

A satellite view of Earth showing the Americas and surrounding oceans. The text "Physical geography" is overlaid in a large, blue, 3D-style font with a red outline.

Physical geography

Ole Humlum

What this course is about:

An introduction to planet Earth's physical environment and landscapes.

Emphasis is given to interior and external forces, water and water resources, landscapes in various climate zones, the influence of climate changes, glacial and interglacial periods, modern glaciers, permafrost, etc.

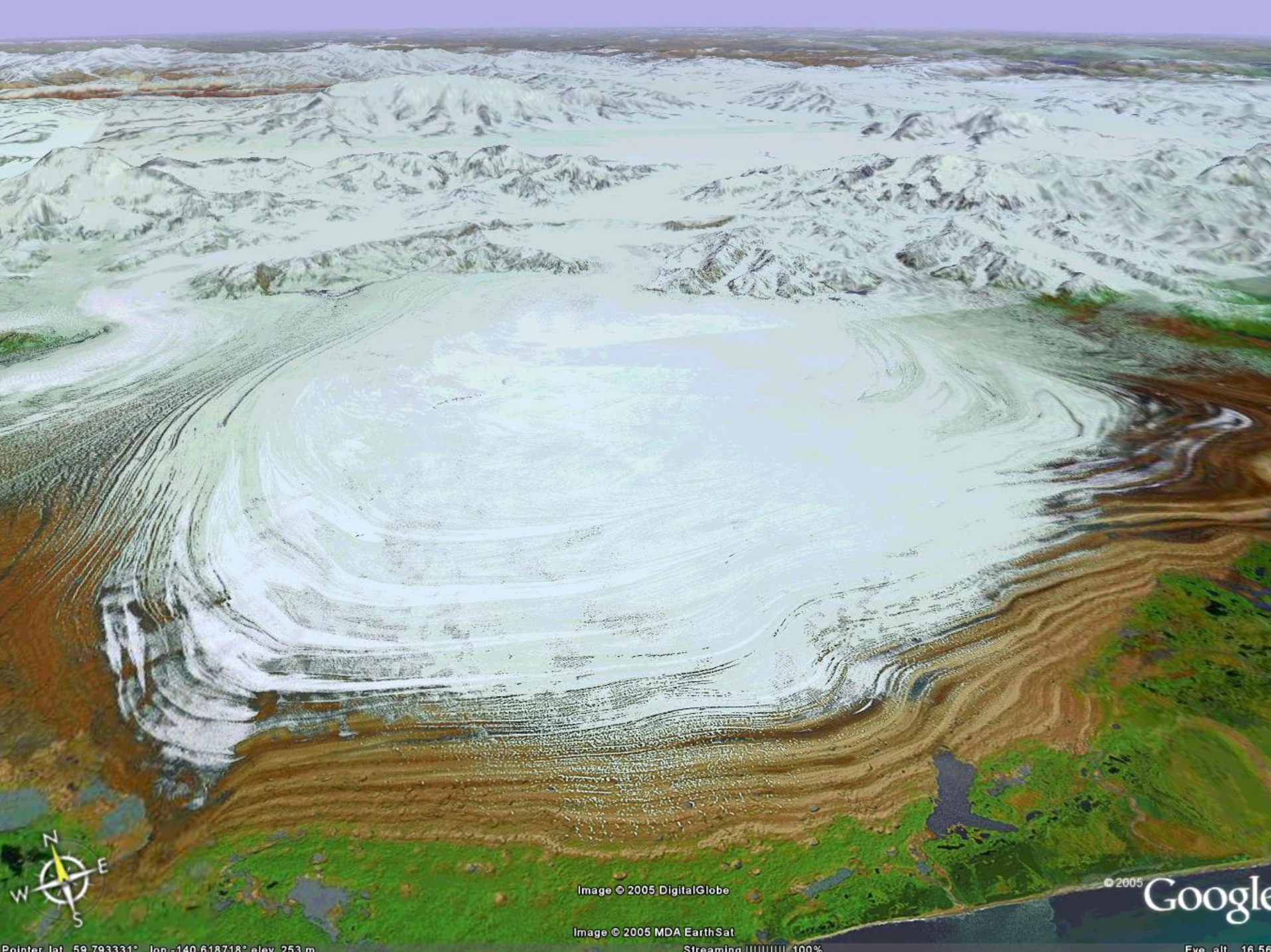


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Streaming 100%

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Pointer lat: 59.793331° lon: -140.618718° elev: 253 m

Eye alt: 16.5 km

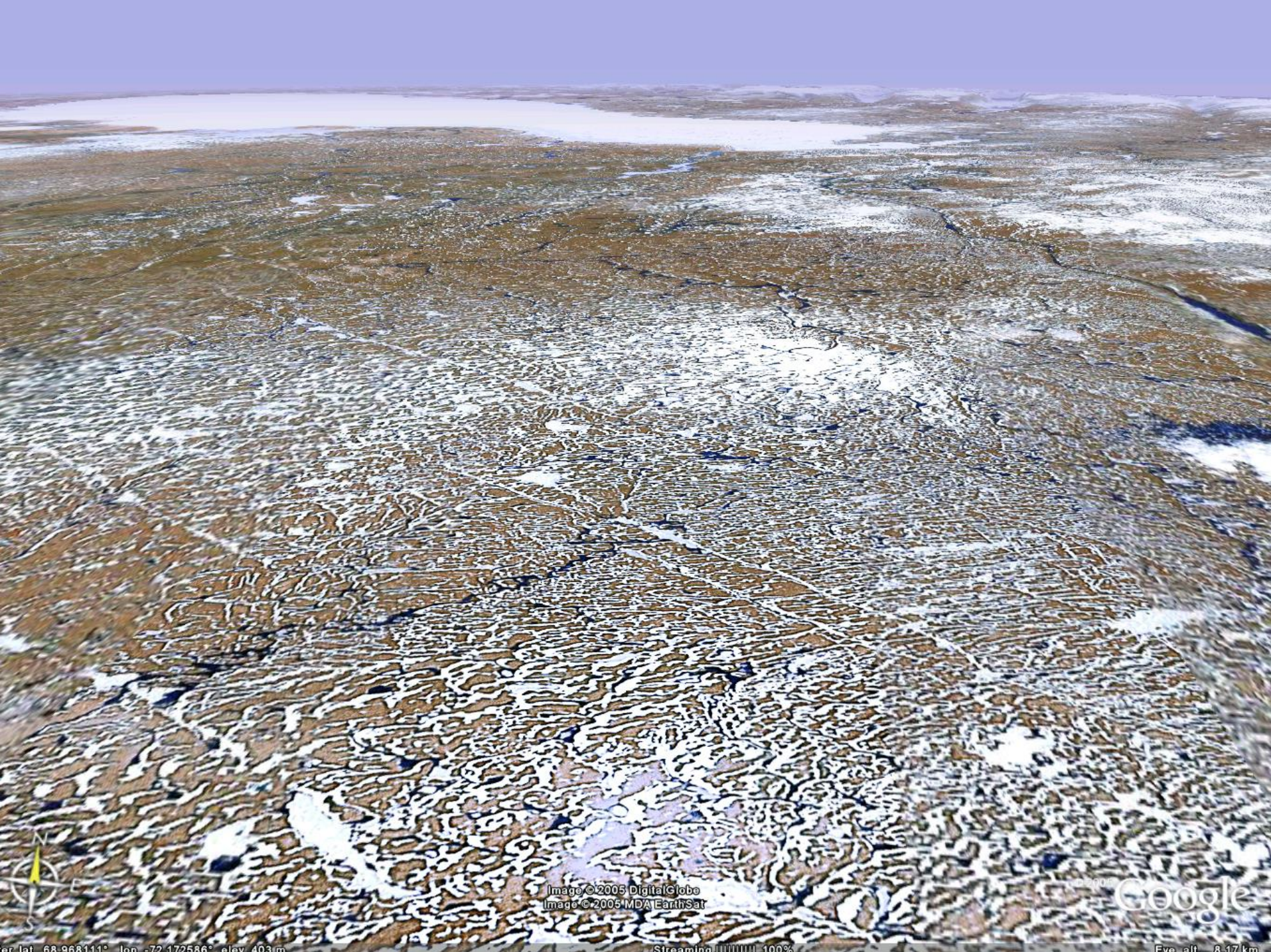


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er lat: 68.968111° lon: -72.172586° elev: 403 m

