

PROPAGATION VELOCITIES, VISCOSITY, AND INTERNAL STRUCTURE OF LAVA FLOWS OF THE 2012–2013 ERUPTION OF TOLBACHIK VOLCANO, KAMCHATKA

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Vj g"423464235"lncpni'gt wr vkap"qh"Vqndcej kn'xqrepcq"Mc o ej cwn. "T wuukp"Hct"Gcuw+rucvfg"; "o qpj u" cpf "r tqf wegf "2076"no⁵"qh'dcucnke"tcej { cpf guksgrxc. "vj wu'dgeqo kpi "qpg"qh"vj g"o quv'xqno kqqu"j kvqtlecl' rxc"ghwukapu"qh'dcule"eqo r qukkap"kp"uudf wevkap"tgrcvf "gpxkqpo gpv'i mdcm'00 ckp"uci g'qh'vj g"gt wr vkap" y cu"ej ctcevgtk gf "d{"Htgs wgpv"J cy ckcp" cpf "Utqo dqncp/v' r g" rxc" hqwpckpu" qeewtkpi "Htqo "y q" rxc" r qpf u."hknpi "vj g"etcvgtu"qh'vj g"f gxgnr kpi "P cdqmq"ueqtkc"eqpg'0'Htqo "vj gug"r qpf u." rxc"y cu'vcpur qtvfg" wpf gti tqwpf "vj tqw j " c" u' ugo " qh' rxc" wdgu" y cv" r tqi tguukgn' " gmpci cvfg" cpf " dtcpej gf " y kj " vko g' Uko wncpgqwan' "y kj "vj g" rxc"wdg"gmppi cvkap" cpf "dtcpej kpi . "vj g"i tcf wcn'vcpukkap"qh'vj g"f qo kpcpv' rxc" go r rnego gpv'uv' r'g'htqo "æ"v' r' c'j q'j q'g' qeewt'gf 0"

Y g'tgr qtvt'guwu"qh'kputwo gpvni'hgrf "o gcuwtgo gpv'qh'vj g"æ" c'pf "r c'j q'j q'g' r' tqr ci cvkap"xgnqekkgu" *f qewo gpv'f "y kj "vko g'ncr ug'eco gtcu'cu'y gni'cu'vj g' rxc"xkuequk' f g'vto kpgf "d{"Hny "tcvg" c'pf "uj gct'utguu" *wukpi "r gpgv'qo gvt-"o g'j qf u'0'Vj g"o gcuwtgo gpv'y g'tg'eqo r rvgf "f w'kpi "vj g'hqto cvkap"qh'vj g"Vqnmf unq { g" rxc"Hny "hgrf "cu'r ctv'qh'vj tgg'hgrf "eco r cki pu'kp"O ctej 6Cr tka"O c { . "c'pf "Lwn' "42350F w'kpi "vj cv'r g'kqf . "vj g" UkQ₄"eqp'gpv'qh'vj g" rxc" c'pf "vj g"vko g'cxgtci gf "f k'ej cti g'tcvg'tgo clpgf "eqpucpv."eqttgur qpf kpi n' "74'y v" " c'pf "3: "o⁵ lu0"

O czko cni'r tqr ci cvkap" xgnqekkgu" qh' vj g" æ" h'qpw" t'cpi gf "htqo "4'vq"47" o o lu." c'pf "vj qug" qh' vj g" r c'j q'j q'g' htqo "20" vq"8" o lu' Vj g" hny "htqpv" xgnqekkgu" qh' dqj " rxc" v' r gu" g'zr g'kpgpegf "uj qtvr g'kqf " hnwewcvkapu"vj cv'y g'tg'ecwugf "d{"eqo r rnz "hny "o g'ej c'p'ku"qh'vj g"cf x'c'p'kpi "hny "mqdgu'00 k'p'o cni'xkuequkkgu" qh' rxc" qh' vj g" æ" mqdgu" t'cpi gf "htqo "36" "32⁷"vq"56" "32⁹"Rc" u*"hny "tcvg" o g'j qf + "c'pf "vj qug" qh' vj g" r c'j q'j q'g' htqo "vq"7" "32⁵"vq"7" "32⁶"Rc" u*"vj gct'utguu"o g'j qf +0"

