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Volumes 160–161, Pages 1-306 (February 2013)

Markers of the pyroxenite contribution in the major-element compositions of oceanic basalts: Review of the experimental constraints

Review Article

Pages 14-36

Sarah Lambart, Didier Laporte, Pierre Schiano

Research Papers

27

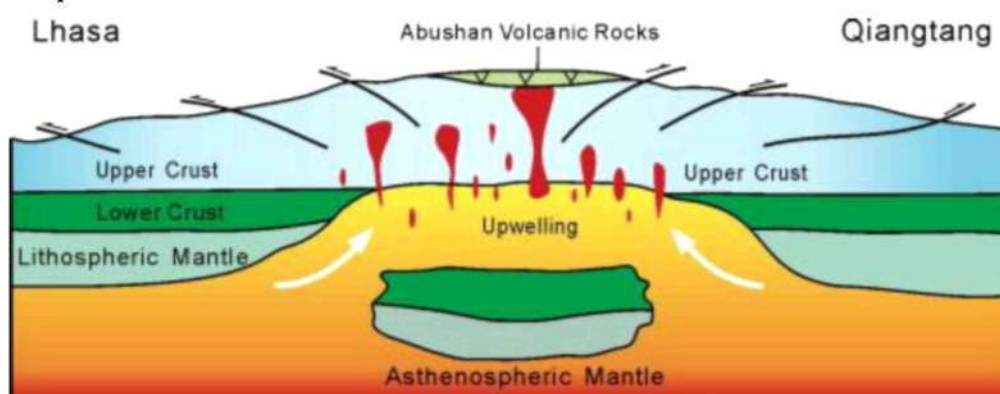
Late Cretaceous K-rich magmatism in central Tibet: Evidence for early elevation of the Tibetan plateau?

Original Research Article

Pages 1-13

Yalin Li, Juan He, Chengshan Wang, M. Santosh, Jingen Dai, Yuxiu Zhang, Yushuai Wei, Jiangang Wang

Graphical abstract



Highlights

- Geochemical data on newly discovered volcanic rocks from Central Tibet
- Zircon U–Pb dating constraints the timing of emplacement as 79–75 Ma.
- Magma triggered by anatexis of lower crust and underplating of mantle magma
- Central Tibet underwent lithospheric delamination during Late Cretaceous.
- Central Tibet was raised to perhaps present elevation during Late Cretaceous.

Origin of paleosubduction-modified mantle for Silurian gabbro in the Cathaysia Block: Geochronological and geochemical evidence

Original Research Article

Pages 37-54

Yuejun Wang, Aimei Zhang, Weiming Fan, Yanhua Zhang, Yuzhi Zhang

Highlights

► Three gabbro plutons from Yunkai–Nanling are dated at 420–434 Ma, confirming the presence of Silurian mafic rocks in SCB. ► These mafic rocks originated from the wedge column previously modified by subduction-derived components. ► The post-collisional collapse of the Kwangsi intracontinental orogen is proposed as the petrogenetic model of the gabbro. ► The earliest Neoproterozoic subduction-related metasomatism might occur along the southern Cathaysia Block.

Elemental responses to subduction-zone metamorphism: Constraints from the North Qilian Mountain, NW China

Original Research Article

Pages 55-67

Yuanyuan Xiao, Yaoling Niu, Shuguang Song, Jon Davidson, Xiaoming Liu

Highlights

► Analyzed bulk-rock and mineral compositions for subduction-zone metamorphic rocks ► Elemental responses to subduction-zone metamorphism are further proved ► Detailed analysis on rutile shows highly heterogeneous distribution of Nb–Ta. ► Further explained the role of subducted ocean crust for arc geochemical signatures

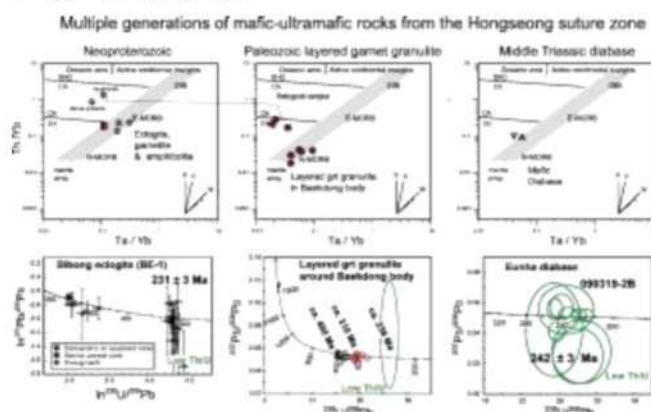
Multiple generations of mafic–ultramafic rocks from the Hongseong suture zone, western South Korea: Implications for the geodynamic evolution of NE Asia

Original Research Article

Pages 68-83

Sanghoon Kwon, Sung Won Kim, M. Santosh

Graphical abstract



Highlights

► Multi-generations of dismembered ultramafic–mafic bodies have been recorded in the HSZ. ► Early tectonic events occurred during a Neoproterozoic subduction. ► Subsequent events occurred during a prolonged Paleozoic–Triassic subduction/accretion. ► Mid-Triassic retrograded P–T path ranged from eclogite to epidote-amphibolite facies.