Streaming 100%

Elev. alt: 8.17 km

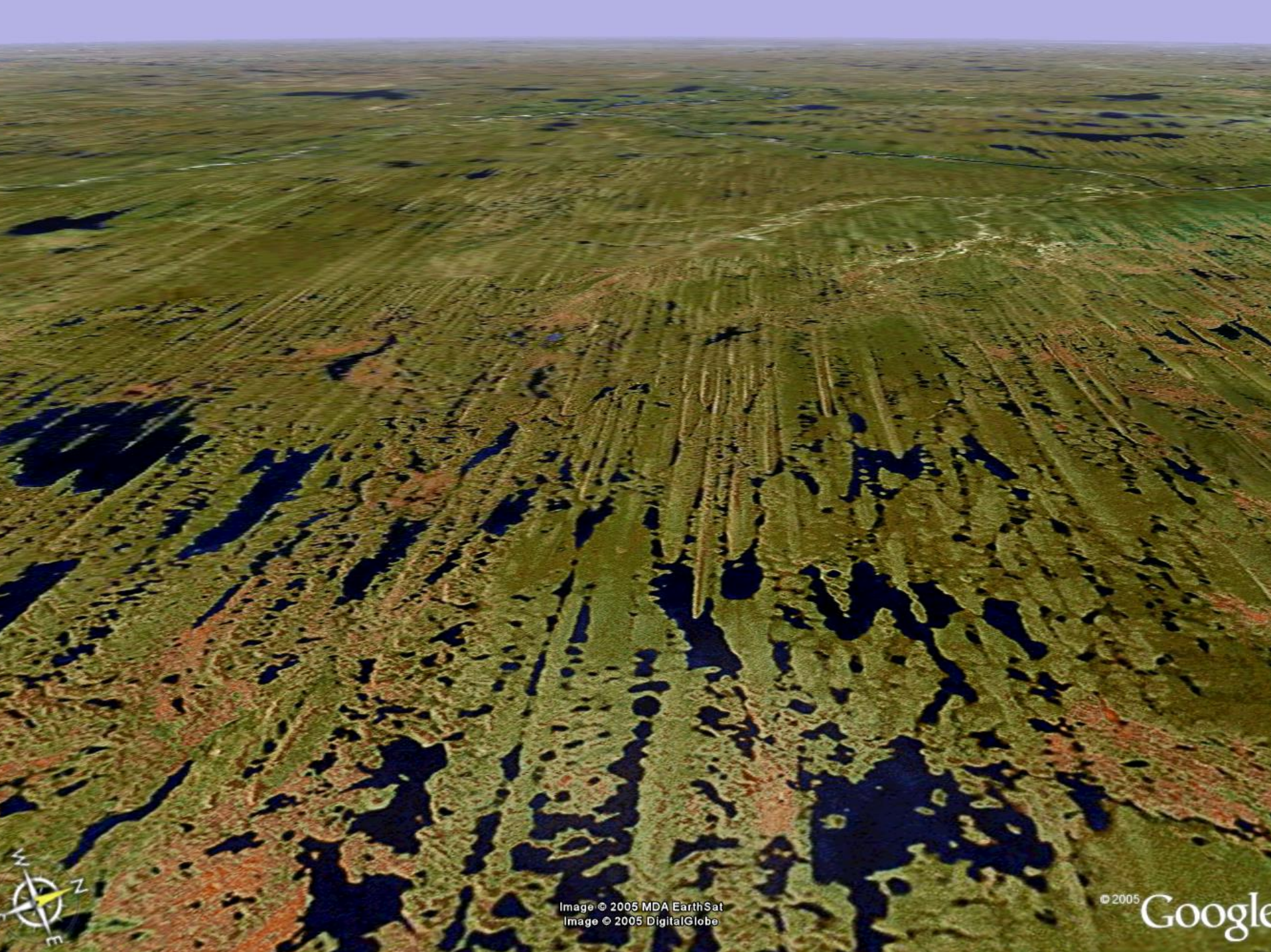


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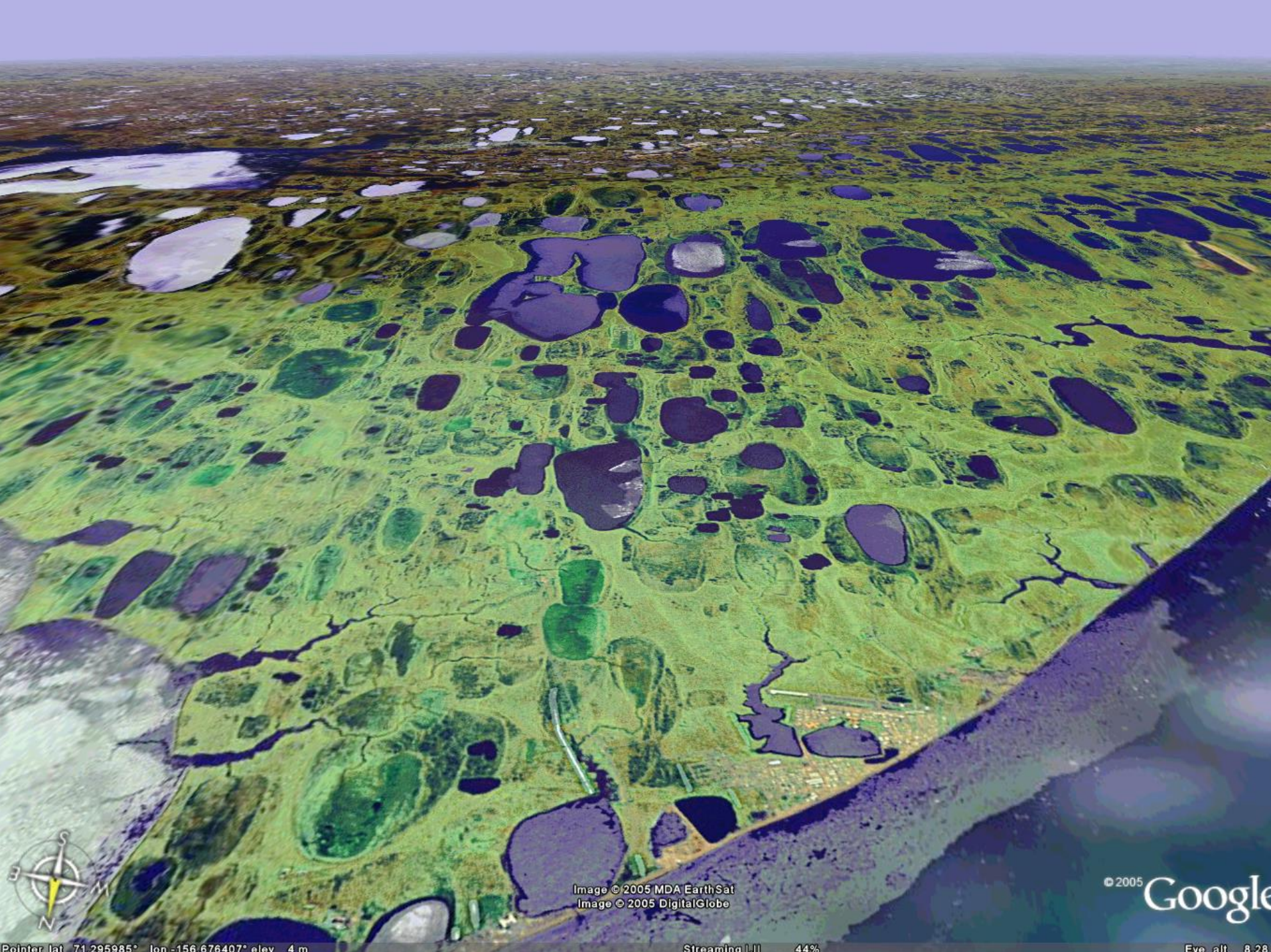


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Pointer lat 71.295985° lon -156.676407° elev 4 m

