	1/6 3 Ks	3/19 Jose	3/20 Equin	6/8/23 Corpus	June 21 Solstice	8/15 Assu	9/23 Equin	10/4 Franci	10/9	10/14 Michae	10/19 Anton	12/8 Imma	12/12 Guadal	12/21 Solstce
San Diego de Alcala, 1			x		x		x							x
San Luis Rey de Fr, 18	X7		E				E							x
San Juan Capistrano, 7														
San Gabriel Arcangel, 4			E				E	X 3/9	X 3/4	X 2/27	X 2/24			
San Fernando Rey, 17			E				E							
~~San Buenaventura, 9~~														
Santa Barbara & Presidio Chapel (12.21-ish) 10					X									X
Santa Ines, 19			E	2/22			E							
Purisima Conception 11			E	9/24 is	mirror		E							
San Luis Obispo de, 5														
San Miguel Arcangel, 16		x	E				E	X 3/9	X 3/4	X 9/29-10/19 2/27	X 2/24			
San Antonio, 3					fog									fog
N Senora dela Soledad 13														
San Carlos Borromeo de Carmel, Serra grave* 2	x			x	6/22* ish									x
San Juan Bautista, 15	x				X								X	x
Santa Cruz, 12														
Santa Clara de Asis, 8														
San Jose, 14 the only pm event		x	x				E	Xish pm & 3/7	3/9 is	Mirror date				
San Francisco de Asis 6			E				E							
San Rafael Arcangel, 20								X 3/9	X 3/4	X 2/27	X 2/24			
San Francisco Solano 21														
	1/6 3 Ks	3/19 Jose	3/20 Equin	6/8/23 Corpus	June 21 Solstice	8/15 Assu	9/23 Equin	10/4 Franci	10/9	10/14 Michae	10/19 Anton	12/8 Imma	12/12 Guadal	12/21 Solstce
TEXAS														
Mission Concepción 4/13 & 8/29 Tabernacle		x	4/13		?	X & 9/20						x	x	x
Mission San F Espada			3/9 -	Frances	of Rome	x	E	x			11/1?			
Espitu Santo Goliad		Eastr Cross	4/1-	-ish	sunset									
Alamo - none														
San Juan - none														
San Jose - none														
ARIZONA														
Xavier del Bac												12/3		
	1/6 3 Ks	3/19 Jose	3/20 Equin	6/8/23 Corpus	June 21 Solstice	8/15 Assu	9/23 Equin	10/4 Franci	10/9	10/14 Michae	10/19 Anton	12/8 Imma	12/12 Guadal	12/21 Solstce

E=equinoctal illuminations, as opposed to the many Solsticial sites

Sunrise, sunset, solstice, equinox calculator Website

Corpus Cristi (or Christi) is celebrated at the following dates:

- Thursdays, June 8, 2023, May 30, 2024, June 19, 2025

ILLUMINATIONS

CALIFORNIA – CA Missions Foundation and Mission Trail and Mendoza

What caused the world's greatest period of building? What means and ends? Why? How?

1. **San Diego** – 2 hours. Map. Website.
   VERNAL EQUINOX.....(SPRING) MAR 20 2023 524 PM EDT - 2124 UTC
   SUMMER SOLSTICE....(SUMMER) JUN 21 2023 1058 AM EDT - 1458 UTC
   AUTUMNAL EQUINOX...(FALL) SEP 23 2023 250 AM EDT - 0650 UTC
   WINTER SOLSTICE....(WINTER) DEC 21 2023 1027 PM EST - 0327 UTC DEC 22

2. **San Luis Rey de Francia** - 2 hours 35 min. Map and Website.
   1 hour 30 to San Gabriel Arcangel Map or 30 min to San Juan Cap. Map.
   Daily, 10 am – 4
   Three rays on tabernacle. These secondary illuminations include those of
   (a) the **midwinter solstice and Epiphany mid-day** illuminations of the *bulto* or statue of Saint John the Baptist located in the lower central niche of the main altar *reredos*,
   (b) the Epiphany illumination of the cemetery-side side altar statue of the Child of Prague / *Santo Niño de Atocha*, formerly the location of the Nativity displays of the Mission era, and
   (c) the successive Epiphany illuminations of three of six Stations of the Cross of the *Via Crucis* on the cemetery arcade of the nave.
   At Mission San Luis Rey, says Mendoza, a lantern affixed to the cupola projects a Trinitarian illumination, where three spears of light project onto the altar.

