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 \* ISWI Newsletter – Vol. 4 No. 101 25 August 2012 \*  
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 \* I S W I = International Space Weather Initiative \*  
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 \* \*  
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Attachment(s):

- (1) "Countries Hosting Instruments", 50 KB pdf, 3 pages.
- (2) "instr\_map\_201208", 108 KB pdf, 13 pages.

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 : Re:  
 : ISWI Instrument Arrays:  
 : - Countries that host them  
 : - Precise location of each instruments

Dear ISWI Participant:

- ) Please note that the ISWI Newsletter will be closed from
- ) August 28 to September 28 because the editor (me) will
- ) be Indonesia. First, to install three magnetometers
- ) in Sumatra (til Sept 14), then, second, to attend the
- ) "2012 ISWI and MAGDAS School on Space Science" in Bandung.

As you know, the official ISWI website is this:

:  
 : <http://www.iswi-secretariat.org/>  
 :

It is maintained by the Bulgarian Academy of Sciences by Mitko.  
This website maintains a wealth of information on the instrument arrays of ISWI.

The first attached pdf shows a list of countries that host instruments. To view it at the website, click on "Projects", and then "ISWI instrument distribution". The following menu appears.

- : ISWI instrument distribution
  - : To view the position of each Instrument separately, click the image below.
  - : To check exactly where instruments are installed, (click or here ).
  - : For a list of all countries and instruments installed, click here.
- Select as you like.

The second attached pdf provides the coordinates of each ISWI instrument. To view it at the website, click on "Projects", and then "ISWI instrument distribution". The following menu appears.

- : ISWI instrument distribution
  - : To view the position of each Instrument separately, click the image below.
  - : To check exactly where instruments are installed, (click or here ).
  - : For a list of all countries and instruments installed, click here.
- Select as you like.

Very truly yours,  
: George Maeda

: The Editor  
: ISWI Newsletter

## International Space Weather Initiative Countries Hosting Instruments



- 
01. **Algeria** (6) *AMBER(1), AWESOME(1), CHAIN(1), GPS\_Africa(1), MAG\_Africa(1), SID(1)*
  02. **Antarctica** (2) *AWESOME(1), SID(1)*
  03. **Argentina** (1) *SAVNET(1)*
  04. **Armenia** (3) *SEVAN(3)*
  05. **Atlantic Ocean** (4) *SCINDA(4)*
  06. **Australia** (15) *CALLISTO(2), GMDN(1), MAGDAS(11), OMTIs(1)*
  07. **Austria** (2) *CALLISTO(1), SID(1)*
  08. **Azerbaijan** (3) *AWESOME(1), SID(2)*
  09. **Belgium** (1) *CALLISTO(1)*
  10. **Benin** (1) *GPS\_Africa(1)*
  11. **Bosnia-Herzegovina** (1) *SID(1)*
  12. **Botswana** (1) *GPS\_Africa(1)*
  13. **Brazil** (20) *CALLISTO(2), CSSTE(1), GMDN(1), MAGDAS(2), RENOIR(2), SAVNET(6), SCINDA(3), SID(3)*
  14. **Bulgaria** (3) *SEVAN(1), SID(2)*
  15. **Burkina Faso** (3) *GPS\_Africa(2), SID(1)*
  16. **Cameroon** (2) *AMBER(1), SCINDA(1)*
  17. **Canada** (10) *MAGDAS(1), OMTIs(2), SID(7)*
  18. **Cape Verde** (1) *GPS\_Africa(1)*
  19. **Central African Republic** (1) *MAG\_Africa(1)*
  20. **Chile** (2) *SCINDA(1), SID(1)*
  21. **China** (8) *SID(8)*
  22. **Colombia** (3) *SCINDA(1), SID(2)*
  23. **Congo** (6) *SCINDA(3), SID(3)*
  24. **Costa Rica** (1) *CALLISTO(1)*
  25. **Cote d'Ivoire** (4) *MAGDAS(1), MAG\_Africa(2), SCINDA(1)*
  26. **Croatia** (2) *SEVAN(1), SID(1)*
  27. **Czech Republic** (2) *CALLISTO(1), SID(1)*
  28. **Djibouti** (1) *SCINDA(1)*
  29. **Egypt** (8) *AWESOME(1), CALLISTO(1), CIDR(1), MAGDAS(2), SCINDA(1), SID(2)*
  30. **Ethiopia** (11) *AMBER(1), AWESOME(1), MAGDAS(1), MAG\_Africa(1), SCINDA(2), SID(5)*
  31. **Fiji** (1) *AWESOME(1)*
  32. **Finland** (2) *CALLISTO(2)*
  33. **France** (4) *SID(4)*
  34. **Gabon** (2) *GPS\_Africa(2)*
  35. **Germany** (21) *CALLISTO(2), SID(19)*
  36. **Ghana** (1) *GPS\_Africa(1)*
  37. **Greece** (2) *AWESOME(1), SID(1)*
  38. **Guyana** (1) *SID(1)*
  39. **India** (18) *AWESOME(2), CALLISTO(4), CSSTE(1), MAGDAS(1), SEVAN(1), SID(9)*
  40. **Indian Ocean** (1) *SCINDA(1)*
  41. **Indonesia** (7) *MAGDAS(6), SID(1)*
  42. **Ireland** (10) *AWESOME(1), CALLISTO(4), SID(5)*


