## Convergence velocity between Amurian plate and north American plate estimated by GNSS at southern Sakhalin, Russia and northern Hokkaido, Japan

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Kp'uqwi gtp''Ucni crkp''cpf 'pqtyi gtp''J qmmckf q.''c'r revg''dqwpf ct { 'dgw ggp''Co wtkcp''cpf 'Qni qwmi'r revgu'j cu'' dggp"cuuwo gf 0J ki j "ugkuo ke"cevkxky "cpf "cevkxg"hcwnu'kp"Icr cp"ugc "ukf g"kp"dqyj "ct gcu'o ki j v't ghrgev'r revg" eqpxgti gpeg0I PUU'pgw qtmu'j cxg'dggp'kp''qr gtcvkqp''cpf 'i gqo gvt { "qh'o gej cpkecn'r revg''dqwpf ct { "j cf ''dggp'' f gdcvgf "kp"o cp{"uwf kgu."dw"y g"dqwpf ct{"; cu"dggp"kp"f gdcvg0C"r tkqtk "dmem'dqwpf ct{"o qf gn'y cu"i kxgp"cu"c" mpqy p'r ctco gygt 'kp''r tgxkqwu'uwf kgu0Vj g'r wtr qug''qh''y ku'uwf { "ku''y cv'gurko cyg''y g''mecvkqp. "eqpxgti gpeg" xgmqeky{"qhi'c"r revg"dqwpf ct{."cpf "vj g"vj kempguu"qhi'vj g"rkvj qur j gtke"r revg. "uko wncpgqwun{0" Ko"pqtvj gtp" J qmmckf q. "ugewrct "uvcvkqp" xgmqekkgu" y gtg" guvko cvgf "htqo "I PUU'eqqtf kpcvg" vko g'ugtkgu0 Cppwcn" cpf 'ugo keppwen'ugcuqpen'xetkevkqp'y gtg'tgo qxgf 'htqo ''vko g'ugtkgu0'Vj g'vqven'42'T PUU'f cwe'htqo 'T GOP GV'' I gqur cyken'Kohqto cykqp'Cwj qtkx{ "qh'Ler ep. "epf "Kouxkwyg"qh'Ugkuo qrqi { "epf "Xqreepqrqi { "qh'I qrmekf q" Wpkxgtuky{."y gtg"cpcn{| gf "y kj "Dgtpgug"I P UU'uqhw ctg"kp"KVTH422: "ltqo "422: "\q"4233" \dghqtg"Vqj qmw\qmk" gctyj s wcng+0Xgrqek{ "f cvc'kp'uqwj gtp'Ucnj crkp'y gtg'htqo "Xcukrgpnq'cpf 'Rt { vnqx'\*4234+0F ghqto cvkqp'hkgrf" y cu'o qf gngf "wukpi "vj g"Uj ko c| cnk'cpf "\ j cq"¾222+øu'uej go g."vj cv'f guetkdgu'vj g"f ghqto cvkqp"ecwugf "d{" eqnkukqp"cu'uwr gtr qukkqp"qh'tki kf "drqenio qxkqp"cpf "grcuke"f ghqto cxkqp"f wg"\q"xgtxlecmf "ygpukrg"qr gp 'hcwn0' I the 'ugctei 'r tgegf wtg'y cu'cr r nkgf 'vg'f gygto kpg'y g'dguy'hky'r ctco gygtu0' Vj g"dguv'hkv'r ctco gygtu'kp"uqwi gtp"Ucmi cnkp"cpf "pqtyi gtp"J qmmckf q"y gtg"f gygto kpgf ='yi g"eqpxgti gpeg" xgmekkgu''ctg'' $3809 \pm 206$ ''cpf '' $3406 \pm 208$ ''o o 1{t.''vj g''uvtkng''qh''vj g''eqnkukqp''| qpg''ctg''350 ''cpf ''304''f gi tggu.''cpf '' vj g'vj kempguu'qh'vj g'rkkj gur j gtke'r revg''ctg''6808''cpf ''4902''no . ''tgur gevkxgn(01/6)'vj g''i tkf ''ugctej . ''y g''f gygto kpgf '' yj g"dguv'hkv'r ctco gygtu'wukpi "yj g"ej k/us wctgf "xcnwg"cpf "yj g"ego dkpcykqp"qh'r ctco gygtu'yj cv'j cxg"o kpko wo " xcnwg'y cu'tgi ctf gf "cu'\i g'dguv'uqnwkqp0'Kp"uqwi gtp"Ucni crkp. '\i g''ej k'us wctgf "xcnwg'f kuxtkdwkqp"uj qy u'4" r gemi'qh'k60Vj g''uo enguv'ej k'us wetgf ''uqnwkqp''ku''cu''r tgxkqwu''pqygf ."cpf ''vj g''ugeqpf 'r gemi'uqnwkqp''uj qy ''vj g''  $xgmeky'' 3209 \pm 205''$  o o 1{t.''vi g'uvtkmg'702''f gi tggu''cpf 'vi g''vi kempguu''4409''mo 0'

Vj g''nqecvkqp"qh''y g''eqmkukqp"dqwpf ct { "gurko cvgf "kp" y ku''uwf { "eqpukuvu''y ky "cevkxg'hcwnu."dqwpf ctkgu'qh" ugkuo kekx{."i gqmi kecn'uxtwewtg."cpf "Dqwi wgt''i tcxkx{ "cpqo cn{0'Vj g''eqpxgti gpeg''xgmqekx{ 'ku''uko krct 'xcnwg''kp" y g''uqwj gtp"Ucnj cnkp'\*\*Xcukrgpnq"cpf "Rt { vnqx."4234+"cpf "dmem'o qf grkpi "tguwnu'\*\*Nqxgrguu''cpf "O gcf g." 4232+0'Vj gug'hcewi'uwr r qtv'gurko cvkqp"xcnkf kx{0'K/y cu''uwi i guvgf "y cv'grcurke"f ghqto cvkqp"f wg''q''eqmkukqp" eqwrf "gzr rckp"qdugtxgf "f cvc0'Uvtqpi "eqpvtcuv'kp"ugkuo kekx{ "dgw ggp"j ki j "y guvgtp"cpf "nqy "gcuvgtp"ukf gu''o ki j v'' kpf kecvg''r j {ukecn'r tqr gtv{ "f khlgtgpeg' hqt"gctvj s wcng''i gpgtcvkqp"f wg''vq''i gqmi kecn'uxtwewtg0'Qwt "tguwnv'' kpf kecvgu''qpi qkpi "uvtckp"ceewo wrcvkqp"cpf "kpetgcukpi "gctvj s wcng''qeewttgpeg''r qvgpvkcn'kp"vj ku'tgi kqp0'