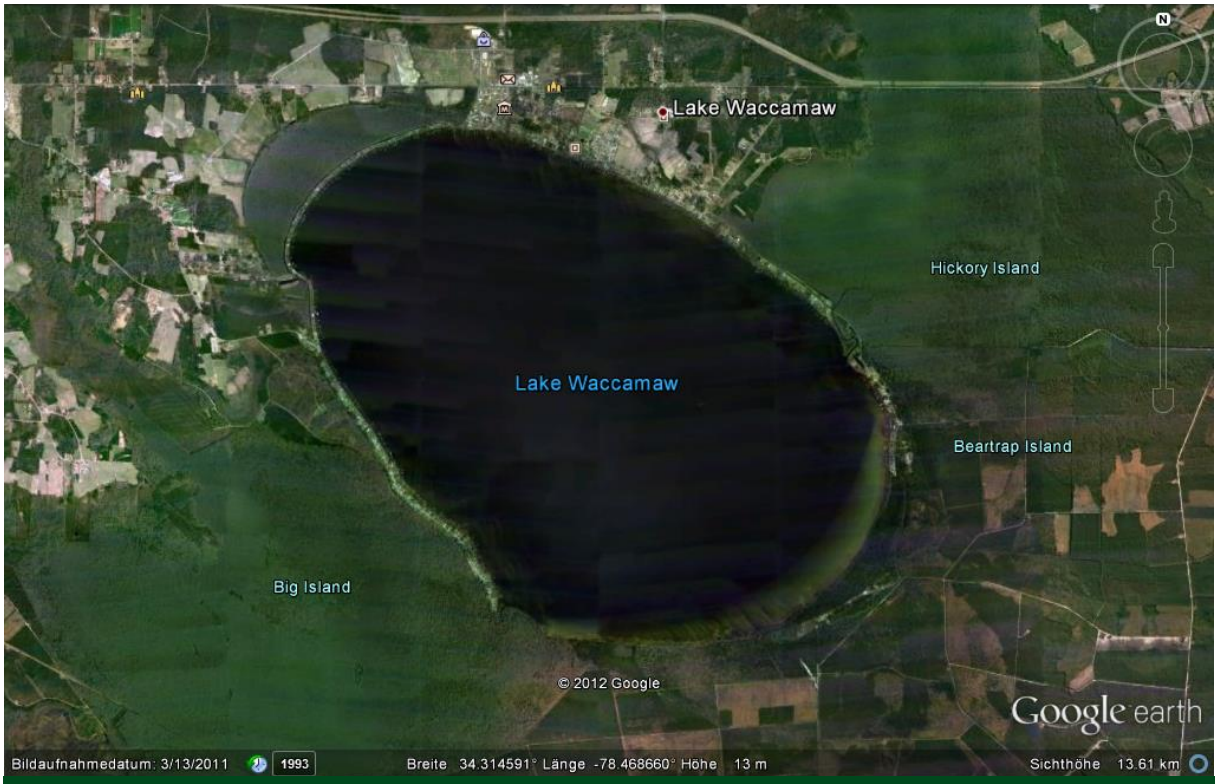

Fig. 3: Lake Waccamaw, crater with 130°, 9.1 km long, 5.2 km wide

Fig. 4: The Bay Tree Lake, crater with 127°, 4 km long, 2.5 km wide

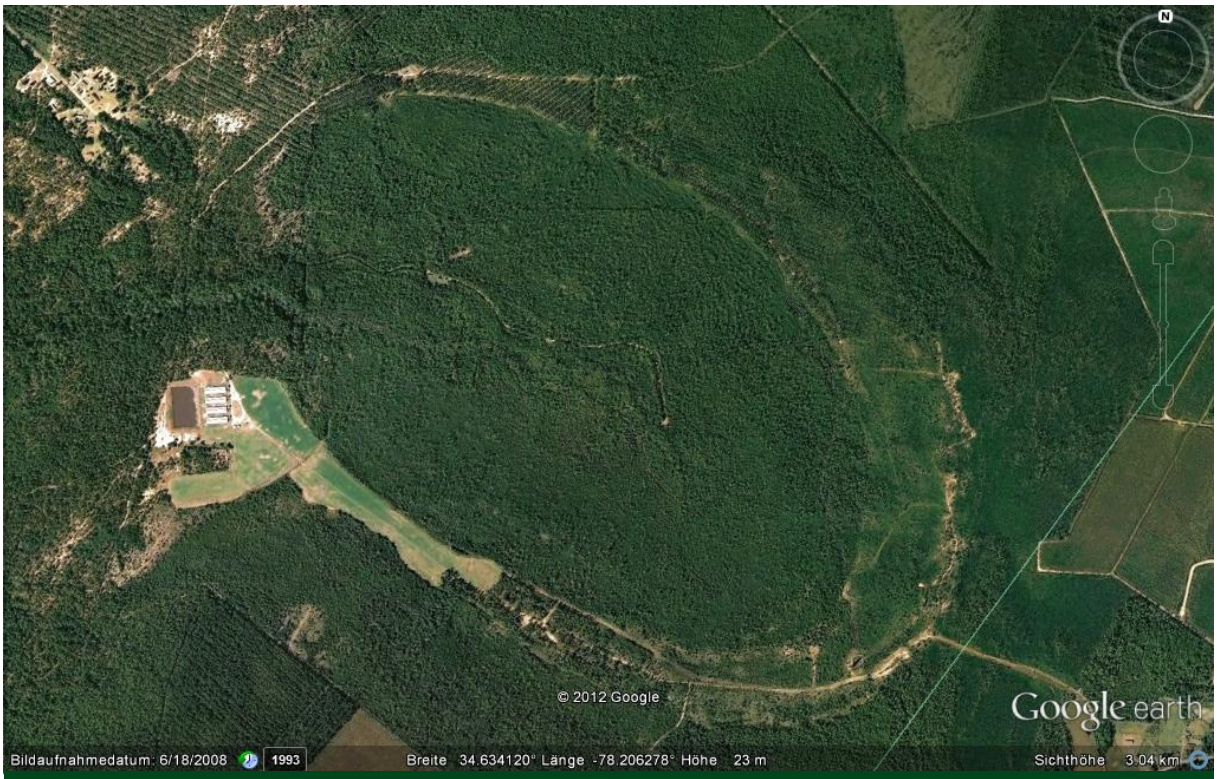

Fig. 5: Impact crater with 120°; 2.2 km long, 1.3 km wide

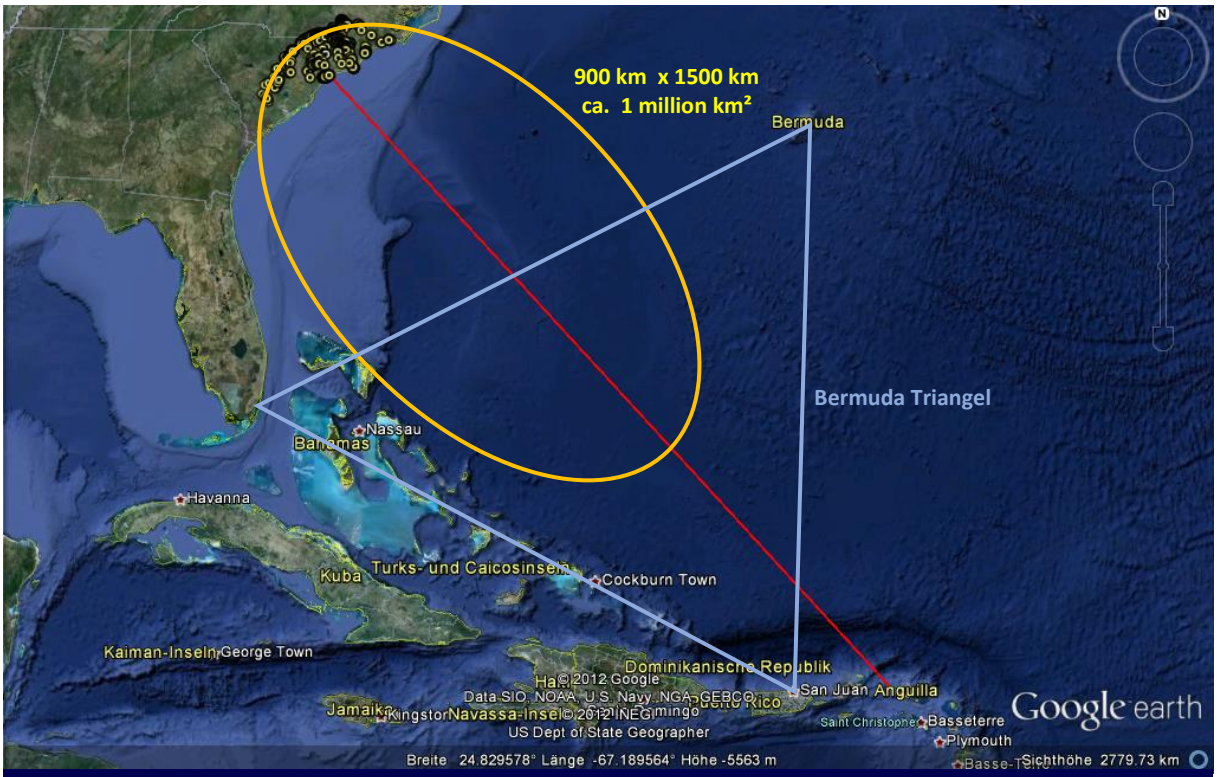