43. **Israel** (4) *AWESOME(1), ULF\_ELF\_VLF(3)*
44. **Italy** (34) *CALLISTO(2), MAGDAS(1), SID(31)*
45. **Japan** (12) *CHAIN(1), GMDN(1), MAGDAS(6), OMTIs(4)*
46. **Jordan** (1) *CSSTE(1)*
47. **Kazakhstan** (1) *CALLISTO(1)*
48. **Kenya** (8) *CALLISTO(1), GPS\_Africa(1), MAGDAS(1), SCINDA(2), SID(3)*
49. **Kuwait** (1) *GMDN(1)*
50. **Lebanon** (6) *SID(6)*
51. **Libya** (3) *AWESOME(2), SID(1)*
52. **Madagascar** (1) *MAG\_Africa(1)*
53. **Malaysia** (6) *AWESOME(1), CALLISTO(3), MAGDAS(1), OMTIs(1)*
54. **Mali** (4) *GPS\_Africa(2), MAG\_Africa(2)*
55. **Mauritius** (3) *CALLISTO(3)*
56. **Mexico** (7) *CALLISTO(1), CSSTE(1), SAVNET(1), SID(4)*
57. **Micronesia** (1) *MAGDAS(1)*
58. **Mongolia** (13) *CALLISTO(2), MAGDAS(1), SID(10)*
59. **Morocco** (4) *AWESOME(1), CSSTE(1), GPS\_Africa(1), RENOIR(1)*
60. **Mozambic** (3) *GPS\_Africa(1), MAGDAS(1), SID(1)*
61. **Namibia** (4) *AMBER(1), GPS\_Africa(1), MAG\_Africa(1), SID(1)*
62. **Netherlands** (1) *SID(1)*
63. **New Zealand** (3) *SID(3)*
64. **Niger** (1) *GPS\_Africa(1)*
65. **Nigeria** (26) *AMBER(1), CSSTE(1), MAGDAS(3), SCINDA(4), SID(17)*
66. **Norway** (1) *OMTIs(1)*
67. **Pacific Ocean** (3) *SCINDA(3)*
68. **Peru** (8) *CHAIN(1), CIDR(1), MAGDAS(2), SAVNET(3), SCINDA(1)*
69. **Philippines** (7) *MAGDAS(6), SCINDA(1)*
70. **Poland** (1) *AWESOME(1)*
71. **Portugal** (1) *SID(1)*
72. **Puerto Rico** (2) *SID(2)*
73. **Romania** (2) *SID(2)*
74. **Russia** (12) *CALLISTO(1), MAGDAS(9), OMTIs(2)*
75. **Sao Tome** (1) *GPS\_Africa(1)*
76. **Senegal** (3) *GPS\_Africa(1), MAG\_Africa(1), SID(1)*
77. **Serbia** (2) *AWESOME(1), SID(1)*
78. **Slovakia** (3) *CALLISTO(1), SEVAN(1), SID(1)*
79. **South Africa** (21) *GPS\_Africa(7), MAGDAS(2), MAG\_Africa(2), SCINDA(2), SID(8)*
80. **South Korea** (3) *CALLISTO(2), SID(1)*
81. **Spain** (2) *CALLISTO(1), MAG\_Africa(1)*
82. **Sri Lanka** (2) *CALLISTO(1), SID(1)*
83. **Sudan** (1) *MAGDAS(1)*
84. **Switzerland** (6) *CALLISTO(5), SID(1)*
85. **Taiwan** (1) *MAGDAS(1)*
86. **Tanzania** (3) *GPS\_Africa(1), MAGDAS(1), SCINDA(1)*
87. **Thailand** (4) *OMTIs(1), SID(3)*
88. **Tunisia** (3) *AWESOME(1), SID(2)*
89. **Turkey** (3) *AWESOME(1), SID(2)*
90. **UAE** (1) *AWESOME(1)*
91. **UK** (8) *CALLISTO(1), MAG\_Africa(1), SID(6)*
92. **USA** (161) *AWESOME(2), CALLISTO(2), CIDR(6), MAGDAS(2), SID(149)*

93. **Uganda** (3) *GPS\_Africa(1), SCINDA(1), SID(1)*  
94. **Ukraine** (1) *CALLISTO(1)*  
95. **Uruguay** (3) *SID(3)*  
96. **Uzbekistan** (2) *AWESOME(1), SID(1)*  
97. **Vietnam** (2) *AWESOME(1), MAGDAS(1)*  
98. **Zambia** (4) *GPS\_Africa(1), MAGDAS(1), SID(2)*
- 

## LEGEND

**AMBER** African Meridian B-field Education and Research  
**AWESOME** Atmospheric Weather Education System for Observation and Modeling of Effects  
**CALLISTO** Compound Astronomical Low-cost Low-frequency Instrument for Spectroscopy and Transportable Observatory  
**CHAIN** Continuous H-alpha Imaging Network  
**CIDR** Coherent Ionospheric Doppler Radar  
**CSSTE** Centres for Space Science and Technology Education  
**GMDN** Global Muon Detector Network  
**GPS Africa** African Dual Frequency GPS Network  
**MAGDAS** Magnetic Data Acquisition System  
**MAG Africa** Magnetometers in Africa  
**OMTIs** Optical Mesosphere Thermosphere Imager  
**RENOIR** Remote Equatorial Nighttime Observatory for Ionospheric Regions  
**SAVNET** South America Very Low frequency Network  
**SCINDA** Scintillation Network Decision Aid  
**SEVAN** Space Environment Viewing and Analysis Network  
**SID** Sudden Ionospheric Disturbance Monitor  
**ULF\_ELF\_VLF** ULF/ELF/VLF network

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**AMBER**

|                                 | GLAT   | GLONG |
|---------------------------------|--------|-------|
| ALGR Medea, Algeria             | 36.66  | 2.70  |
| CMRN Yaounde, Cameroon          | 3.87   | 11.52 |
| ETHI Adigrat, Ethiopia          | 14.28  | 39.46 |
| NMBA Tsumeb, Namibia            | -19.20 | 17.58 |
| ABJA AMBER-SAMBA Abuja, Nigeria | 10.50  | 7.55  |

**CALLISTO**

|  | GLAT   | GLONG   |
|--|--------|---------|
| Perth, Australia                               | -31.6  | 115.9   |
| Melbourne, Australia                           | -37.5  | 145.    |
| Vienna, Austria                                | 48.22  | 16.12   |
| Humain, Belgium                                | 50.2   | 5.25    |
| Cachoeira Paulista, Brazil (two instruments)   | -22.66 | -45.    |
| Santa Cruz, Costa Rica                         | 10.25  | -85.52  |
| Ondrejov, Czech Republic                       | 49.9   | 14.66   |
| Cairo, Egypt                                   | 30.    | 31.12   |
| Metsahovi (two instruments), Finland           | 61.9   | 26.     |
| Mannheim, Germany                              | 49.5   | 8.5     |
| Hamminkeln, Germany                            | 51.73  | 6.6     |
| Ooty, India                                    | 11.46  | 76.66   |
| Gauribidanur, India                            | 13.51  | 77.5    |
| Pune, India                                    | 18.55  | 73.83   |
| Ahmedabad, India                               | 23.04  | 72.51   |
| Birr (four instruments), Ireland               | 53.1   | -7.9    |
| Cagliari, Italy                                | 39.2   | 9.1     |
| Trieste, Italy                                 | 45.6   | 13.8    |
| Almaty TSAO, Kazakhstan                        | 43.03  | 76.967  |
| Nairobi, Kenya                                 | -1.34  | 36.85   |
| Banting Selangor (three instruments), Malaysia | 2.80   | 101.50  |
| Poste de Flaq (three instruments), Mauritius   | -20.16 | 57.74   |
| Mexico City, Mexico                            | 19.48  | -99.12  |
| Ulaan Baatar (two instruments), Mongolia       | 47.9   | 106.9   |
| Badary /Irkutsk/Siberia/, Russia               | 52.2   | 104.3   |
| Hurbanovo, Slovakia                            | 47.88  | 18.19   |
| Daejeon, South Korea (two instruments)         | 36.31  | 127.48  |
| Peralejos, Spain                               | 40.59  | -1.92   |
| Katubedda/Moratuwa, Sri Lanka                  | 6.9    | 79.9    |
| Freienbach, Switzerland                        | 47.2   | 8.8     |
| Bleien, Switzerland (three instruments)        | 47.33  | 8.11    |
| Zurich, Switzerland                            | 47.37  | 8.54    |
| Glasgow, UK                                    | 55.8   | -4.25   |
| Simpheropol /Crimea, Ukraine                   | 44.84  | 34.18   |
| Ocean View /Hawaii/, USA                       | 19.1   | -155.75 |
| Anchorage /Alaska/, USA                        | 61.17  | -149.8  |

