

The Fluid Mechanics of Propagule Transport in the Rocky Intertidal Zone

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Catriona Hurd, John MacGregor

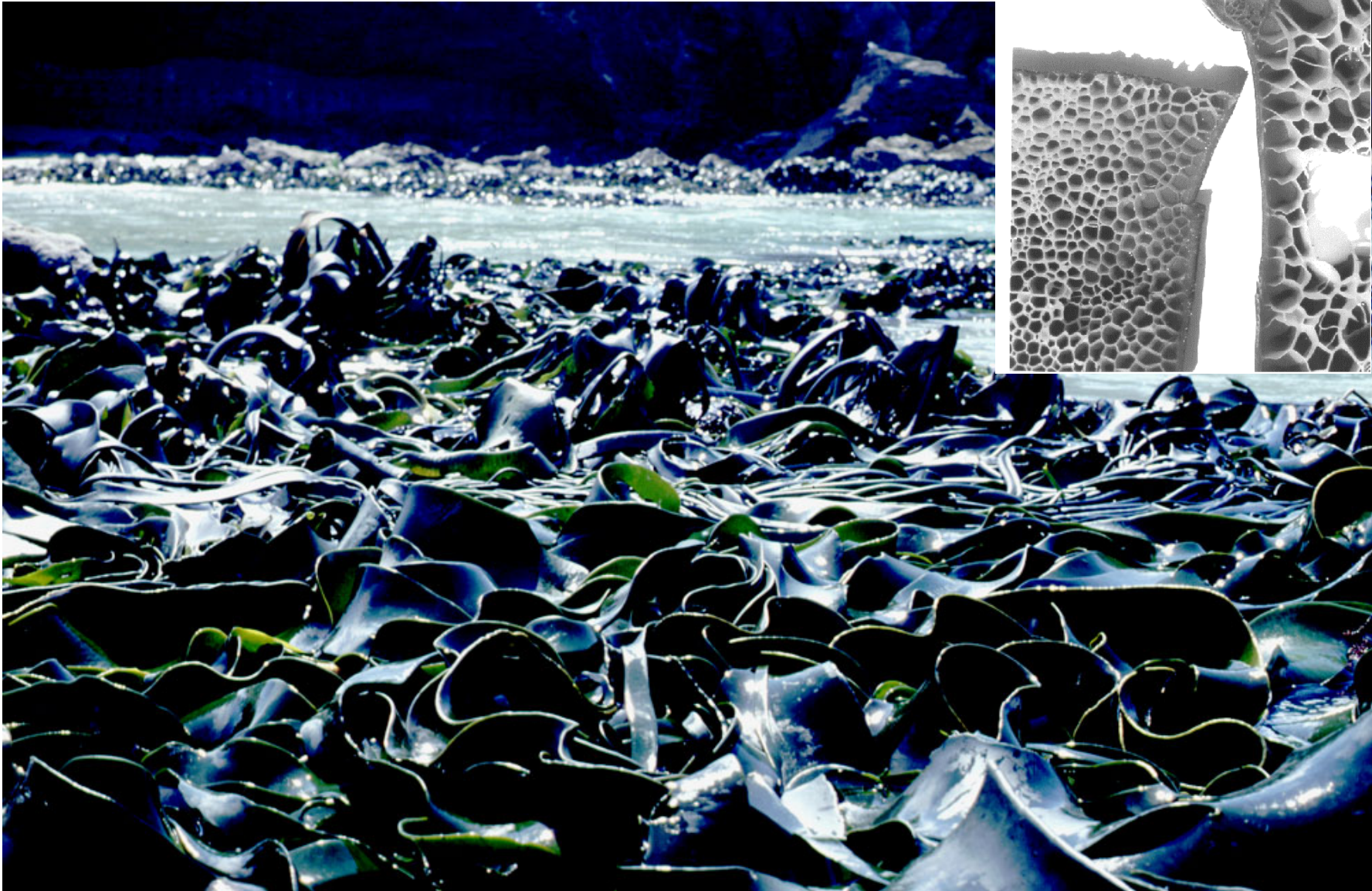
The Rescue
Julius Caesar Ibbetson (1759-1817)



