



The Oceanic Flux Program (OFP): A thirty-year continuous record of particle flux in the deep Sargasso Sea

1 M. Conte

Bermuda Institute of Ocean Sciences (maureen.conte@bios.edu)

The Oceanic Flux Program (OFP) off Bermuda is the longest running time-series of its kind. Begun in 1978, the OFP sediment traps (500, 1500 and 3200m depth) have continuously measured the deep ocean particle flux, with a >95% temporal coverage at 3200m depth. The early OFP discovery of seasonality in the deep particle flux clearly demonstrated a direct linkage between the deep ocean and the overlying surface environment and laid to rest the (then) widely-held view of the abyssal ocean as an invariant, largely isolated realm. In the 30 years since, the OFP time-series has elucidated linkages between the deep ocean and variations in upper ocean physical and biological processes, as measured by the BATS and BTM programs, on time-scales of days to decades. The deep particle flux- analogous to atmospheric precipitation- follows a strongly skewed gamma probability distribution and is characterized by extreme flux “events”, particularly in late fall and spring when mixed layer stratification is transient and the influence of mesoscale physical variability is high. The magnitude of the deep flux and its seasonality does not exhibit a detectable multiyear trend, but does however exhibit significant year-to-year variability, especially in the magnitude of the wintertime flux. Overall, the annually-integrated (July-July) flux at 3200m depth exhibits a weak, but significant, negative correlation with the wintertime (NDJF) North Atlantic Oscillation Index and suggests an influence of increased wintertime storminess on the efficiency of the biological pump.