

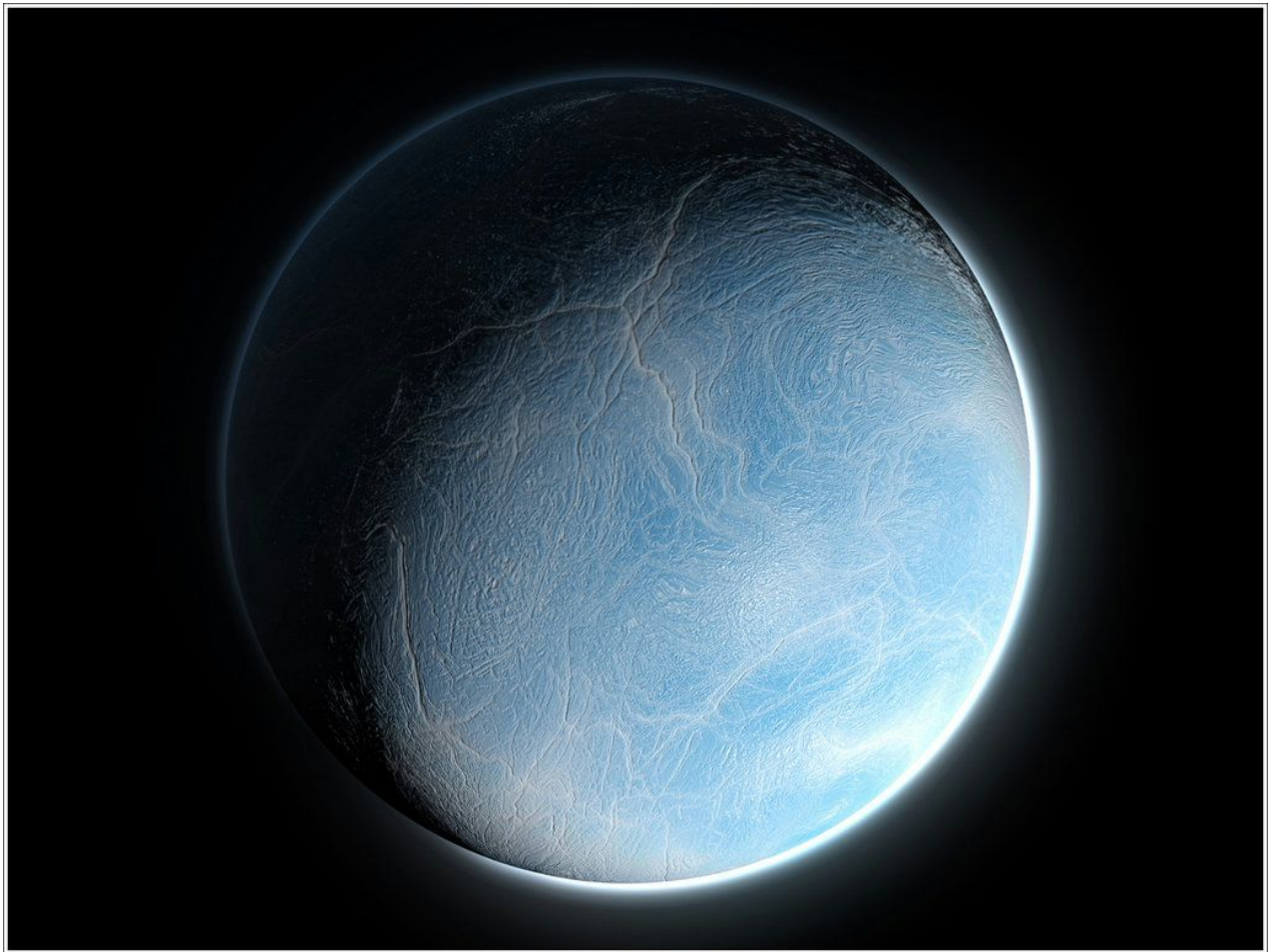
## 1. Super Earth

This planet is 2.2 times the mass of the earth. Gravity is much stronger here than on earth; moving around on it's surface is demanding, and consumes a large amount of energy. This planet has a similar mineral composition to Earth. The planet is largely inactive volcanically and has little tectonic plate movement. Several large disconnected oceans dot the dot the surface. Large rings are visible in the daytime, and nighttime sky.



