

ASTR 270

Public Outreach in Astronomy

Class 06

Analogies & Metaphors

Prof. James Davenport (UW)

Spring 2024

A look ahead...

- Jim will be out of town all next week (April 16 & 18)
 - Andy will host class those days!
- Class will be at Theodor Jacobsen Observatory April 23 & 25, and starting 30min late (11:00-11:50am)

A look ahead...



Metaphor vs. Analogy

- Obviously: I'm not an English professor
- Analogy: **X is like Y**
 - Used when audience understands Y, we trying to liken X to it
 - Most common in Sci-Comm for helping build intuition or understanding
- Metaphor: **X is Y**
 - Has more poetic effect... X isn't literally Y, but we're *saying* it is. Includes idioms
 - e.g. a star dies

Analogies & Metaphors

- Key to effective communication (here, and everywhere)
- **Analogies** are especially important when trying to get people to understand complex systems (i.e. Science Communication!)
 - Very useful for explaining shapes, relative sizes, relationships
 - Space is unfathomably large, empty, dark, old...
many people really struggle with physical intuition in astronomy

Analogies & Metaphors

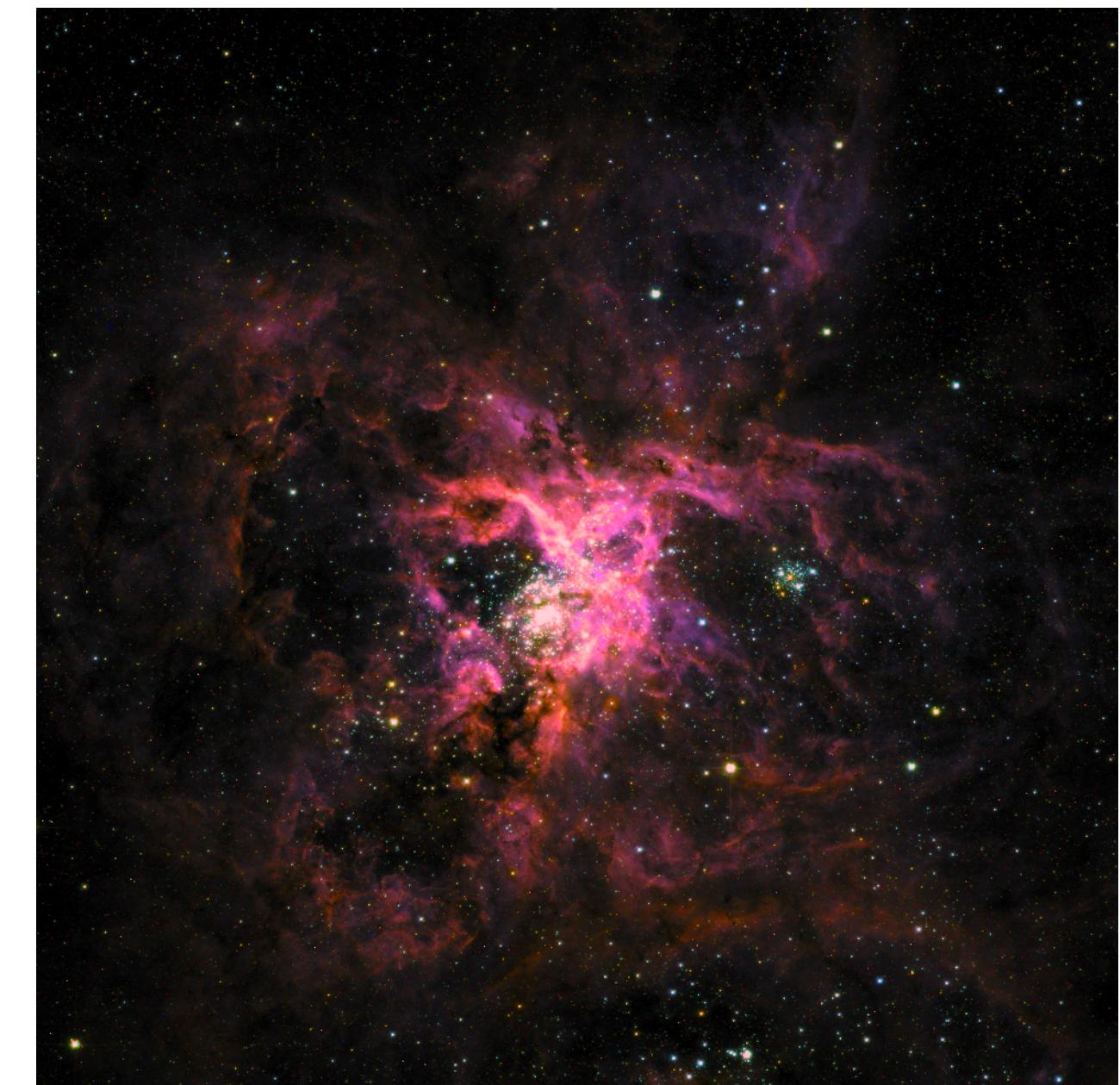
- We use **metaphorical** descriptions a lot in astronomy. Good for conveying beauty, personalizing story, etc.

e.g. https://www.capjournal.org/issues/04/04_14.php

- Black “hole”
- Birth of stars
- Blackholes eating things
- Cosmic rulers
- Solar wind
- Chemical fingerprint
- Galactic archeology

