



## **Project PARKA (Planting AntaRctica in KAnsas)**

### **Glossary**

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Abiotic OR inorganic – material (atoms, elements, etc.) that is part of non-living things in the environment (examples: carbon dioxide, rocks and minerals, etc.).

Biotic OR organic – material (atoms, elements, nutrients, etc.) that is part of living things, or dead material that was once part of a living thing (examples: plant or animal tissue, fish poop).

Biogeochemistry - the cycling of biologically important elements between living (biotic, or organic) and non-living (abiotic, or inorganic) components of an ecosystem.

Biology – the study of life and living organisms, including their structure, function, growth, evolution, distribution, and taxonomy.

Carbon dioxide – naturally occurring chemical compound composed of two oxygen atoms covalently bonded to a single carbon atom. It has the chemical formula CO<sub>2</sub>. It is a gas formed during respiration of humans and animals, combustion, cement production, and deforestation. It is an important greenhouse gas because it traps heat in the atmosphere.

Climate change - any change in global temperatures and precipitation over time. Can be due to natural variability; mostly we are talking about change due to human activity.

Global warming - an increase in the average temperature of the earth's atmosphere (especially a sustained increase that causes climatic changes). An increase in average temperature will not necessarily cause all points on earth to warm uniformly, many now prefer to use the term climate change when discussing the impact of human activities on the Earth's climate.

Greenhouse effect - phenomenon whereby the Earth's atmosphere traps solar radiation, caused by the presence in the atmosphere of gases such as carbon dioxide, water vapor, and methane that allow incoming sunlight to pass through but absorb heat radiated back from the earth's surface.

Limiting nutrient – the nutrient in shortest supply, relative to the needs of the plant, algae, or phytoplankton. When one nutrient is used up, phytoplankton will stop growing, no matter how much of the other nutrients are present.

Metabolism – the set of life-sustaining chemical transformations within the cells of living organisms. These enzyme-catalyzed reactions allow organisms to digest food, grow and reproduce, maintain their structures, transport substances into and between different cells, and respond to their environments.

Ocean acidification – changes in seawater chemistry (i.e., formation of carbonic acid, increases in hydrogen ions, reductions in pH) associated with the uptake of anthropogenic (human-induced) carbon dioxide (CO<sub>2</sub>) from the atmosphere.

pCO<sub>2</sub> – the partial pressure or amount of CO<sub>2</sub> in seawater.

pH – the measure of the acidity or basicity of an aqueous solution. Pure water has a neutral pH of 7. Solutions below 7 are considered acidic, solutions above 7 are considered basic.

Physiology – the scientific study of function in living systems, including how organisms, organ systems, organs, cells, and bio-molecules carry out the chemical or physical functions that exist in a living system.

Phytoplankton – organisms in the plankton that are photosynthetic (plants).

Plankton – organisms that drift in any aquatic ecosystem (ocean, lake, pond). Most are small and microscopic, but plankton also includes things like jellyfish, which can swim but are primarily at the mercy of currents.

ppmv – parts per million by volume – e.g., the volume of CO<sub>2</sub> per million volumes of air.

ppt – parts per thousand – a common unit of describing salinity.

Sea Surface Temperature (SST) – the temperature of the very surface of the ocean.

Temperature anomaly – the difference between a current measurement of temperature and some standard. It is important to note what the current temperature is being compared to! You could compare this month's average temperature to the same month over the last ten years, or this month's average temperature to the last six months averaged, or this summer's average temperature to the hottest (or coolest) summer recorded for this region, etc. The anomaly only tells you something if you understand what you are comparing. Different comparisons will give you different information, and may be misleading. (For example, an anomaly showing that this July was much hotter than the last six Aprils on record is very misleading and overstates "how hot this year is".)

Transect – generally refers to a line along which information was collected (for a glider, the same as the path it traveled.)

Zooplankton – heterotrophic organisms (animals) in the plankton. These include copepods, krill, larvae of fish and shellfish, and jellyfish.