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Trioctahedral micas in xenolithic ejecta from recent volcanism of the Somma-Vesuvius (Italy): Crystal chemistry and genetic inferences

Original Research Article

Pages 84-97

Giuseppina Balassone, Fernando Scordari, Maria Lacalamita, Emanuela Schingaro, Angela Mormone, Monica Piochi, Carmela Petti, Nicola Mondillo

Highlights

► Xenoliths and phlogopites from recent products of Vesuvius (Italy) are studied. ► Phlogopite, oxy-phlogopite and fluorophlogopite were structurally characterized. ► Micas' crystal chemistry was related to host rock geologic environments.

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Adakitic-like magmatism in western Ossa–Morena Zone (Portugal): Geochemical and isotopic constraints of the Pavia pluton

Original Research Article

Pages 98-116

S.M. Lima, A.M.R. Neiva, J.M.F. Ramos

Highlights

► Whole rock geochemistry shows that granitic rocks are independent pulses of magma. ► Whole rock isotopic data indicate a similar protolith for all granitic rocks. ► The different granitic phases are similar

to Archean TTGs and modern adakites. ► The adakitic-like signature derived AFC of a mantle-derived magma.

- 8▣ **Contrasting exhumation P–T paths followed by high-P rocks in the northern Caribbean subduction–accretionary complex: Insights from the structural geology, microtextures and equilibrium assemblage diagrams**
Original Research Article
Pages 117-144
Javier Escuder-Viruete, Andrés Pérez-Estaún

Highlights

► The Río San Juan metamorphic complex exposes a segment of a high-P accretionary wedge. ► In each structural unit, the shape and age of the retrograde P–T path are different. ► Exhumation mechanisms are mass flow, underthrusting and extensional tectonics.

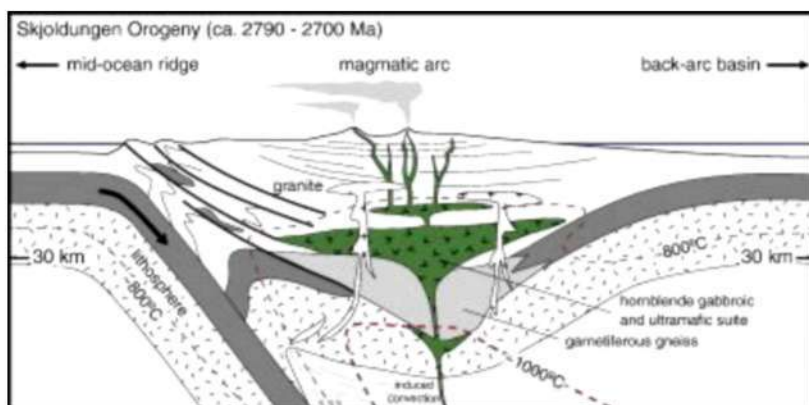
- 9▣ **Origin of mafic microgranular enclaves (MMEs) and their host quartz monzonites from the Muchen pluton in Zhejiang Province, Southeast China: Implications for magma mixing and crust–mantle interaction**
Original Research Article
Pages 145-163
Liang Liu, Jian-Sheng Qiu, Zhen Li

Highlights

► Mafic microgranular enclaves are commonly present in Muchen pluton, South China. ► The consistency of ages implies the quartz monzonites and MMEs were coeval. ► Mafic magmas from which the MMEs crystallised likely had a depleted mantle source. ► Quartz monzonites were derived from a hybrid magma due to crust–mantle interaction. ► The Muchen pluton was most likely generated in an extensional setting.

- 10▣ **Partial melting of the Archaean Thrym Complex of southeastern Greenland**
Original Research Article
Pages 164-182
Leon Bagas, Tomas Næraa, Jochen Kolb, Barry L. Reno, Marco L. Fiorentini

Graphical abstract



Highlights

► The high-grade rocks of the Archaean Thrym Complex are located in southeastern Greenland in the North Atlantic Craton. ► The complex formed at a depth of >30 km at temperatures reaching 1000°C and pressures approaching 1.5 GPa. ► Assuming that modern tectonics operated during the Neoproterozoic, the complex represents the root zone of a magmatic-arc. ► This might have involved reamination around 2760 Ma during the collisional Skjoldungen Orogeny.

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Trace element partitioning between mantle minerals and silico-carbonate melts at 6–12 GPa and applications to mantle metasomatism and kimberlite genesis

Original Research Article

Pages 183-200

A.V. Girmis, V.K. Bulatov, G.P. Brey, A. Gerdes, H.E. Höfer

Highlights

► Kimberlite melts and minerals from 6 to 12 GPa experiments are analyzed by LA ICP MS. ► Mineral–melt partition is insensitive to variations in P, T and melt composition. ► Crystal chemical parameters are main controls for incompatible element partitioning. ► Low-degree melts from refertilized mantle are similar to primitive kimberlites.