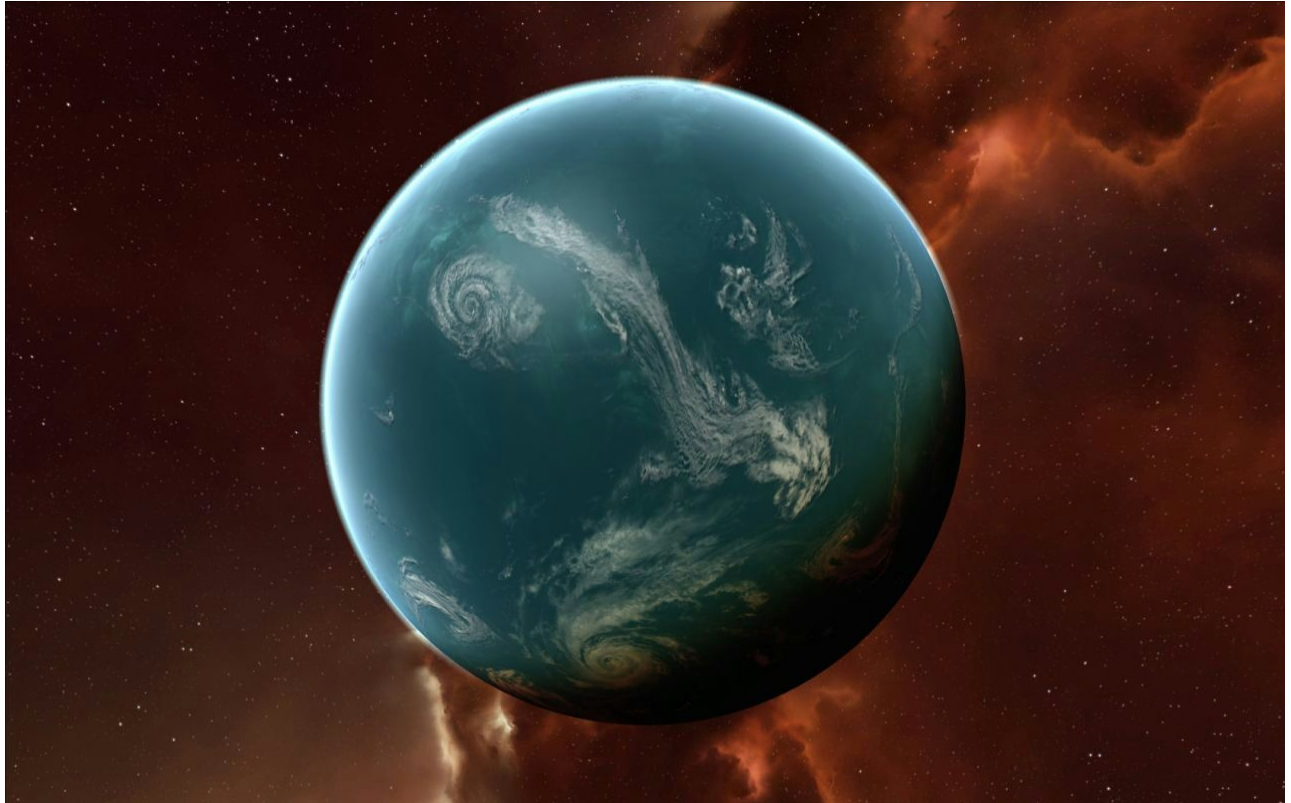
## 2. Ice Planet

This planet has an eccentric orbit that takes it far away from its large yellow star for 3 earth years and brings it close enough to have liquid water on half of its surface for 4 Earth years. This planet is 1.2 times volume of earth. About 80% of the land is covered with water ice during the long winter. At the height of summer only 10% of the water remains frozen at the poles and on the mountain peaks. During the Summer most of the surface is swampy with heavy, moisture laden air, and tropical temperatures. During the winter this changes to frozen desolation as the sun shrinks in the sky and global temperatures plunge well below freezing.



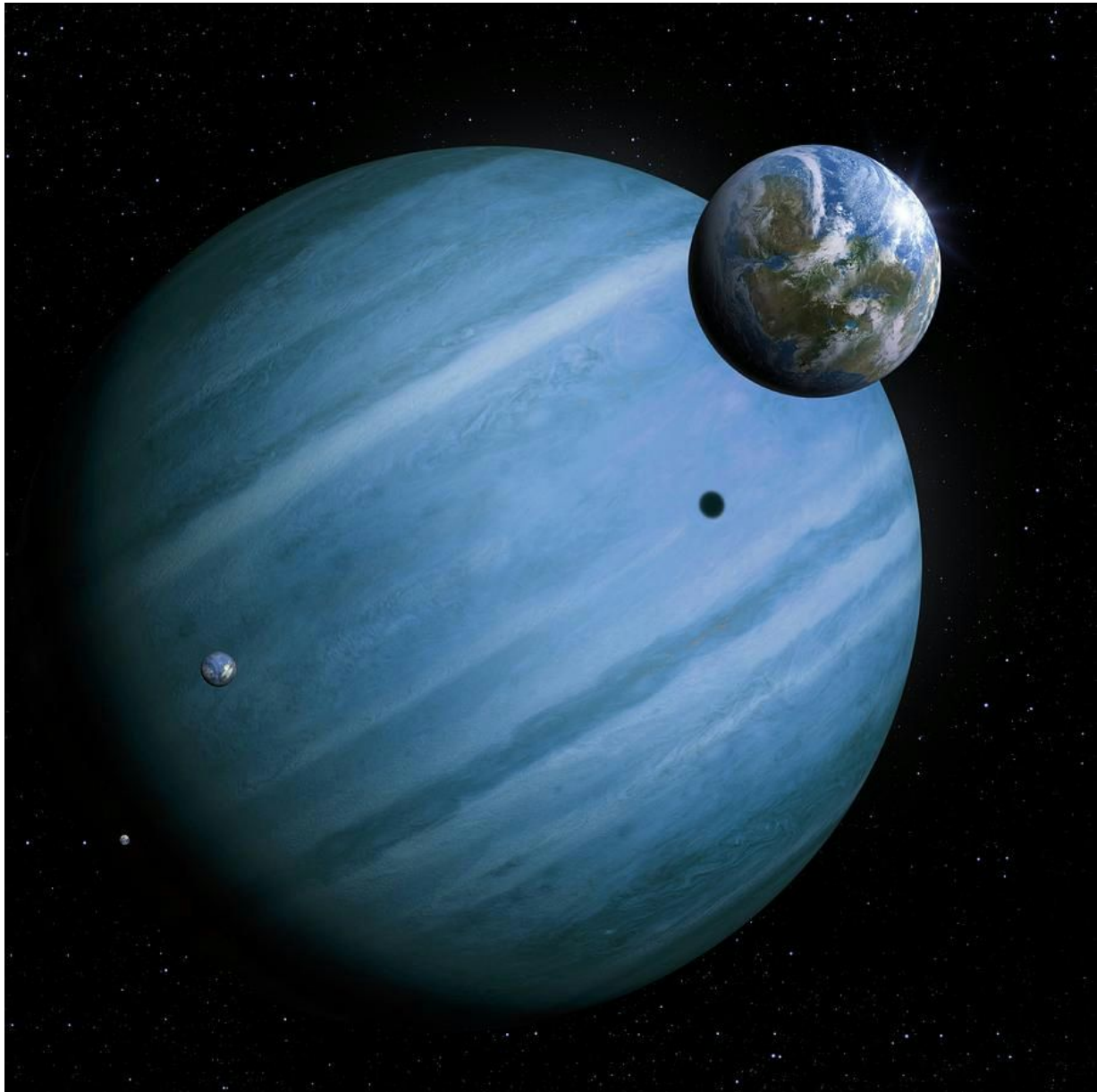
### 3. Ocean Planet

This planet is twice the size of Earth but has a surface completely covered with water. The global ocean varies greatly in depth with some areas as deep as 75 kilometers, and some areas as shallow as 15 meters. No solid land rises above the surface of the ocean, even during the lowest tides, but currents circulate dissolved minerals and other materials throughout. Temperatures remain constantly cool at around 19 degrees Celsius.



