“And It Was In The Morning”

The Timing of the Signs of the Savior’s Death and Resurrection Verify the Longitude of Zarahemla in Baja California

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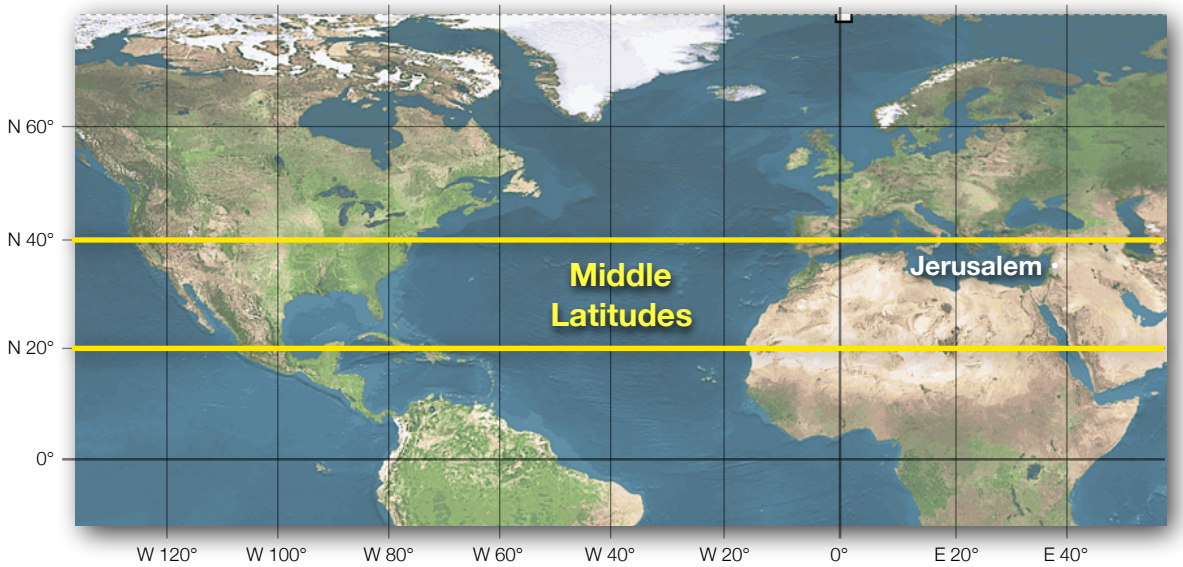
Jerusalem’s location is 32 degrees north of the Equator and 35 degrees east of Greenwich. We have pondered this thought: If only we knew the latitude and longitude coordinates of Zarahemla it would not be difficult to verify the Book of Mormon lands. Unlike Jerusalem, one will not find the latitudinal and longitudinal location of Zarahemla on standard maps, but we have set forth evidence that the recorded lands of the Book of Mormon are in a zone of the middle latitudes between approximately 20 to 40 degrees north—the latitudinal zone of Baja California and southern California. The Book of Mormon account provides numerous pieces of environmental information that serve as surrogate markers for global positioning—and this geographical evidence has latitude and longitude parameters attached to it. We have confirmed this with latitude-based information in the Book of Mormon record such as the shape of the land and the location of seas, the gathering and planting of seeds, the climates, the winds, the



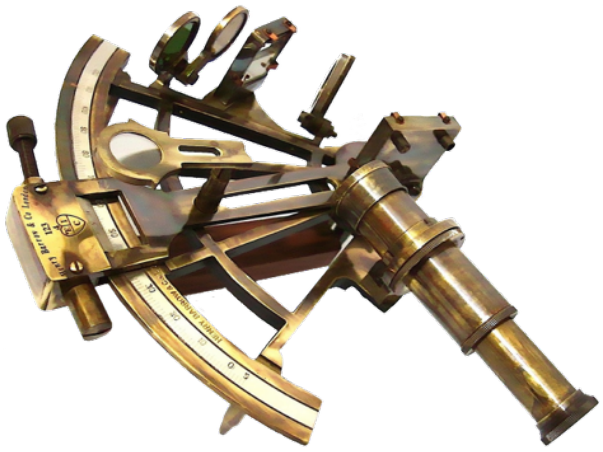
Based on environmental clues found in the Book of Mormon record, the record keepers lived in a middle latitude zone between 20 and 40 degrees north, the same latitudes of the land of Jerusalem.

elevation of cities, the habitats of animals and plants and atmospheric anomalies. All of these fingerprints or clues point to a middle latitude location with the configuration of Baja California. This supporting evidence is presented in a series of articles (www.achoiceland.com; see especially, *Environmental Evidences: Confirming "Fingerprints" for Locating Book of Mormon Lands*). Within this middle latitude zone the peninsula of Baja California stretches from 22 to 33 degrees north and from 109 to 117 degrees west. The setting where we place Zarahemla is positioned in the center of the peninsula at a latitude of 27 degrees and a longitude of 113 degrees.

We suggest it is possible to verify a longitude of 113 degrees for Zarahemla in Baja California by the timing of the signs that appeared in the Book of Mormon lands at the Savior's death and also his resurrection. The Book of Mormon accounts of these signs provide geographical timing information that can serve as surrogate markers for longitude positioning. This positioning follows standard procedures for measuring and mapping latitude and longitude on the earth's spherical surface.

