

SSP-2 (Edited to exclude shots 1-28 and 603-777 inclusive)

Tansei Maru course: 41°
offsets: beginning: 23586 m crossing: 422 m ending: 15932m

First Shot = 1 Time = 1987:199:14:13:04:938
Last Shot = 1184 Time = 1987:199:20:30:01:188
reference latitude = 32.22° reference longitude = 135.02°

For the imaginary line segment which is the least squares fit of the positions of channel 48 for each shot:

slope = .738870
y intercept z 9406.7 m
begins at latitude = 32.38649° longitude = 135.15132°
x = 12356.5 m y = 18534.4 m
ends at latitude = 32.18481° longitude = -134.82872°
x = -18017.6 m y = -3902.9 m

For the imaginary line segment which is the least squares fit of the positions of the midpoints between channel 48 and the source for each shot.

slope = .694292
y intercept = 9474.8 m
begins at latitude = 32.32251° longitude = 135.04959°
x = 2785.0 m y = 11408.4 m
ends at latitude = 32.22809° longitude = -134.88893°
x = -12343.2 m y = 905.0 m

Water Gun location
Average Latitude = 32.26448° std deviation = .001°
Average Longitude = -134.9481° std deviation = .005°
Average X = -6781.0 m std deviation = 104 m
Average Y = 4961.6 m std deviation = 523 m
Average Distance = 523.1 m std deviation = 106 m

SSP-3 (Edited to exclude shots 162-191 inclusive)

Tansei Maru course: 223°
offsets: beginning: 11198 m crossing: 260 m ending: 15280 m

First Shot = 1 Time = 1987:199:10:19:35:125
Last Shot = 434 Time = 1987:199:12:36:42:375
reference latitude = 32.32° reference longitude = -134.96°

For the imaginary line segment which is the least squares fit of the positions of channel 48 for each shot:

slope = 1.147083
y intercept = 361.0181 m
begins at latitude = 32.25012° longitude = -134.88462°
x = -7093.5 m y = -7775.8 m
ends at latitude = 32.42619° longitude = 135.06627°
x = 9991.5 m y = 11822.1 m

For the imaginary line segment which is the least squares fit of the positions of the midpoints between channel 48 and the source for each shot.

slope = 1.137758

y intercept = 688.8798 m

begins at latitude = 32.29150°

x = -3393.0 m

ends at latitude = 32.37886°

x = 5153.7m

longitude = 134.92394°

y = -3171.5 m

longitude = 135.01480°

y = 6552.5 m

Water Gun location

Average Latitude = 32.33158°

Average Longitude = -134.9631°

Average X = 270.5 m

Average Y = 1291.0m

Average Distance = 62.9 m

std deviation = .0006°

std deviation = .0005°

std deviation = 49 m

std deviation = 54m

std deviation = 37 m

SSP-4 (Edited to exclude shots 524-618 inclusive)

Tansei Maru course: 42°

offsets: beginning: 19676 m

crossing: 106 m ending: 10767 m

First Shot = 1

Last Shot = 817

reference latitude = 32.35°

Time = 1987:199:03:28:47:531

Time = 1987:199:07:47:49:875

reference longitude = -134.93°

For the imaginary line segment which is the least squares fit of positions of channel 48 for each shot:

slope = 1.066341

y intercept = 1242.250 m

begins at latitude = 32.50275°

x = 14785.2 m

ends at latitude = 32.30319°

x = -6049.3 m

longitude = 135.08735°

y = 17008.3 m

longitude = -134.86569°

y = -5208.4 m

For the imaginary line segment which is the least squares fit of the positions of the midpoints between channel 48 and the source for each shot.

slope = 1.06590

y intercept = 1475.783 m

begins at latitude = 32.43602°

x = 7599.7 m

ends at latitude = 32.33607°

x = -2839.5 m

longitude = 135.01085°

y = 9576.3 m

longitude = -134.89981°

y = -1550.8 m

Water Gun location

Average Latitude = 32.36910°

Average Longitude = -134.9349°

Average X = 399.1 m

Average Y = 2110.8 m

Average Distance = 72.2 m

std deviation = .0007°

std deviation = .0008°

std deviation = 44 m

std deviation = 79 m

std deviation = 54 m

ESP-07 (Edited to exclude shots 1-32 inclusive)