**RENOIR**

|                    | GLAT  | GLONG  |
|--------------------|-------|--------|
| Cajazeiras, Brazil | -6.89 | -38.56 |
| Cariri, Brazil     | -7.39 | -36.53 |
| Marrakech, Morocco | 31.6  | -7.98  |

**CHAIN**

|                             | GLAT   | GLONG  |
|-----------------------------|--------|--------|
| Alger, Algeria              | 20.22  | 2.37   |
| Hida Gifu Prefecture, Japan | 36.24  | 137.2  |
| ICA, Peru                   | -14.01 | -75.15 |

**CIDR**

|                                   | GLAT     | GLONG    |
|-----------------------------------|----------|----------|
| Helwan, Egypt                     | 29.50    | 31.20    |
| Ancon, Peru                       | -11.7765 | -77.1503 |
| Austin Texas, USA                 | 30.3843  | -97.7268 |
| Wallops Island VA, USA            | 37.9352  | -75.4714 |
| Oneonta NY, USA                   | 42.4672  | -75.0629 |
| Ithaca NY, USA                    | 42.4954  | -76.4312 |
| Millstone Hill Massachusetts, USA | 42.6119  | -71.4847 |
| Albany NY, USA                    | 42.72    | -73.75   |

**GMDN**

|                      | GLAT   | GLONG  |
|----------------------|--------|--------|
| Hobart, Australia    | -42.97 | 147.29 |
| São Martinho, Brazil | -29.44 | -53.81 |
| Nagoya, Japan        | 35.15  | 136.97 |
| Kuwait, Kuwait       | 29.32  | 47.97  |

**OMTIs**

|                              | GLAT   | GLONG   |
|------------------------------|--------|---------|
| DRW Darwin (2011), Australia | -12.44 | 130.96  |
| ATH Athabasca, Canada        | 54.7   | 246.7   |
| RSB Resolute Bay , Canada    | 74.73  | 265.07  |
| YNG Yonaguni, Japan          | 24.5   | 123.0   |
| STA Sata, Japan              | 31.02  | 130.68  |
| SGK Shigaraki, Japan         | 34.8   | 136.1   |
| RIK Rikubetsu, Japan         | 43.5   | 143.8   |
| KTB Kototabang, Malaysia     | -0.2   | 100.32  |
| TRS Tromso, Norway           | 69.59  | 19.227  |
| PTK Paratunka, Russia        | 52.97  | 158.248 |
| MGD Magadan, Russia          | 60.05  | 150.73  |
| CMU Chiang Mai, Thailand     | 18.79  | 98.92   |

**SAVNET**

|  | GLAT    | GLONG   |
|--|---------|---------|
| CASLEO (CAS), Argentina                    | -31.533 | -68.517 |
| Palmas (PAL), Brazil                       | -10.167 | -49.33  |
| Wand Atibaia (BRA), Brazil                 | -23.183 | -46.6   |
| S&atilde;o Martinho da Serra (SMS), Brazil | -29.717 | -53.717 |
| Natal- Rio Grande do Norte, Brazil         | -5.74   | -35.21  |
| Antartica Comandante Ferraz (EAC), Brazil  | -62.083 | -58.4   |
| Campina Grande - Paraiba, Brazil           | -7.20   | -35.88  |
| UNAM university, Mexico                    | 19.30   | -99.27  |
| Piura (PIU), Peru                          | -05.2   | -80.633 |
| Punta Lobos (PL), Peru                     | -12.5   | -76.8   |
| Ica (PER), Peru                            | -14.017 | -75.73  |

**SEVAN**

|                                      | GLAT   | GLONG |
|--------------------------------------|--------|-------|
| Aragats (three instruments), Armenia | 40.5   | 44.19 |
| Moussala, Bulgaria                   | 42.18  | 23.58 |
| Zagreb, Croatia                      | 44.55  | 15.38 |
| New-Dehli univ., India               | 28.7   | 77.21 |
| Lomnitsky Schtit, Slovakia           | 48.713 | 19.43 |



**GPS\_Africa**

|   | GLAT     | GLONG    |
|---|----------|----------|
| IGS Tamanrasset, Algeria                      | 22.79    | 5.53     |
| AMMA Djougou, Benin                           | 09.66    | 01.7     |
| IGS Maun, Botswana                            | -20      | 23       |
| ENST Koudougou , Burkina Faso                 | 12.15    | -2.20    |
| AMMA Ouagadougou, Burkina Faso                | 12.34    | -1.05    |
| Sal island, Cape Verde                        | 14       | -22      |
| IGS Libreville, Gabon                         | 0.3523   | 9.6698   |
| IGS Franceville, Gabon                        | -1.6312  | 13.5520  |
| AMMA Tamale, Ghana                            | 09.5     | -0.9     |
| IGS Malindi, Kenya                            | -2.9959  | 40.1944  |
| AMMA Gao, Mali                                | 16.25    | 0.01     |
| AMMA Tombouctou, Mali                         | 16.66    | -2.99    |
| IGS Rabat, Morocco                            | 33.998   | 353.1457 |
| IGS Nampula, Mozambic                         | -15.123  | 39.258   |
| IGS Windhoek, Namibia                         | -22.575  | 17.089   |
| AMMA Niamey , Niger                           | 13.49    | 0.16     |
| IGS Sao Tome Isl., Sao Tome                   | 0.345    | 6.738    |
| IGS Dakar, Senegal                            | 14.685   | 344.     |
| IGS Richards bay, South Africa                | -28.7956 | 32.0784  |
| IGS Sutherland , South Africa                 | -32.3802 | 20.8105  |
| Sutherland, South Africa                      | -32.3814 | 20.8109  |
| IGS Simonstown , South Africa                 | -34.1879 | 18.4395  |
| IGS Pretoria , South Africa                   | -25.8869 | 27.7075  |
| IGS Krugersdorp, South Africa                 | -25.8901 | 27.687   |
| IGS Southern Oce. Marion Island, South Africa | -46.876  | 37.861   |
| IGS Dar Es Salaam, Tanzania                   | -7       | 39       |
| IGS Mbarara, Uganda                           | -0.6015  | 30.7379  |
| IGS Lusaka, Zambia                            | -15.4255 | 28.3110  |

