



Validation of HF Radar ocean surface currents in the Ibiza Channel using Lagrangian drifters, moored current meter and underwater gliders

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SOCIB High Frequency (HF) radar is one component of a multi-platform system located in the Balearic Islands and made up of Lagrangian platforms (profilers and drifting buoys), fixed stations (sea-level, weather, mooring and coastal), beach monitoring (camera), gliders, a research vessel as well as an ocean forecast system (waves and hydrodynamics).

The HF radar system overlooks the Ibiza Channel, known as a “*choke point*” where Atlantic and Mediterranean water masses interact and where meridional exchanges of water mass properties between the Balearic and the Algerian sub-basins take place. In order to determine the reliability of surface velocity measurements in this area, a quality assessment of the HF Radar is essential.

We present the results of several validation experiments performed in the Ibiza Channel in 2013 and 2014. Of particular interest is an experiment started in September 2014 when a set of 13 surface drifters with different shapes and drogue lengths were released in the area covered by the HF radar. The drifter trajectories can be examined following the SOCIB Deployment Application (DAPP): <http://apps.socib.es/dapp>. Additionally, a 1-year long time series of surface currents obtained from a moored surface current-meter located in the Ibiza Channel, inside the area covered by the HF radar, was also used as a useful complementary validation exercise.

Direct comparison between both radial surface currents from each radar station and total derived velocities against drifters and moored current meter velocities provides an assessment of the HF radar data quality at different temporal periods and geographical areas. Statistics from these comparisons give good correlation and low root-mean-square deviation. The results will be discussed for different months, geographical areas and types of surface drifters and wind exposure. Moreover, autonomous underwater glider constitutes an additional source of information for the validation of the observed velocity structures and some statistics will be presented.