Elucidating Spatial and Temporal Variability in the Export and Attenuation of Ocean Primary Production using Thorium-234

SCIENCE GOALS

Provide quantitative estimates of sinking particle fluxes and attenuation with depth at scales that are key to understanding physical and biological processes that influence the biological pump:

- Temporal scales of few days-week
- Horizontal spatial scales: 2-10 km
- Vertical spatial scales: Every 10-20m over the upper 500 m

TEAM MEMBERS

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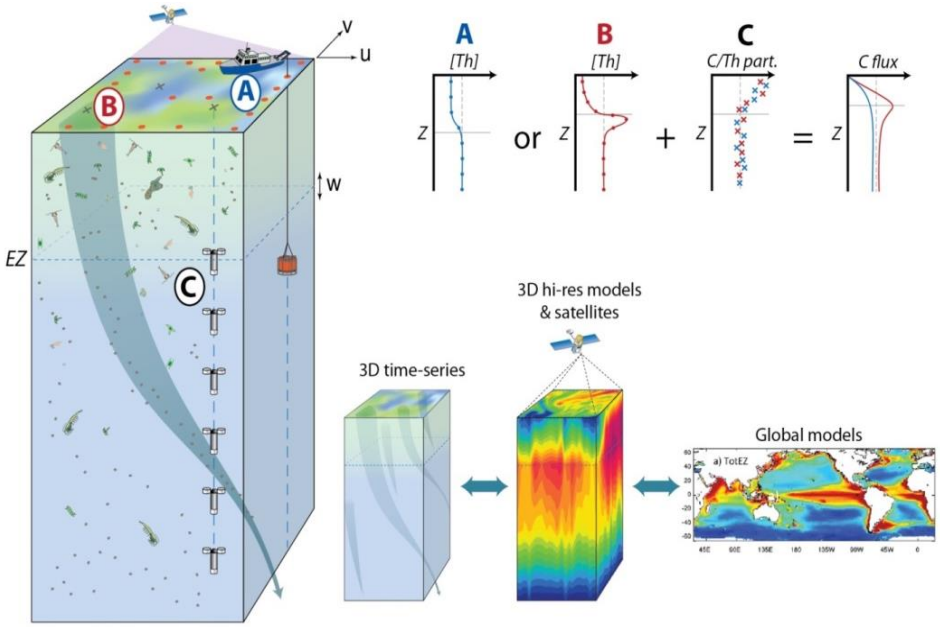

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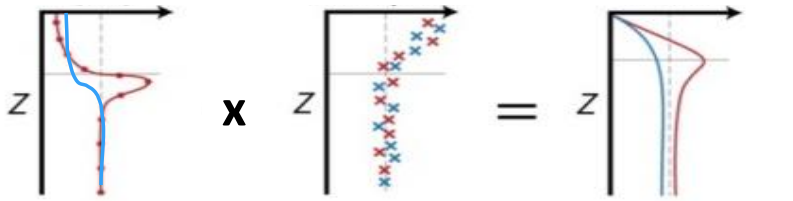
LOGISTICS

Survey ship

- Sampling with CTD/Rosette
  - Total ^{234}Th: 60 profiles, 12 depths
- Sampling with *in-situ* pumps
  - 1, >20 and >50 micron particles
  - 12 profiles, @ 5 trap-depths + 750 m
- Adaptive sampling of particle source

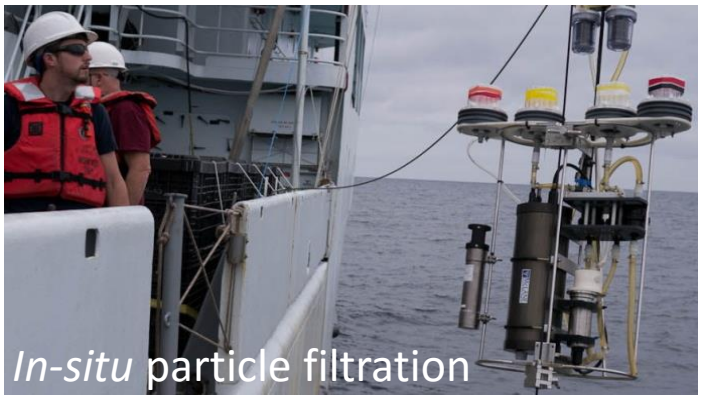
^{234}Th flux x POC/^{234}Th = POC flux



Also works for other elements and compounds

MEASURED PARAMETERS & RESULTS

- ^{234}Th derived flux field
- Particles- ^{234}Th, organic & inorganic carbon, nitrogen, biogenic silica & more in collaboration w/ others
- Key result: synthesis data product of 3D time-series flux fields for POC and major elements in upper 500 m
- Direct link with trap fluxes on process ship



In-situ particle filtration

EXPORTS
EXport Processes in the Ocean from RemoTe Sensing