**MAG\_Africa**

|  | GLAT  | GLONG |
|--|-------|-------|
| INTERMAGNET-TAM Tamanrasset, Algeria                 | 22.8  | 5.5   |
| INTERMAGNET-BAN Bangui RCI, Central African Republic | 4.3   | 18.6  |
| IPGP-LAM Lamto, Cote d'Ivoire                        | 6.24  | 5.01  |
| IPGP-KHO Khorogo, Cote d'Ivoire                      | 9.33  | 5.48  |
| INTERMAGNET-AAE Addis Ababa, Ethiopia                | 9.    | 38.1  |
| INTERMAGNET- TAN Antananarivo, Madagascar            | -18.9 | 47.3  |
| IPGP-SIK Sikasso, Mali                               | 11.33 | 5.662 |
| IPGP-SAN San, Mali                                   | 13.25 | 4.9   |
| INTERMAGNET-TSU Tsumeb, Namibia                      | -19.2 | 17.6  |
| INTERMAGNET-MBO M'Bour, Senegal                      | 14.4  | 343   |
| INTERMAGNET-HBK Hartebeesthoek, South Africa         | -25.9 | 27.7  |
| INTERMAGNET-HER Hermanus, South Africa               | -34.4 | 19.2  |
| INTERMAGNET-GUI Guimar Tenerife-Baleares, Spain      | 28.3  | 343.6 |
| INTERMAGNET-ASC Ascension Island Ile, UK             | -7.9  | 345.6 |

**CSSTE**

|                                  | GLAT   | GLONG  |
|----------------------------------|--------|--------|
| CSSTE-F Rabat, Morocco           | 34.02  | -6.83  |
| CSSTE-E Nsukka, Nigeria          | 6.86   | 7.39   |
| CSSTEAP New Delhi, India         | 28.64  | 77.23  |
| CRECTEALC Puebla, Mexico         | 19.05  | -98.28 |
| CRECTEALC Santa Maria RS, Brazil | -29.67 | -51.80 |
| CSSTE-WA Amman, Jordan           | 31.71  | 36.44  |

**MAGDAS**

|                                     | GLAT   | GLONG  |
|-------------------------------------|--------|--------|
| DAW Darwin, Australia               | -12.41 | 130.92 |
| CKT Cooktown, Australia             | -15.48 | 145.25 |
| TWV Townsville, Australia           | -19.63 | 146.86 |
| ROC Rockhampton, Australia          | -23.19 | 150.31 |
| CGR Culgoora, Australia             | -30.32 | 149.57 |
| CMD Camden, Australia               | -34.06 | 150.67 |
| CAN Canberra, Australia             | -35.30 | 149.00 |
| MLB Melbourne, Australia            | -38.36 | 145.18 |
| HOB Hobart, Australia               | -42.94 | 147.32 |
| MCQ MacQuarie Island, Australia     | -54.5  | 158.96 |
| DVS Davis, Australia                | -74.49 | 99.62  |
| SMA Santa Maria, Brazil             | -29.72 | -53.72 |
| EUS Eusebio, Brazil                 | -3.88  | -38.43 |
| WAD Wadena, Canada                  | 51.9   | -103.9 |
| ABJ Abidjan, Cote d'Ivoire          | 5.35   | -3.08  |
| ASW Aswan, Egypt                    | 23.59  | 32.51  |
| FYM Fayum, Egypt                    | 29.3   | 30.88  |
| AAB Addis Ababa, Ethiopia           | 9.04   | 38.77  |
| TIR Tirunelveli, India              | 8.7    | 77.8   |
| PTN Pontianak Kalimantan, Indonesia | 0.04   | 109.34 |
| BIK Biak Island, Indonesia          | -1.0   | 136.0  |
| MND Manado, Indonesia               | 1.44   | 124.84 |
| KPG Kupang, Indonesia               | -10.2  | 123.4  |
| JYP Jayapura, Indonesia             | -2.6   | 140.7  |
| PRP Pare Pare, Indonesia            | -3.6   | 119.4  |
| LAQ L'aquila, Italy                 | 42.38  | 13.32  |
| AMA Amami Oshima, Japan             | 28.17  | 129.33 |
| KUJ Kuju, Japan                     | 33.06  | 131.23 |
| OIS Oiso, Japan                     | 35.18  | 139.17 |
| ONW Onagawa, Japan                  | 38.44  | 141.48 |
| TNO Tohno, Japan                    | 39.37  | 141.6  |
| ASB Ashibetsu, Japan                | 43.46  | 142.17 |
| NAB Nairobi, Kenya                  | -1.16  | 36.48  |
| LKW Langkawi, Malaysia              | 6.3    | 99.78  |
| YAP Yap Island, Micronesia          | 9.5    | 138.08 |
| HVD Khovd, Mongolia                 | 48.00  | 91.40  |
| MPT Maputo, Mozambique              | -25.57 | 32.36  |
| LAG Lagos, Nigeria                  | 6.48   | 3.27   |
| ILR Ilorin, Nigeria                 | 8.5    | 4.68   |
| ABU Abuja, Nigeria                  | 8.99   | 7.39   |
| ANC Ancon, Peru                     | -11.77 | -77.15 |
| ICA Ica, Peru                       | -14.09 | -75.74 |
| CEB Cebu, Philippines               | 10.36  | 123.91 |
| LGZ Legazpi, Philippines            | 13.15  | 123.74 |
| MUT Muntinlupa, Philippines         | 14.37  | 121.02 |
| TGG Tuguegarao, Philippines         | 17.66  | 121.76 |
| DAV Davao, Philippines              | 7      | 125.4  |
| CDO Cagayan De Oro, Philippines     | 8.46   | 124.63 |
| PTK Paratunka, Russia               | 52.94  | 158.25 |
| MGD Magadan, Russia                 | 53.6   | 141.06 |
| YAK Yakutsk Siberia, Russia         | 61.95  | 129.65 |
| ZYK Zyryanka Siberia, Russia        | 61.95  | 150.9  |
| ZGN Zhiginsk Siberia, Russia        | 66.78  | 123.37 |
| CST Cape Schmidt, Russia            | 68.5   | 179.2  |
| CHD Chokurdakh Siberia, Russia      | 70.62  | 147.9  |
| TIX Tixie Siberia, Russia           | 71.58  | 128.78 |

| <b>MAGDAS</b> continued     | GLAT   | GLONG  |
|-----------------------------|--------|--------|
| KTN Kotelny Siberia, Russia | 76.00  | 137.9  |
| DRB Durban, South Africa    | -29.49 | 30.56  |
| HER Hermanus, South Africa  | -34.34 | 19.24  |
| KRT Khartoum, Sudan         | 15.33  | 32.32  |
| HLN Hualien, Taiwan         | 23.9   | 121.55 |
| DES Dar Es Salaam, Tanzania | -6.47  | 39.12  |
| EWA Ewa Beach Hawaii, USA   | 21.19  | -157.6 |
| GLY Glyndon, USA            | 46.5   | -96.3  |
| BCL Bac Lieu, Vietnam       | 9.25   | 105.71 |
| LSK Lusaka, Zambia          | -15.23 | 28.2   |