#### 4. Gas Giant Satellite Plane

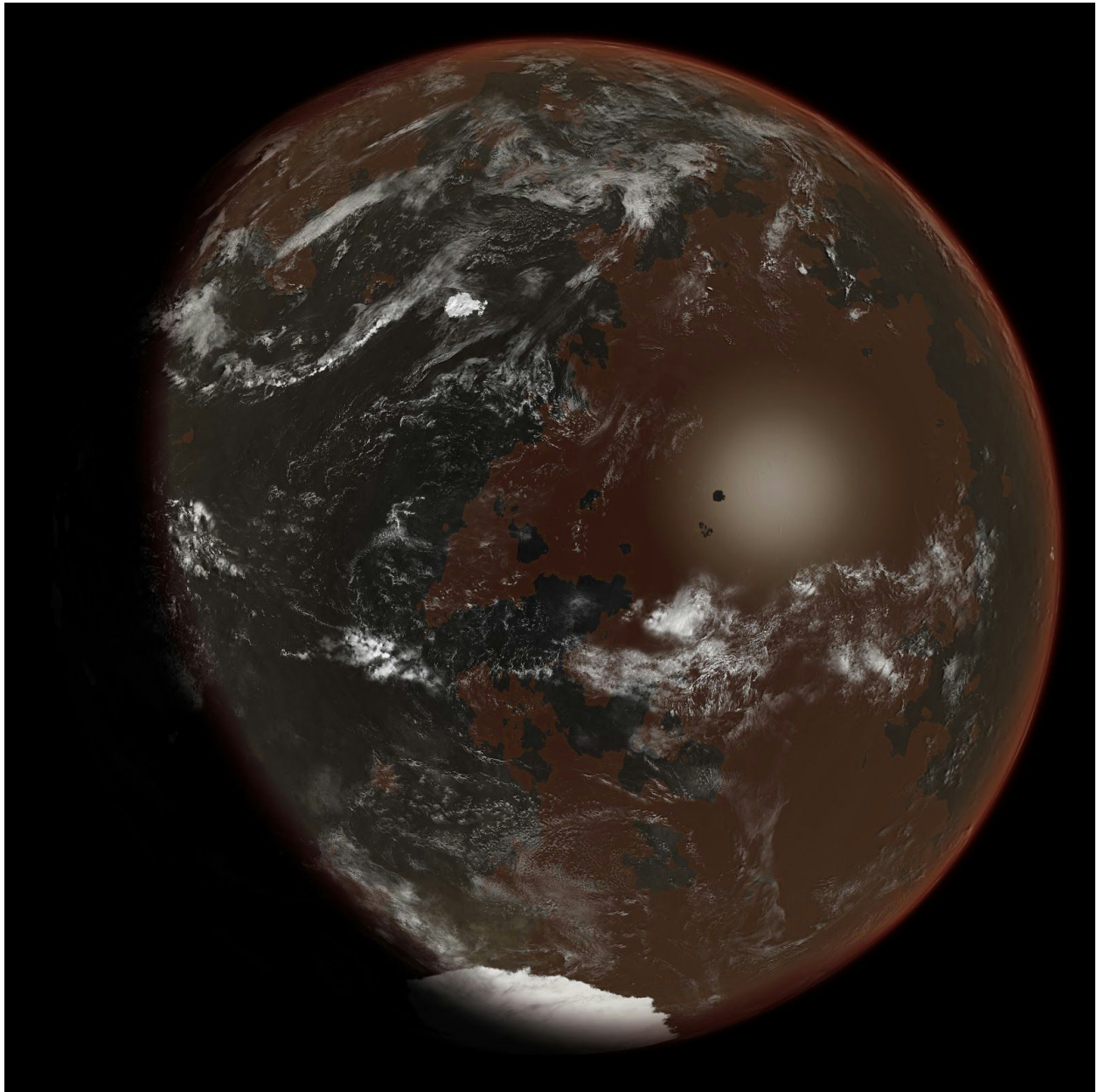
This planet is actually a very large moon, with tall mountain ranges and deep canyons. It orbits an enormous gas giant that has a diameter 200 times that of Earth. The star is a large yellow/white star. The tides are extreme due to the gravitational pull of the gas giant, and the great differences in the height and depth of surface features. Hundreds of square kilometers of land are under or above water during any given day; rapid currents, whirlpools, and tidal waves are generated constantly.





## 5. Iron Planet

This slightly smaller-than-Earth-sized planet was once the core of a gas giant. Its composition is nearly 70% iron, nickel, and other heavy metals. The gravity is nearly double that of Earth. The star is a red dwarf that emits light towards the infrared band of the electromagnetic spectrum. The surface features are subtle with very little variation in elevation. A very shallow ocean covers 45% of the surface; that is less than two meters deep on average, and supersaturated with iron and other heavy elements. The molten core produces unexpected magnetic phenomena. No moons. The dark, oxidized surface absorbs heat well and keeps temperatures moderate.



