PICTURE OF THE MONTH

Langmuir Circulations in Rodeo Lagoon

ANDREW J. SZERI

Department of Mechanical and Aerospace Engineering, University of California at Irvine, Irvine, California

17 April 1995 and 31 July 1995

FIG. 1. View of the lagoon looking west.

Figure 1 shows the surface signature of Langmuir circulations on Rodeo Lagoon in Marin County, California, at 1400 LDT 29 May 1994. The circulations are characterized by long rolls of overturning water directed along wind; they are described in detail in the review article of Leibovich (1983). The surface signature shown in the photograph appears as windrows of bubbles oriented approximately along the wind direction. Bubbles tend to collect at regions of convergence and downwelling from the surface. Upwelling regions with surface divergence are swept clear of bub-

Corresponding author address: Dr. Andrew J. Szeri, Department Mechanical and Aerospace Engineering, University of California at Irvine, Irvine, CA 92717-3975.

bles. Upon close examination, the figure also reveals the waves, which are running approximately downwind along the rows of bubbles. Neither the wind speed nor the exact wind direction were recorded. According to the September 1993 bathymetric survey by Zembsch (1993), Rodeo Lagoon has a remarkably constant depth of 1.4 m, with a bottom characterized by a layer of dark, noncohesive organic sediment overlaying silt. That portion of Rodeo Lagoon shown in the photograph has a width of approximately 200 m. The author thanks S. Leibovich of Cornell University and J. Howell and D. Fong of the Golden Gate National Recreation Area for helpful discussions.

REFERENCES

Leibovich, S., 1983: The form and dynamics of Langmuir Circulations. *Ann. Rev. Fluid Mech.*, **15,** 391–427.

Zembsch, S., 1993: Bathymetric survey of Rodeo Lagoon. Golden Gate National Recreation Area Report, Ft. Cronkhite, 27 pp.