Tansei Maru course: 51°
offsets: beginning: 11533 m crossing: 127 m ending: 21206 m

First Shot = 1 Time = 1987:201:05:03:00:344
Last Shot = 310 Time = 1987:201:06:40:51:469
reference latitude = 31.66° reference longitude = -133.97°

For the imaginary line segment which is the least squares fit of the positions of channel 48 and gun position for each shot:

slope = .806412
y intercept = -529.2 m
begins at latitude = 31.60607° longitude = -133.8982°
x = -7000m y = 4800m
ends at latitude = 31.70311° longitude = -134.04389°
x = -6800 m y = 6000 m

Midpoint of gun position and channel 48:
Average Latitude = 31.66900° std deviation = .0002°
Average Longitude = -133.9903° std deviation = .0004°
Average X = 1902.4 m std deviation = 26 m
Average Y = 1004 m std deviation = 24 m
Average Distance = 31.0 m std deviation = 16 m

ESP-09 (Edited to exclude shots 1-69 inclusive)

Tansei Maru course: 228°
offsets: beginning: 773 m crossing: 38 m ending: 21762 m

First Shot = 1 Time = 1987:201:10:34:14:875
Last Shot = 227 Time = 1987:201 :11:45:49:031
reference latitude = 31.75° reference longitude = -133.9°

For the imaginary line segment which is the least squares fit of the positions of channel 48 and gun position for each shot:

slope = .752326
y intercept = 1700.4 m
begins at latitude = 31.81646° longitude = -133.9845°
x = -10000 m y = -5800m
ends at latitude = 31.69785° longitude = -133.79438°
x = 8000 m y = 7400m

Midpoint of gun position and channel 48:
Average Latitude = 31.76238° std deviation = .0002°
Average Longitude = -133.8955° std deviation = .0003°
Average X = -425.1 m std deviation = 27 m
Average Y = 1380.6 m std deviation = 17 m
Average Distance = 27.9 m std deviation = 15 m

ESP-13 (Edited to exclude shots 1-13 inclusive)

Tansei Maru course: 50°
offsets: beginning: 13862 m crossing: 91 m ending: 21975 m

First Shot = 1 Time= 1987:201:12:48:45:063
Last Shot = 361 Time = 1987:201:14:42:45:250
reference latitude = 31.8° reference longitude = -133.86°

For the imaginary line segment which is the least squares fit of the positions of channel 48 and gun position for each shot:

slope = .666492
y intercept = 689.9 m
begins at latitude = 31.75800° longitude = -133.77498°
x = -8045.7 m y = -4672.5 m
ends at latitude 31.86196° longitude = -133.95851°
x = 9316.7 m y = 6899.4 m

Midpoint of gun position and channel 48:
Average Latitude = 31.81030° std deviation = .0002°
Average Longitude = -133.8672° std deviation = .0003°
Average X = 680.5 m std deviation = 30 m
Average Y = 1143.4m std deviation = 27m
Average Distance = 35.7 m std deviation = 19 m

ESP-14

Tansei Maru course: 50°
offsets: beginning: 8927 m crossing: 125 m ending: 21995 m

First Shot = 1 Time = 1987:202:00:33:25:188
Last Shot = 348 Time = 1987:202:02:23:56:437
reference latitude = 31.81° reference longitude = -133.85°

For the imaginary line segment which is the least squares fit of the positions of channel 48 and gun position for each shot:

slope = .772736
y intercept = 887.3 m
begins at latitude = 31.76590° longitude = -133.77076°
x = -7497.8 m y = -4906.5 m
ends at latitude = 31.88043° longitude = -133.94518°
x = 9000.5 m y = 7842.3 m

Midpoint of gun position and channel 48:
Average Latitude = 31.82327° std deviation = .0002°
Average Longitude = -133.8584° std deviation = .0006°
Average X = 762.7 m std deviation = 41 m
Average Y = 1476.6 m std deviation = 25 m
Average Distance = 40.6 m std deviation = 26 m

