Abstract
During this investigation students participating in the 2009 IPY Polar Field School used buoy data to study the water mass properties as well as the local tides and currents impacting deep water formation in the basin. The research questions addressed during this study include:

- **Temperature and Salinity**
  - How do temperature and salinity values vary seasonally in Storfjorden?
  - What impact does local polynya activity have on ocean temperatures and salinity?

- **Local Tides and Currents**
  - What is the dominant current direction in Storfjorden?
  - Could local currents impact polynya activity and sea ice production?

**Results: Temperature and Salinity**

**Temperature and Salinity Timeseries**

- From late Oct to early Dec temperatures decrease steadily while salinity remains fairly constant.
- From late Dec through early May temperatures remain constant around -1.9 °C, while salinity increases.
- Temperatures steadily increase from late May through July while salinity decreases.

**Results: Local Tides and Currents**

- Predominant current is Northeast.
- Spring and Neap tides are clear in the current data.

**Importance of Storfjorden**

- Research shows that the Storfjorden Basin is responsible for 5-10% of the worldwide deep water formation.
- This deep water is critical to overall global thermohaline circulation and heat transport by the oceans.

**Conclusions**

**Temperature and Salinity**

- Water temperature drops in fall months approaching winter, while salinity holds steady.
- As temperature reaches critical point of -1.9 C° (freezing temperature of seawater) salinity begins to increase, owing to polynya activity and sea ice formation.
- Water temperature stabilizes at -1.9 C° in winter months as expected.
- Salinity increases steadily throughout winter months with local peaks that support polynya formation and sea ice production in Storfjorden.
- As temperatures increase in spring, salinity values decrease, owing to melting sea ice, reintroducing freshwater to the system.
- It may be concluded that the formation of deep water would be largest in winter months during peak polynya activity and sea ice production.

**Local Tides and Currents**

- Spring and Neap tides, as well as Diurnal tidal cycle are clearly displayed as expected.
- Northeast direction is the overall dominating current, which pushes ice out, reinforcing polynya activity.

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