Success in the Rocky Intertidal



Durvillaea antarctica

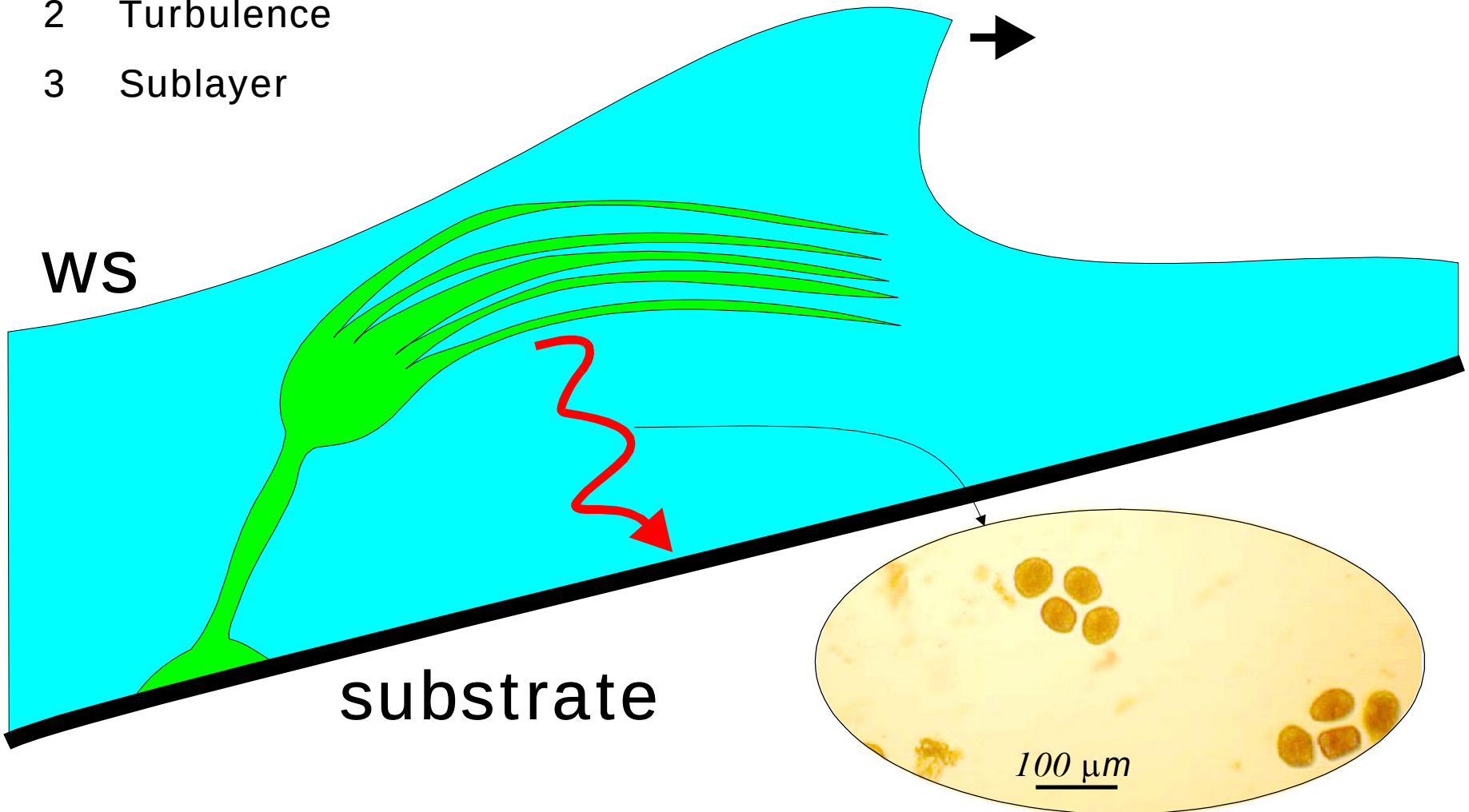


The Ecology of Survival...

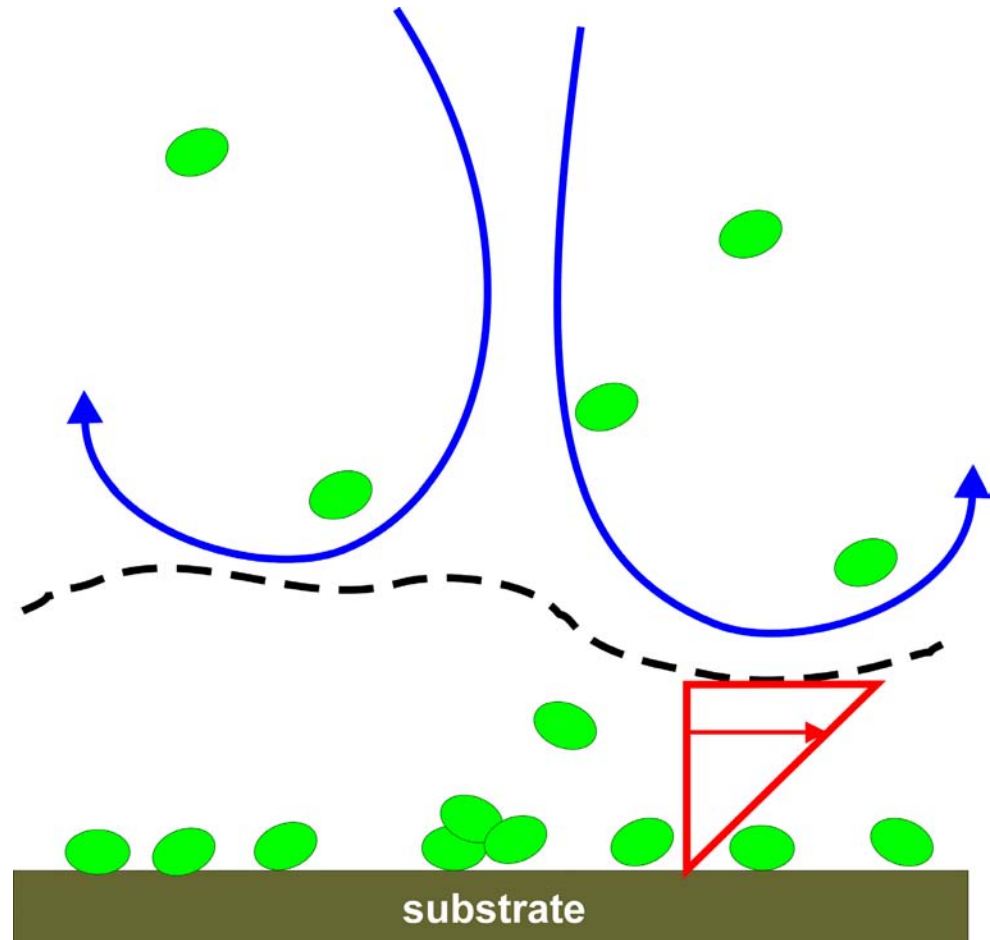


Transport:

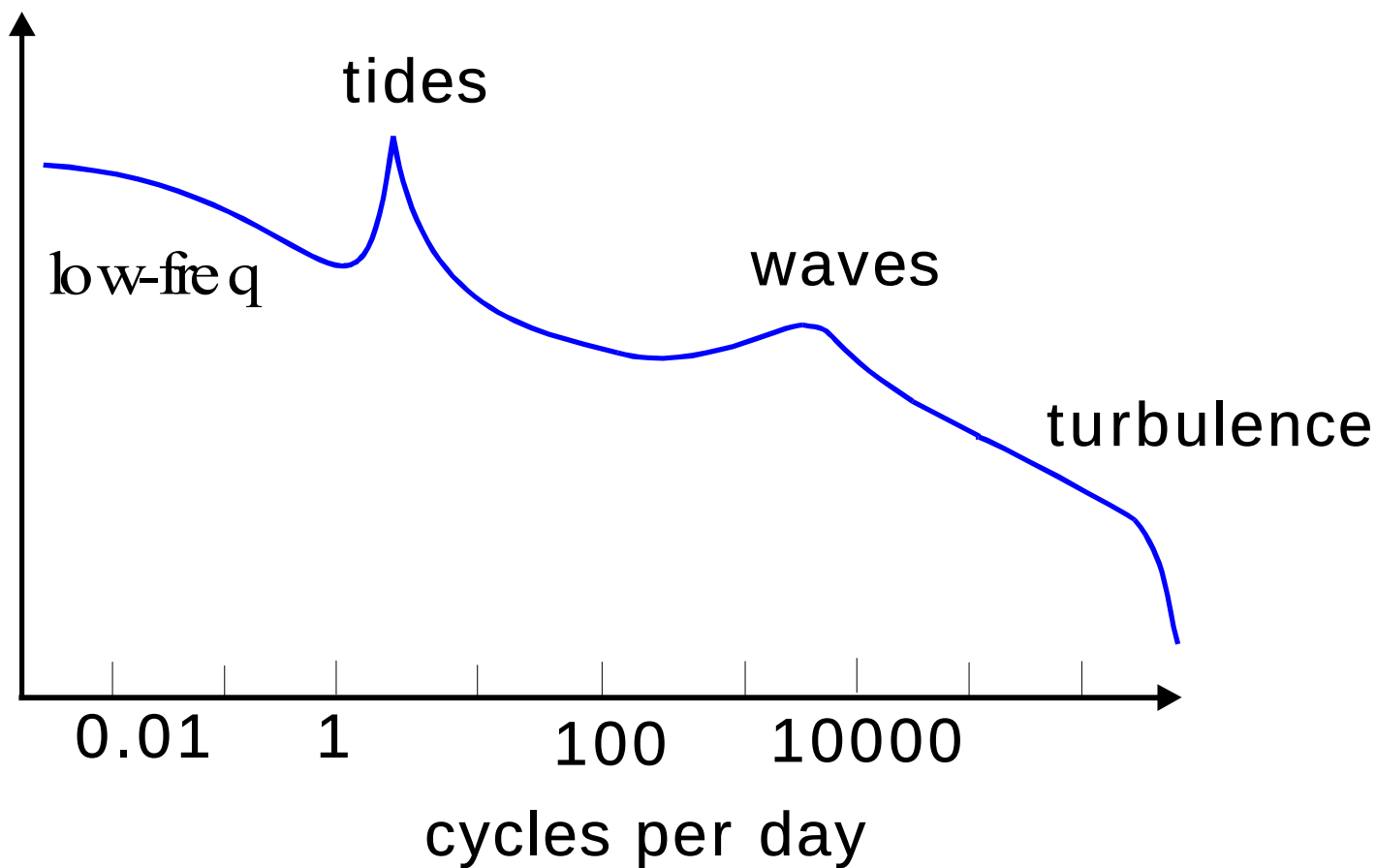
- 1 Offshore Waves and currents
- 2 Turbulence
- 3 Sublayer



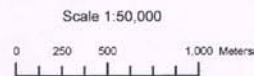
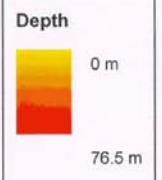
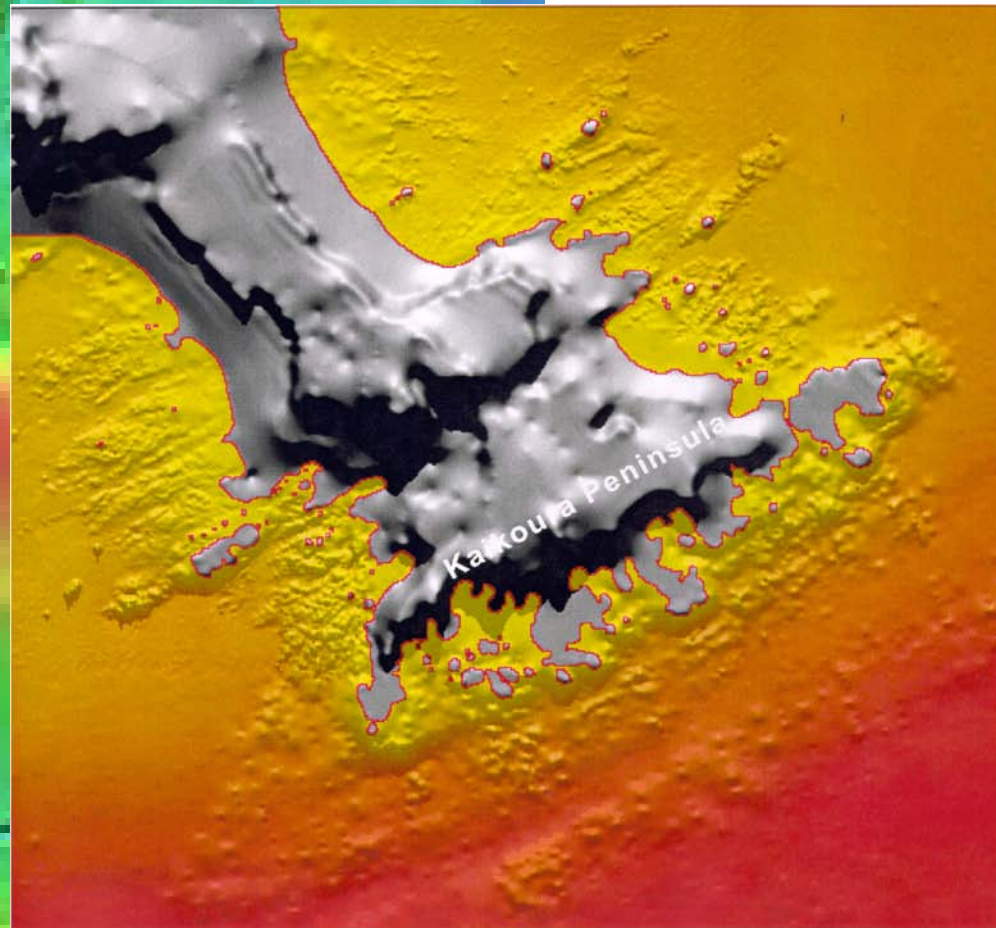
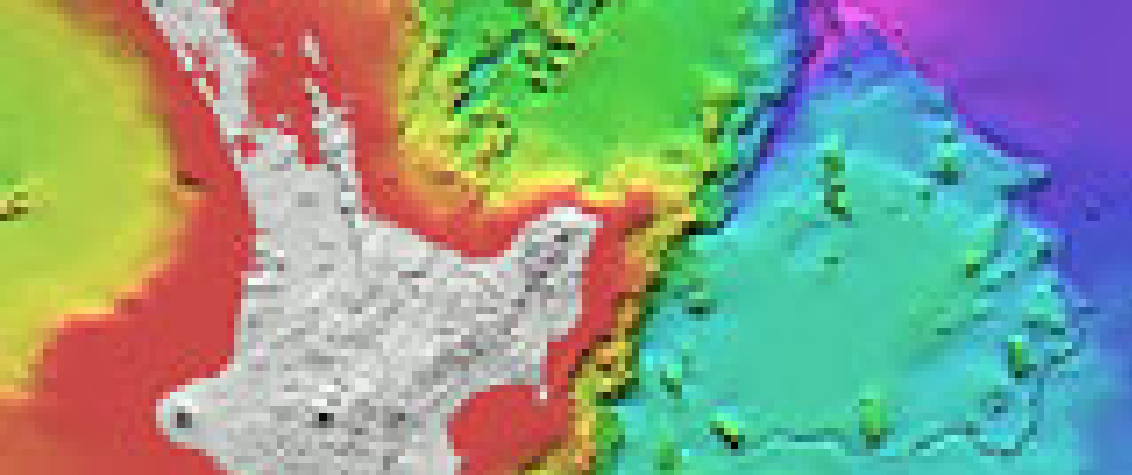
The Viscous Sublayer