Measuring and Mapping Latitude

Latitude is a measurement of the angular distance north or south of the equator and can be calculated by measuring the angle between the sun at its highest point in the sky (its zenith, which occurs at solar noon) and a point directly overhead. This is done with a sextant, an instrument designed for determining accurate angular measurements of the sun's position in the sky. Alternatively, one can measure the complementary angle from the zenith to the horizon and subtract that figure from 90 degrees. Twice a year at the time of the equinox (approximately March 21 and September 21) these angular solar measurements in degrees exactly equal the latitude in degrees at the location of the measurement. But what about all the days in-between the two equinox dates? Many centuries ago astronomers developed mathematical charts that displayed the number of degrees to either add or subtract from the angular measurement of the sextant to formulate the correct latitude for each day of the

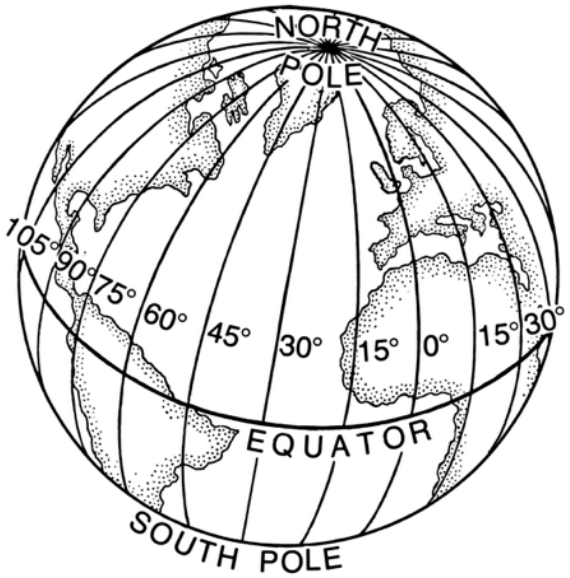


A sextant can accurately determine latitude measurements on the earth's surface.

year. Mariners and others carried these charts and a sextant to quickly determine latitudes (parallels) anywhere in the world. These portable devices were an extraordinary boon to navigation and exploration. Eratosthenes, a Greek mathematician and geographer (276 to 194 B.C.), proposed a grid system of latitude and longitude for placing locations on the spherical surface of the earth, and untold latitude calculations have been made with remarkable accuracy since that time and recorded on maps of all kinds. Today we can simply determine our own latitude, or the latitude of any location, by merely looking at a detailed flat map of the world or a globe, or by means of Global Positioning System (GPS) devices, such as smartphones.

Measuring and Mapping Longitude

Lines of longitude (meridians) are angular measurements east or west from a prime meridian or starting point. In our contemporary world with faraway televised events and long distance airline travel we are constantly affirming and putting to use the longitudes of distant locations without even realizing it. If a World Series baseball game is taking place in New York City at 8:00 PM and we live in Salt Lake City we know from experience to turn on the television set at 6:00 PM to watch the game. And if a swimming competition of the 2012 Olympic Games in London began at 3:00 PM, this live event would have been viewed at 8:00 AM Mountain time. Any airline travel between distant locations towards the East or West presents the same timing challenges, but today, in our seemingly shrinking world, travelers make time shift calculations without too much difficulty. These time changes of several hours—sometimes behind and sometimes ahead—are really just longitude differences. The longitude of New York City is 74 degrees west, and the longitude of Salt Lake City is 112 degrees west. London has a longitude of zero degree (the location of the Royal Observatory at Greenwich, a suburb of London, but that is another story). But here is why time differences and longitude differences are equivalent representations of each other: The earth makes a complete rotation on its axis every 24



Lines of longitude (meridians) based on Greenwich, England, as the starting point.

hours. There are 360 degrees in a complete circle or a single rotation of the earth. Through a simple calculation we can determine that the earth rotates 15 degrees on its axis each hour (360 degrees divided by 24 hours). Thus a longitudinal difference between Salt Lake City and New York City of 38 degrees represents about two hours difference in time; and the longitude difference between Salt Lake City and London is 112 degrees or some seven hours. Our culturally-declared time zone boundaries (so we don't have fractional hours) and daylight savings time shifts can affect the hour calculations, but the principles remain the same.

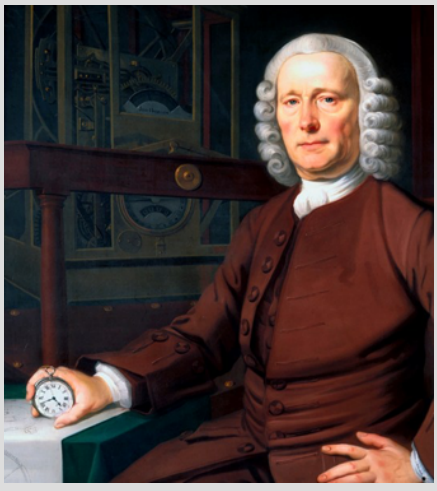
So for any given event, if we know the time of the event at the location where it happened and the local time at that very moment in a distant location, we can mathematically determine the time difference between the two locations and thus the longitude difference. Conversely, if we know the longitude difference we can calculate the time difference. Therefore,

Time Difference = Longitude

Longitude Difference = Time

The History of Longitude

Determining longitude has always been far more difficult than latitude, and over the centuries several methods were proposed to solve this disparity. In 1714 the British government offered a prize of up to £20,000—some four million dollars today—to anyone who could produce an instrument (or any system) that could accurately determine longitude, especially after many months at sea. John Harrison, a Yorkshire carpenter, built a series of clocks (marine chronometers) that were accurate enough to measure *time* differences between the prime meridian at Greenwich, England, and a position at sea. In the 1770s, Captain James Cook, with Harrison's H4 chronometer aboard, confidently navigated around the world on his last two voyages, producing the first accurate maps of Australia, New Zealand and many other locations. The history of attempts to solve the longitude dilemma, especially with more accurate time pieces, is an intriguing story. See *Wikipedia*, History of Longitude; Sobel, Dava, *Longitude: The True Story of a Lone Genius Who Solved the Greatest Scientific Problem of His Time,* Walker and Company, New York, 1995; and the PBS Nova production, *Lost at Sea: The Search for Longitude*, a film based on Sobel's book.



