Diēs Caniculārēs

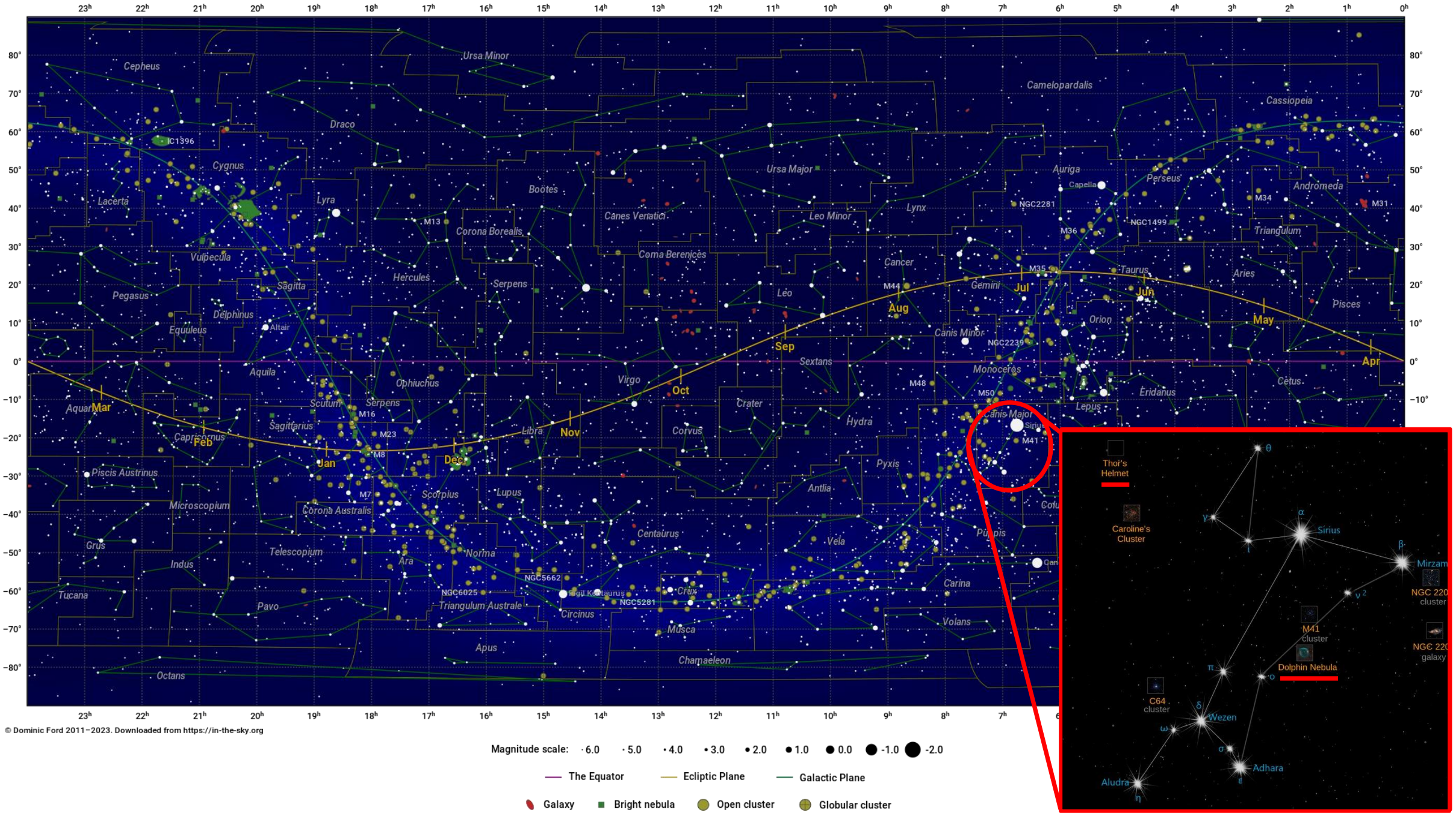
"Dog Days of Summer"

- The ancient Romans called the hottest, most humid days of summer "diēs caniculārēs" or "dog days." The name came about because they associated the hottest days of summer with the star Sirius. Sirius was known as the "Dog Star" because it was the brightest star in the sky in the constellation Canis Major (Great Dog).
  - Constellations are small groups of bright stars visible to the naked eye on a clear night.
  - Similar to the titles of artwork, they are named for shapes from the mind's eye of the story-teller (or artist).

- Our star, the Sun (or Sol in Latin), is one of many hundreds of millions in our galaxy, which is aptly named the Milky Way.
  - The Milky Way is shown as the light blue hazy path on the next page.
  - It is visible to the naked eye on clear night, but only if you get far enough away from artificial light (aka. "light pollution").
  - It is one of hundreds of billions of galaxies in the visible Universe.

- The night sky is full of other interesting "deep sky" objects within our galaxy, such as nebulae.
  - Nebulae are formed from the light transmitted or reflected from gases, such as Hydrogen (Ha), Oxygen (OIII), and Sulphur (SII), which are expelled when large stars explode in what is called a supernova.
  - Each of these gases emits a different color of light. Hydrogen and Sulphur are different shades of red and Oxygen is blue.

