MoonMagic

Beautiful Moon Images from NASA

MoonMagic is a FREE program. Donation of $10 is requested but not required. All features are enabled. No time limit. No advertising. No spyware. No nag screens.

Your PC must be connected to the internet. All images are downloaded from the NASA web site. There is one Moon image for every hour of 2024, for a total of 8,784 images totaling over 100 gigabytes.

The LEFT SIDE shows the Moon altitude in degrees above the horizon for that day. The moon is shown rotated by the parallactic angle seen at your latitude and longitude.

The RIGHT SIDE shows the Moon phase and libration (wobble), or one of 4 other views. Click the Rotate Parallactic checkbox to turn rotation on and off.

Click on the calendar (or one of the buttons) to change the day or hour. All views are on the hour. NASA does not provide fractional hour views.

Be sure to try the ANIMATE MOON checkbox to set the moon in motion. You can adjust the animation speed by changing the HOURS PER STEP dropdown from 1 hour to 24 hours per step.

Use the SHOW dropdown to select one of FIVE viewing options: Moon, Chart Horizontal, Orbit, Globe, Chart Vertical.

MoonMagic v1.0.0.0
File   Action   Set   About

90.00°
72.00°
54.00°
39.29° SW
36.00°
18.00°
0.00°
-18.00°
-36.00°
-54.00°
-72.00°
-90.00°

04:00   06:00   08:00   10:00   12:00   14:00   16:00   18:00   20:00   22:00

Parallactic Rotated 21.0° CW   Blue = Position Angle

Download   **Home**   **Donate**

Show - Pick one of 5 dropdown options: Moon, Chart Horizontal, Orbit, Globe, or Chart Vertical.

