The Great Oxygenation Event in Stellar Metamorphosis

Jeffrey J. Wolynski
May 13, 2016
Jeffrey.wolynski@yahoo.com
jwolynski@knights.ucf.edu
Cocoa, FL 32922

Abstract: The Great Oxygenation event can be explained inside of stellar metamorphosis. The encompassing theory includes a rapid rise in oxygen due to the star’s evolutionary timeline and physical characteristics.

According to stellar metamorphosis, the majority of stars cool, evolve and lose mass becoming life hosting worlds very similar to Earth. The Great Oxygenation event therefore happens in all stars in late stages of evolution, therefore, we should expect stars a bit less evolved than Earth to lose their hydrogen due to its high velocity with respect to the escape velocity. Stars that have escape velocities higher than hydrogen’s velocity as a gas will retain it, unless additional energy to the particles is provided by photoevaporation. This means once a gaseous star in late stages of evolution loses enough mass, there will be a runaway mass loss of hydrogen and the oxygen levels will increase rapidly. The proportion of hydrogen to oxygen falls off precipitously as well is covered by the principle of diminishing solar abundances.

<table>
<thead>
<tr>
<th>Stages</th>
<th>0.5</th>
<th>0.4</th>
<th>0.3</th>
<th>0.2</th>
<th>0.1</th>
<th>0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atmosphere P\textsubscript{O2} (atm)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>3.8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Ga</td>
</tr>
</tbody>
</table>

The graph shows the atmospheric oxygen levels (P\textsubscript{O2}) over time in Giga-annums (Ga). The stages are marked at 1, 2, 3, 4, and 5, with the timeline extending from 3.8 Ga to 0 Ga. The graph indicates a rapid increase in oxygen levels during the late stages of stellar evolution.
Earth is in stage 5. Water worlds/ocean stars are in stage 4. Neptune and Uranus are in stages 2 and 3. Jupiter and Saturn are in stage 1. All hotter younger stars than Jupiter and Saturn such as brown dwarfs, orange dwarfs, yellow dwarfs and red dwarfs are all not ready yet to produce the stable oxygen required for life, as they are still forming iron/nickel cores and layering mantles so that the oxygenation event can be a stable process in their futures.

The author wishes to express the simple realization that stars are not mutually exclusive of “planet” as per establishment dogma. As they cool and die they become life hosting worlds, with a multitude of processes and events happening simultaneously. This is all covered inside of the general theory of stellar metamorphosis.