3. **San Juan Cap** – none. Map. 3 hours.
   Tues – Sunday 9AM – 5PM. 1 hr to San Gabriel Map.

4. **San Gabriel Arcangel** – 3 hrs. Map and Website.
   Tuesday-Sunday 8:00 am-4:00 pm
   – must be similar to other 2 archangels or at least Michael (mirror 8.29)
   - tabernacle illuminations 3.24 and Michael 8.29
   - 30 min to San Fernando. Map.

5. **San Fernando Rey de España** - 3.5 hours. Map. No web.
   9- 4:30 PM when? (818) 361-0186. Pics.
   San Fernando Rey de España and San José depart from this pre-meridian pattern and appear to favor a post-meridian or sunset illumination of their respective altar features.

6. **San Buenaventura** – none reported

7. **Santa Barbara** Website **and Presidio chapel** Website– 4 hours 50 minutes. Map.
   -Winter Solstice Mass that is celebrated at dawn every year in the Mission Church. It looks like this year will be on Dec 21st
   -constructed in the 1790s and is the only Native American (chumash)–built altar that survives from California's early days. Multicultural. Three mirrors.
   What about December 4 & 6?

8. **Santa Ines –** tabernacle 2/22 feast day of Santa Margarita de Cortona
   Spring equinox illuminations at Santa Ines and San Jose missions are repeated Sept. 21, the second equinox of the year.

9. **La Purísima Concepción de Maria Santissima** (CA) - 5 hours 30 min. Map & Web
   Jewel of the CA Missions
   has since been identified with the 19 March feast day of San José (Saint Joseph), the divine consort of the Virgin Mary and the Immaculate Conception, and patron saint to whom this site was originally dedicated.81 Initially, it was identified as an equinoctial site. In reviewing the *Roman Missal*, I found that I presently identified the equinoctial mirror date of 24 September with the Blessed Virgin Mary of Ransom

10. **San Luis Obispo** – unknown

11. **San Miguel Arcángel** – (6 hrs. 45 min from Brawley) Map and Website.
    feast of Saint Francis of Assisi (Oct. 4), illuminations follow on Oct 9 of Tabernacle, Oct 14 St. Michael, Oct 19 St. Anthony

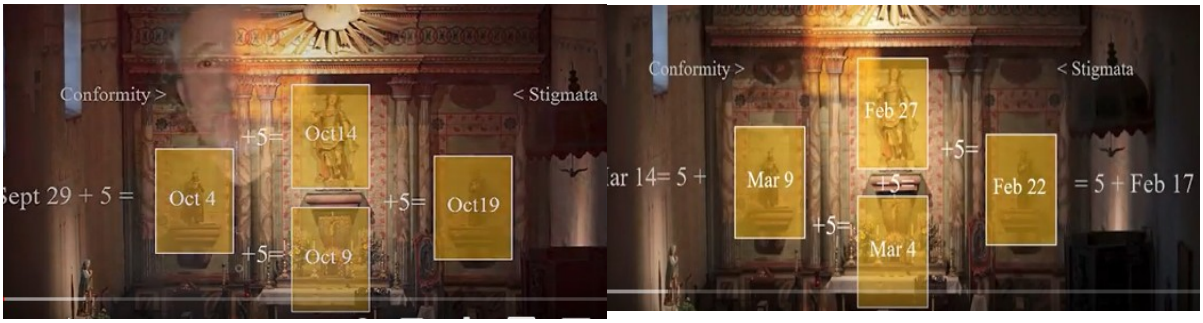
    September 29th feast day of the patronal saint San Miguel Arcángel through to the October 19th illumination of Saint Anthony of Padua and the painted icon of the Stigmata or five wounds of Christ.

