Stellar Metamorphosis: Mass-Age Relation for Solar Mass, Orange, Yellow and Red Dwarf Stars

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May 9, 2019
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Abstract: Two hand drawn graphs show two transformation curves for young stars between 1 and .5 solar mass, and .5 to .1 solar mass. It conforms to the general theory, and brings a new perspective of stars. They can have their ages roughly determined by their masses. This is in direct opposition to the establishment's version of stellar evolution. To them stars do not evolve down transformation curves, but stay put. They were born with the same mass they die with. The observations of stars in all mass ranges contradicts the establishment's claim. In fact, the stars lose mass as they evolve, therefore their masses (when they are young) can be used to determine how old they are.

youth = massive for younger stars

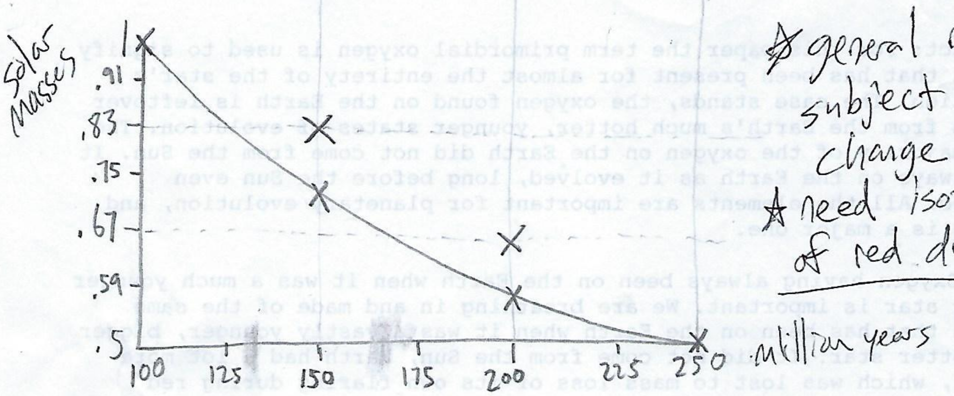
5/9/19
JJW

1 sun mass = 100 my

.5 sun mass = 250 my

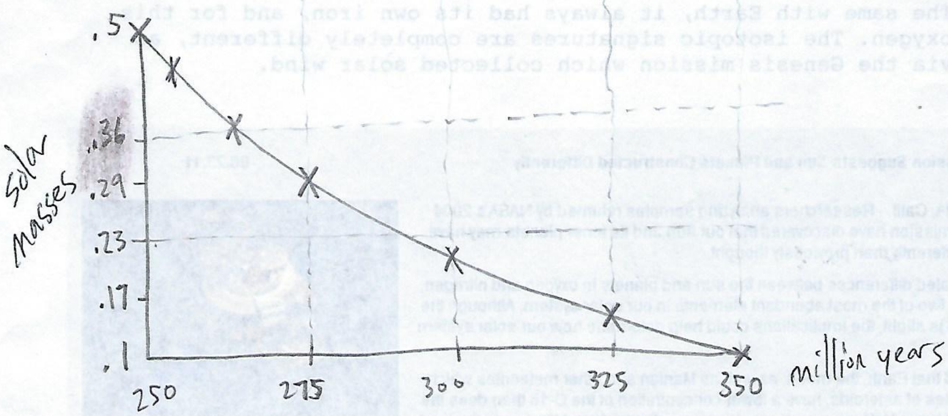
.1 sun mass = 350 my

young
The stars, ages can be determined by their masses



☆ general rule subject to change

☆ need isotopic data of red dwarfs



☆ Sun-like (sun-mass) stars down to .1 solar mass red dwarfs can have their ages determined by their mass

☆ As the young stars lose mass they age, this is the age-mass relationship of young stars

Typical characteristics[21]

Stellar class	Mass ($M_{\odot}$)	Radius ($R_{\odot}$)	Luminosity ($L_{\odot}$)	T_{eff} (K)
M0V	60%	62%	7.2%	3,800
M1V	49%	49%	3.5%	3,600
M2V	44%	44%	2.3%	3,400
M3V	36%	39%	1.5%	3,250
M4V	20%	26%	0.55%	3,100
M5V	14%	20%	0.22%	2,800
M6V	10%	15%	0.09%	2,600
M7V	9%	12%	0.05%	2,500
M8V	8%	11%	0.03%	2,400
M9V	7.5%	8%	0.015%	2,300

In the above grid, we can determine the rough ages of the red dwarfs based on their masses.

M0V is 60% the Sun's mass, so it sits about 189 million years old.

M1V is 49% the Sun's mass, so it sits about 252 million years old.

M2V is 44%, ~255 million years old

M3V is 36%, ~262 million years old

M4V is 20%, ~300 million years old

M5V is 14%, ~320 million years old

M6V is 10%, ~350 million years old

M7V-M9V older, at 7.5-9% so their masses can vary more, thus their ages can vary too widely, but they are for sure >350 million years old. This is also the transition to brown dwarf stages, where their masses can also be affected more by orbited hotter younger stars that can rip them apart. So they could evolve really fast or slower. This stage is where the split between making largest planets starts and the smallest moons (that can become the remains of whole stars). Their transformation curves can split too far from each other, so the mass/age relationship is less predictive. It is also the beginning of where the Taylor threshold takes part. If the object evolves slowly and keeps its mass while it builds the interior planet, then life will form. If it evolves really fast, and is ripped apart too quickly, then no life will form. It will be a sterile world. Not good, or good for us if we want to find an uninhabited world that can host life (but did not form it naturally). Just imagine an Earth like ancient star, with no bears, viruses, diseases, mosquitoes, or humans. Whew.

This mass/age rule is subject to change, but is a new style variable to be used to determine the ages of young stars based on their masses. We need much more data from other variables to correctly age these objects, including isotopic and core data. It is best we figure out how old these objects are using the general theory, so that we can figure out where the life is. For instance, the Trappist-1 system has a star that is 8% the mass of the Sun, which means the system those objects are in has been stable for at least 350 million years, but the outer highly evolved objects, if they are predicted to be ocean worlds, are actually covered in deep ice sheets. Though, I won't go over too much of the possibility. The trick here is to make the mass/age relationship exist, so that we can figure out what the future of the Sun will be. Earth is going to freeze over again, as the Sun shrinks.