## DEVELOPMENT OF THE AUTOMATIC SYSTEM FOR MEASURING SULFUR DIOXIDE ( $SO_2$ ) EMISSION ON ACTIVE VOLCANOES IN KAMCHATKA.

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O qf gtp"tgugctej "o gyj qf u"cmqy "UQ4"o qpkqtkpi "cv"c"f kthgtgpv"f kuvcpegu"htqo "yj g"xqrecpqgu"cpf "yj wu" gpuwtkpi "yj g"uchgv{ "qh"tgugctej gtu"cpf "yj g"uchgv{ "qh"gs wkr o gpv0Uwthwt "f kqzkf g"ku"qh"yj g"i tgcvguv"kpvgtguv'hqt "uwej " o gcuwtgo gpvu0UQ4"eqpegpvtcvkqpu "cu"c"twg. "ctg"yj g'yj ktf "hcti guv"xqrecpke"i cugu "chvgt" J 4Q"cpf "EQ4."y j kej "ctg" o wej "o qtg"f kthkewnv"vq"dg"o gcuwtgf "f wg"vq"yj gkt"j ki j "eqpegpvtcvkqpu"qh"pqp/xqrecpke"qtki kp0Dcukecm{."uwthwt" f kqzkf g"ku"gcukn{ "kf gpvktkgf"d{ "qr vkecn"cduqtr vkqp"kp"yj g"wntcxkqrgv\%WX+"tcpi g"qh"grgevtqo ci pgvke"tcf kcvkqp0'

Vj g"Kpurkwwg"qh"Xqrecpqrqi {"cpf "Ugkuo qrqi {"HGD"TCU"kp"eqqr gtcvkqp"y ksj "Ej cro gtu"Wpkxgtukx{"qh" Vgej pqrqi {"\*I qvj gpdwti ."Uy gf gp+"j cu"f gxgrqr gf "cpf "o qf khkgf "cp"cwqo cvke"tgo qvg"ugpukpi "u{uvgo "hqt" xqrecpqi gpke"hwrhwt "f kqzkf g"dcugf "qp"f khtgt gpvkcn'qr vkecn'cduqtr vkqp"ur gevtqueqr {"\*F QCU+"o gvj qf "\*I cmg"gv'cn'0" 4232+"kp"Mco ej cvnc"enko cvg"eqpf kskqpu0Vj ku'u{uvgo "eqpukuvu'qh'vy q"cwqo cvke"tecppkpi "f gxkegu0'

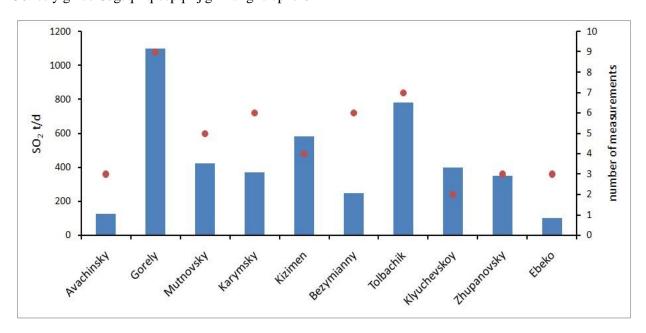
Vj g'u{ uvgo "j cu'vj g'hqmqy kpi "cwtkdwgu<""

30Hrgzkdktkv{ "/"vj g'u{ uvgo "ecp"dg"s wkemn{ "o qf khkgf "vq'uqnxg'vj g'\cum0'"

40O qdkrkv{ "/"vj g'u{ uvgo "ecp"dg"s wkemn{ "kpuvcmgf kpkpuvcmgf "f gr gpf kpi "qp'vj g'r rceg"qh'xqnecpke"cevkxkv{0'"

50Hpvgi tcvgf "f cvc"r tqeguukpi 0Rquukdkrkv{ "qh'cwqpqo qwu'ceewo wrcvkqp"cpf "r tko ct { "r tqeguukpi "qh'lphqto cvkqp0' 60Cxckrcdkrkv{ "/"f cvc"ecp"dg"tgo qvgn{ "vtcpuo kvgf "vq"vj g'qr gtcvkqpcn'lphqto cvkqp"r tqeguukpi "egpvgt0'

 $Vj\ g"4236/423:\ "hkgrf"\ uwwf\ kgu"\ cmqy\ gf\ "eqmgevkqp"\ qh"f\ cvc"\ qp"\ eqpuwo\ r\ vkqp"\ qh"\ UQ_4"\ hqt"\ y\ g"o\ quv'\ cevkxg"$   $xqrecpqgu"\ kp"Mco\ ej\ cvnc"^{*}1\ qt\ gn\{."O\ wpqxum\{."Mct\{o\ um\{."Cxcej\ kpum\{."cpf\ ''\ j\ wr\ cpqxum\{."O\ grpkmqx"gv'\ cn0"4236+'cu''y\ gm'cu'Gdgeq'Xqrecpq'*vj\ g'Mwt\ krg'Kurcpf\ u+0'$ 