Fig. 6: Speculative extension on the Atlantic

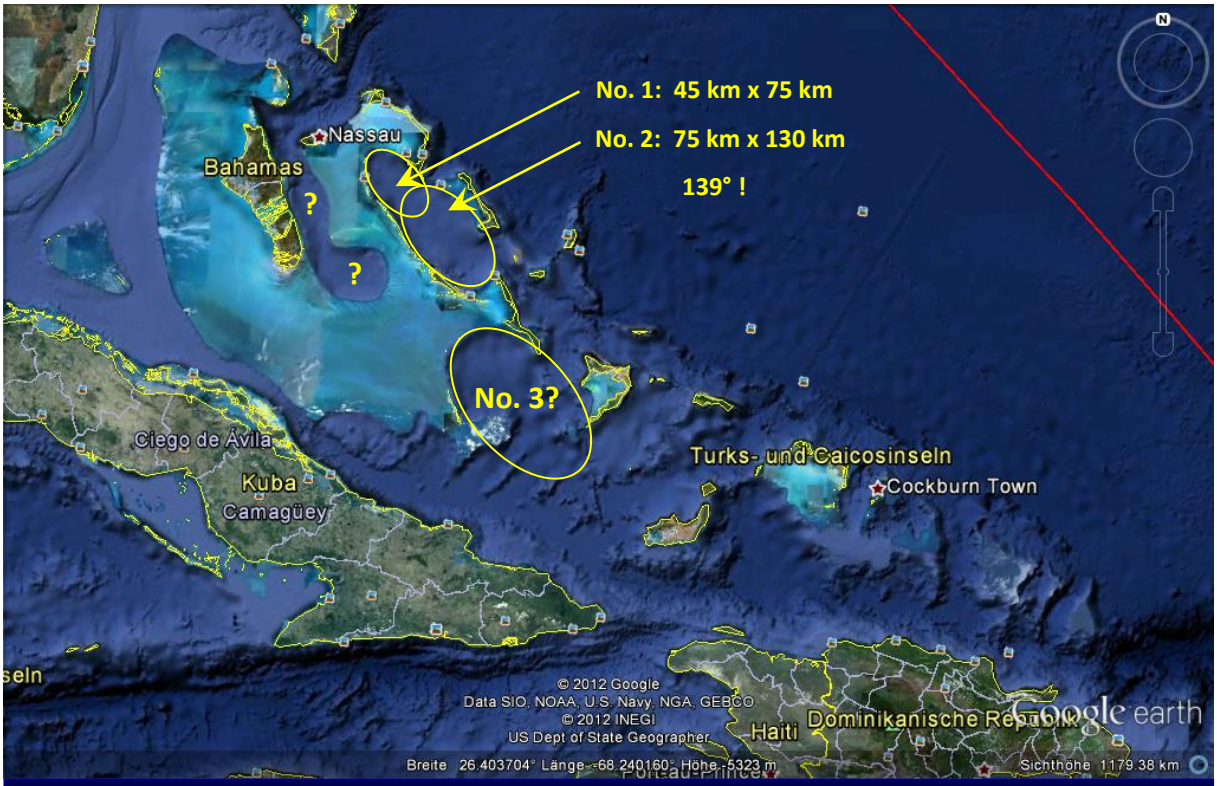

Fig. 7: Two (three?) impact craters with L/D = 1.7 with 139°

Fig. 8: Dark holes of Freeport/Grand Bahama Bank to Great Abaco Island

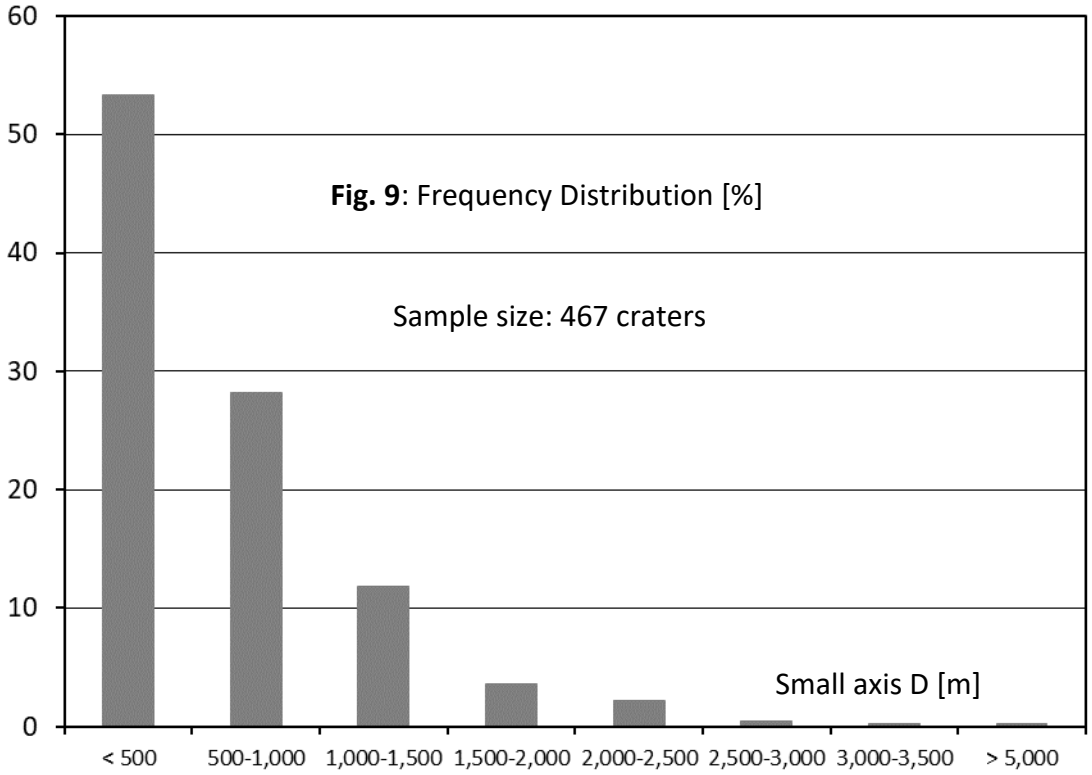

Fig. 9: Frequency Distribution [%]

