Astronomy Observations

Raleigh, NC | December 16,2023 | NCSU Centennial Campus

Location Data and Technical Preparation

Latitude and Longitude: For Raleigh, NC, the coordinates are approximately 35.78° N latitude and 78.64° W longitude.
Time Zone: Eastern Standard Time (EST).

Geminid Meteor Shower

Origin: Explain that the Geminids originate from the asteroid 3200 Phaethon, which is unusual since most meteor showers come from comets.
Peak Activity: Discuss why the Geminids are known for their reliability and intensity, with up to 120 meteors per hour at their peak.
Viewing Tips: Share tips on how to best view the meteor shower, such as looking away from city lights and giving eyes time to adjust to the dark.

Constellations and Visibility Ques

Winter Constellations: Orion, Taurus, Gemini (from where the Geminids appear to radiate), and possibly parts of Canis Major and Minor.
Identifiable Stars: Sirius (in Canis Major), Betelgeuse and Rigel (in Orion), and Aldebaran (in Taurus).

Interactive Star Chart

Betelgeuse

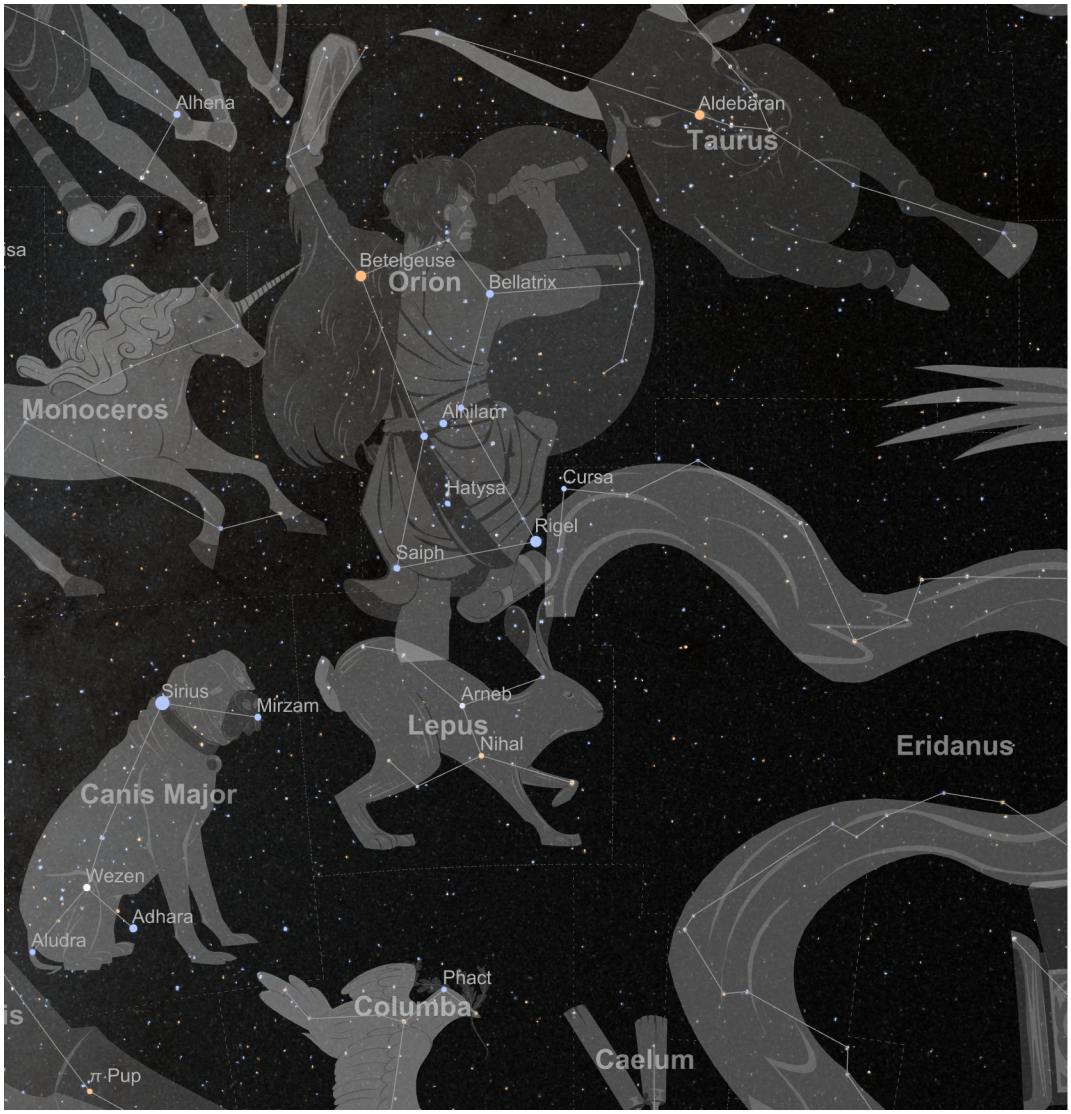
```
AstroGraphics[Entity["Star", "Betelgeuse"],
AstroRange → Quantity[30, "AngularDegrees"],
AstroReferenceFrame → {"Equatorial", DateObject[{2023, 12, 16, 18, 30, 00}]},
AstroBackground → AstroStyling[{"GalacticSky",
"ShowConstellationIllustrations" → True, "ShowMainPlanes" → False}]]
```