John Harrison with his chronometer.

Verifying the Longitude of Zarahemla in Baja California

But how does all of this apply to the Book of Mormon story, and how will it help verify where we place Zarahemla in Baja California? All we need is an event in Jerusalem where we know the time when the event takes place and also the local time at that very moment in Zarahemla. These two times would allow us to calculate the time difference and in turn the longitude difference. We have just such an event:

The death of our Lord and Savior
Jesus Christ on a cross in Jerusalem

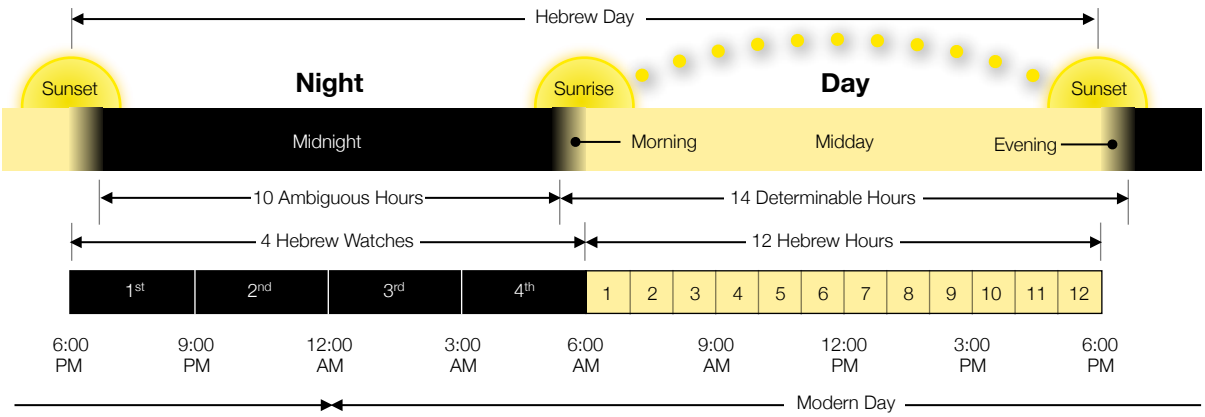
As noted, there is a longitude difference of some 150 degrees between Jerusalem and Baja California, and because longitude equals time (15 degrees per every hour) this calculates to a time difference of 10 hours. The time of the Savior's death was "at the ninth hour" in Jerusalem or about 3:00 PM as we would count time today. Thus at that very hour, where we place Zarahemla in Baja California it was about 5:00 AM. According to the Book of Mormon account, the signs of the Savior's death and resurrection occurred during the "morning" period in Zarahemla which extends from about 5:00 AM until sunrise at 6:00 AM. At this point our readers are going to say, "Wait a minute. How do we know all that?" We now need to summarize the missing steps which verify the timing of these events and in turn the required longitude difference between Zarahemla and Jerusalem. Here are the five steps.

Step 1 (The Time Divisions of a Day)

First we need to identify the divisions of a day (and night) in the New Testament and Book of Mormon cultures. Even without precise clocks, there were three times each day when *the time* was obvious to all by merely observing the sun's position in the sky. These three significant times were incorporated into the daily rhythm of work and worship. One *time* was at midday when the sun was at its highest point (its zenith, which aligns with a south direction). This we would call *noon*.

A second *time* was the period between when the first light of the day could be seen and the time the sun actually appeared over the horizon (sunrise). This time period, obvious to all, was called the "morning" and lasted up to an hour (see, for example, Matt. 21:18; 27:1; Mark 1:35; 11:20; 13:35; 15:1; 16:2; John 21:4). We sometimes call

this *dawn*. Sunrise time varies throughout the year, but at the spring (or fall) equinox, sunrise occurs at about 6:00 AM at all locations around the world.



A corresponding third *time* occurred at the end of the day when the sun dropped below the horizon (sundown) and lasted until the twilight disappeared into complete darkness. This time period was called the "evening" or "even" and lasted up to an hour (see, for example, Matt. 8:16; 14:15, 23; 16:2; Mark 14:17; 15:42; John 20:19). We sometimes call this *dusk*. The time of sunset also varies throughout the year, but at the spring (or fall) equinox, sunset occurs at about 6:00 PM. The "evening," like the "morning," was an easily recognized time when people could congregate for common events. The precise moment of sundown ushered in not only this brief "evening" period of decreasing light but also signaled the beginning of a new 24-hour day, for example, the transition from the first day of the week (Sunday) to the second day of the week (Monday). When admonishing the people to pray, Amulek, a missionary companion of Alma, mentions these three significant times of the day.

> *Amulek:* Cry unto him in your houses, yea, over all your household, both **morning**, **mid-day**, and **evening**. (Alma 34:21) [We have boldfaced words here and in other quotations.]

