

## II. POSITION, ELEVATION AND ICE THICKNESS OF STATIONS BETWEEN SYOWA STATION AND MIZUHO STATION

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### 1. Position and Elevation

A traverse survey from the astronomic station at Syowa Station to Mizuho Station was made on 10-28 September 1973 along the Routes S, H and Z (see Fig. A attached to the end of this volume) for determining geodetic positions and elevations of stations between the coastal region and Mizuho Station (Naruse, 1975), and the positions and elevations of the traverse stations were resurveyed on January 30 - February 15, 1982 (Nishio, 1984).

The positions and elevations of the traverse stations shown in Table 1 were given for the values obtained by the results of the survey in 1973. At stations other than the above traverse survey stations, positions were determined by the use of navigational data, namely, azimuths with a magnetic hand compass and distances with an odometer of an oversnow vehicle; elevations were by the barometric altimetry.

### 2. Ice Thickness

Observer: Masao ISHIKAWA

Ice thickness was measured by radio echo sounding along the Routes S, H and Z on January 28-31, 1983.

Used for the measurement from oversnow vehicle was a radio echo sounder consisted of a transmitter, a receiver, two aerials and an indicator. Specifications of the apparatus are as follows:

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### 1. Transmitter

|                           |              |
|---------------------------|--------------|
| Carrier frequency         | 60 MHz       |
| Pulse energy duration     | 0.3 $\mu$ s  |
| Rise time                 | 0.15 $\mu$ s |
| Peak power                | 1 kW         |
| Pulse repetition interval | 1 kHz        |
| Total power consumption   | DC 24 V, 4 A |
| RF gain                   | 39 dB        |

### 2. Receiver

|                      |                           |
|----------------------|---------------------------|
| Central frequency    | 60 MHz                    |
| Band width           | 5 MHz                     |
| Noise figure         | 3 dB                      |
| Receiver sensitivity | -102 dBm                  |
| Input attenuation    | 0 to 70 dB in 10 dB steps |

### 3. Aerials

(Three element Yagi antenna)

|                     |      |
|---------------------|------|
| Absolute power gain | 8 dB |
|---------------------|------|

### 4. Indicator

|                                   |       |
|-----------------------------------|-------|
| Oscilloscope; rise time           | 35 ns |
| 35-mm continuous recording camera |       |

Compiled data in this report were obtained from readings of continuous records on 35-mm films (Z-scope) and the record on A-scope at 2 km intervals. The electromagnetic wave velocity of 168 m/ $\mu$ s was used to calculate the ice thickness.

### References

- Naruse, R. and Yokoyama, K. (1975): Position, elevation and ice thickness of stations. JARE Data Rep., 28 (Glaciol. 3), 7-47.
- Nishio, F. (1984): Position and elevation of the traverse station resurveyed along the Routes S, H and Z. (to be published in JARE Data Rep.).

Table 1. Position, elevation and ice thickness of stations along the Routes S, H and Z.