Sirius

```
AstroGraphics[Entity["Star", "Sirius"], AstroRange → Quantity[30, "AngularDegrees"],
 AstroReferenceFrame → {"Equatorial", DateObject[{2023, 12, 16, 18, 30, 00}]},
 AstroBackground → AstroStyling[{"GalacticSky",
 "ShowConstellationIllustrations" → True, "ShowMainPlanes" → False}]]
```

Rigel

```
AstroGraphics[Entity["Star", "Rigel"], AstroRange → Quantity[30, "AngularDegrees"],
 AstroReferenceFrame → {"Equatorial", DateObject[{2023, 12, 16, 18, 30, 00}]},
 AstroBackground → AstroStyling[{"GalacticSky",
  "ShowConstellationIllustrations" → True, "ShowMainPlanes" → False}]]
```

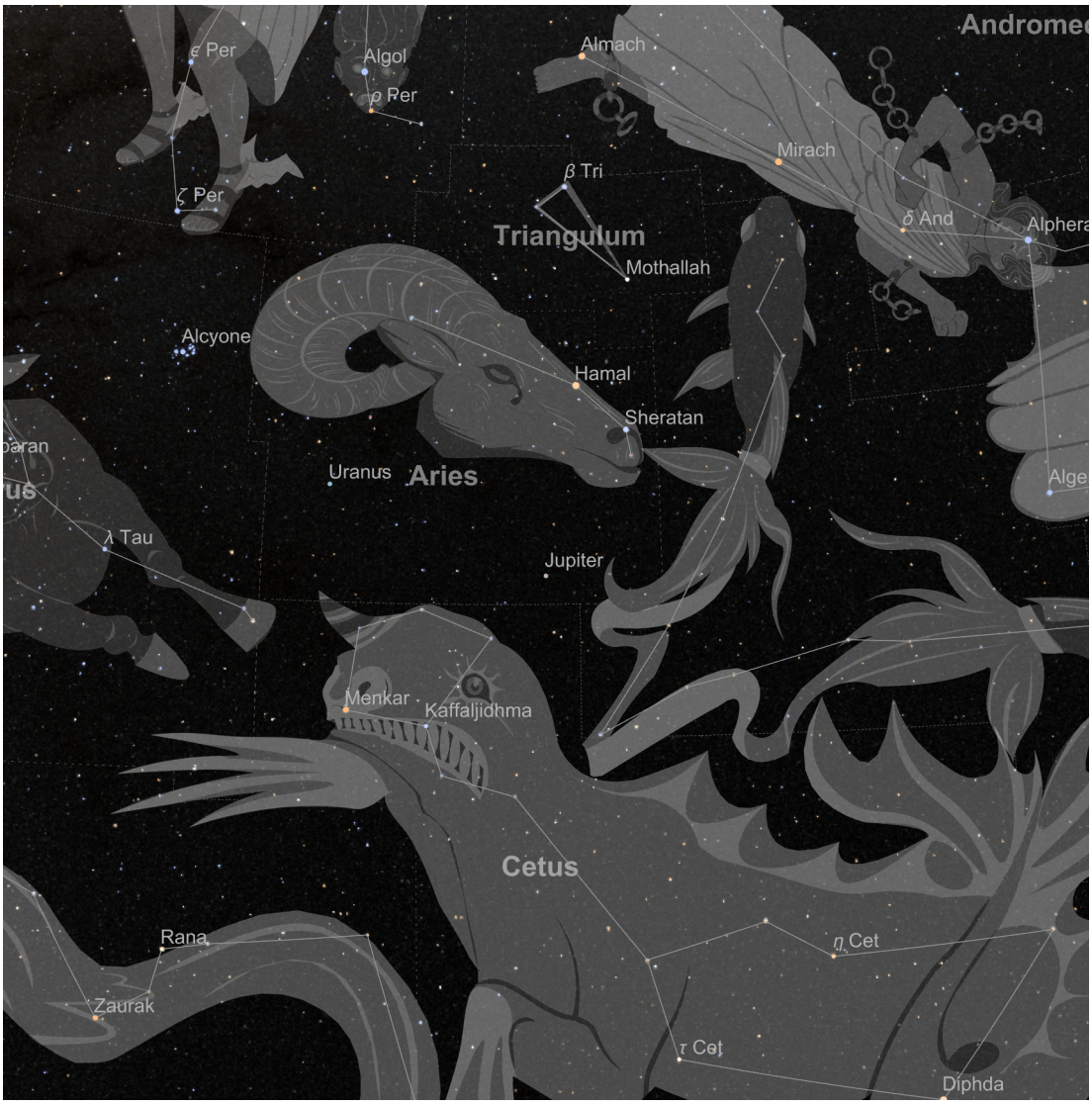


Aldebaran

```
AstroGraphics[Entity["Star", "Aldebaran"],
AstroRange → Quantity[30, "AngularDegrees"],
AstroReferenceFrame → {"Equatorial", DateObject[{2023, 12, 16, 18, 30, 00}]},
AstroBackground → AstroStyling[{"GalacticSky",
"ShowConstellationIllustrations" → True, "ShowMainPlanes" → False}]]
```