Analogies & Metaphors

- We use **metaphorical** descriptions a lot in astronomy.
 - A lot of our imagery or language in astronomy can be quite brutal...
e.g. cannibalism, harassment, stripping, strangulation, violent, death
 - These can be distressing to an audience
 - These aren't precise
- Relevant op ed. by Prof. Juan Madrid



Some common Astro Analogies

- Scale models of the solar system



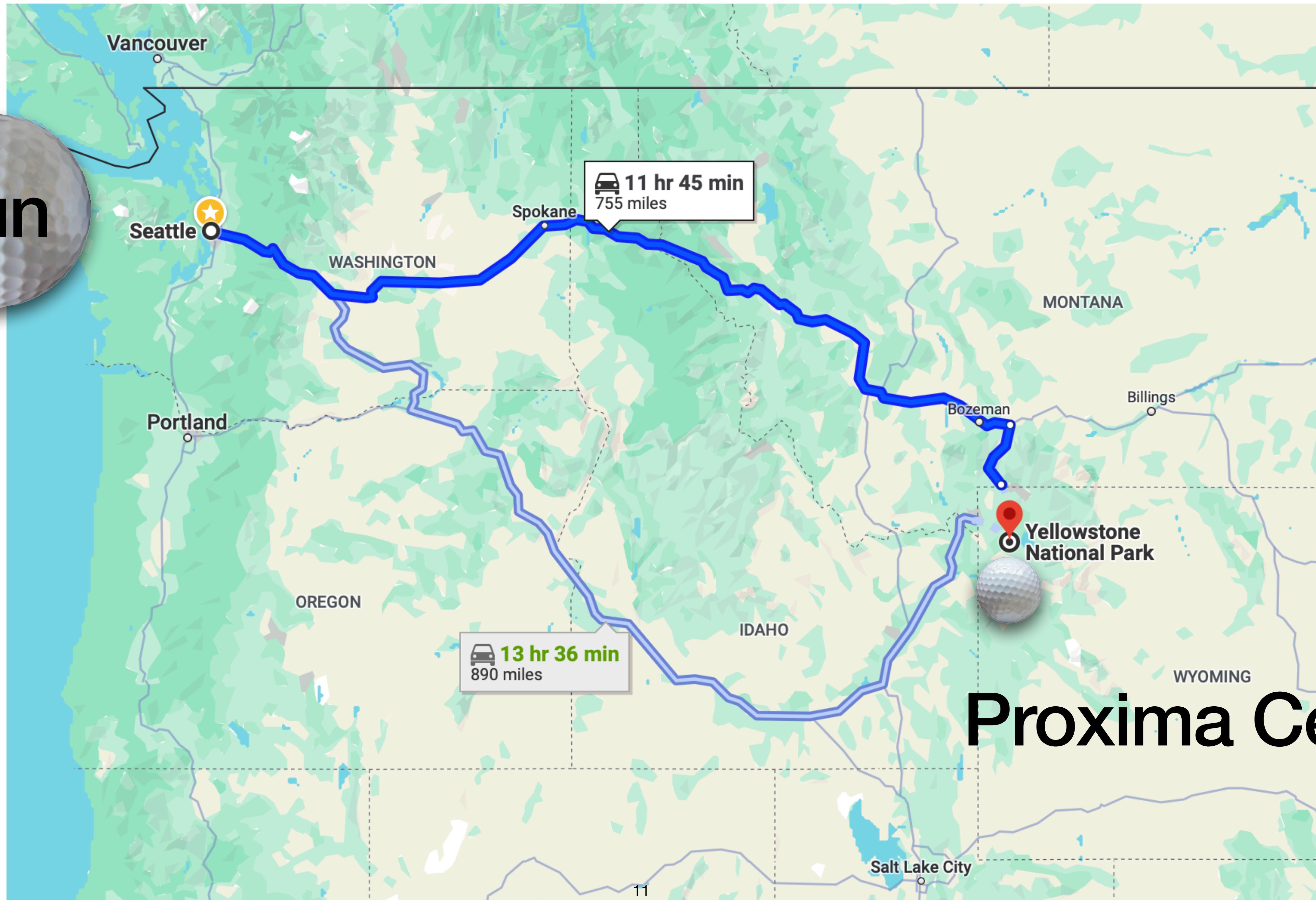
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Earth
Grain of sand, 4m away