Previous   Now   Next

☐ Animate Moon   ☐ Reverse Animate
Show: Hours per Step:
Moon ⌄   1 ⌄

☑ Moon
☐ Chart H   ☐ Show Data
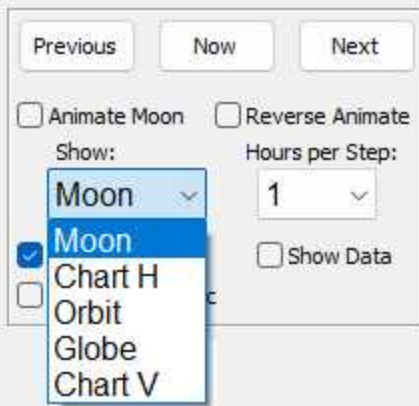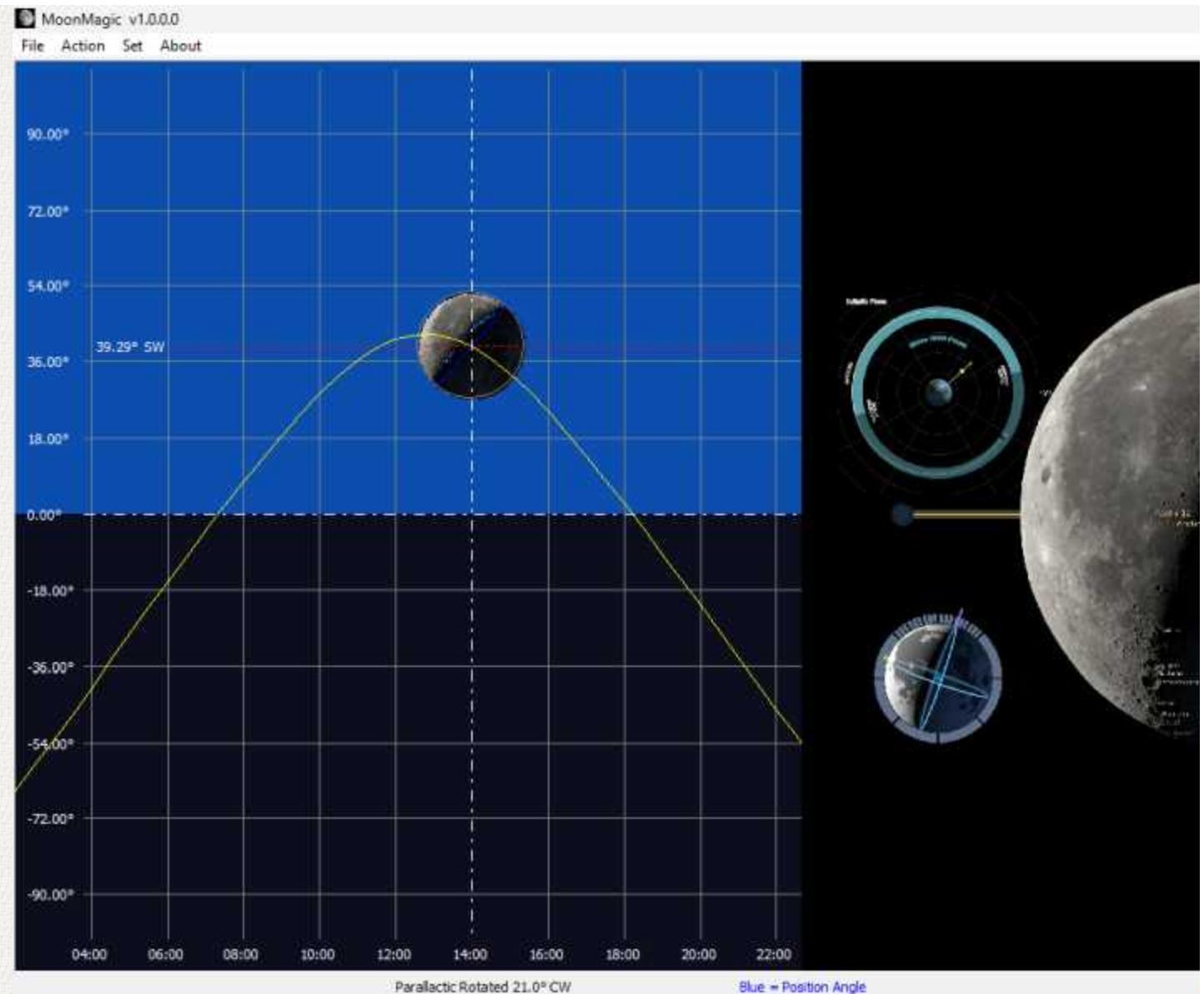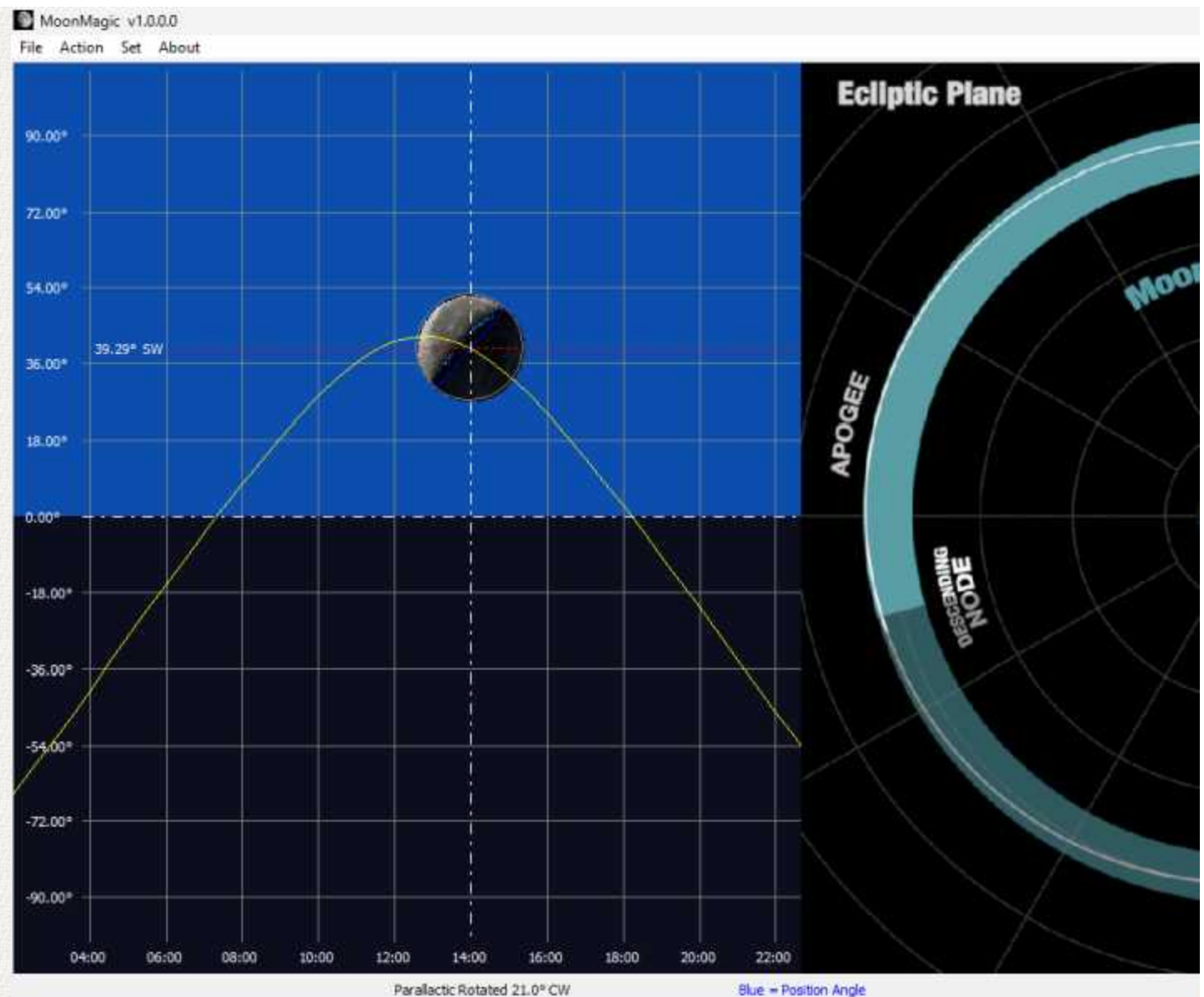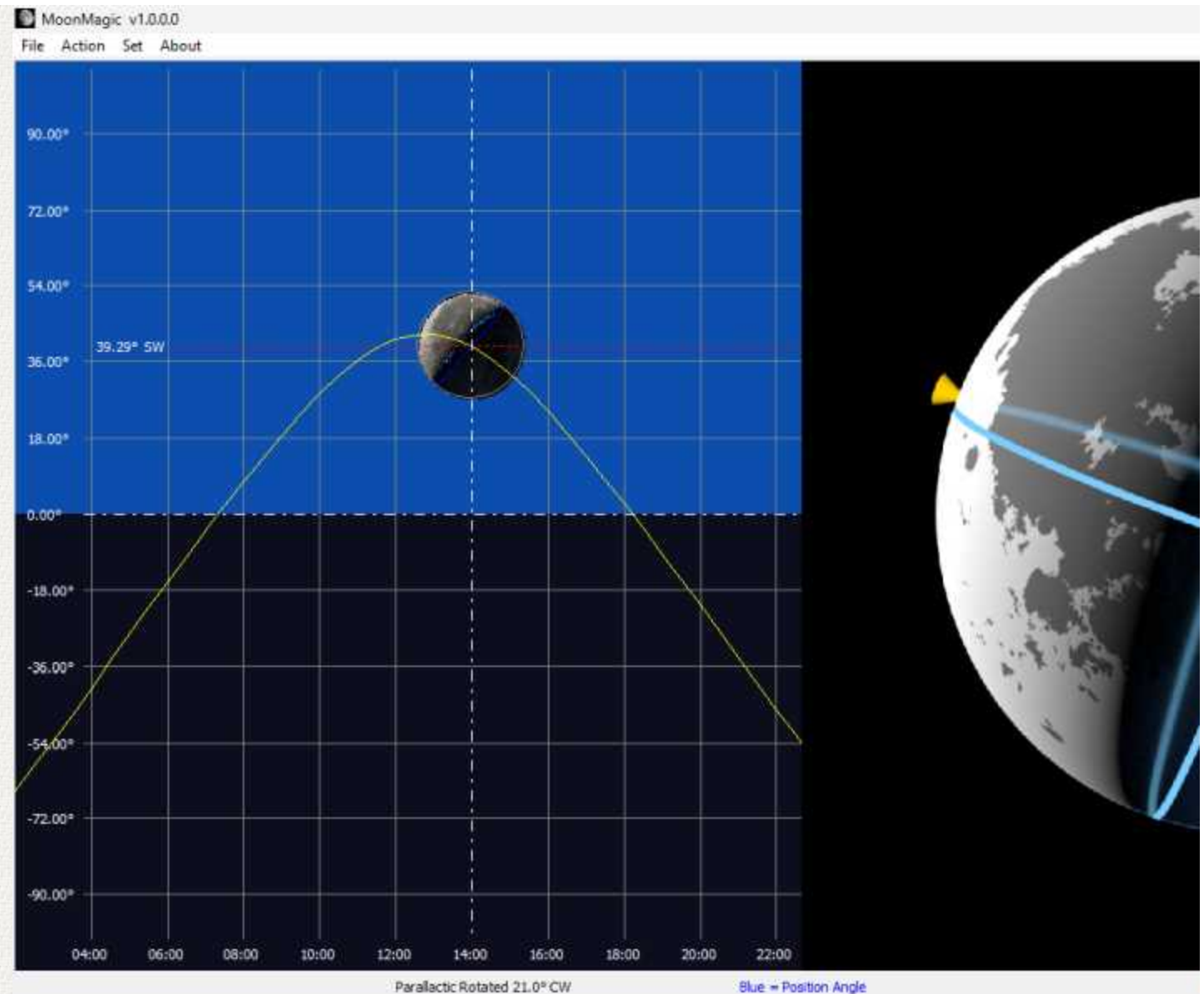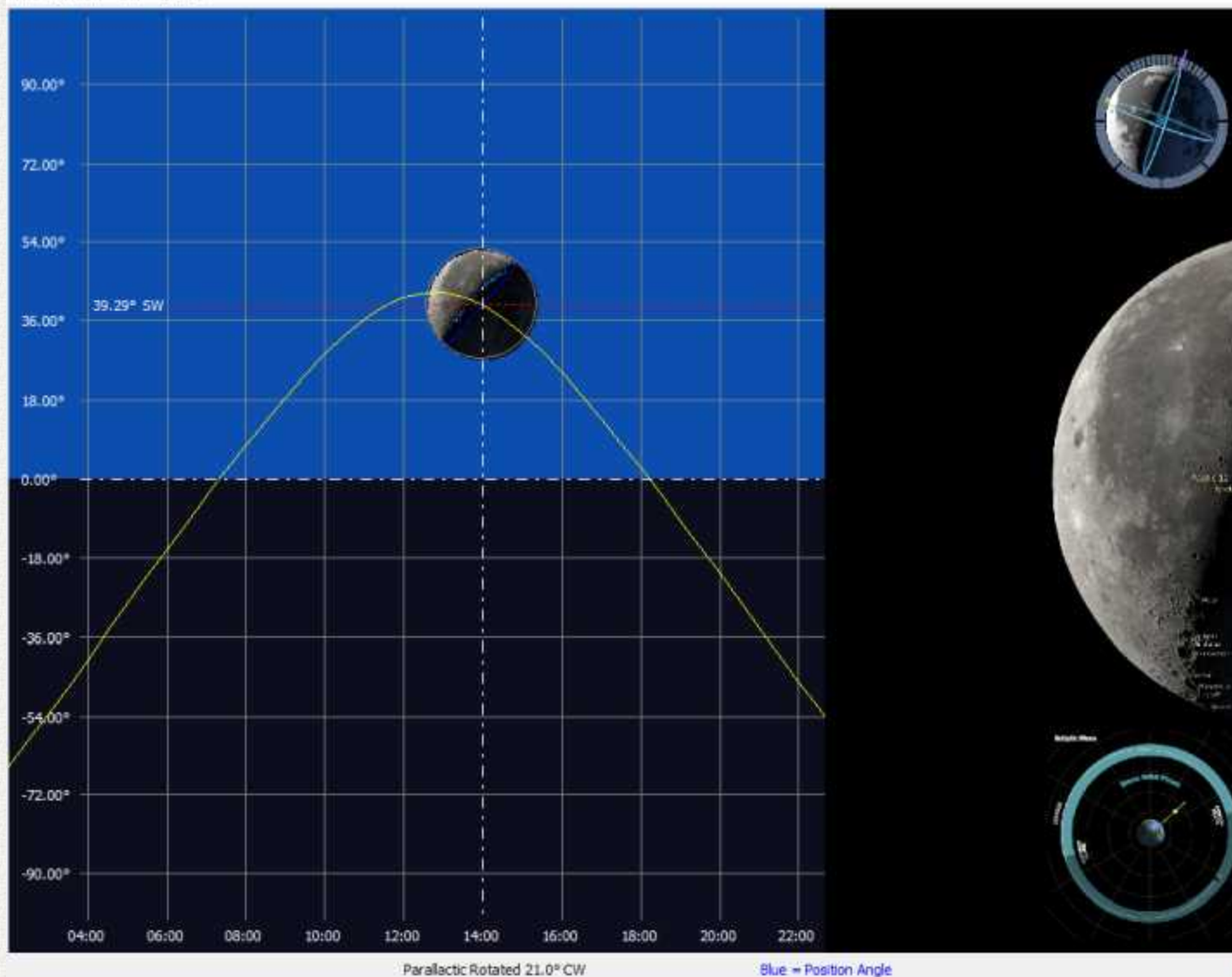Orbit
Globe
Chart V