    The processional illumination in question is here deemed to constitute a system of kinematic liturgical iconography in that each of the bultos or carved wooden saints of the main altar, and their attendant iconographic equivalents, are precisely illuminated in liturgically significant succession
    through the course of five-day intervals spanning the aforementioned period. Same thing at San Gabriel and prob San Rafael, laid out the same

    September 29th through October 19th; and thereby, the mirrored dates spanning February 22nd through March 9th

    The results obtained were phased or sequenced as follows:
    (a) Where the **October 4th patronal** saint's day illumination of the *bulto* of San Francisco de Asís is concerned (*Phase 1: Autumnal Equinox*), first light at the horizon was recorded at 7:04 am on an azimuth bearing of 104.3° E, with the centered illumination of Saint Francis taking place at 7:28 am on an azimuth bearing of 108.2° E with the sun at an altitude of 16.2° (*Mirror Date: 9 March*);
    (b) the next liturgically significant post-equinoctial illumination was that centered over the tabernacle (*Phase 2: Autumnal Equinox*), precisely five days later, on October 9th. On that day, first light was recorded at 7:09 am on an azimuth bearing of 107.2° E, with the centered illumination of the main altar tabernacle recorded at 7:36 am on an azimuth bearing of 111.5° E with the sun at an altitude of 16.6° (*Mirror Date: 4 March*);
    (c) *Phase 3* (*Autumnal Equinox*) registered five days after the *Phase 2* illumination of the main altar tabernacle, and was recorded on October 14th. First light on the horizon dawned at 7:12 am on an azimuth bearing of 109.0° E, with the *Phase 3* centered illumination of the *bulto* of Saint Michael recorded at 7:26 am on an azimuth bearing of 111.3° E with the sun at an altitude of 13.9° (*Mirror Date: 27 February*); and finally, the kinematic liturgical event at San Miguel culminated five days later with the

(d) *Phase 4* (*Autumnal Equinox*) illumination of the *bulto* of San Antonio de Padua on **19 October.** First light on the horizon was manifest this day at 7:17 am on an azimuth bearing of 111.6° E, with the *Phase 4* centered illumination of the *bulto* of Saint Anthony projected to occur at circa 7:44 am on on a bearing of 115.9° E, with the sun at an altitude of 16.1° (*Mirror Date: **22 February***).[



12. **San Antonio de Padua** – we have not been able to verify this as we usually have foggy mornings in this valley on the solstice days - last one I contacted, northern-most

13. **Nuestra Senora de Soledad**

14. **San Carlos Borromeo in Carmel -** 8 hours 30 min. Map and Website – MS Solstice June 21.
San Carlos Borromeo (36.5428° N 121.9204° W + 13m) constitutes the second site discovered, and in this case, with a midsummer solstice illumination

    21 June, 2012 was was found to be paired with the main altar tabernacle illumination of the moveable Feast of Corpus Christi, movable around 7 June

    Called San Carlos de Monterrey by Fr. Serra or Carmel

    San Carlos Borromeo was found to incorporate a liturgically based solar geometry (figures 12.8–12.9). The solar geometry comprises
    (a) the **first light illumination** of the statue of the Immaculate Conception/Our Lady of Mount Carmel at the **annual dawning of the midsummer solstice sun on 21 and/or** 22 June**;**
    (b) **a tandem first light illumination** of the area immediately above and perpendicular to the **crypt** of the revered Apostle of California, and recently Canonized Saint,San Junípero Serra, O.F.M., founding president of the first nine missions of Alta California;74 and
    (c) the **midsummer solstice illumination** of the gilded main altar tabernacle.
    From the oculus in the main façade of the church, I charted the first light of the midsummer solstice sun as it emerged from the saddle, or midpoint, and illuminated two distant peaks (azimuth of 59.6°).
    The first light at San Carlos Borromeo's midwinter solstice, counterpart of San Juan Bautista, similarly manifests from the saddle between two distinct peaks.
    The illumination of the main altar tabernacle at San Carlos Borromeo occurs by way of the *Mudéjar* styled "*Star of Bethlehem*" **oculus** fixed in the main façade of the northeast-oriented church (figures 12.8–12.9).

Whereas first light manifests itself via the saddle immediately south and next to Jack's Peak shortly after 5:52 AM, with an azimuth of 60.0°, the axial alignment of the solar geometry and the midsummer solstice illumination of the main altar tabernacle occurs at circa **6:34 AM** on an azimuth of 66.0°, with the sun at an altitude of 7.2°.

