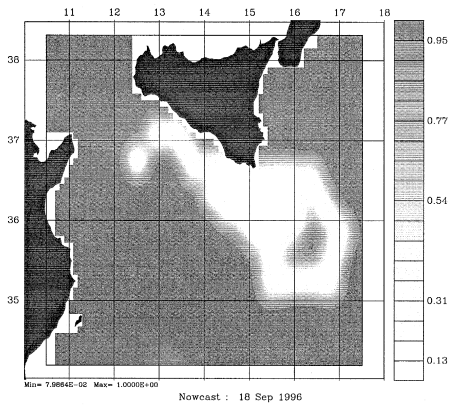
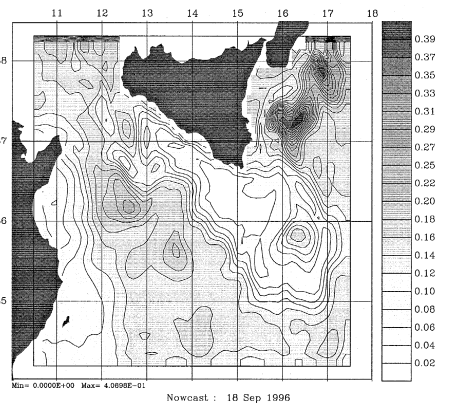


(a)



(b)



(c)

Fig. 1. (a) Surface temperature map (°C) for Sept. 18 after ESSE assimilation, overlaid with surface velocity vectors (scale arrow is 0.25 m/s); (b) Normalized expected error (0–1) of the surface temperature mapped from the new Sept. 18 observations; (c) Root mean square error (°C) of the estimate shown in (a). Before data assimilation the error range was  $\pm 1.5^\circ\text{C}$ . Real-time field and error forecasts were made at Harvard using ESSE with the data provided by Sellschopp et al., SACLANTCEN.

In general, such capabilities allow the use of optimization schemes to estimate data optimal, i.e., the time-variant sampling patterns and sensor types which maximize the decrease of errors. For more on such practical results and on the parameters of the real-time ESSE experiments (elapsed-times, parallel networking, dynamical and measurement models, etc), we refer to Lermusiaux (1997).

The present data-driven estimation in the Sicily Channel concentrate on RR96 between Sept. 15 and Sept. 24. The main purpose of this paper is to report the estimation and study of the physical fields and their dominant variability and error covariances.