

The Biblical Flood and Noah's Ark

The following is an endeavor to integrate the Scientific Method into an interpretation of the Bible Account of the Flood and Noah's Ark.

SECTION I – Common misunderstandings

Facts do not change, but our understanding of the facts may. In other words, the Truth is absolute, but our understanding of the Truth can increase. The Truth of the Bible is often misunderstood due to incorrect translations, poor source material, biased interpretations, etc. Such seeming inconsistencies should not be charged against the Bible, but rather to the inadequacy of even the best efforts of fallen man to convey the sense of the Original. The following common misunderstandings are a few examples of this problem.

PROBLEM: Enough water to produce the Biblical Flood could not come from the atmosphere.

SOLUTION: *The Bible does not require that most of the Flood waters came from the atmosphere.*

PROBLEM: Enough water to produce the Biblical Flood could not come from the Earth's crust.

SOLUTION: *The Bible does not teach that the Flood waters came from the Earth's crust.*

PROBLEM: The waters of the Biblical Flood could not have been deep enough to raise to the height of the mountains over the entire surface of the Earth.

SOLUTION: *This incorrect thought is not taught in the Bible. It is a misunderstanding of Gen. 7:20. [See Section IV]*

PROBLEM: The concept of a 24-hour "creative day" appears to be a Scientific impossibility.

SOLUTION: *The Bible does not teach a 24-hour creative day.*

A more scientifically correct and harmonious understanding of the foregoing will be presented on the following pages.

Section II contains facts which help to build a case regarding the source of the Flood waters, and lays the groundwork for answers to the first two problems in Section I.

Section III presents a view held by a substantial number of scientists, that Earth's Oceans came from an extraplanetary source. This view provides a possible answer to the first two problems in Section I, and also answers the questions posed in Section II.

Section IV provides additional supporting evidence from geology, and then suggests a comprehensive answer to the first three problems in Section I.

Section V explores evidence from the analysis of frozen animals in Siberia which supports the answer suggested in Section IV.

Section VI endeavors to harmonize the Flood concept, as presented in the preceding sections, with details regarding the scope of the Flood, the length of each "Creative Day", and Noah's Ark.

Section VII gives some concluding thoughts.

Appendix A includes two tables related to the temperatures required to freeze the Beresovka River Mammoth quickly enough to preserve the stomach contents. It also includes a complete listing of the stomach contents.

Appendix B compares the Creative Days of Genesis to Epochs of Geology.

Appendix C gives a detailed analysis of Genesis 6:16 in the Hebrew language.

SECTION II – Analysis of the Southern Polar Ice Cap

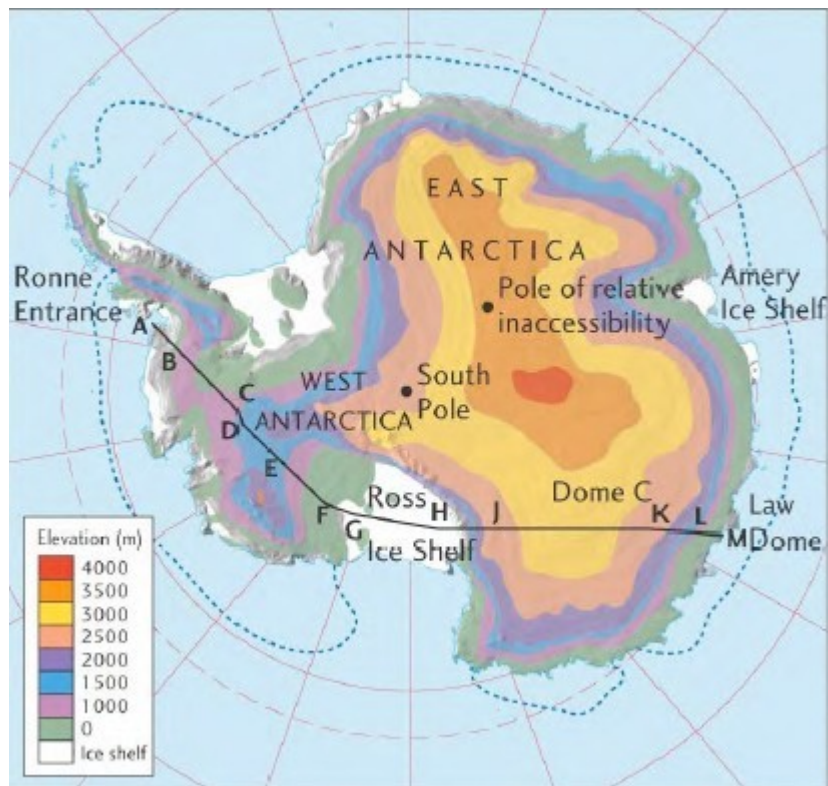
A scientific analysis of the facts demonstrates clearly that the Southern Polar Ice Cap has several characteristics which can only be explained within the framework of a presentation such as given in this paper, and supported by the Bible.

