



### **New Master Thesis Topic**

#### **Title: SF<sub>6</sub>/CFC-12 ratios in the Southern Ocean**

##### **Short description:**

The (anthropogenic) trace gases SF<sub>6</sub> and CFC-12 show a time dependent concentration in the atmosphere and at the ocean surface. In the water mass formation regions, this time dependent signal is transferred into the ocean interior. Thus, measurements of SF<sub>6</sub> and CFC-12 allow to study the ventilation and spreading of water masses.

For some cruises in the Southern Ocean, the ratio between measured SF<sub>6</sub> and CFC-12 concentrations differs from the 'expected' ratio, at least for some data points. The task is to investigate these 'anomalous' SF<sub>6</sub>/CFC-12 ratios:

- Identify data points with anomalous SF<sub>6</sub>/CFC-12 ratios
- At which locations/in which water masses do these anomalous ratios occur?
- What could be possible reasons?
- Do other water mass properties like oxygen/nutrients/ carbon also show an anomalous behaviour at these locations?

##### **Skills needed:**

Basic programming skills (MATLAB or similar)

Name of the IUP research group incl. two-line description of the research area:

Department of Oceanography

The department of oceanography deals with physical processes in the ocean like circulation, energy transfer and changes in ventilation. The main study area is the Atlantic, including Arctic and Southern Ocean.

Topic for students of

x M.Sc. Environmental Physics

☐ M.Sc. Space Sciences and Technologies

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