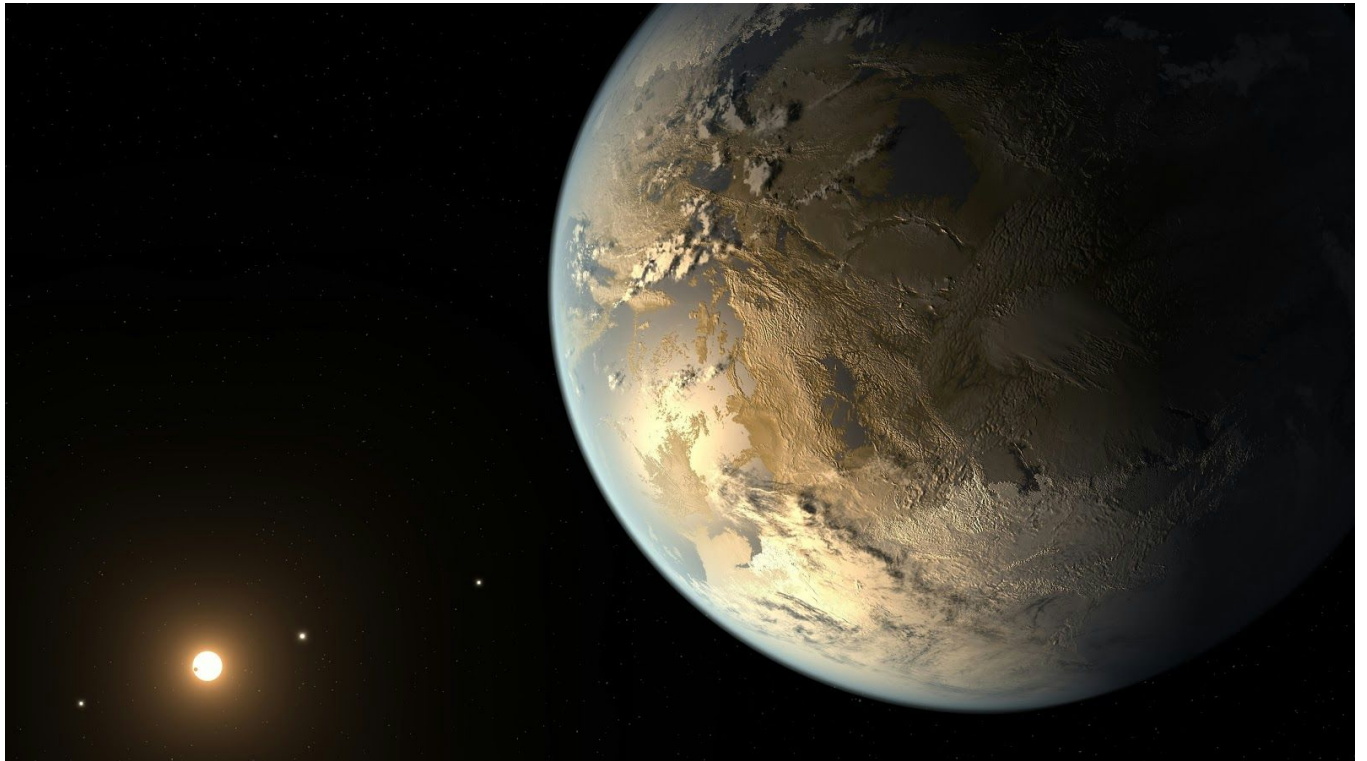
## 6. Blue Giant Star Planet

This planet orbits a blue star that is four times the diameter of the sun, and throws off high energy radiation towards the UV end of the electromagnetic spectrum. Despite being far enough away from the star to have liquid water; the daytime brightness is intense. Surface temperatures at midday are high (40 - 60 degrees Celsius). UV exposure is dangerously high. The planet has a magnetosphere which keeps the nighttime sky lit up with intense auroras from the high energy particles hitting the upper atmosphere. Life forms on this planet must contend with high solar radiation and heat management.



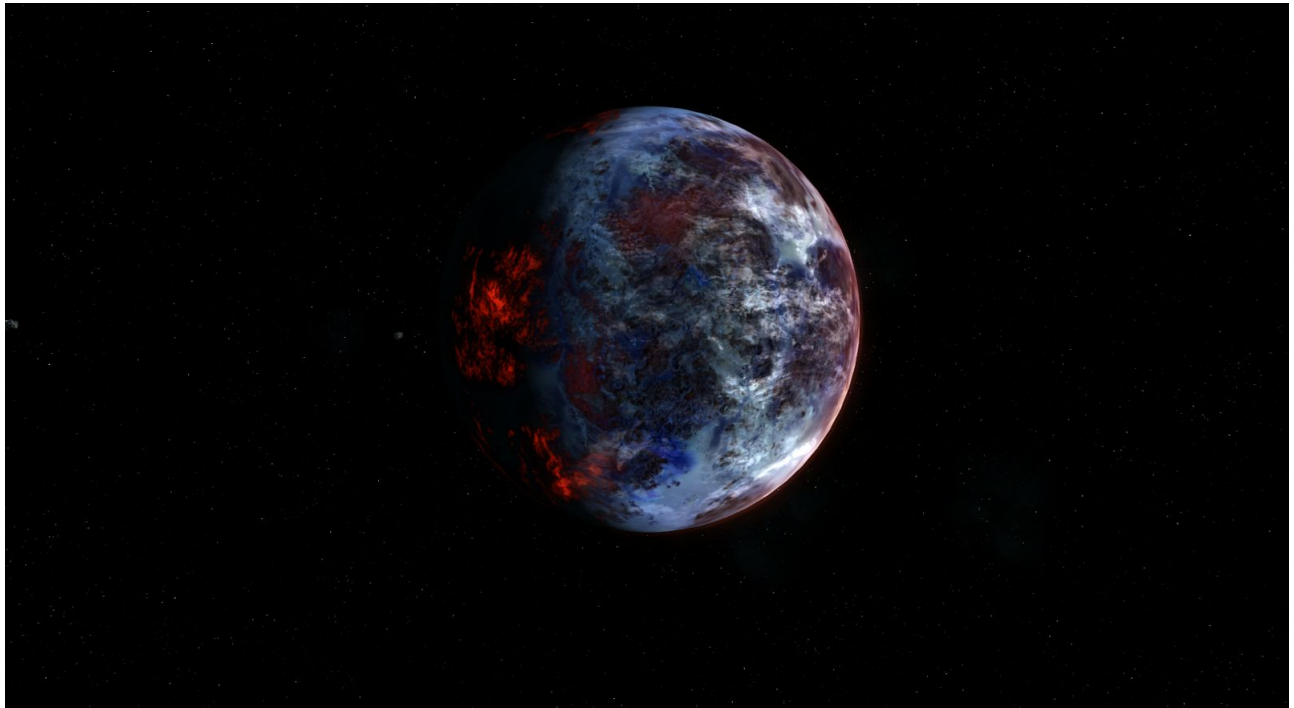
## 7. Tiny Planet

This small planet is only one fifth the size of earth but it has a heavy, dense iron core that makes gravity half that of earth. The atmosphere at sea level is very thin; similar to being high in the mountains on Earth. Mountainous areas (20%) of the surface reach into a rarified upper atmosphere deadlier than the top of Mt. Everest. The horizon appears much more curved. The days are short, only 8 hours. The planet has four small oceans which behave more like landlocked lakes. It is temperate with very little seasonal changes, and tiny moons too small to cause tidal effects.