Some common Astro Analogies

- Scale models of the stars

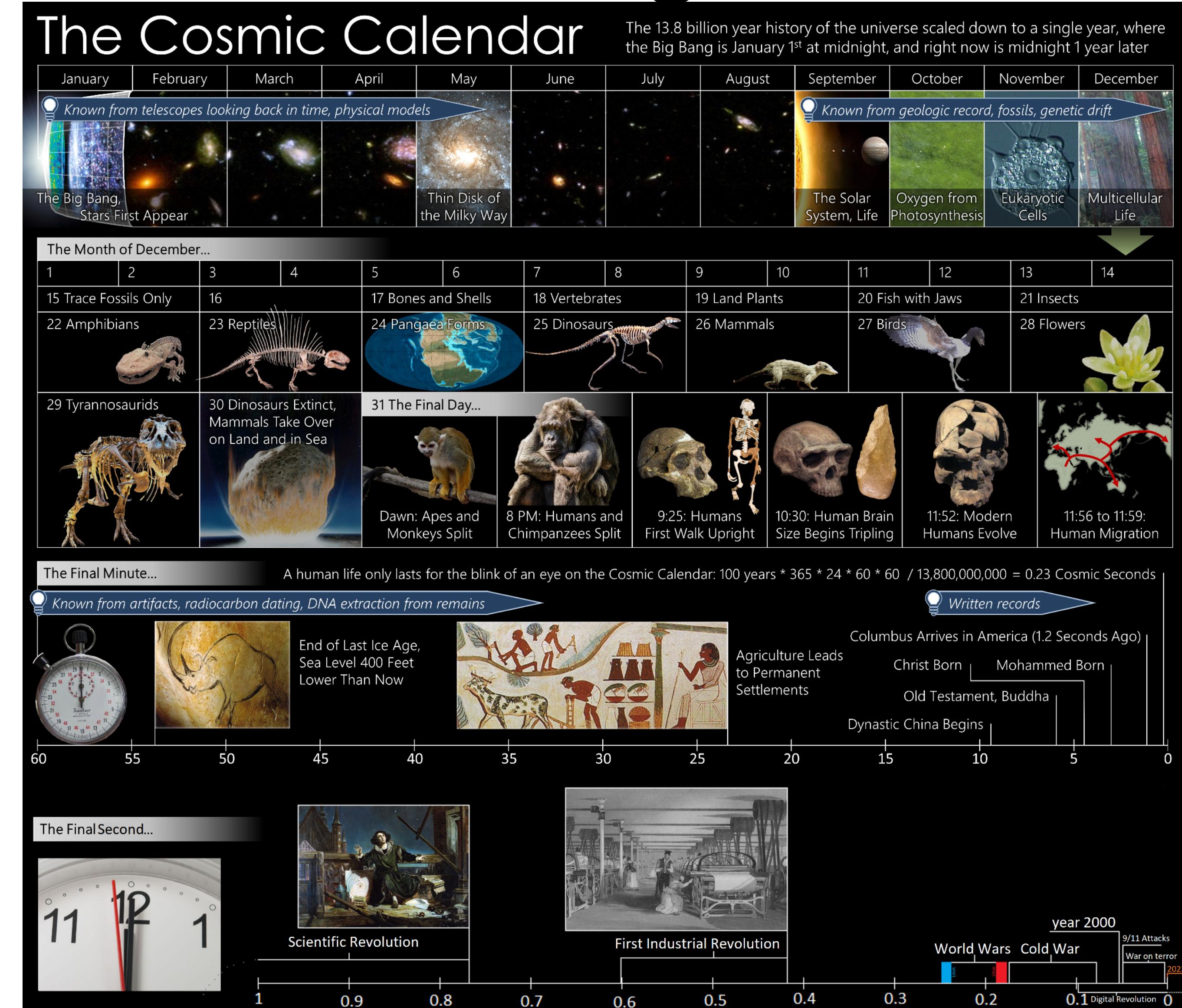


Proxima Cen
~700 miles away



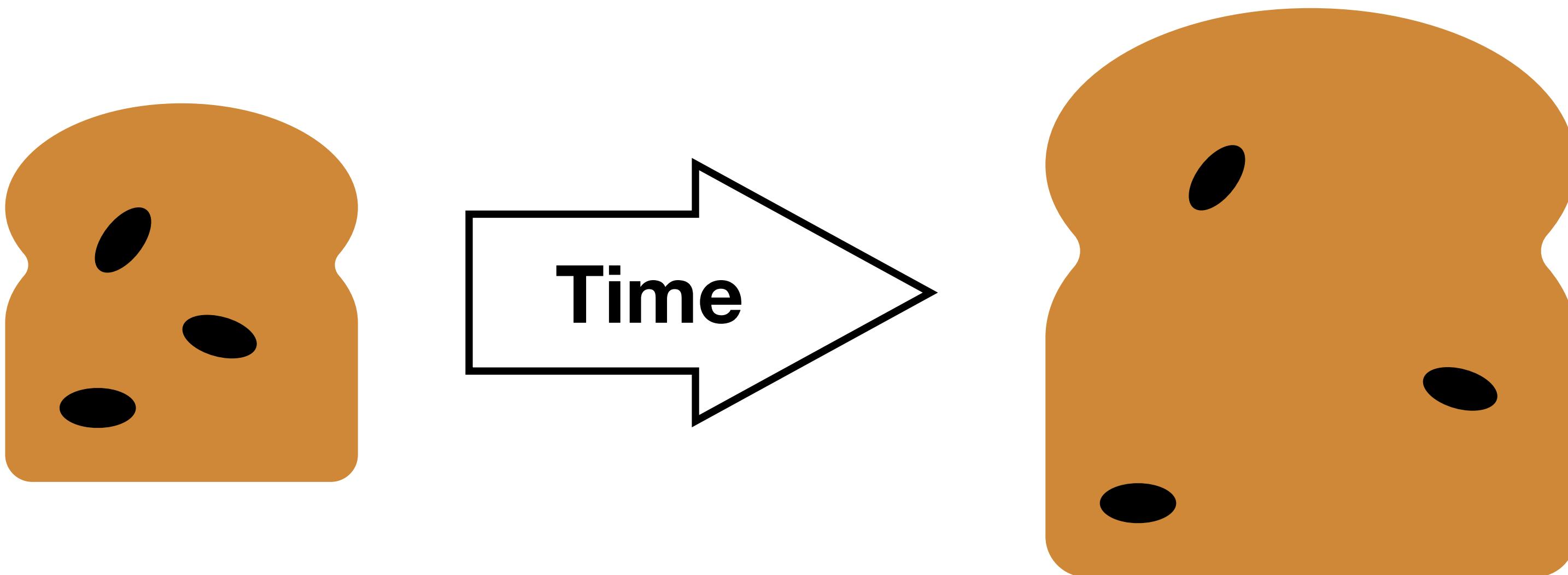
Proxima Cen