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Metasomatism in lithospheric mantle roots: Constraints from whole-rock and mineral chemical composition of deformed peridotite xenoliths from kimberlite pipe Udachnaya

Original Research Article

Pages 201-215

A.M. Agashev, D.A. Ionov, N.P. Pokhilenko, A.V. Golovin, Yu. Cherepanova, I.S. Sharygin

Highlights

► Unique fresh deformed peridotite xenoliths from depth of 170–220 km ► WR chemistry indicates several stages of metasomatic enrichment. ► Agent for silicate metasomatism is an intermediate between kimberlite and HIMU basalts. ► Deformation connected with Fe-rich metasomatism ► These rocks are not widespread in cratonic mantle, but localized beneath the kimberlite fields.

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Petrogenesis of ore-bearing porphyries from the Duolong porphyry Cu–Au deposit, central Tibet: Evidence from U–Pb geochronology, petrochemistry and Sr–Nd–Hf–O isotope characteristics

Original Research Article

Pages 216–227

Jin-Xiang Li, Ke-Zhang Qin, Guang-Ming Li, Bo Xiao, Jun-Xing Zhao, Ming-Jian Cao, Lei Chen

Highlights

► Duolong porphyry Cu–Au deposit formed in the Bangongco arc, central Tibet. ► Zircon U–Pb ages, petrochemistry and zircon Hf–O isotopic data of Duolong porphyries are presented. ► All the zircons share relatively similar Hf–O isotopic compositions. ► Duolong porphyries may be derived from the mixing between the lower crust and the metasomatized mantle wedge.

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Thermochronology and tectonics of the Central and Western Cordilleras of Colombia: Early Cretaceous–Tertiary evolution of the Northern Andes

Original Research Article

Pages 228–249

Diego Villagómez, Richard Spikings

Highlights

► We present new thermochronological data from the Colombian Cordilleras. ► Rapid exhumation during 138–130 Ma was a consequence of margin extension. ► Back-arc basins closed at 117–107 Ma, causing the margin to deform and uplift. ► The Caribbean Large Igneous Province collided with NW South America at 75–65 Ma. ► Rapid exhumation at 15 Ma was driven by the collision of the aseismic Carnegie Ridge.

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Linking metamorphic textures to U–Pb monazite in-situ geochronology to determine the age and nature of aluminosilicate-forming reactions in the northern Monashee Mountains, British Columbia

Original Research Article

Pages 250–267

Highlights

► 3 periods of prograde kyanite growth ► 2 to 3 periods of sillimanite growth by 4 mechanisms ► Evidence for synchronous monazite, garnet and kyanite growth ► One isograd is probably a metasomatic front, another is a shear zone. ► Continuity of the Barrovian isograd series is only apparent.

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Is Myanmar jadeitite of Jurassic age? A result from incompletely recrystallized inherited zircon

Original Research Article

Pages 268-282

Tzen-Fu Yui, Mayuko Fukoyama, Yoshiyuki Iizuka, Chao-Ming Wu, Tsai-Way Wu, J.G. Liou, Marty Grove

Highlights

► Zircons in two Myanmar jadeitite samples can be categorized into 3 types. ► Type I zircons are inherited, Type II are completely recrystallized, and Type III are incompletely recrystallized. ► The (minimum) formation age of Myanmar jadeitite is 77 ± 3 Ma, retrieved from Type II zircons. ► Previously proposed Jurassic ages for Myanmar jadeitites were based on Type III zircons.

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New isotopic constraints on age and magma genesis of an embryonic oceanic crust: The Chenaillet Ophiolite in the Western Alps

Original Research Article

Pages 283-291

Xian-Hua Li, Michel Faure, Wei Lin, Gianreto Manatschal

Highlights

► The troctolite and albitite from the Chenaillet Ophiolite crystallized at ~ 165 Ma. ► Albitite was formed by extreme fractional crystallization from MORB-like magma. ► There is a short life span of < 11 m.y. for the Piemont-Liguria ocean formation. ► The Piemont-Liguria oceanic floor might have a maximum width of 300 km. ► The Chenaillet ophiolite is likely a piece of embryonic oceanic crust.

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Zircon U–Pb chronology and elemental and Sr–Nd–Hf isotope geochemistry of two Triassic A-type granites in South China: Implication for petrogenesis and Indosinian transtensional tectonism

Original Research Article

Pages 292-306

Kui-Dong Zhao, Shao-Yong Jiang, Wei-Feng Chen, Pei-Rong Chen, Hong-Fei Ling

Highlights

► The Caijiang and Gaoxi granites in South China were emplaced at 228–230 Ma. ► The petrology and geochemistry of the granites reveal an A-type affinity. ► The granites were derived from partial melting of Precambrian crustal rocks. ► A wide transtensional tectonic environment occurred in Cathaysia Block at Triassic.