The daylight period between "morning" and "evening" was nominally divided into 12 equal hours, beginning at sunrise. The hour after sunrise was counted as the "first hour," with the numbering of subsequent hours continuing through the day until sunset. Midday (or noon) would fall between the sixth and seventh hours. Sundials and hourglasses were of some help in determining these daylight hours but could not be practicably synchronized for all citizens within a community. Determining nighttime hours presented a challenge because the sun's position could not be seen. A system of three or four "watches" of imprecise length divided the period of darkness. With the

coming of increased artificial light and more accurate clocks, the length of "morning" and "evening" broadened from about an hour to indefinite periods of many hours. (For additional information on time divisions of the day, see: Determining the Hebrew Day, www.torahcalendar.com/sunset.asp; and *LDS Bible Dictionary,* "Calendar.")

The Equinox (equal night and day)

The *equinox* occurs twice a year when the sun crosses the celestial equator (about March 21 and September 21). On these two dates, day and night are of *equal length at all locations* around the world. At the time of the Savior's death in the spring of the year, near the time of the equinox, there would have been nearly equal hours of light and darkness (this was the 14th day of the month of *Nisan;* see Ex. 12:1–14 for the symbolic *Paschal Lamb* requirements of the law of Moses). At the time of this spring (or vernal) equinox on March 21—and a number of days before and after—the first light of day would appear at about 5:00 AM and "morning" would last about an hour until sunrise at 6:00 AM. This is true not only in Jerusalem and Zarahemla at the time of equinox, but 6:00 AM is also the local time of sunrise all over the world in every location as the earth rotates on its axis. We do not need to make a special calculation for "first light" or sunrise time in Zarahemla.

Step 2 (The Time of the Savior's Death in Jerusalem)

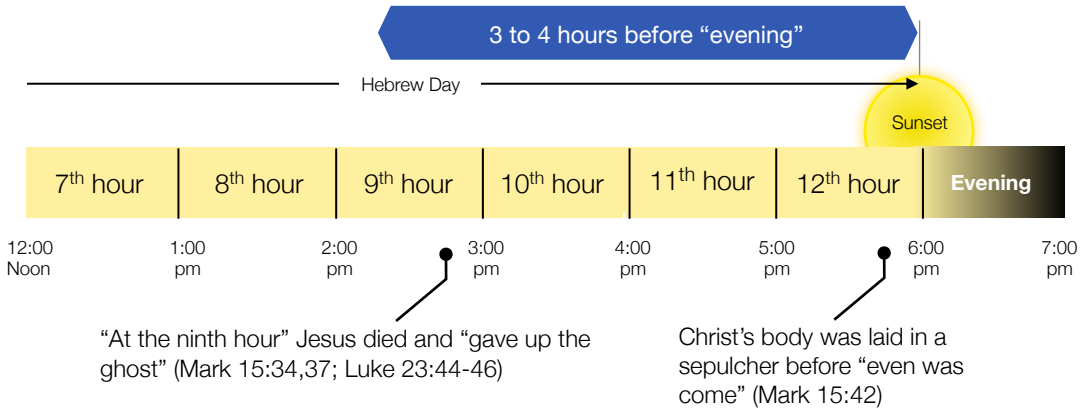
The writers of three gospels, Matthew, Mark and Luke, all declare the Savior died at the ninth hour of the day. John does not record the hour.

> *Matthew:* **And about the ninth hour** Jesus cried with a loud voice, saying, Eli, Eli, lama sabachthani? that is to say, My God, my God, why hast thou forsaken me? … **Jesus**, when he had cried again with a loud voice, **yielded up the ghost**. (Matt. 27:46, 50)

> *Mark:* **And at the ninth hour** Jesus cried with a loud voice, saying, Eloi, Eloi, lama sabachthani? which is, being interpreted, My God, my God, why hast thou forsaken me? … And **Jesus** cried with a loud voice, and **gave up the ghost**. (Mark 15:34, 37)

> *Luke:* And it was about the sixth hour, and there was a darkness over all the earth until **the ninth hour**. … And when **Jesus** had cried with a loud voice, he said, Father, into thy hands I commend my spirit: and having said thus, he **gave up the ghost**. (Luke 23:44, 46)

The Savior's death "at the ninth hour" in Jerusalem (a period of eight to nine hours after a 6:00 AM sunrise) would correspond to between 2:00 PM and 3:00 PM, as we count time today, or a median time of 2:30 PM. To eliminate fractions and simplify calculations, we round the time to 3:00 PM, a full nine hours after sunrise.



Step 3 (The Time in Baja California at the Time of the Savior’s Death)

Jerusalem is positioned at 35 degrees east of the prime meridian at Greenwich, England (zero degree). Where we place Zarahemla in the center of Baja California, the longitude is 113 degrees west, a longitude difference of 148 degrees. Because longitude equals time (15 degrees per every hour), the longitude separation of 148 degrees between Jerusalem and Zarahemla represents a nine hour and 52 minute difference in sun time from Jerusalem. This time disparity of some 10 hours calculates to a 5:00 AM local time in Zarahemla at the moment of the the Savior’s death in Jerusalem at the ninth hour (3:00 PM).

Step 4 (The Timing and Signs of the Savior’s Resurrection)

The Book of Mormon people were promised specific signs of the Savior’s birth, death and resurrection.

> *Nephi:* And after the Messiah shall come **there shall be signs given** unto my people **of his birth, and also of his death and resurrection**; and great and terrible shall that day be unto the wicked, for they shall perish. … (2 Ne. 26:3)

We find the specificity of these signs in the Book of Mormon record to be impressive. After a careful reading of all the applicable scriptural references, we suggest these signs in Zarahemla not only declared the days of the Savior’s birth, death and resurrection in the land of Jerusalem, but the *appearing* of these signs in Zarahemla corresponded to the actual time, or hour, when the events were taking place.