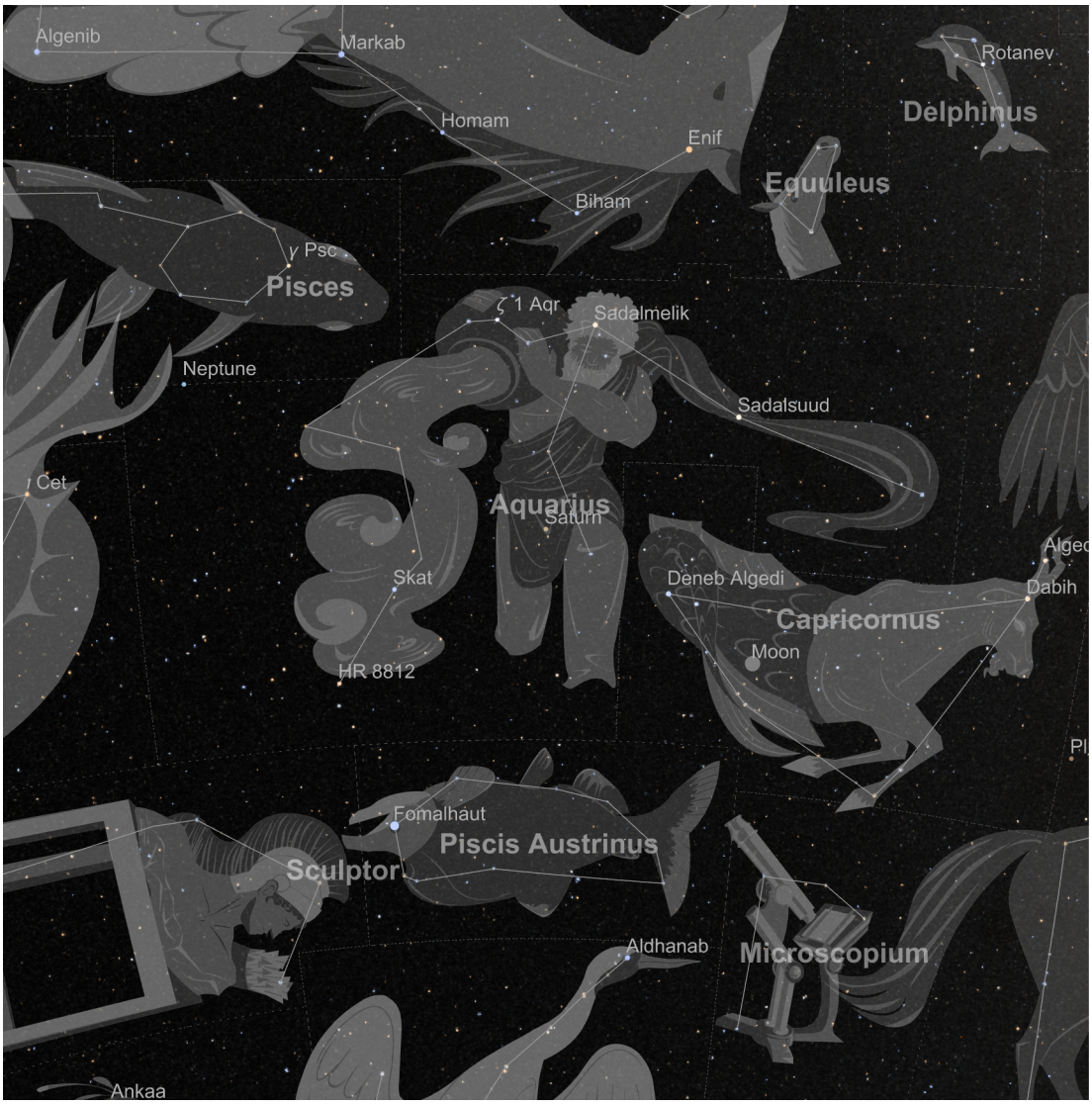
Jupiter

```
AstroGraphics[Entity["Planet", "Jupiter"],
AstroRange → Quantity[30, "AngularDegrees"],
AstroReferenceFrame → {"Equatorial", DateObject[{2023, 12, 16, 18, 30, 00}]},
AstroBackground → AstroStyling[{"GalacticSky",
"ShowConstellationIllustrations" → True, "ShowMainPlanes" → False}]]
```



Saturn

```
AstroGraphics[Entity["Planet", "Saturn"],
AstroRange → Quantity[30, "AngularDegrees"],
AstroReferenceFrame → {"Equatorial", DateObject[{2023, 12, 16, 18, 30, 00}]},
AstroBackground → AstroStyling[{"GalacticSky",
"ShowConstellationIllustrations" → True, "ShowMainPlanes" → False}]]
```



Mars

```
AstroGraphics[Entity["Planet", "Mars"], AstroRange → Quantity[30, "AngularDegrees"],
  AstroReferenceFrame → {"Equatorial", DateObject[{2023, 12, 16, 18, 30, 00}]},
  AstroBackground → AstroStyling[{"GalacticSky",
  "ShowConstellationIllustrations" → True, "ShowMainPlanes" → False}]]
```

MilkyWay Galaxy

```
AstroGraphics[Entity["Galaxy", "MilkyWay"],
AstroRange → Quantity[30, "AngularDegrees"],
AstroReferenceFrame → {"Equatorial", DateObject[{2023, 12, 16, 18, 30, 00}]},
AstroBackground → AstroStyling[{"GalacticSky",
"ShowConstellationIllustrations" → True, "ShowMainPlanes" → False}]]
```