| Station | Latitude<br>(S) | Longitude<br>(E) | Elevation<br>(m) | Ice<br>Thickness<br>(m)<br>Z-scope | Bedrock<br>Elevation<br>(m) | Ice<br>Thickness<br>(m)<br>A-scope |
|---------|-----------------|------------------|------------------|------------------------------------|-----------------------------|------------------------------------|
| S 16    | 69°01'55''      | 40°02'56''       | 554              | 382                                | 172                         | 441                                |
| S 17    | 69 01 42        | 40 05 18         | 597              | 382                                | 215                         | 437                                |
| S 18    | 69 01 30        | 40 08 06         | 618              | 448                                | 170                         | 494                                |
| S 19    | 69 01 19        | 40 10 44         | 638              | 936                                | -298                        | 972                                |
| S 20    | 69 01 24        | 40 13 36         | 659              | 870                                | -211                        | 876                                |
| S 21    | 69 01 30        | 40 16 42         | 708              | 501                                | 207                         | 553                                |
| S 22    | 69 01 36        | 40 19 30         | 757              | 738                                | 19                          | 782                                |
| S 23    | 69 01 42        | 40 22 24         | 788              | 659                                | 129                         | 684                                |
| S 24    | 69 01 48        | 40 25 12         | 831              | 659                                | 172                         | 712                                |
| S 25    | 69 01 58        | 40 28 07         | 868              | 659                                | 209                         | 701                                |
| S 26    | 69 02 12        | 40 31 18         | 895              | 777                                | 118                         | 814                                |
| S 27    | 69 02 24        | 40 33 18         | 919              | 843                                | 76                          | 895                                |
| S 28    | 69 02 36        | 40 36 36         | 942              | 909                                | 33                          | 911                                |
| S 29    | 69 02 48        | 40 39 12         | 962              | 843                                | 119                         | 890                                |
| S 30    | 69 03 06        | 40 42 13         | 988              | 830                                | 158                         | 869                                |
| H 3     |                 |                  |                  | 936                                |                             | 969                                |
| H 9     |                 |                  |                  | 1173                               |                             | 1196                               |
| H 15    |                 |                  |                  | 1015                               |                             | 1032                               |
| H 21    |                 |                  |                  | 909                                |                             | 950                                |
| H 27    | 69 06 16        | 40 50 55         | 1071             | 1028                               | 43                          | 1004                               |
| H 35    |                 |                  |                  | 975                                |                             | 998                                |
| H 42    |                 |                  |                  | 909                                |                             | 907                                |
| H 48    |                 |                  |                  | 1028                               |                             | 1038                               |
| H 54    | 69 09 18        | 40 58 54         | 1143             | 1133                               | 10                          | 1124                               |
| H 60    |                 |                  |                  | 1054                               |                             | 1082                               |
| H 62    | 69 10 18        | 41 01 18         | 1168             | 1133                               | 35                          | 1119                               |
| H 64    |                 |                  |                  | 1041                               |                             | 1040                               |
| H 66    |                 |                  |                  | 1041                               |                             | 1030                               |
| H 68    | 69 11 30        | 41 04 18         | 1176             | 1028                               | 148                         | 1023                               |
| H 70    | 69 11 55        | 41 05 15         | 1186             | 1160                               | 26                          | 1170                               |
| H 72    | 69 12 18        | 41 06 12         | 1187             | 988                                | 199                         | 1045                               |
| H 74    |                 |                  |                  | 856                                |                             | 879                                |
| H 76    |                 |                  |                  | 962                                |                             | 1016                               |
| H 78    |                 |                  |                  | 962                                |                             | 973                                |
| H 80    | 69 13 54        | 41 09 54         | 1224             | 1120                               | 104                         | 1155                               |