For example, Samuel the Lamanite prophesied that the ending time of the three days of darkness would serve as a "sign" that corresponded to "the time" of the Savior's resurrection in Jerusalem.

> But behold, as I said unto you concerning another sign, a sign of his death, behold, in that day that he shall suffer death the sun shall be darkened and refuse to give his light unto you; and also the moon and the stars; **and there shall be no light** upon the face of this land, even from the time that he shall suffer death, for the space of three days, **to the time that he shall rise again from the dead**. (Hel. 14:20)

And according to Mormon's account, the dispersal of the darkness "from off the face of the land"—which ended the three days of darkness at the time of the Savior's resurrection—occurred "in the morning."

> And it came to pass that thus did the three days pass away. **And it was in the morning, and the darkness dispersed from off the face of the land**, and the earth did cease to tremble, and the rocks did cease to rend, and the dreadful groanings did cease, and all the tumultuous noises did pass away. (3 Ne. 10:9)

As we have recounted, "the morning" was the period of "dawn" lasting up to an hour which began with the first light of day and ended at sunrise (from about 5:00 AM to 6:00 AM at the time of the equinox).

Mormon's recording of the ending time of the three days of darkness as being "in the morning" is crucial to the overall timing of the destruction and darkness. This is the essential information that allows one to tie the timing of the sign at the Savior's resurrection to the timing of the sign at his death and to a longitude that matches where we place Zarahemla in Baja California. But this determination requires the answer to a fundamental question: How long was the period of time between the Savior's death and resurrection? Or stated another way: How long was "the space of three days" between the "sign" of the Savior's death on a cross in Jerusalem—the time when the unexpected "darkness" befell the people of Zarahemla—and the "time" and "sign" of the Savior's resurrection when the darkness ended "in the morning"? (Hel. 14:20) According to the Lord's words, this period comprised "three days and three nights." Indeed the Lord himself emphasized by a "sign" the length of the time he would be "in the heart of the earth" between his death and his resurrection.

Then certain of the scribes and of the Pharisees answered, saying, Master, we would see a **sign** from thee.

But he answered and said unto them, An evil and adulterous generation seeketh after a sign; **and there shall no sign be given to it, but the sign of the prophet Jonas:**

For as Jonas [Jonah] was three days and three nights in the whale's belly; so shall the Son of man be three days and three nights in the heart of the earth. (Matt. 12:38–40; see also, Matt. 16:4; Luke 11:29–30)

As one would presume, the three-day and three-night length of the Savior's "sign" is supported by the account in the book of Jonah.

Now the Lord had prepared a great fish to swallow up Jonah. **And Jonah was in the belly of the fish three days and three nights.** (Jonah 1:17)

Both Samuel and Mormon refer to this period of "three days and three nights" of darkness as, "the space of three days."

Samuel: … there shall be no light upon the face of this land, even from the time that he shall suffer death, **for the space of three days**, to the time that he shall rise again from the dead.
…
[And the angel said unto me] that darkness should cover the face of the whole earth **for the space of three days**. (Hel. 14:20, 27)

"Three days and three nights in the heart of the earth."

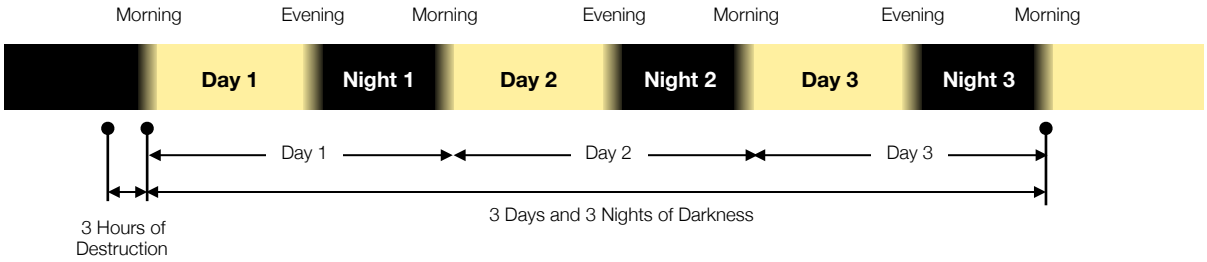
We suggest the phrase, "in the heart of the earth," refers to the spirit world, which we understand doctrinally to be a part of this earth. Here the Savior ministered among the dead during the three days and three nights between the time of his death and his resurrection (D&C 138:27). In the spirit world "he organized his [righteous] forces and appointed messengers, clothed with power and authority, and commissioned them to go forth and carry the light of the gospel to them that were in darkness, even to all the spirits of men; and thus was the gospel preached to the dead" (D&C 138:30; see Doctrine and Covenants, section 138, a revelation on the Savior's three-day mission in the spirit world, as received by President Joseph F. Smith on October 3, 1918; see also, 1 Pet. 4: 6; D&C 76: 73; Luke 23: 43; LDS Bible Dictionary, *Paradise*). We note the Savior's crucified body was "laid" in a sepulcher for three days and not buried in the earth (2 Ne. 25:13; see also, Matthew 27:57-60; Mark 15:42-46; Luke 23:50-54; John 19:38-42).

Mormon: And the people began to look with great earnestness for the sign which had been given by the prophet Samuel, the Lamanite, yea, for the time that there should be darkness **for the space of three days** over the face of the land.
…
And it came to pass that it did last **for the space of three days** that there was no light seen; … (3 Ne. 8:3, 23; see also, Alma 36:10, 16; 38:8; 1 Sam. 30:12; Esth. 4:16)

The precise wording of the phrase, "for the space of," in older English denoted the "amount of time (duration or extent) contained in a specified period" (OED "Space, *n.1*" I, 2a, subsection a). Based on these scriptures, we suggest the three days were each a full 24 hours and "for the space of three days" was a total of 72 hours.

