Fourth International Workshop on Orogenic Lherzolite and Mantle Processes

Samani, Hokkaido, Japan: Aug. 26 – Sept. 3, 2002

PROGRAM

Oral Presentations

Time	Authors	Title
Aug. 29	1st day	
8:45 - 9:00	Opening	
Flow dynamics in the mantle and emplacement mechanism of orogenic lherzolite 1		
Chairperson	D. L. Kohlstedt	
9:00 - 9:30 *	G. Barruol	Mapping upper mantle flow through seismic anisotropy: from seismology to petrophysics
9:30 - 10:00 *	P. Machetel, E. Humler, and E. Thomasssot	Thermal and dynamical consequences of mantle avalanche: an attempt to explain global mantle temperature perturbations and the Earth's rotation during Cretaceous
10:00 - 10:30 *	F. Boudier and A. Nicolas	Complex geometry of spreading in the Semail ophiolite: record of mantle processes at fast spreading axes
10:30 - 10:45	coffee break	
Flow dynamics in the mantle and emplacement mechanism of orogenic lherzolite 2		
Chairperson	R. L. M. Vissers	
10:45 - 11:00	D. Spengler, H. L. M. van Roermund, and M. R. Drury	Microstructural evidence for early majoritic garnet and late Ti-clinohumite in mantle clinopyroxnenites, Raudhaugene, Western Gneiss Region, Norway
11:10 - 11:15**	H. K. Brueckner, D. A. Carswell, and W. L. Griffin	Upper versus lower boundary intrusion of peridotite into subducted continental crust: the case for both in the Western Gneiss Region of the Scandinavian Caledonides
11:15 - 11:30	F. Chalot-Prat	Sub-continental history of the sub-oceanic mantle in a slow spreading rate ocean (Alpine Tethys): evidence and new challenges to take up
11:30 - 13:00	lunch break	
Rheology of solid and partially molten mantle		
Chairperson	F. Boudier	
13:00 - 13:30 *	D. L. Kohlstedt and B. K. Holtzman	Laboratory investigation of melt segregation during ductile deformation of partially molten upper mantle rocks
13:30 - 14:00 *	Y. Takei	Observability of melt geometry using seismic tomographic results
14:00 - 14:15	T. Hiraga, I. M. Anderson, and, D. L. Kohlstedt	Grain boundary segregation in mantle rocks
14:15 - 14:30	K. Michibayashi, D. Mainprice, A. Tommasi, and K. Saruwatari	Stress-induced demixing of chromian spinel in conjunction with CPO development in naturally deformed peridotite: an example from the Oman ophiolite
14:30 - 14:45	coffee break	
Origin and significance of heterogeneity on various scales in the upper mantle		
Chairperson	M. A. Menzies	
14:45 - 15:15 *	G. Yaxley, D. Green, and G. Brey	The petrological behaviour of eclogitic heterogeneities in the mantle
15:15 - 15:30**	T. Kogiso, M. M. Hirschmann, and P. W. Reiners	Length scales of mantle heterogeneities in basalt source regions: constraints from basalt geochemistry

15:30 - 15:45	N. Shimizu	Single-lava isotopic variations and scale lengths of mantle heterogeneity
15:45 - 16:00	A. H. Ahmed, P. Kelemen, S. Arai, and S. Hart	Osmium isotope systematics of platinum-group minerals in the Proterozoic and Phanerozoic ophiolitic chromitites: Implications for chromitite genesis
16:00 - 16:15	H. O'Neill	Origin and significance of Cr-diopside suite segregations in mantle peridotites
16:15 - 16:30	discussion	
16:30 - 17:30	poster session	

