Compositional variations in lavas of the Klyuchevskaya group (Kamchatka): evidence for changing source compositions in a highly productive subarc mantle wedge?

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Introduction."Vj g"Mn{ wej gxunx{c"i tqwr "qh"xqrecpqgu"*MI X+"ku"rqecvgf "kp" yj g"pqtyj gtp"r ctv"qh" yj g" Egpvtcn"Mco ej cvnx"F gr tguukqp"*EMF+"Mco ej cvnx"cpf "eqo r tkugu"hqwt"cevkxg"cpf "pkpg"gz kpev"xqrecpqgu0' Vj ku"ctgc"j cu" yj g"j ki j gun'o ci o c"r tqf wevkqp"tcvg"hqt"cp{"cte"y qtrf y kf g"cpf "o cp{"qh"ku"xqrecpqgu"y gtg" uwf kgf "kp"eqpukf gtcdrg"f gvckn0'J qy gxgt."uqo g"xqrecpqgu"qh"yj g"MI X"kpenwf kpi "Ncvg/Rrgkurqegpg"xqrecpqgu" Dqnuj c{c"Wf kpc"epf "O crx{c"Wf kpc"*Wf kpc"o cuukh+"Quvtc{c"\ ko kpc"cpf "Qxcrpc{c"\ ko kpc"*\ ko kpc"o cuukh+" cpf " I qtp{" \ wd." ukwcvgf " kp" Uqwj /Gcun' r ctv' qh" MI X." y gtg" uwf kgf " qpn{" qp" c" tgeqppckurcpeg" dcuku" *Vko gtdcgxc."3; 89="Gto cmqx."3; 99+"cpf "o qf gtp"i gqej go kecn' uwf kgu" j cxg" pqv' dggp"ecttkgf "qw' cv' cm0' P gxgt yj grguu."yj gug"xqrecpqgu"ctg"erquguv'vq"yj g"gcuv'y guv'uwdf wevkqp"qh"yj g"Rcekhke"r revg"dgrqy "Mco ej cvnc0' Y g"r tgugpv'o clqt"cpf "vtceg"grgo gpv'f cvc"qp"tqemu"htqo "yj gug"r qqtn{"uwwf kgf "xqrecpqgu"cu"y gm'cu"qp"yj gkt" qff gt"xqrecpke"dcugo gpv'kp"qtf gt "vq'eqpuvtckp"yj g"Gcuv'Y guv'i gqej go kecn'xctkcvkqpu'yj tqwi j "MI X0'

Geology and petrography. "Vj g"MI X"ku'ukwcvgf "pgct"c"vkr ng"lwpevkqp"y j gtg"yi g"Rcekke. "Dgtkpi "cpf" Qnj qwni'r ncvgu'eqo g'vqi gyj gt "cpf "hqto "wy q"cevkxg"dqwpf ctkgu<"yj g"eqpxgti gpv'MwtkngóMco ej cwnc"tgpej "cpf" CngwkcpóDgtkpi óCnhc"tcpuhqto "hcwnu0F ggr "ugkuo ke"uqwpf kpi "uj qy u"yj cv'yj g"o czko wo "etwucn'yj kempguu"kp" dgmy "yj g"MI X"tgcej gu"62"vq"64"no 0'Vj ku"j cu"dggp"cwtkdwgf "vq"cp"gzvgpukxg"etwuxóo cpwg"tcpukxdp" | qpg" y kyj "cdwpf cpv'o chke"kpvtwukxg"dqf kgu"dgmy "yj g"MI X"i tqwr 0'Kp"yj g"Ncvg"Rngkuvqegpg"yj g"MI X"dcugo gpv'y cu" ew'd {"c"ugtkgu"qh'hcwnu"kpvq"ugxgtcn'vgevqpke"dmemu"*O grgnnguvugx"gv'cn0"3; 96="Gto cmqx."3; 99+0'Vj g"egpvtcn' cpf "uqwj gcuvgtp"r ctwl"qh'yj g"MI X"ctg"vgevqpkecm{"uxcdng."yj g"uqwj y guvgtp"dmemi'wpf gtn{kpi "yj g"Vqndcej kni' xqnecpke" o cuukh"j cu" uwdukf gf "hqt" cdqwi' 722" o 0' Cmi' xqnecpqgu" uwxf kgf "j gtg" ctg" mecvgf "qp" yj g"MI X"ctg" eqxgtgf "d{"{qwpi gt "xqnecpke" f gr qukwi*O grgnnguvugx"gv'cn0"3; 96+0'

