

**Preliminary Schedule**  
**AGU Chapman Conference on the Great Plume Debate: The Origin and Impact of**  
**LIPs and Hot Spots**  
**28 August - 01 September 2005**  
**Fort William, Scotland, UK**

**Sunday 28 August 2005**

<b>Time</b>	<b>Speaker</b>	<b>Title</b>
8:00 – 8:30h	I. Campbell & G. Foulger	Welcome and Introductions
<b>Plume theory &amp; predictions</b> <i>Conveners: Ian Campbell &amp; W. Jason Morgan</i>		
8:30 – 10:00h	I. Campbell	Testing the Plume Hypothesis
	J. Morgan	The Deep Mantle Plume Hypothesis
	Discussion	
10:00 – 10:30h	Coffee	
<b>Alternative theories &amp; predictions</b> <i>Conveners: Gillian Foulger &amp; Dean Presnall</i>		
10:30 – 12:00h	G. Foulger	The Generation of Melting Anomalies by Plate Tectonic Processes
	L. Elkins-Tanton	Continental Magmatism Caused by Lithospheric Rayleigh-Taylor Instabilities
	D. Sandwell	Cracks and Warps in the Lithosphere from Thermal Contraction
	Discussion	
12:00h-13:30h	Lunch and Posters	
<b>Lithosphere &amp; mantle physics &amp; dynamics I</b> <i>Conveners: John Tarduno &amp; Erin Beutel</i>		
13:30 – 15:00h	J. Davies	Mantle Convection – An overview
	U. Hansen	Generation and Evolution of Plumes in Mantle-Relevant Scenarios
	J. A. Tarduno	On the Motion of Hawaii and Other Mantle Plumes
	Discussion	
15:00 – 15:30h	Tea	
<b>Lithosphere &amp; mantle physics &amp; dynamics II</b> <i>Conveners: Erin Beutel &amp; John Tarduno</i>		
15:30 – 17:00h	E. Burov	The Plume Head - Continental Lithosphere Interaction Using a Tectonically Realistic Formulation for the Lithosphere
	S. King	How Many Hotspots Can be Explained by Edge Driven Convection?
	J. Van Wijk	Formation of Volcanic Rifted Margins: Influence of the Pre-Rift Lithosphere Architecture
	W. Stuart	Hawaii Volcano Chain as a Thermoelastically-Driven Propagating Crack
	Discussion	
17:00 – 19:00h	Posters	
19:00 – 20:00h	Dinner	
20:00h +	Posters	

**Monday 29 August 2005**

<b>Temperature I</b>		
<i>Conveners: Nick Arndt &amp; Carol Stein</i>		
8:30 – 10:00h	N. Arndt	The Temperatures of Mantle Plumes
	M. Cheadle	Komatiites and the Temperature of the Mantle: “Some Like It Hot”.
	C.M. Lesher	High-Mg Magmatism Through Time: Implications for Mantle Plumes
	<b>Discussion</b>	
10:00 – 10:30h	Coffee	
<b>Temperature II</b>		
<i>Conveners: Carol Stein &amp; Nick Arndt</i>		
10:30 – 12:00h	R. Harris	Observations of Heat Flow on Hotspot Swells
	D. Presnall	MORB Major-Element Systematics: Implications for Melting Models and Mantle Temperatures
	T. Falloon	Magmatic Crystallization Temperatures of Tholeiite Magmas: Implications for the Existence of Thermally Driven Mantle Plumes
	<b>Discussion</b>	
12:00 – 13:30h	Lunch and Posters	
13:30 – 18:00h	<b>Field Trip I: Ballachulish and Glen Coe</b>	
19:00 – 20:00h	Dinner	
20:00h +	Posters	
20:30 – 21:30h	Lecture: Where on Earth was Fort William during Neoproterozoic and Paleozoic times? Scottish Highlands geology in a global context. <i>Ian Dalziel</i>	

