



The
Geological
Society

-serving science & profession

Arthur Holmes Meeting 2016:

The Wilson Cycle: Plate Tectonics and Structural Inheritance During Continental Deformation

23-25 May 2016

Programme

Monday 23 May 2016	
08.30	Registration & tea & coffee (Main foyer and Lower Library)
09.00	Introduction.
	The Wilson & Supercontinent Cycles
09.10	KEYNOTE: The Wilson Cycle Of the Opening and the Closing of the Ocean Basins Kevin Burke (University of Houston, Texas, USA)
09.40	Geo-Constraints on and confirmation of the operation of the Wilson Cycle since the Neoproterozoic Brian Windley (University of Leicester, UK)
10.00	Mesoproterozoic terrane collision in the Namaqua belt of south-western Africa - Time for revision of deeply entrenched views? Steffen Büttner (Rhodes University, South Africa)
10.20	The Classic Wilson Cycle Revisited Ian W.D Dalziel (The University of Texas at Austin, Texas, USA)
10.40	Tea, coffee, refreshments and posters (Lower Library)
	Record of the Wilson Cycle
11.00	KEYNOTE: Dyke Swarms of the Canadian Shield: Initial Stages of Precambrian Wilson Cycles? Henry C. Halls (University of Toronto Mississauga, Canada)
11.30	A revised 300 Ma geodynamic history for the lapetian Wilson cycle, based on Hf isotope arrays. Bill Collins (The University of Newcastle, Australia)
11.50	Sea level reconstruction from Strontium isotopes; a record of the Wilson Cycle back to the Neoproterozoic Douwe van der Meer (Nexen Petroleum, UK/ Utrecht University, Netherlands)
12.10	Natural Resource Evaluation within a Global Tectonic Framework: The Past is the Key to the Future G.R. Nicoll (Halliburton)
12.30	KEYNOTE: Lithospheric rheology and tectonic style in the Wilson Cycle John Dewey (University College Oxford, UK)

13.00	Lunch and posters (Lower Library)
	Geodynamic Models and Tectonic Reconstructions
14.00	KEYNOTE: Geodynamic models highlighting the roles of inheritance during a Wilson Cycle Susanne Buitter (Geological Survey of Norway and University of Oslo, Norway)
14.30	A Phanerozoic deformable tectonic plate reconstruction model for the Atlantic margins John Watson
14.50	Continent-Ocean Boundaries...the end of the line? Lucia Pérez-Díaz (Royal Holloway University of London, UK)
15.10	Deformable Plate Reconstructions Provide Insights into the Influence of Structural Inheritance on Continental Breakup and Ocean Formation Bridget Ady (GeoArctic Ltd)
15.30	Tea, coffee, refreshments and posters (Lower Library)
	Basement Inheritance and Reactivation
15.50	KEYNOTE: Structural inheritance during basin formation and deformation in continents Mike Daly (University of Oxford, UK)
16.20	The Sarandí del Yí Shear Zone, Uruguay: crustal reworking of the Río de la Plata Craton margin during Western Gondwana assembly Sebastián Oriolo (Universität Göttingen, Germany)
16.40	Late Palaeozoic extensional reactivation across the Rheic-Renohercynian suture zone in SW England, the English Channel and Western Approaches Andrew Alexander (Siccar Point Energy Limited)
17.00	A half-turn in the Wilson Cycle: the role of inheritance at the Mid-Norwegian margin Per Terje Osmundsen (Geological Survey of Norway, University Centre in Svalbard and University of Oslo, Norway)
17.20	Examining the relative roles of basement inheritance, plate boundary forces and intraplate geodynamics: the brittle deformation record of Paleozoic platform rocks of east central North America Alexander Cruden (Monash University, Melbourne, Australia)
17.40	KEYNOTE: From orogen to rift: The role of reactivation and reworking. Haakon Fossen (University of Bergen, Norway)
18.10	Discussion
18.30 – 19.30	Wine reception (Lower Library)
Tuesday 24 May 2016	
08.30	Registration and tea & coffee (Main Foyer and Lower Library)
	Mantle Convection and Plate Movements
09.00	KEYNOTE: The long-wavelength mantle structure and dynamics and implications for large-scale tectonics and volcanism in the Phanerozoic Shijie Zhong (University of Colorado, USA)
09.30	What happens to isotopically distinct mantle during the Wilson cycle? Tiffany Barry (University of Leicester, UK)
09.50	Lasting Mantle Scars lead to Perennial Plate Tectonics Philip J. Heron (University of Toronto, Canada)
10.10	The Stability of Tibetan Mantle Lithosphere Gregory Houseman (University of Leeds, UK)