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|                      | GLAT  | GLONG |
|----------------------|-------|-------|
| Har Amran, Israel    | 29.66 | 34.93 |
| Mitzpe Ramon, Israel | 32.   | 34.   |
| Negev desert, Israel | 30.5  | 34.4  |

**SCINDA**

|  | GLAT   | GLONG  |
|--|--------|--------|
| Sao Tome and Principe, Atlantic Ocean        | 0.34   | 6.74   |
| Cape Verde, Atlantic Ocean                   | 16.73  | 337.06 |
| Georgetown, Atlantic Ocean                   | -7.9   | -15.4  |
| Ascension Island, Atlantic Ocean             | -7.98  | 345.59 |
| Matu Grosu MT , Brazil                       | -14    | 300    |
| Bahia BA, Brazil                             | -15    | 320    |
| Para PA, Brazil                              | -2     | 310    |
| Yaounde, Cameroon                            | 3.9    | 11.5   |
| Chile, Chile                                 | -25    | 290    |
| Colombia, Colombia                           | 4      | 286    |
| Kisangani, Congo                             | 0.51   | 25.21  |
| Brazzaville, Congo                           | -4.28  | 15.25  |
| Kinshasa, Congo                              | -4.42  | 15.31  |
| Abidjan, Cote d'Ivoire                       | 5.34   | 356.01 |
| Djibouti NE Africa, Djibouti                 | 11.6   | 43.14  |
| Helwan, Egypt                                | 29.87  | 31.32  |
| Bahir-Dar, Ethiopia                          | 11.57  | 37.39  |
| Addis Ababa, Ethiopia                        | 9.33   | 38.75  |
| British Indian Ocean Territory, Indian Ocean | -7.5   | 75     |
| Nairobi (J K Univ), Kenya                    | -1.09  | 37.02  |
| Nairobi (Univ of Nairobi), Kenya             | -1.27  | 36.81  |
| Lagos, Nigeria                               | 6.52   | 3.39   |
| Nsukka, Nigeria                              | 6.86   | 7.41   |
| Akure, Nigeria                               | 7.2    | 5.3    |
| Ilorin, Nigeria                              | 8.48   | 4.67   |
| Jarvis Island, Pacific Ocean                 | 0.2    | -165.  |
| Marshal Islands, Pacific Ocean               | 13     | 170    |
| Guam, Pacific Ocean                          | 15     | 140    |
| Peru, Peru                                   | -12    | 286    |
| Philipines, Philipines                       | 15.    | 121    |
| Cape Town, South Africa                      | -33.91 | 18.37  |
| Hermanus, South Africa                       | -34.42 | 19.22  |
| Zanzibar, Tanzania                           | -6.23  | 39.21  |
| Kampala, Uganda                              | 0.37   | 32.56  |

**AWESOME**

|                            | GLAT   | GLONG   |
|----------------------------|--------|---------|
| Algiers, Algeria           | 36.75  | 3.47    |
| SANAE, Antarctica          | -71.67 | -2.84   |
| Baku, Azerbaijan           | 40.36  | 49.88   |
| Cairo, Egypt               | 30.01  | 31.14   |
| Bahir Dar, Ethiopia        | 11.60  | 37.38   |
| Suva, Fiji                 | -18.13 | 178.42  |
| Iraklio Crete, Greece      | 35.37  | 24.93   |
| Kolkata, India             | 22.56  | 88.4    |
| Allahabad, India           | 25.45  | 81.85   |
| Dublin, Ireland            | 53.33  | -6.25   |
| Tel Aviv, Israel           | 32.11  | 34.81   |
| Sebha, Libya               | 27.03  | 14.43   |
| Tripoly, Libya             | 32.88  | 13.19   |
| Selangor, Malaysia         | 2.93   | 101.79  |
| Rabat, Morocco             | 34.02  | -6.48   |
| Swider, Poland             | 52.12  | 21.24   |
| Belgrade, Serbia           | 44.51  | 20.39   |
| Tunis, Tunisia             | 36.8   | 10.18   |
| Elazig, Turkey             | 38.36  | 39.28   |
| Sharjah, UAE               | 25.36  | 55.39   |
| NASA Goddard Maryland, USA | 39     | -76.85  |
| Stanford California, USA   | 37.4   | -122.15 |
| Tashkent, Uzbekistan       | 41.27  | 69.22   |
| Nha Trang, Vietnam         | 12.20  | 109.13  |

**SID**

|  | GLAT     | GLONG     |
|--|----------|-----------|
| Algiers, Algeria                         | 36.7755  | 3.0597    |
| APO AP, Antarctica                       | -77.8333 | 166.36    |
| Vienna, Austria                          | 48.2     | 16.36     |
| Baku, Azerbaijan                         | 39.4072  | 48.5844   |
| Baku, Azerbaijan                         | 40.7722  | 45.5738   |
| Republika Srpska, Bosnia-Herzegovina     | 44.75    | 17.1855   |
| Parana, Brazil                           | -12.6161 | -47.8836  |
| Campinas- Sao Paulo, Brazil              | -22.79   | -47.07    |
| Gavea Rio de Janeiro, Brazil             | -22.9843 | -43.2453  |
| Stara Zagora (two instruments), Bulgaria | 42.4239  | 25.6249   |
| Koudougou, Burkina Faso                  | 12.247   | -2.3658   |
| Binbrook ONT, Canada                     | 43.0911  | -79.8430  |
| Ancaster Ontario, Canada                 | 43.2177  | -79.9872  |
| Thornhill Ontario, Canada                | 43.8137  | -79.4232  |
| Orleans Ontario, Canada                  | 45.4666  | -75.45    |
| Laval QC, Canada                         | 45.5856  | -73.6721  |
| Calgary NE Alberta, Canada               | 51       | -114.1    |
| Hinton AB, Canada                        | 53.3957  | -117.5881 |
| Santa Rosa, Chile                        | -40.1763 | -72.5606  |
| Guangzhou, China                         | 23.1166  | 113.25    |
| Sheng Dao, China                         | 35.8216  | 104.1053  |
| Guo Dao, China                           | 35.8616  | 104.1953  |
| Beijing (two instruments), China         | 39.9055  | 116.3458  |
| Beijing, China                           | 39.92    | 116.46    |
| Huangsongyu, China                       | 40.2333  | 117.25    |
| Daqing, China                            | 46.6433  | 124.8819  |
| Bogota, Colombia                         | 4.6473   | -74.0962  |
| Bogota, Colombia                         | 4.7432   | -74.0272  |

