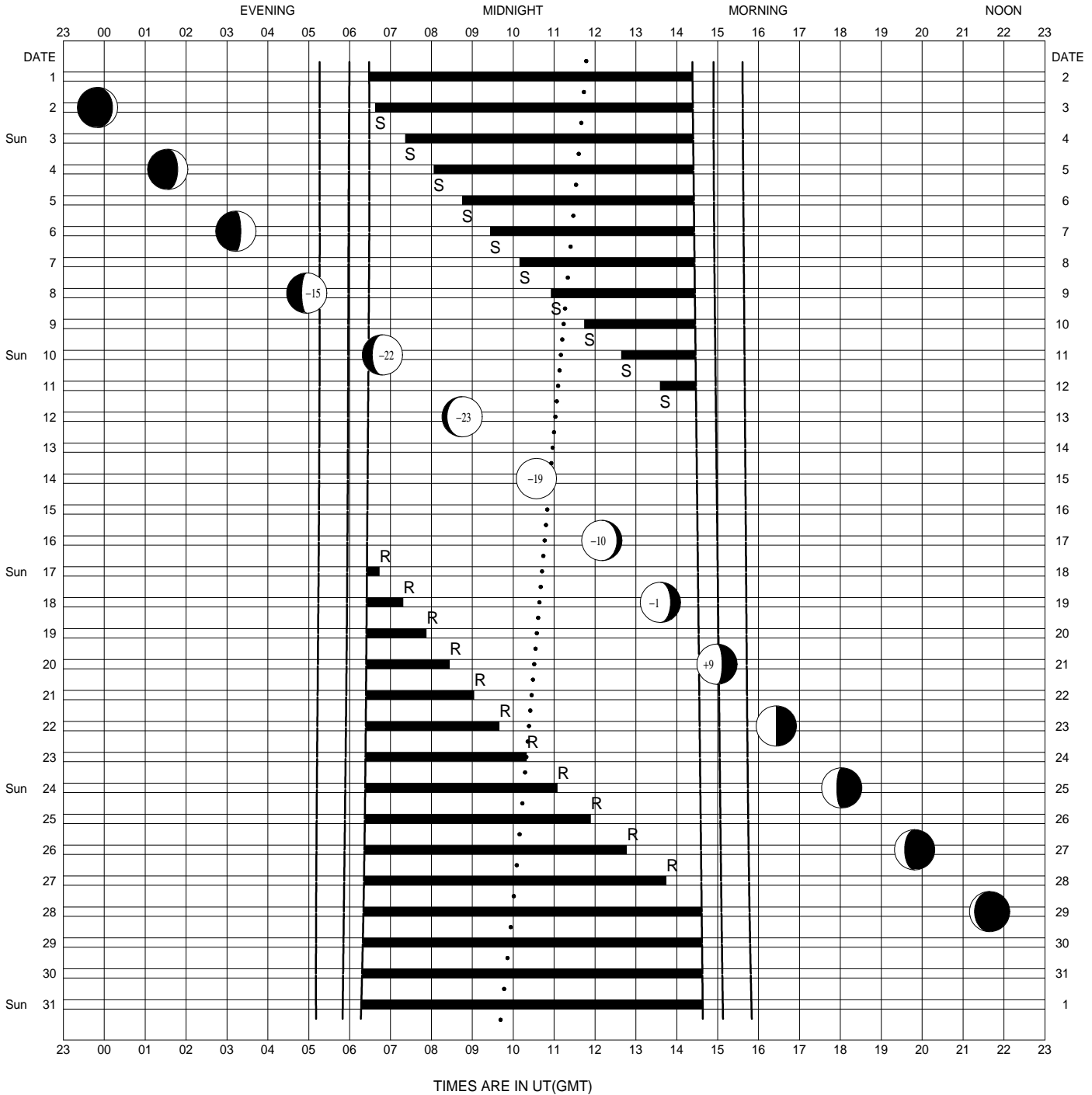


DAYLIGHT AND MOONLIGHT DIAGRAM

JULY 2011

Mauna Kea - Hawai'i

LONGITUDE W 155° 28'
LATITUDE N 19° 50'



TIMES ARE IN UT(GMT)

At night, in the shaded region, the Moon is below the horizon; the Moon rises at R and sets at S.

At Moon upper transit, phases including declination near full phase are given.

The dotted line near midnight is LST = 20h. The outer curves are lines of sunset and sunrise.

The inner curves are lines of evening and morning nautical twilight.

The innermost curves are lines of evening and morning astronomical twilight.