Some common Astro Analogies



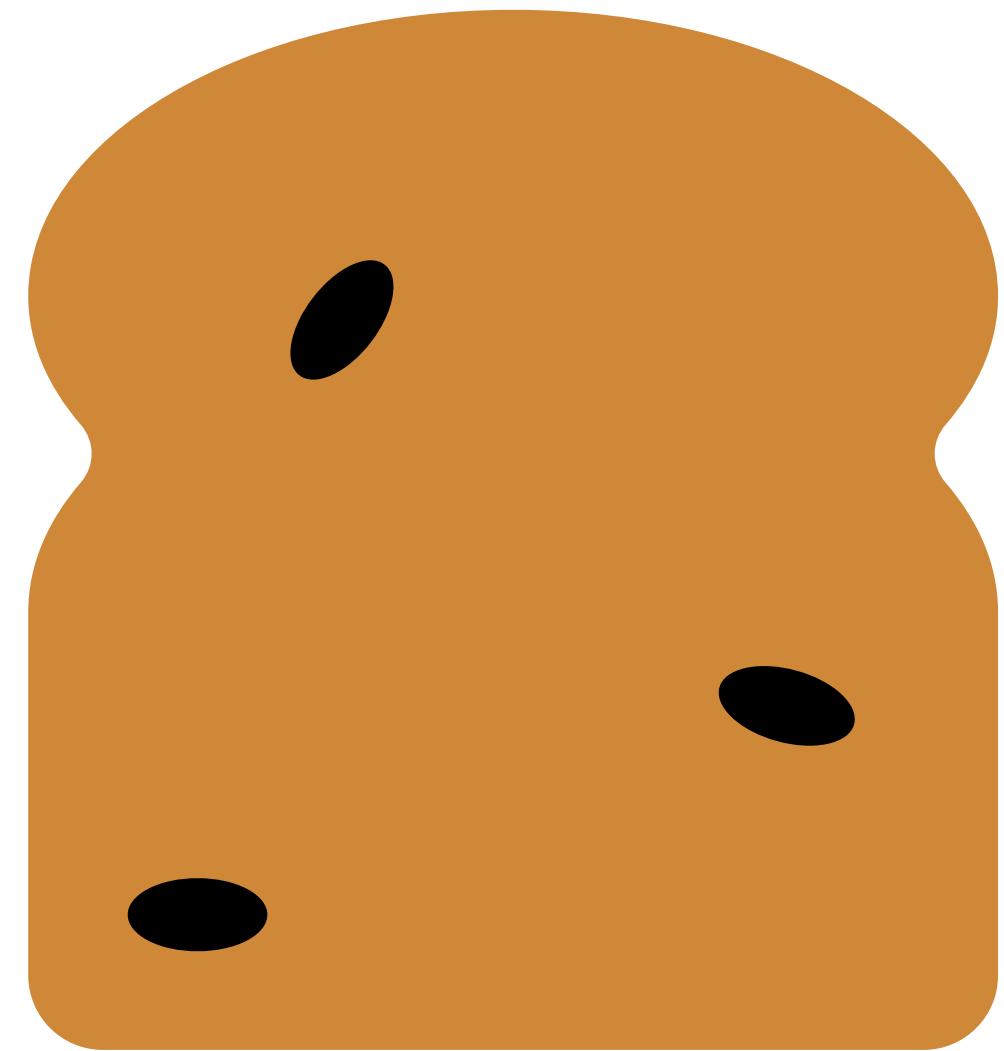
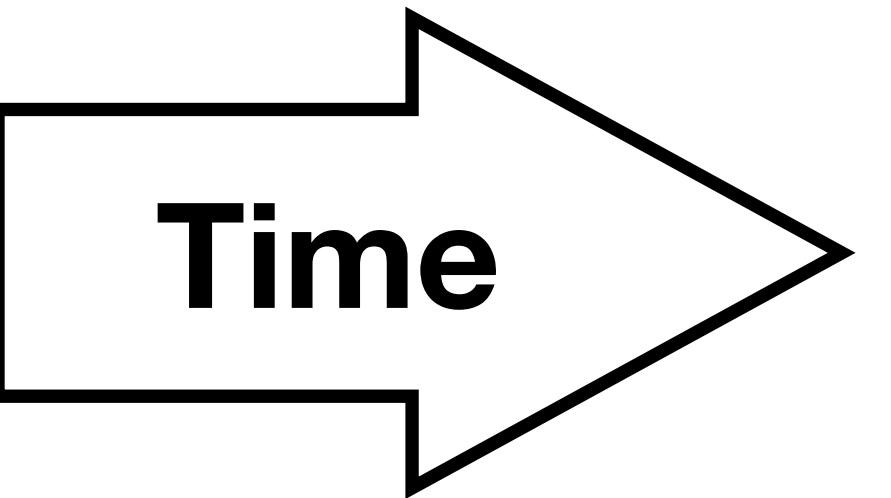
Some common Astro Analogies

- Expansion of universe... raisin bread (?!)