Qwt'f c'v'k'p'nmf g'vj g'h'ku'g'xgt"o gcuwtgf "r tqh'kgu"qh'xkuequk' "vj tqwi j "vj g"gpv'k'g'vj k'empgu"qh'ce'v'k'gn' " cf x'c'p'kpi "r c'j q'j q'g' rxc"mqdgu'0'Y g'j c'x'g'h'qwpf "vj cv'dqj "æ" c'pf "r c'j q'j q'g' hny u'j c'x'g" c'eqo r rnz "k'p'v'g't'p'cni' utweww'g'eqo r t'k'ugf "qh'nc' { gtu"qh' rxc"y kj "eqp'v'c'ukpi "tj g'q'ni k'ecni'r tqr g't'v'gu'0'Vj g"u'w'f k'gf "æ" mqdgu"y g'tg" eqo r qugf "qh'c'hny g't" h'w'k'f "nc' { g't"y kj "s w'cuk'P gy v'q'p'k'p"r tqr g't'v'gu" c'pf "cp" w'r r g't" j k' j n' "xkuequw"nc' { g't"y kj " s w'cuk'Dkpi j co "r tqr g't'v'gu'0' Vj ku" y q" nc' { g'tgf " hny "y cu" g'p'x'g'nr gf "k'p" vj k'eni' o c'p'v'g" qh' i t'c'p'w'c't" o c'v'g't'k'c'ni' R'ej q'j q'g' mqdgu'j cf "eqt'gu."eqo r qugf "qh'h'w'k'f " rxc"y kj "s w'cuk'P gy v'q'p'k'p"r tqr g't'v'gu."vj cv'k'p'h'v'g'f "y j k'g'd'g'k'p"i " g'p'x'g'nr gf "k'p'v'c"un'k'p"qh'xkuequw" rxc"y kj "s w'cuk'Dkpi j co "r tqr g't'v'gu."vj cv'i tcf w'cni' "u'q'nf k'k'gf "k'p'v'c"dt'k'w'g" o c'v'g't'k'c'ni'0"

Y g'j c'x'g'h'qwpf "vj cv'dqj "vj g"æ" c'pf "r c'j q'j q'g' hny u'y g'tg'h'gf "d{"k'f g'p'v'k'c'ni'r c't'g'p'v'ni' rxc."y j k'ej "vj g'p" f g'x'g'nr gf "eqp'v'c'ukpi "tj g'q'ni k'ecni'r tqr g't'v'gu."qy kpi "vq" f k'h'g't'g'p'egu" k'p" vj g"r t'q'egu"qh' rxc"v'c'p'ur q't'v'q'x'g't" vj g" i tqwpf "u'w'h'c'eg'0'Qwt' k'p'x'g'ni' cvkapu" f go q'p'ut'c'v'g" vj cv'vj g"q'dug't'x'g'f "i tcf w'cni'v'c'p'uk'kap"htqo "vj g'f qo k'pcpv'æ" vq'f qo k'pcpv'r c'j q'j q'g' r' tqr ci cvkap"uv' r'g'f w'kpi "vj g'hqto cvkap"qh'vj g"Vqnmf unq { g' rxc" h'grf "y cu'ecwugf "u'q'ng' " d{"c'pf "q'eww't'gf "uko w'nc'p'g'q'wan' "y kj "r tqi t'g'u'k'g"gmppi cvkap" c'pf "dtcpej kpi "qh' vj g"u' ugo "qh'h'ggf kpi " rxc" wdgu'0'Vj ku'dgeco g"r quuk'd'g'f w'g"vq"t'c'r k'f "ceewo w'c'v'kap"qh'c"v'j k'eni'r k'g"qh'r ct'v' "u'q'nf k'k'gf " rxc" hny u'vj cv" r tq'x'f gf "c" h'x'q't'c'd'ng" g'p'x'k'q'po gpv'h'q't" u'j c'my "u'w'uw'h'c'eg" k'p'v'w'uk'apu" c'pf "o ki t'c'v'kapu"qh' rxc."y j k'ej . "y kj " vko g. "f g'x'g'nr gf "k'p'v'c"dtcpej gu'qh'vj g' rxc"wdg'u' ugo 0"

Y g' eqpenf g" vj cv' vj g" go r rnego gpv' uv' r'g' qh' j k' j " f k'ej cti g" mppi / r'c'v'k'p"i " gh'w'uk'apu" qh' h'w'k'f " rxc." k'p'nmf kpi "h'q'qf "dcucmu."y kj "vko g'p'c'w'c'm'f . "y kj q'w' vj g" p'g'egu'k'f "qh'ej c'pi gu"qh' vj g" gh'w'uk'ap"r c'tco g'v'gtu." g'x'q'ng'u'htqo "æ"v' r' c'j q'j q'g'0"

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