The illumination of the tabernacle enclosure at the midsummer solstice, therefore, may be interpreted to make up elements within a solar geometry or iconography of light that reenacts the *Passion of Christ*, the *Sol Invictus* (Unconquered Sun), and the *Resurrection of Christ*. The liturgical furnishings deemed central to the midsummer solstice illumination of the altar platform, therefore, are those identified with the *Nativity* (*Star of Bethlehem* and the *bulto* of *Our Lady of Bethlehem*), the *Crucifixion*, and the *Passion of Christ* (the Crucifix, and the fourteen elliptical arches, or Stations, that span the whole of the nave), and the death and resurrection of Christ (*Our Lady of Sorrows*).

-On that date in the lovely Carmel Chapel, the rising sun shines through the Star of Bethlehem window in the front of the Church and makes an intense blaze of light over the altar, shining on the Tabernacle and crucifixion scene in today's carefully restored Mission.

In the 1700s, it was not the crucifixion scene over the altar, but the life-size statue of Our Lady of Bethlehem. What a moving sight that must have been, Our Lady, the Mother of Christ and mankind, engulfed in the golden glow of the light of the sun on the longest day of the year.

Carmel Mission summer solstice

16. **San Juan Bautista** – 8 hours 15 min. Map and Website
feast of Guadalupe Dec. 12 et. al.?
San Juan Bautista has been documented to incorporate a complex liturgically based solar geometry that includes
(a) the WSSR illumination of the main altar tabernacle;
(b) the solstitial meridian or midday illumination – by the 1812 clerestory windows – of the patron saint or *bulto* at the center of the main altar screen;

(c) the Epiphany, or 6 January nativity feast day, illumination of the Epistle (right or northeast) side-altar table once identified with the Christmas season *Nativity* display of the *Three Kings* or *Reyes Magos*, and today used as the side-altar for the *Child of Prague*; and
(d) the staggered and cyclical Epiphany illumination of the *via Crucis*, or *Stations of the Cross*, on the northeast arcade of the church nave.69
The solstitial illumination of the main altar tabernacle, and the Epiphany illumination of the northeast side-altar, and the early nineteenth-century paintings identified with the *Stations of the Cross* provide the basis for interpreting the solar geometry in terms of both a liturgically and an astronomically significant iconography of light.70 Whereas, the first light of 21 December at San Juan Bautista occurs at 7:18 AM on an azimuth of 119.5,° the illumination of the main altar tabernacle enclosure occurs at 7:40 AM on an azimuth of 122.8° with a solar altitude of 3.6º. The illumination of the northeast side-aisle altar table originally identified with the *Nativity* display, and that of the *Stations of the Cross*, are anchored to azimuth approximated at 179.7° (Altitude 29.7°) and 203.8° S (Altitude 25.9°), respectively

17. **Santa Cruz**

18. **Santa Clara**

19. **San José** – 9 hours. Map and Website.
Spring equinox illuminations at Santa Ines and San Jose missions are repeated Sept. 21, the second equinox of the year.
Rebuilt 1935 by Sir Richard Menn expertly.
Rare twilight illumination of altar, people sat on floor, upward 45 degree angle to tabernacle, light was too brilliant to look at, liturgy and sun / solar Christ intersect for a brief moment, sun processes up and dissipates
feast of Saint Joseph (March 19). Equinoctal. Mirror date of March 9
oriented to the west, so post-meridian illuminations on spring and fall equinox

20. **San Francisco** – yes
21. **San Rafael** – must be similar to other two archangels
22. **San Francisco Solano**

TEXAS

1. **Alamo** – no

2. **Mission Espada** / Mission San Francisco de la Espada – 14 hours. Map and Website.
Such solar illuminations take place two other times in the year at Mission Concepción.
They also occur at Mission Espada
The Church faces west
A solar event at Mission Espada is said to occur each year on Oct. 4, the feast of St. Francis of Assisi, when morning daylight illuminates the wall behind the altar through a small window above the entry door.

In San Antonio, Texas, the diminutive chapel at San Francisco de Espada aligns with an equinoctial azimuth of 96.3°, and the first light to enter the chapel does so by an illumination that fully frames the wooden *bulto* of Saint Francis on the patron Saint's Day of 4 October.
On March 9th (mirror) on the Feast of a female St Francis (St. Frances of Rome mystic died 1440), the illumination effect returns to Espada. ???
Other dates similar to Concepcion?. Equinox site.