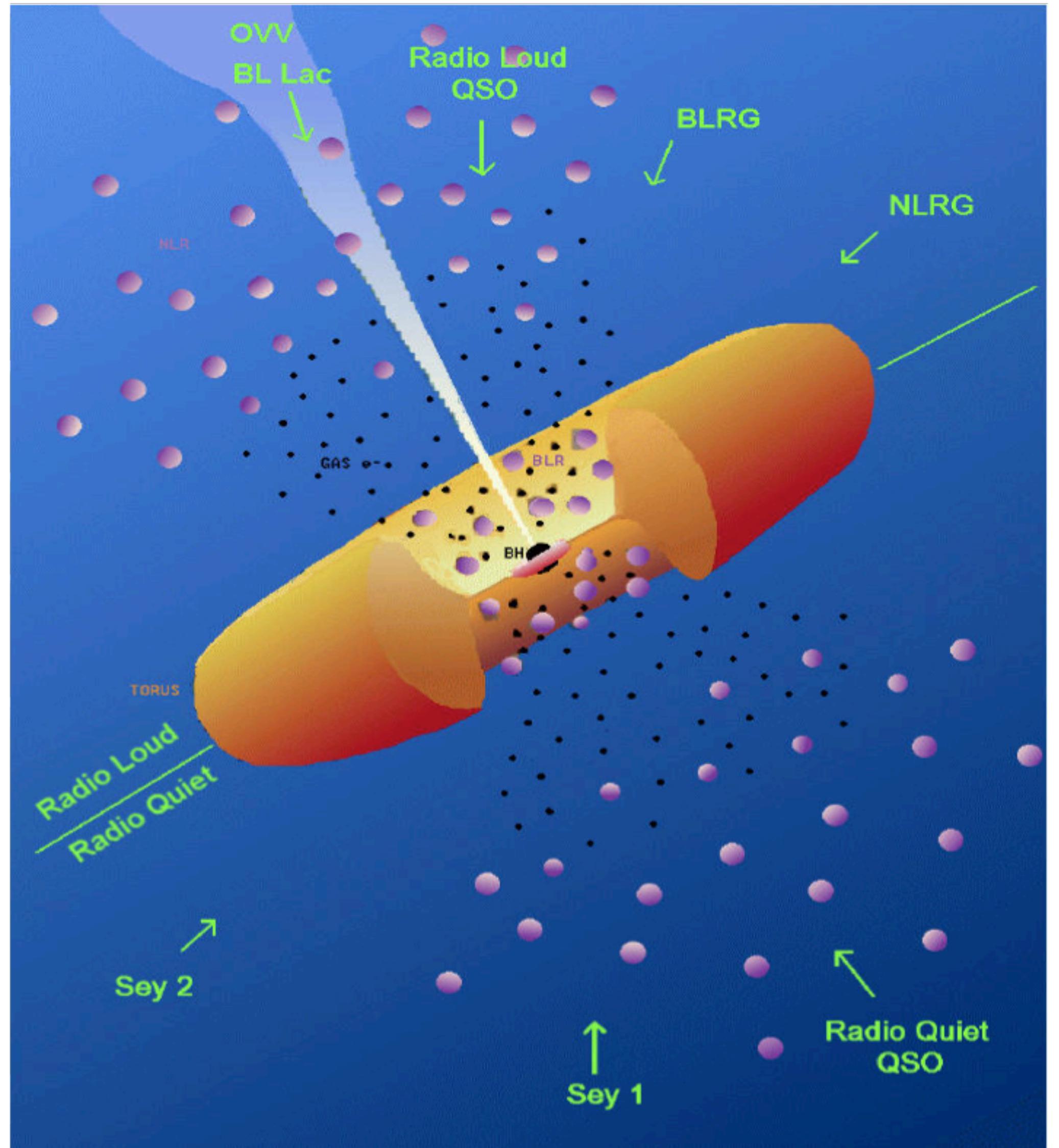
Some common Astro Analogies

