

# Coordinate System

## Global Frame

We propose the global frame to be such that the origin is relative to the pinger, and yaw is relative to magnetic north. Pitch and Roll are relative to gravity.

The coordinate system is **currently** RIGHT handed axes and RIGHT handed rotations. The axes are as follows:

Axes:

- X+ - front of the sub
- Y+ - left of the sub
- Z+ - above the sub

Rotations:

- Yaw+ - Counterclockwise around Z+ axis (this is opposite of magnetic) (Yaw **Left** positive)
- Roll+ - Counterclockwise around X+ axis (Roll **Right** is positive)
- Pitch+ - Counterclockwise around Y+ axis (Pitch **Down** is positive)

From:

<https://robosub.eecs.wsu.edu/wiki/> - **Palouse RoboSub Technical Documentation**

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Last update: **2016/11/15 20:13**