Earth System Science 2010
Global Change, Climate & People

Monday 10th May

13:30	**Welcome addresses:** **Sidlaw Auditorium**
	Colin Prentice, Leader of QUEST and co-Chair of AIMES; **Roseanna Cunningham**, MSP, Minister for Environment
14:00	Q&A session
14:15	Opening Keynotes: **Sidlaw Auditorium**
	Prof Jacqueline McGlade (European Environment Agency) Knowledge for action: Building robust links between science and policy
	Prof Berrien Moore III (University of New Hampshire) Faustian Bargains: The Challenge to the Earth System
15:15	Q&A session Coffee
16:00	**Setting the scene for the three themes** **Sidlaw Auditorium**
	Prof Andy Ridgwell Geoengineering as a test of our understanding of the Earth system
	Dr Eric Wolff (British Antarctic Survey) Greenhouse gases in the Quaternary: constraining sources, sinks, feedbacks and surprises
	Prof Johan Rockström (Stockholm Resilience Centre) Human development within the safe operating space of the Earth system
17:00	Q&A session
17:30	Adjourn
18:00	Drinks reception and poster time Lomond Suite

Tuesday 11th May

09:00	**Plenary: Invited talks** **Sidlaw Auditorium**		
	Pascal Lecomte The European Space Agency's activities on climate change		
	Prof Gabi Hegerl (University of Edinburgh) Towards predicting climate system changes and feedbacks from observations		
	Dr Jae Edmonds (JGCRI, Pacific Northwest National Laboratory) Implications of global environmental change, and environmental policies, for ecosystem services and human well-being: energy, land use, and climate stabilization		
10:30	Coffee		
10:50	**Sessions and Posters:** Sidlaw Auditorium and Galloway Suite		
	The AVOID project Organiser: John Caesar **Sidlaw Auditorium** **Jason Lowe** An overview of AVOID **Rachel Warren** AVOID Workstream One **Chris Hope** Climate change impacts for emission paths that peak and decline **Rob Nicholls** Impacts of sea-level rise with a range of emissions **Ken'ichi Matsumoto** Economic impacts to avoid dangerous climate change using the AIM/CGE model **Nick Florin** Future fossil fuel use and carbon capture technologies	**Budget and recent trends in the global carbon cycle** Corinne LeQuéré and Pierre Friedlingstein **Carrick Room** **Yude Pan** The Benchmark for Carbon Models: Net Ecosystem Productivity of US Forests Estimated from Forest-Inventory Data **Wolfgang Knorr** Towards detection and attribution of the climate-carbon cycle feedback **Emanuel Gloor** What do decadal-scale variations and trends in CO_2 airborne fraction tell us about carbon sink efficiency? **Jo House** Land use change, uncertainty and mitigation	**Posters** Lomond Suite
12:30	Lunch		
14:00	**Plenary: Contributed talks** Sidlaw Auditorium		
	Andrew Jarvis The timescales of climate models **Almut Arneth** Terrestrial biogeochemical feedbacks in the climate system: from past to future **Pierre Friedlingstein** Can we infer climate-carbon cycle feedback from past records? **John Finnigan** Connectivity and Inequality: Tipping Points in the Human-Earth System **John Ingram** Spatial and Temporal Scales and Levels in Human Systems: Some examples in the context of food security		
15:40	Coffee		
16:00	**Themed Parallel Sessions:** Sidlaw Auditorium and Galloway Suite		
	Models and observations **Carrick Room** **Stephen Sitch** Regional trends in the land carbon cycle: validating a DGVM **Erik Buitenhuis** From physiological observations to global ecosystem structure using plankton functional type modelling **Paul Telford** Effects of climate-induced changes in isoprene emissions after the eruption of Mount Pinatubo **Manoj Joshi** The QUEST Earth System Model (QESM) **Claire Granier** Observation networks: Community Initiative for Emissions Research and Applications **Paul Stoy** Reconciling carbon fluxes in the Arctic	**Earth system feedbacks and interactions** **Sidlaw Auditorium** **Peter Cox** Rate-dependent Tipping Points in the Earth System **Chris Jones** Uncertainty in future ecosystem changes from terrestrial ecosystem modelling **Fiona O'Connor** Atmospheric responses to methane pulse emissions **Anil Bozbiyik** Response of the carbon cycle to a collapse of the Atlantic Meridional Ooverturning Circulation **Mitch Power** Biomass burning in the Americas post 1492 **Phil Goodwin** Careful choice of data-sources greatly improves the accuracy of past carbon cycle reconstructions	**Human – environmental conceptualisations and impacts** **Harris Room** **John Thornes** Atmospheric services **Nicky Grigg** A probabilistic approach to exploring global dynamics **Hans-Martin Füssel** Global maps of climate change impacts on the favourability for human habitation and economic activity **Mandar Trivedi** Counting the costs of the 2005 Amazon drought: a preliminary assessment **Simon Lloyd/Sari Kovats** How should we estimate climate change impacts on hunger and malnutrition? **Casey Ryan** How does fire intensity and frequency affect miombo woodland tree populations and biomass?
18:00	Adjourn		
	Conference dinner at Dynamic Earth 18:30 Bar open 19:15, 19:30 Tour of 4D Gallery (i), Tour of 4D Gallery (ii) 20:00 Dinner		