Step 5 (The Timing and Signs of the Savior's Death)

And again we note, "it was in the morning" when "the three days" of darkness *ended* with the dispersal of the darkness "from off the face of the land" (3 Ne. 10:9). Thus the *beginning* of the "three days and three nights" of darkness, some 72 hours earlier at the time of the Savior's death, would also have occurred "in the morning" in Zarahemla —the period of "dawn" lasting up to an hour which began with the first light of day and ended at sunrise.



The most logical time for the sign of Christ's *death* in the land of Zarahemla would be a full three days and three nights before the "morning" when the sign of Christ's *resurrection* was evidenced in that land.

The time was "in the morning," at the ending of the three days and three nights of darkness that marked the sign of Christ's *resurrection*.

As mentioned, it was Samuel the Lamanite who prophesied a "sign" that the beginning of three days of darkness upon the land would correspond to "the time" when the Savior "shall suffer death" and would continue "to the time that he shall rise again from the dead."

> But behold, as I said unto you concerning another sign, **a sign of his death**, behold, in that day that he shall suffer death **the sun shall be darkened** and refuse to give his light unto you; and also the moon and the stars; **and there shall be no light** upon the face of this land, even **from the time that he shall suffer death**, for the space of three days, **to the time that he shall rise again from the dead**. (Hel. 14:20)

Samuel also prophesied a destructive period of "many hours" that would occur near the time of the Savior's death.

> **Yea, at the time that he shall yield up the ghost there shall be thunderings and lightnings for the space of many hours, and the earth shall shake and tremble; and the rocks** which are upon the face of this earth, which are both above the earth and beneath, which ye know at this time are solid, or the more part of it is one solid mass, **shall be broken up**. (Hel. 14:21; see also, 14:3-5)

This prophecy does not indicate the length of "the space of many hours" of destruction nor is it clear as to the timing of the destruction relative to the beginning of the three days of darkness—the sign of the Savior's death. In older English the phrase, "at the time that he shall yield up the ghost," referred to a time just *prior* to death when some struggle to "yield" or surrender the spirit (the ghost), and not necessarily the actual moment of death (see Matt. 27:45-50; Mark 15:34-38; Luke 23:46; John 19:26-30). Indeed, the struggle and the intense suffering of the Savior on the cross *before* his death was part of the atonement process, combined with his suffering in the Garden of Gethsemane and coupled with the universal redemptive consequences of his death and resurrection (see, for example, 2 Ne. 9:5-24; Alma 34:8-16; D&C 19:16; 45:3-5).

Mormon's more detailed account clarifies the timing sequence and the length of the "many hours" by stating that *after* "all these great and terrible things [the "great storm" and destruction] were done in about the space of three hours … and then behold, there was darkness upon the face of the land" (3 Ne. 8:19).

> And it came to pass that when the thunderings, and the lightnings, and the storm, and the tempest, and the quakings of the earth did cease—for behold, they did last for about the space of three hours; and it was said by some that the time was greater; nevertheless, **all these great and terrible things were done in about the space of three hours—and then behold, there was darkness upon the face of the land**. (3 Ne. 8:19)

We suggest these destructive events, lasting "about the space of three hours," corresponded to the timing of the three-hour period of darkness in Jerusalem which *preceded* the Savior's death at the ninth hour.

> **And it was about the sixth hour, and there was a darkness over all the earth until the ninth hour** [about 3:00 PM].

> **And the sun was darkened**, and the veil of the temple was rent in the midst. (Luke 23:44-45)

Mormon's account also describes the fulfillment of this destruction in the Book of Mormon lands.

> And it came to pass **in the thirty and fourth year, in the first month, on the fourth day of the month, there arose a great storm**, such an one as never had been known in all the land.
>
> And there was also a great and terrible **tempest**; and there was terrible **thunder**, insomuch that it did shake the whole earth as if it was about to divide asunder.
>
> …
>
> And it came to pass that when the **thunderings**, and the **lightnings**, and the **storm**, and the **tempest**, and the **quakings of the earth did cease** … and then behold, there was darkness upon the face of the land. (3 Ne. 8:5–6, 19; see also, 1 Ne. 12:4-5; 19:10-12; 2 Ne. 26:3-8; Hel. 14:20-29; 3 Ne. 8:5-25; 9:1-15; 4 Ne. 1:8-9)

"On the fourth day of the month."

The precise date of this "great storm" in the "thirty and fourth year, in the first month, on the fourth day of the month" provides an essential benchmark for creating a chronological framework of the Savior's birth, crucifixion and resurrection (3 Ne. 8:5). See our publication, *The Mortal Ministry of our Lord and Savior Jesus Christ: A Unified Harmony of the Testimonies of Matthew, Mark, Luke and John,* especially the section, "The Last Week: A Chronology of Events Surrounding the Crucifixion and Resurrection."

