



## **Statistical analysis of copepod (*Temora longicornis*) swimming behaviour and trajectories and their environmental forcings**

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The knowledge of animal's movements and trajectories in a variable spatio-temporal environment is important for the study of their ecology. The ability of prey to maximize feeding or mating opportunities and minimizes predation risk is crucial. Moreover, the pressure of restrictive environment (dense, diluted, turbulent and high variable medium) can conditioned responses of organism.

We examine the behavioural reactions of *Temora Longicornis*, a calanoid copepod found in Eastern English Channel, in response to variations in chemical, biological, and physical factors. In laboratories, using infrared sensitive numerical camera at a high frames rate and high resolution, long films are directly recorded. Then, two softwares, Adobe pro and LabTrack are used to tracking moving organisms between successive video frames. Tracks are stored in an array object consisting of and x and y coordinates. Finally, sequences are investigated by means of two approaches: the analysis of the dynamics of swimming states, and the statistical analysis of trajectories, which a characterization of their random walk statistical properties using scaling approaches. By this option, we will characterize *T. longicornis* behaviour and influence of external conditions (e.g. turbulent factor) on their behaviour.