Wednesday 12th May

09:00	**Plenary: Invited talks** **Sidlaw Auditorium**
	Dr Gavin Schmidt (NASA Goddard Institute of Space Studies) Using Earth System Models to provide more policy-relevant information
	Dr Valerie Masson-Delmotte (talk given by Eric Wolff) The ice core records of past climate variability at the glacial-interglacial scale.
	Dr Mike Raupach (CSIRO) The carbon cycle and the Anthropocene
10:30	Coffee
10:50	**Posters and Sessions:** **Sidlaw Auditorium and Galloway Suite**

The AVOID Project **Sidlaw Auditorium**	**Integrated History and Future of People on Earth (IHOPE)** **Carrick Room**	**Science Liaison Group: Evaluating and Benchmarking ESMs** **Harris Room**	**Posters** Lomond Suite
Organiser: John Caesar **John Caesar** Future changes in climate extremes under an aggressive mitigation scenario **Tom Osborne** The impacts on crop production of a range of climate policies **Simon Gosling** Future water scarcity with climate change **Dan Bernie** Damage function estimates of climate change impacts for RCPs **Hannah Chalmers** CO_2 removal from the atmosphere	Organiser: Sarah Cornell **Sander van der Leeuw** An overview of IHOPE **John Dearing** Integrating multi-decadal records for sustainable management of contemporary socio-ecological systems	Organiser: Colin Prentice **Veronika Eyring (given by Pierre Friedlingstein)** A framework for process-oriented evaluation of Earth System Models	

12:30	Lunch
14:00	**Plenary: contributed talks** **Sidlaw Auditorium**
	Akinori Ito Fluxes of bio-available iron to the ocean **Sönke Zaehle** How robust are responses of carbon-nitrogen cycle models to increasing atmospheric CO_2 and climatic changes? **James Levine** Changes in methane at the Last Glacial Maximum **Suzi Kerr** Effective international policy to reduce emissions from deforestation **Niel Bowerman** Does climate uncertainty mean we will need large-scale air capture?
15:40	Coffee
16:00	**Themed parallels:** **Sidlaw Auditorium and Galloway Suite**

Earth system dynamics and future projections **Sidlaw Auditorium**	**Understanding and responding to climate change** **Carrick Room**	**Food systems, uncertainty and future risks** **Harris Room**
Julia Pongratz Biophysical versus carbon cycle effects of anthropogenic land cover change **Ben Booth** Accounting for physical and biogeochemical feedbacks in the climate system: contributions of uncertainty to future projections **Angela Gallego-Sala** Bioclimatic envelope modelling of the current and future distribution of blanket peatlands at the global and regional scales **Peter Baines** Patterns of decadal climate variability and their impact on global rainfall and the biosphere **Michael Sanderson** Regional climate change under high-end global warming	**Ioan Fazey** Adaptation strategies to reduce vulnerability to future environmental change **Hannes Böttcher** Scenarios of global climate change mitigation through competing biomass management options **Robert Matthews** QUATERMASS: Modelling greenhouse gas baseline projections and mitigation potentials in the forestry sector and their relevance for policy **Pete Smith** Global agricultural mitigation potential **John Finnigan/Markus Brede** Exploring mechanisms for treaty formation in an energy-climate-economy model **Discussion**	**Andy Challinor** Crop failure and climate change: assessing impacts and adaptation options **Terry Dawson** Modelling social-ecological systems in Earth Systems Science: Food security under global climate change. **James Harle** QUEST Fish: Potential climate change impacts on the coastal/shelf seas. Business as usual? **Marcelo Alves** Modeling plant disease risk areas based on Brazilian climate change scenarios **Sushmita Saha** The Effects of Land Use and Land Cover Change and its implications as an indirect driver of climate change in Garhwal Himalayas, India

18:00	Adjourn

Thursday 13th May

09:00	**Plenary: Overview talks** **Sidlaw Auditorium**
	Dr Andy Morse (University of Liverpool) Providing seamless seasonal to centennial projections for health impacts of climate change
	Prof Carole Crumley (Stockholm Resilience Centre) What went on when it got warm? Exploring exogenous and Anthropogenic climate drivers in the rise and demise of Rome
	Prof Kevin Anderson (University of Manchester/Tyndall Centre) Responding to the challenges of Climate Change: going beyond dangerous
10:00	Q&A session
10:30	Coffee
11:00	**Panel Debate: Sidlaw Auditorium** **Earth System Science and Global Responsibility**
	Kevin Anderson (University of Manchester/Tyndall Centre) **Andy Kerr** (SAGES) **Berrien Moore** (University of New Hampshire)
12:00	Awards Closing remarks
13:00	QUEST/AIMES side events