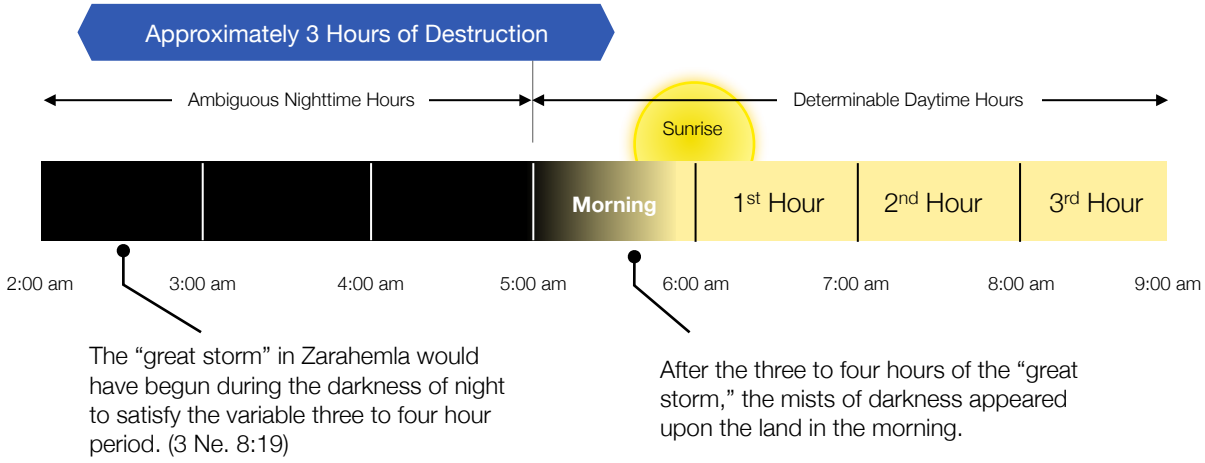
Mormon states that the extensive devastation from the "great storm," the "tempest" and the "quakings" lasted "for about the space of three hours," but some said "the time was greater."

> And it came to pass that when the thunderings, and the lightnings, and the storm, and the tempest, and the quakings of the earth did cease—**for behold, they did last for about the space of three hours; and it was said by some that the time was greater**; nevertheless, all these great and terrible things were done in **about the space of three hours**—and then behold, there was darkness upon the face of the land. (3 Ne. 8:19)

We find it revealing that some survivors said "the time was greater" than three hours. This uncertainty in the minds of the people suggests the "great storm" began during the darkness of night. Thus the "thunderings, and the lightnings, and the storm, and the tempest, and the quakings of the earth" would have struck unexpectedly upon a

still sleeping people when they could not see the sun to determine the beginning time of the storm. If the "great storm" had arrived during daylight hours, when the citizenry of Zarahemla were awake, the record keepers and others could have more readily calculated, and agreed upon, the length of time before a sudden "darkness" settled over the land.

Moreover, the scriptures and timing sequences summarized in these five steps infer the storm and the destruction, which lasted "for about the space of three hours," would have begun during the darkness of night, about 2:00 AM local time where we place Zarahemla in Baja California. Some three hours later the "morning" period, which commenced with the first light, was about to begin. It is this "morning" period (from about 5:00 AM to 6:00 AM) that corresponds to the ninth hour in Jerusalem when the Savior died. The "great storm" and the "tempests" and the "thunder" and the "earthquakes" ceased during this "morning" period of partial daylight, "and then behold, there was darkness upon the face of the land." It was the onset of this sudden "darkness" that was the sign of the Savior's death (Hel. 14:20; 3 Ne. 8:19).



Mormon describes the nature and effects of this "darkness" or "mists of darkness" which continued during what would have been normal daylight hours.

> And it came to pass that there was **thick darkness** upon all the face of the land, insomuch that the inhabitants thereof who had not fallen could feel the **vapor of darkness**;
>
> **And there could be no light, because of the darkness**, neither candles, neither torches; neither could there be fire kindled with their fine and exceedingly dry wood, so that there could not be any light at all;

> **And there was not any light seen**, neither fire, nor glimmer, neither the sun, nor the moon, nor the stars, **for so great were the mists of darkness** which were upon the face of the land.
>
> And it came to pass that **it did last for the space of three days that there was no light seen**; and there was great mourning and howling and weeping among all the people continually; yea, great were the groanings of the people, because of the darkness and the great destruction which had come upon them. (3 Ne. 8:20–23)

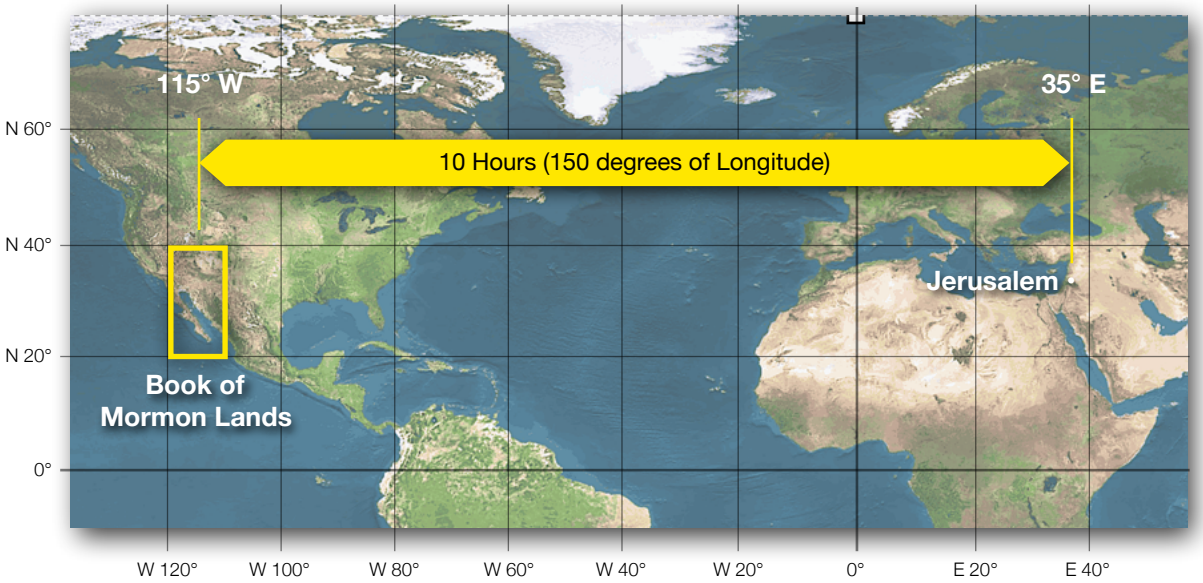
Mormon calls this enveloping darkness a "thick darkness," thus a darkness of another type and not the darkness of the night. He also designates this "darkness" a "vapor of darkness" and "mists of darkness." These descriptive phrases in older English had the meaning of an atmospheric condition we would identify as *fog* today (see our article, *There shall be Great Signs and Wonders: What Caused the Destruction and Darkness in the Nephite Lands at the Time of the Savior's Crucifixion and Resurrection?*; and the text box below, *Book of Mormon Research and Older English*). This challenging atmospheric phenomenon with no light continued for "the space of three days" (72 hours) until the Savior's resurrection.