Chart Horizontal : Shows the Moon's orbit, subsolar and sub-Earth points, and the Moon's distance from Earth at true scale.

Craters near the terminator are labeled, as are Apollo landing sites maria (seas) and other albedo (reflective) features in sunlight.

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File   Action   Set   About

90.00°

72.00°

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36.00°

18.00°

0.00°

-18.00°

-36.00°

-54.00°

-72.00°

-90.00°

04:00   06:00   08:00   10:00   12:00   14:00   16:00   18:00   20:00   22:00

Parallactic Rotated 21.0° CW   Blue = Position Angle

Ecliptic Plane

_____

Orbit : The orbit of the Moon viewed from the north pole of the ecliptic with the vernal equinox to the right. The sizes of the Earth and Moon are exaggerated.

MoonMagic v1.0.0.0
File Action Set About

Ecliptic Plane

90.00°
72.00°
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36.00°
18.00°
0.00°
-18.00°
-36.00°
-54.00°
-72.00°
-90.00°

04:00   06:00   08:00   10:00   12:00   14:00   16:00   18:00   20:00   22:00

Parallactic Rotated 21.0° CW   Blue = Position Angle

APOGEE
DESCENDING NODE
Moo[n]

Globe : A diagram of the subsolar and sub-Earth points. The Moon's north pole, equator, and meridian are indicated.

MoonMagic v1.0.0.0
File Action Set About

90.00°
72.00°
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36.00°
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-54.00°
-72.00°
-90.00°

04:00 06:00 08:00 10:00 12:00 14:00 16:00 18:00 20:00 22:00

Parallactic Rotated 21.0° CW

Blue = Position Angle

Chart Vertical : Shows the Moon's orbit, subsolar and sub-Earth points, and the Moon's distance from Earth at true scale.

Craters near the terminator are labeled, as are Apollo landing sites maria (seas) and other albedo features in sunlight.

This vertical view is designed for display on a smartphone.

90.00°

72.00°

54.00°

39.29° SW

36.00°

18.00°

0.00°

-18.00°

-36.00°

-54.00°

-72.00°

-90.00°

04:00   06:00   08:00   10:00   12:00   14:00   16:00   18:00   20:00   22:00

Parallactic Rotated 21.0° CW   Blue = Position Angle

Controls

Control Panel 1

Previous | Now | Next

☐ Animate Moon   ☐ Reverse Animate

Show: Hours per Step:

[Moon ⌄]   [1 ⌄]

Dropdown (Show):
- **Moon**
- Chart H
- Orbit
- Globe
- Chart V

☑ (checkbox)   ☐ Show Data
☐

Control Panel 2

Previous | Now | Next

☐ Animate Moon   ☐ Reverse Animate

Show: Hours per Step:

[Moon ⌄]   [1 ⌄]

Dropdown (Hours per Step):
- **1**
- 2
- 3
- 4
- 5
- 6

☑ Show Lines
☐ Rotate Parallactic

Previous Button - Move backwards in time by Hours Per Step. Hours Per Step = 1 to 24 Hours. Animation also moves by Hours Per Step.

Now Button - Move to whole number hour nearest to current local time. NASA provides image for

each hour.

Next Button - Move forward in time by Hours Per Step. Hours Per Step = 1 to 24 Hours.

Animate Moon - Check box to run animation. Uncheck to stop.

Reverse Animate - Run animation in reverse.

Show - Dropdown to pick one of 5 views on the right.

Hours Per Step - Dropdown to pick from 1 to 24 hours for each step of the animation and Previous/ Next buttons.

Show Lines - Check box to show the centerlines on the moon.

Show Data - Check box to show the moon text data for each step.

Rotate Parallactic - Check box to show the RIGHT moon rotated by the parallactic angle at your latitude. Uncheck the box for a smoother animation. The LEFT moon is always parallactic rotated.