| <b>SID</b> continued                   | GLAT    | GLONG    |
|--|---------|----------|
| Kinshasa, Congo                        | -4.3    | 15.3     |
| Kinshasa, Congo                        | -4.3283 | 15.3247  |
| Kinshasa, Congo                        | -4.4916 | 15.8280  |
| Zagreb, Croatia                        | 45.8150 | 15.9785  |
| Litomysl, Czech Republic               | 49.8692 | 16.3076  |
| Helwan, Egypt                          | 29.8489 | 31.3342  |
| Cairo, Egypt                           | 30.0571 | 31.2272  |
| Gonder, Ethiopia                       | 12.6160 | 37.4699  |
| Jima, Ethiopia                         | 7.9166  | 40.0333  |
| Addis Ababa, Ethiopia                  | 9.0115  | 38.7593  |
| Ethiopia, Ethiopia                     | 9.145   | 40.4896  |
| Addis Ababa, Ethiopia                  | 9       | 43       |
| Dordogne-Perigord, France              | 44.7502 | 0.2469   |
| Mulhouse Cedex, France                 | 47.7494 | 7.3397   |
| Mulhouse, France                       | 47.75   | 7.3333   |
| Antony, France                         | 48.7537 | 2.2971   |
| Konstanz, Germany                      | 47.6713 | 9.1850   |
| Gilching, Germany                      | 48.1114 | 11.2963  |
| Neckargemund, Germany                  | 49.3941 | 8.7986   |
| Mannheim, Germany                      | 49.4846 | 8.4767   |
| Bochum, Germany                        | 51.4436 | 7.2638   |
| Bochum, Germany                        | 51.4829 | 7.2118   |
| Goettingen (six instruments), Germany  | 51.5263 | 9.9316   |
| Germany, Germany                       | 52.0341 | 6.8129   |
| Berlin, Germany                        | 52.5234 | 13.4114  |
| Walsrode, Germany                      | 52.8659 | 9.5924   |
| Neustrelitz (two instruments), Germany | 53.3641 | 13.0706  |
| Hamburg, Germany                       | 53.5935 | 10.0105  |
| Bergen, Germany                        | 54.4198 | 13.4275  |
| Athens ,Greece                         | 37.8152 | 23.7961  |
| Turkeyen E Coast Demerara, Guyana      | 6.8132  | -58.1153 |
| Maharashtra State, India               | 16      | 75       |
| Pune, India                            | 18.5204 | 73.8566  |
| Maharashtra, India                     | 18.8233 | 76.9359  |
| Vadodara Gujarat, India                | 22.19   | 73.12    |
| Kolkata, India                         | 22.46   | 88.39    |
| Kolkata, India                         | 22.5726 | 88.3638  |
| New Delhi, India                       | 28.0666 | 77.0333  |
| Delhi, India                           | 28.6523 | 77.2856  |
| Clappana Kollam, India                 | 9.0933  | 76.4933  |
| Jakarta, Indonesia                     | -6.2115 | 106.8451 |
| Dublin (five instruments), Ireland     | 53.307  | -6.2151  |
| Italy, Italy                           | 41.8019 | 12.5173  |
| Italy, Italy                           | 41.8119 | 12.5173  |
| Italy, Italy                           | 41.8119 | 12.5973  |
| Italy, Italy                           | 41.8219 | 12.5873  |
| Italy, Italy                           | 41.8219 | 12.5973  |
| Italy, Italy                           | 41.8319 | 12.5773  |
| Italy, Italy                           | 41.8319 | 12.5873  |
| Italy, Italy                           | 41.8419 | 12.5673  |
| Italy, Italy                           | 41.8419 | 12.5773  |
| Italy, Italy                           | 41.8519 | 12.5573  |
| Italy, Italy                           | 41.8519 | 12.5673  |
| Italy, Italy                           | 41.8619 | 12.5473  |
| Italy, Italy                           | 41.8619 | 12.5573  |
| Italy, Italy                           | 41.8719 | 12.5373  |
| Italy, Italy                           | 41.8719 | 12.5473  |
| Italy, Italy                           | 41.8819 | 12.5273  |

| <b>SID</b> continued                    | GLAT     | GLONG     |
|---|----------|-----------|
| Italy, Italy                            | 41.8819  | 12.5373   |
| Italy, Italy                            | 41.8919  | 12.5173   |
| Italy, Italy                            | 41.8919  | 12.5273   |
| Assisi, Italy                           | 43.0666  | 12.6166   |
| Imperia, Italy                          | 43.9     | 8.3       |
| Finale Ligure, Italy                    | 44.17    | 8.35      |
| Camogli, Italy                          | 44.35    | 9.15      |
| Genova, Italy                           | 44.42    | 8.92      |
| Fossano, Italy                          | 44.55    | 7.73      |
| Saluzzo, Italy                          | 44.65    | 7.47      |
| Torre Pellice, Italy                    | 44.82    | 7.22      |
| Torino, Italy                           | 45.0706  | 7.6867    |
| Cairo Montenotte, Italy                 | 45.38    | 8.35      |
| Arona Novara, Italy                     | 45.45    | 8.6       |
| Verbania Pallanza, Italy                | 45.93    | 8.55      |
| Juja, Kenya                             | -1.1031  | 37.0234   |
| Nairobi, Kenya                          | -1.2743  | 36.8131   |
| Nairobi, Kenya                          | -1.2743  | 36.8731   |
| Lebanon (six instruments), Lebanon      | 33.8517  | 35.8422   |
| Sebha, Libya                            | 27.0006  | 14.4636   |
| Coyoacan, Mexico                        | 19.406   | -99.15    |
| Ciudad de Mexico, Mexico                | 19.5392  | -99.1468  |
| Mexico, Mexico                          | 25.7465  | -100.3053 |
| Hermosillo Sonora, Mexico               | 29.0891  | -110.9613 |
| Ulaanbaatar (ten instruments), Mongolia | 47.9038  | 106.992   |
| Maputo, Mozambic                        | -25.9686 | 32.5804   |
| Windhoek, Namibia                       | -22.5749 | 17.0805   |
| Amsterdam, Netherlands                  | 52.3738  | 4.8909    |
| Dargaville, New Zealand                 | -35.9383 | 173.8717  |
| New Zeland, New Zealand                 | -36.8530 | 174.7676  |
| Huirangi, New Zealand                   | -39.0535 | 174.2489  |
| Nigeria, Nigeria                        | 9.0119   | 8.6252    |
| Nigeria, Nigeria                        | 9.0819   | 8.6652    |
| Lagos, Nigeria                          | 3.4      | 6.52      |
| Lagos, Nigeria                          | 6.4473   | 3.4393    |
| Lagos, Nigeria                          | 6.4849   | 3.3802    |
| Obudu, Nigeria                          | 6.6699   | 9.1707    |
| Ilorin, Nigeria                         | 6.7992   | 5.2949    |
| Ijebu-Ode, Nigeria                      | 6.8072   | 3.9106    |
| Nsukka, Nigeria                         | 6.8567   | 7.3959    |
| Nsukka Enugu State, Nigeria             | 6.86     | 7.81      |
| Akungba - Akoko, Nigeria                | 7.0763   | 4.8359    |
| Ife, Nigeria                            | 7.4729   | 4.5558    |
| Oyo, Nigeria                            | 7.8318   | 3.9373    |
| Ota, Nigeria                            | 7.9452   | 4.7888    |
| Osun, Nigeria                           | 7.9833   | 5.0833    |
| Abuja, Nigeria                          | 9.0580   | 7.4890    |
| Nigeria, Nigeria                        | 9.0819   | 8.6552    |
| Porto, Portugal                         | 41.1499  | -8.6102   |
| Gurabo, Puerto Rico                     | 18.2538  | -65.9760  |
| San Juan, Puerto Rico                   | 18.4664  | -66.1183  |
| Bucharest, Romania                      | 44.4479  | 26.0978   |
| Timisoara, Romania                      | 45.7479  | 21.2251   |
| Dakar, Senegal                          | 14.6953  | -17.4439  |
| Belgrade, Serbia                        | 44.8047  | 20.4781   |
| Hurbanovo, Slovakia                     | 47.8742  | 18.1866   |
| Johannesburg, South Africa              | -26.1951 | 28.0339   |
| Henley on Klip, South Africa            | -26.5333 | 28.0666   |