10.30	Tea, coffee, refreshments and posters (Lower Library)
	Inheritance and Rheology in Continental Tectonics
11.00	KEYNOTE: Structural reactivation in plate tectonics: the roles of rheological heterogeneity and anisotropy in the mantle Andréa Tommasi (Université Montpellier & CNRS, France)
11.30	Orogenic inheritance and continental breakup: Wilson Cycle-control on rift and passive margin evolution Christian Schiffer (Aarhus University, Denmark and Durham University, UK)
11.50	The role of pre-existing rheological heterogeneities during the rifting to drifting process: insights from 3D laboratory experiments Nicolas Molnar (Monash University, Melbourne, Australia)
12.10	Controls on strain localisation in natural rifts Rebecca Bell (Imperial College London, UK)
12.30	KEYNOTE: Constraints from GPS observations on the balance of forces in the deformation of Anatolia and the Aegean Philip England (Oxford University, UK)
13.00	Lunch and Posters (Lower Library)
	Tectonic Weakening and Localisation
14.00	What is actually 'breakup'? Can we define a recipe of how to break the lithosphere? Gwenn Peron-Pinvidic (NGU Geological Survey of Norway, Norway)
14.20	Possible role of salt accumulations in Wilson cycles Martin Hovland (Tech Team Solutions)
14.40	Fault strength and deformation-induced weakening: estimates from India and the northern UK Alex Copley (University of Cambridge, UK)
15.00	The role of structural inheritance in controlling the structural evolution and consequences for prospectivity of the Utsira High, Southern Viking Graben Rachael Hunter (Herriot Watt University, Edinburgh, UK)
15.20	Reactivation of intrabasement structures during multiphase continental rifting – Implications for the geometry and evolution of rift systems Thomas Phillips (Imperial College London, UK)
15.40	Tea, coffee, refreshments and posters (Lower Library)
	Tectonic Inheritance on Passive Margins
16.00	KEYNOTE: Unusual examples of continental break-up on the North American margin Erik Lundin (Statoil Research Centre, Norway)
16.30	Revisiting the Wilson Cycle in the North Atlantic: The importance of inheritance Pauline Chenin
16.50	KEYNOTE: Tectonic inheritance at multiple scales during 2+ Wilson cycles recorded in eastern North America William A. Thomas (Professor Emeritus, University of Kentucky, USA and Visiting Scientist, Geological Survey of Alabama, USA)
17.20	SDR dominated rifting in the southern segment of the South Atlantic: a high-strain, narrow rift? Lidia Lonergan (Imperial College London, UK)
17.40	Does Crustal Architecture Play a Role in the Location of Continental Break-up? Alicia Stammer (University of Leeds)
18.00	KEYNOTE: The Concertina Coast: the role of basement inheritance during repeated reactivation events along Australia's northern margin since the Permian Myra Keep (The University of Western Australia, Australia)

18.30	Discussion
Wednesday 25 May 2016	
08.30	Registration and tea & coffee (Main Foyer and Lower Library)
	Arctic
09.00	KEYNOTE: Evolution of the Arctic fold belts Sergey Drachev (ArcGeoLink)
09.30	Basin development in Earth's earliest Rifted Margins: the initial Palaeoproterozoic opening and closure of Baffin Bay, Davis Strait and Labrador Sea John Grocott (University of Durham, UK)
09.50	Tectonic inheritance during extension in rifts and passive margins: a Greenland case study Woody Wilson (BP)
10.10	Long-lived fault systems and their influence on the rift architecture of the NE Atlantic Margin and Barents Shelf Stephen Rippington (Astute Geoscience Ltd)
10.30	Tea, coffee, refreshments and posters (Lower Library)
	Tethys / Gondwana
10.50	KEYNOTE: Tectonic Inheritance in the Alps and the Pyrenees: The Role of Post-Hercynian Strike-Slip systems and the Palaeo-Tethys A. M. Celâl Şengör (Eurasian Institute of Geology)
11.20	Wilson Cycle: its relevance to S Neotethys in the E Mediterranean region and the role of structural inheritance/ re-activation in the assembly of the Kyrenia lineament, N Cyprus Alastair Robertson (University of Edinburgh, UK)
11.40	Continental strike slip fault zones in geologically complex lithosphere: the North Anatolian Fault, Turkey David Cornwell (University of Aberdeen, UK)
12.00	The most notable Alpine tectonic phases during Maghrebides orogeny in the Kabylia domain (Centre-East of Northern Algeria) Sahra Aourari
12.20	The origin of the Bitlis Massif and its importance for the understanding of the northern convergent plate boundary of the Arabian Plate Jeremy Goff (BP Exploration)
12.40	U-Pb zircon geochronology of Daraban Leucogranite, Mawat ophiolite, northeastern Iraq: A record of subduction to collision history for Arabia-Eurasia plates Yo Mohammad (University of Gothenburg, Sweden)
13.00	Lunch and Posters (Lower Library)
	Subduction in the Wilson Cycle
14.00	KEYNOTE: The Wilson Cycle: the subduction initiation stage Robert Hall (Royal Holloway University of London, UK)
14.30	Temporal plume-intracontinent and plume-slab interactions explain tectonic history of East Asia during Cretaceous Changyeol Lee (Chonnam National University, Republic of Korea)
14.50	3D Wilson cycle: structural inheritance and subduction polarity reversals Stephane Beaussier (Geological Institute, Zurich, Switzerland)
15.10	Subduction initiation in the Appalachian-Caledonide system: Implications for the Wilson Cycle John Waldron (University of Alberta, Edmonton, Canada)
15.30	Tea, coffee, refreshments and posters (Lower Library)

	Understanding Supercontinent cycles
16.00	Interpretation of Appalachian-Variscan Ophiolite Complexes: A tweeter in woofers' clothing? J. Brendan Murphy (St. Francis Xavier University, Antigonish, Canada)
16.20	Tectonic Evolution of the Gulf of Mexico and Caribbean Region: not an open and shut case Jim Pindell (Rice University)
16.40	Two many oroclines in Iberia? A Pangea's simple twist of fate Daniel Pastor- Galán (Utrecht University, The Netherlands)
17.00	KEYNOTE: Tom Worsley and the origin of The Supercontinent Cycle R. Damien Nance (Ohio University, Ohio, USA)
17.30	Discussion
17.45	Closing remarks
17.50	End