

# Appendix-B: Solution of local tie survey 2022 in Koganei with pyaxis in SINEX format

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%=SNX 2.10 NIC 25:028:43195 NIC 22:284:00000 22:284:00000 C 21 2 S
+FILE/REFERENCE
DESCRIPTION      National Inst. of Info. and Comm. Tech.
OUTPUT           Local Tie Survey:NICT&Nippo
CONTACT          sekido@nict.go.jp
SOFTWARE         pyaxis software: Land Information New Zealand
HARDWARE        Linux PC
INPUT           Local Tie Survey data at Koganei
-FILE/REFERENCE
+SITE/ID
9301 A 00000M000 C GSI Geonet Koganei      139 29 16.8 35 42 36.8 113.5
KG1M A 00000M000 C 1.0m Telescope          139 29 21.0 35 42 36.9 119.9
KGN1 A 21704S005 C Koganei GNSS Site       139 29 17.3 35 42 37.2 123.8
KGV2 A 00000S000 C Koganei GNSS Site       139 29 17.3 35 42 37.4 123.8
KOGA A 21704S004 C 11-m Keystone           139 29 17.1 35 42 38.0 125.5
KOGC A 21704S002 C 7308 1.5m SLR           139 29 20.9 35 42 36.3 122.6
KOGL A 21704M001 C 7328 Keystone SLR       139 29 17.8 35 42 37.0 123.6
-SITE/ID
+SOLUTION/EPOCHS
9301 A 0001 C 22:284:00000 22:284:00000 22:284:00000
KG1M A 0001 C 22:284:00000 22:284:00000 22:284:00000
KGN1 A 0001 C 22:284:00000 22:284:00000 22:284:00000
KGV2 A 0001 C 22:284:00000 22:284:00000 22:284:00000
KOGA A 0001 C 22:284:00000 22:284:00000 22:284:00000
KOGC A 0001 C 22:284:00000 22:284:00000 22:284:00000
KOGL A 0001 C 22:284:00000 22:284:00000 22:284:00000
-SOLUTION/EPOCHS
+SOLUTION/STATISTICS
VARIANCE FACTOR      1. 015578950700048e+00
SUM OR SQUARED RESIDUALS  4. 702130541741222e+02
NUMBER OF OBSERVATIONS      589
NUMBER OF UNKNOWNNS        126
-SOLUTION/STATISTICS
+SOLUTION/ESTIMATE
 1 STAX 9301 A 0001 22:284:00000 m 2 -3.94194192432002e+06 1.57619e-03
 2 STAY 9301 A 0001 22:284:00000 m 2 3.36816394834351e+06 1.51149e-03
 3 STAZ 9301 A 0001 22:284:00000 m 2 3.70219841957778e+06 1.56167e-03
 4 STAX KG1M A 0001 22:284:00000 m 2 -3.94201291656188e+06 1.42392e-03
 5 STAY KG1M A 0001 22:284:00000 m 2 3.36808542270613e+06 1.33792e-03
 6 STAZ KG1M A 0001 22:284:00000 m 2 3.70220525224983e+06 1.37014e-03
 7 STAX KGN1 A 0001 22:284:00000 m 2 -3.94194973203324e+06 1.17061e-03
 8 STAY KGN1 A 0001 22:284:00000 m 2 3.36815604474363e+06 1.10216e-03
 9 STAZ KGN1 A 0001 22:284:00000 m 2 3.70221495642496e+06 1.14654e-03
10 STAX KGV2 A 0001 22:284:00000 m 2 -3.94194772414112e+06 1.23378e-03
11 STAY KGV2 A 0001 22:284:00000 m 2 3.36815309051317e+06 1.15114e-03
12 STAZ KGV2 A 0001 22:284:00000 m 2 3.70221975165271e+06 1.16736e-03
13 STAX KOGA A 0001 22:284:00000 m 2 -3.94193795543258e+06 1.54480e-03
14 STAY KOGA A 0001 22:284:00000 m 2 3.36815055805418e+06 1.39544e-03
15 STAZ KOGA A 0001 22:284:00000 m 2 3.70223532534027e+06 1.53725e-03
16 STAX KOGC A 0001 22:284:00000 m 2 -3.94202065746857e+06 1.42452e-03
17 STAY KOGC A 0001 22:284:00000 m 2 3.36809723836248e+06 1.44243e-03
18 STAZ KOGC A 0001 22:284:00000 m 2 3.70219108150822e+06 1.42675e-03
19 STAX KOGL A 0001 22:284:00000 m 2 -3.94196198061138e+06 1.08870e-03
20 STAY KOGL A 0001 22:284:00000 m 2 3.36814818176559e+06 1.04552e-03
21 STAZ KOGL A 0001 22:284:00000 m 2 3.70220871232463e+06 1.08277e-03
-SOLUTION/ESTIMATE
+SOLUTION/MATRIX_ESTIMATE L COVA
 1 1 2.48438848916200e-06