Hki wtg"30'Go kuukqp"qh'uwhwt"f kqzkf g'hqt"cevkxg"xqrecpqgu"qh'!Mco ej cvnc"ceeqtf kpi "vq"i tqwpf/dcugf "
tgo qvg"ugpukpi "d{ 'vj g"cwvqo cvke"uecppkpi "F QCU'u{ uvgo "\*4233/423: +0'

Vj ku'u{uvgo ''y cu'wugf ''hqt''tgo qvg''ugpukpi ''qh''UQ4"qp''Gdgmq''\*Rctco wuj kt''Kmcpf +''/322''vlf ''\*Vctcp''gv'cn''' 423: .''O grpkmqx''gv'cn'''4238+.''O wpqxum(''/'572/622''vlf .''cpf 'Cxcej kpum(''xqrecpqgu''/'72''vlf 0'

Vj g'F QCU'ur gevtqo gvt { "eqo dkpgf" y kj "i gqr j {ukecn'cpf" i gqe j go kecn'f cvc''o c { "dg't gngxcpv'hqt 'uqnxkpi " y g"hwpf co gpvcn'r tqdrgo u"qh' xqrecpqrqi { < "cuuguukpi "i rqdcn' xqrecpke "f gi cuukpi ."uwwf {kpi "y g"dgj cxkqt "qh" xqrecpke "i cugu'y j gp'y g { "gpvgt 'y g cvo qur j gtg."cpf 'xgtkh {kpi "ucvgnky "f cvc0'

## Tghgtgpegu"

I cmg. 'D0'Iqj cpuuqp. 'O 0'Tkxgtc.'E0'\ j cpi .'[ 0'Mkj m cp. 'O 0'Mgtp.'E0'Ngj o cpp. 'V0'Rncw.'W0'Ctgmcpq." U0cpf "J kf cni q.'U0\*4232+0P gw qtmlqt'Qdugtxcvkqp"qhl'Xqnccpke"cpf 'Cvo qur j gtke'Ej cpi g'\*P QXCE+'/'C'i nqdcn' pgw qtml'hqt"xqnccpke"i cu"o qpkqtkpi <'P gw qtml'nc{qw''cpf "kpuvtwo gpv''f guetkr vkqp0'Iqwtpcn'qh''I gqr j {ukecn' Tgugctej <'Cvo qur j gtgu.'337\*F7+0'

 $\label{lem:constraint} $$ \ Vctcp."[ 0'.\ gngpunk"O 0'."Ej cr n{i kp."K0'."O crkm"P 0'."Eco r kqp."T0'."Kpi wci i kcvq."U0'."Rqmtqxunk"D0'."$$ Mcncej gxc."G0'."O gnpknqx."F 0'."Mc| cj c{c."T0cpf "Hkuej gt."V0%423: <math>\pm$ "I cu'Go kuukqpu'htqo "Xqrecpqgu'qh'yj g'Mwtkri" Kurcpf " Cte" \*P Y " Rcekhke+ $\!\!\!<$ " I gqej go kurt {" cpf " Hnwzgu0' I gqej go (I gqr j {u0 gqu{uv00Ceegr vgf " Cwj qt" O cpwuetkr v0f qk320324; 1423: I E229699"}

F 0O grpknqx. "P 0O crkm" V0Mqvgpnq. "U0Kpi wci i kcvq. "O 0\ grgpunk"C "pgy "guvko cvg"qh'i cu'go kuukqpu'htqo "Gdgnq"xqrecpq. "Mvtkrg"Knrcpf u'11"I qrf uej o kf v. "C v! qnqj co c. "Lcr cp. "Lwpg" 4238"

O grpknąx 'F (XO 'Wuj cmqx 'UXO 'I cmg 'D0%4236+'Gusko cskąp 'qh' vj g'uwrhwt 'f kqzkf g' go kuukąp 'd { 'Mco ej csnc'' xqrecpqgu'' wukpi '' f khłgt gpskch' qr skech' cduqtr skąp '' ur gest queqr { '' 11'' : / vj '' Dkgppkch' Y qtmuj qr '' qp'' Icr cp/Mco ej csnc/Crcunc'Uwdf weskąp ''Rt qeguugu. 'LMC UR'4236. ''44/48 'Ugr sgo dgt. '4236. ''Ucr r qtq. 'Icr cp0'