Streaming 1/1 44%

Eve alt 8.22

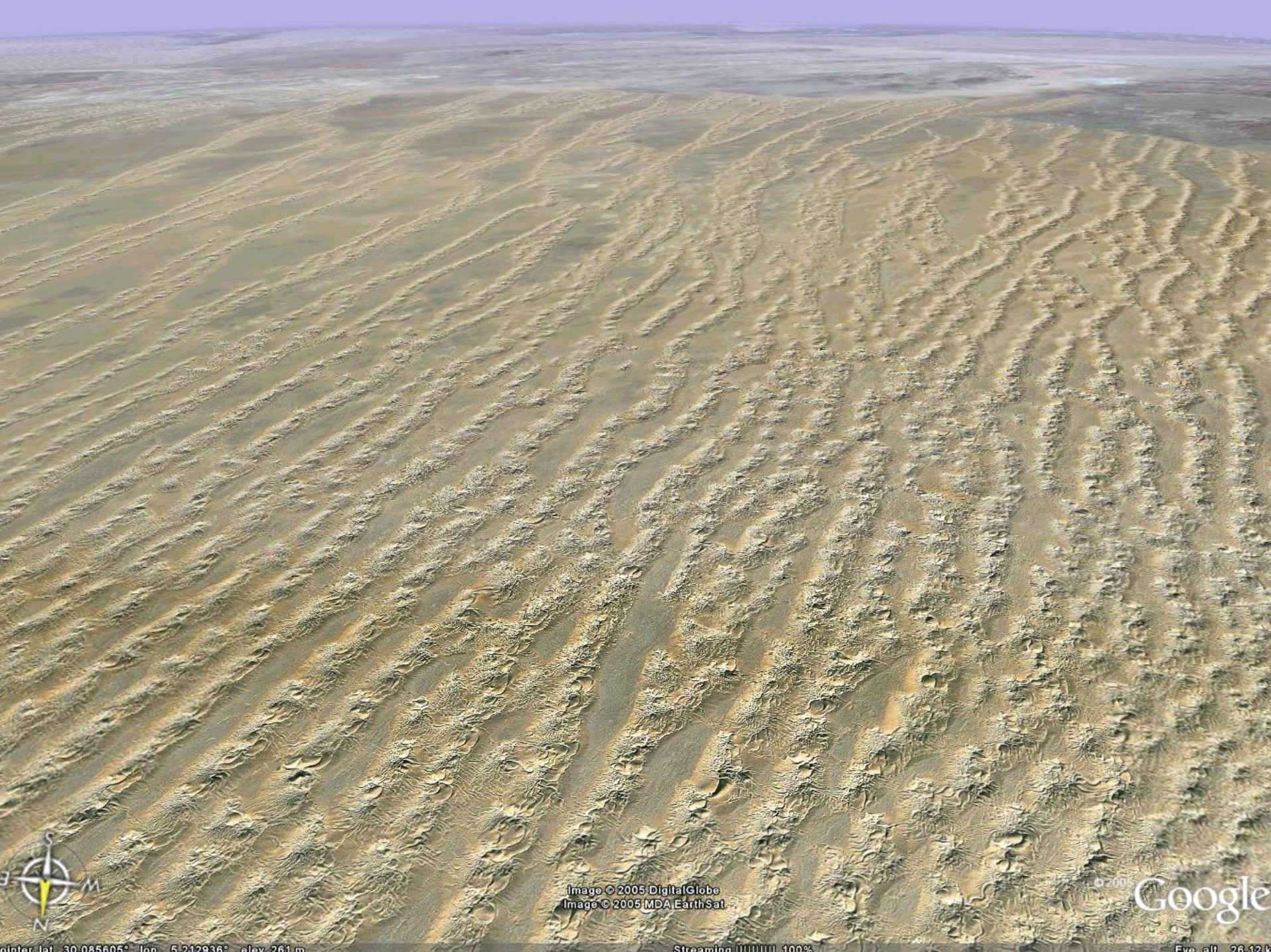


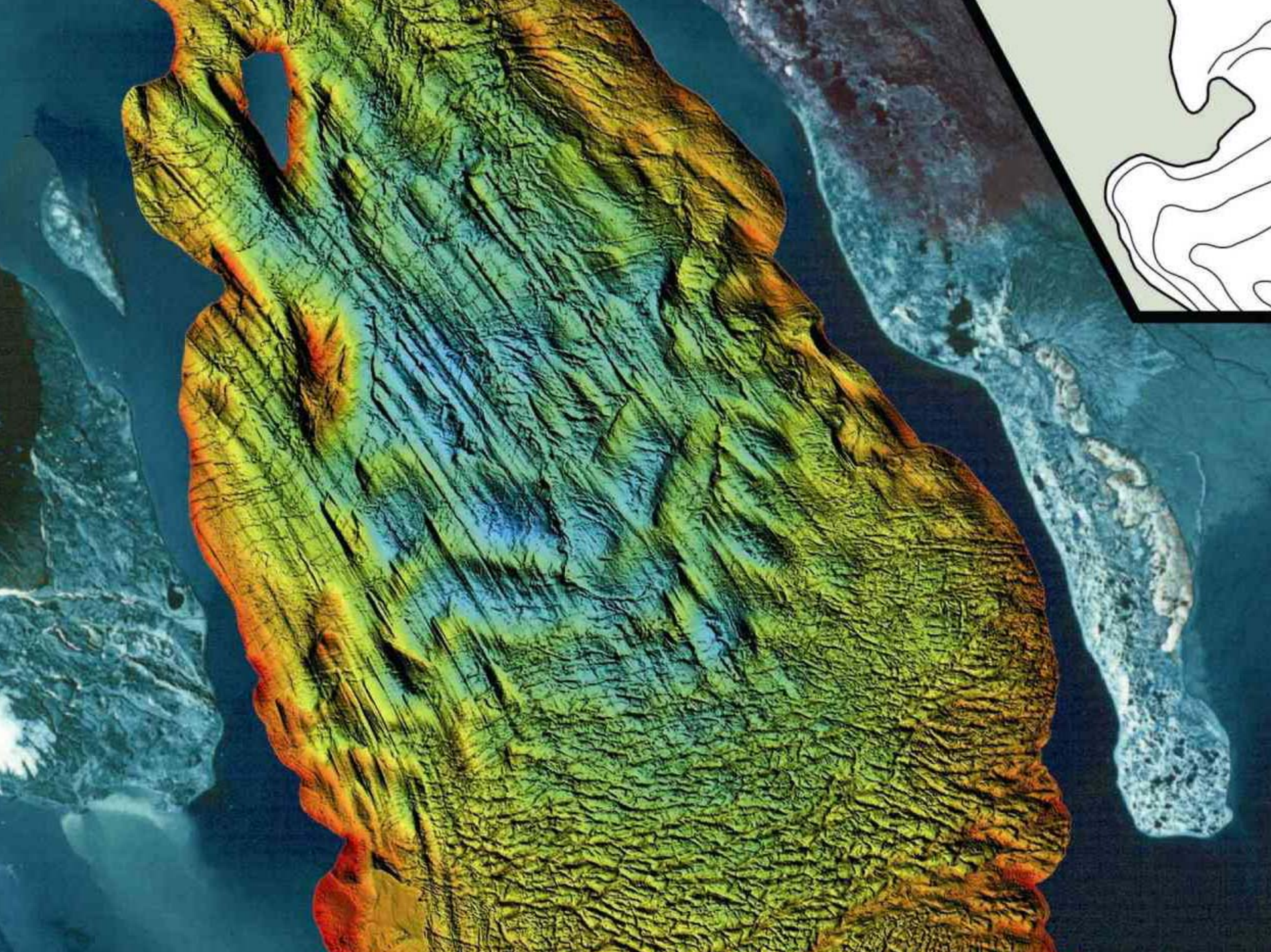
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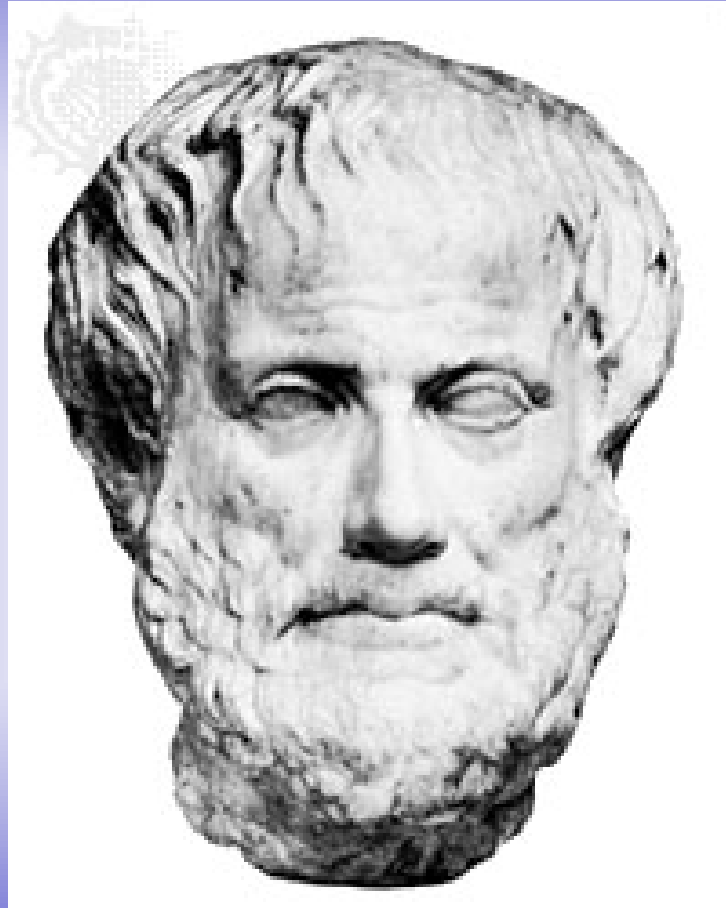
center lat: 30.085605° lon: 5.212936° elev: 261 m

Streaming 100%

Elev alt: 26.12



Research history of Physical Geography



Aristotle (384-322 BC)