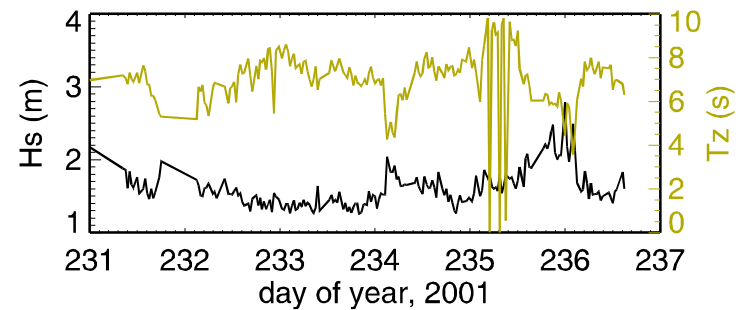
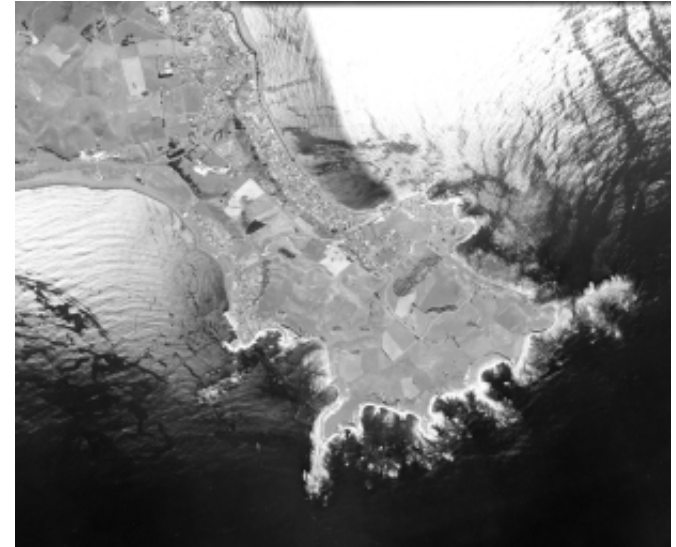
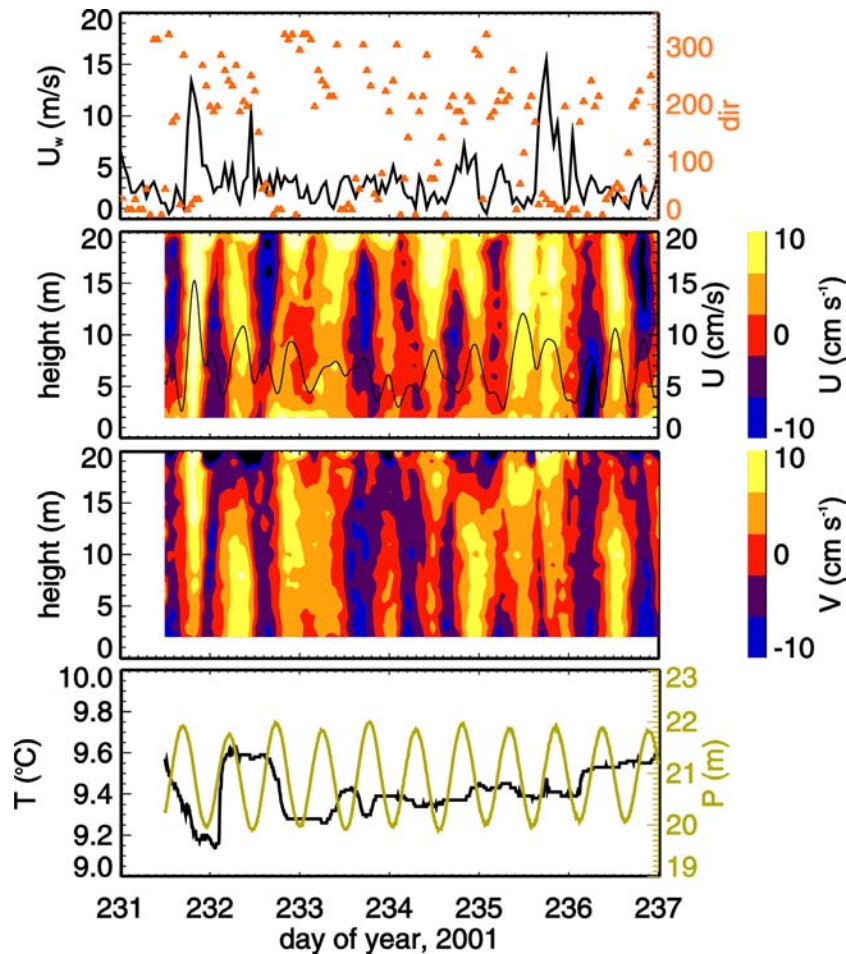
Energy Scales