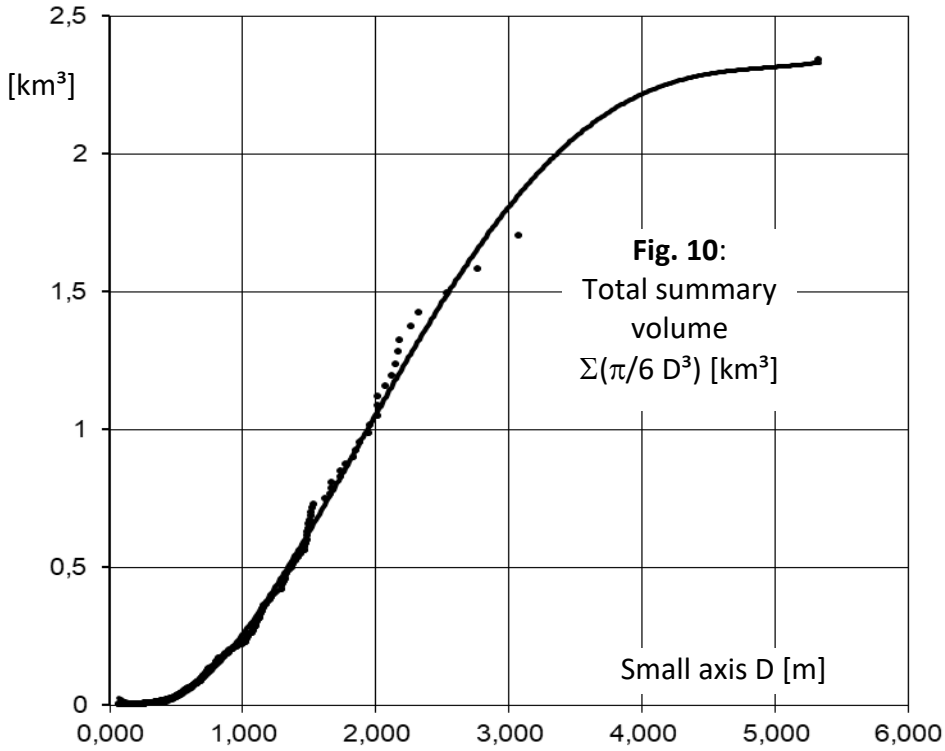

Fig. 10:
Total summary volume
$\Sigma(\pi/6\ D^3)$ [km³]

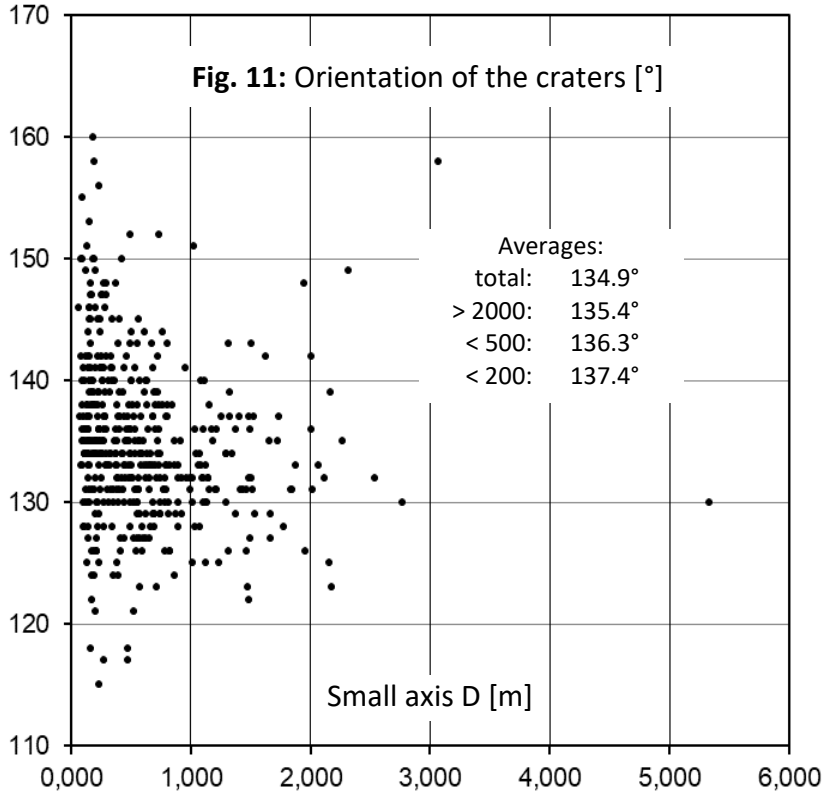

Fig. 11: Orientation of the craters [°]