Parallactic Rotation
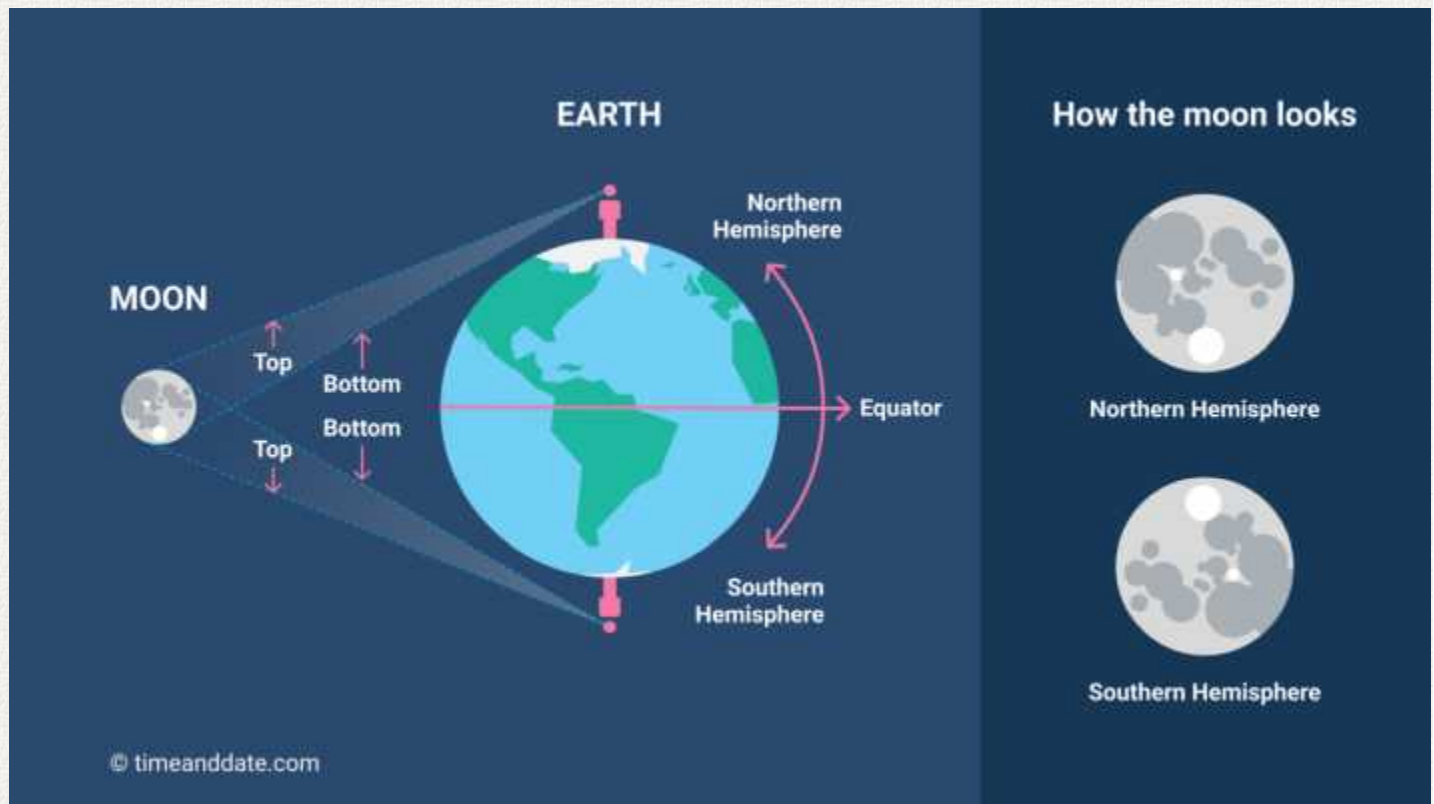
Say you are at the north pole, and the bright side of the moon is on the left. If you were at the south pole, the bright side would be on the right.

The image of the moon rotates 180 degrees as you move from one pole to the opposite pole.

But if you were near the equator, the moon at 1 degree north latitude looks about the same as the moon at 1 degree south latitude.

The image of the moon rotates 90 degrees as you move from the north pole to the equator.

The image of the moon rotates 90 degrees, but in the opposite rotation direction, as you move from the south pole to the equator.

The sum of these 2 rotations is 180 degrees.

This apparent rotation of the moon at different latitudes is called Parallactic Rotation . Most images you see of the moon do NOT include parallactic rotation. To present an image with parallactic rotation, you must know the latitude of the observer. It is easier to just show the same image to everyone. The image is then correct, but does not include parallactic rotation.

Also See: Is the Moon Upside-Down in the Opposite Hemisphere?