| Station | Latitude<br>(S) | Longitude<br>(E) | Elevation<br>(m) | Ice<br>Thickness<br>(m)<br>Z-scope | Bedrock<br>Elevation<br>(m) | Ice<br>Thickness<br>(m)<br>A-scope |
|---------|-----------------|------------------|------------------|------------------------------------|-----------------------------|------------------------------------|
| H 82    |                 |                  |                  | 1094                               |                             | 1135                               |
| H 84    | 69° 14' 40"     | 41° 11' 54"      | 1247             | 1199                               | 48                          | 1202                               |
| H 88    |                 |                  |                  | 1212                               |                             | 1244                               |
| H 90    |                 |                  |                  | 1160                               |                             | 1174                               |
| H 92    |                 |                  |                  | 1173                               |                             | 1177                               |
| H 94    |                 |                  |                  | 1265                               |                             | 1271                               |
| H 96    |                 |                  |                  | 1160                               |                             | 1172                               |
| H 98    |                 |                  |                  | 1160                               |                             | 1163                               |
| H100    | 69 17 48        | 41 20 18         | 1298             | 1080                               | 218                         | 1117                               |
| H102    |                 |                  |                  | 1199                               |                             | 1171                               |
| H104    |                 |                  |                  | 1291                               |                             | 1274                               |
| H106    | 69 19 00        | 41 23 30         | 1321             | 1436                               | -115                        | 1433                               |
| H108    |                 |                  |                  | 1384                               |                             | 1402                               |
| H110    | 69 19 54        | 41 25 48         | 1318             | 1344                               | -26                         |                                    |
| H112    |                 |                  |                  | 1278                               |                             | 1311                               |
| H114    |                 |                  |                  | 1252                               |                             |                                    |
| H116    | 69 21 06        | 41 29 06         | 1341             | 1384                               | -43                         | 1401                               |
| H118    |                 |                  |                  | 1384                               |                             | 1404                               |
| H120    | 69 22 00        | 41 31 30         | 1360             | 1370                               | -10                         | 1402                               |
| H122    |                 |                  |                  | 1331                               |                             | 1353                               |
| H124    | 69 22 44        | 41 33 26         | 1373             | 1318                               | 55                          | 1335                               |
| H126    |                 |                  |                  | 1397                               |                             | 1407                               |
| H128    |                 |                  |                  | 1344                               |                             | 1376                               |
| H130    |                 |                  |                  | 1318                               |                             | 1320                               |
| H132    |                 |                  |                  | 1331                               |                             | 1355                               |
| H134    | 69 25 12        | 41 37 42         | 1387             | 1344                               | 43                          | 1345                               |
| H136    | 69 25 42        | 41 38 30         | 1392             | 1318                               | 74                          | 1341                               |
| H138    |                 |                  |                  | 1331                               |                             | 1327                               |
| H140    | 69 26 36        | 41 40 06         | 1408             | 1304                               | 104                         | 1292                               |
| H142    |                 |                  |                  | 1291                               |                             | 1291                               |
| H144    |                 |                  |                  | 1331                               |                             | 1345                               |
| H146    | 69 28 00        | 41 42 48         | 1425             | 1344                               | 81                          | 1340                               |
| H148    |                 |                  |                  | 1384                               |                             | 1430                               |
| H150    | 69 29 00        | 41 44 48         | 1440             | 1370                               | 70                          |                                    |
| H152    |                 |                  |                  | 1318                               |                             | 1342                               |

| Station | Latitude<br>(S) | Longitude<br>(E) | Elevation<br>(m) | Ice<br>Thickness<br>(m)<br>Z-scope | Bedrock<br>Elevation<br>(m) | Ice<br>Thickness<br>(m)<br>A-scope |
|---------|-----------------|------------------|------------------|------------------------------------|-----------------------------|------------------------------------|
| H154    |                 |                  |                  | 1291                               |                             | 1316                               |
| H156    | 69° 30' 12"     | 41° 48' 00"      | 1468             | 1384                               | 84                          | 1439                               |
| H158    |                 |                  |                  | 1568                               |                             |                                    |
| H160    | 69 31 00        | 41 50 06         | 1486             | 1608                               | -122                        |                                    |
| H162    |                 |                  |                  | 1648                               |                             |                                    |
| H164    | 69 31 54        | 41 52 18         | 1483             | 1568                               | -85                         |                                    |
| H166    | 69 32 20        | 41 53 25         | 1492             | 1594                               | -102                        |                                    |
| H168    | 69 32 42        | 41 54 24         | 1487             |                                    |                             |                                    |
| H170    |                 |                  |                  |                                    |                             |                                    |
| H172    | 69 33 36        | 41 56 24         | 1508             |                                    |                             |                                    |
| H174    | 69 34 08        | 41 57 18         | 1524             |                                    |                             |                                    |
| H176    | 69 34 30        | 41 58 24         | 1529             |                                    |                             |                                    |
| H178    | 69 34 57        | 41 59 32         | 1536             |                                    |                             |                                    |
| H180    | 69 35 18        | 42 00 36         | 1540             |                                    |                             |                                    |
| H182    | 69 35 42        | 42 01 42         | 1546             |                                    |                             |                                    |
| H184    | 69 36 12        | 42 02 48         | 1546             |                                    |                             |                                    |
| H186    | 69 36 36        | 42 03 48         | 1556             |                                    |                             |                                    |
| H188    |                 |                  |                  |                                    |                             |                                    |
| H190    |                 |                  |                  |                                    |                             |                                    |
| H192    | 69 38 00        | 42 07 00         | 1562             |                                    |                             |                                    |
| H194    | 69 38 22        | 42 08 02         | 1560             |                                    |                             |                                    |
| H196    | 69 38 54        | 42 09 06         | 1571             |                                    |                             |                                    |
| H198    | 69 39 16        | 42 10 07         | 1572             |                                    |                             |                                    |
| H200    | 69 39 42        | 42 11 06         | 1586             |                                    |                             |                                    |
| H202    |                 |                  |                  |                                    |                             |                                    |
| H204    | 69 40 36        | 42 13 12         | 1596             |                                    |                             |                                    |
| H206    |                 |                  |                  |                                    |                             |                                    |
| H208    |                 |                  |                  |                                    |                             |                                    |
| H210    |                 |                  |                  |                                    |                             |                                    |
| H212    | 69 42 18        | 42 17 12         | 1615             |                                    |                             |                                    |
| H214    |                 |                  |                  |                                    |                             |                                    |
| H216    | 69 43 06        | 42 19 48         | 1625             |                                    |                             |                                    |
| H218    |                 |                  |                  |                                    |                             |                                    |
| H220    |                 |                  |                  |                                    |                             |                                    |
| H222    | 69 44 18        | 42 23 12         | 1641             |                                    |                             |                                    |