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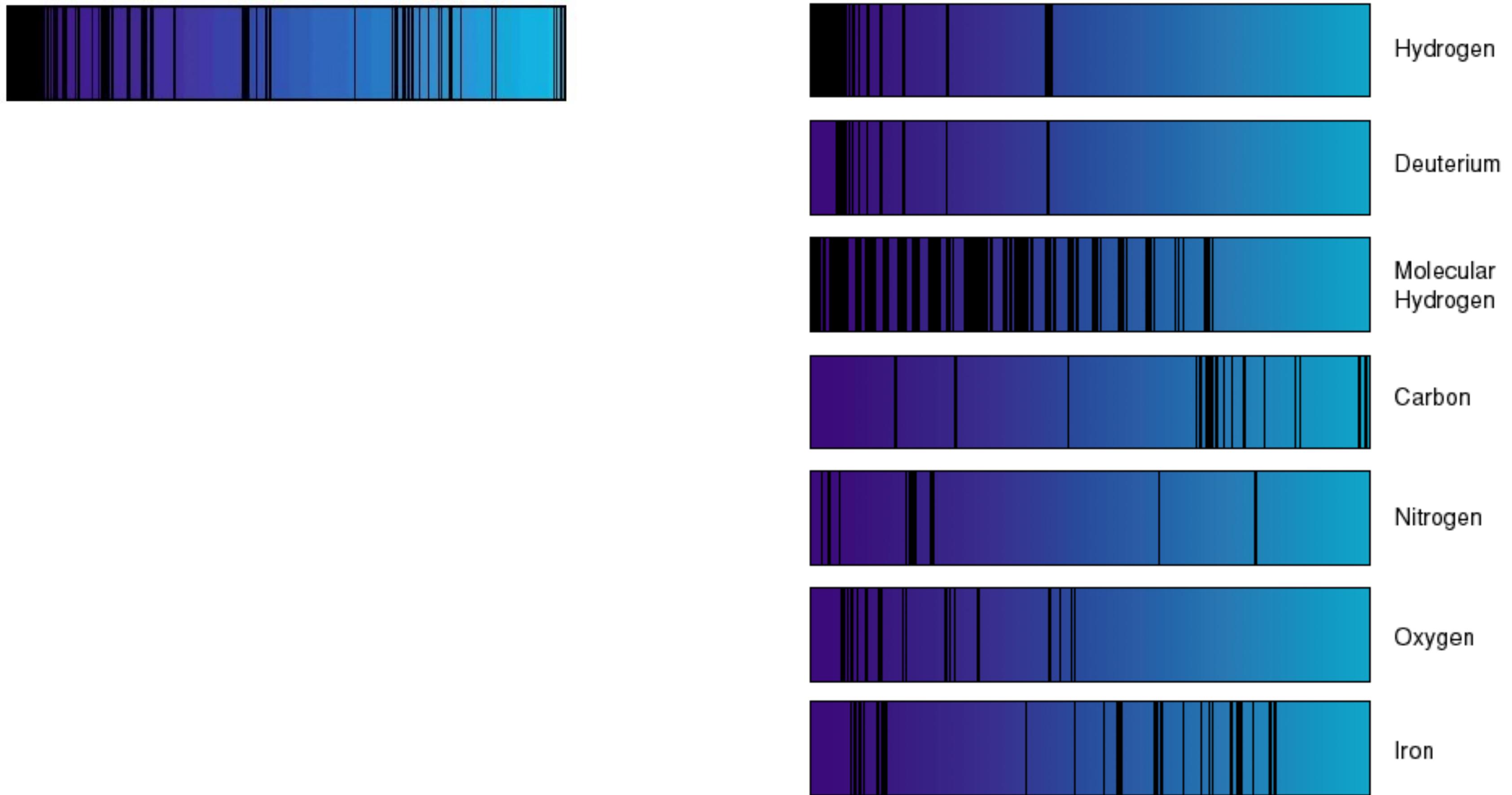
Some common Astro Analogies