**Tuesday 30 August 2005**

<b>Geochronology I</b>		
<i>Conveners: Bob Duncan &amp; Ajoy Baksi</i>		
8:30 – 10:00h	R. Duncan	Timing and Duration of Volcanism at Large Igneous Provinces: Implications for Geodynamics and Links to Hotspots
	K. Hoernle	Origin of Long-term Intraplate Volcanism in the Canaries, Madeira, Galapagos and New Zealand: Which are Consistent with the Plume Hypotheses?
	A. Koppers	The Geochronology of Hotspot Trails and the Timing of the Hawaii-Emperor Bend
	Discussion	
10:00 – 10:30h	Coffee	
<b>Geochronology II</b>		
<i>Conveners: Ajoy Baksi &amp; Bob Duncan</i>		
10:30 – 12:00h	A. Baksi	Critical Assessment of Radiometric Ages for Oceanic Hotspot Tracks, Based on Statistical Analysis of Individual Ages, and Evaluation of the Alteration State of the Material Dated
	J. O'Connor	Volcanic Imprint of Oceanic Hot Spots and LIPs: Shallow/Local versus Deep/Global?
	D. Praeg	Cenozoic Vertical Movements on the NW European 'Passive' Margin: Responses to Upper Mantle Convection?
	Discussion	
12:00 – 13:30h	Lunch and Posters	
<b>Seismology I</b>		
<i>Conveners: Guust Nolet &amp; Thorne Lay</i>		
13:30 – 15:00h	R. Allen	Constraining the Geometry and Flow of the Iceland Mantle Upwelling
	D. Zhao	Multiscale Seismic Tomography of Mantle Plumes and Subducting Slabs
	G. Nolet	The Role of Mantle Plumes in the Earth's Heat Budget
	Discussion	
15:00 – 15:30h	Tea	
<b>Seismology II</b>		
<i>Conveners: Thorne Lay &amp; Guust Nolet</i>		
15:30 – 17:00h	A. Deuss	Constraints on the Observation of Mantle Plumes Using Global Seismology
	B. Julian	Guided Seismic Waves: Possible Mantle-Plume Diagnostics
	T. Lay	Is the "D" Region the Source of Mantle Plumes?
	Discussion	
17:00 – 19:00h	Posters	
19:00 – 20:00h	Dinner	
<b>Planetary</b>		
<i>Convener: Donna Jurdy</i>		
20:30 – 22:00h	W. Hamilton	The Surface of Venus Records Ancient Impacts, Not Young Plumes
	V. Hansen	Venus' Many Circles: Extraterrestrial Clues for the Great Plume Debate
	A. Jones	Meteorite Impacts as Triggers to LIPs and Hotspots
	C. Reese	Impact Induced Martian Mantle Plumes: Implications for Tharsis
	Discussion	

**Wednesday 31 August 2005**

<b>Field evidence I</b>		
<i>Conveners: Andy Saunders &amp; David Sandwell</i>		
8:30 – 10:00h	A. Saunders	Plumes and Uplift
	S. Jones	Uplift Associated with the North Atlantic Igneous Province
	Y. Xu	Surface Responses to Mantle Plume: Sedimentation and Lithofacies Paleogeography in SW China Before and After the Emeishan Flood Volcanism
	<b>Discussion</b>	
10:00 – 10:30h	Coffee	
<b>Field evidence II</b>		
<i>Conveners: David Sandwell &amp; Andy Saunders</i>		
10:30 – 12:00h	H. Sheth	The Deccan Beyond the Plume Hypothesis
	Valentí Sallarès	Crustal seismology helps constrain the nature of mantle melting anomalies. Galápagos Volcanic Province: a case study
	J. Winterer	Midplate Volcanic Overprinting: New Wine in Old Bottles
	<b>Discussion</b>	
12:00 – 13:30h	Lunch and Posters	
13:30 – 18:00h	<b>Field Trip II: The Road to the Isles</b>	
19:00 – 20:00h	Dinner	
20:00h +	Posters	

**Thursday 01 September 2005**

<b>Petrology &amp; Geochemistry I</b>		
<i>Conveners: Eiichi Takahashi &amp; Dean Presnall</i>		
8:30 – 10:00h	C. Hawkesworth	Geochemistry and Mantle Plumes
	J.M. Rhodes	Magmatic Evolution of Mauna Loa Volcano: Implications for a Chemically and Thermally Zoned Mantle Plume
	E. Takahashi	Magma Genesis in a Mantle Plume: Based on High-pressure Melting Experiments and Growth History of Some Hawaiian Volcanoes
	Discussion	
10:00 – 10:30h	Coffee	
<b>Petrology &amp; Geochemistry II</b>		
<i>Conveners: Dean Presnall &amp; Eiichi Takahashi</i>		
10:30 – 12:00h	G. Fitton	Do Hotspot Basalts Share a Common Mantle Source?
	M. Keskin	Eastern Anatolia: A Hot Spot in a Collision Zone Without a Mantle Plume
	A. Schersten	The Hf-W Perspective on Whether a Trace of the Earth's Core Exists in Hot Spot Volcanic Rocks
	Discussion	
12:00 – 13:30h	Lunch and Posters	
13:30 – 15:00h	<b>Discussion I</b>	
15:00 – 15:30h	Tea	
15:30 – 17:00h	<b>Discussion II and Synthesis</b>	
17:00 – 19:00h	Posters	
19:00 – 20:00h	Dinner	
20:00h +	Posters	