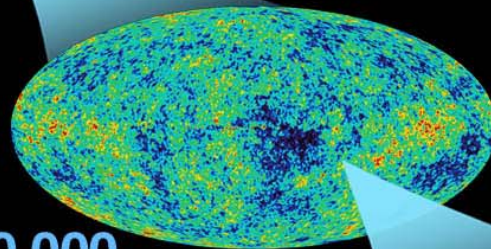
Facts about planet Earth

**DAWN
OF
TIME**



**tiny fraction
of a second**

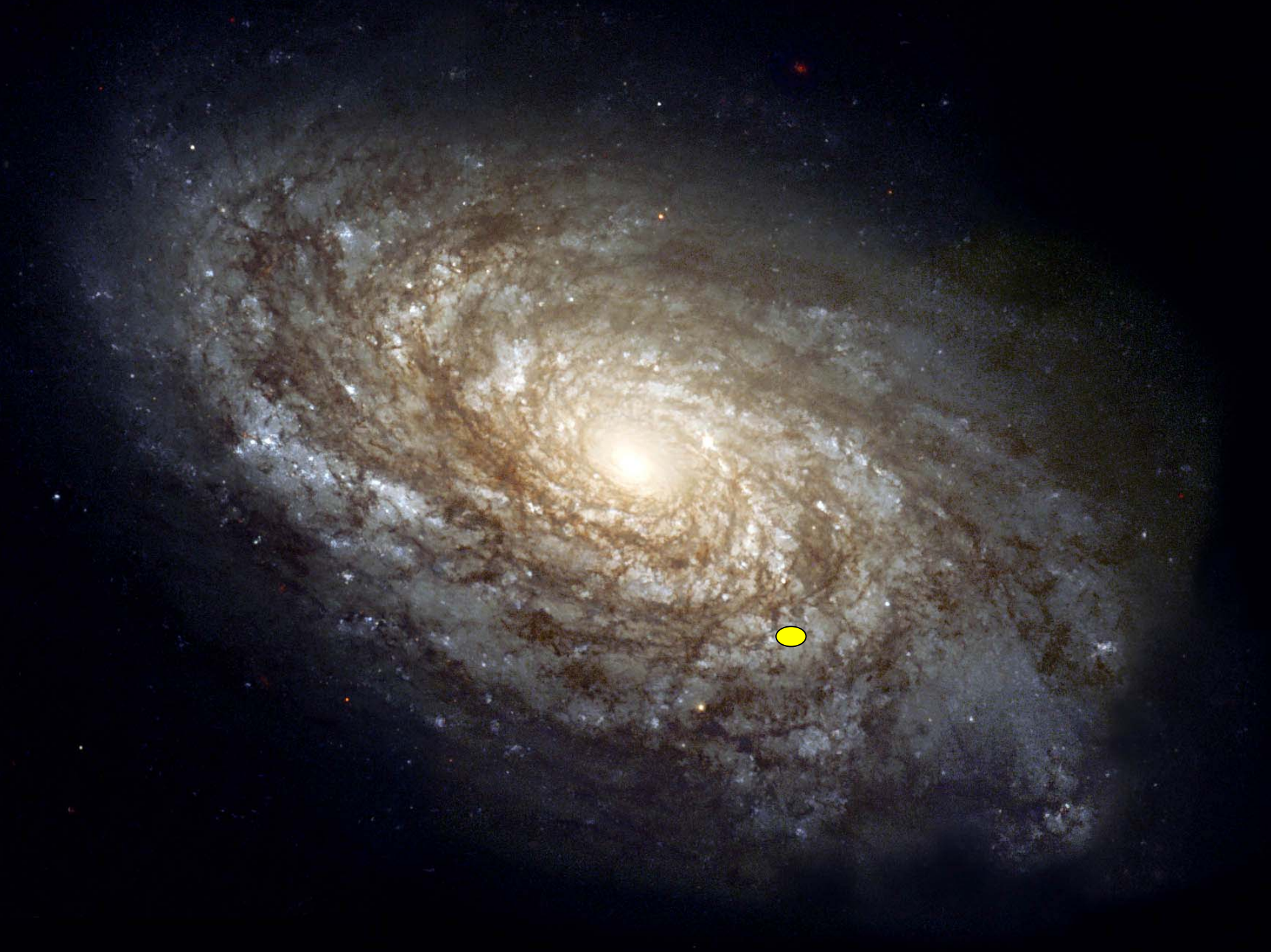
inflation

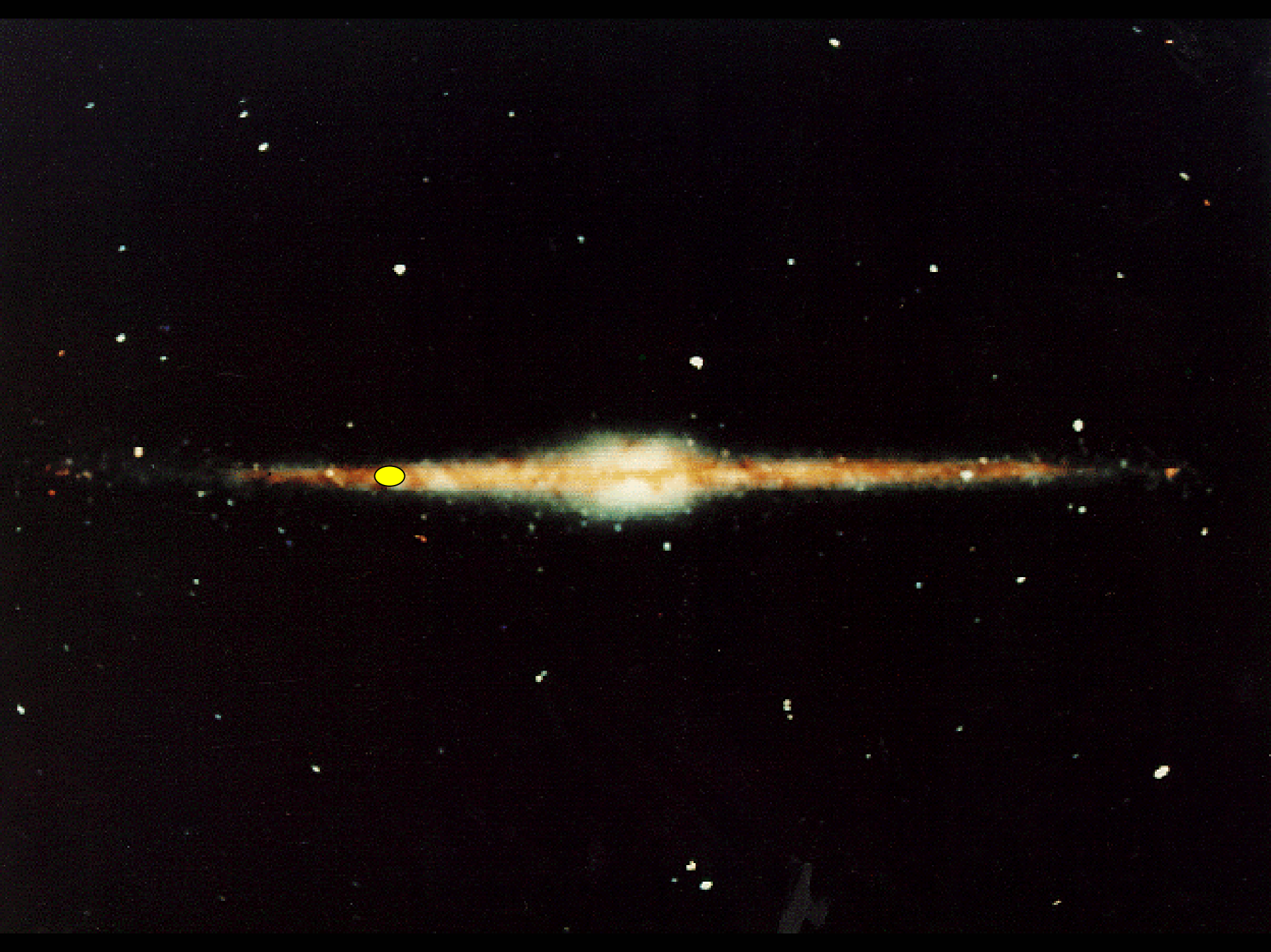


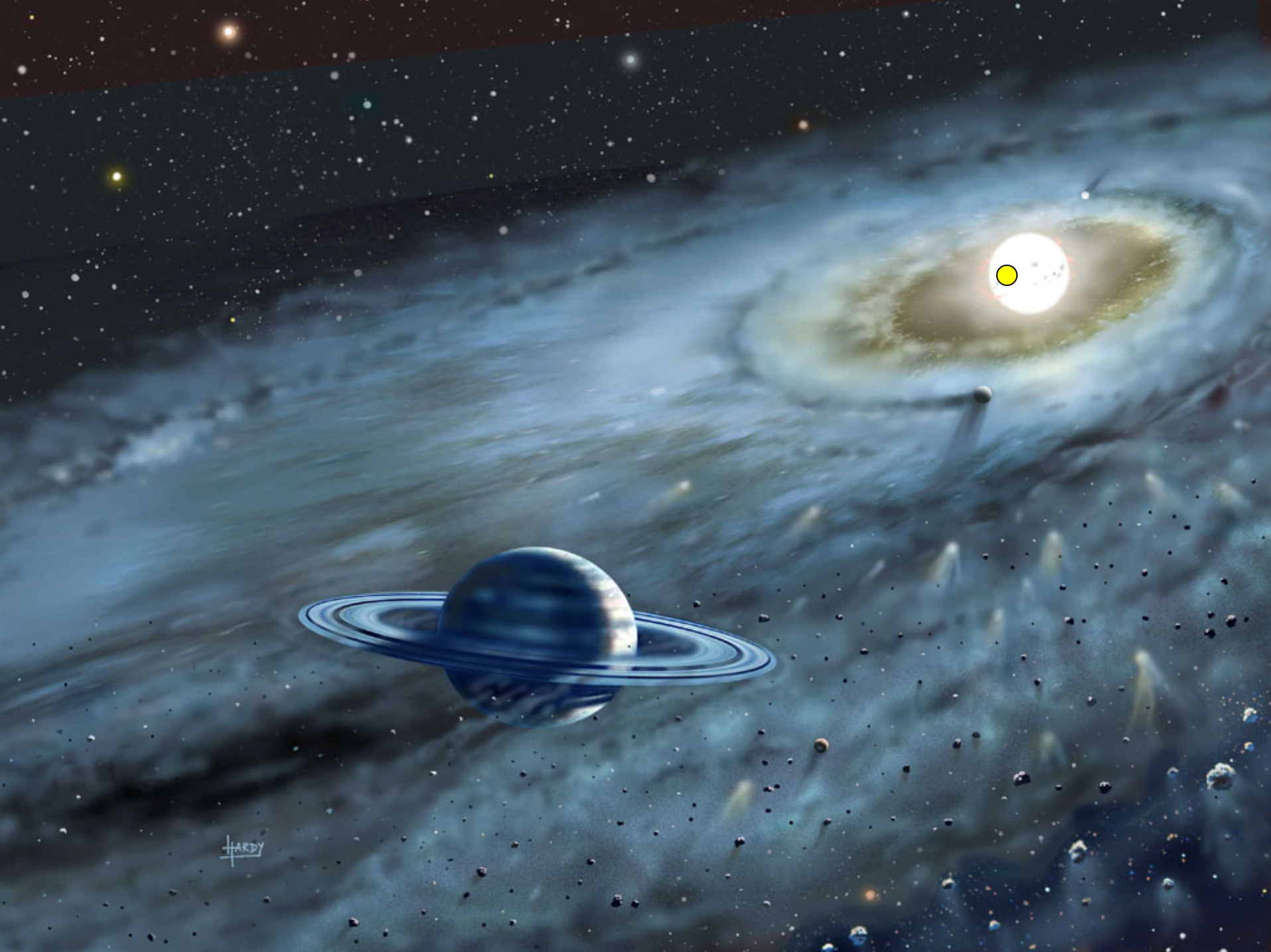
**380,000
years**

**13.7
billion
years**



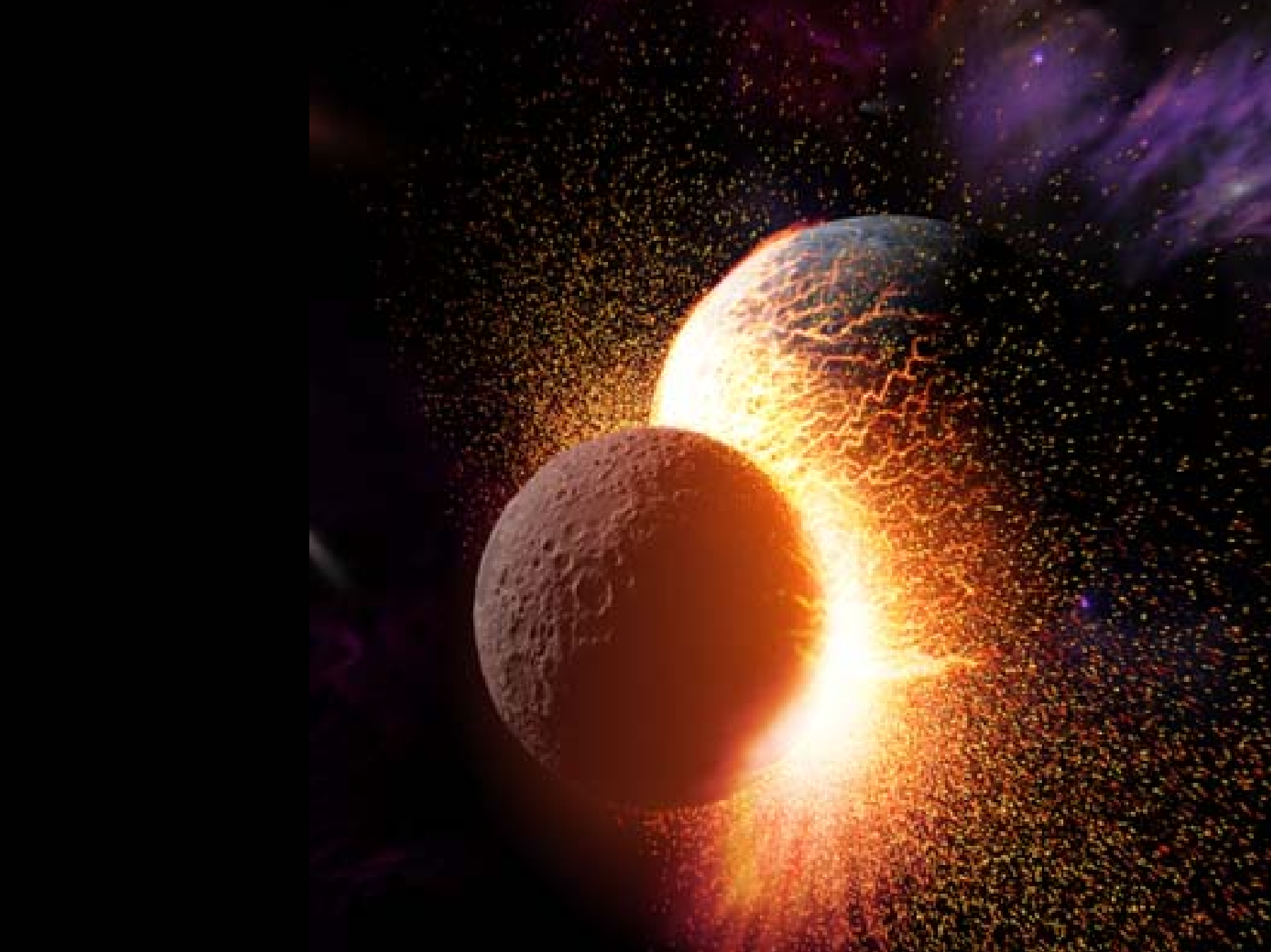






HARDY







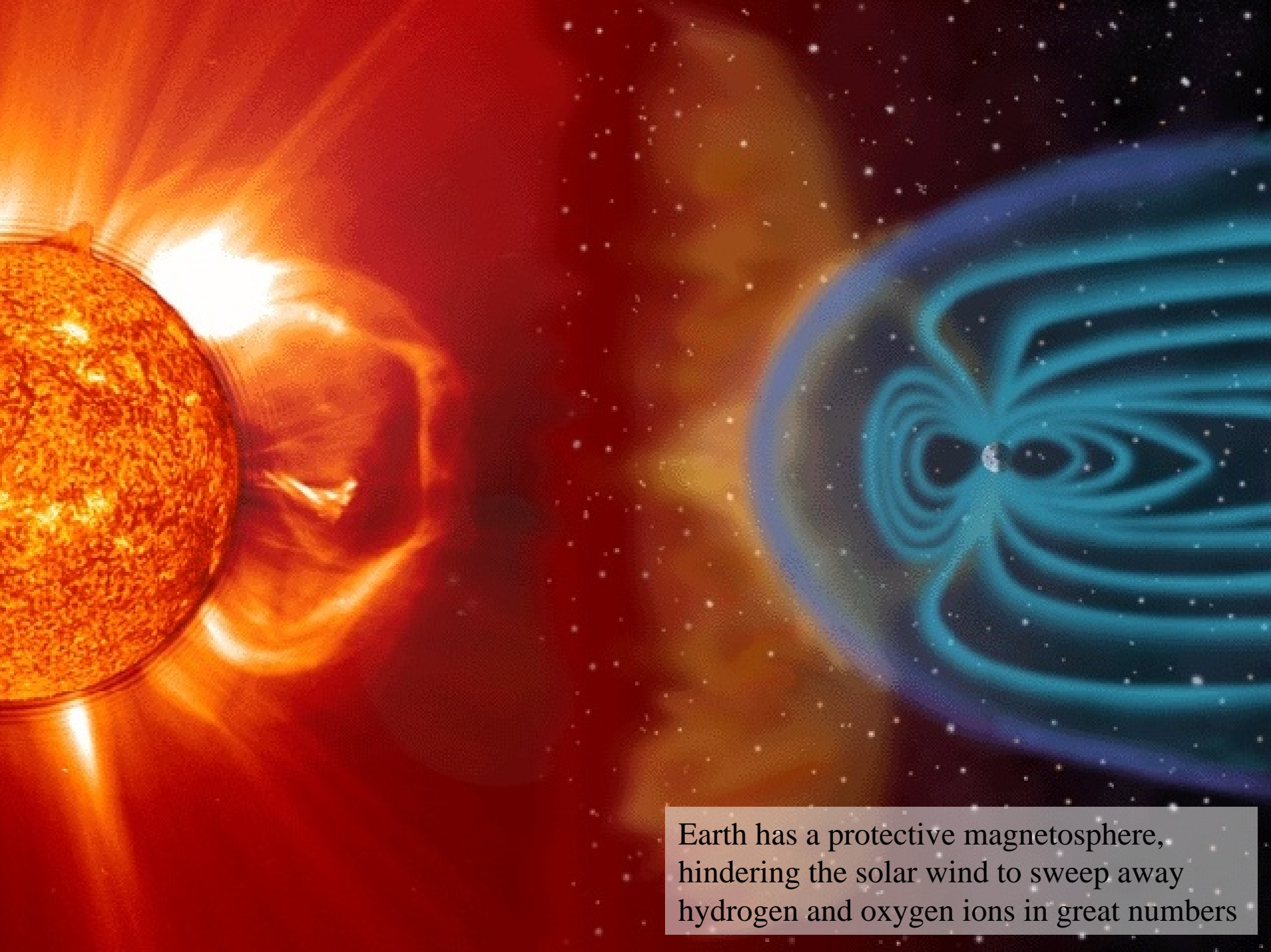


Planet Earth: a water planet
29% covered by land; 71% covered by oceans