Aug. 30	2nd day	
Processes of melt generation, segregation, and modification in the upper mantle 1		
Chairperson	J. -L. Bodinier	
9:00 - 9:30 *	N. Shimizu	Melting and melt migration processes beneath ocean ridges: current dogmas and issues
9:30 - 9:45**	I. Kushiro	Partial melting of mantle peridotite and origin of MORB
9:45 - 10:00	J. E. Snow, H. J. B. Dick, E. Hellenbrand, A. Büchl, A. von der Handt, C. Langmuir, and P. Michael	Mantle peridotites of Gakkel Ridge, Arctic Ocean
10:00 - 10:15	E. Hellebrand and J. E. Snow	Abyssal peridotites from the ultraslow Lena spreading center (Arctic Ocean)
10:15 - 10:30	Y. Ohara and R. J. Stern	Amagmatic tectonics and mantle peridotites in Philippine Sea Backarc Basins
10:30 - 10:45	coffee break	
Processes of melt generation, segregation, and modification in the upper mantle 2		
Chairperson	J. E. Snow	
10:45 - 11:00	A. von der Handt, E. Hellebrand, J. E. Snow, H. J. B. Dick, and P. Michael	Plagioclase peridotites: residual or impregnated?
11:00 - 11:15	J. M. Warren, N. Shimizu, and H. J. B. Dick	High pressure melt impregnation in a mantle peridotite
11:15 - 11:30	G. Suhr	Significance of upper mantle hosted dunite for melt migration in the Oman and Bay of Islands Ophiolites
11:30 - 11:45	M. Griselin and G. R. Davies	The major element composition of unaltered peridotites: implications for the nature of partial melting
11:45 - 12:00	R. M. Bedini, J. -L. Bodinier, and J. Vernieres	Numerical simulation of Mg-Fe partitioning during melting and melt-rock interactions in the shallow upper mantle
12:00 - 12:15	K. Ozawa	Modeling of coupled and decoupled behavior of trace elements and exchange components during open-system magmatism in the upper mantle
12:15 - 13:30	lunch break	
Recycling and processing of lithosphere and the geochemical evolution of the Earth's mantle 1		
Chairperson	D. Ionov	
13:30 - 14:00 *	M. A. Menzies	Integration of geology, geochemistry and geophysics: a key to understanding the lithosphere in 3D and 4D
14:00 - 14:30 *	D. G. Pearson, G. J. Irvine, and G. M. Nowell	Applications of Re-Os isotope and PGE systematics to understanding orogenic lherzolites: Examples from Beni Bousera, N. Morocco
14:30 - 14:45	C. Szabó, E. Bali, G. Falus, K. Török, O. Vaselli, and H. Downes	Composition and evolution of lithospheric mantle beneath the Pannonian Basin: review

14:45 - 15:00	K. Suzuki, X. Li, and M. Ebihara	Osmium isotopic compositions of mantle xenoliths in East China: implications for sub-continental lithospheric mantle beneath China
15:00 - 15:15	coffee break	
Recycling and processing of lithosphere and the geochemical evolution of the Earth's mantle 2		
Chairperson	D. G. Pearson	
15:15 - 15:30	H. van Roermund, H. Brueckner, T. Carswell, and M. Drury	Micro-diamonds in a megacrystic garnet-websterite pod from Bardane on the island of Fjortoft, western Norway: Evidence for diamond-formation in mantle rocks during deep continental subduction
15:30 - 15:45	A. Kadarusman, H. K. Brueckner, S. Miyashita, C. D. Parkinson, H. Yurimoto, and T. Hirata	Dual origin for garnet lherzolite from Central Sulawesi, Indonesia: evidence from geochemistry, P-T evolution and Sm-Nd age dating
15:45 - 16:00	A. Ishikawa, S. Maruyama, and H. Yurimoto	Evolution of sub-Ontong Java Plateau mantle: implications from petrogenesis of Malaitan xenoliths, Solomon Islands
16:00 - 16:30	discussion	
16:30 - 17:30	poster session	