| <b>SID</b> continued       | GLAT     | GLONG     |
|----------------------------|----------|-----------|
| Durban, South Africa       | -29.853  | 31.0164   |
| Howick, South Africa       | -30.2093 | 29.4795   |
| South Africa, South Africa | -30.5594 | 22.9375   |
| Matieland, South Africa    | -33.8806 | 18.6799   |
| Cape Town, South Africa    | -33.916  | 18.4222   |
| Hermanus, South Africa     | -34.4096 | 19.2886   |
| Busan, South Korea         | 35.1403  | 129.0628  |
| Piliyandala, Sri Lanka     | 6.7980   | 79.9263   |
| Switzerland, Switzerland   | 46.8181  | 8.2275    |
| Bangkok, Thailand          | 13.7573  | 100.5020  |
| Mahidol Univ, Thailand     | 13.7643  | 100.5256  |
| Chiang Mai, Thailand       | 16.2419  | 103.8135  |
| Tunis, Tunisia             | 36.8117  | 10.1761   |
| Tunisia, Tunisia           | 36.8117  | 10.1861   |
| Elazig, Turkey             | 39.12    | 38.40     |
| Istanbul , Turkey          | 41.0634  | 29.0603   |
| Kampala, Uganda            | 0.3133   | 32.5713   |
| British Virgin Islands, UK | 18.4206  | -64.6399  |
| Kent, UK                   | 51.1963  | 0.7427    |
| Dorking Surrey, UK         | 51.2329  | -0.3297   |
| Kingsclere Newbury, UK     | 51.3238  | 1.2420    |
| Herfordshire, UK           | 51.9021  | 0.1994    |
| Nottinghamshire, UK        | 53.13    | +1.2      |
| Montevideo, Uruguay        | -34.8541 | -56.0674  |
| Montevideo, Uruguay        | -34.8941 | -56.0974  |
| Montevideo, Uruguay        | -34.8985 | -56.1216  |
| Culver City CA, USA        | 34.0042  | -118.3934 |
| Hixson TN, USA             | 35.1405  | -85.2327  |
| Castro Valley CA, USA      | 37.7988  | -122.1616 |
| Racine WI, USA             | 44.7409  | -88.4521  |
| US Virgin Islands, USA     | 17.7365  | -64.7362  |
| US Virgin Islands, USA     | 18.3507  | -64.9359  |
| Pukalani HI, USA           | 20.8336  | -156.3336 |
| Honolulu HI, USA           | 21.2963  | -157.8212 |
| Melbourne FL, USA          | 28.0933  | -80.6175  |
| Chiefland FL, USA          | 29.4749  | -82.8598  |
| Sequin TX, USA             | 29.5695  | -97.9815  |
| Richmond TX, USA           | 29.5799  | -95.7670  |
| Sugar Land TX, USA         | 29.6065  | -95.6132  |
| Houston TX, USA            | 29.7180  | -95.4029  |
| Alachua FL, USA            | 29.7516  | -82.4248  |
| High Springs FL, USA       | 29.8369  | -82.6213  |
| Boerne TX, USA             | 29.985   | -98.9080  |
| Gulf HS FLorida, USA       | 30.4223  | -86.8584  |
| Georgetown TX, USA         | 30.6345  | -97.6651  |
| Amite Louisiana, USA       | 30.7224  | -90.5067  |
| San Antonio Texas, USA     | 31.1690  | -100.0768 |
| Sonoita AZ, USA            | 31.6089  | -110.6017 |
| Brandon MS, USA            | 32.2730  | -89.9858  |
| Las Cruces NM, USA         | 32.31    | -106.78   |
| Haltom City TX, USA        | 32.8328  | -97.2781  |
| Commerce TX, USA           | 33.2367  | -95.8984  |
| Maylene AL, USA            | 33.2463  | -86.8520  |
| Kenya/US, USA              | 33.4752  | -112.0693 |
| Antioch CA, USA            | 33.6172  | -112.1368 |
| Antioch CA, USA            | 33.6172  | -112.1668 |
| Lakewood CA, USA           | 33.8897  | -118.1849 |
| Morongo Valley CA, USA     | 34.0999  | -116.5257 |