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| 2  | 1  | -1.86324147403606e-06 | 2.28461467327087e-06  |                       |
| 3  | 1  | -1.86597158510033e-06 | 1.59348949888864e-06  | 2.43880294094184e-06  |
| 4  | 1  | 7.54118579534669e-07  | -5.48021965717698e-07 | -5.91516810700212e-07 |
| 4  | 4  | 2.02755586035850e-06  |                       |                       |
| 5  | 1  | -5.02040449208152e-07 | 7.04343016726895e-07  | 5.49830300705122e-07  |
| 5  | 4  | -1.45717660828976e-06 | 1.79002347054425e-06  |                       |
| 6  | 1  | -5.53499303189836e-07 | 4.86953090139252e-07  | 6.19478315425405e-07  |
| 6  | 4  | -1.36959456997056e-06 | 1.31143242139624e-06  | 1.87729728541852e-06  |
| 7  | 1  | 1.08194950631106e-06  | -7.69925012949269e-07 | -7.70853133297009e-07 |
| 7  | 4  | 7.56018493555061e-07  | -5.19286518165427e-07 | -5.09750253928456e-07 |
| 7  | 7  | 1.37033413343924e-06  |                       |                       |
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| 8  | 4  | -5.23149618980080e-07 | 6.80916518810743e-07  | 4.83275541943515e-07  |
| 8  | 7  | -9.19330359956230e-07 | 1.21475400048204e-06  |                       |
| 9  | 1  | -7.44870519391064e-07 | 7.17927609850431e-07  | 1.10365213875451e-06  |
| 9  | 4  | -5.55217326982066e-07 | 5.15248484009962e-07  | 6.22336998834795e-07  |
| 9  | 7  | -9.62806229516114e-07 | 8.82605985152146e-07  | 1.31455756263166e-06  |
| 10 | 1  | 1.05309757366103e-06  | -7.62619454102475e-07 | -7.90119465372433e-07 |
| 10 | 4  | 7.65832899740979e-07  | -5.28944072730357e-07 | -5.00544241375435e-07 |
| 10 | 7  | 1.08895905220888e-06  | -7.77572770040058e-07 | -7.99297413566448e-07 |
| 10 | 10 | 1.52222355746492e-06  |                       |                       |
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| 11 | 4  | -5.12371737582896e-07 | 6.72929749938398e-07  | 4.92104223160950e-07  |
| 11 | 7  | -7.88674552551558e-07 | 9.96270769676578e-07  | 7.06114627801338e-07  |
| 11 | 10 | -9.05388683940467e-07 | 1.32513227935180e-06  |                       |
| 12 | 1  | -7.45037134997220e-07 | 7.08988240938148e-07  | 1.07419478476663e-06  |
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| 12 | 7  | -7.79320758427435e-07 | 7.18448225068230e-07  | 1.08037631173063e-06  |
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| 13 | 4  | 8.21520612516923e-07  | -5.79346144048596e-07 | -5.14993616829985e-07 |
| 13 | 7  | 1.05944589135771e-06  | -7.57755144004460e-07 | -7.82002860151218e-07 |
| 13 | 10 | 1.07181435644710e-06  | -7.58358525906616e-07 | -7.77613407627151e-07 |
| 13 | 13 | 2.38641775582267e-06  |                       |                       |
| 14 | 1  | -7.98855402177447e-07 | 9.57075150302998e-07  | 6.37107446446700e-07  |
| 14 | 4  | -5.05089430166987e-07 | 6.61323085300317e-07  | 5.42805265584340e-07  |
| 14 | 7  | -7.69361161280018e-07 | 9.79864676757522e-07  | 6.69592540249434e-07  |
| 14 | 10 | -7.55098527195343e-07 | 1.00151994702915e-06  | 6.70892489008399e-07  |
| 14 | 13 | -1.47595968227986e-06 | 1.94724046075652e-06  |                       |
| 15 | 1  | -7.26428600058381e-07 | 7.08088385294668e-07  | 1.05755993653885e-06  |
| 15 | 4  | -5.83471318290266e-07 | 5.41576307422552e-07  | 6.40021079516303e-07  |
| 15 | 7  | -7.63333380455152e-07 | 7.06356304467267e-07  | 1.05080631920049e-06  |
| 15 | 10 | -7.69853831556457e-07 | 7.07188029757198e-07  | 1.05138418030907e-06  |
| 15 | 13 | -1.67040233594139e-06 | 1.23190614762353e-06  | 2.36314311374221e-06  |
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| 16 | 4  | 1.28860469026302e-06  | -9.25103698717562e-07 | -8.44596553423450e-07 |
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| 16 | 13 | 8.66281249757233e-07  | -5.46515018274439e-07 | -5.89516231617999e-07 |
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| 17 | 4  | -1.03805588866578e-06 | 1.33506243776273e-06  | 7.90570198867038e-07  |
| 17 | 7  | -5.20616131299780e-07 | 6.89160097409496e-07  | 5.52311236516178e-07  |
| 17 | 10 | -5.34598300552358e-07 | 6.77829579001845e-07  | 5.45069234186090e-07  |
| 17 | 13 | -5.93319121532185e-07 | 6.52015242942944e-07  | 5.82117404447560e-07  |
| 17 | 16 | -1.26863972810958e-06 | 2.08060102363827e-06  |                       |
| 18 | 1  | -6.40743769712239e-07 | 5.03186991893307e-07  | 6.58924390474660e-07  |
| 18 | 4  | -8.24060643251378e-07 | 7.94477960328867e-07  | 1.20718339760555e-06  |