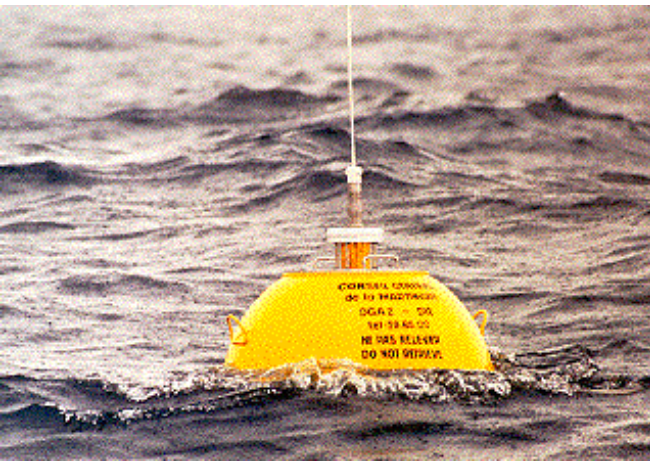
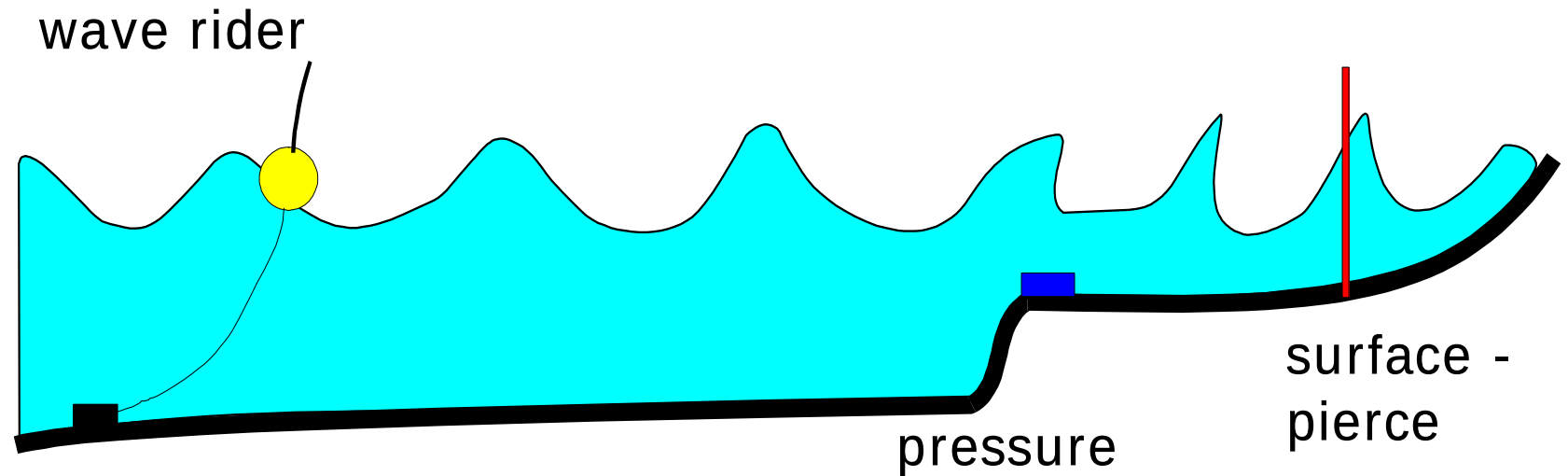
Location



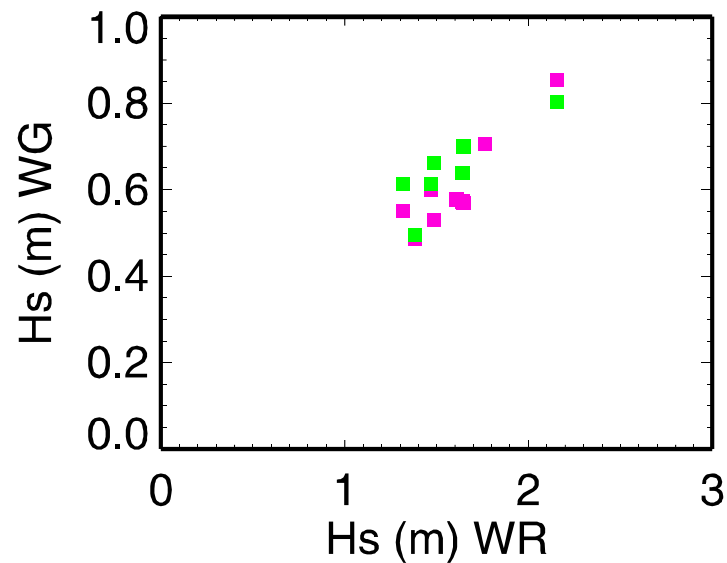
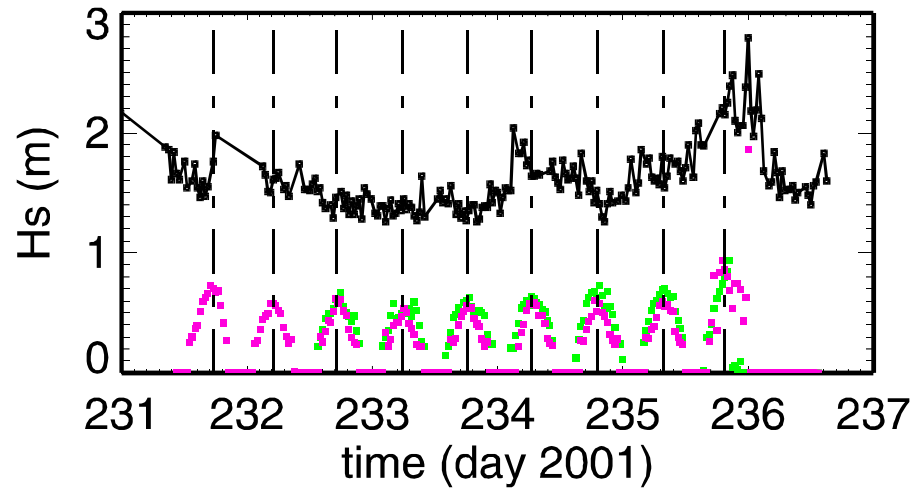
Offshore Currents & Waves