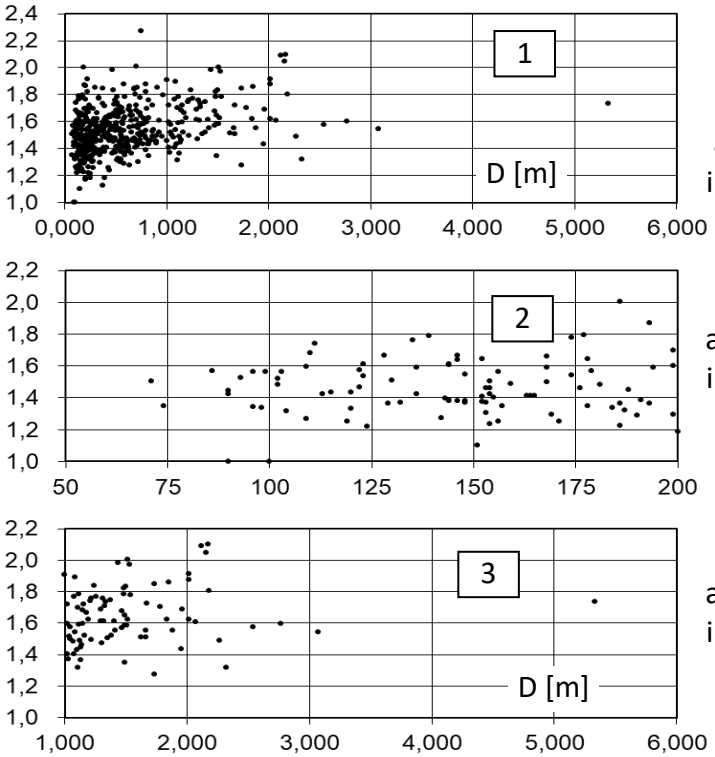

Fig. 12
Aspect ratio L/D
1**.** All craters
average L/D = 1.6
impact angle 38.7°

2. Small craters
average L/D = 1.48
impact angle 42.5°

3. Large craters
average L/D = 1.72
impact angle 35.5°

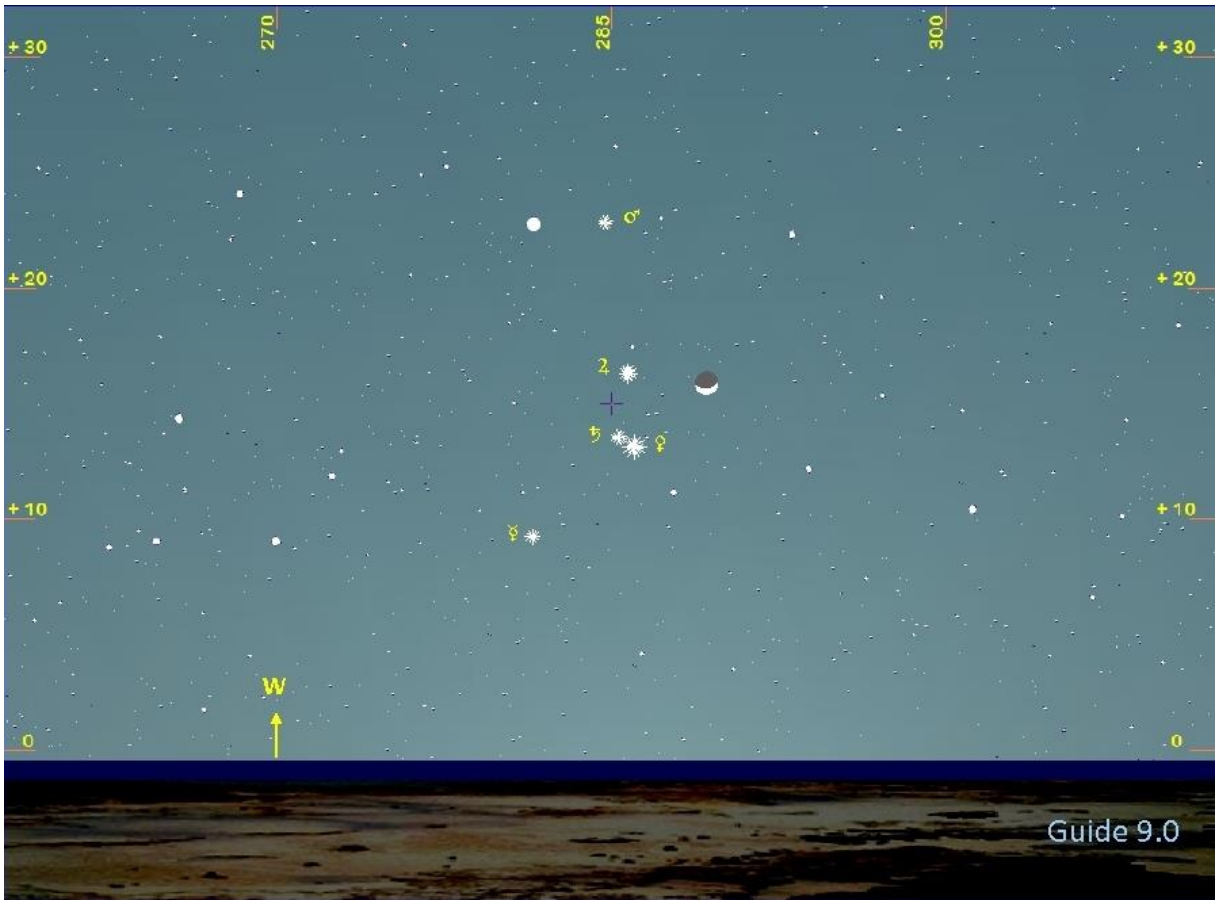

Fig. 13: On the coast of the Bahamas at 19:12 LMT, 17 April 8,564 BC (Greg.), after sunset, looking north-west 285°:
The moon and all the ancient planets, united at almost 15° in the constellation of Virgo. Mars (top) to the right of the main star Spica. Below the constellation of the raven (Corvus).

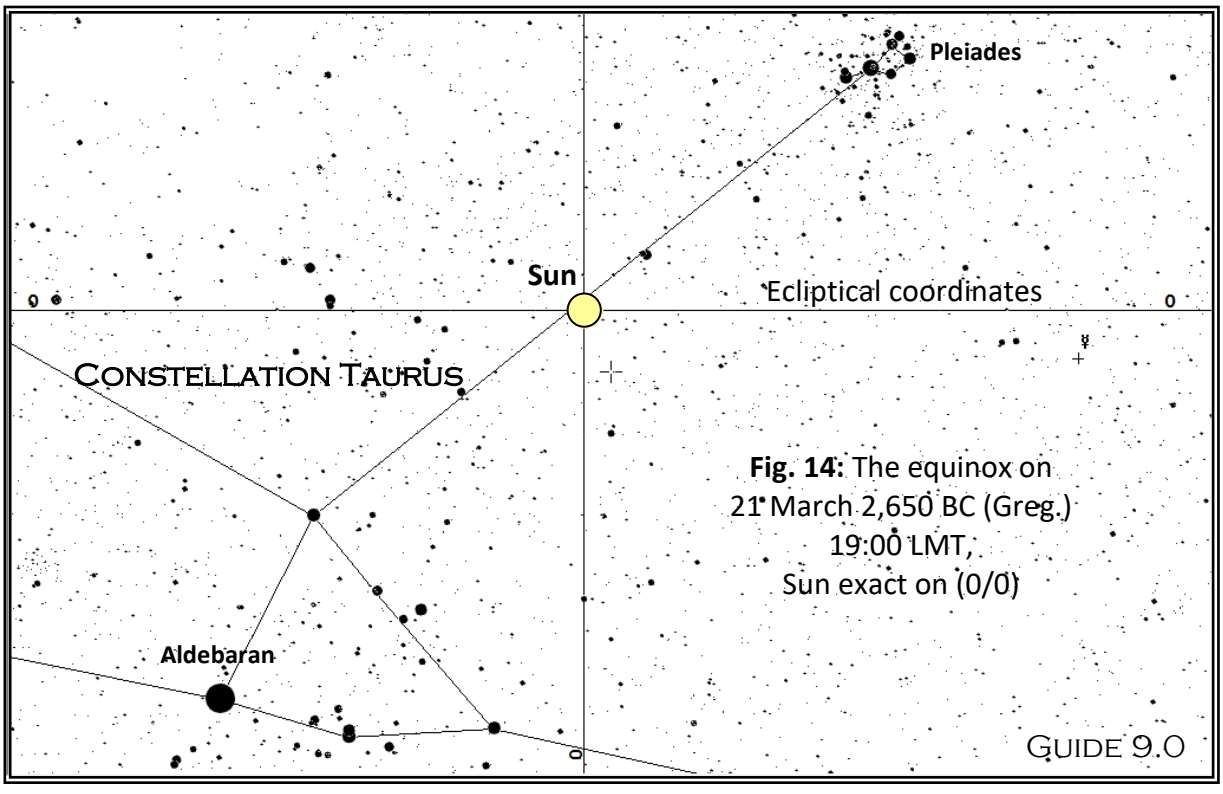

Fig. 14: The equinox on 21 March 2,650 BC (Greg.) 19:00 LMT, Sun exact on (0/0)