| Station | Latitude<br>(S) | Longitude<br>(E) | Elevation<br>(m) | Ice<br>Thickness<br>(m)<br>Z-scope | Bedrock<br>Elevation<br>(m) | Ice<br>Thickness<br>(m)<br>A-scope |
|---------|-----------------|------------------|------------------|------------------------------------|-----------------------------|------------------------------------|
| H224    |                 |                  |                  |                                    |                             |                                    |
| H226    | 69° 45' 12"     | 42° 25' 12"      | 1655             |                                    |                             |                                    |
| H228    |                 |                  |                  |                                    |                             |                                    |
| H230    | 69 46 12        | 42 27 06         | 1659             |                                    |                             |                                    |
| H232    |                 |                  |                  |                                    |                             |                                    |
| H234    | 69 47 06        | 42 29 06         | 1670             |                                    |                             |                                    |
| H236    |                 |                  |                  |                                    |                             |                                    |
| H238    | 69 48 00        | 42 31 12         | 1687             |                                    |                             |                                    |
| H240    | 69 48 24        | 42 32 06         | 1692             |                                    |                             |                                    |
| H242    |                 |                  |                  | 1621                               |                             |                                    |
| H244    |                 |                  |                  | 1568                               |                             |                                    |
| H246    |                 |                  |                  | 1515                               |                             | 1559                               |
| H248    |                 |                  |                  | 1608                               |                             | 1677                               |
| H250    | 69 50 36        | 42 37 00         | 1732             | 1739                               | -7                          | 1691                               |
| H252    |                 |                  |                  |                                    |                             |                                    |
| H254    | 69 51 30        | 42 39 24         | 1740             |                                    |                             |                                    |
| H256    | 69 51 49        | 42 40 43         | 1742             |                                    |                             |                                    |
| H258    | 69 52 12        | 42 41 54         | 1742             |                                    |                             |                                    |
| H260    | 69 52 36        | 42 43 06         | 1748             |                                    |                             |                                    |
| H263    |                 |                  |                  |                                    |                             |                                    |
| H264    | 69 53 24        | 42 45 24         | 1759             |                                    |                             |                                    |
| H266    | 69 53 49        | 42 46 31         | 1769             |                                    |                             |                                    |
| H268    | 69 54 12        | 42 47 36         | 1769             | 1621                               | 148                         |                                    |
| H270    | 69 54 36        | 42 48 42         | 1780             | 1528                               | 252                         | 1525                               |
| H272    | 69 55 09        | 42 49 45         | 1789             | 1423                               | 366                         | 1427                               |
| H274    | 69 55 36        | 42 51 00         | 1798             | 1502                               | 296                         | 1502                               |
| H276    |                 |                  |                  | 1555                               |                             | 1576                               |
| H278    | 69 56 24        | 42 53 12         | 1806             | 1476                               | 330                         |                                    |
| H280    | 69 56 54        | 42 54 12         | 1811             | 1476                               | 335                         | 1487                               |
| H282    |                 |                  |                  | 1423                               |                             | 1407                               |
| H284    |                 |                  |                  | 1489                               |                             | 1480                               |
| H286    | 69 58 12        | 42 56 48         | 1840             |                                    |                             | 1426                               |
| H288    |                 |                  |                  | 1489                               |                             |                                    |
| H290    | 69 59 18        | 42 58 30         | 1865             | 1449                               | 416                         | 1423                               |
| H292    |                 |                  |                  | 1489                               |                             |                                    |