**Poster Session: Sunday, 28 August 2005**

<b>First Author</b>	<b>Title</b>
S. Goes	Testing Thermal Whole Mantle Plumes Seismically
Y. Harada	How Geometry and Ages of Global Hotspots are Explained by Classical Hypotheses of Rigid Plate and Fixed Hotspot
M. Yamamoto	Plume-fed Asthenosphere Flow Model: Evidence from Isotopic Variation Along Mid-ocean Ridges
Y. Niu	Slab Dehydration, Subcontinental Lithosphere Thinning and Widespread Mesozoic/Cenozoic Volcanism in Eastern China: A Special Consequence of Plate Tectonics
S. V. Rasskazov	Late Mesozoic through Cenozoic Magmatism in East Asia: Effect of Directly and Obliquely Subducted Slab Flexures
J. W. Sears	Fracture Propagation on a Sphere: Implications for Non-Plume Origin of Large Igneous Provinces on Fragmenting Supercontinents
K. K. Sharma	Neoproterozoic Anorogenic Magmatism Associated with Rodinia Breakup: Not a Result of Mantle Superplume
A. Tiwary	Are the Precambrian Magma Chambers Responsible for the Cretaceous Deccan Trap Volcanism of India?
E. K. Beutel	Large LIPs and the Mantle Squeeze: A Mass Balance Approach to Hotspots
J. H. Davies	Mantle Convection - Plumes Rooted in Mid-Mantle
A. Harris	The Many Potential Faces of Buoyant Mantle Upwellings: Diversity Within the Plume Family
V. C. Manea	Thermal Structure Beneath Kamchatka and Plume to Arc Magmatism Transition
M. Manea	Thermal Structure of the Cocos Slab Beneath Southern Mexico and its Relationship with the Arc Volcanism
M. Wilson	Small-scale Convective Instabilities in the Upper Mantle– A Generic Class of Hotspots Linked to Recent Continental Collision in Europe and the Circum-Mediterranean Region

**Poster Session: Monday, 29 August 2005**

G. R. Foulger	How Hot is Iceland?
R. R. Keays	Why the High PGE Contents of Komatiites, Picrites and Allied Rocks Require Mantle Plumes
H. Mashima	Thermal State of NW Kyushu Mantle Suggested by Petrochemistry of Primitive Basalts
J. H. Natland	Influence of Eclogite in Mantle Sources on 'Hot-spot' Temperatures
K. D. Putirka	Evidence for High Temperature Mantle Plumes Based on Olivine-Liquid Thermometry
C. A. Stein	Does Hydrothermal Circulation Mask Anomalously High Heat Flow at Hot Spots?

**Poster Session: Tuesday, 30 August 2005**

L.A. Morgan	Patterns of Rhyolitic Volcanism in the Path of the Yellowstone Hot Spot
C. Tegner	Timescales of Flood Volcanism Recorded by Pressure Variations in Coeval Mafic Intrusions: A Fluid Inclusion Study of the Skaergaard Intrusion, East Greenland
A. B. Watts	Global Gravity, Bathymetry, and the Distribution of Submarine Volcanism through Space and Time
M. Widdowson	Duration and Timing of the Deccan CFBP
G. Laske	The SWELL Pilot Experiment off Hawaii - What Can We Learn About the Hawaiian Hotspot from Surface Waves?
J. R. R. Ritter	Comprehensive Imaging of the Eifel Plume, Central Europe
Y. Shen	Seismic Evidence for a Lower Mantle Origin of the Tanzania Hotspot
M. Xue	Identifying the Origin of the Newberry Hotspot Track
T. Yang	Upper Mantle Structure Beneath the Azores Hotspot From Finite Frequency Seismic Tomography
D. M. Jurdy	Uplift and Rifting on Venus: Role of Plumes