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Petrology and geochemistry. "O clqt"cpf "tcceg"gro gpw"y gtg"cpcn{ugf "cv'I \ I ."I ¾wkpi gp"Wpkxgtukx{0' Cm"tqemu"ctg"o gf kwo /M"ecre/cmcrkpg"dcucnke"cpf gukgu"vq"f ceksgu"gzegr v"hgy "my /O i "dcucnuu"htqo "O cre{c" Wf kpc "xqrecpq0'Qp"MxQ"xgtuwu"UkQ4"yi tgg"vtgpf u"y kj "xctkcdrg"cmcrkpkx{"ctg"ergctn{"f kuxpi wkuj gf "*Hki 0'3+~" Vtgpf "3"y kj "my "r qwuukwo "kpenwf gu"cm"rexcu"htqo "I qtp{"\ wd"cpf "Dqnij c{c"Wf kpc"xqrecpqgu"cu"y gm"cu"c" hgy "uco r rgu"htqo "Qxcrpc{c"\ ko kpc"cpf "Quvtc{c"\ ko kpc0'O quv"rexcu"qh"yi g"uqwi gcuvgtp"r ctv"qh"yi g"MI X" dgmpi "vq"yi ku"vtgpf "."y j kej "ku"i gqej go kecm{"uko krct"vq"yi cv"hqto gf "d{"rexcu"htqo "yi g"cevkxg"Dgl {o kcpp{" xqrecpq="Vtgpf "4"y kj "grgxcvgf "r qwuukwo "eqpukuru"qh"rexcu"htqo "O cre{c"Wf kpc"xqrecpq"cpf "qpn{"r ctv"qh" rexcu"htqo "Qxcrpc{c"cpf"Quvtc{c"\ ko kpc"xqrecpqgu="Vtgpf"5"j cu"j ki j guv"r qwuukwo "cpf "ku"qpn{"hqto gf "d{" Qxcrpc{c"\ ko kpc"rexcu0'

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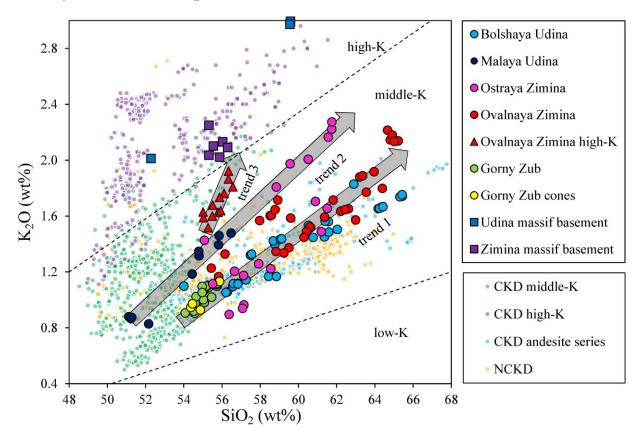


Fig. 1: K₂O vs. SiO₂ for rocks of southwestern volcanoes of KGV

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Kp"eqpvtcuv'vq"rexcu"htqo "vj g"MI X."qrf gt"dcugo gpv'rexcu"ctg"i gqej go kecm{ "uko kret"vq"vj g"r revgcw'rexcu" cv"Uwf gpc{c"tkxgt"cpf "cm"dgmpi "vq"vj g"j ki j /M"dcucnvcpf gukg"tqem"ugtkgu0'P gy "f cvc"qp"dcugo gpv"tqemu" vqi gyj gt"y kj "r tgxkqwun{"r wdrkuj gf "f cvc"uwi i guv"c"r gtkqf "qh"j ki j /M"xqrecpkuo "kp"vj g"MI X"f wtkpi "O kf f rg" Rrgkuvqegpg"vko g"dghqtg"vj g'eqpuvtwevkqp"qh"vj g"{qwpi gt."o wej "o qtg"xctkcdrg"uvtcvqxqrecpqgu0'

