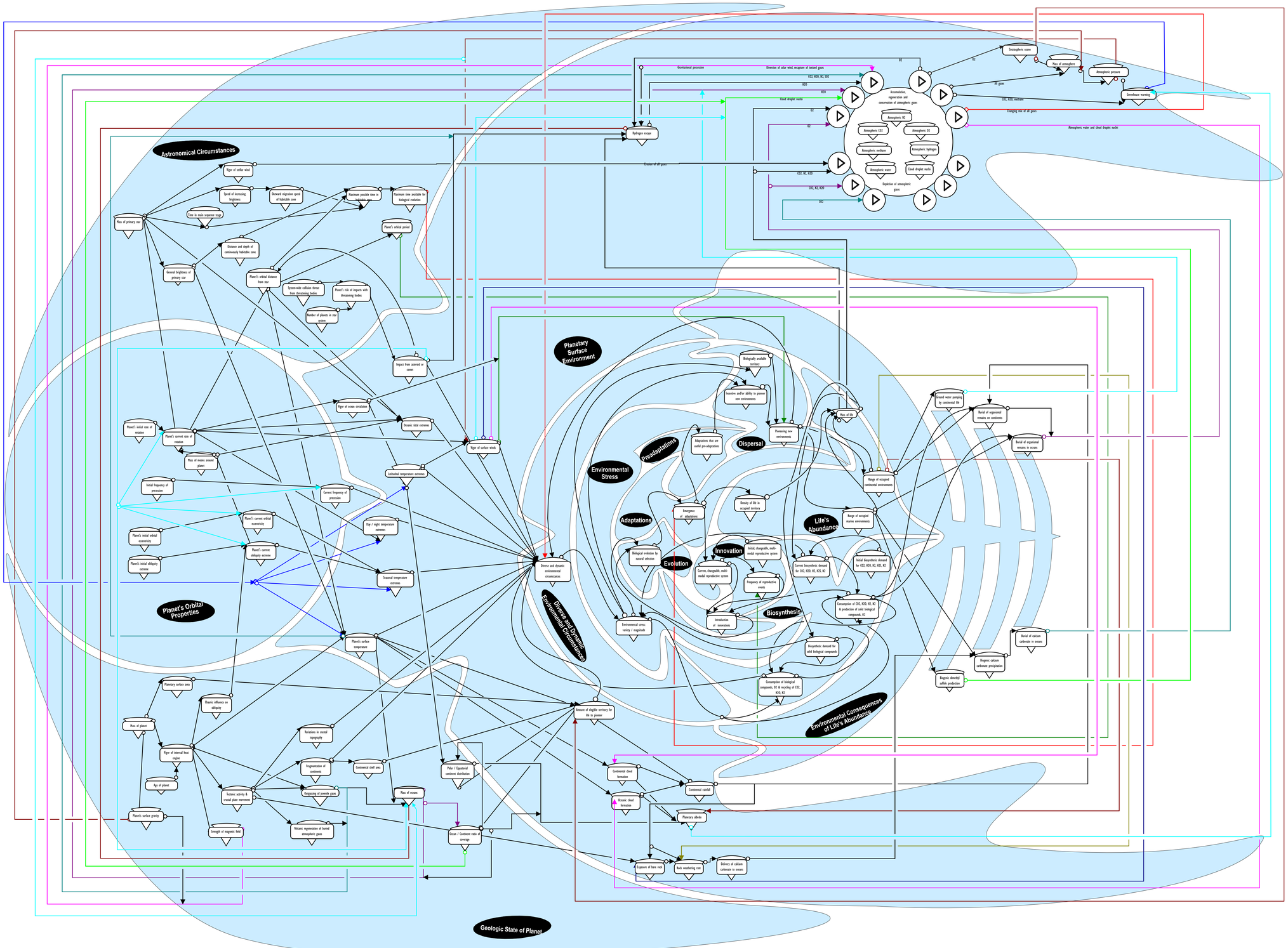

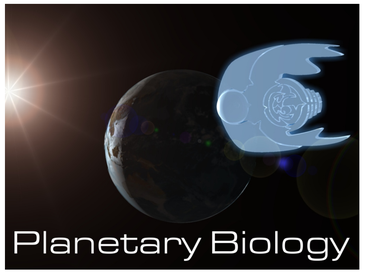

A whole world systems perspective

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"Planetary Biology" is a whole world systems perspective that considers how the interactions between life and the planet produce environmental changes on a global scale. In short, given enough time, the activities of life (and analogous phenomena on other worlds) can transform the surface environment of a heavenly body.

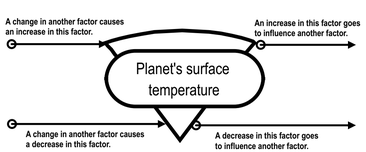
This diagram presents a working model of planetary biology on Earth. It lays out the qualitative interactions between about 80 different phenomena. The goal of this model is to help visualize and comprehend the totality of the many complex interactions that influence the planetary surface environment.

Working from this model, a theory of planetary biology can be developed. Such a theory would explain why such a system persists and why it ultimately produces planet-changing outcomes. The planetary biology perspective presents a practical path of inquiry as science tries to understand how worlds with life work.

Astrobiology. As science continues to hunt for signs of "life" in the rapidly expanding catalog of known exoplanets, the planetary biology perspective can help. For instance, astrobiologists work on the premise that if "life" is present on a planet, it should transform the planet's atmosphere in recognizable ways. The presence of highly reactive gases in a planet's atmosphere might indicate the activities of "life." If a planet's atmosphere can be observed, its content can be determined with a telescope and a spectrometer. If an intriguing mix of gasses is found, then a new planetary biology framework can be constructed for the planet in an effort to account for those gases.

For more information on planetary biology, go to: planetarybiology.com

How to Read this Diagram



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