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Subject: JIMAR ANNUAL REPORT

PI Name: Pierre Flament

Project title:

Physical characteristics of the environment influencing pelagic fishes

0. Funding agency: NOAA

1. Purpose of project:

To deploy a Central Pacific Drifter Array, consisting of one hundred satellite-tracked drifting buoys active for a period of two years each, to map the mesoscale upper ocean flow in the Hawaiian Exclusive Economic Zone. This velocity data was complemented by satellite measurements of surface temperature, surface topography, and wind stress. With these tools, we (i) established a capability for nowcasting the physical properties of the upper ocean over the area (velocity, temperature), (ii) construct a climatology of these properties over a time scale of several years, (iii) study the dynamics and thermodynamics of physical processes acting in the area. These results provided an environmental framework helping the fisheries scientists involved in the JIMAR Tuna and Billfish Research Program to interpret their observations.

2. Progress during FY1998:

Our manuscript submitted to Nature is under revision after a first round of reviews. We also submitted a manuscript to JPO on the theory of vortex merging with application to the eddies off south point. We are completing the paper on case studies of eddy formation in the lee of the Hawaiian islands, to be submitted to Journal of Physical Oceanography this summer.

3. Plan for the next fiscal year.

Submit and revise papers additional papers above (in collaboration with Rick Lumpkin, now a postdoctoral fellow at IFREMER in France); continue processing of data and merging with satellite data; organize the drifter and satellite data and publish a CD-ROM to be distributed to the community (June Firing).

4. List of papers in refereed journals funded by this project:

Two in revision, two in preparation.

6. Name of students graduating.

Rick Lumpkin (Fall 1998). Dissertation title: EDDIES AND CURRENTS OF THE HAWAIIAN ISLANDS