**Poster Session: Wednesday, 31 August 2005**

D. L. Abt	Delamination Origin for Columbia River Flood Basalts and Wallowa Mountains Uplift in NE Oregon, USA
A. J. Breivik	Continental Breakup Magmatism and Transition to Hot-Spot Influenced Seafloor Spreading From the Moere Margin to the Norway Basin
R. G. Cawthorn	Kaapvaal Craton, South Africa: Repeated Basic Magmatism, Diamonds and Plumes
I. W. D. Dalziel	The Setting of LIPS in the Lithosphere Through Time: One Test of the Plume Hypothesis
B. T. Jordan	Testing a Propagating Shear-Zone Hypothesis for Age-Progressive Magmatism in a Continental Setting: The Oregon High Lava Plains
M. Khodayar	Compressional Structures Do Not Show Regional Horizontal Compression Near the Iceland Hotspot
M. Khodayar	Overview of Tectonic Deformation in Past and Present Rift-Jump Blocks, West and South Iceland
C.E. Leshner	Paleogene North Atlantic Igneous Province and the Iapetus Connection
K. Pierce	Geologic Evidence for a Mantle Plume Origin for Yellowstone: The Pattern and Scale of Volcanism, Faulting, and Uplift Along the Yellowstone Hotspot Track
I. Norton	Passive Margin Evolution: Are Plumes an Integral Part of Continental Breakup?
W. W. Sager	Does a Fault in the Plate Circuit Ruin Intra-ocean Comparison of Hotspot Tracks?
V. Sallarès	Crustal seismology helps constraining the nature of mantle melting anomalies. Galápagos Volcanic Province, a case study
A. V. Smirnov	Co-location of Eruption Sites of the Siberian Traps and North Atlantic Igneous Province: Implications for the Nature of Hotspots and Mantle Plumes
F. Tsikalas	NE Atlantic Breakup and Evolution of the Norwegian-Greenland Conjugate Volcanic Margins: Field Evidence to the Great Plume Debate
P. R. Vogt	Bermuda: Lava-lamp Plume, Edge-driven Convection, or/and Response to Distant Plate Reorganization?
M. Widdowson	The Deccan Basalt–Basement Contact: Evidence for a Plume-Head Generated CFBP?

**Poster Session: Thursday, 01 September 2005**

B. C. Christensen	The Evolution of Floreana Island, Galápagos Archipelago II: The Result of a Contaminated Mantle Plume
C. Class	Evolution of Helium Isotopes in the Earth's Mantle
E. I. Demonterova	Inverse Trace Element Modeling of Mantle Components from Late Cenozoic Basalts in Central Asia
M. L. Frezzotti	Fluid Inclusion Evidence for Water in the Mantle Beneath Hawaii
W. R. Griffin	Testing Magmatic Emplacement Mechanisms in the Balcones Igneous Province of Texas
K. S. Harpp	The Evolution of Floreana Island, Galápagos Archipelago I: The Result of Upper Mantle Heterogeneities
L. E. Heister	Mantle Redox Conditions in LIPs: Constraints from the North Atlantic Igneous Province
M. J. Hole	Plumes or Rifting?: The Mesozoic Dykes of the Falkland Islands and Their Relationship to the Break-up of Gondwana.
A. V. Ivanov	Pliocene-Quaternary Alkaline Basalts of the Sredinny Ridge of Kamchatka: Evidence for Melting of Recycled Oceanic Crust in Tectonic Setting of a Modern Island Arc System
B. T. Jordan	Communicating the Plume Debate to Undergraduate Geoscience Students
S. Keshav	Re-Os-Pt Partitioning in Sulfur-bearing Solid/Molten Iron Metal at 3-22 GPa and 1300-1775 C: Is the Earth's Outer Core So Giving?
H. Mashima	Recycling of Archean Peridotitic Komatiite in the NW Kyushu Source
R. Meyer	The Vøring Plateau Volcanic Margin: A Key Rock Succession to Understand Continental Breakup During the Initial Stages of the Opening of the NE-Atlantic
J. Natland	Layered Mantle Alternative to Mantle Plumes: Evidence from the Pacific Plate
S. Sensarma	The Dongargarh Group: A Large Igneous Province at the Archean-Proterozoic Transition in India
F. M. Stuart	Statistical Comparison of $^3\text{He}/^4\text{He}$ Distributions in Mid-Ocean Ridge and Ocean Island Basalts
D. Pandey	Applicability of Large Magma Chambers to Deccan Volcanism: A Numerical Study
J. Tuff	Experimental Constraints on the Role of Garnet Pyroxenite in the Genesis of High-Fe Mantle Plume Derived Melts