- Donut AGN



Some common Astro Analogies

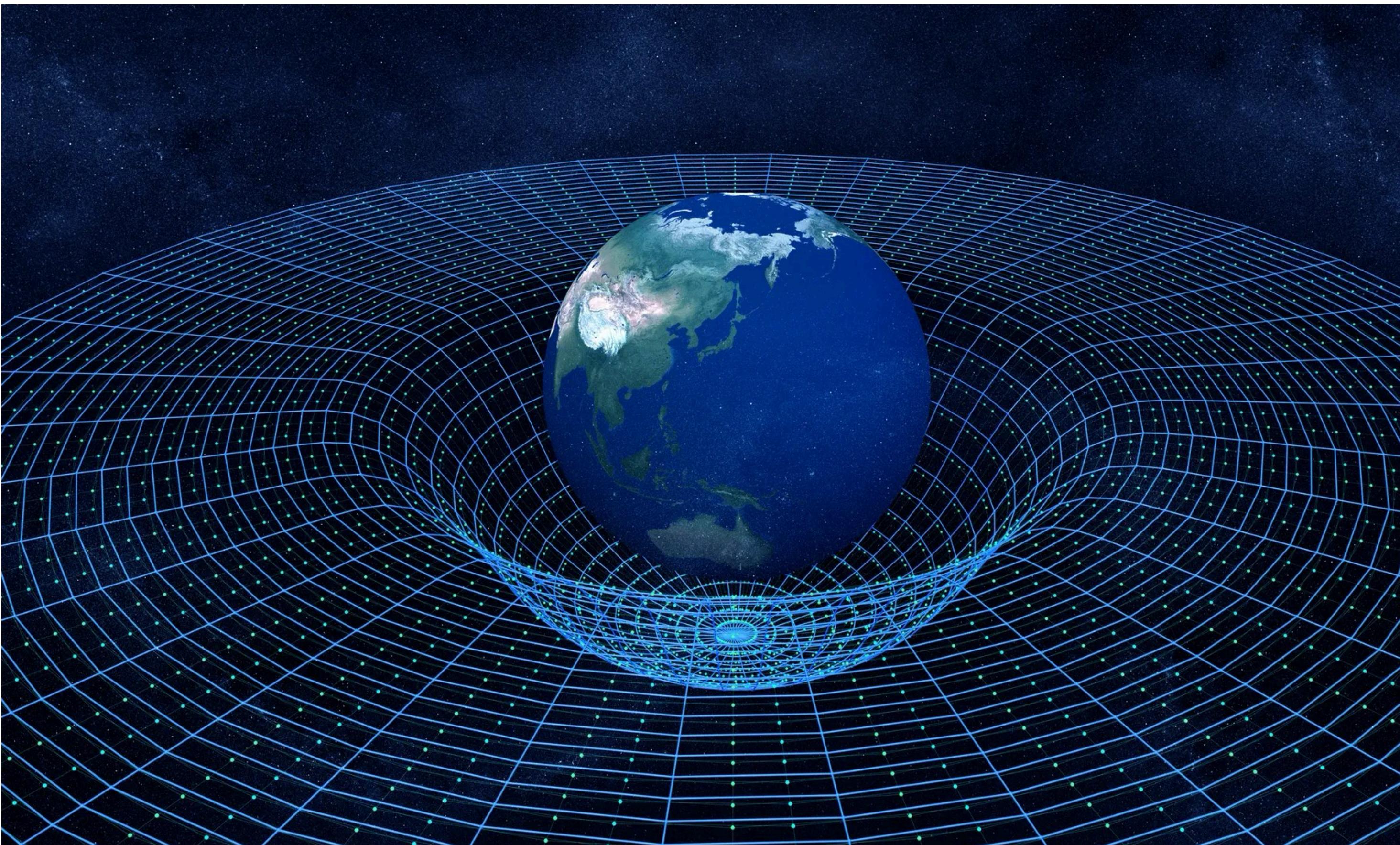
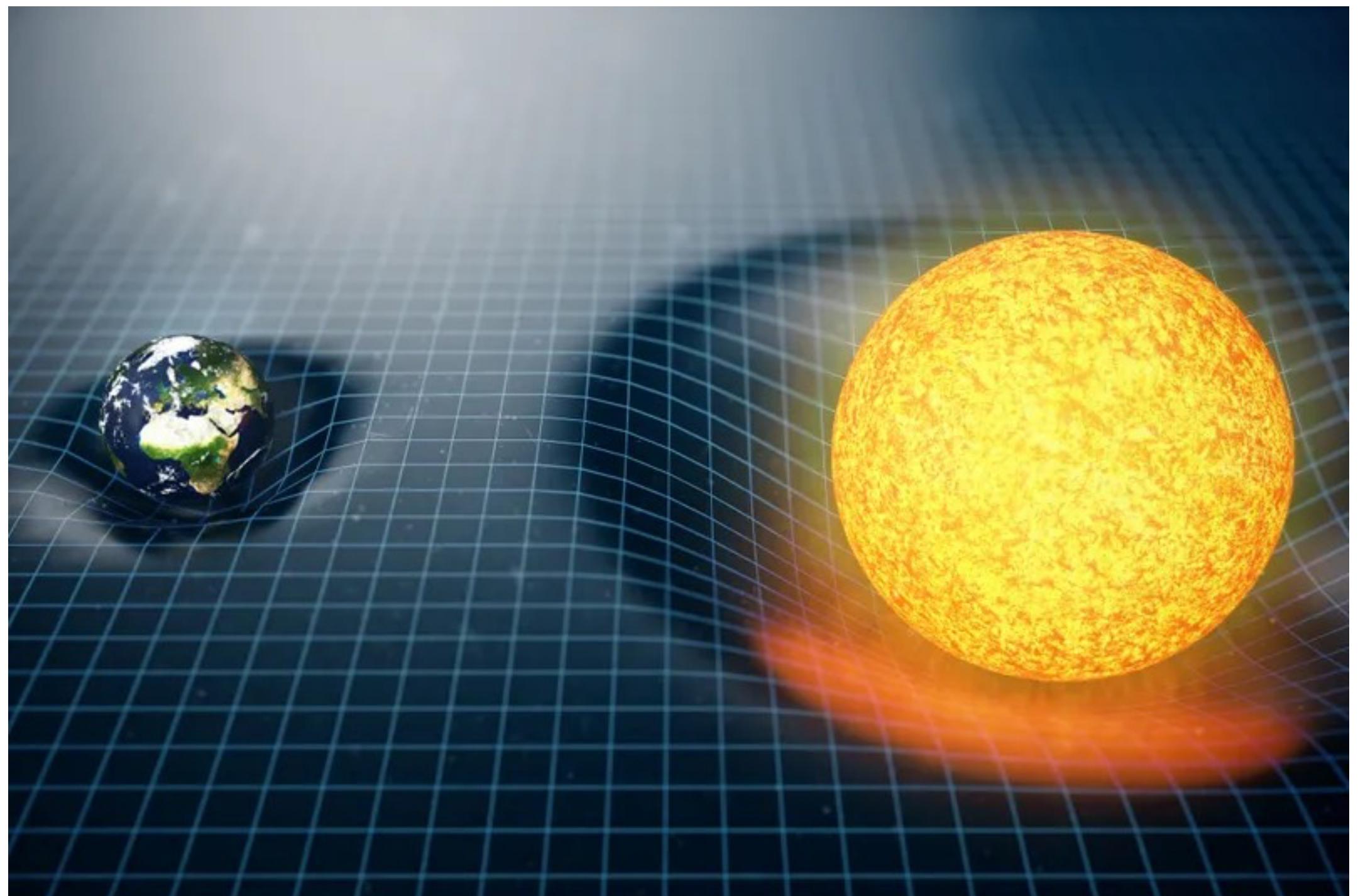
- Cosmic Barcodes