## 8. Volcanically Hyperactive Planet

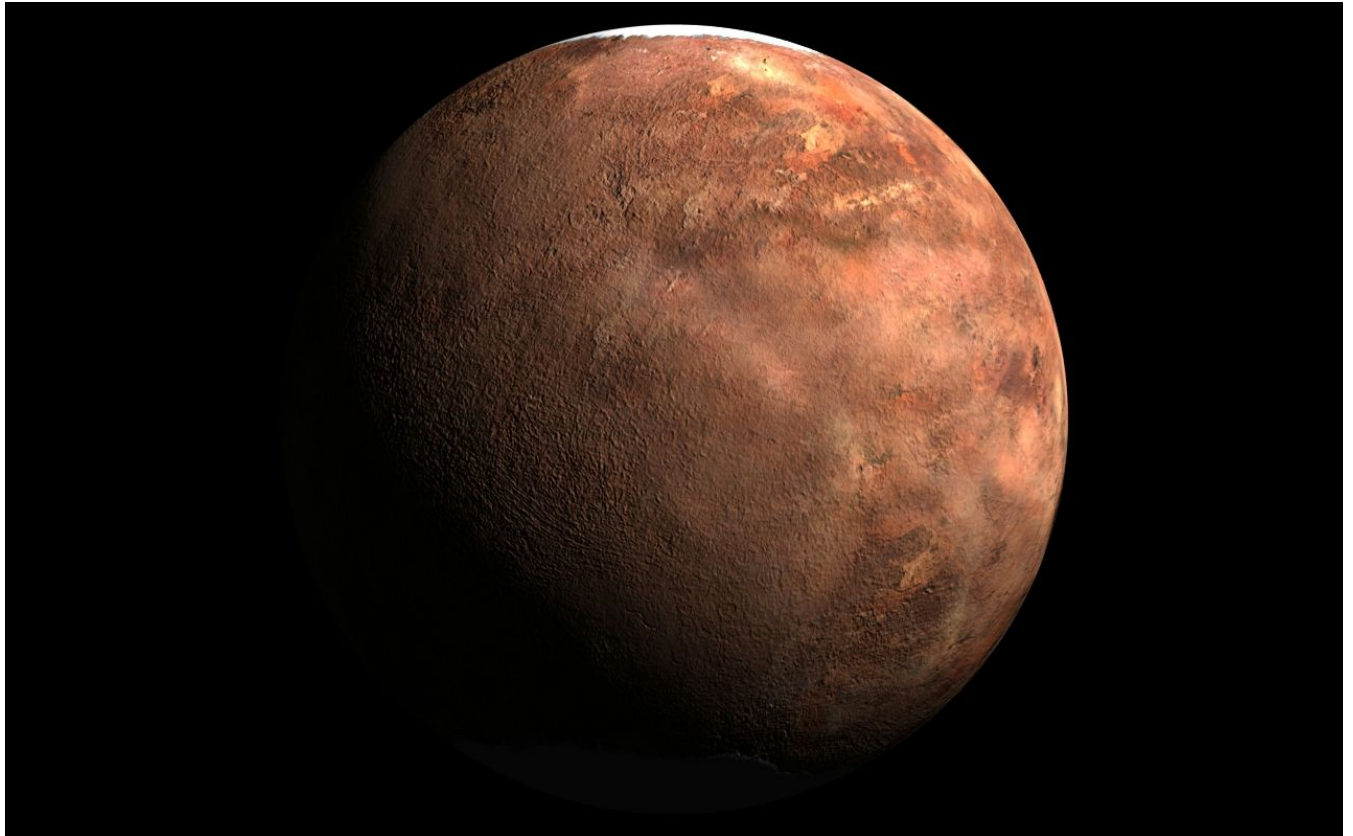
This planet is 1.3 times the mass of earth. The star it orbits is sunlike but farther away than the earth. The overall environment is very similar to the Earth with liquid water able to exist on the surface and a salty ocean covering 60% of the surface. There are tens of thousands of active volcanoes on this planet, and tectonic plates move several meters every month. Overall global temperatures are between 30-38 Celsius but in some areas extreme heat is produced locally. Upwards of 12% of the surface is molten at any given time.





