Mayan Archeoastronomy

http://www.astronomy.pomona.edu/archeo/yucatan/ca-yucatan.html
http://www.uiowa.edu/~anthro/webcourse/lost/projects97/Archae.html

Prior to the Maya rising to power circa 400 AD in Central America and Mexico, there is evidence that the Olmec people had already begun to use astronomical orientations to direct the layout of several ceremonial centers, with the Pyramids of the New World oriented to observing and predicting the motions of the Sun and Mon. As with the Egyptians, we can deduce that Mayan astronomical endeavors, heavily relied upon the ritual and ceremonial worlds of the culture, however, here we have a wealth of evidence to substantiate such claims. Left behind are codices, or systems of hieroglyphic recordings of the Maya, and which include celestial sightings and how these sightings and predictions are woven into the entire cultural complex. The Dresden Codex has perhaps proved the most fruitful in helping to recreate the ancient environment, and containing an elaborate calendar used to record the observations of Venus, which seems to be an object of utmost importance to them. Working with both a solar calendar and a ritual calendar, the ancient Maya imparted much meaning in the helical rising of Venus, which is made evident in the structure of several ceremonial centers throughout the area. Unlike the Megalithic and Egyptian complexes, scientific observation can be better deciphered here, because of the elaborate records left behind, and because of the fact that so many of the deductions the Maya made so closely resemble recent calculations of the same recorded cycles.

Like the Egyptians, the Maya had devised two calendars, one solar and one ritual, which interacted and depended upon one another for the dictation of certain ritual events to be carried out. The sky for the Maya was a seeming personification of Gods and deities who played important roles in the daily lives of the population. Most significantly, the relationship between the Sun and Venus (talked about previously in the helical rising, conjunction, phases) was representative of Kutaikcan, the God of Venus , and "symbolizes the cyclic myth of departure and return or death and resurrection." (Aveni 1984). In addition other objects may have been tracked in order to predict certain 'natural' phenomenon in accordance to seasonal changes therefor placing major importance on the accurate predictions undertaken to better predict the earthly events thought to be under the control of the Gods.

A great many structures are indicative of the devotion to and dependence upon Venus, to the Maya, and can be found in the architecture ceremonial centers throughout the region. Caracol, at Chichen Itza sits atop a large earthen mound and is a structure obviously intended for observing Venus at its most extreme points on the horizon. Just as famous, is the Governor's Palace at Uxmal, constructed so that it would center on the helical rising of Venus at its southernmost point during the eight year cycle it follows. Such an alignment can be further substantiated by the fact that the Palace deviates from the remainder of the buildings at Uxmal by twenty degrees, indicating the care taken to insure the sight lines of the observation windows (Shawcross 1985). The careful planning inherent in the design and building of such structures is

made evident in the precision of their alignments, however this precision was indispensable to the planning of ritual events and the prediction of natural processes that so dictated the lives of the Maya

The Maya Calendar

The Maya developed a sophisticated calendar. The ritual calendar that developed in Mesoamerica used a count of 260 days. This calendar gave each day a name, much like our days of the week. There were 20 day names, each represented by a unique symbol. The days were numbered from 1 to 13. Since there are 20 day names, after the count of thirteen was reached, the next day was numbered 1 again. The 260-day or sacred count calendar was in use throughout Mesoamerica for centuries, probably before the beginning of writing.

Maya Day Names & Approximate Meanings			
Imix	Waterlily	**Chuwen**	Frog
Ik'	Wind	**Eb**	Skull
Ak'bal	Night	**Ben**	Corn stalk
K'an	Corn	**Ix**	Jaguar
Chikchan	Snake	**Men**	Eagle
Kimi	Death head	**Kib**	Shell
Manik'	Hand	**Kaban**	Earth
Lamat	Venus	**Etz'nab**	Flint
Muluk	Water	**Kawak**	Storm cloud
Ok	Dog	**Ahaw**	Lord

The Maya also tracked a vague solar year in which they counted 365 days per year. Because they could not use fractions, the "quarter" day left over every year caused their calendar to drift with regard to the actual solar year. The 365-day year contained months were also given names. numbers 0-19 before they changed, so that the count goes Zero Pohp to 19 Pohp, then continues with Zero Wo.

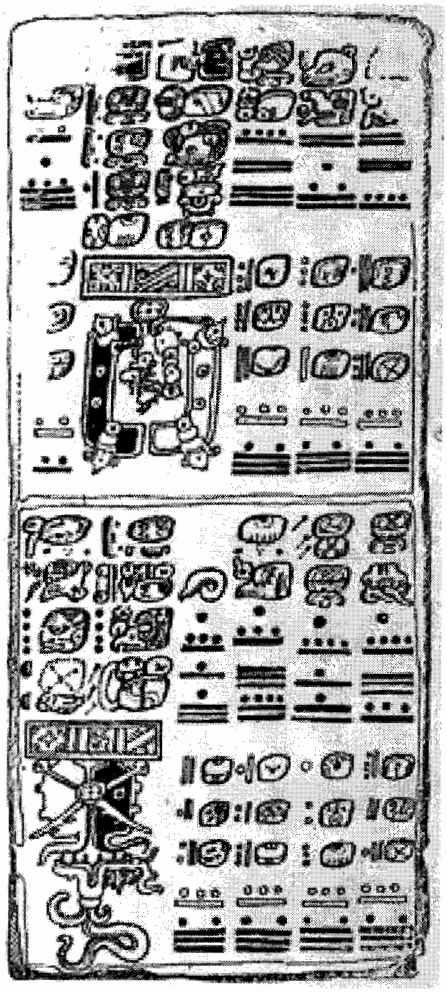
days in the month "Pohp"

0-17 Months
0-19 Days

	Month Names and Approximate Meanings				
0	**Pohp**	Mat	9	**Yax**	Green ??
1	**Wo**	??	10	**Zak**	White ??
2	**Sip**	??	11	**Keh**	Red ??
3	**Sotz'**	Bat	12	**Mak**	??
4	**Sek**	??	13	**K'ank'in**	??
5	**Xul**	Dog	14	**Muwan**	Owl
6	**Yaxk'in**	New Sun	15	**Pax**	??
7	**Mol**	Water	16	**K'ayab**	Turtle
8	**Ch'en**	Black ??	17	**Kumk'u**	??

← 18 months

To the eighteen regular months the Maya appended a special five-day month called Wayeb composed of 5 days which were considered unnamed and unlucky. Thus the days were counted: One Imix, Zero Pohp, Two Ik, One Pohp. When the thirteenth day was reached the next day was Thirteen Ben, Twelve Pohp; then One Ix, Thirteen Pohp, Two Men, Fourteen Pohp. After Seven Ahaw, Nineteen Pohp, the next day was Eight Imix, Zero Wo.



Dresden Codex

Mayan Pyramid – Many used as platforms for astronomical observation, particularly of Venus