My NASA Data

About the Earth as a System: Background Information

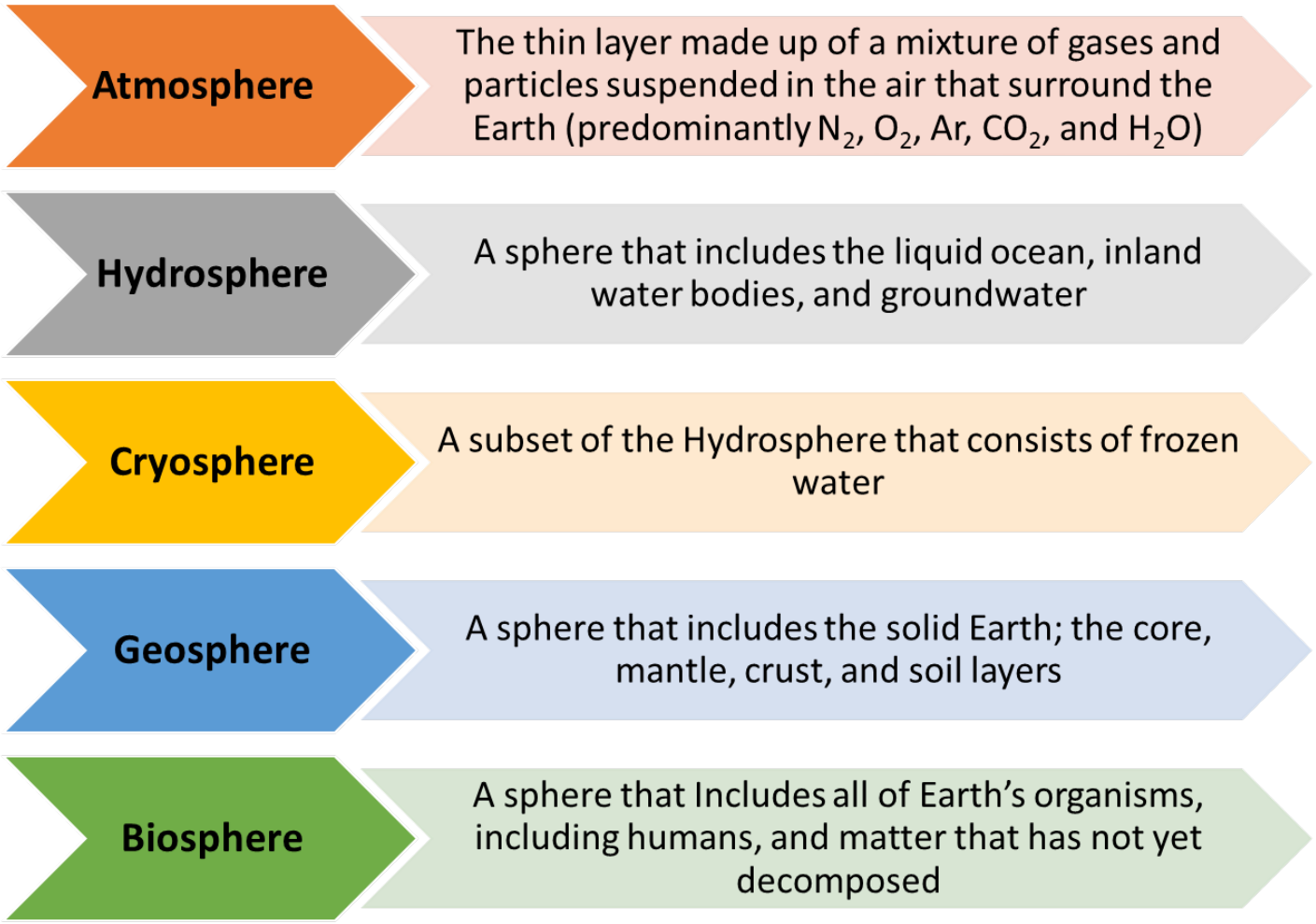


This image represents the Earth as a System throughout the My NASA data website.

What are the five Earth Systems?



The first “blue marble” photo, taken in 1972 by Apollo astronauts at a distance of about 45,000 kilometers (28,000 miles) and one of the most reproduced images in human history, showcased for the first time our home planet. While Earth is also nested within much larger systems, like our Solar System and Milky Way Galaxy, Earth is also made up of five major parts or subsystems: the Atmosphere, Hydrosphere, Biosphere, Cryosphere, and Geosphere. Each major part is connected to the other parts in a complex web of processes.



What is Earth System Science?

A system is defined as a group of interacting, interrelated, or interdependent parts that work together to form a complex whole. Scientists around the world study each of these smaller systems and how they fit together to form the current picture of our planet as a whole through what is called *Earth System Science*. It is similar to the human body system. All human body systems work together to maintain a body that functions well and in good health. In terms of Earth System Science, each of these systems allows Earth to keep itself in balance. A change in one system will affect other systems.

For more information, visit UCAR's Earth as a System.

The visualization from NASA's Goddard Space Flight Center reveals that the Earth system, like the human body, is made up of diverse parts that interact in complex ways. While scientists learn a great deal from studying each of these parts individually, better observations and improved computer models help scientists to study the interactions between these interrelated parts, leading to new ideas about how the Earth system works—and how it might change in the future.

Video: Earth: A System of Systems

Earth: A System of Systems | https://www.youtube.com/watch?v=7EUDYEFuB_k | Source: NASA Goddard