|    |    |                       |                       |                       |
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| 18 | 7  | -5.64426483771719e-07 | 5.05564861024845e-07  | 6.75977206228887e-07  |
| 18 | 10 | -5.46880661213958e-07 | 5.21109641401613e-07  | 6.77488986367519e-07  |
| 18 | 13 | -5.44962061719555e-07 | 5.93142550878397e-07  | 6.91345873495112e-07  |
| 18 | 16 | -1.31523745165932e-06 | 1.13754096466597e-06  | 2.03560640247086e-06  |
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| 19 | 4  | 7.77382597165610e-07  | -5.30135105886178e-07 | -5.18826714546391e-07 |
| 19 | 7  | 1.07567593233365e-06  | -7.69511506003648e-07 | -7.73280799331524e-07 |
| 19 | 10 | 1.06828528791774e-06  | -7.66517560017414e-07 | -7.74575416290665e-07 |
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| 20 | 13 | -7.77550211656484e-07 | 9.49597644191233e-07  | 7.20335000640734e-07  |
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| 21 | 4  | -5.45190248356971e-07 | 5.04370632586041e-07  | 6.56496774345312e-07  |
| 21 | 7  | -7.82675517855884e-07 | 7.16100663870014e-07  | 1.06461707098493e-06  |
| 21 | 10 | -7.84856799586924e-07 | 7.15815671889881e-07  | 1.05080770374465e-06  |
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| 21 | 16 | -5.62388300730166e-07 | 5.34543078628812e-07  | 7.32022165565254e-07  |
| 21 | 19 | -8.36641297002258e-07 | 7.81912909230805e-07  | 1.17238919805761e-06  |

-SOLUTION/MATRIX\_ESTIMATE L COVA  
 %ENDSNX