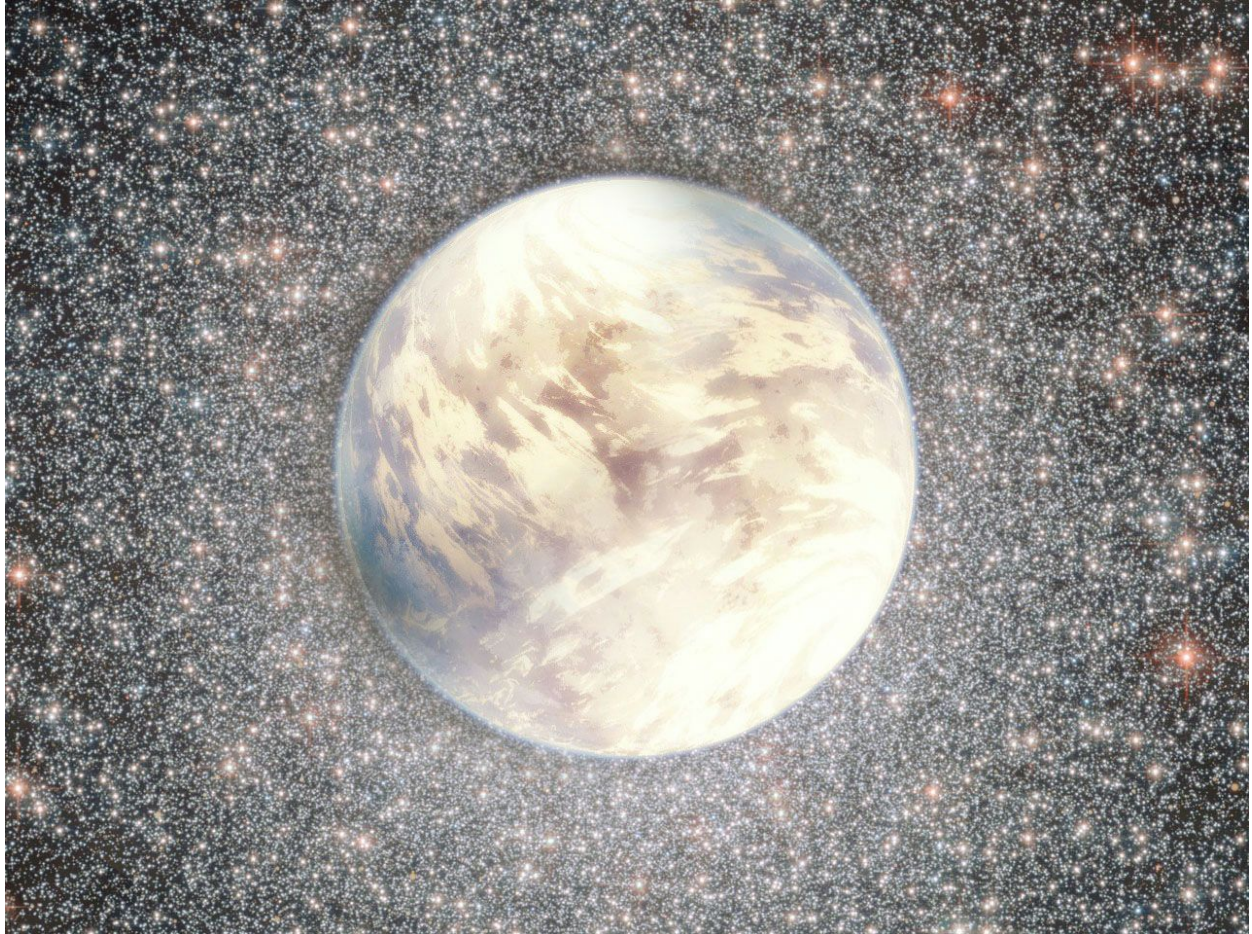
## 9. Desert Planet

This planet orbits a large white star and receives intense solar energy throughout the day. The planet is located far enough away that water can exist on the surface. Average surface temperatures are 45 Celsius during the day and close to freezing during the night. Liquid water is scarce but can be found in small subterranean pockets or as a small component of the air.



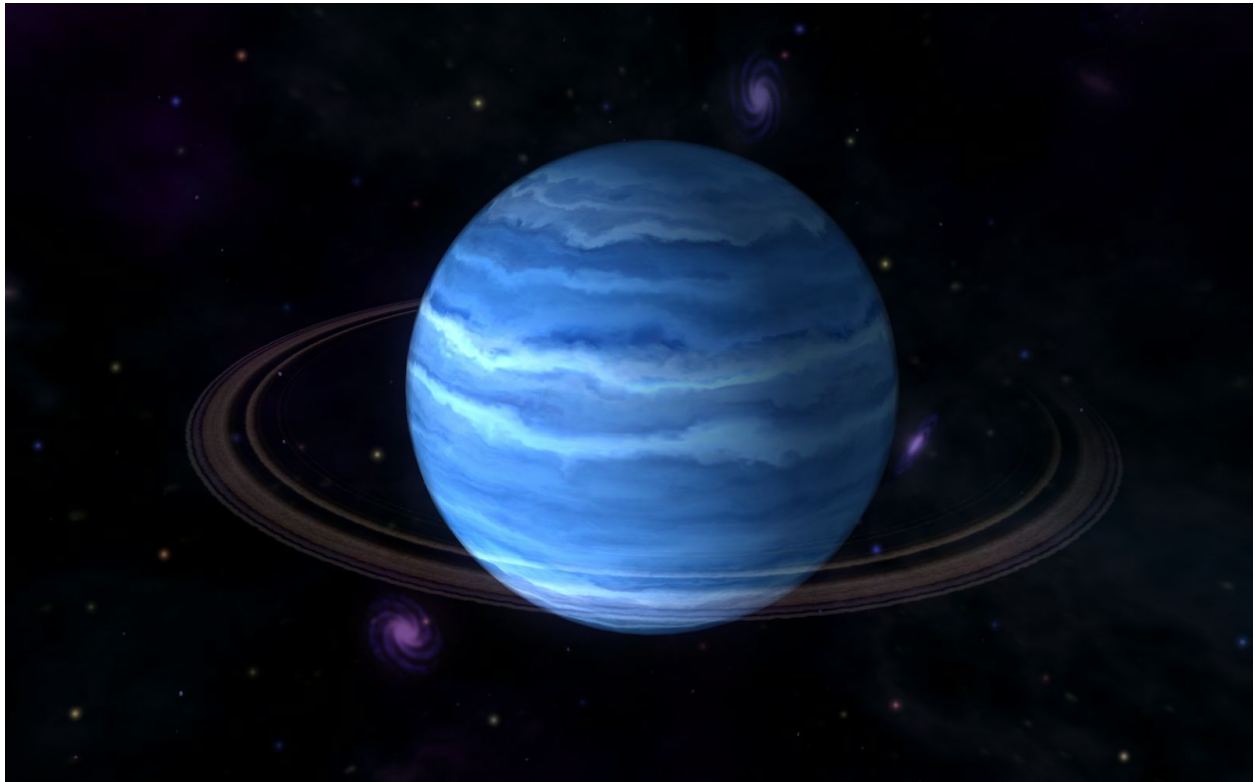
## 9. Globular Cluster Planet

This Earthlike planet orbits a very stable, very old spectral class K star within a tightly packed globular cluster. Nearby stars are so close that they are visible during the day and light up the night sky. The planet is nearly always brightly lit. The orbit is tilted in a way that creates pronounced seasonal changes in temperature but the light levels remain high year round.