Antarctic Ice:

FACT: The ice covering Antarctica is pure water (not salt water).

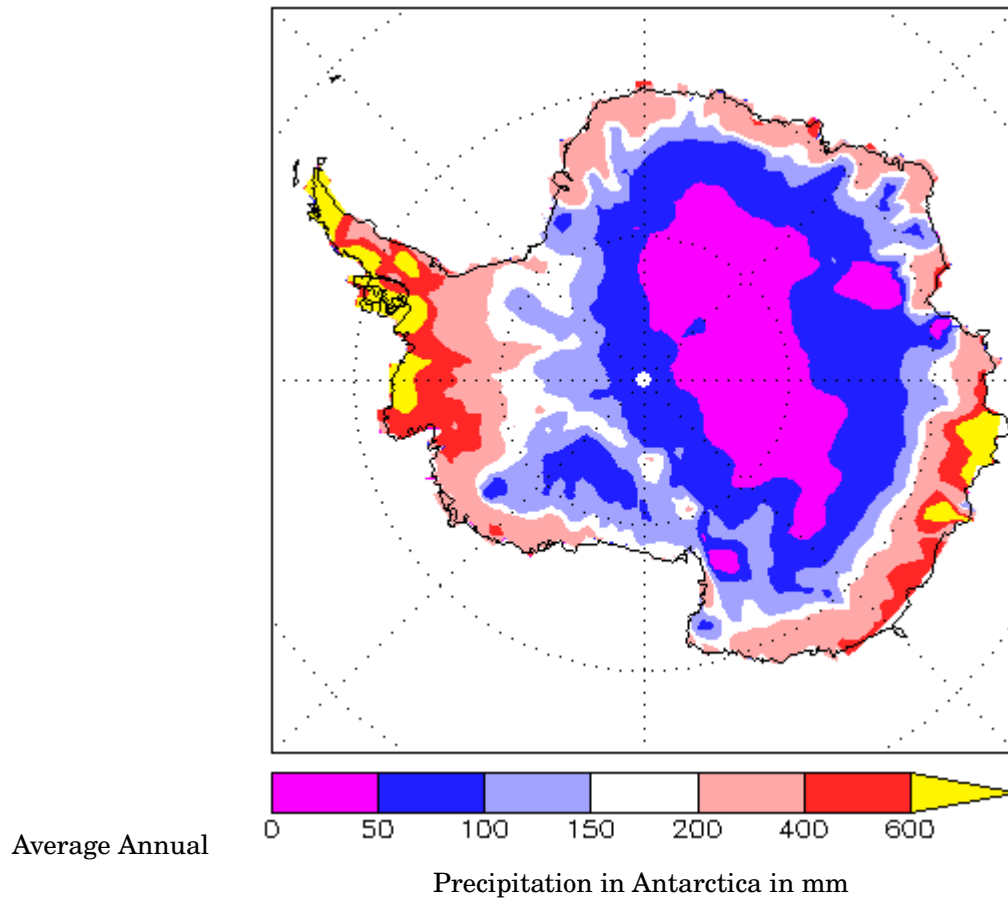
*“Approximately 61 percent of all fresh water on the Earth is held in the Antarctic ice sheet, an amount equivalent to about 58 meters of sea-level rise. In East Antarctica, the ice sheet rests on a major land mass, while in West Antarctica the bed can extend to more than 2,500 meters below sea level.”*¹

FACT: The ice that covers Antarctica is thickest at the Pole (over 4,000 meters) and diminishes with distance from the Pole.²



Depth of Antarctic ice in meters

FACT: Precipitation in Antarctica is lowest at the Pole (zero) and increases with distance from the Pole.³



FACT: The thickness of the Antarctic ice is inversely proportionate (opposite) to normal precipitation patterns. This is based on the fact that normal precipitation occurs at the boundary between warm and cold air. Antarctica is the driest continent on Earth.⁴

CONCLUSION: Therefore, Antarctic ice cannot have formed by normal means of precipitation, otherwise it would be thickest at the coastal regions, and not at the Pole. Another mechanism must be responsible for the Antarctic ice.

CONCLUSION: Fresh-water ice extending to a depth of 2,500 meters below sea level suggests rapid and massive deposition of super-cold ice.

SECTION III – Ocean Origins

SCIENTIFIC THOUGHT: The unique abundance of water on Earth suggests an extra-planetary source.