Aug. 31	3rd day	
Geochemical processes in the mantle wedge and subcontinental mantle lithosphere 1; role of metasomatic fluid		
Chairperson	R. Vannucci	
9:00 - 9:30 *	D. Ionov and J. -L. Bodinier	Mechanisms, sources and media of mantle metasomatism: trace element and isotopic compositions of enriched peridotite xenoliths in the context of numerical modelling
9:30 - 9:45	T. Matsumoto, T. Morishita, J. Matsuda, T. Fujioka, M. Takebe, K. Yamamoto, and S. Arai	Tracing metasomatic agents in the mantle by noble gases trapped in orogenic peridotites
9:45 - 10:00**	D. H. Green, M. W. Schmidt, and W. O. Hibberson	Island arc ankaramites: products of (CO2+H2O)-fluxed melting of refractory lherzolites
10:00 - 10:15	N. Abe, H. Hirai, S. Arai, and S. Y. O'Reilly	Geochemical signatures of high-T mantle xenoliths from Noyamadake, SW, Japan: Implications from trace-element characteristics
10:15 - 10:30	A. Tamura and S. Arai	Exsolved spinel in meta-chromitite from the Iwanai-dake peridotite complex, Hokkaido, Japan; Evidence of highly oxidizing metasomatism within a mantle wedge
10:30 - 10:45	coffee break	
Geochemical processes in the mantle wedge and subcontinental mantle lithosphere 2; role of fluid and melt derived from the subducting slab		
Chairperson	A. Ishiwatari and S. Arai	
10:45 - 11:00	J. Yamamoto, S. Nakai, I. Kaneoka, H. Kagi, V. S. Prikhod'ko, and S. Arai	Occurrence of subduction-related melt in Far Eastern Siberian mantle
11:00 - 11:15	A. Ishiwatari, S. Takeuchi, J. C. Lopez, M. Imasaka, M. Matsuzawa, and H. Hoshino	Spatial and temporal variation of the source mantle beneath the Tertiary Japan Arc deduced from the mineralogy of spinel in volcanic rocks: inference for the ophiolite problem
11:15 - 11:30	K. Shuto, M. Uematsu, T. Takahashi, M. Ayabe, M. Sato, and H. Kawabata	Origin of tholeiitic basalt, high magnesian andesite, bronzite andesite and adakitic andesite of the Late Oligocene Anamizua Formation, northern Noto Peninsula, Japan- Evidence of interaction between felsic magma derived from the subducted oceanic crust and the wedge mantle

11:30 - 11:45	M. Tiepolo, R. Vannucci, P. Kepezhinskas, and M. Defant	Adakitic (Na) metasomatism beneath Grenada Island (Lesser Antilles Arc): Evidence of slab melt-mantle wedge interaction
11:45 - 12:00	H. Sumino, K. Nagao, K. Notsu, and S. Arai	Complicated history of the mantle wedge revealed by noble gases in xenoliths from Takashima, northern Kyushu, Japan
12:00 - 12:15	S. Arai, S. Takada, K. Michibayashi, and M. Kida	Petrology of peridotite xenoliths from Iraya volcano, Philippines, and implications for mantle wedge processes beneath arcs
12:15 - 13:45	lunch break	
Origin of structural and geochemical diversity in the Horoman peridotite complex 1		
Chairperson	F. Frey	
13:45 - 14:15 *	M. Obata and K. Niida	Recent research progress on the Horoman peridotite and significance for understanding mantle processes: an overview
14:15 - 14:30	T. Sawaguchi	Deformation microstructures in the Horoman peridotite: olivine and orthopyroxene
14:30 - 14:45	T. Morishita, S. Arai, and D. H. Green	Geochemical and experimental constraints on the evolution of a corundum-bearing mafic rock in the Horoman Peridotite Complex, Japan: non-melted remnants of subducted lithosphere
14:45 - 15:00	E. Takazawa, F. A. Frey, N. Shimizu, M. Obata, and J. -L. Bodinier	Enrichment of highly incompatible elements at harzburgite-lherzolite boundaries in the Horoman peridotite, Hokkaido, Japan: implications for formation of harzburgite by melt-mantle reaction
15:00 - 15:15	coffee break	
Origin of structural and geochemical diversity in the Horoman peridotite complex 2		
Chairperson	N. Shimizu	
15:15 - 15:30	K. Niida, D. H. Green, and S. M. Eggins	Dunite channels in the Horoman peridotites, Japan: Textural and geochemical constraints on melt transport
15:30 - 15:45	M. Obata and E. Takazawa	Compositional continuities and discontinuities observed in the Horoman peridotite, Japan and implications for melt extraction processes in partially molten mantle
Chairperson	N. Shimizu	
15:45 - 16:30	discussion	
16:30 - 17:30	poster session	