Full Year Data

Text file with one line of data for each hour for entire year. 366 days x 24 hours = 8,784 lines of data. (Only 13 lines shown here.)

```
    Date       Time    Phase   Age    Diam    Dist     RA       Dec      Slon      Slat
01 Jan 2024 00:00 UT  78.03  19.019  1771.3  404634  10.5867  12.7508   -55.867   -1.55
01 Jan 2024 01:00 UT  77.71  19.061  1771.2  404664  10.6172  12.5390   -56.372   -1.55
01 Jan 2024 02:00 UT  77.38  19.103  1771.0  404692  10.6476  12.3265   -56.878   -1.55
01 Jan 2024 03:00 UT  77.06  19.144  1770.9  404718  10.6780  12.1132   -57.384   -1.55
01 Jan 2024 04:00 UT  76.73  19.186  1770.8  404742  10.7083  11.8993   -57.890   -1.55
01 Jan 2024 05:00 UT  76.39  19.228  1770.7  404763  10.7385  11.6846   -58.396   -1.55
01 Jan 2024 06:00 UT  76.06  19.269  1770.6  404783  10.7687  11.4693   -58.902   -1.55
01 Jan 2024 07:00 UT  75.73  19.311  1770.6  404801  10.7988  11.2533   -59.408   -1.55
01 Jan 2024 08:00 UT  75.39  19.353  1770.5  404817  10.8289  11.0367   -59.914   -1.55
01 Jan 2024 09:00 UT  75.06  19.394  1770.4  404831  10.8589  10.8195   -60.420   -1.55
01 Jan 2024 10:00 UT  74.72  19.436  1770.4  404843  10.8889  10.6016   -60.926   -1.55
01 Jan 2024 11:00 UT  74.38  19.478  1770.3  404853  10.9189  10.3831   -61.432   -1.55
01 Jan 2024 12:00 UT  74.04  19.519  1770.3  404861  10.9488  10.1640   -61.938   -1.55
01 Jan 2024 13:00 UT  73.69  19.561  1770.3  404867  10.9786   9.9443   -62.444    1.55
```

Phase = Percent of Full Moon (Top Line above = 78.03 = 78.03 Percent Full)

Age = Age of Moon in Days (Top Line above = 19.019 = 19 Days 0 Hours 27 Minutes)

Diam = Diameter of Moon in ArcSeconds

Dist = Distance to Moon in KiloMeters

RA = J2000 Right Ascension in Hours

Dec = J2000 Declination in Degrees

Slon = Sub-Solar Longitude in Degrees

Slat = Sub-Solar Latitude in Degrees

Elon = Sub-Earth Longitude in Degrees

Elat = Sub-Earth Latitude in Degrees

AxisA = Position Angle of the Moon's bright limb in Degrees.

Install

Download the executable moonmagic.exe and then just run the program.

Select SET on the top main menu, or right-click, to set your location to get correct values for Moon: rise, set, altitude, azimuth, and parallactic rotation. Click on the Latitude and Longitude Finder text link to lookup your latitude and longitude online. Most phones have GPS that can show your latitude and longitude. On Apple iPhone 14 this is located in the Compass app.
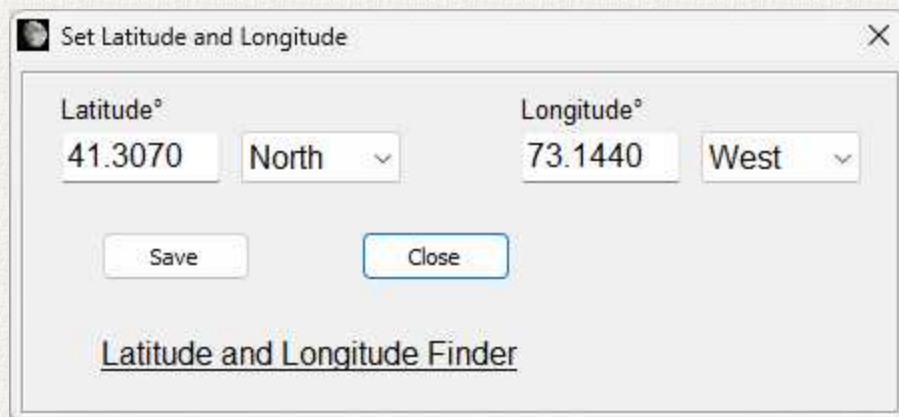
You can create your own Desktop Shortcut or other shortcut links.

UnInstall

Delete the files to uninstall the program, and also delete any Desktop Shortcut or other shortcut links.

Then delete this entire key in the Windows Registry :

HKEY_CURRENT_USER\SOFTWARE\Michael_Robinson\MoonMagic

Saved Settings

When the program closes it remembers all of its settings by saving them in the Windows registry location shown above.