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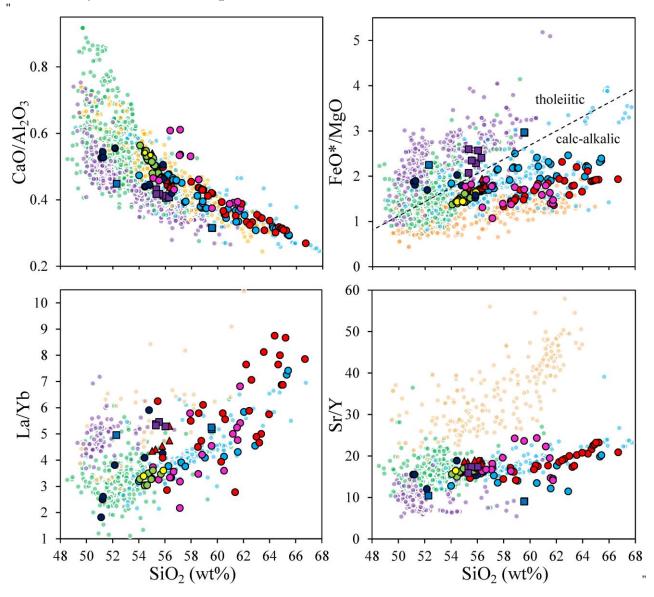


Fig. 2: Variation diagrams for the CKD rocks. Symbols are the same as in Fig. 1

Tghgtgpegu"

Ej wtkmqxc." V0 0" I qtf g{ej km" D0P 0" Ky co qtk" J 0" gv" cn0' Rgytqmqi kecn' cpf "i gqej go kecn' gxqnwkqp" qh" vj g" Vqndcej km'xqnecpke" o cuukh "Mco ej cvnc." Twurkc" II" J. Volcanol. Geotherm. Res.." 42370'X0'5290'R0'378/3: 30'i wr ⊲lif qk0tti 13208238 10 xqni gqtgu0423708202480'

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Gto cmqx."X0C0'Hqto cvkqp"f kuo go dgto gpv"qh"vj g"S wcvgtpct{"xqrecpke"tqemu0'O 0<"P gf tc."3; 990'445"r 0'*Kp" Twurkcp+0'

Ecmhpu." LOCO' 62Ct f⁵: Ct" i gqej tqpqqqi {"qh" Mj cr kuc" r mvgcw" cpf "Uwf {qpc{c"tkxgt" dcucnu" cpf "dcucnke" cpf guksgu" kp" Egpytcn' Mco ej cvnc" F gr tguukqp." Mco ej cvnc." Twuukc" 11" Nkpnci gu" co qpi "Vgevqpkeu." Ugkuo kek/{."O ci o c"I gpguku."cpf "Gtwr vkqp"kp"Xqrecpke"CteuO' KX" Kpvgtpcvkqpcn' Dkgppkcn' Y qtmıj qr "qp" Uwdf wevkqp" Rtqeguugu" Go r j cuk kpi " yi g" Lcr cpóMxtkrgóMco ej cvncóCrgwkcp" CteuO' Rgvtqr cxmqxum/ Mco ej cvum(." Cwi wuv! 43/49." 42260' Rgvtqr cxmqxum/Mco ej cvum(." Kpurkwyg" qh" Xqrecpqmi {" cpf" Ugkuo qmi {"HGD'TCU."42260R075/760'j wr <1by y y 0mepgy0 wlkxuleqphqtgpegulmcur lvg| kcd43gp0f qeO'

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j wr <1y y 0muepgv0 wilqwtpcnIntcgue lctvkerg1xkgy 13: 414340