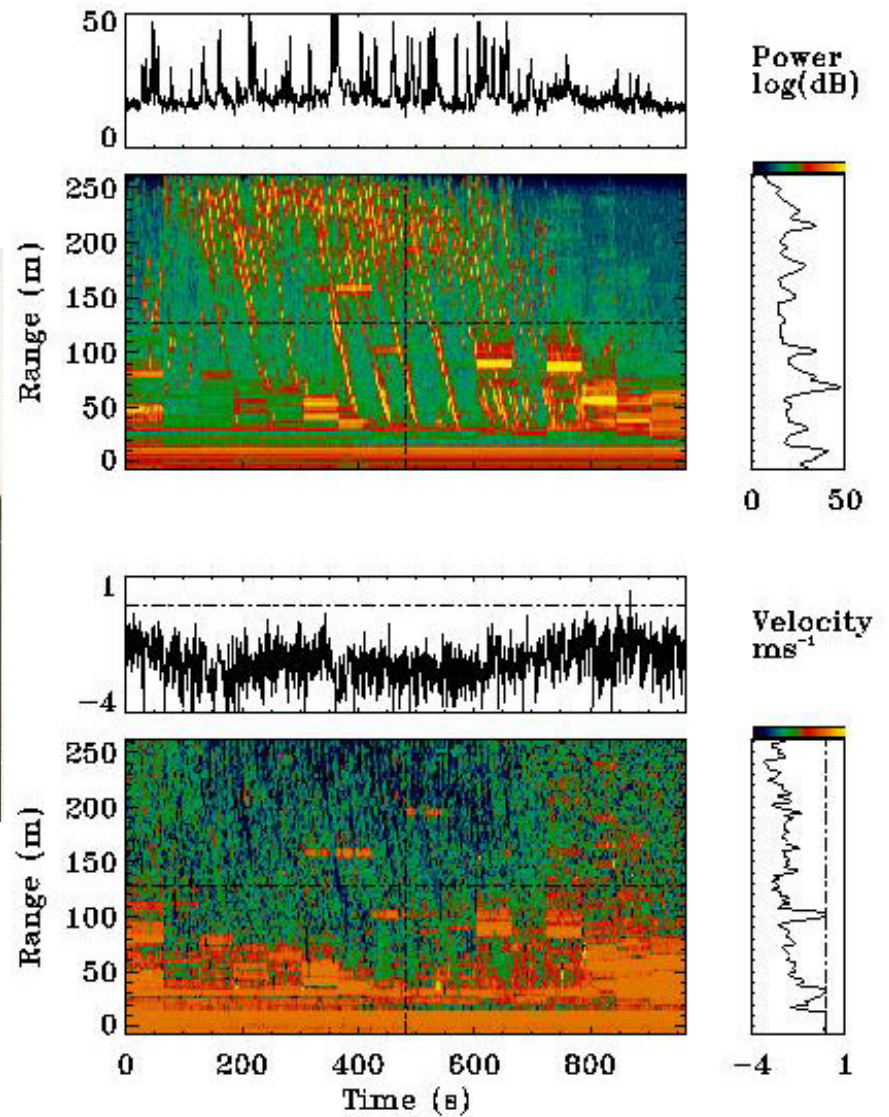
Waves and Wave Transformation:



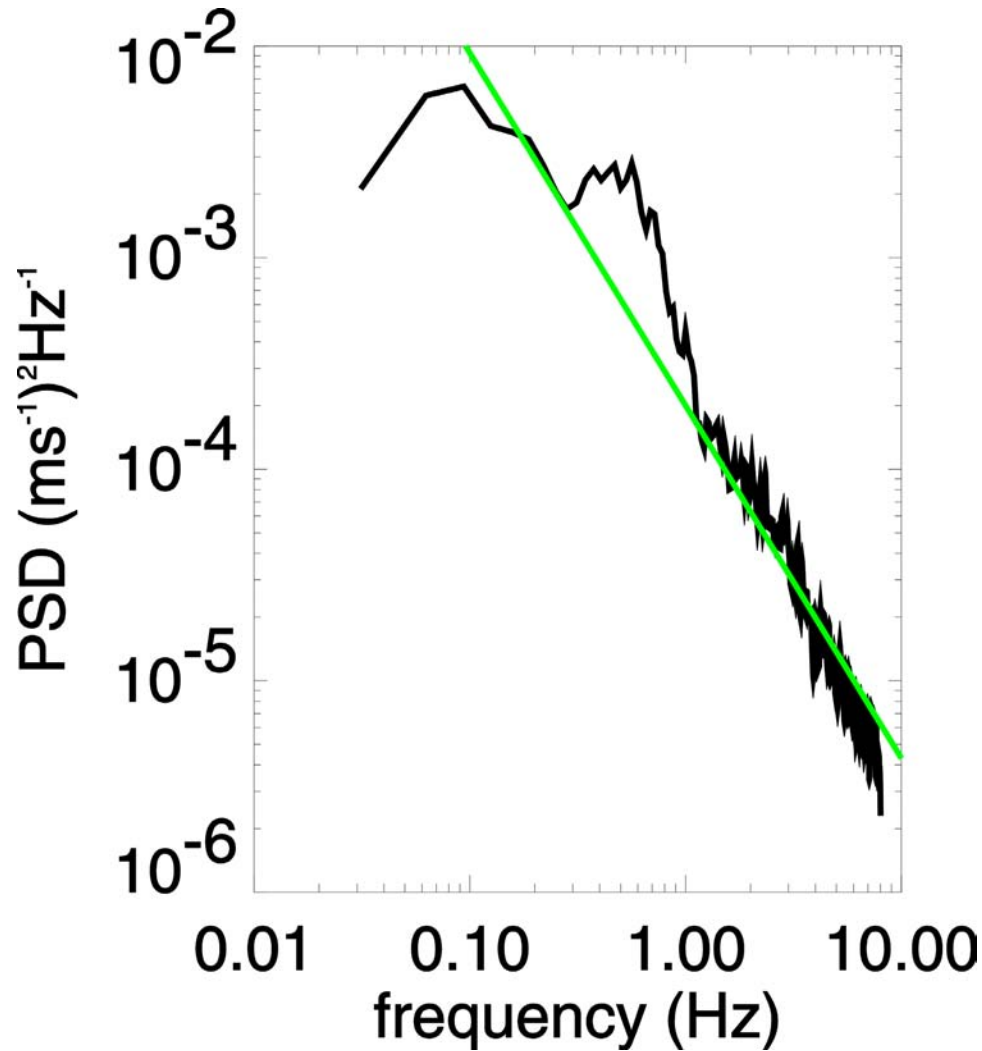
Wave Observation -1



Wave Observation - 2



Wave Generated Turbulence



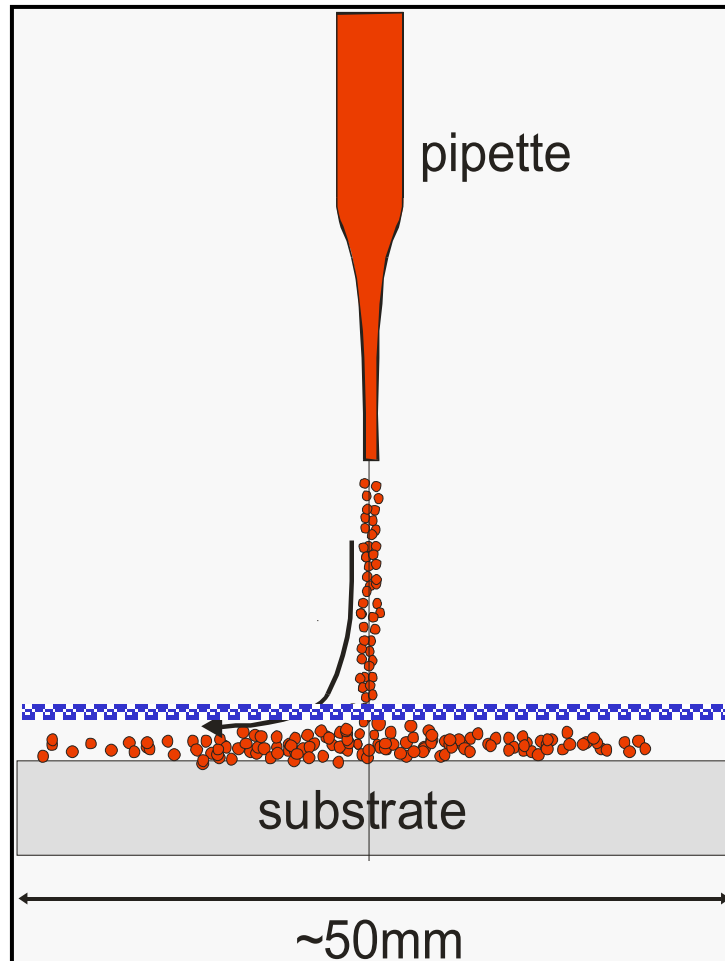
Viscous Sublayer

KAIKOURA

VECTOR TIMESERIES

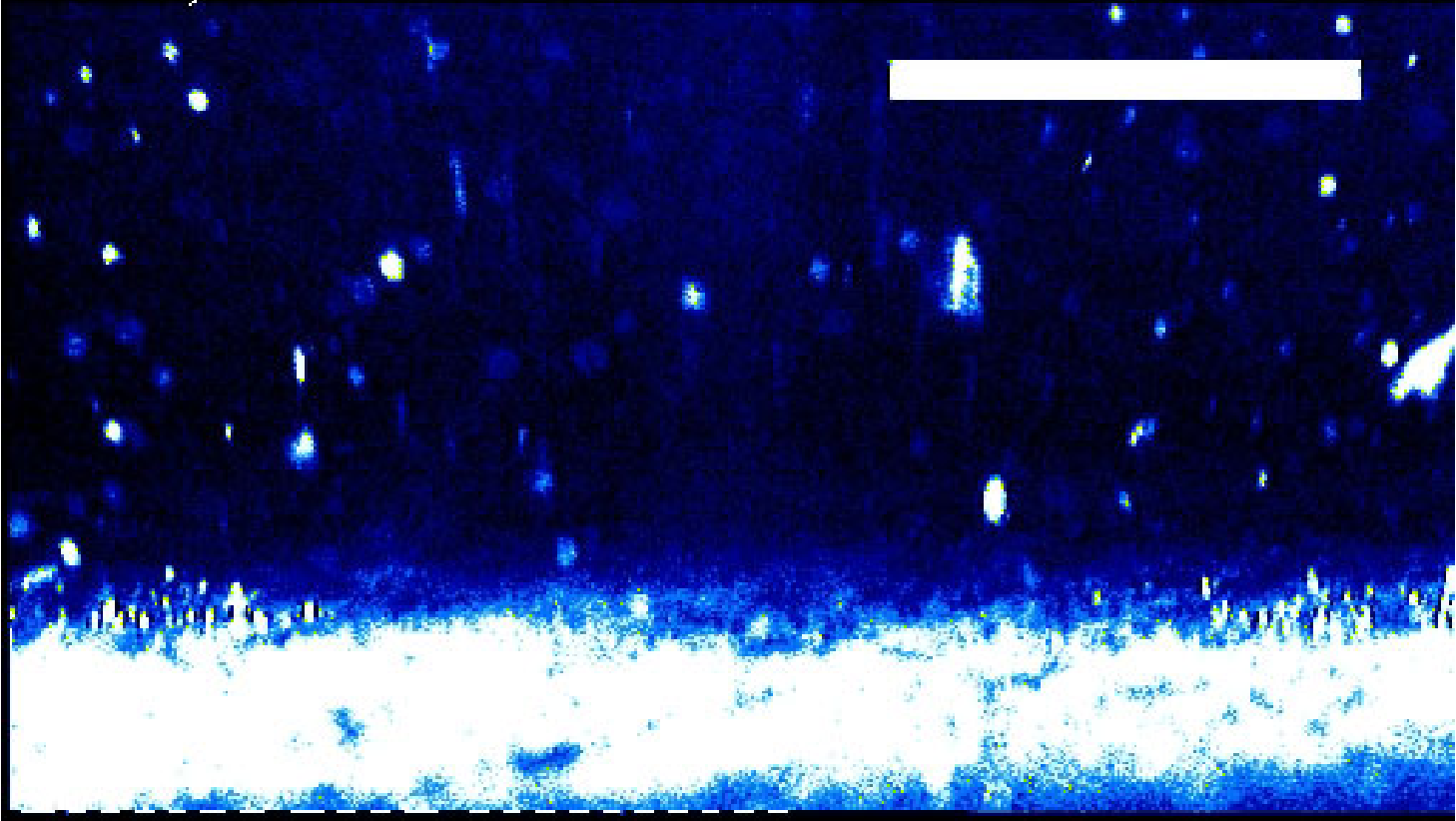
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Shooting zygotes