“But Earth’s early history, including epochs with high ambient temperatures and no enveloping atmosphere, implies that surface water would have evaporated and drifted back into space. The water we encounter today, it seems, must have been delivered long after Earth formed.”⁵

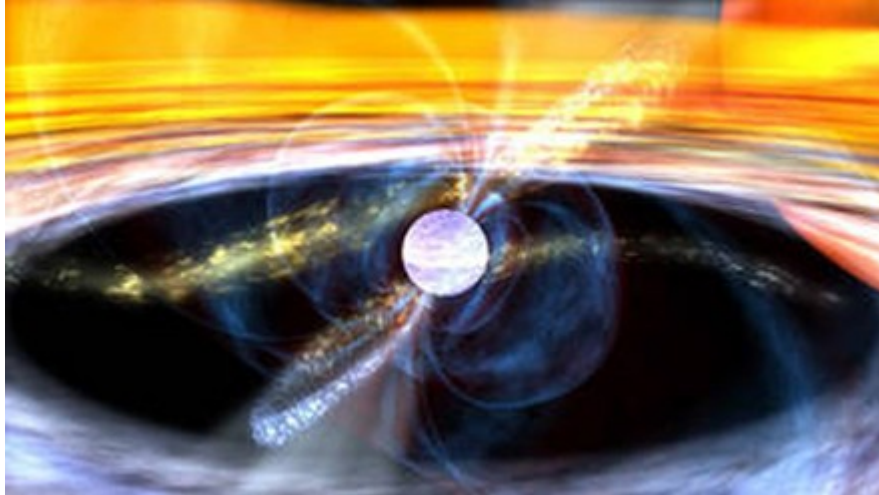
EVIDENCE: Earth’s water could not have come from comets. The main objection to the comet theory is that the water from comets would have created a different chemical composition than what we find in the oceans today.

“That Earth’s water originated purely from comets is implausible, since a result of measurements of the isotope ratios of deuterium to protium (D/H ratio) in the four comets Halley, Hyakutake, Hale–Bopp, and 67P/Churyumov–Gerasimenko, by researchers such as David Jewitt, is approximately double that of oceanic water.”⁶

SCIENTIFIC THOUGHT: A catastrophic event, or other causes, led to the vaporization of significant amounts of rock, minerals, and water, which created a canopy surrounding the Earth.

“Part of the young planet is theorized to have been disrupted by the impact which created the Moon, which should have caused melting of one or two large areas. Present composition does not match complete melting and it is hard to melt and mix huge rock masses completely. However, a fair fraction of material should have been vaporized by this impact, creating a rock-vapor atmosphere around the young planet. The rock vapor would have condensed within two thousand years, leaving behind hot volatiles which probably resulted in a heavy carbon dioxide atmosphere with hydrogen and water vapor. Liquid water oceans existed despite the surface temperature of 230° C (446° F) because of the atmospheric pressure of the heavy CO₂ atmosphere. As cooling continued, subduction and dissolving in ocean water removed most CO₂ from the atmosphere but levels oscillated wildly as new surface and mantle cycles appeared.”⁷

EVIDENCE: The laws of physics in operation, as observed in pulsars, shows that material surrounding stars tends to fall at the magnetic poles.



“This is an artist’s concept of a pulsar (blue-white disk in center) pulling in matter from a nearby star (red disk at upper right). The stellar material forms a disk around the pulsar (multicolored ring) before falling on to the surface at the magnetic poles. The pulsar’s intense magnetic field is represented by faint blue outlines surrounding the pulsar.”⁸

FACT: Recent research of data from the Cassini probe revealed that Saturn’s inner rings are producing copious amounts of rain, much of which follows the magnetic field lines.⁹ This is another confirmation of the concept presented in this paper.

FACT: Antarctica was once a sub-tropical forest, with unusually large trees.

“It may be hard to believe, but Antarctica was once covered in towering forests....other fossils show that truly subtropical forests existed on Antarctica during even earlier times....We commonly find whole fossilised logs that must have come from really big trees.”¹⁰

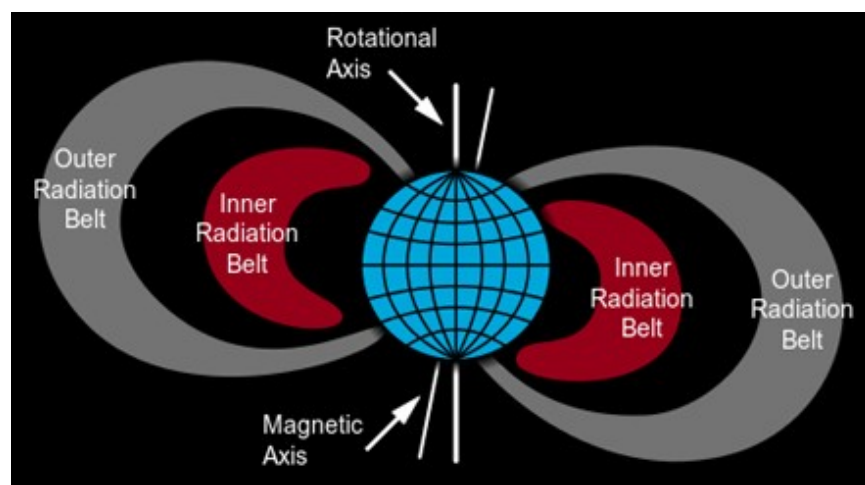


CONCLUSION: The early Earth was surrounded by rock-vapor, and high volumes of water vapor. Some of this extended beyond the immediate environs of the Earth into what is now the vacuum of space. The rock-vapor closer to the Earth condensed rapidly (perhaps within 2,000 years). The rock-vapor and water-vapor further away condensed and was deposited periodically on the Earth's surface forming many of the layers of the Earth's Crust, and covering then-current surface materials under high pressure, forming additional layers, including those containing fossil fuels. As surface temperatures lowered enough to support life, and with the Earth's atmosphere at this time being very high in CO_2 and under very high pressure, this allowed for the growth of huge plants and animals in a greenhouse environment. This is confirmed by the fossil record.