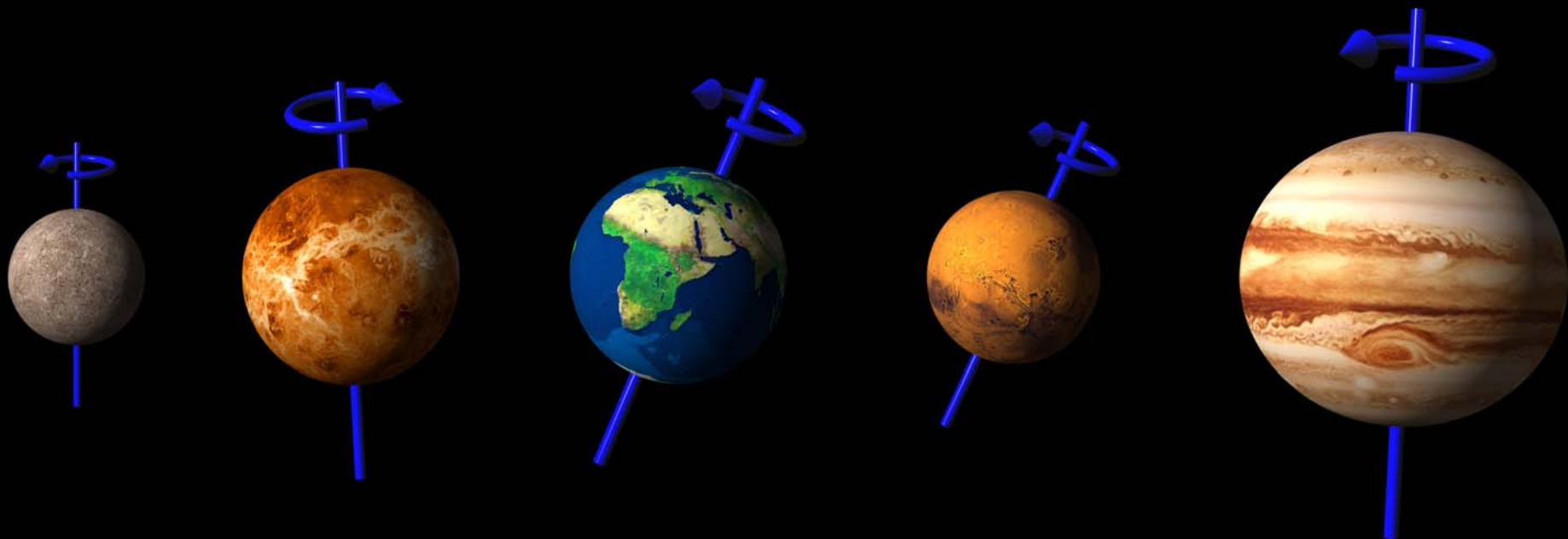
Earth Statistics

Mass (kg)	5.976e+24
Mass (Earth = 1)	1.0000e+0 0
Equatorial radius (km)	6,378.14
Equatorial radius (Earth = 1)	1.0000e+0 0
Mean density (gm/cm³)	5.515
Mean distance from the Sun (km)	149,600,00 0
Mean distance from the Sun (Earth = 1)	1.0000
Rotational period (days)	0.99727
Rotational period (hours)	23.9345
Orbital period (days)	365.256
Mean orbital velocity (km/sec)	29.79
Orbital eccentricity	0.0167
Tilt of axis (degrees)	23.45
Orbital inclination (degrees)	0.000
Equatorial escape velocity (km/sec)	11.18
Equatorial surface gravity (m/sec²)	9.78
Visual geometric albedo	0.37
Mean surface temperature	15°C
Atmospheric pressure (bars)	1.013
Atmospheric composition	
Nitrogen	77%
Oxygen	21%
Other	2%





Earth has a protective magnetosphere, hindering the solar wind to sweep away hydrogen and oxygen ions in great numbers



