

Iron inputs etc. Key point resume

1. Need balance of effort – no point in having an aspect very well resolved if other critical element not understood well (in modelling context). For example need appropriate data for both Fe and water mixing to provide Fe fluxes.
2. Key missing parameter for models is magnitude, and location of Fe inputs
3. Sediment inputs identified as v. important missing/poorly constrained component. Need new measurements.
4. Particle studies – more detailed view as potential Fe source, also tracer of particle source of Fe to ocean (Ra, Mn, Nd isotopes).
5. Physics essential component of studies if fluxes of Fe to be constrained. Nearshore mesoscale important; sources. However also need to constrain BGC process models that can be upscaled to larger basin scale.
6. Variability in systems and using techniques to give appropriate data to cover major events when ships may not be there (need for moorings).
7. Bioavailability of Fe – critical in understanding impact of Fe, but a very difficult problem. Consider Fe demand of organisms and compare to sources one viable approach. Issues of relating form (colloidal, organically associated, particulate) to fate in ocean. To first approximation assume all “dissolved forms available”, but presently we do not have a clear view of what fraction of the PFe may be directly or indirectly available.
8. Fe/C drawdown efficiency – difficult to have comparable information given variability in way it is calculated and spatial/temporal changes in this parameter. Would be more productive and useful to modellers to have a measure of cellular uptake of C and Fe.
9. Need for common set of methods/approaches so that can truly compare outputs of studies. Base on the GEOTRACES methods as far as appropriate to ensure comparability of data. Need also to standardise measure of Fe demand by organisms (length of incubation, Fe-55, added ligands etc.).