*: keynote
**: invited
___: speaker

Poster Presentations

Poster No.	Authors	Title
Flow dynamics in the mantle and emplacement mechanism of orogenic lherzolite		
P1-1	A. Namiki	Can the mantle recycle the subducted lithosphere?
P1-2	M. Radvanec	Exhumation and P-T path of ultra-high pressure K-richteritic amphibole-phlogopite-bearing metaperidotite at Jaklovce in western Carpathians, Slovakia
P1-3	T. Mizukami and S. Wallis	Structural evolution of the Higashi Akaishi peridotite mass and relationships to surrounding crustal rocks in the Sanbagawa metamorphic belt
Rheology of solid and partially molten mantle		
P2-1	T. Sawaguchi and K. Ishii	Three-dimensional numerical modeling of lattice- and shape-preferred orientation of orthopyroxene porphyroclasts in peridotites
P2-2	G. Falus and C. Szabó	Deformation analysis in upper mantle peridotite xenoliths and their correspondence to the formation of the Pannonian Basin: first results
P2-3	G. Falus, M. Drury, H. van Roermund, and C. Szabó	Brittle/plastic deformation by melt induced weakening in a peridotite-pyroxenite xenolith from Szentbékkálla (Bakony-Balaton Highland, Hungary)
P2-4	T. Hiraga, I. M. Anderson, M. E. Zimmerman, S. Mei, and D. L. Kohlstedt	Structure and chemistry of grain boundaries in deformed partially molten peridotites: evidence of melt-free grain boundaries
P2-5	S. Takashima, I. Kumagai, and K. Kurita	Development of channeled flow in partially molten medium ~ analog experiments using Puyopuyo-Gel ~
P2-6	S. Takashima and K. Kurita	Evaluation of transport properties of partially molten material
Origin and significance of heterogeneity on various scales in the upper mantle		
P3-1	S. Sano and J. Kimura	Clinopyroxene REE geochemistry on the Red Hills Peridotite: Interpretation of magma processes at the mantle-crust transition zone beneath a paleo-mid oceanic ridge
P3-2	T. Kogiso, M. M. Hirschmann, and M. Pertermann	Role of pyroxenite partial melting in the genesis of ocean island basalts
P3-3	Y. Shimizu, S. Arai, T. Morishita, and F. Gervilla	The origin of quartz-bearing orthopyroxene-plagioclase vein in a peridotite xenolith from Tallante, southeast Spain
P3-4	F. Gervilla, J. Proenza, J. C. Melgarejo, C. J. Garrido, and J. Batista	Chemical disequilibrium between Al-rich chromitite and host peridotite in the eastern Cuban ophiolite belt: evidence of magma/fluid mixing?
P3-5	Z. Spetsius	Evidence for metasomatism, partial melting and deformation in ultramafic xenoliths from the kimberlite pipes of Yakutia
P3-6	Z. Spetsius, V. Serenko, and A. Kurakulov	Heterogeneity of the subcontinental lithospheric mantle beneath the Siberian craton
Processes of melt generation, segregation, and modification in the upper mantle		
P4-1	M. Griselin and G. R. Davies	The origin of LREE enrichment in mantle peridotites: whole rock and in situ analyses to evaluate the role of magmatic and alteration processes