Revision History

```
1.0.0.0 Jun 11, 2024 Initial Public Release
1.1.0.0 Dec 22, 2024 Updated for 2025 NASA Moon Images
```
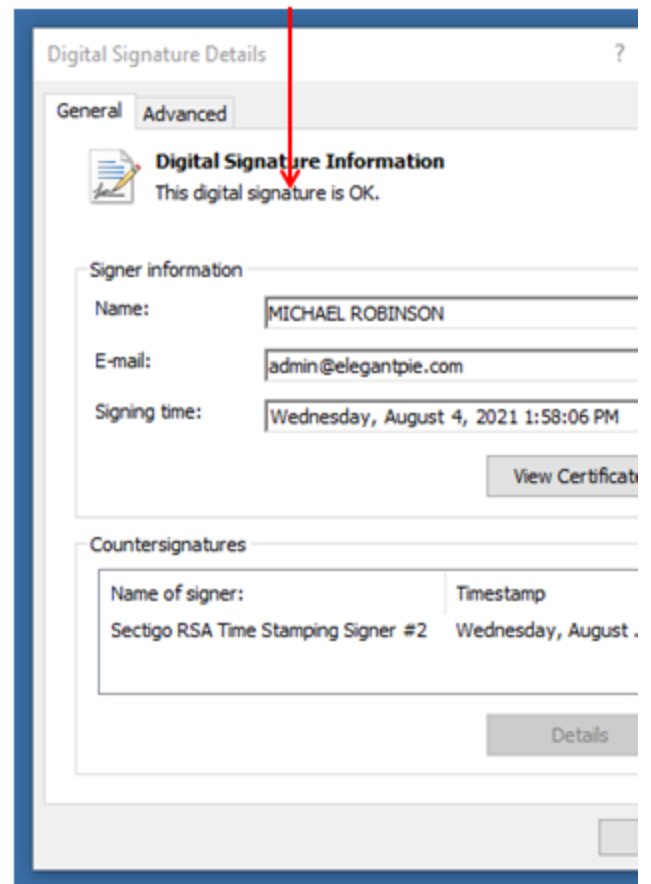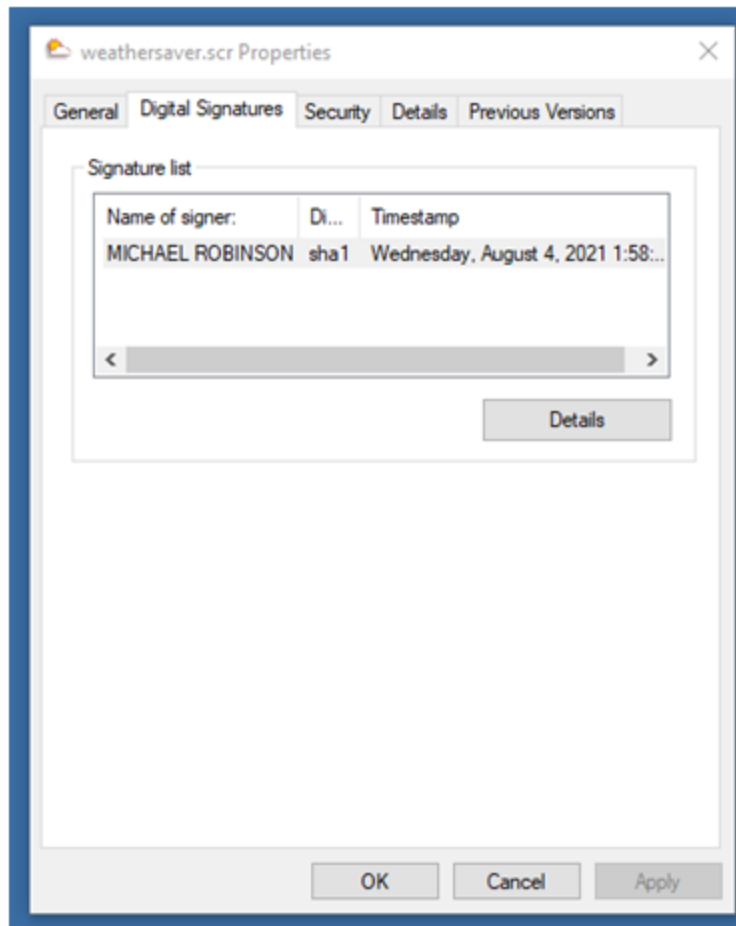
Digital Signature

I purchased a Code Signing Certificate from Certificate Authority (CA) company Sectigo and used it to digitally sign (and timestamp) program executable moonmagic.exe. The signature says it was signed by MICHAEL ROBINSON. Code Signing proves that the program actually came from me and has not been modified by a hacker since it was signed.

