

Assessment title: **Reading Quiz 1: Observations**

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**Question title: Deep Ocean Stations**

At a deep ocean station, where instruments are lowered from a ship by a winch, which of the following can be measured? (Select all that apply)

- 1. A salinity profile as a function of pressure, not including fast motions
  - 2. A salinity profile as a function of pressure, including fast motions
  - 3. A salinity profile as a function of depth, not including fast motions
  - 4. A conductivity profile as a function of pressure, not including fast motions
  - 5. A series of salinity and other chemical tracer profiles as a function of pressure, not including fast motions, and sparsely distributed in the water column
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**Question title: Satellites Measure What?**

Different kinds of satellites depending on electromagnetic radiation (i.e., light, infrared, etc.) can measure on a global scale quickly, but (select all that apply)...

- 1. They can only penetrate a short distance into the surface of the ocean.
  - 2. They sometimes cannot penetrate clouds.
  - 3. They can measure full-depth profiles of light-reflecting materials, such as salt.
  - 4. They can measure the location of the sea surface.
  - 5. They can measure the location of the sea surface above the geoid.
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**Question title: Current observations**

Ocean currents at depth are most often:

- 1. Measured directly with current meters
  - 2. Inferred from other observations (sea surface height, density structure)
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**Question title: CFCs**

Chlorofluorocarbons are a useful tracer to measure because:

- 1. They do not occur naturally and have a known time history.
  - 2. They occur naturally and indicate the presence of biological activity.
  - 3. While their forcing is unknown, they are a valuable time-dependent signal to measure.
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**Question title: Oceanographic Ships**

Oceanographic ships are more central to observations than they used to be.

- True  False
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**Question title: High-tech**

High tech equipment is more important to accurate and conclusive measurements than standard ship equipment, such as motors and winches.

- True  False
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**Question title: Decibar**

Given the standard density of water and the hydrostatic relation, [x] decibars of pressure is roughly equal to how many meters of water depth?

**Question title: Contamination**

Contamination at sea is a problem for ocean measurements, especially of iron, CFCs, and oxygen.

- True  False
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**Question title: Float Tracks**

A subsurface float always is the most accurate way to measure subsurface mean currents.

- True  False
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**Question title: Timeseries**

Oceanography relies mostly on instruments that take frequently repeated measurements that can provide a time series of the fastest motions nearby.

- True  False

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**Question title: Difficulties in measurement**

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Oceanography is complicated by:

- 1. Inaccurate instruments
- 2. Datasets not representative of the whole behavior
- 3. Imprecise instruments
- 4. Undersampling
- 5. Misinterpretation of results