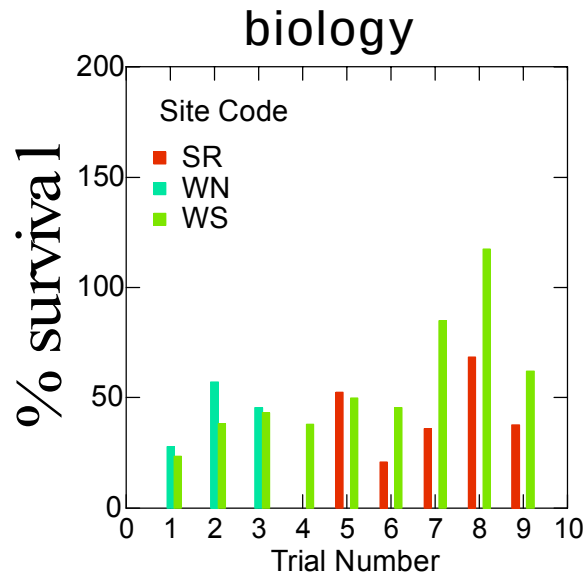
jet movies...

FILE: jet3 TIME: 0.000000 s frame : 0

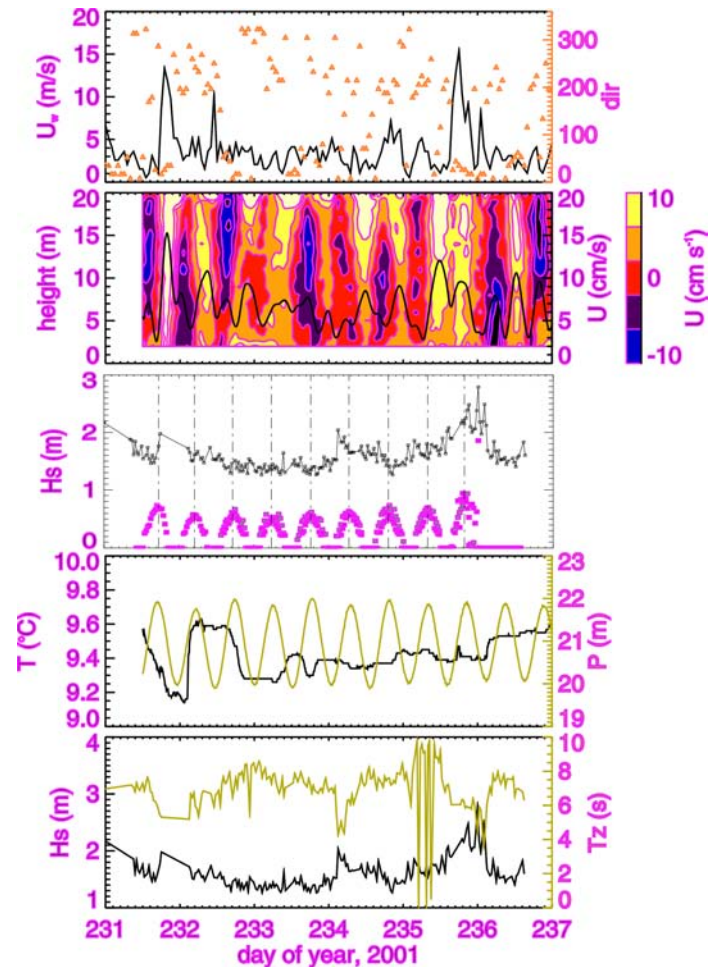


Field results: hydrodynamics & biology

a mismatch in
observational
timescales



physics



Summary

- # wave transformation
- # small scale – viscous sublayer
- # environmental context