The Night Sky



Magnitude scale: 6.0 5.0 4.0 3.0 2.0 1.0 0.0 -1.0 -2.0

The Equator — Ecliptic Plane — Galactic Plane

Galaxy — Bright nebula — Open cluster — Globular cluster

Canis Major

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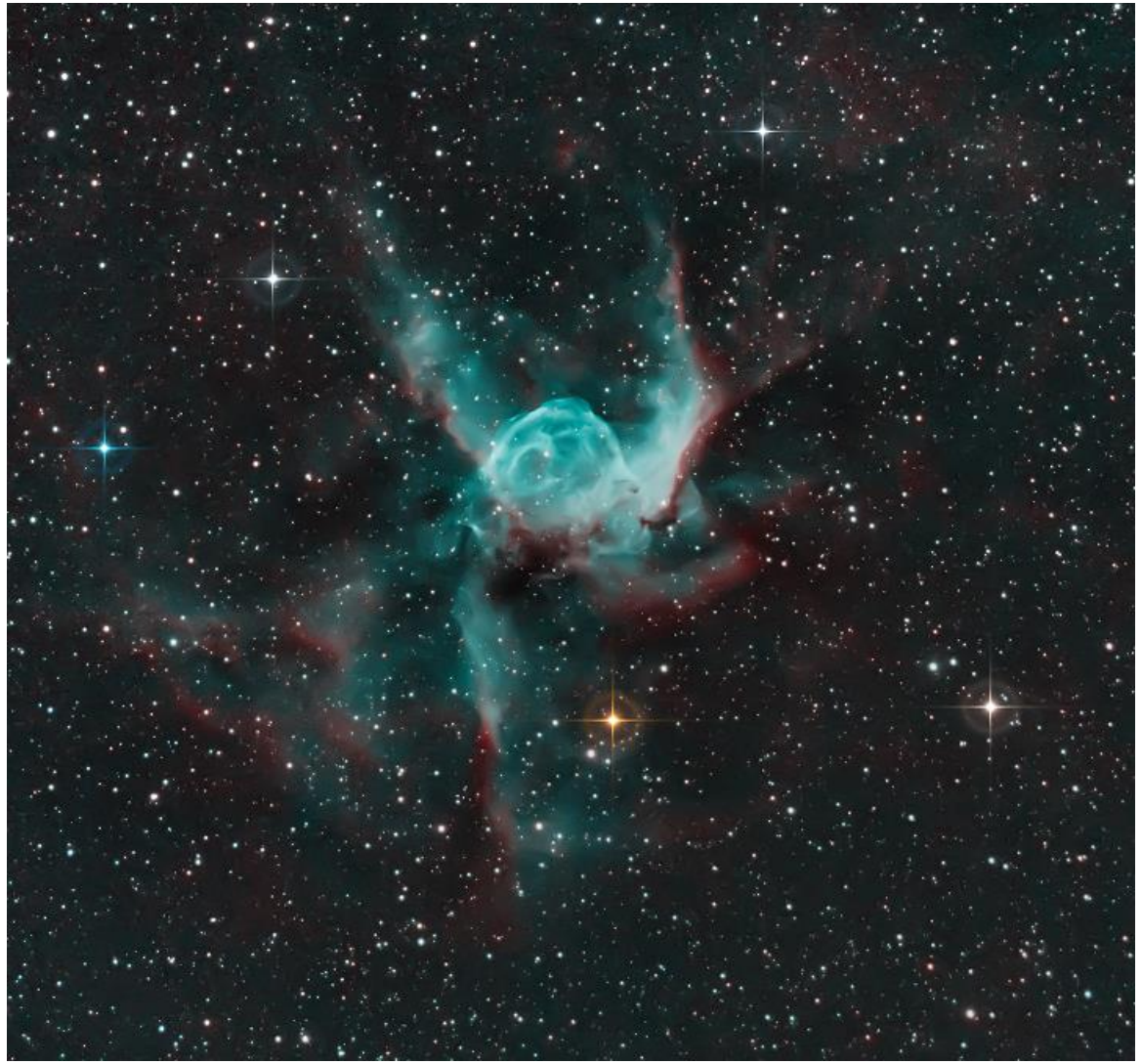
- These works are of nebulae within the region of Canis Major taken in February (Thor's Helmet) and November (Dolphin) of 2021.
  - They are created from hundreds of individual photographic images.
  - Each image is created in a 5-minute exposure using a specialized camera that is made for astrophotography, which is cooled to -30° F in order to reduce the noise generated by heat.
  - Each exposure is taken with a different frequency (color) of light (e.g. Ha, OIII, SII) filtered before it hits the camera sensor.
  - They were taken over several nights using my backyard 1000mm focal length Maksutov-Newtonian telescope in NE Tucson.
    - The telescope sits on a computer-controlled robotic mount that locks on and tracks the desired object as it moves across the sky (i.e. as the under earth rotates under it) to within 1/3600th of a degree.
  - The many images are aligned, integrated, and rendered using various astrophotography software, which allows the scientist, astronomer, and/or artist to clean up noise and assign colors in order to create the desired results.
  - It is then printed on aluminum in a process called "dye sublimation".



Thor’s Helmet Nebula

The Dolphin Head Nebula