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Established time series measure occurrence and frequency of episodic events.

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Established time series measure occurrence and frequency of episodic events.
Episodic flux events occur in open oceans. Time series making measurements over significant time scales are one of the few methods that can capture these events and compare their impact with 'normal' flux. Seemingly rare events may be significant on local scales, but without the ability to measure the extent of flux on spatial and temporal scales and combine with the frequency of occurrence, it is difficult to constrain their impact.
The Porcupine Abyssal Plain Sustained Observatory (PAP-SO) in the Northeast Atlantic (49 °N 16 °W, 5000m water depth) has measured particle flux since 1989 and zooplankton swimmers since 2000. Sediment traps at 3000m and 100 metres above bottom, collect material year round and we have identified close links between zooplankton and particle flux. Some of these larger animals, for example Diacria trispinosa, make a significant contribution to carbon flux through episodic flux events. D. trispinosa is a euthecosome mollusc which occurs in the Northeast Atlantic, though the PAP-SO is towards the northern limit of its distribution. Pteropods are comprised of aragonite shell, containing soft body parts excepting the muscular foot which extends beyond the mouth of the living animal. Pteropods, both live-on-entry animals and the empty shells are found year round in the 3000m trap. Generally the abundance varies with particle flux, but within that general pattern there are episodic events where significant numbers of these animals containing both organic and inorganic carbon are captured at depth and therefore could be defined as contributing to export flux. Whether the pulse of animals is as a result of the life cycle of D. trispinosa or the effects of the physics of the water column is unclear, but the complexity of the PAP-SO enables us not only to collect these animals but to examine them in parallel to the biogeochemical and physical elements measured by the instrumented mooring.