Data Assimilation in Biogeochemical Cycles − Provisional Autumn School Schedule

Time	Mo, 22.9	Tu, 23.9	We, 24.9	Thu, 25.9	Fr, 26.9	Sat, 27.9
9.00 – 10.30	Welcome Overview of BGC cycles and why we care about them	Basics: Data, uncertainty and their use in DA	State of the art: Terrestrial carbon cycle models and uncertainties	State of the art: Marine carbon cycle models and uncertainties	Non CO2 GHG: - atm. lifetime - combining tracers - optimizing transport	Satellites: - sensors - retrievals - GHGs and uncertainties
10.30 – 11.00	Break	Break	Break	Break	Break	Break
11.00 – 12.30	Basics: Overview of data assimilation and probability theory	Basics: Forward modelling, dynamical systems	DA methods: direct sampling (MCMC) & Kalman filtering	DA methods: adjoints and 4DVar	Multiple data streams Network design	Posterior diagnostics, performance evaluation & DA for model development
12.30 – 14.00	Lunch	Lunch	Lunch	Lunch	Lunch	Lunch
14.00 – 15.30	Pen & Paper Exercise	Practical introduction of toy model	Free afternoon	MCMC & Kalman filtering exercises	Network design exercises	Posterior diagnostics exercises
15.30 – 16.00	Break	Break		Break	Break	
16.00 – 17.30	Student intro & Posters with drinks	Hands on model runs, forward sensitivities		4D-VAR exercises Parameter exercises	Transport inversion exercises	