Run Windows Explorer (explorer.exe) right click on the and select Properties:
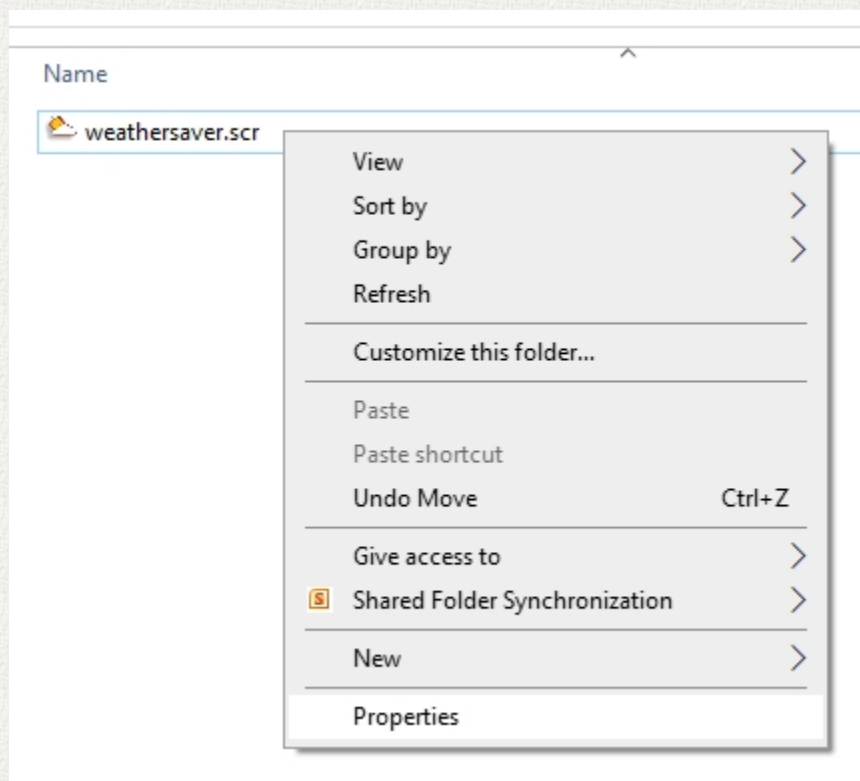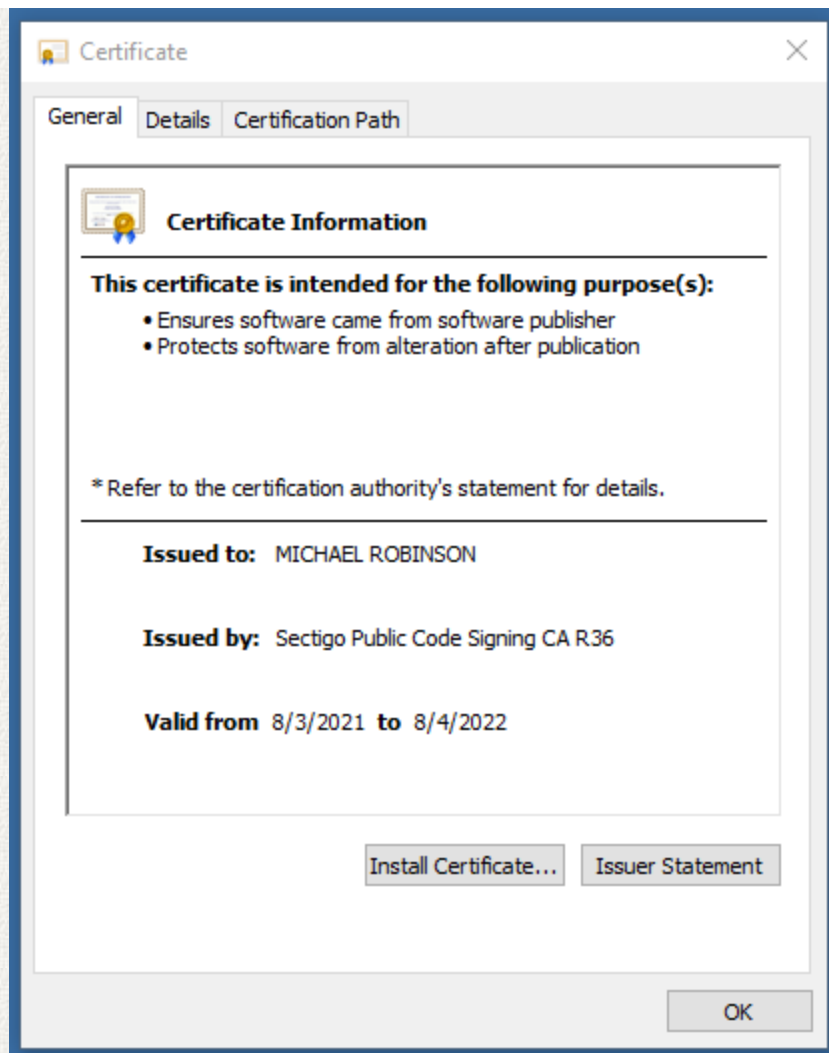
Then click on the tab Digital Signatures, and click the Details button:

VERIFY

Then click the View Certificate button to see my certificate:

Certificate ✕

General | Details | Certification Path

Certificate Information

This certificate is intended for the following purpose(s):
- Ensures software came from software publisher
- Protects software from alteration after publication

* Refer to the certification authority's statement for details.

Issued to: MICHAEL ROBINSON

Issued by: Sectigo Public Code Signing CA R36

Valid from 8/3/2021 **to** 8/4/2022

Install Certificate... | Issuer Statement

OK

If even one byte is changed, either in the or in the signature, the signature will show as invalid in the properties.

Donate

This FREE program is fully functional. Donation of $10 is requested but not required. All features are enabled. No time limit. No advertising. No spyware. No nag screens.

The requested donation is $10.00 US Dollars. I accept major credit cards, PayPal , or personal checks. Press one of the links below and your browser will open and go to PayPal with all the purchase information already filled out. You can use PayPal to pay by credit card even if you do not have a PayPal account. The total cost to you is $10.00. No fees. Use your Visa, Mastercard, American Express, or Discover card. PayPal also allows you to pay directly from your bank account. PayPal is a very secure and reliable payment system used by millions of people around the world.

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PayPal BUY NOW or send payment by PayPal payable to: elegantpie@hotmail.com

Or send personal check or money order payable to Michael Robinson

Michael Robinson
PO Box 95
Shelton, CT 06484

I am PayPal Verified.   My Account Creation Date is May 30, 2000.   Yes, I have

been using this PayPal account for over TWENTY-FOUR (24) years.

The Official PayPal Verified Seal above means that I have provided PayPal with proof that I have a bank account and that my address is valid. Banks are required by law to screen account holders so PayPal's verification process increases security when you pay parties you do not know. My bank has my address and Social Security number on file. I have been using PayPal for over 24 years.

I use PayPal because the fees are low. If you send me $10.00 PayPal only takes about $0.84 so I net $9.16. All other payment services take several dollars so I would have to charge around $15 for my program to gain the same net. This lowers the cost to you. PayPal does not charge you any fees. PayPal is also free for me for most purchases, such as Ebay auction payments, but as a seller I am required to have a Premier Account with fees. If you do not have a PayPal account, you can still use PayPal to make a payment using your credit card. PayPal does not charge you any fees for this. PayPal is a very secure and reliable payment system used by millions of people around the world.

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