| Station | Latitude<br>(S) | Longitude<br>(E) | Elevation<br>(m) | Ice<br>Thickness<br>(m)<br>Z-scope | Bedrock<br>Elevation<br>(m) | Ice<br>Thickness<br>(m)<br>A-scope |
|---------|-----------------|------------------|------------------|------------------------------------|-----------------------------|------------------------------------|
| H294    | 70°00'18''      | 43°00'24''       | 1873             |                                    |                             |                                    |
| H296    |                 |                  |                  |                                    |                             | 1514                               |
| H298    | 70 01 06        | 43 02 06         | 1883             |                                    |                             |                                    |
| H300    |                 |                  |                  | 1489                               |                             | 1489                               |
| H301    |                 |                  |                  | 1476                               |                             |                                    |
| H302    | 70 01 14        | 43 05 24         | 1896             |                                    |                             |                                    |
| H304    | 70 01 12        | 43 06 48         | 1898             | 1397                               | 501                         | 1409                               |
| S122    | 70 01 15        | 43 09 24         | 1910             | 1502                               | 408                         | 1495                               |
| Z 1     | 70 01 42        | 43 10 12         | 1919             | 1476                               | 443                         | 1428                               |
| Z 2     | 70 02 09        | 43 11 05         | 1926             | 1423                               | 503                         |                                    |
| Z 3     | 70 02 36        | 43 11 54         | 1936             | 1384                               | 552                         | 1398                               |
| Z 4     | 70 03 06        | 43 12 48         | 1946             | 1423                               | 523                         | 1407                               |
| Z 5     | 70 03 30        | 43 13 36         | 1954             | 1357                               | 597                         | 1367                               |
| Z 6     | 70 03 54        | 43 14 30         | 1962             | 1542                               | 420                         | 1501                               |
| Z 7     | 70 04 18        | 43 15 24         | 1964             |                                    |                             |                                    |
| Z 8     | 70 04 41        | 43 16 23         | 1971             | 1528                               | 443                         |                                    |
| Z 9     | 70 05 06        | 43 17 12         | 1971             | 1489                               | 482                         | 1507                               |
| Z 10    | 70 05 36        | 43 18 00         | 1973             | 1449                               | 524                         | 1452                               |
| Z 11    | 70 06 00        | 43 18 48         | 1978             | 1555                               | 423                         |                                    |
| Z 12    | 70 06 30        | 43 19 42         | 1983             |                                    |                             |                                    |
| Z 13    | 70 06 54        | 43 20 30         | 1981             |                                    |                             |                                    |
| Z 14    | 70 07 24        | 43 21 18         | 1981             | 1489                               | 492                         | 1507                               |
| Z 15    | 70 07 48        | 43 22 06         | 1983             | 1449                               | 534                         | 1472                               |
| Z 16    | 70 08 18        | 43 23 00         | 1988             | 1436                               | 552                         | 1427                               |
| Z 17    | 70 08 42        | 43 23 48         | 1996             | 1489                               | 507                         | 1493                               |
| Z 18    | 70 09 12        | 43 24 36         | 2006             | 1476                               | 530                         | 1488                               |
| Z 19    | 70 09 34        | 43 25 27         | 2010             |                                    |                             |                                    |
| Z 20    | 70 10 06        | 43 26 12         | 2013             |                                    |                             |                                    |
| Z 21    | 70 10 30        | 43 26 54         | 2014             |                                    |                             |                                    |
| Z 22    | 70 11 00        | 43 27 42         | 2016             |                                    |                             |                                    |
| Z 23    | 70 11 30        | 43 28 24         | 2020             |                                    |                             |                                    |
| Z 24    | 70 11 54        | 43 29 06         | 2026             |                                    |                             |                                    |
| Z 25    | 70 12 24        | 43 29 48         | 2031             |                                    |                             | 1672                               |
| Z 26    | 70 12 54        | 43 30 33         | 2036             |                                    |                             | 1677                               |
| Z 27    | 70 13 18        | 43 31 18         | 2041             |                                    |                             |                                    |