The remaining water vapor condensed in the form of ice. In this extended mesosphere such ice would have been super-cold, since temperatures in the mesosphere decrease with altitude. This ice would have descended periodically, contributing to the cooling of the surface, forming the oceans, and causing periodic ice-ages. This process took a long time, and was not a single event.

The Genesis account is harmonious with this view. It states that the waters came from a canopy envelope [*above*] the Earth's atmosphere (in the outer reaches). (See Gen. 1:7, "*firmament*" = "*atmosphere*" as in Genesis 1:20) The Flood of Noah's day would have been the last of many such deluges. But it would have descended to Earth in the form of super-cold ice crystals, not liquid water. Because this residual water was essentially at a great distance from the Earth, it would have been deposited in the Polar Regions, ionized by the Van Allen Belts, and then attracted by the Earth's magnetic field. This is the same principle observed in accretion disks surrounding stars.

The Van Allen Belts demonstrate the strength of Earth's magnetic field, and the corresponding shape. They descend toward the Earth at the Polar regions. ¹¹



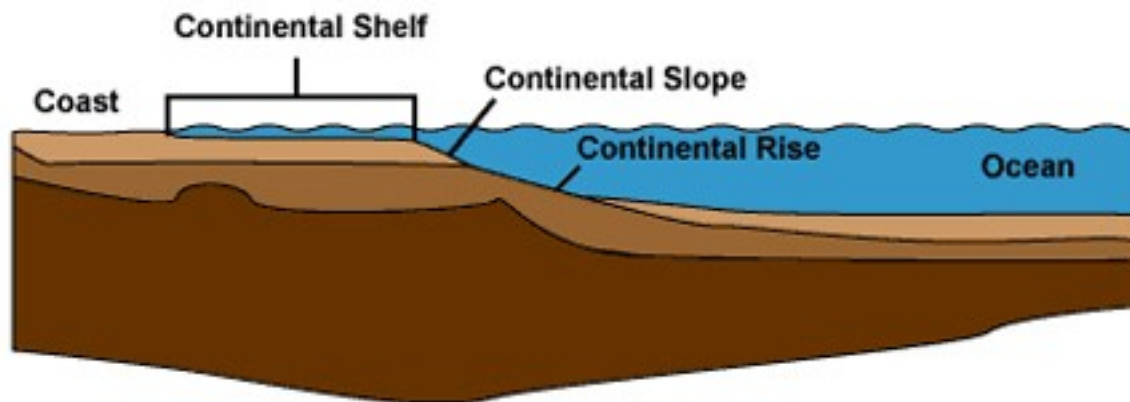
SECTION IV – Continental Shelves and Recent Ocean Levels

SCIENTIFIC THOUGHT: *“Continental shelves were formed in between glacial periods as the ocean flowed over the continents forming shallow areas along the coasts. About 18,000 years ago, during the height of the Pleistocene ice ages, much of what is now a continental shelf was actually above water.”¹²*

“These marine incursions alternated with times when the ocean receded to below the level of the current continental shelf.”¹³

“The continental shelf is an underwater landmass which extends from a continent, resulting in an area of relatively shallow water known as a shelf sea. Much of the shelves were exposed during glacial periods and interglacial periods.”¹⁴

FACT: *“With a few exceptions, the shelf break is located at a remarkably uniform depth of roughly 140 meters (460 ft)...”¹⁵*