<https://fuse.pha.jhu.edu/Graphics/scigraph/barcodes/barcodes.html>

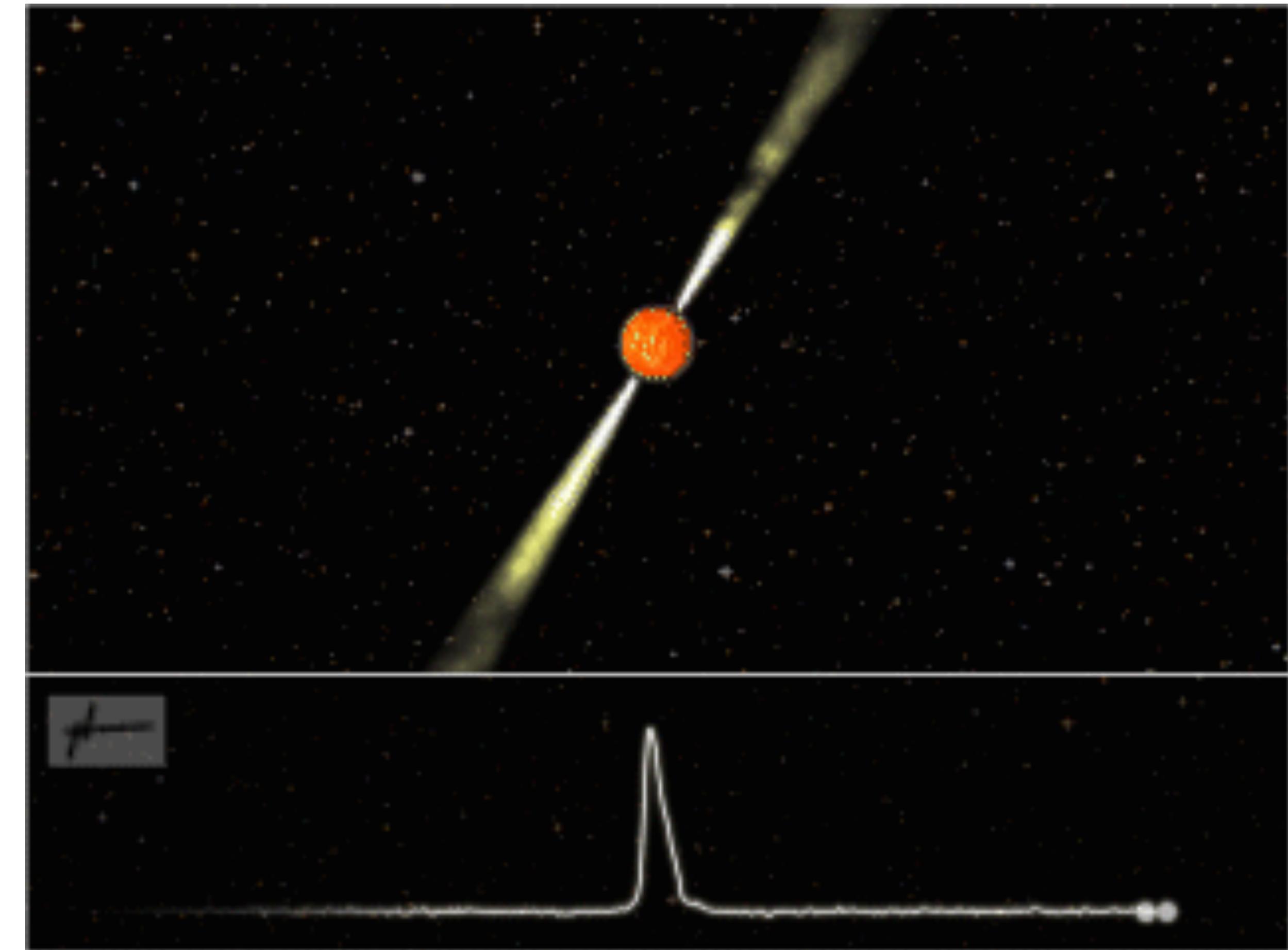
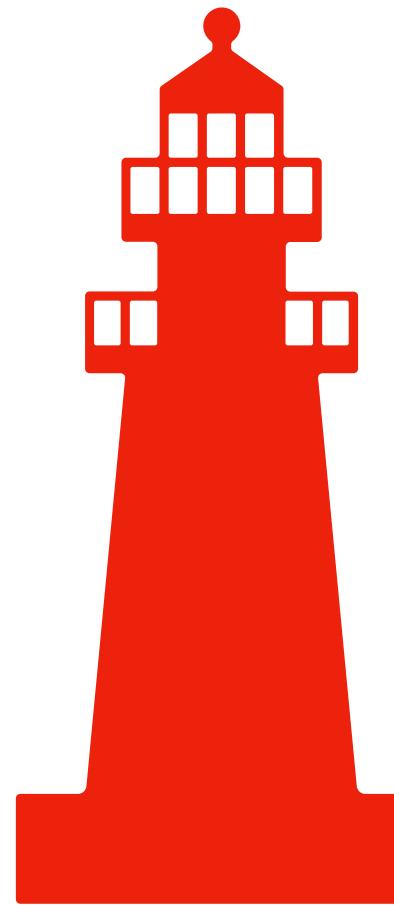
Some common Astro Analogies

- Gravity: the warped sheet



Some common Astro Analogies

- Neutron star “lighthouse”



A word of warning...

- Make sure they're true!
- e.g. "more stars in the sky than grains of sand on the beach"
 - This can be true, or not, depending on specifics!

Analogy Activity

- Can you think of an analogy (or metaphor) to help explain an astronomy concept or topic?
 - Milky Way & Andromeda collision
 - Comet tails
 - Rings of Saturn
 - Tidal disruption event
 - RR Lyr star
 - Planetary Nebula
 - Star cluster
 - Binary star
 - Search for life
 - Doppler shift