3. **Mission Concepcion** – 14 hours. Map and Website.
Air Fares to SAT ($200+). Fares to DAL ($150+) 4.5 hr drive through German country. August 15 double solar illumination that takes place at 6;30pm (Feast of the Assumption). This year we will have Fr David Garcia do a presentation at 6:00pm explaining its significance and then a Mariachi Mass at 7:00pm. Deacon Ray

Contact George Dawson gdawson@idworld.net – NV?

It may be more dramatic still on September 20 or later (depending on how clear the western horizon is), when the sun will be almost setting and the color of its light is a golden-red.

19 March feast day of San José illumination

one of the most complex solar arrays on record for the American Southwest.
Dawson's 2004 findings:
(a) the 6:29 PM illumination of the midpoint of that portion of the floor immediately beneath the center of the fifty-four-foot high dome (transept – cruciform, i.e. center of the Cross) coincides with the **15 August** Feast of the Assumption;
(b) at 7:02 PM on **29 August** 2003, Dawson documented the illumination of the portion of the main altar, identified as the former tabernacle placement; and significantly, concluded that
(c) an *analemma* (infinity symbol or figure eight) light array manifests within the church sanctuary, and its juncture coincides with **29 August, and its mirror date of 13 April**; according to Dawson, where the light of the analemma is concerned, "the tip of the small end is **December 21**, the Winter Solstice. The tip of the large end is **June 21**, the Summer Solstice. **The 'waist' or crossing point of the analemma is two dates – August 29 and April 13.**" Last Judgment illuminations, only two identical days

Light also is known to shine through the occula and onto the main altar April 13 and Aug. 29, and through one of the four small windows atop the church's 54-foot-high dome, crossing the north altar on Dec. 8, the feast of the Immaculate Conception; Dec. 12, the feast of Our Lady of Guadalupe; and Dec. 21, the winter solstice. Link.

4. **Mission Espiritu Santo** in Goliad State Park – 15 hours. Map and Website.
also is said to experience a solar illumination in mid-April. Mendoza: Goliad State Park, otherwise known as *Mission Nuestra Señora del Espíritu Santo de Zúñiga*, Aranama Mission, or Mission La Bahía. The latter takes place on or about April 1st at sunset. This varies slightly

over the course of the 18.6 year cycle that co-varies with the lunar calendar and the moveable feasts of the Catholic church.

ARIZONA

Xavier del Bac – feast day illumination on 12/3

LOUISVILLE, KY. Map and Website. 4 hours from STL

St. Louis Bertrand Church

The 'Light of Truth' (blue-green circle of light, cast by the 'Veritas' winow) illuminating the top of the baldachino, on March 18, at about quarter of 9 AM.

The 'Light of Truth' illuminating the aisle near the back of church, on June 17. This sequence of photos shows the blue-green circle moving across the aisle in the minutes prior to 10:30 AM. The light actually reached the center of the aisle for the 'Moment of Truth' at just about 10:30 AM

Between the 18th of March and the 17th of June, with each passing day the point at which the blue-green circle of light cast by the 'Veritas' window strikes the baldachino moves a little lower, and then walks down the aisle toward the back of church. The March 18 position is indicated by the pink arrow, the June 17 by the green.

MISC
Twice a year a magical event takes place at the Palma cathedral, La Seu, in Majorca, Spain. The home of the Blessed Fray Junípero Serra, this phenomenon leaves little doubt that Fray Junípero was aware of this phenomenon, and this site very likely influenced Fray Serra's introduction of solar geometry into the missions of Alta California.

The winter solstice, coinciding with both the ancient Roman festival of Sol Invictus (unconquered sun) and the Christian birth of Christ, heralded the shortest and darkest time of the year. For the California Indian, it presaged fears of the impending death of the sun. At no time was the sun in the church more powerful than on that day each year, when the birth of Christ signaled the birth of hope and the coming of new light into the world.
https://www.aol.com/news/sacred-light-darkness-winter-solstice-183948969.html
three hours and 22 minutes.
On December 21st the shortest day of the year.
The midwinter solstice celebrates the end of winter, the end of the dark times, the coming of Spring, coming of light, the coming of the sun, of Christ, of Resurrection and Salvation. George Dawson