| Station | Latitude<br>(S) | Longitude<br>(E) | Elevation<br>(m) | Ice<br>Thickness<br>(m)<br>Z-scope | Bedrock<br>Elevation<br>(m) | Ice<br>Thickness<br>(m)<br>A-scope |
|---------|-----------------|------------------|------------------|------------------------------------|-----------------------------|------------------------------------|
| Z 28    | 70°13'48''      | 43°32'06''       | 2048             |                                    |                             | 1623                               |
| Z 29    | 70 14 12        | 43 32 53         | 2052             |                                    |                             |                                    |
| Z 30    | 70 14 42        | 43 33 42         | 2056             |                                    |                             | 1665                               |
| Z 31    | 70 15 06        | 43 34 33         | 2059             |                                    |                             | 1679                               |
| Z 32    | 70 15 36        | 43 35 18         | 2062             |                                    |                             | 1629                               |
| Z 33    | 70 16 00        | 43 36 03         | 2064             |                                    |                             | 1622                               |
| Z 34    | 70 16 30        | 43 36 48         | 2068             |                                    |                             |                                    |
| Z 35    | 70 16 55        | 43 37 32         | 2070             |                                    |                             |                                    |
| Z 36    | 70 17 24        | 43 38 18         | 2076             |                                    |                             |                                    |
| Z 37    | 70 17 47        | 43 39 02         | 2074             |                                    |                             |                                    |
| Z 38    | 70 18 12        | 43 39 42         | 2080             |                                    |                             |                                    |
| Z 39    | 70 18 42        | 43 40 30         | 2084             |                                    |                             |                                    |
| Z 40    | 70 19 12        | 43 41 18         | 2083             |                                    |                             |                                    |
| Z 41    | 70 19 36        | 43 42 00         | 2080             |                                    |                             |                                    |
| Z 42    | 70 20 06        | 43 42 48         | 2079             |                                    |                             |                                    |
| Z 44    | 70 20 42        | 43 44 06         | 2082             |                                    |                             |                                    |
| Z 46    | 70 21 06        | 43 45 00         | 2087             |                                    |                             |                                    |
| Z 48    | 70 21 36        | 43 45 48         | 2087             |                                    |                             |                                    |
| Z 50    | 70 22 00        | 43 46 36         | 2085             |                                    |                             |                                    |
| Z 52    | 70 22 24        | 43 47 24         | 2084             |                                    |                             |                                    |
| Z 54    | 70 22 54        | 43 48 12         | 2085             |                                    |                             |                                    |
| Z 56    | 70 23 24        | 43 49 00         | 2087             |                                    |                             |                                    |
| Z 58    | 70 23 48        | 43 49 48         | 2093             |                                    |                             |                                    |
| Z 60    | 70 24 18        | 43 50 30         | 2100             |                                    |                             |                                    |
| Z 62    | 70 24 42        | 43 51 18         | 2107             |                                    |                             |                                    |
| Z 64    | 70 25 06        | 43 52 06         | 2115             |                                    |                             |                                    |
| Z 66    | 70 25 32        | 43 52 51         | 2133             |                                    |                             |                                    |
| Z 68    | 70 26 00        | 43 53 42         | 2136             |                                    |                             |                                    |
| Z 70    | 70 26 25        | 43 54 29         | 2139             |                                    |                             |                                    |
| Z 71    | 70 26 54        | 43 55 18         | 2143             |                                    |                             |                                    |
| Z 72    | 70 27 18        | 43 56 06         | 2146             |                                    |                             |                                    |
| Z 73    | 70 27 48        | 43 57 00         | 2150             |                                    |                             |                                    |
| Z 74    | 70 28 12        | 43 57 48         | 2163             |                                    |                             |                                    |
| Z 75    | 70 28 40        | 43 58 34         | 2159             |                                    |                             |                                    |
| Z 76    | 70 29 06        | 43 59 24         | 2159             |                                    |                             |                                    |