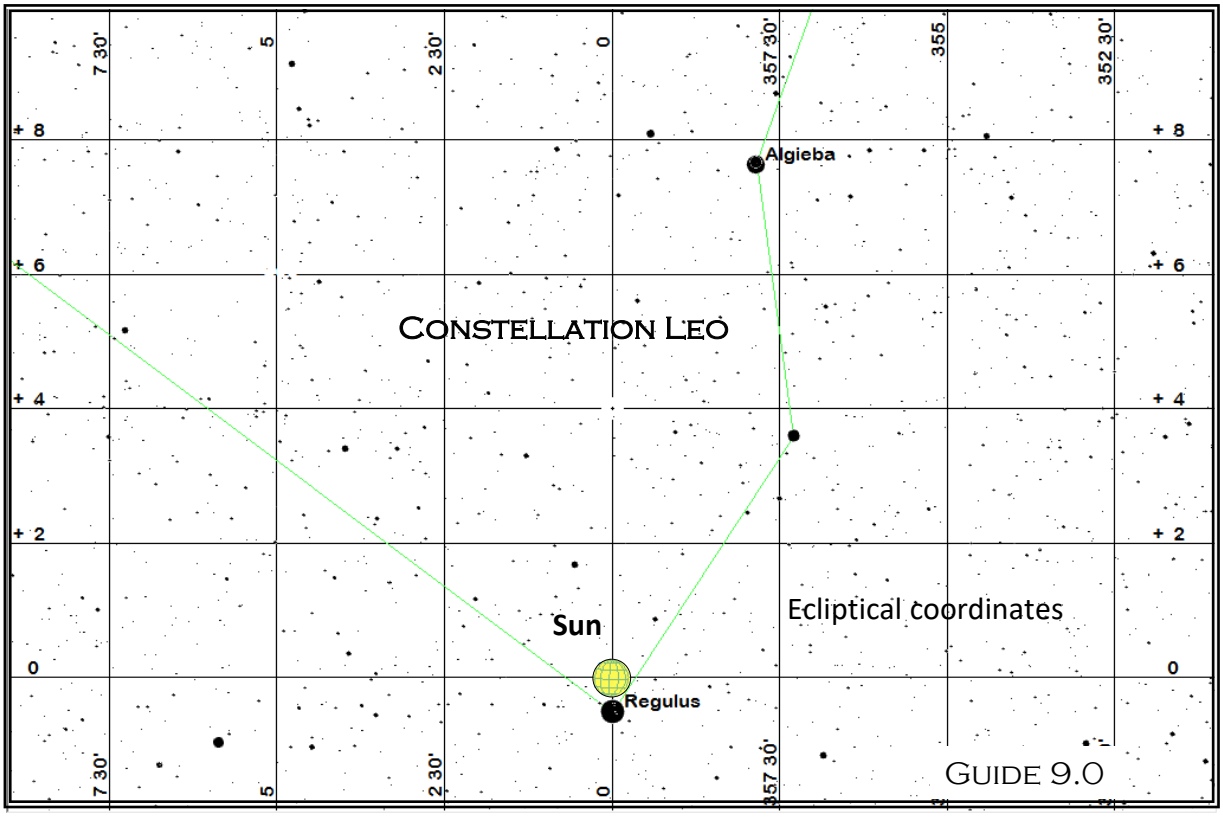

Fig. 15: Regulus equinox on 20 March 9,048 BC (Greg.), 16:00 LMT
Regulus exact on RA 0°, Sun exact on (0/0)
The Sun's edge passes Regulus at a distance of 14 arc minutes

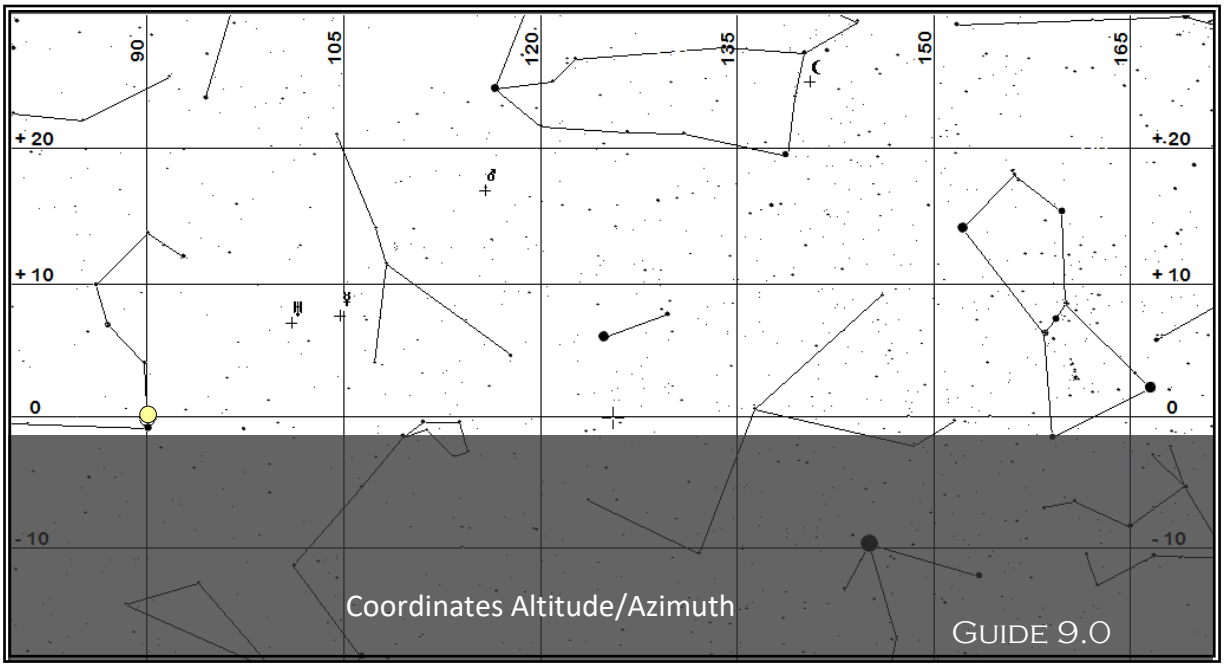

Fig. 16: Sunrise at equinox on 20 March 9,048 BC (Greg.), 06:00 LMT
Regulus and Sun in eastern horizon 90° (east), altitude 0°, heading south-east
(Planets Uranus, Mercury and Mars, moon in the upper right)

