

Remote Sensing of Sea Surface Salinity The Delaware Coastal Current Experiment

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A comparison was made of sea surface salinity measurements obtained with microwave remote sensing (L-band) and in-situ shipboard measurements. The measurements of salinity were made in the vicinity of the Delaware coastal current, a low salinity band with its source in the mouth of the Delaware Bay. The remote sensing measurements were made with the Electrically Scanned Thinned Array Radiometer (ESTAR) which was mounted on the NASA P-3 Orion aircraft. The shipboard measurements were made with a thermosalinograph on board the R/V Cape Henlopen. On 29-30 April 1993, the R/V Cape Henlopen sailed from the mouth of the Delaware Bay south toward the Chesapeake Bay. It sailed in an east-west zig-zag pattern, repeatedly crossing the coastal current. The aircraft flew the same lines on the afternoon of 30 April. The salinity maps derived from the thermosalinograph and the microwave radiometer (Figure 1) clearly show the freshwater signature of the coastal current. The maps are generally in agreement to within about 1 psu.

For details see:

Remote Sensing of Ocean Salinity: Results from the Delaware Coastal Current Experiment, D.M. Le Vine, M. Kao, R.W. Garvine and T. Sanders, JOAT, 15, 1478-1484, Dec., 1998

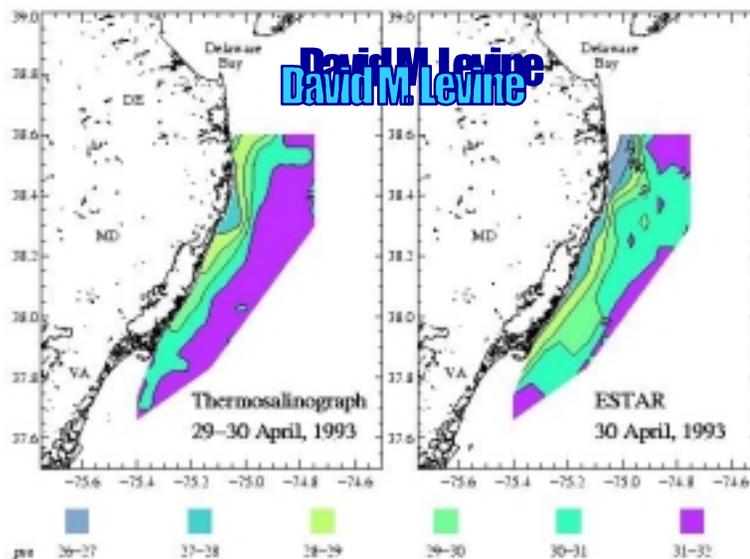


Figure 1: Salinity field obtained with the ESTAR L-band radiometer (right) and the thermosalinograph aboard the R/V Cape Henlopen during the Delaware Coastal Current

Experiment. The fresh water outflow from Delaware Bay is evident in this figure as it flows south along the coast. Differences between the two maps are on the order of 1 psu and in part can be explained by the difference in observation time: it took the ship several days to make the map and it took the aircraft only a few hours.