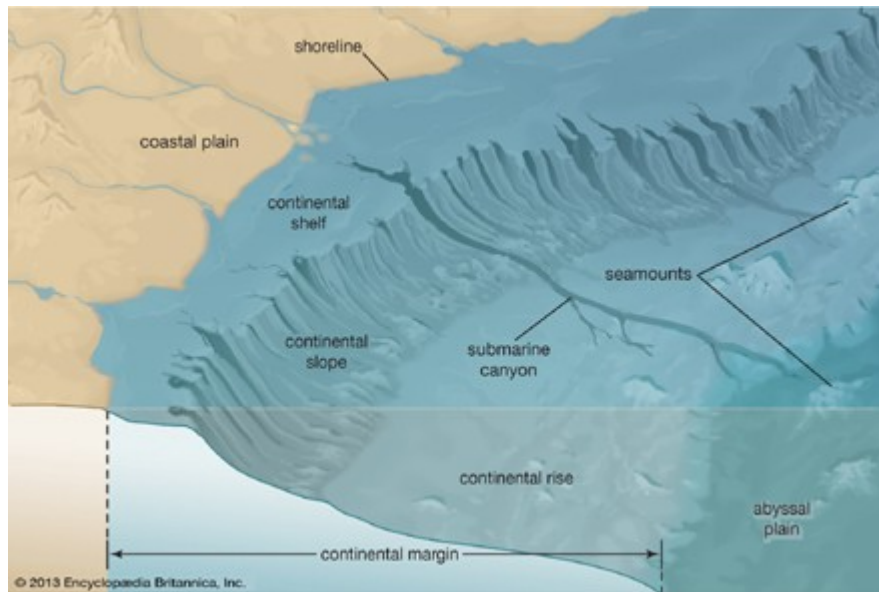
All of the above statements express widely-accepted scientific thinking. The main point being that there is ample evidence to support the thought that the Continental Shelves were at one time, in the not-so-distant past, a part of the continental landmasses, actually above water. The one estimate above gives a date of 18,000 years ago, but the margin of error could bring this within the timeframe of the Bible record.

CONCLUSION: Taking the difference in ocean levels today, and what they would have been when the Continental Shelves were above water, the difference of *at least* 140 meters (460 feet) would indicate a volume of approximately 15 million cubic miles of water. That is more than twice the total amount of fresh water ice in existence today, including that covering Antarctica.

Combining a number of the previous facts and thoughts:

If the commonly accepted concept of a “*rock-vapor atmosphere*” is valid (as referenced above), there would have been rapid deposition of both minerals, rock and ice as these descended periodically to the Earth’s surface, predominantly at the Polar regions.

If we accept 18,000 years ago as a time when the Continental Shelves were above water (the Bible record of the Flood is closer to 4,500 years ago) then there had to be a rise in ocean levels of more than 460 feet (140 meters) since that time. The existence of canyons and river valleys in the Continental Shelves themselves more clearly supports a ***sudden*** rise in ocean levels by 460 feet. ¹⁶



Depending on how rapid was the rate of deposition, with the increase in ocean levels by at least 460 feet (140 meters), the resulting tsunamis going from the polar regions toward the equator would have been unimaginable in size and speed.

For a modern day comparison, consider the tsunami that devastated the region of Indonesia in 2004. It affected 1/6th of the water surface of the Earth. “...*the sea floor is estimated to have risen by several metres, displacing an estimated 30 cubic kilometres (7.2 cu mi) of water and triggering devastating tsunami waves.*”¹⁷ It produced an onshore wave approximately 100 feet in height, traveling through the ocean at more than 500 mph.¹⁸

If tentatively we apply this scenario to the Biblical account, dividing the cubic volume of water by 40 days, the amount of “*displaced*” water would have been *on average* 375,000 cubic miles of water *per day*, compared to 7.2 cubic miles in the Indonesian Tsunami. Initial daily amounts would have been much higher than the 375,000 cubic mile average. Divide that by 6 to spread it evenly over all the oceans of the World and you still have more than **52,000 times** the amount of energy *per day* compared to the Indonesian Tsunami. Those coastal regions closer to the Poles would have experienced more extreme events than those further away. These figures are given to demonstrate the potential magnitude of tsunamis generated by a release of energy that was at least 52,000 times more powerful than the 2004 cataclysm, and lasting for many days.

If this was so, and the Bible account supports this concept, then the tsunamis would have been powerful enough to wash over the tops of even the highest mountains, and so the mountains were “*covered*” in this sense of the word. The water did not have to stay there, or to be at that depth over the entire surface of the Globe. The Genesis account indicates that the purpose of the Flood was to destroy all breathing animals. A tsunami would be a quick, relatively painless, and effective way to accomplish this. Incidentally, this theory can answer a number of other questions such as the young geological age of the Niagara Falls erosion channel.¹⁹

The comments in Genesis 7:20 are related to *two different* things. “*Fifteen cubits upward did the waters prevail; ... and the mountains were covered.*”

The only vertical measurement Noah could have made was on the side of the Ark. He knew it was 30 cubits from base to top. This indicates that the Ark was submerged in the water to the depth of 15 cubits, half of its height. This would be consistent with the lading of a boat of this size.

The root word “*covered*” referring to mountains here (and to the hills in verse 19) does not always mean covered in the sense of being under water. Very often the root word is used to describe clothing. No one would argue that clothing to “*cover*” a man 6 feet tall would have to be 6 feet “*deep*” or 6 feet “*thick*”. So the word usage and larger context here is more consistent with the idea of mountains being overwhelmed by the tsunami waves.