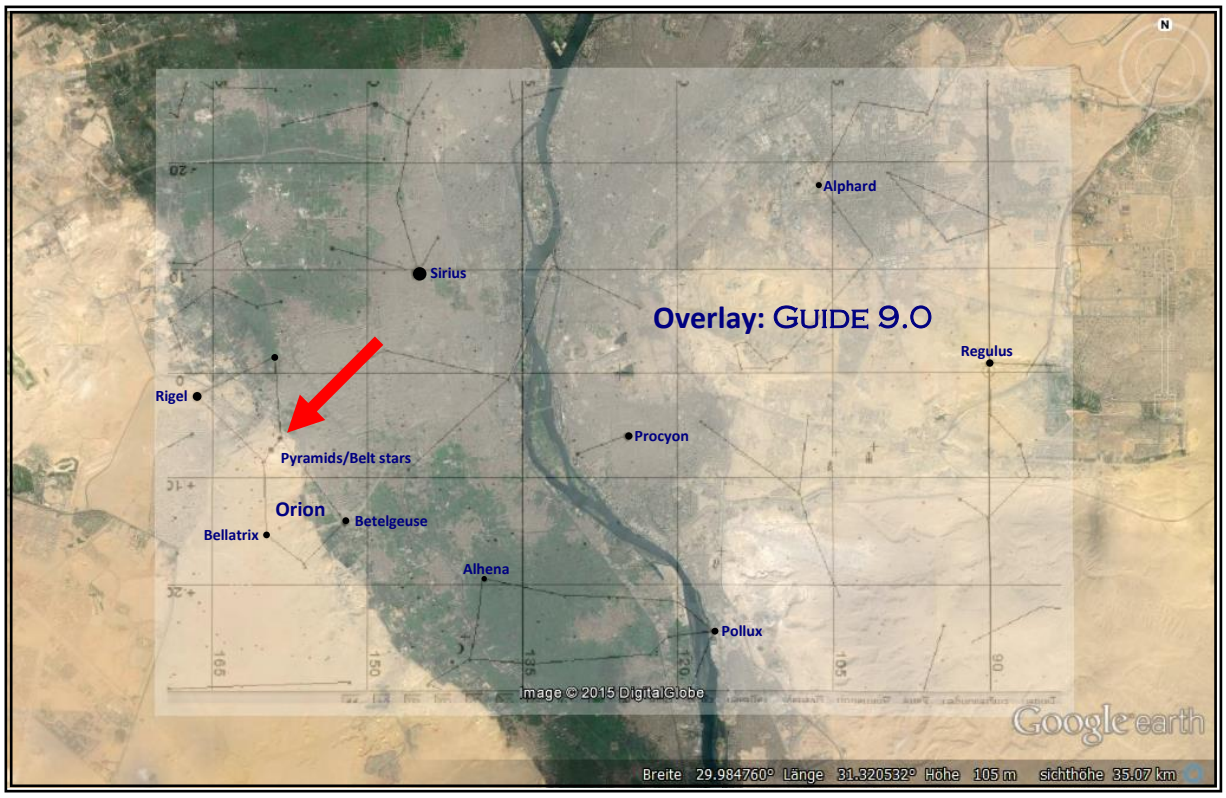

Fig. 17: If one puts the star map of the sunrise of the equinox on 20 March 9,048 BC (Greg.) 06:00 LMT as overlay onto the plateau of Giza so that Orion's belt stars cover the three pyramids (red arrow), then this map is orientated west-east.

Fig. 18: Angle error from Fig. 17: In order to adjust the belt stars exactly, a correction of 1.8° is required in the overlay menu of *Google earth*

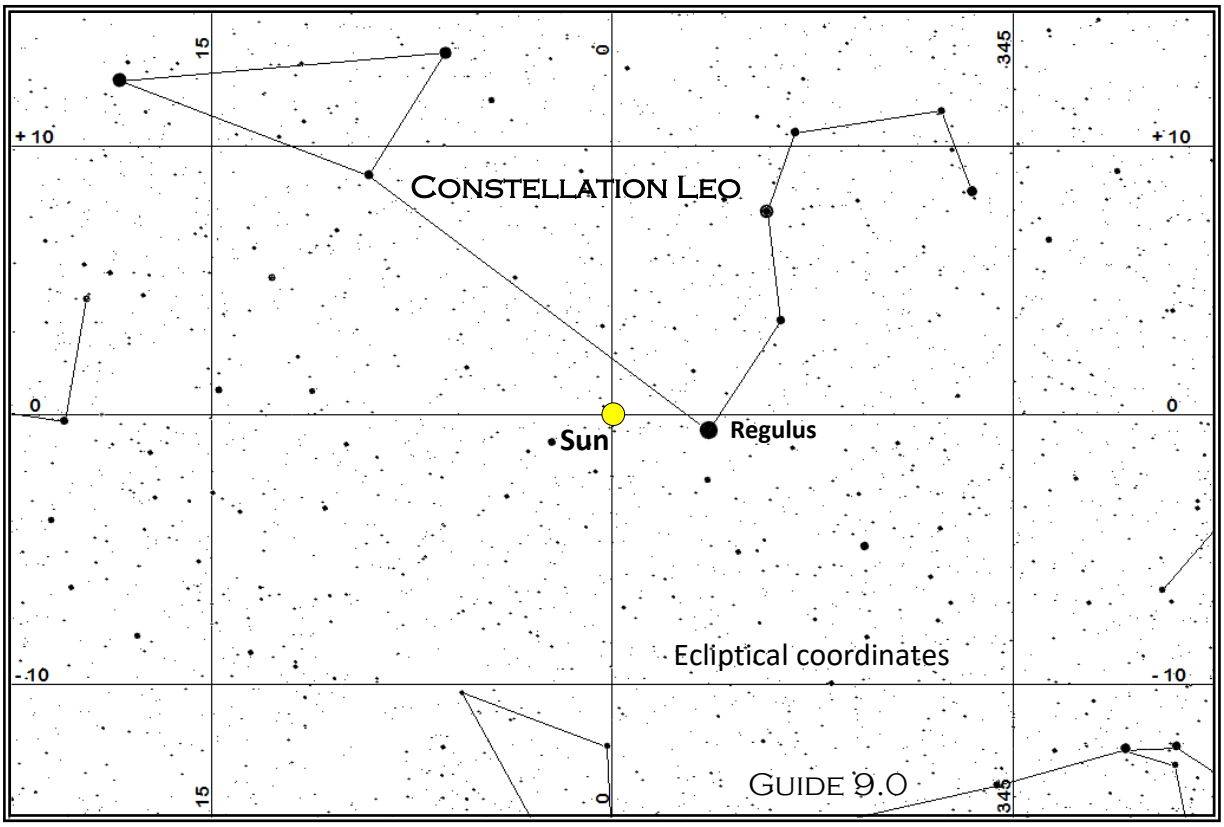

Fig. 19: Equinox on 20 March 9,320 BC (Greg.), 11:03 LMT
Sun on coordinates (0/0), 3.6° east of Regulus

Fig. 20: The star map of sunrise on the equinox of 9,320 BC (Greg.) with Orion's belt stars exactly and without necessary angle correction on the pyramids
(Middle of the base areas)

