

Lunar Phases, Changing Distances, and Librations

All slides are set for 12:01 a.m.
24 hours apart.

This series of phases was created when Earth was near aphelion, farthest from the sun.

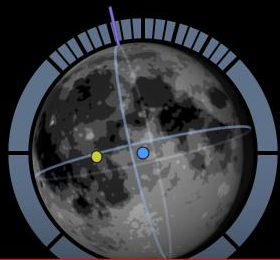
Moon Phases 2019 - Northern Hemisphere - 4K



Moon Phases 2019 Including Libration and Position Angle



Earth



Moon's distance from Earth
in Earth diameters



Angular diameter of the
moon in seconds of arc

Time	21 Apr 2019 08:00 UT
Phase	95.4% (15d 23h 09m)
Diameter	1902.6 arcseconds
Distance	376703 km (29.56 Earths)
Position	15h 35m 28s, 15° 01' 55" S
Subsolar	1.522° S 18.742° W
Sub-Earth	5.408° S 5.777° E
Pos. Angle	12.723°

▶ ⏮ 🔊 1:28 / 5:00

Settings

**Western
Libration**

**Eastern
Libration**

Reference
Mare Crisium

Reference
Rimae Riccioli
(dark)
Reference
Grimaldi

Librations



Day 01



Day 02



Day 03



Day 04



Day 05



Day 06



Day 07



Day 08



Day 09



Day 10



Day 11



Day 12



Day 13



Day 14



Day 15



Day 16



Day 17



Day 18



Day 19



Day 20



Day 21



Day 22



Day 23



Day 24



Day 25



Day 26



Day 27



Day 28



Day 29



Day 30



Day 31



Day 32



Day 33



Day 34



Day 35



Day 36



Day 37



Day 38



Day 39



Day 40



Day 41



Day 42



Day 43



Day 44



Day 45



Day 46



Day 47



Day 48



Day 49



Day 50



Day 51



Day 52



Day 53



Day 54



Day 55



Day 56



Day 57



Day 58



Day 59



Day 60



Day 61



Day 62



Day 63



Day 64



Day 65



Day 66



Day 67



Day 68



Day 69



Day 70



Day 71



Day 72



Day 73



Day 74



Day 75



Day 76



Day 77



Day 78



Day 79



Day 80



Day 81



Day 82



Day 83



Day 84



Day 85



Day 86



Day 87



Day 88



Day 89



Day 90



Day 91



Day 92



Day 93



Day 94



Day 95



Day 96



Day 97



Day 98



Day 99



Stop

Lunar Phases, Changing Distances, and Librations

All slides are set for 12:01 a.m.
24 hours apart.

This series of phases was created when Earth was near perihelion, closest to the sun.

