Aspects of LSW circulation in the North Atlantic during 2002 using CFC tracer data.

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The Labrador Sea Water (LSW) is an intermediate water mass which is formed by winter convection in the northwestern part of the North Atlantic subpolar gyre. During the recent years, an important interannual variability of convection depths and intensity has been shown (Lazier, 1988) leading to variability in the characteristics of the LSW that have been traced by hydrological and chemical tracer data. In 2002, the OVIDE program, which is the french contribution to CLIVAR, was initiated to investigate the amplitude of the meridional overturning cell in the North Atlantic and to study the interannual variability of the circulation in the North Atlantic subpolar gyre. A repeated hygrographic/ADCP/tracer data will be sampled between Greenland and Portugal every two years from 2002 to 2010. Results concerning the CFC tracer data from the 2002 cruise will be presented with particular attention to the LSW spreading in the North Atlantic. The different spreading paths of LSW along the section will be identified. Spreading timescales in the branches will be estimated from CFC data. These estimations have been calculated taking into account the variability in the average saturation levels in the formation zone in the Labrador Sea using the time series CFC during deep and shallow convection regimes (Azetsu-Scott et al., 2003). Finally, the mean advection speeds of LSW in different parts of the section will be estimated and compared to the different convection regimes in the Labrador Basin and to the North Atlantic Oscillation episodes.