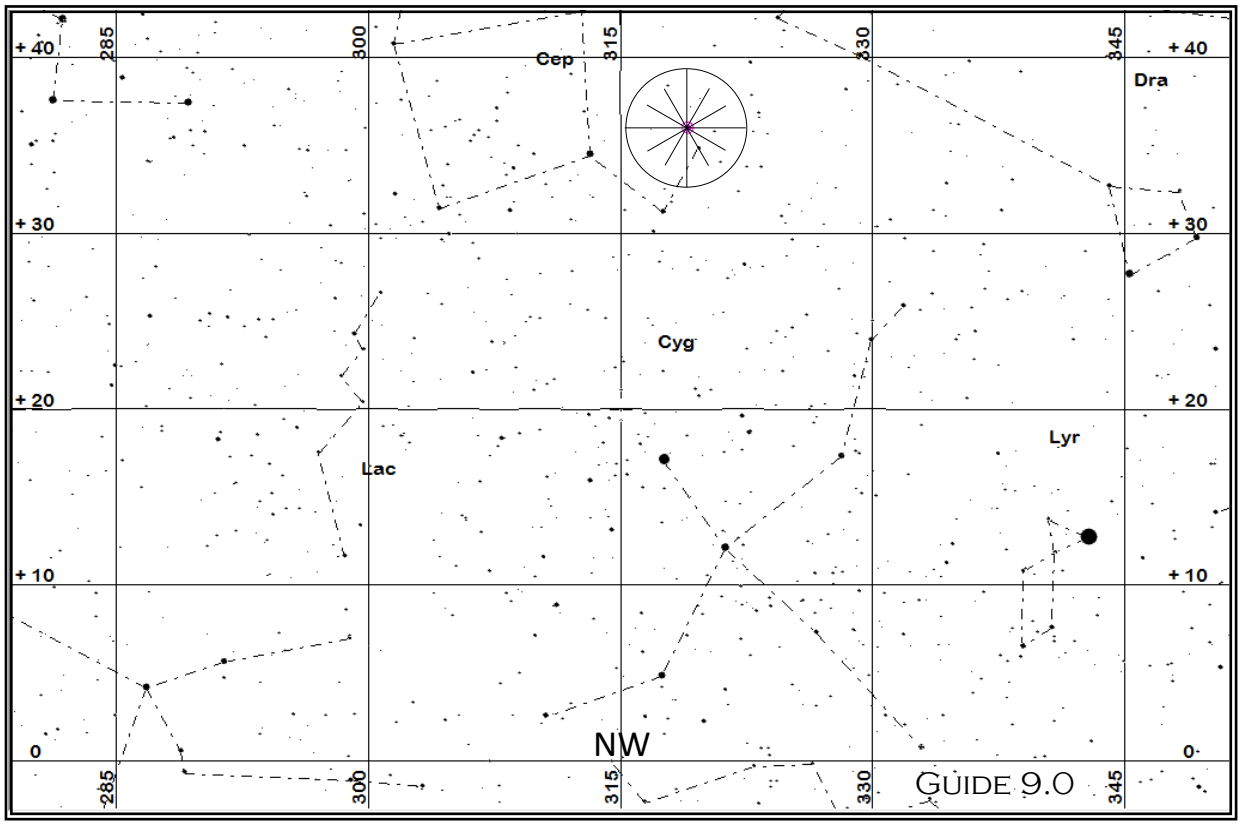

Fig. 21: The radiant of the *Cepheids*
on the Atlantic coast at NORTH MYRTLE BEACH, looking north-west 315°
12 March 9,337 BC (Greg.), 10:19 local time
entry lane of the comet's trajectory, altitude 35.5°, azimuth 315.4° shifted by 1.3°

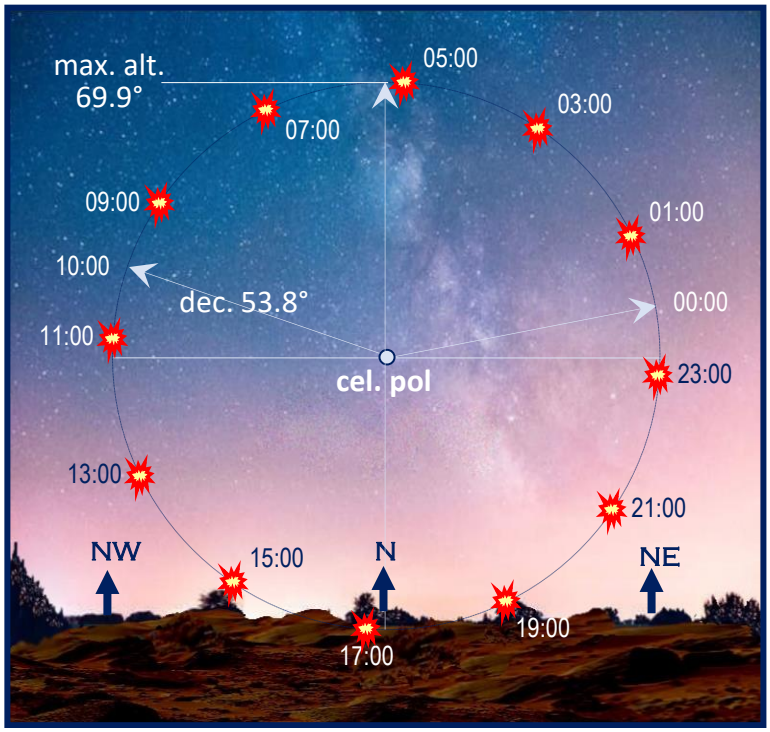

Fig. 22: Diurnal arc of the *Cepheid's* radiant
12 March 9,337 BC (Greg), North Myrtle Beach

