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Sub-seasonal and mesoscale variability of oceanic circulation at key 'choke' points: an example from the Western Mediterranean

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In order to detect long-term climatic change and to better constrain our modelling of ocean circulation it is increasingly important to understand sub-seasonal variability in this circulation. Monitoring the weekly to monthly variability of ocean currents and associated mesoscale instabilities, then placing this within the context of, and modifying, the seasonal to interannual circulation models is key. SOCIB (the Balearic Islands Coastal Ocean Observing and Forecasting System) has undertaken the monthly monitoring of ocean currents in the Ibiza Channel, a key 80 km 'choke' point in the Western Mediterranean basin-scale circulation, using gliders. Here, as in other locations in the global ocean, high frequency variability in the system is observed, in conjunction with a seasonal variability in the main thermohaline circulation. Now, with three years of semi-continuous glider data and 16 years of seasonal ships CTD data, we have greater insight into the high frequency processes that modify and govern the large basin-scale flow variability at this 'choke' point and thus better understand the important north/south exchanges of Atlantic (fresher and warmer) and Mediterranean (more saline and colder) watermasses and associated dynamical effects.