SECTION V – Frozen specimens in the Northern Polar regions

EVIDENCE: Animals quick frozen in Siberia continue to be uncovered, in a remarkably well-preserved state, with undigested food in their mouths and stomachs, with uncoagulated blood in their bodies, etc.^{20 21} The temperatures necessary to freeze a woolly mammoth fast enough for all these characteristics to exist after thousands of years, is at least -200° F. [See *Appendix A.*]

FACT: The quantity, condition, and varieties of food found in these animals necessitates a warm climate, not a frigid one. Vladimir Nikolayevich Sukachev, a noted Russian geobotanist, published a detailed report of the contents of the stomach of the Beresovka River Mammoth (1914). This was carefully analyzed by several other respected botanists in the U.S. who concluded that many of the plants and flowers found there could only grow in warmer climates. [See *Appendix A.*]

Debate over this goes back for many decades, as evidenced by *Scientific American* articles published in 1902 and 1905.

CONCLUSION: The animals quick frozen in Siberia were overwhelmed suddenly by super-cold ice. The temperature was in the -200° F range. The fall of ice from the canopy would have been both sudden, and sufficient to fulfill all the necessary requirements. The change from warm to frigid was almost instantaneous, as evidenced by the preserved state of undigested plants and flowers, as well as other factors. These arctic conditions extended southward to southern Siberia, but not nearly as far south as where the Bible indicates the Ark came to rest, in the Mountains of Ararat, so it would not have been affected by this extreme cold.

SECTION VI – Global versus Local Flood, Creative Days, Noah’s Ark

FACT: Records of every major culture on Earth contain a catastrophic Flood Story.²²

Wikipedia calls these stories “*myths*”, and it is true that the details differ widely from one culture to another, but the basic story is essentially the same. The existence of the catastrophic Flood Story in every culture is significant, supporting the idea of a Global Flood upon which such so-called “*myths*” were based.

As mentioned earlier, the Bible account suggests that there were many deluges. This would help to harmonize the Bible account with the current thinking of geologists. More and more geologists are abandoning a strict *Uniformitarian* approach, and are combining *Catastrophism* as part of their theory.²³

The Epoch Days in Genesis follow closely the Epochs of Geology, though in less detail. [See Appendix B.]

That the Creative Days of Genesis are not 24-hour days is evident from the scope and nature of the work accomplished in each period. For example: Adam was created near the end of the 6th Day, yet he still had time to become acquainted with and provide names for all the animals. Eve was created still later in the 6th Day. (Gen. 1:27,31; 2:7,19,21,22)

That the term “day” in the Bible can have a broader meaning than a literal 24-hour day is clearly shown in Psa. 95:8-20; Num. 14:33,34; 2 Pet. 3:8; etc. Even in the context of the Creation account, the term “day” is used to describe the entire work of the 1st six days combined. (Gen. 2:4)

Noah’s Ark:

EVIDENCE: “*The Dead Seas Scrolls reveal that Noah’s Ark was shaped like a Pyramid.*”²⁴ The Hebrew in Genesis 6:16 confirms this. [See Appendix C.]

EXPERIMENT: Years before the information from the Dead Sea Scrolls was published, a detailed scale-model of Noah’s Ark was constructed (in 2001) from a pyramid-shaped design that was tried centuries before, and endorsed by Bible Students in the early 1900s.²⁵

This model was inspected by a representative of the College of Architecture at Ohio State University (OSU), and his conclusions were verified by one of the teachers of the College. They confirmed that such a design, applied to a structure the size of the Ark as stated in Genesis, had the architectural integrity to withstand the forces and conditions which were submitted, as explained below.

Such a design overcomes all the major obstacles generally suggested by critics. The triangle is the strongest architectural shape. The broad base was below water. The pressure of water pressing on the bottom, and the sloping sides would have compressed the timbers tighter together. This combined with the fact that sealant was applied both on the outside and on the inside, made for a water-tight enclosure.

Additionally, the broad flat base, with the majority of weight being on the bottom of the Ark, gave it a very low center-of-gravity, making it very stable in the roughest of seas. Computer-modeling confirmed this.

Furthermore, the initial onslaught of flood waters was from a tsunami-like wave. The hydrodynamic shape of the Ark would have allowed the initial wave to pass over the Ark, submerging it for a short time, until it floated to the surface due to the air trapped inside. This submergence is verified by the Apostle Peter when he says it was a “*baptism*” (the Greek word meaning submerged). (1 Peter 3:20,21) The windows and doors were sealed at this point in time, making the Ark air-tight.



There are many questions about practical aspects concerning the number and variety of species, how 8 people could manage 50,000 animals, why they didn't all die from methane gas poisoning, why certain animals are only found in Australia, etc. Detailed answers to most of these questions are given in a related booklet and a 40-minute video located at the following links:

Booklet: <http://www.biblestudents.com/biblicalfloodbooklet.html>

Video: <https://www.youtube.com/watch?v=uY4ykZK0MuI>

SECTION VII – Concluding Thoughts

The intention of this paper is to explore a *possible* Bible Flood scenario that could harmonize with a variety of facts, and established scientific thinking, in related areas. It is not intended to be a comprehensive treatment of the subject. It should be noted that no “religious” or “Creation Science” sources were cited.

