S a r o s   1 3 6

Orthographic projection centered
at 26° North, 22° East

Orthographic projection centered
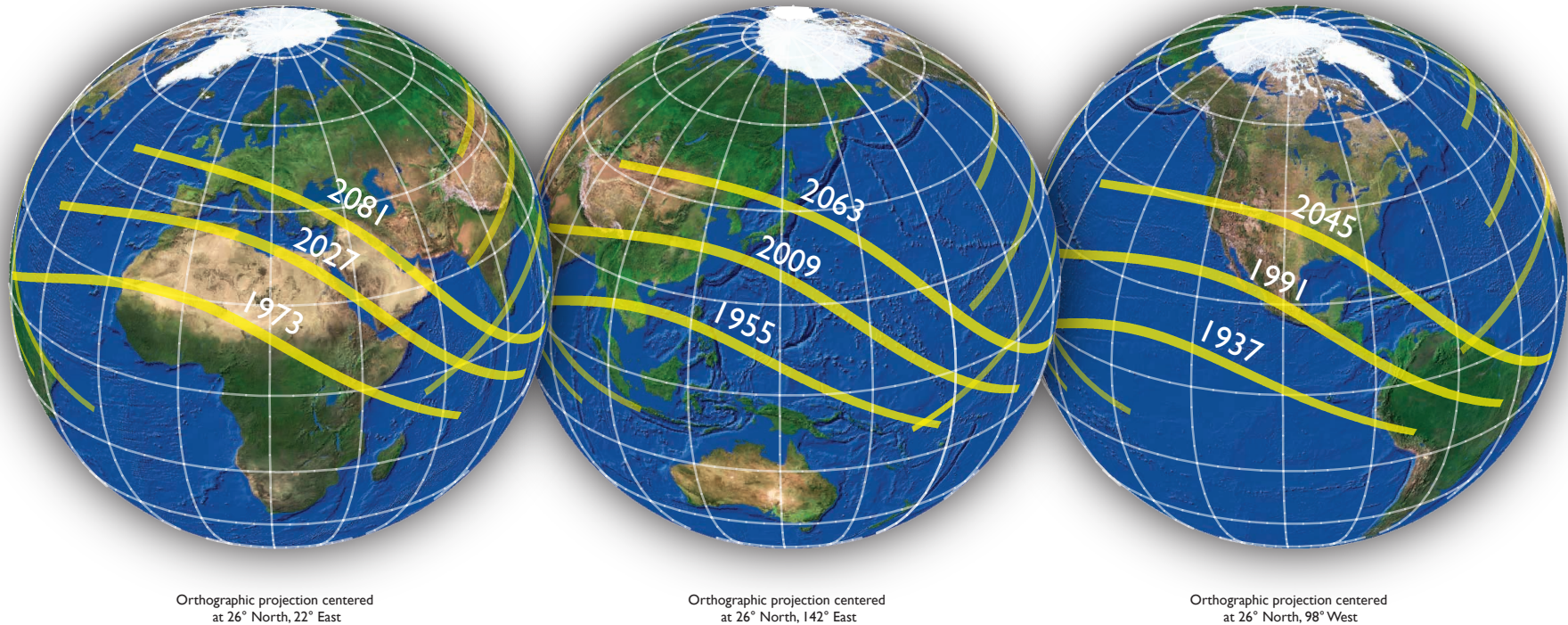at 26° North, 142° East

Orthographic projection centered
at 26° North, 98° West

← Each eclipse path shifts ~120° west of the previous one.

The periodicity and recurrence of solar (and lunar) eclipses is governed by the Saros cycle, a period of about 18 years 11 days 8 hours. When two eclipses are separated by a period of one Saros, they share a very similar geometry. The two eclipses occur at the same node with the Moon at nearly the same distance from Earth and at the same time of year. Thus, the Saros is useful for organizing eclipses into families or series. Each series typically lasts 12 to 13 centuries and contains 70 or more eclipses. Every Saros series begins with a number of partial eclipses near one of Earth's polar regions. The series will then produce several dozen central eclipses before ending with a group of partial eclipses near the opposite pole.

Saros series 136 is of particular interest because it is currently producing the longest total solar eclipses of the 20th and 21st centuries. Nine solar eclipses from Saros 136 are plotted above for the years 1937 through 2081. The westward ~120° shift of each eclipse path is a consequence of the extra 8 hours in the length of the Saros period. The northward shift of each path is due to the progressive motion of the Moon with respect to its descending node at each eclipse.

Saros 136 will produce 71 eclipses over 1262 years in the following order: 8 partial, 6 annular, 6 hybrid, 44 total, and 7 partial.

For more information on Saros cycles, visit http://eclipse.gsfc.nasa.gov/SEsaros/SEperiodicity.html

Map illustration by Michael Zeiler
Paths of totality from eclipse calculator by Xavier Jubier
Eclipse predictions by Fred Espenak, NASA Goddard Space Flight Center