## 10. Gas Giant

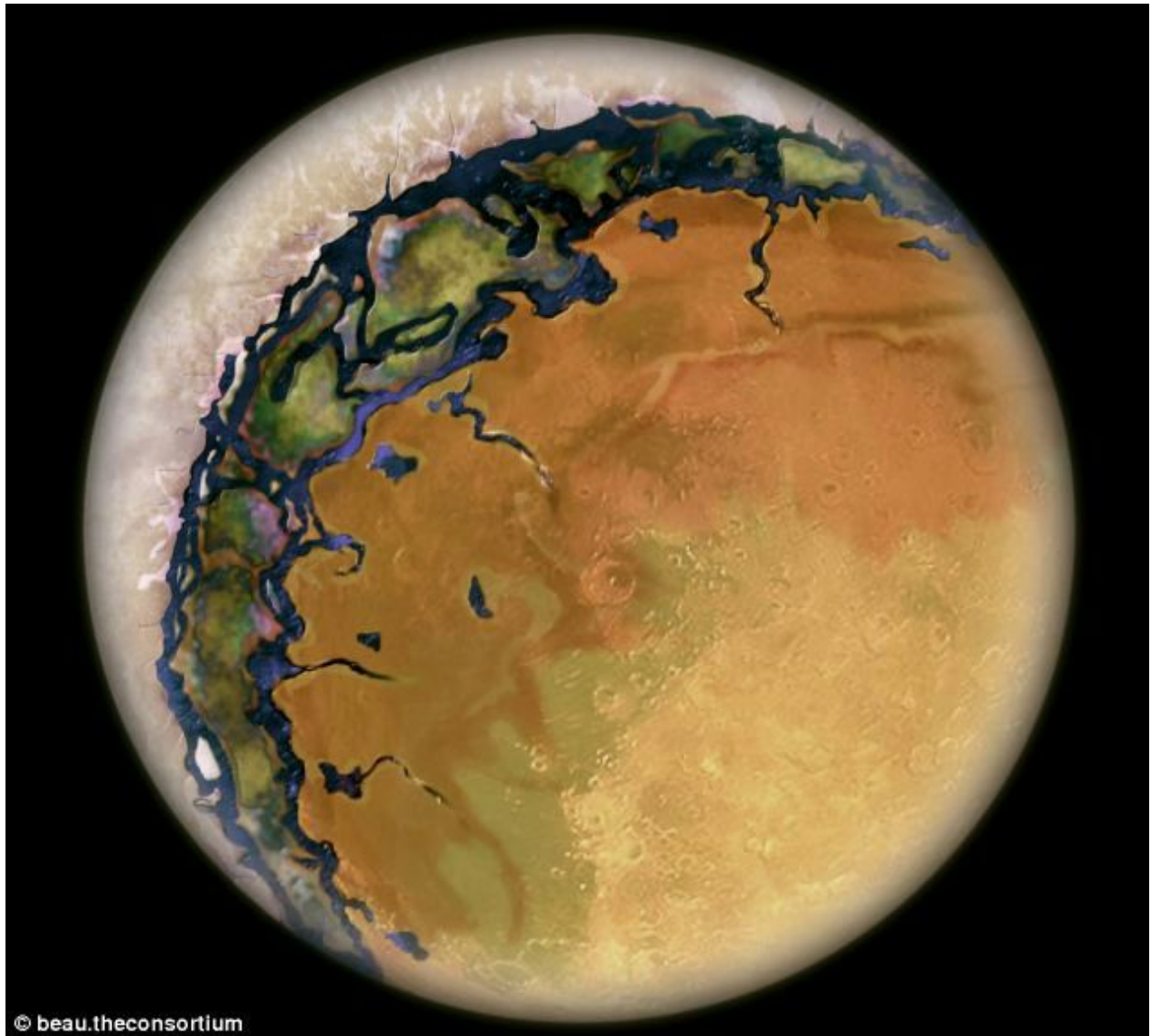
This planet is 15 times the diameter of Earth and orbits a large white star (spectral class A) similar to Sirius. It lies in the habitable zone and has mild temperatures but there is no solid surface on this planet. Everything moves in a global ocean of mixed gasses including water vapor, oxygen, nitrogen, methane and other complex volatilized molecules. The rocky core lies thousands of miles below, past layers of hot super-compressed liquids and gasses. In the lower layers of the planet the compressed gasses produce heat, and chemical reactions that churn and cycle heavier organic molecules into the upper layers of the atmosphere.





## 10. Bullseye Planet

This planet rotates on its side with one pole facing its stellar class K star and one pole facing empty space. One side is frozen solid, the other is very hot 50-110 degrees Celcius as one nears the sun facing pole. An area of moderate temperature and liquid water exists as a ring around the planet.



## 11. Strobe Planet

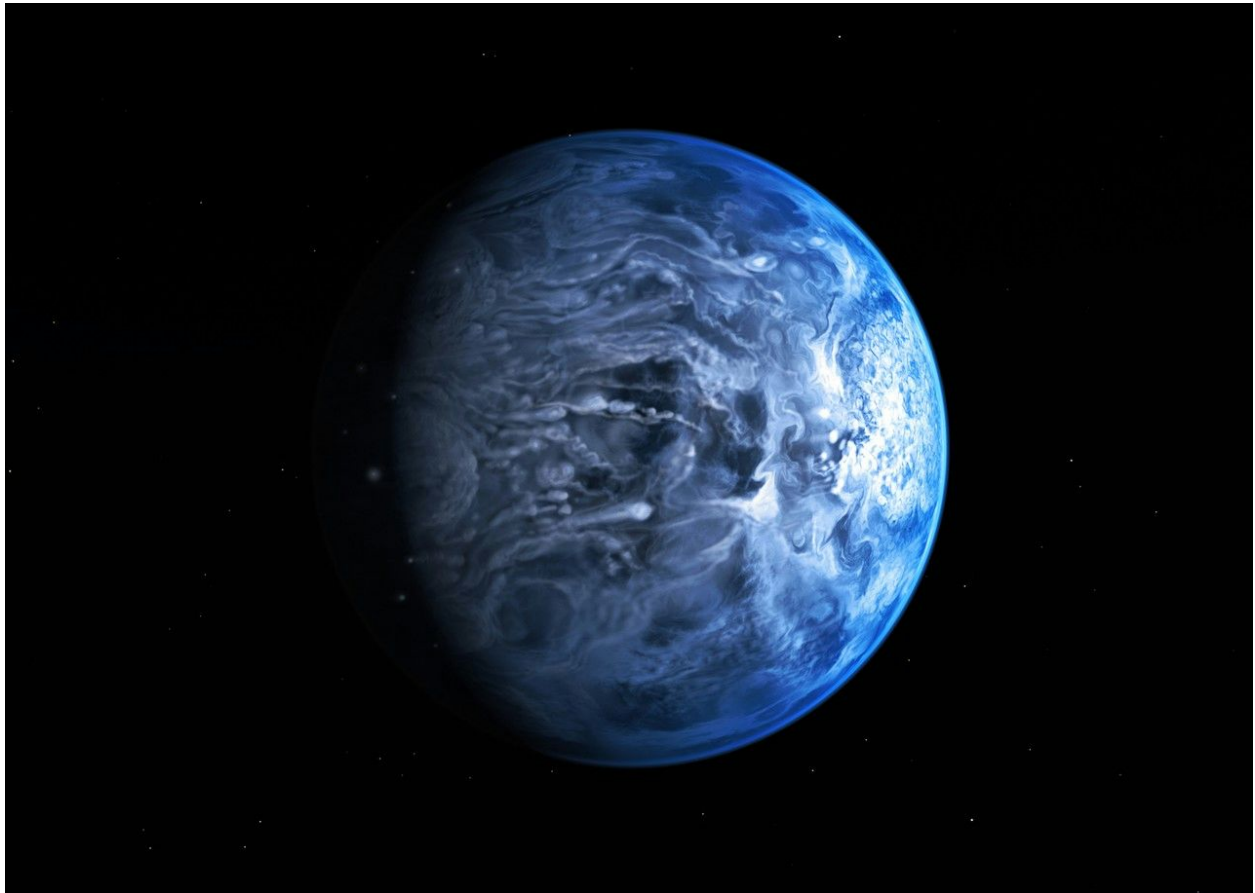
This Earthlike (0.89 earth mass) planet rotates so fast that a day only lasts two hours. The planet bulges outward at the equator making it ovoid in shape. The atmosphere is thickest at the equator and becomes dangerously thin at the poles. The pronounced coriolis effect causes strong winds 40 km/hour on average, to race across the entire planet at all times.