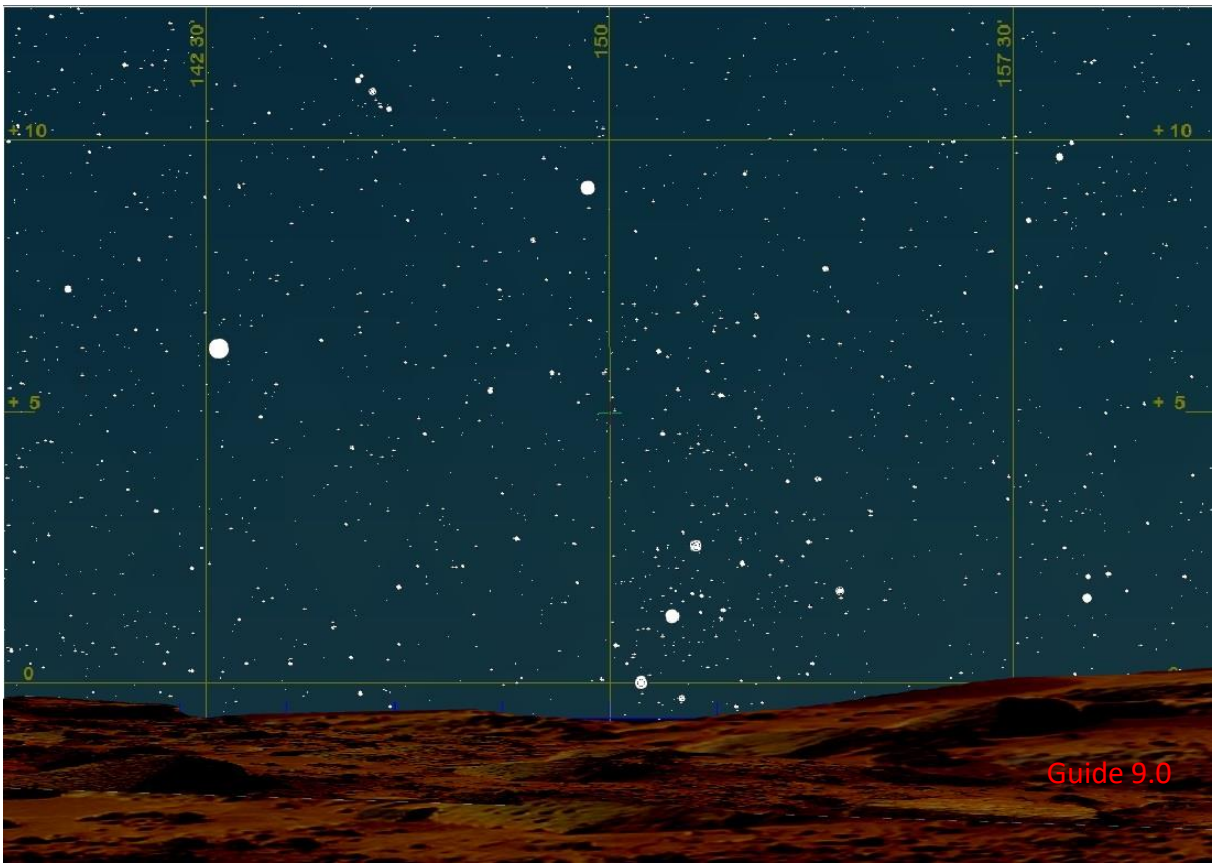

Fig. 23: Rise of the belt stars on 20 March 9,320 BC (Greg.), 04:40 LMT, Giza ALNITAK at altitude zero, ALNILAM in AZ 151.16°, altitude 1.2°

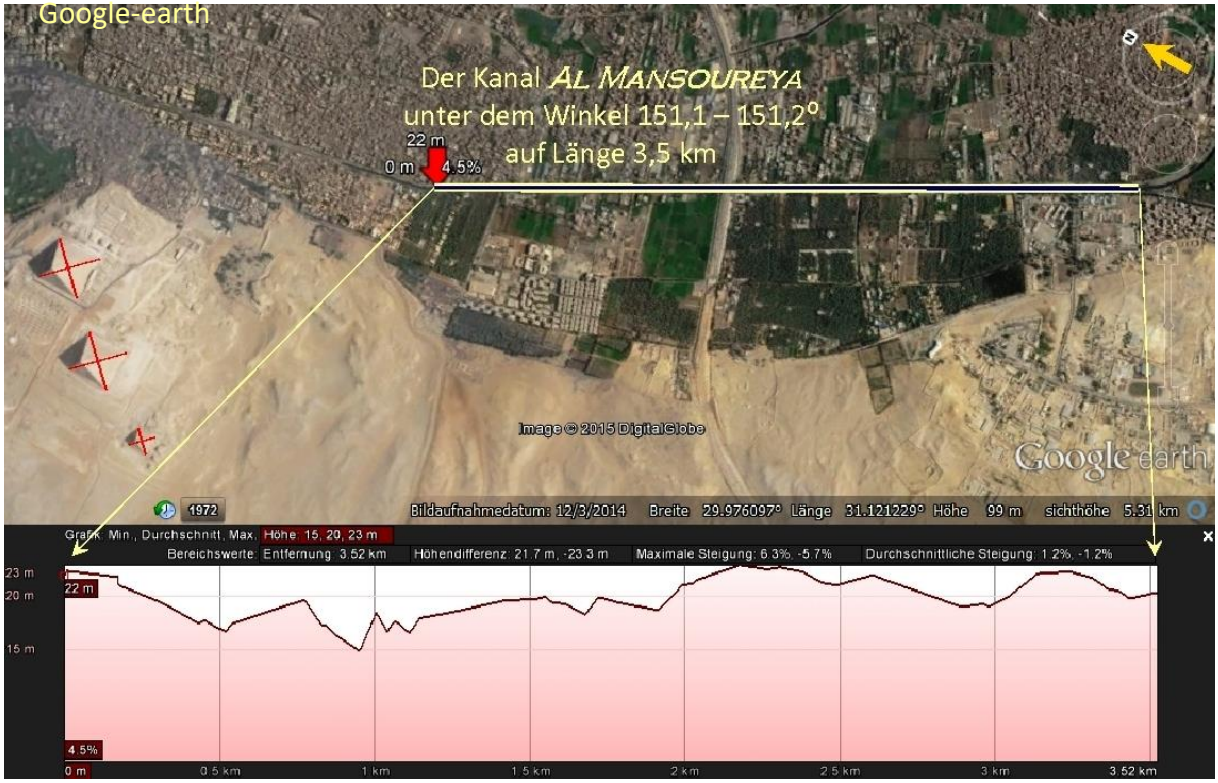

Fig. 24: The canal „AL MANSOUREYA“and the contour line of its topography

14. Annotations

[1] Special thanks to Mr. Bill Gray from “Project Pluto”, Bowdoinham / USA and Mr. Oliver Rensch, Astro-Shop Hamburg for their help and support.
[2] See https://www.dnr.sc.gov/geology/earthquake-intensity.html
[3] See the system of the *Scorpiids / Sagittarids* with scatterings of their radiants up to 15 degrees.
[4] 1 million km² with an average depth of 2,000 m
[5] Impakt Analysen der Corona Bays, Dr. P.-J. Hahn, 15 Feb., 2017
https://www.purdue.edu/impactearth/, Purdue University Imperial College London. Impact: Earth!
written by Gareth Collins, H. Jay Melosh and Robert Marcus,
developed by ITaP for Purdue University.
[6] http://de.wikipedia.org/wiki/Liste_der_Meteorströme,
ALPO Meteor Shower List (Internet), coordinates related to Equinox 2000
“Meyers Handbuch über das Weltall”, coordinates of *Cygnids* und *Cepheids* related to Equinox 1950.
[7] Listed in "Meyers Handbuch über das Weltall" as "Character unknown".
[8] Here the question arises: Where have all the other comets of origin of the many other meteor showers gone that can no longer be found? Such orbits of comets or asteroids, which are strongly opposed to the ecliptic and which have an intersection with Earth's orbit – fortuitousness enough – will hardly and absolutely most coincidentally have another intersection with another planetary orbit. So did all the other missing comets also crash into Earth long ago? Where else? That is probably how water arrived on our planet.
[9] Otto Muck: „Alles über Atlantis“, Econ-Verlag (English: The Secret Of Atlantis)
[10] WIKIPEDIA
[11] According to the French saying: „Avec des »si« on mettrait Paris en bouteille.”
[12] O. Muck, Alles über Atlantis, Econ-Verlag.
[13] Or whoever those people were!
[14] e.g.: Bauval/Gilbert, "Das Geheimnis des Orion"; 1994
[15] In order to avoid influences from the perspective, the adjustment is based on the center points of the pyramid base areas. The offset of the middle pyramid is approx. only 25 m.
[16] Derivation: 18 August refers to the equinox of 1950. Since 9,337 BC 11,287 years have passed until 1950 corresponding to 43.54% of a Platonic year of 25,920 years (AntroWiki), which in turn corresponds to the Earth's orbital period with 365.256 days. Thus the 11,285 years correspond to 159 days, i.e. 22 weeks and 5 days. If we count them back from 18th August, we arrive at 12th March.
[17] http://www.alpo-astronomy.org/meteor/metshwr.html
[18] http://www.ta3.sk/IAUC22DB/MDC2007/Roje/roje_lista.php?corobic_roje=0&sort_roje=0
[19] Segon et al., (2014): Results of CMN 2013 search for new showers across CMN and SonotaCo databases III, WGN, the Journal of the IMO 42:4 (2014), page 132.