Mercury
0.1°

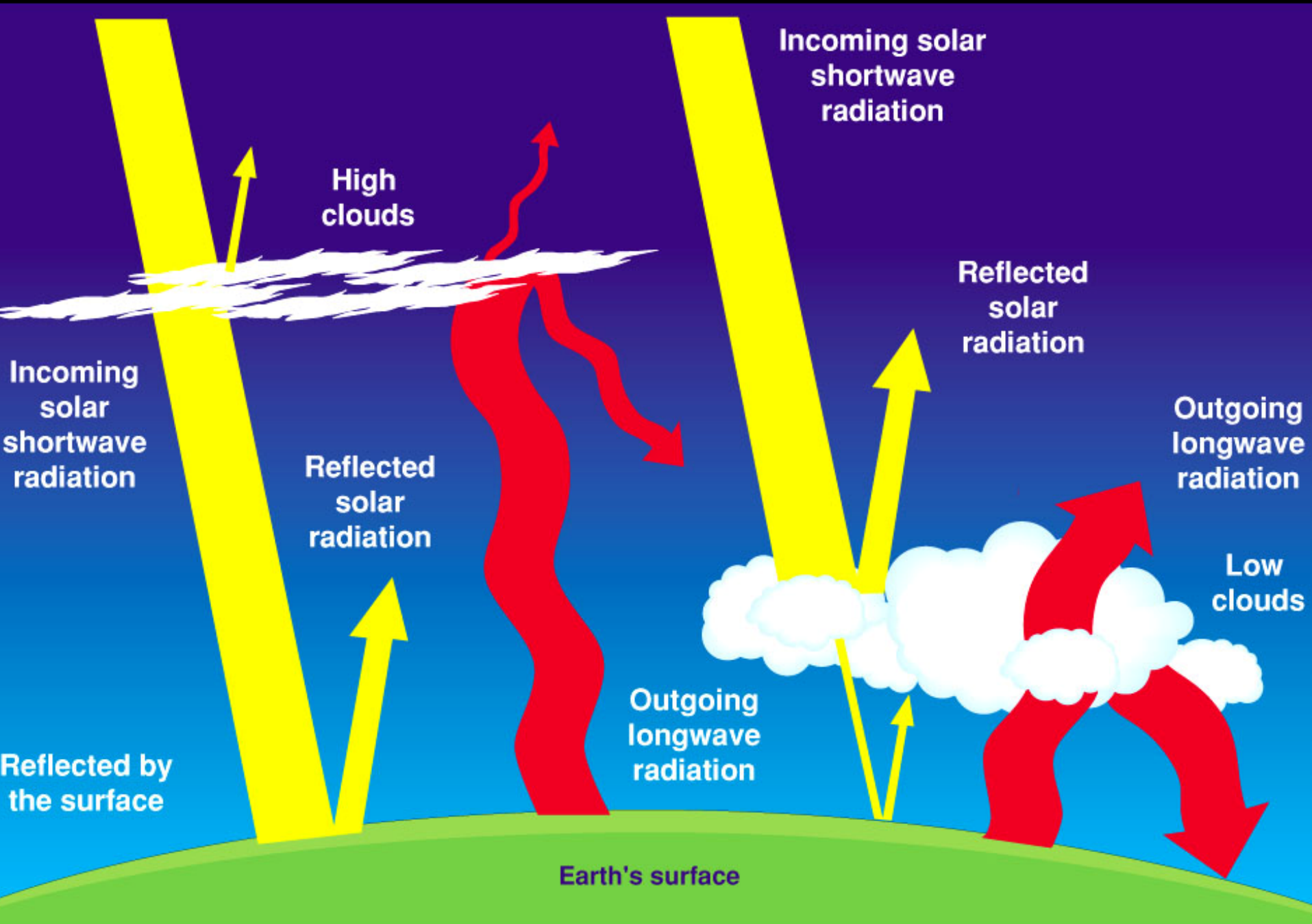
Venus
177°

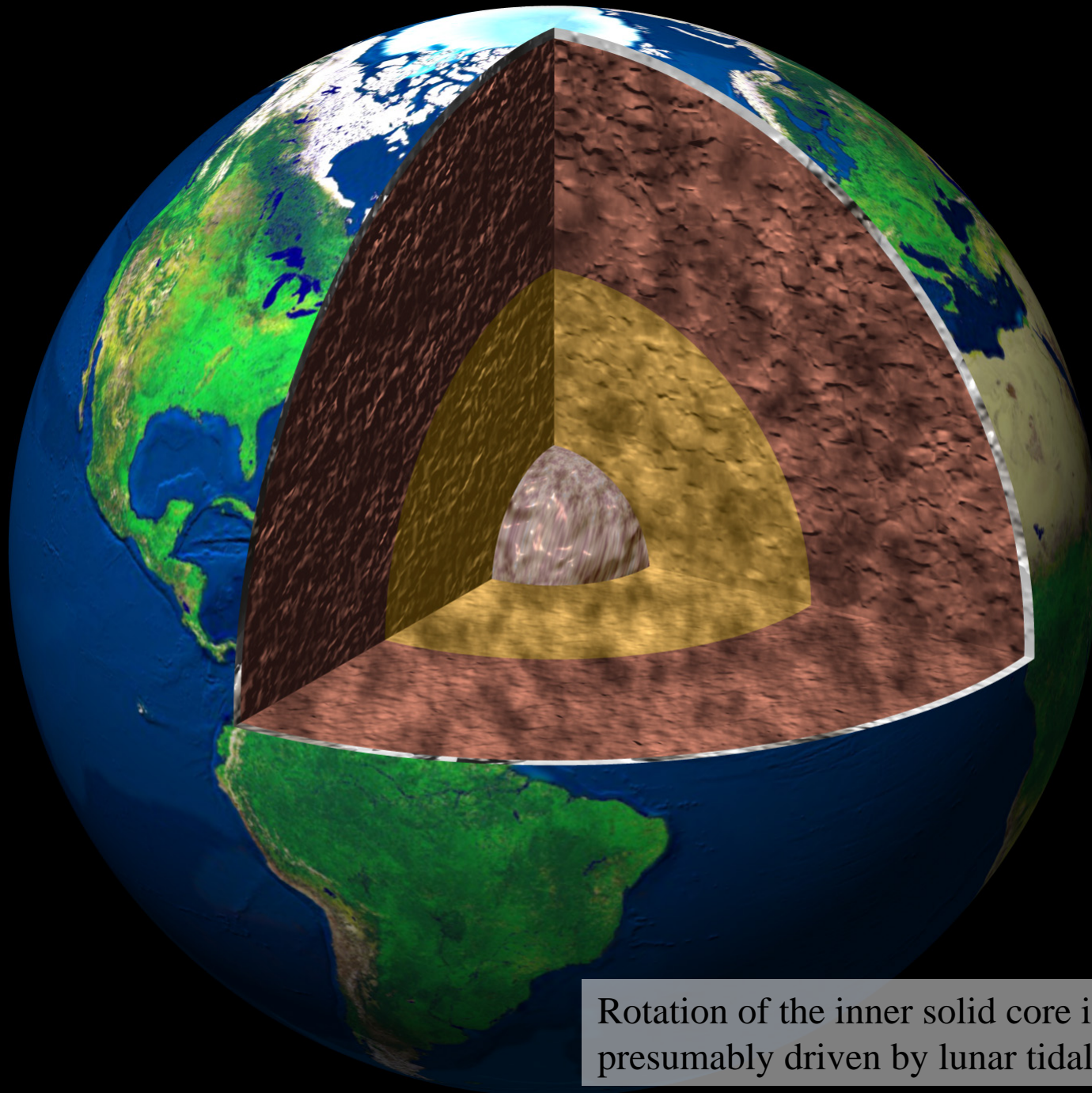
Earth
23°

Mars
25°

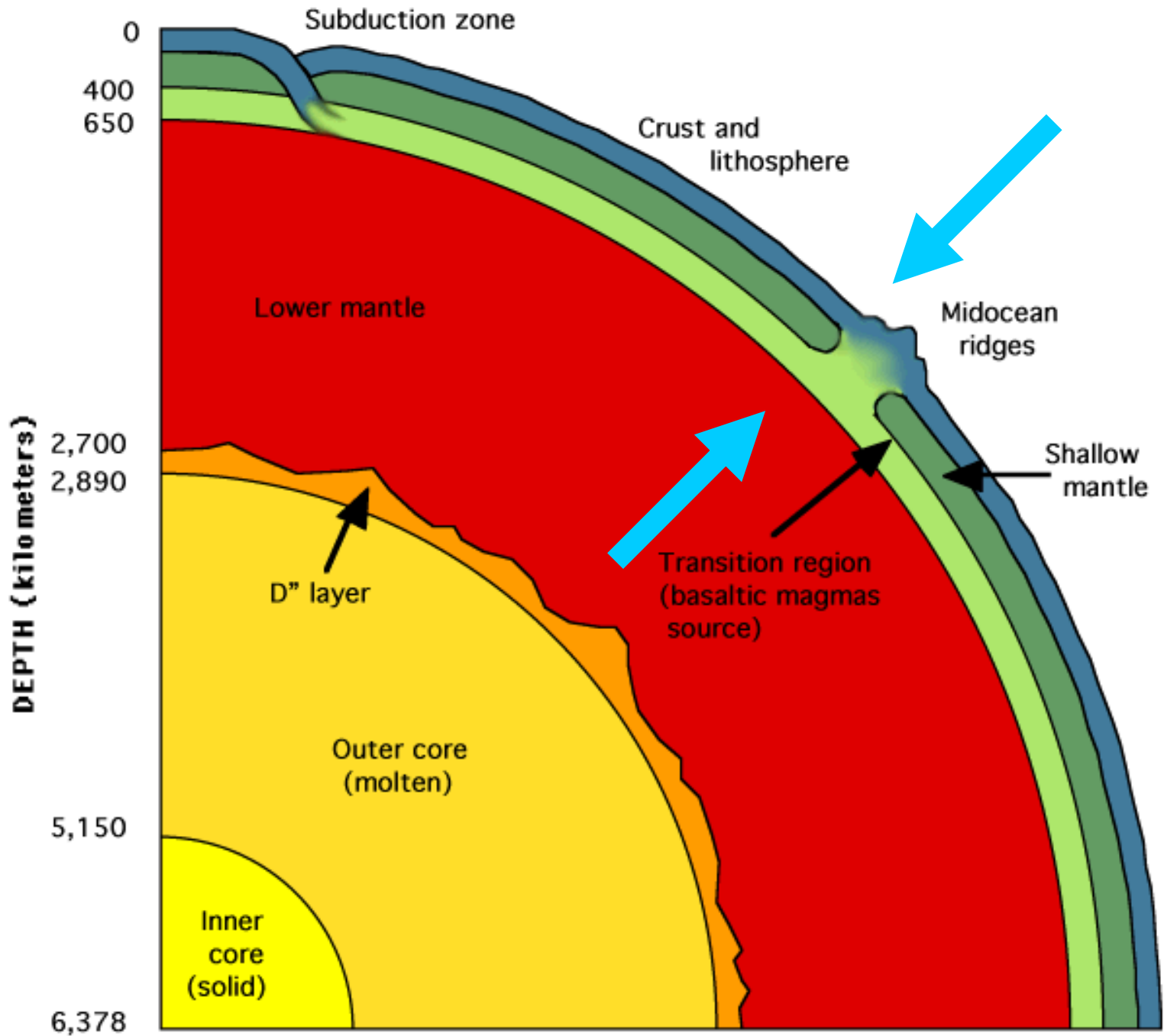
Jupiter
3°

Obliquity of the Nine Planets





Rotation of the inner solid core is presumably driven by lunar tidal forces



Endogenic and exogenic forces

Exogenic:

"Outside," processes working on the planet surface. Weathering, mass wasting, erosion and deposition (running water, wave action/currents/tides, wind activity, glacial action, groundwater), work of organisms (including humans), and extraplanetary processes.

Endogenic:

"Inside," processes generally operating within a planetary body acting to displace material. Tectonism, volcanism, continental drift.