Scientists do not agree among themselves in a number of the areas considered. However, all of the references given are from sources considered as mainstream and reputable within the Scientific Community.

For those who are looking for a reasonable answer to the questions posed in Section I, the foregoing will at the very least provide food for thought.

Those who are interested in Biblical sources are encouraged to consider the series of books entitled: “*Studies in the Scriptures*” which are available in electronic book form at:

www.agsconsulting.com [BIBLE STUDY HELPS]

or as an online searchable database at:

www.htdb.space

Those who are seeking to find fault with the Bible and its account of Creation and the Flood will no doubt find what they are looking for.

The last word on this subject belongs to the Creator.

TABLE 11.6
COMPARISON OF COOLING AND FREEZING OF
A MAMMOTH “BLAST FROZEN” AND
A MAMMOTH BURIED IN ICE

Air temp. °F	Blast Frozen $T_i=100^\circ\text{ F}$		Buried in Ice $T_i\text{-mammoth}=100^\circ\text{ F}$	
	Time in hours to bring a point 7.27 inches in to 40° F	Time in hours to freeze mammoth at 29° F	Time in hours to bring a point 8 inches in to 40° F	Time in hours to freeze mammoth at 29° F
-50	45.6	523.6	445.7	1740.0
-100	21.3	351.3	363.0	1236.4
-129	16.5	298.0	337.2	1076.9
-150	13.3	269.1	326.7	988.4
-175	11.6	241.6	306.0	904.5
-200	10.0	220.5	295.6	837.2
-225	8.3	202.2	285.3	782.4
-250	7.8	187.6	275.0	736.5

Temperatures below -200° F would have been necessary to bring the temperature of the stomach contents of the Beresovka River Mammoth down to 40° F in less than 10 hours to avoid putrefaction. Several frozen food experts verified the accuracy of the table above.²⁶

TABLE 11.1
PROGRESSIVE DECAY OF GLADIOLUS FLOWER PETALS IN
A SOLUTION OF STOMACH JUICE AT VARIOUS
TEMPERATURES (IN HOURS)

	4° C	17° C	27° C	37° C
A	3	1½	1	1
B	4	3	3	2
C	5	3½	3½	3
D	-	25	10	10

The stomach contents of the Beresovka River Mammoth included well-preserved gladiolus flower petals. To prevent decay from stomach acid and enzymes, with an initial stomach temperature of 37° C (98.6° F), temperatures below -200° F would have been necessary, as indicated in Table 11.6.²⁷

A complete listing of the stomach contents of the Beresovka Mammoth, with comments and conclusions, was published by the Russian Scientist Vladimir Nikolayevich Sukachev in 1914 in a paper entitled “*Examination of Plant Remnants Found within the Food of the Mammoth Discovered on the Beresovka River Territory of Yakutsk.*”

The list was compiled by William Farrand, Henry Fairfield Osborn, and was commented upon by botanist A. A. Case of the University of Missouri.

In addition to providing an exact identification of the various species, and the state of preservation, the list shows conclusively that the climate where the Mammoth died was much warmer than it is today, as many species identified currently grow much further to the south of where the animal was found. Also, the time of year can be identified with great confidence as being in late July or early August.

Here is the complete list of contents with selected notes:

Trees and Shrubs

Abies (sibirica?)
Alnus hirsuta
Betula alba
B. nana
Betula sp.
Larix (sibirica?)
Picea (obovata?)
P. sibirica
Salix polaris
Salix sp.
Vaccinium vitis idaea

Herbs, Grasses, and Mosses

Bryophytes

Aulacomnium turgidum
Cladonia ragiferina
Drepanocladus (Hypnum) fluitans

Caryophyllaceae

Cerastium sp.
Dianthus sp.
Melandrium sp.
S. (nodosa?)

Chenopodiaceae

Atriplex (patulum?)

Compositae

Artemisia dracunculus
Artemisia sacrorum
Artemia vulgaris
Aster sp.
Gnaphalium uliginosum
Lactuca (Mulgedium) sibiricum
Tanacetum vulgare
Sp. indeterminate

Cruciferae

Sp. indeterminate

Cyperaceae

Carex glareosa
Carex incurva
Carex lagopina (lachenalii?)
Sp. indeterminate (N-2)

Gentianaceae

Gentiana sp.