P4-2	P. Spadea, A. Zanetti, R. Vannucci, and G. N. Savelieva	Peridotite-melt interaction in southern Urals lherzolites: a LA-ICP-MS study
P4-3	M. Scambelluri, O. Muentener, L. Ottolini, T. Pettke, and R. Vannucci	The variability of boron and chlorine concentrations in the subducted hydrous oceanic mantle
P4-4	S. Miyashita and Y. Adachi	Segment structure and magmatic processes in the Oman Ophiolite
P4-5	F. Boudier, A. Nicolas, and M. Godard	Olivine xenocrysts in primitive magmas: petrostructural evidence
P4-6	E. Hellenbrand, J. E. Snow, H. J. B. Dick, and A. W. Hofmann	Coupled major and trace elements as indicator melting indicators in mid-ocean ridge peridotites
P4-7	I. Matsumoto, S. Arai, and F. Blaceri	Petrological characteristics of the chromitite-bearing Shebenik ultramafic complex, Mirdita ophiolite, Albania
P4-8	I. Matsumoto and K. Suzuki	Re-Os age and isotopic constraints on the genesis of the Trari-Misaka ultramafic complex of the Sangun zone, southwest Japan
P4-9	S. Alaabed	How chromites precipitate in upper mantle peridotites. A model from the Northern Semail Ophiolite (UAE Section)
P4-10	Y. Ichiyama and A. Ishiwatari	Petrological characteristics of troctolite from the Yakuno ophiolite, Southwest, Japan
P4-11	K. Matsukage, S. Arai, N. Abe, and H. Yurimoto	Two contrasting melting styles of mantle peridotite in the northern Oman Ophiolite; an indication of a switch of tectonic setting
P4-12	N. Siva Siddaiah	Mineralogy, geochemistry and origin of ultramafic rocks and chromitites from the Nidar Ophiolite, Indus suture zone, Ladakh, Himalaya
Recycling and processing of lithosphere and the geochemical evolution of the Earth's mantle		
P5-1	J -L. Bodinier, F. Boudier, J. -M. Dautria, R. M. Bedini, J. -P. Burg, E. Pupier, J. -L. Balanec, A. Efimov, and V. S. Prikhodko	The Konder <<Anorogenic>> ultramafic massif (Aldan Shield): Impact of a translithospheric mantle diapir at the Earth's surface?
P5-2	Y. Xu, M. Menzies, P. Xia, and H. Mei	Ailaoshan-Red River Fault Zone: deep rooted conduit for magma transfer from the lithosphere (north) and the athenosphere (south)
P5-3	D. Ionov and D. Weis	Hf-isotope composition of mantle peridotites: first results and inferences for the age and evolution of the lithospheric mantle
P5-4	N. Raffone, A. Zanetti, G. Chazot, C. Pin, and R. Vannucci	The composition and evolution of the lithospheric mantle beneath Mid Atlas (Morocco)
P5-5	H. K. Brueckner, H. L. M. van Roermund, and N. Pearson	Archean to Paleozoic evolution for peridotite of sub-Baltic Shield affinity in the Seve Nappe Complex of the Scandinavian Caledonides
P5-6	K. Suzuki and J-F. Xu	Re-Os isotopic compositions of peridotites from over 300 km depth mantle in China: preliminary study
Geochemical processes in the mantle wedge and subcontinental mantle lithosphere 1; role of metasomatic fluid		
P6-1	L. Morten, A. Zanetti, R. Vannucci, and G. Rizzo	Mantle metasomatism beneath the Veneto Volcanic Province (North Italy) as recorded by the geochemical signatures of clinopyroxene and glasses from xenoliths in Tertiary volcanics

P6-2	I. Dencker, P. Nimis, A. Zanetti, and N. V. Sobolev	Major and trace element compositions of Cr-diopsides from the Zagadochnaya Kimberlite Pipe (Yakutia, Russia): Insights into metasomatic processes in the cratonic mantle lithosphere
P6-3	T. Morishita, S. Arai, and A. Tamura	Petrology of apatite-rich layer in the Finero phlogopite-peridotite, Italian Western Alps: implications for evolution of a metasomatic agent
Geochemical processes in the mantle wedge and subcontinental mantle lithosphere 2; role of fluid and melt derived from the subducting slab		
P7-1	M. Yoshikawa and K. Ozawa	Rb-Sr and Sm-Nd isotopic systematics of the Hayachine-Miyamori ophiolitic complexes: New constraints on their origin and petrogenesis
P7-2	S. Ishimaru and S. Arai	Metasomatic agents and processes in the sub-arc upper mantle; Petrology of peridotite xenoliths from Avacha volcano, Kamchatka
P7-3	K. Kubo	Melting experiments on depleted mantle peridotites: implications for evolution of the uppermost mantle
P7-4	M. Shirasaka and E. Takahashi	Genesis of carbonatitic melt within subducting oceanic crust: High-pressure experiments in the system MORB-CaCO3
P7-5	N. Tsuchiya, K. Hiramoto, and J. Kimura	Early Cretaceous magmatism and the role of ridge subduction in the Kitakami Mountains, Japan
P7-6	H. Kawabata and K. Shuto	Petrogenesis of calc-alkaline andesite to dacite associated with HMAs in the Northeastern Shikoku, southwest Japan
Origin of structural and geochemical diversity in the Horoman peridotite complex		
P8-1	M. Mikoshiba and N. Nakagawa	PGE abundance of peridotites in the Horoman Complex, Hokkaido, Northeast Japan
P8-2	K. Iwasaki	Cooling history of the Horoman complex inferred from olivine-spinel geospeedometry
P8-3	M. Ichikawa	Asymmetric cryptic layering and its connection with estimated garnet composition: constraints on melting process in the Horoman complex