**System**

A system is an organized group of related objects or components; models can be used for understanding and predicting the behavior of systems.

<https://ngss.nsta.org/CrosscuttingConcepts.aspx?id=4#:~:text=A%20system%20can%20be%20described,functions%20its%20individual%20parts%20cannot>.

**Inputs and Outputs**

Models can be used to represent systems and their interactions—such as inputs, processes and outputs—and energy and matter flows within systems.

**Flux**

Flux is a term we use to describe the amount of something passing through a surface or an area over a defined period of time. Flux can be used to describe many different quantities in a system, such as molecules - like Carbon Dioxide, heat or energy, volume, and mass

Tracking fluxes of energy and matter into, out of, and within systems helps one understand the systems’ possibilities and limitations.

<https://www.nextgenscience.org/sites/default/files/Appendix%20G%20-%20Crosscutting%20Concepts%20FINAL%20edited%204.10.13.pdf>

**Sensor**

a device that responds to a physical stimulus (such as heat, light, sound, pressure, magnetism, or a particular motion) and transmits a resulting impulse (as for measurement or operating a control)

**RCRV**

Regional Class Research Vessel (RCRV) is a class of research vessels.

<https://ceoas.oregonstate.edu/regional-class-research-vessel-faq>

**RV Taani**

The Oregon State University-bound research ship will be called Taani (pronounced “tahnee”), a word used by the Siletz people meaning “offshore.The vessel is scheduled for delivery to OSU in 2022-2023, and will be fully operational after a year of outfitting and testing.

<https://ceoas.oregonstate.edu/regional-class-research-vessel-rcrv>

**Apollo and Piccaro Systems and Sensors**

Apollo underway pCO2 system has been developed to measure surface seawater under a research vessel (i.e., real-time while the vessel is sailing) of the partial pressure of CO2 (pCO2 ), pH, and dissolved oxygen (DO) in surface water, atmospheric CO2 as well as water salinity, temperature, and position. The water sample is forced into the equilibrator by a shipboard pump. Then the Piccaro system analyzes atmospheric CO2.

<https://www.apolloscitech.com/pco2.html>