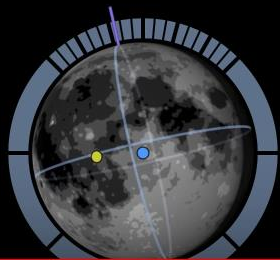
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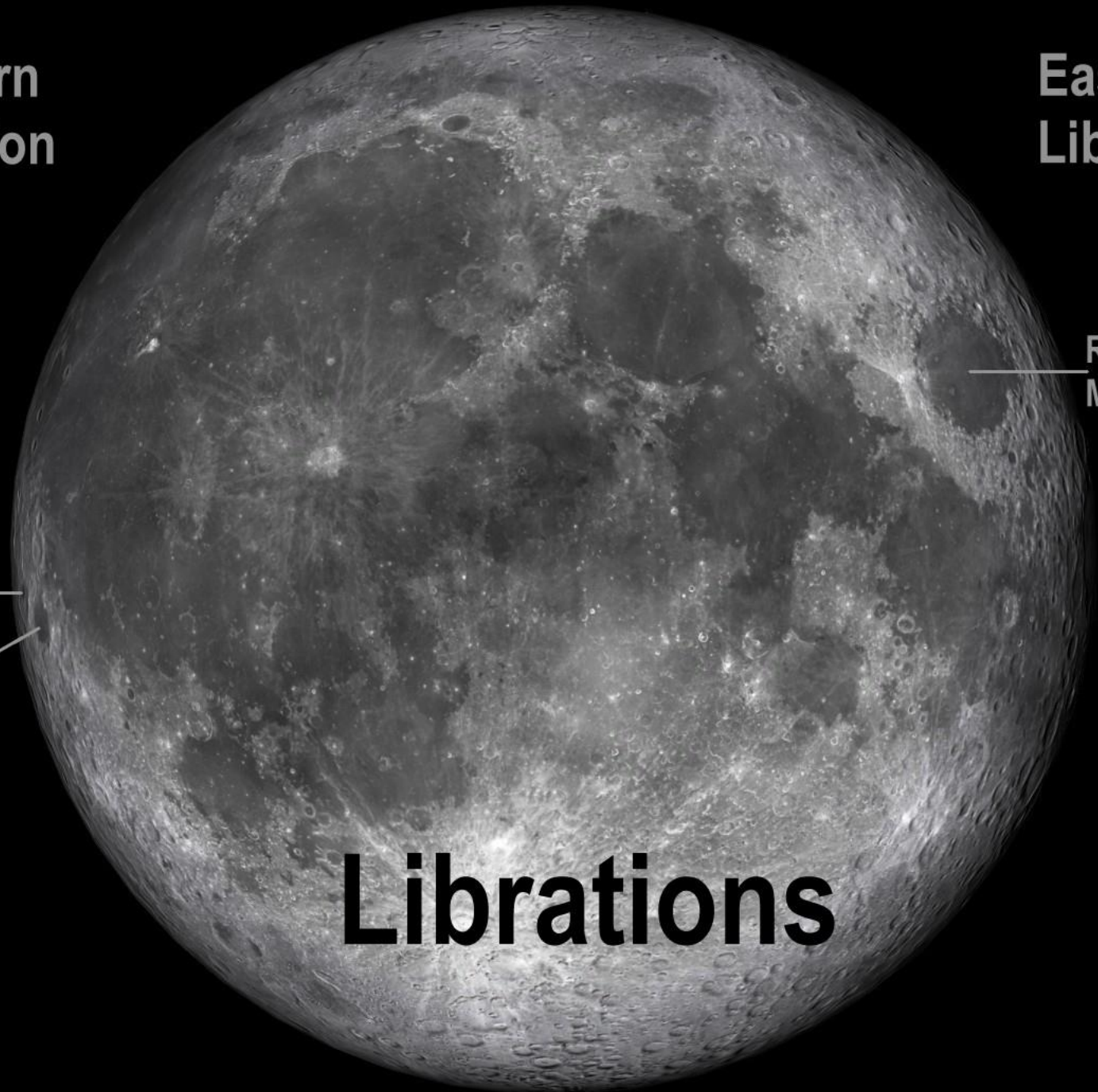
**Western
Libration**

**Eastern
Libration**

Reference
Mare Crisium

Reference
Rimae Riccioli
(dark)
Reference
Grimaldi

Librations



Day 100



Day 101



Day 102



Day 103



Day 104



Day 105



Day 106



Day 107



Day 108



Day 109



Day 110



Day 111



Day 112



Day 113



Day 114



Day 115



Day 116



Day 117



Day 118



Day 119



Day 120



Day 121



Day 122



Day 123



Day 124



Day 125



Day 126



Day 127



Day 128



Day 129



Day 130



Day 131



Day 132



Day 133



Day 134



Day 135



Day 136



Day 137



Day 138



Day 139



Day 140



Day 141



Day 142



Day 143



Day 144



Day 145



Day 146



Day 147



Day 148



Day 149



Day 150



Day 151



Day 152



Day 153



Day 154



Day 155



Day 156



Day 157



Day 158



Day 159



Day 160



Day 161



Day 162



Day 163



Day 164



Day 165



Day 166



Day 167



Day 168



Day 169



Day 170



Day 171



Day 172



Day 173



Day 174



Day 175



Day 176



Day 177



Day 178



Day 179



Day 180



Day 181



Day 182



Day 183



Day 184



Day 185



Day 186



Day 187



Day 188



Day 189



Day 190



Day 191



Day 192



Day 193



Day 194



Day 195



Day 196



Day 197



Day 198



Day 199



Day 200



Day 201



Day 202



Day 203



Day 204



Day 205



Day 206



Day 207



Day 208



Day 209



Day 210



The End