ESP-15 (Edited to exclude shots 1 -40 and 138-170 inclusive)

Tansei Maru course: 230°
offsets: beginning: 14310 m crossing: 97 m ending: 3417 m

First Shot = 1 Time = 1987:202:03:24:25:500
Last Shot = 170 Time = 1987:202:04:17:56:562
reference latitude = 31.82° reference longitude = -133.85°

For the imaginary line segment which is the least squares fit of the positions of channel 48 and gun position for each shot:

slope = .775065
y intercept = 565.6 m
begins at latitude = 31.79232° longitude = -133.8003°
x = -4704 m y = -3080 m
ends at latitude = 31.85353° longitude = -133.8932°
x = 4086 m y = 3733 m

Midpoint of gun position and channel 48:
Average Latitude = 31.82284° std deviation = .0002°
Average Longitude = -133.8466° std deviation = .0002°
Average X = -320.7 m std deviation = 15 m
Average Y = 316.5 m std deviation = 24 m
Average Distance = 25.1 m std deviation = 14 m

ESP-17

Tansei Maru course: 230°
offsets: beginning: 11673 m crossing: 116 m ending: 22229 m

First Shot = 1 Time = 1987:201 :15:51 :09:406
Last Shot = 359 Time = 1987:201 :17:44:31 :563
reference latitude = 31.83° preference longitude = -133.84°

For the imaginary line segment which is the least squares fit of the positions of channel 48 and gun position for each shot:

slope = .65733
y intercept = 1240.2 m
begins at latitude = 31.88964° longitude = -133.92690°
x = 8215.3 m y = 6640.318 m
ends at latitude = 31.78544° longitude = -133.74036°
x = -9426.0 m y = -4955.8 m

Midpoint of gun position and channel 48:
Average Latitude = 31.83746° std deviation = .0002°
Average Longitude = -133.8332° std deviation = .0004°
Average X = -626.0 m std deviation = 36 m
Average Y = 828.6 m std deviation = 26 m
Average Distance = 390 m std deviation = 22 m

ESP-23 (Edited to exclude shots 1-20 inclusive)

Tansei Maru course: 47°
offsets: beginning: 22011 m

crossing: m ending: 1592 m

First Shot = 1
Last Shot = 211
reference latitude = 31.91°

Time = 1987:202:08:00:34:000
Time = 1987:202:09:07:04:063

For the imaginary line segment which is the least squares fit of the positions of channel 48 and gun position for each shot:

slope = .804645
y intercept = 1173.8 m
begins at latitude = 31.98508°
x = 8929.9 m
ends at latitude = 31.86347°
x = -7892.0 m

longitude = -133.86454°
y = 8359.2 m
longitude = -133.68650°
y = -5176.5 m

Midpoint of gun position and channel 48:

Average Latitude = 31.92461°
Average Longitude = -133.7758°
Average X = 562.2 m
Average Y = 1626.2 m
Average Distance = 40.4 m

std deviation = .0003°
std deviation = .0004°
std deviation = 31 m
std deviation = 34 m
std deviation = 21 m

ESP-25

Tansei Maru course: 233°
offsets: beginning: 5293 m

crossing: 105 m ending: 19786 m

First Shot = 1
Last Shot = 257
reference latitude = 31.97°

Time = 1987:202:13:20:46:438
Time = 1987:202:14:42:09:625
reference longitude = -133.73°

For the imaginary line segment which is the least squares fit of the positions of channel 48 and gun position for each shot:

slope = .815016
y intercept = 52.6 m
begins at latitude = 32.02863°
x = 7945.6 m
ends at latitude = 31.92295°
x = -6487.2 m

longitude = -133.81416°
y = 6528.4 m
longitude = -133.66132°
y = -5234.6 m

Midpoint of gun position and channel 48:

Average Latitude = 31.97496°
Average Longitude = -133.7365°
Average X = 611.6 m
Average Y = 551.2 m
Average Distance = 59.3 m

std deviation = .0004°
std deviation = .0006°
std deviation = 54 m
std deviation = 40 m
std deviation = 31 m