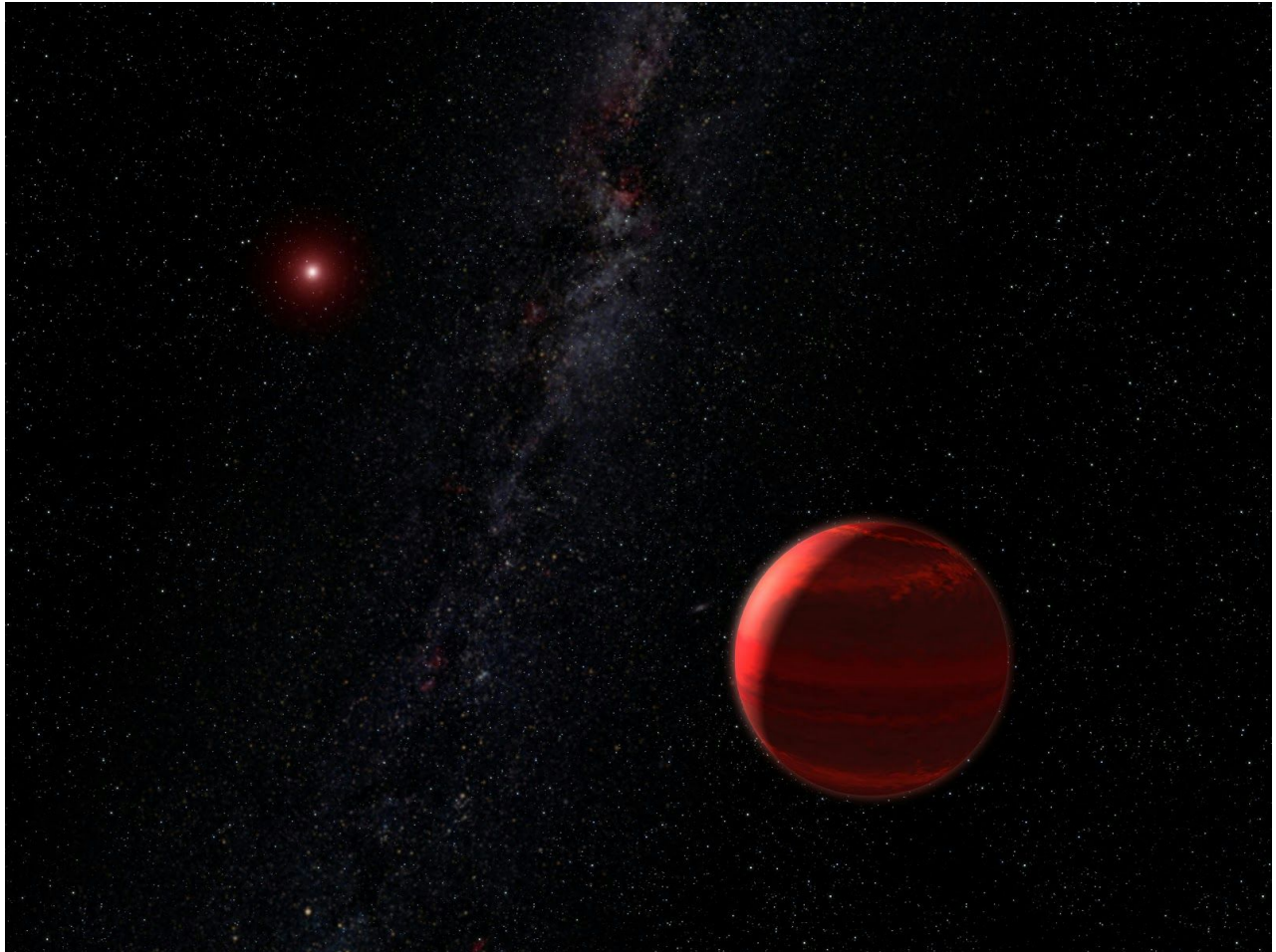
## 12. Archipelago Planet

This planet orbits a very stable, yellow star slightly smaller than the sun. This planet is very earthlike but there are no large land masses; only hundreds of thousands of small rocky islands that are seldom more than 100 kilometers across. The oceans are shallow, less than 30 meters on average but cover almost 99% of the planet's surface. There are no moons so tides are very slight. There is very little geological activity on the surface. The days and nights are 48 hours long; surface temperatures are tropical even at the poles due to a very perpendicular rotation that makes seasonal change negligible. The slow rotation, lack of major surface features and even heating mean that weather systems are very weak. The air is nearly always still and super saturated with water vapor. Heavy elements are scarce, and the oceans have very little dissolved salts or minerals.



### 13. Red Star Planet

This planet orbits a red dwarf star. It receives much more light in the infrared than UV. The orbit is tighter in and the surface temperature is mild. This planet is slightly smaller than Earth (0.7 earth mass) and has a thick, hazy atmosphere. The light that reaches the surface is dim and red. Normal, green chloroplast type photosynthesis would not be possible here. Dim light and foggy air creates very low visibility..



#### 14. Binary Star Planet

This planet orbits a binary star of two K spectral class stars in the habitable zone. There are two oceans one much saltier than the other, separated by great distances and high mountain ranges.. The amount of light that reaches the planet changes drastically during the day. As the pair of stars orbit each other the light doubles or halves depending on whether they are side by side or eclipsing each other.