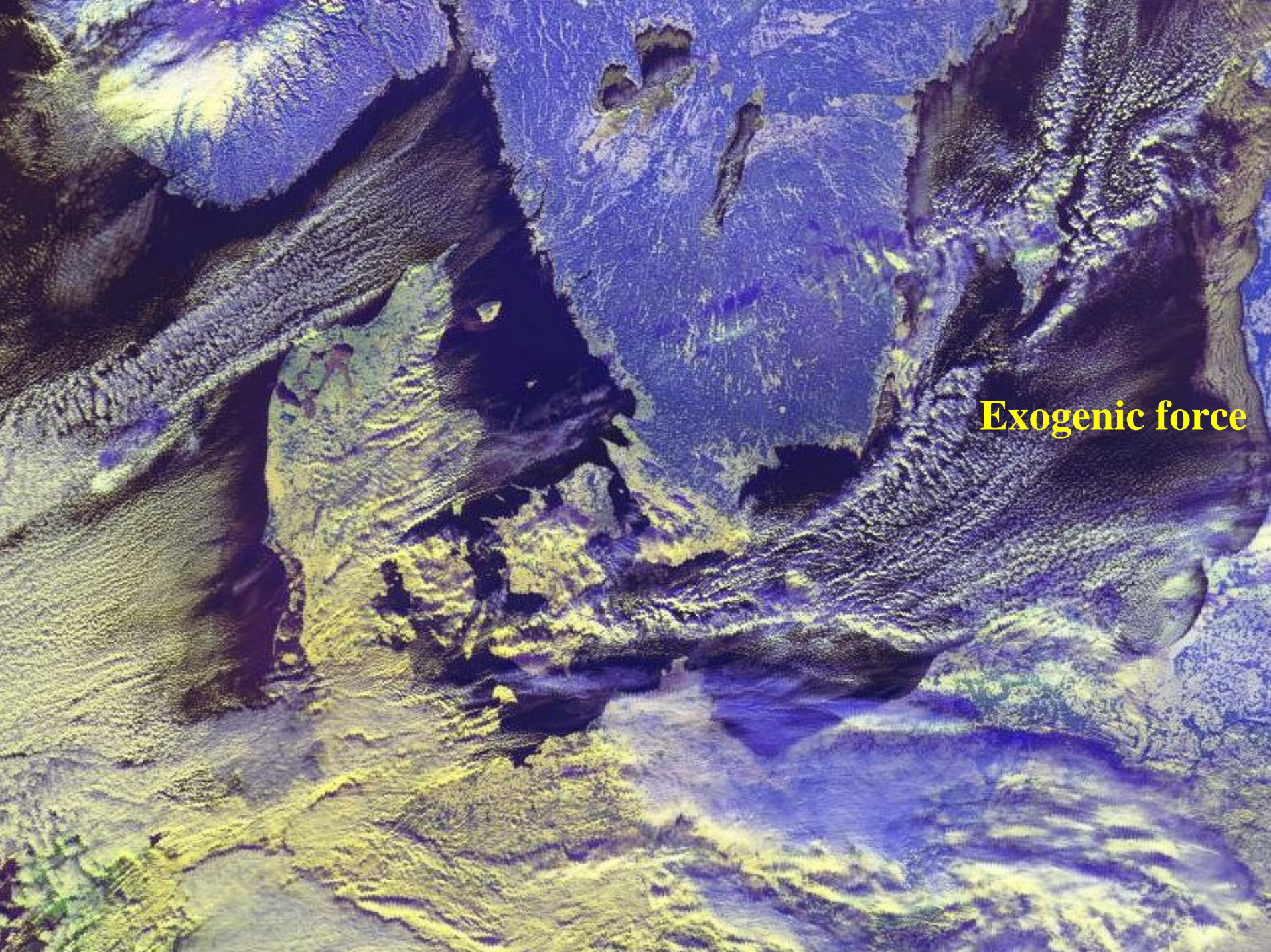
Endogenic force



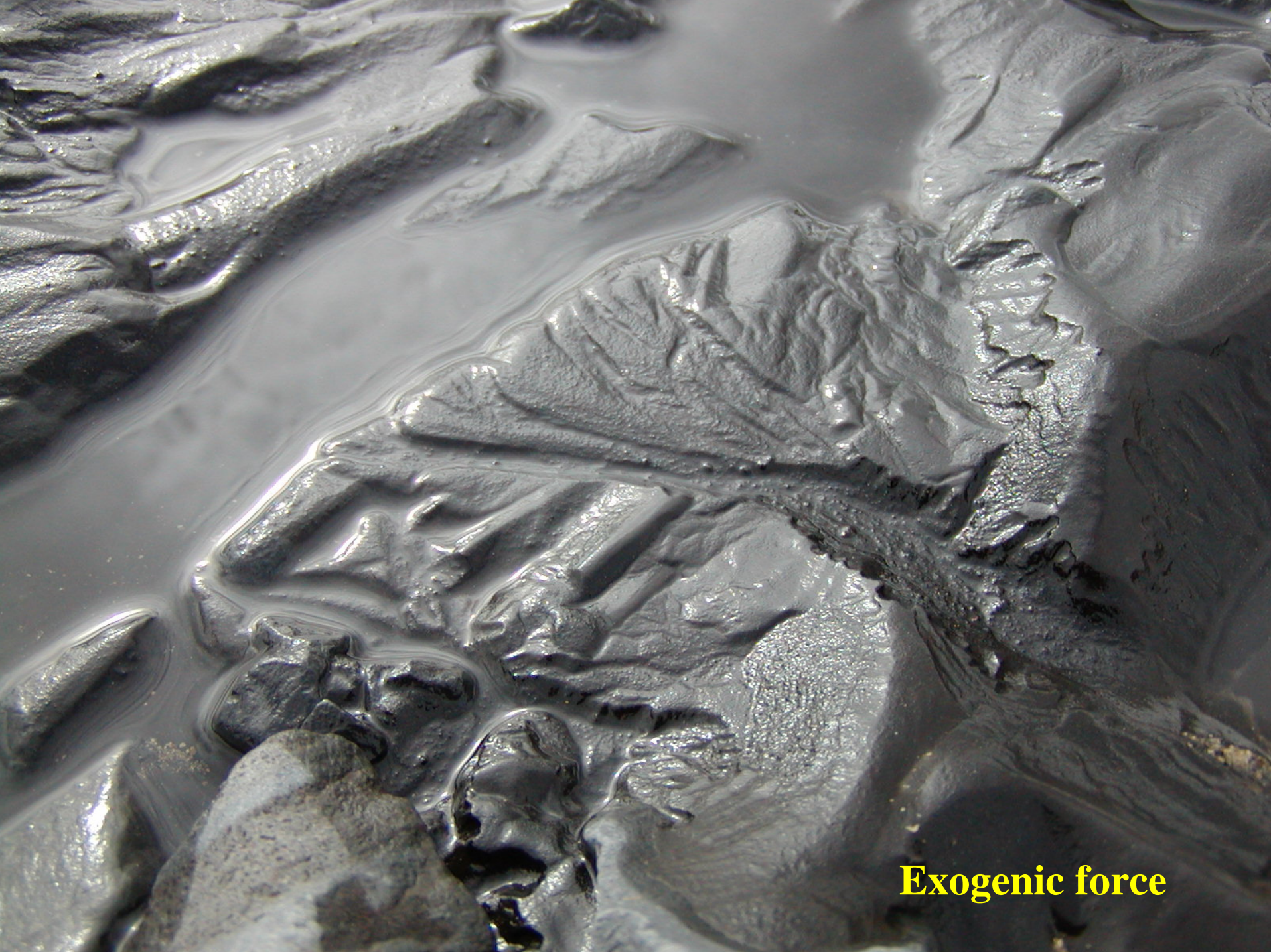


Exogenic force

©Don Davis



Exogenic force



Exogenic force

Landscapes and landforms

Definition of landscape:

"Distinct association of landforms, as operated on by geological processes (exo- or endogenic), that can be seen in a single view." -*Glossary of geology*.

Definition of landform:

"Any physical, recognizable form or feature on the earth's surface, having a characteristic shape, and produced by natural causes; it includes major forms such as a plain, plateau, or mountain, and minor forms such as a hill, valley, slope, esker, or dune. Taken together, the landforms make up the surface configuration of the earth." -*Glossary of geology*.



Landscape



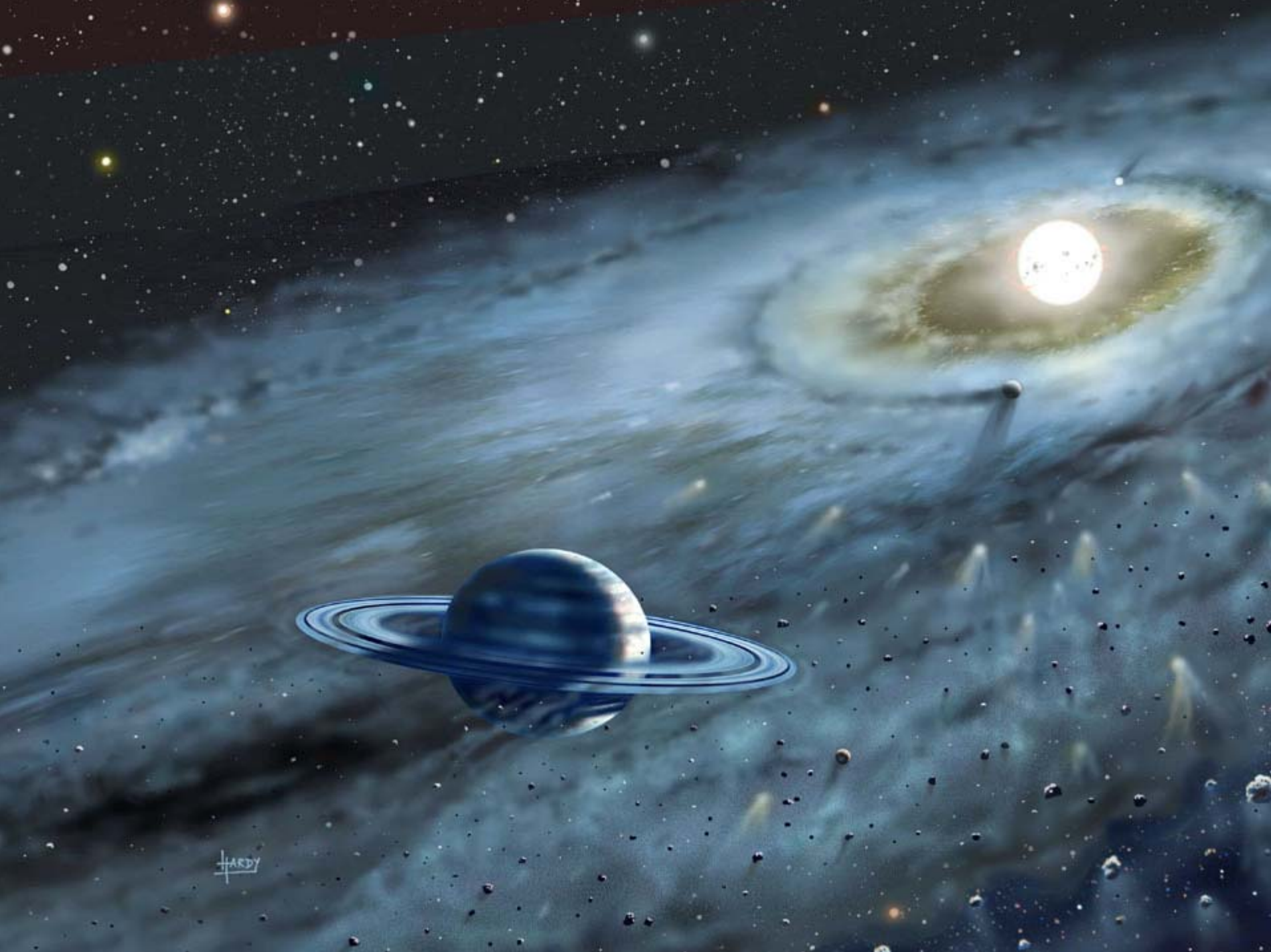
Landform; medium-sized

Landform; small









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