| <b>SID</b> continued                | GLAT    | GLONG     |
|-------------------------------------|---------|-----------|
| Blythewood SC, USA                  | 34.2143 | -80.9739  |
| Ojai CA, USA                        | 34.4668 | -119.1774 |
| Prescott AZ, USA                    | 34.5388 | -112.46   |
| Huntsville AL, USA                  | 34.6821 | -86.5686  |
| Sedona AZ, USA                      | 34.7133 | -111.8101 |
| Normal AL, USA                      | 34.7927 | -86.5720  |
| Hixson TN, USA                      | 35.1406 | -85.2327  |
| Memphis TN, USA                     | 35.1494 | -90.0488  |
| Atlanta GA, USA                     | 35.3980 | -83.1076  |
| Hixon TN, USA                       | 35.4463 | -85.8092  |
| Bethany OK, USA                     | 35.5116 | -97.6625  |
| Knoxville TN, USA                   | 35.57   | -83.55    |
| Knoxville TN, USA                   | 35.83   | -84.62    |
| Murfreesboro TN, USA                | 35.8455 | -86.3902  |
| Greenboro NC, USA                   | 35.8580 | -80.1872  |
| Karns Tennessee, USA                | 35.9686 | -84.1233  |
| Chaco Canyon NM, USA                | 36.0602 | -107.9670 |
| Todd NC, USA                        | 36.312  | -81.5944  |
| Elk Creek VA, USA                   | 36.7384 | -81.1883□ |
| Hopkinsville KY, USA                | 36.8497 | -87.4370  |
| Hopkinsville KY, USA                | 36.8497 | -87.4870  |
| Bowling Green KY, USA               | 36.9683 | -86.4219  |
| California, USA                     | 37.2691 | -119.3166 |
| California, USA                     | 37.2691 | -119.3466 |
| California, USA                     | 37.2691 | -119.3666 |
| San Jose CA, USA                    | 37.3394 | -121.8938 |
| Sunnyvale CA, USA                   | 37.3691 | -122.0368 |
| Stanford CA, USA                    | 37.4094 | -122.1777 |
| Stanford CA, USA                    | 37.4394 | -122.1477 |
| Palo Alto CA, USA                   | 37.4419 | -122.1419 |
| Stanford CA, USA                    | 37.4494 | -122.1677 |
| Fremont CA, USA                     | 37.5    | -121.9    |
| Hayward CA, USA                     | 37.6688 | -122.0808 |
| Castro Valley CA, USA               | 37.7108 | -122.0739 |
| San Leandro CA, USA                 | 37.7174 | -122.1431 |
| Hayward CA, USA                     | 37.7702 | -122.1505 |
| Oakland CA, USA                     | 37.8187 | -122.1806 |
| Oakland CA, USA                     | 37.8189 | -122.1812 |
| Hayward CA, USA                     | 37.9415 | -121.9773 |
| Pueblo CO, USA                      | 38.2641 | -104.6222 |
| Salina KS, USA                      | 38.4920 | -97.3655  |
| Wheelersburg OH, USA                | 38.7212 | -82.8556  |
| Springfield VA, USA                 | 38.767  | -77.2     |
| S Webster OH (two instruments), USA | 38.8088 | -82.7711  |
| Alexandria VA, USA                  | 38.819  | -77.169   |
| Chantilly VA, USA                   | 38.8963 | -77.4780  |
| Cambridge MA, USA                   | 38.9269 | -77.0375  |
| Annapolis MD, USA                   | 38.9762 | -76.4954  |
| Greenbelt MD, USA                   | 38.9939 | -76.8455  |
| Greenbelt MD, USA                   | 38.9939 | -76.8755  |
| Colorado, USA                       | 38.9979 | -105.5508 |
| Silver Springs MD, USA              | 39.05   | -77.08    |
| Cincinnati OH, USA                  | 39.0665 | -84.3498  |
| Loudoun County Virginia, USA        | 39.0854 | -77.6451  |
| Woodstock MD, USA                   | 39.3527 | -76.8376  |
| Reisterstown MD, USA                | 39.419  | -76.781   |
| Holton KS, USA                      | 39.4634 | -95.7418  |
| Colorado, USA                       | 39.7550 | -104.9981 |



| <b>SID</b> continued         | GLAT    | GLONG     |
|------------------------------|---------|-----------|
| Arvada CO, USA               | 39.8027 | -105.0869 |
| Arvada CO, USA               | 39.8158 | -105.085  |
| Lafayette CO, USA            | 39.9936 | -105.0891 |
| Boulder CO, USA              | 40.0104 | -105.2768 |
| Boulder CO, USA              | 40.0104 | -105.2868 |
| Boulder CO, USA              | 40.0104 | -105.2968 |
| Longmont CO, USA             | 40.1778 | -105.0977 |
| Ft Collins CO, USA           | 40.508  | -105.085  |
| Tarentum PA, USA             | 40.6033 | -79.7317  |
| Tarentum PA, USA             | 40.6033 | -79.7617  |
| Montvale NJ, USA             | 40.6043 | -74.1527  |
| Manhasset NY, USA            | 40.6617 | -73.4975  |
| Brooklyn NY, USA             | 40.6752 | -73.9710  |
| Red Hook NY, USA             | 40.6921 | -73.9855  |
| Floral Park NY, USA          | 40.7236 | -73.7052  |
| New York, USA                | 40.7560 | -73.9869  |
| Salt Lake City UT, USA       | 40.7715 | -111.8881 |
| Selden NY, USA               | 40.7959 | -73.2746  |
| Manhasset NY, USA            | 40.7978 | -73.6995  |
| Lincoln NE, USA              | 40.799  | -96.664   |
| New York, USA                | 40.8363 | -73.8603  |
| Southold NY, USA             | 41.0584 | -72.4289  |
| Mahwah NJ, USA               | 41.0887 | -74.1437  |
| Pennsylvania, USA            | 41.1179 | -77.6046  |
| Parkway Center City PA, USA  | 41.2586 | -73.6855  |
| Logan UT, USA                | 41.7436 | -111.8089 |
| Illinois, USA                | 42.0314 | -88.1992  |
| Phoenix OR, USA              | 42.2759 | -122.8175 |
| Ann Arbor MI, USA            | 42.2812 | -83.7484  |
| Harbor Massachusetts, USA    | 42.3191 | -71.0459  |
| Boston MA, USA               | 42.3501 | -71.1069  |
| Cambridge MA, USA            | 42.3753 | -71.1184  |
| Cambridge MA, USA            | 42.3926 | -71.1128  |
| Grants Pass OR, USA          | 42.4191 | -123.4221 |
| Concord MA, USA              | 42.4488 | -71.3470  |
| Wendell MA, USA              | 42.5484 | -72.3970  |
| Okemos MI, USA               | 42.6828 | -84.4549  |
| Berkley MI, USA              | 42.7136 | -83.3175  |
| Loudonville NY, USA          | 42.7183 | -73.7534  |
| Rochester NY, USA            | 43.1541 | -77.6192  |
| Baraboo WI, USA              | 43.4690 | -89.7443  |
| Souix Falls SD, USA          | 43.5302 | -96.7355  |
| Chippewa Hills Michigan, USA | 43.6613 | -85.1763  |
| Owls Head ME, USA            | 44.0588 | -69.1055  |
| Leeds ME, USA                | 44.2    | -70.08    |
| Leeds ME, USA                | 44.3034 | -70.1191  |
| St Johnsbury VT, USA         | 44.4113 | -72.0189  |
| Eagan MN, USA                | 44.8125 | -93.2083  |
| Portland OR, USA             | 45.5648 | -122.8346 |
| Bozeman MT, USA              | 45.6678 | -111.0472 |
| Sula MT, USA                 | 45.8902 | -114.0611 |
| Cloquet MN, USA              | 46.7143 | -92.4913  |
| Seattle WA, USA              | 47.7205 | -122.3639 |
| Scotland, USA                | 57.4721 | -3.2198   |
| Kipnuk AK, USA               | 59.9169 | -164.0156 |
| Ankorage AK, USA             | 61.1996 | -149.9563 |
| Wasilla AK, USA              | 61.5538 | -149.3497 |
| Fairbanks AK, USA            | 64.8492 | -147.8206 |

| <b>SID</b> continued | GLAT     | GLONG   |
|----------------------|----------|---------|
| Tashkent, Uzbekistan | 41.19    | 69.17   |
| Lusaka, Zambia       | -15.4    | 28.2833 |
| Lusaka, Zambia       | -15.4145 | 28.2809 |