| Station | Latitude<br>(S) | Longitude<br>(E) | Elevation<br>(m) | Ice<br>Thickness<br>(m)<br>Z-scope | Bedrock<br>Elevation<br>(m) | Ice<br>Thickness<br>(m)<br>A-scope |
|---------|-----------------|------------------|------------------|------------------------------------|-----------------------------|------------------------------------|
| Z 77    | 70°29'30''      | 44°00'18''       | 2159             |                                    |                             |                                    |
| Z 78    | 70 30 00        | 44 01 06         | 2160             |                                    |                             |                                    |
| Z 79    | 70 30 24        | 44 02 00         | 2161             |                                    |                             |                                    |
| Z 80    | 70 30 48        | 44 02 54         | 2161             |                                    |                             |                                    |
| Z 81    | 70 31 12        | 44 03 48         | 2162             |                                    |                             |                                    |
| Z 82    | 70 31 42        | 44 04 42         | 2161             |                                    |                             |                                    |
| Z 83    | 70 32 06        | 44 05 30         | 2161             |                                    |                             |                                    |
| Z 84    | 70 32 36        | 44 06 18         | 2161             |                                    |                             |                                    |
| Z 85    | 70 33 02        | 44 07 05         | 2161             |                                    |                             |                                    |
| Z 86    | 70 33 30        | 44 07 42         | 2163             |                                    |                             |                                    |
| Z 87    | 70 34 00        | 44 08 18         | 2165             |                                    |                             |                                    |
| Z 88    | 70 34 30        | 44 08 54         | 2169             |                                    |                             |                                    |
| Z 89    | 70 35 00        | 44 09 36         | 2172             |                                    |                             |                                    |
| Z 90    | 70 35 27        | 44 10 12         | 2176             |                                    |                             |                                    |
| Z 91    | 70 35 54        | 44 10 54         | 2179             | 1871                               | 308                         |                                    |
| Z 92    | 70 36 20        | 44 11 31         | 2181             |                                    |                             |                                    |
| Z 93    | 70 36 48        | 44 12 12         | 2183             |                                    |                             |                                    |
| Z 94    | 70 37 16        | 44 12 53         | 2186             | 1963                               | 223                         |                                    |
| Z 95    | 70 37 42        | 44 13 30         | 2188             | 1950                               | 238                         | 2023                               |
| Z 96    | 70 38 12        | 44 14 06         | 2192             | 1976                               | 216                         | 2001                               |
| Z 97    | 70 38 36        | 44 14 42         | 2195             | 1963                               | 232                         | 1991                               |
| Z 98    | 70 39 06        | 44 15 24         | 2199             |                                    |                             | 2020                               |
| Z 99    | 70 39 30        | 44 16 00         | 2198             |                                    |                             |                                    |
| Z100    | 70 40 00        | 44 16 42         | 2199             |                                    |                             |                                    |
| Z101    | 70 40 32        | 44 17 21         | 2202             |                                    |                             |                                    |
| Z102    | 70 41 00        | 44 17 54         | 2208             |                                    |                             |                                    |
| Z104    | 70 41 54        | 44 19 06         | 2226             | 1963                               | 263                         |                                    |