Verifying the Longitude of Zarahemla

We have attempted to demonstrate that one can systematically verify a location for Zarahemla, using relevant longitude information from the Book of Mormon. The scriptures in the above steps—recounting the timing of the "sign" of the Savior's resurrection "in the morning" and the length of the three days of darkness—provide a way for confirming the time in Zarahemla (approximately 5:00 AM) at the time when the Savior died "at the ninth hour" (3:00 PM) in Jerusalem. We suggest this is the scriptural confirmation that verifies the placing of Zarahemla in Baja California—a location that matches the longitude and time difference (some 150 degrees or about 10 hours) between Zarahemla and Jerusalem as derived from the Book of Mormon record.

These longitude measurements and differences are based on astronomically-derived sun times (solar times) which are calculated from the moment the sun is at its highest point in the sky (zenith or *noon*). These sun times are also based on the positions of the sun, such as sunrise and sunset, at the time of equinox and not other weeks of the year. The Universal Time (UTC/GMT) of the Royal Observatory at Greenwich is determined by precise sun time. We caution that accurate longitude differences cannot be readily calculated from "clock" time, the time shown on our watches and other such devices that program our day. "Clock" time can vary from sun time by up to an hour or

more because of culturally-declared time zone boundaries (so we don't have fractional hours) and daylight savings time shifts (so we can stay up later).



The sign of Christ's death in the land of Zarahemla corresponds with the time in Jerusalem when Christ died on the cross. This allows one to calculate a time difference of 10 hours or 150 degrees of longitude.

We note that Central and South America, even though they perceptibly appear to be positioned directly to the south of North America, are offset or skewed far to the East by at least 30 degrees of longitude (some 2,000 miles) or fully two to three hours of time difference (see map on page one). In these more easterly locations it was not 5:00 AM or "morning" at the time of the Savior's death in Jerusalem at the "ninth hour."

Webcam images taken at the same moment of time in southern Baja California (Cabo San Lucas) and Jerusalem on the day of Equinox (21 March). These two images approximate the respective "sky conditions" at the time of Christ's death at the "ninth hour" in Jerusalem (3:00 PM). In Baja California, the first light of day (5:00 AM) is beginning to reveal the faint outline of a tourist hotel.

These locations were experiencing daylight sky conditions because of their advanced positions relative to the sun and would not match the scriptural accounts in the Book of Mormon which indicate the signs marking the Savior's death and resurrection occurred during "the morning" in Zarahemla when it would have been partially dark.

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Book of Mormon Research and Older English

Our research and writings on Book of Mormon topics embrace two principles: (1) to closely adhere to the text of this "most correct" book without succumbing to the temptation to wander down paths beyond the record; and (2) to take into consideration the meaning of words in the Book of Mormon record as they were used in older English and not the meanings as they may be currently defined. Our research and the research of others confirm the Book of Mormon is translated into the English language of the 1500s and 1600s. Numerous words in the Book of Mormon text have meanings which have changed or become obsolete over the last four-hundred years, including many within the passages cited in this article.

We have found it helpful to search for word definitions that were acceptable and appropriate long before the Book of Mormon was first printed in 1830. These older definitions from the 1500s and 1600s have been selected from the unabridged *Oxford English Dictionary*, the accepted authority on the evolution of the English language over the last millennium. Current definitions frequently obscure the original meanings of scripture text. We have found these older definitions often parallel the pattern of word usage in the *King James* translation of the Bible, begun in 1604 and completed in 1611, but based on English translations published as early as 1526.

Where appropriate, these older definitions are provided in our published work on Book of Mormon topics. Examples: barges, borders, by times, chariots, curious, dearth, destructions, fevers, flocks, fountains, fruit, great (cities), highways, isle, machinery, marvelous, measure, mighty (cities), mists, morrow month, reckon, sakes, serpents, signs, silks, sojourn, tarry, thrash, timber, towers, vapors, waters, wilderness and wonders. See our articles in *A New Approach to Book of Mormon Geography* (www.achoiceland.com). See also, Royal Skousen, *The Archaic Vocabulary of the Book of Mormon,* Maxwell Institute, Brigham Young University; and proceedings of the conference, *2015 Exploring the Complexities in the English Language of the Book of Mormon*, 14 March 2015, Brigham Young University.