Gramineae

Agropyron cristatum *“The remains of this plant are very numerous in the contents of the stomach. They are so well preserved that there is no doubt as to the exact species. The individual specimens are slightly smaller than those of the typical more southern variety*

growing today, but this could be a result of some reduction of size because of pressure in the stomach, which is noted in other cases. The finding of the plants is of very great interest. Not only are they scarcely known anywhere in the Arctic regions, they are even, so far as I have been able to discover, very rare also in the Yakutsk district....Generally speaking the Agropyrum cristatum L. Bess is a plant of the plains (steppes) and is widespread in the plains of Dauria....The general range of this plant includes southern Europe (in European Russia it is adapted to the plains belt), southern Siberia, Turkestan, Djungaria, Tian-Shan, and Mongolia. Nevertheless, the variety found in the stomach differs slightly from both the European and Oriental-Siberian varieties found today. It is similar to the crested wheatgrass of the Great Plains and High Plains of North America. This hardly speaks well for the thesis that the climate then was similar to today's. Nor could it help the theory that this mammoth was bogged!"

Agrostis borealis

Alopecurus alpinus

Beckmannia cruciformis

Bromus sibiricus

Elymus sp.

Hordeum jubatum

Hordeum violaccum Boiss, et. Huet *"This plant is found in dry grassy areas. It is not found in the Arctic regions. In Siberia this is a meadow plant. It is a variety of barley."*

Phragmites communis

Puccinellia (Atropis?) distans

Sp. indeterminate (N-8)

Labiatae

Thymus serpyllum

Leguminosae

Caragana jubata

Oxytropis campestris

Oxytropis sordida

Papaveraceae

Papaver alpinum

Plantaginaceae

Plantago media

Polygonaceae

Oxyria digyna?

Rumex acetosella

Polypodiaceae

Sp. indeterminate (N-2)

Ranunculaceae

Caltha palustris

Ranunculus acris L.

Rosaceae

Potentilla sp.

Rosa sp.

Sanguisorba officinalis

Umbelliferae

Aegopodium podagraria?

Angelica (decurrens?)

We may draw several general conclusions from these data:

(1) The presence of so many varieties that generally grow much to the south indicates that the climate of the region was milder than that of today.

(2) The discovery of the ripe fruits of sedges, grasses, and other plants suggests that “*the mammoth died during the second half of July or the beginning of August*”.

(3) The Beresovka mammoth apparently did not feed primarily on coniferous vegetation, but mainly on meadow grasses.

(4) The mammoth must have been overwhelmed suddenly with a rapid deep freeze and instant death. The sudden death is proved by the unchewed bean pods still containing the beans that were found between its teeth, and the deep freeze is suggested by the well-preserved state of the stomach contents and the presence of edible meat.

Appendix B – the Creative Days of Genesis compared to Epochs of Geology²⁸

Precambrian		
Hadean	Vaporized rock / water atmosphere <i>Surface water appears</i> Plate tectonics	1st Creative Day
Archean	Single-celled organisms	
Proterozoic	<i>Oxygenation of atmosphere</i> Multi-celled animals	2nd Creative Day
Phanerozoic		
Paleozoic		3rd Creative Day
Cambrian	CO ₂ at 15 times present levels Complex aquatic animals	
Ordovician	Green plants	
Silurian	Bushes	
Devonian	<i>Small trees, seed-bearing plants</i>	
Carboniferous	Large trees, land vertebrates Winged insects, reptiles <i>Coal-beds formed</i>	4th Creative Day (overlap)
Permian	<i>Supercontinent Pangaea</i> Mountain ranges	
Mesozoic		
Triassic	Early dinosaurs, <i>large sea creatures</i>	5th Creative Day
Jurassic	<i>Large dinosaurs</i> , small mammals Separation of continents CO ₂ at 4 times present levels	
Cretaceous	Flowering plants, <i>early birds</i>	
Cenozoic		
Paleogene	Tropical climate Modern <i>mammals</i>	6th Creative Day
Neogene	<i>Early humans</i> <i>Ice age</i>	7th Creative Day
Quaternary		(Flood)
Pleistocene	Humans, large mammals	
Holocene	Rise of human civilization	

Appendix C – the Hebrew of Genesis 6:16

Strong's	Hebrew	Definition
6672	so-har	Mid-day, noon
6213	ta-a-seh	you shall make
8392	lat-te-bah	Ark
413	we-el	to, into, towards
520	am-mah	an ell
3615	te-ka-len-nah	to be complete, at an end, finished
4605	mil-ma-lah	upward

Based on the Dead Sea Scrolls²⁹ the proper understanding of this verse would be:
“Toward the noon-day sun you shall make the Ark into an ell to be finished upward.”

The cuneiform sign for cubit and the primitive pictograph which preceded it in the days of picture-writing (this at the time of Eber and Peleg, Gen. 10:25) suggested an angle and this expression *“finished in a cubit [ell or angle] above”* might well denote what we call the apex, the angle at the top of the Ark formed by the meeting of the two sloping sides, much as we might say it finished in an inverted V at the top.

Bibliographic Footnotes

- ¹ https://en.wikipedia.org/wiki/Antarctic_ice_sheet
- ² <https://www.nsf.gov/geo/opp/antarct/science/icesheet.jsp>
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