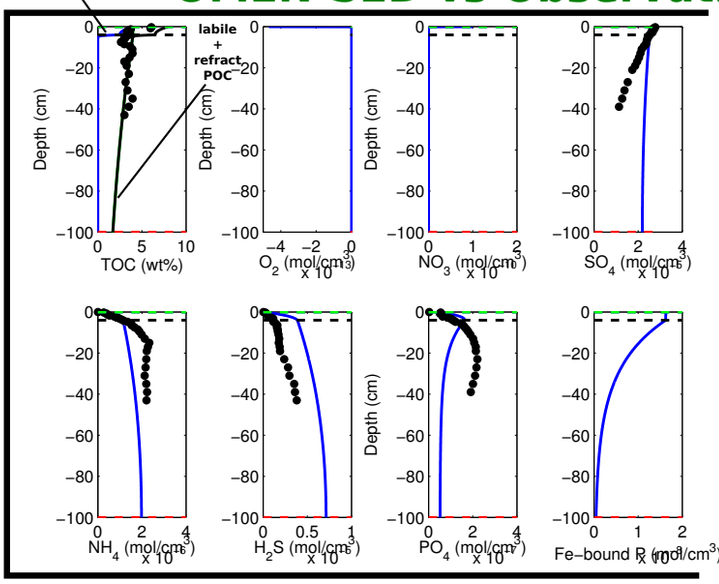
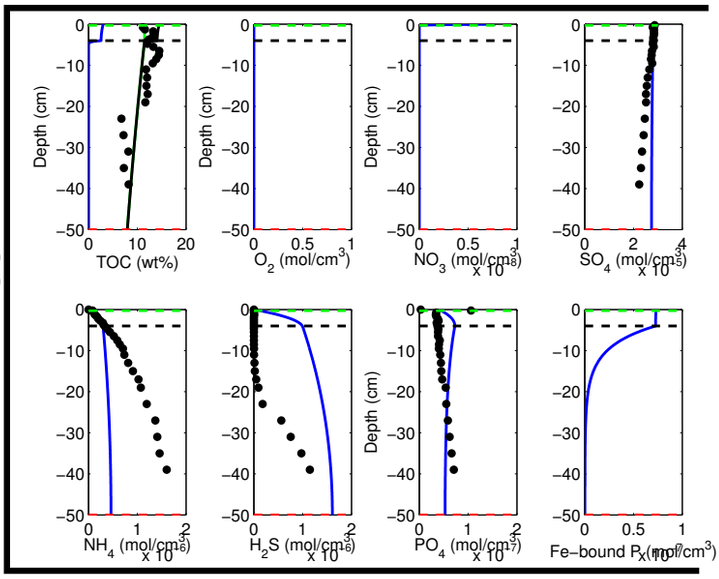
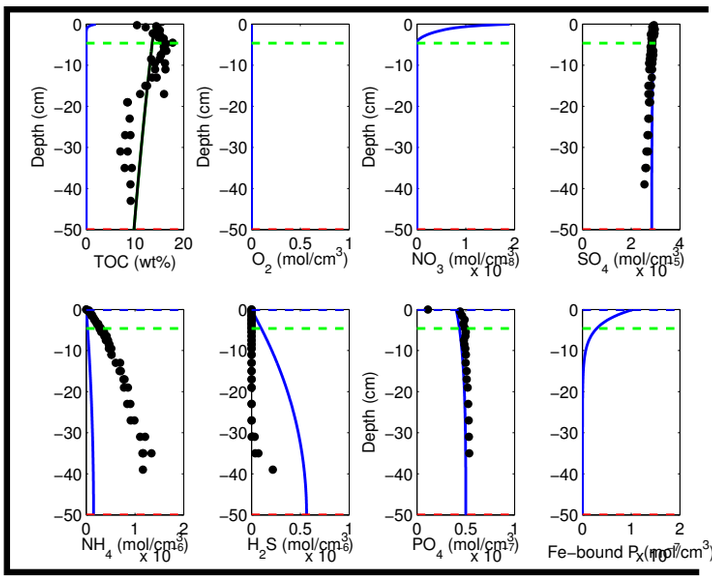
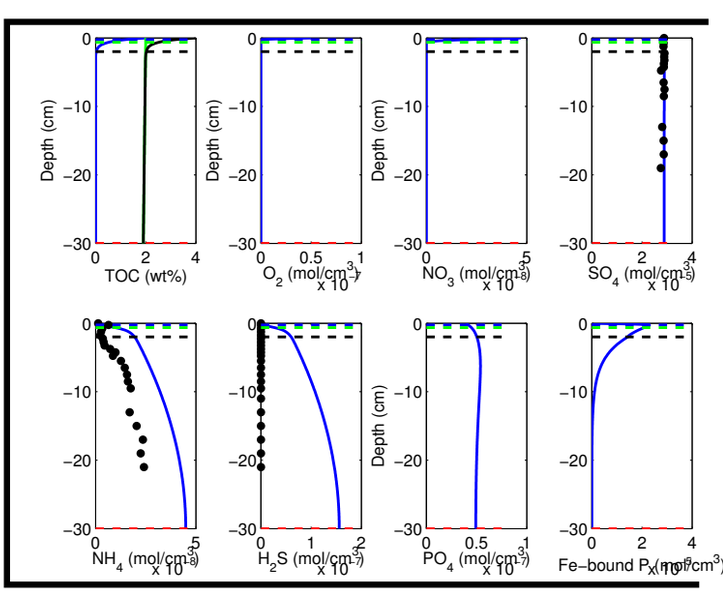
OMEN-SED vs Observations Dale et al. (2015, 2016)









17/08/16																
Description	k1	k2	POC1	POC2	Temp	Porosity	sed. density	sed acc. Rate	fct(wdepth)	Biot. Coeff	biot. depth	zinf	O2	NO3	NH4	SO4	H2S	PO4
	yr-1	yr-1	wt%	wt%	Celsius	-	g/cm^3	cm/yr		cm^2/yr	cm	cm	microM	microM	microM	milliM	microM	microM
Middle Shelf	2	0.004	4	4	14	0.96	2	0.45		28.1	4	100	0	0	2	29	30	40
Outer Shelf	0.5	0.0008	3	11.5	13	0.96	2	0.1		25.2	0	50	0	7.8	2	29	0	40
OMZ	0.174	0.0005	0	15	12	0.96	2	0.07		0.5	0	50	0	11.9	1.5	29	0	40
Below OMZ	0.174	0.0001	2	2	4.4	0.76	2	0.06		0.01	2	30	50	47	0.697	29	0	40

NOTE:
Diff. sediment depth scales
Diff. concentration scales

Model Results:

SO4: always to high
H2S: too low except for OMZ
NH4: always to low, except below OMZ, where very low NH4 values

Why H2S too high?

Bacteria stores NO3 internally as BNO3, this is used for OM degradation -> uses HS^- as electron donor-> no build up of H2S in first cm

Why NH4 too low?

again not modelled: bacteria producing NH4

Why SO4 too high?

Questions:

Are the sites too specific?
Need a better fit!?

Below OMZ:

Will ask for NO3 and TOC data

Another thing I changed to fit PO4 profile:
Equil. concentr. for authigenic P formation
47e-9 %was 3.7e-9