

Commence long-term observations of evolving high-latitude water mass properties and fluxes, of relevance to larger-scale thermohaline circulation and climate.

In the northern hemisphere, projects such as the international Rapid Climate Change programme have commenced, with the intention of developing techniques to measure and understand the meridional overturning circulation in the Atlantic, and its effect on climate. Arctic processes are intimately linked with these matters: they set the properties of the "headwaters" for the northern end of the overturning circulation. Consequently, it is important to implement and maintain a system that will monitor the evolving water mass properties in this region, and link them with the lower-latitude measurements that they will affect. One aspect of the Rapid Climate Change programme that is currently under-represented is the possibility of significant effects on the Atlantic overturning circulation induced from the south, through changes in e.g. Antarctic Intermediate Water or Antarctic Bottom Water formation. Ocean measurements systems that can monitor the southern high-latitude influence on the meridional overturning are thus also needed.

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