

London Mathematical Society – EPSRC Durham Symposium

Mathematics of Data Assimilation

Monday 1st August – Thursday 11th August 2011

All talks will take place in room CLC203 Ken Wade Lecture Theatre, Calman Learning Centre

Tuesday 2nd August

09:00-09:10	Opening Remarks	I Roulstone/P-J van Leeuwan/NK Nichols
09:10-10:10	M. Ghil	<i>Data assimilation: how we got here and where to next?</i>
10:1-11:10	A. Majda	<i>Mathematical strategies for real time filtering of turbulent dynamical systems I</i>
11:10-11:40	Tea/Coffee	
11:40-12:40	J. Harlim	<i>Numerical Strategies for Filtering Partially Observed Multiscale Dynamical Systems</i>
16:00-16:30	Tea/Coffee	
16:30-17:00	F. Kwasniok	<i>Deriving dynamical models from palaeoclimatic records using nonlinear Kalman filtering: estimation of parameters and noise levels</i>
17:00-17:30	A. Lawless	TBA
17:30-18:00	R. Bannister	TBA
18:30		<i>Wine Reception at Grey College (JCR)</i>

Wednesday 3rd August

09:00-10:00	A. Stuart	<i>Filtering for PDEs I</i>
10:00-11:00	A. Majda	<i>Mathematical strategies for real time filtering of turbulent dynamical systems II</i>
11:00-11:30	Tea/Coffee	
11:30-12:30	E. Somersalo	<i>DA in cell biology I</i>
16:00-16:30	Tea/Coffee	
16:30-17:30	M. Cullen	<i>4D VAR in the presence of model error</i>
17:30-18:00	M. Ghil	<i>Parameter estimation and some new application areas</i>
18:00-18:30	H. Tran	<i>Parameter estimation in complex biological systems</i>

Thursday 4th August

09:00-10:00	A. Majda	<i>Mathematical strategies for real time filtering of turbulent dynamical systems III</i>
10:00-11:00	A. Stuart	<i>Filtering for PDEs II</i>
11:00-11:30	Tea/Coffee	
11:30-12:30	E. Somersalo	<i>DA in cell biology II</i>
14:00		<i>Symposium Photograph at Grey College</i>
15:00		<i>Cathedral Tour</i>
16:00-16:30	Tea/Coffee	
16:30-17:30	D. Calvetti	TBA
17:30-18:00	D. McLaughlin	<i>The role of model dynamics in ensemble Kalman filter performance for chaotic systems</i>

Friday 5th August

09:00-10:00	A. Majda	<i>Mathematical strategies for real time filtering of turbulent dynamical systems IV</i>
10:00-11:00	H. Abarbanel	<i>Statistical Data Assimilation: Exact Formulation as a Path Integral and Approximations in Many Examples I</i>
11:00-11:30	Tea/Coffee	
11:30-12:30	M. Bocquet	<i>Ensemble Kalman filtering without the intrinsic need for inflation</i>
16:00-16:30	Tea/Coffee	
16:30-17:00	A. Chuter	<i>Modelling the carbon cycle - a dynamical systems approach</i>
17:00-17:30	S. Delahaies	<i>4DVAR for modelling the carbon cycle</i>
17:30-18:00	G. Gottwald	<i>Reduced stochastic climate models for data assimilation</i>

Saturday 6th August

09:00-10:00	S. Migliorini	<i>TBA</i>
10:00-11:00	G. Gottwald	<i>Controlling overestimation in ensemble Kalman filters</i>
11:00-11:30	Tea/Coffee	
11:30-12:30		
16:00-16:30	Tea/Coffee	
16:30-17:00	H. Abarbanel	<i>Statistical Data Assimilation: Exact Formulation as a Path Integral and Approximations in Many Examples II</i>
17:00-17:30		
17:30-18:00		

Sunday 7th August

Day trip to Hadrian's Wall

Monday 8th August

09:00-10:00	TBA	
10:00-11:00	P-J. van Leeuwen	<i>TBA I</i>
11:00-11:30	Tea/Coffee	
11:30-12:30	R. Kleeman	<i>Mechanisms for predictability variation</i>
16:00-16:30	Tea/Coffee	
16:30-17:00		
17:00-17:30	N. Nichols	<i>TBA</i>
17:30-18:00		
20:00		<i>Poster Session in JCR (with wine and cheese)</i>

Tuesday 9th August

- 09:00-10:00 R. Kleeman *Targeted observation strategies for prediction improvement in non-linear and/or non-Gaussian regimes*
- 10:00-11:00 J. Purser *Adaptive Anisotropic Covariance Operators; Construction, Normalization and Implementation in a Parallel Computing Environment*
- 11:00-11:30 Tea/Coffee
- 11:30-12:30 P-J. van Leeuwen *TBA II*
- 16:00-16:30 Tea/Coffee
- 16:30-17:00 G. Desroziers *Accelerating minimizations in ensemble variational assimilation*
- 17:00-17:30 H.L. Du *Better data assimilation through gradient descent*
- 17:30-18:00
- 19:00 *Conference Dinner*

Wednesday 10th August

- 09:00-10:00 M. Buehner *The use of ensemble covariances within variational data assimilation for NWP*
- 10:00-11:00 G. Nicholls: *Monte Carlo methods for model parameter estimation which are robust to errors in likelihood evaluation*
- 11:00-11:30 Tea/Coffee
- 11:30-12:30 M. Opper *Variational approximations to inference in stochastic differential equations*
- 16:00-16:30 Tea/Coffee
- 16:30-17:00 O. Talagrand *Assimilation in the Unstable Subspace*
- 17:00-17:30
- 17:30-18:00
- Meeting closes

Thursday 11th August, departures.