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**ANDREW HYNES SERIES: TECTONIC PROCESSES**

*Corresponding author e-mail: mbpetrie@gmail.com*

**DATA REPOSITORY FILE: Petrie et al. Tables DR-1 to -8.**

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| --- | --- |
| **Table DR-1.** Sample locations. |   |
| Sample  | UTM Coordinates (Zone 8V) |
| *Eclogite* | E | N |  |
| 10-06 | 0629189, 6780367 |  |
| 10-72 | 0632445, 6777476 |  |
| 10-89 | 0633667, 6776599 |  |
| 10-114 | 0629167, 6780409 |  |
| 10-115 | 0629167, 6780409 |  |
| 10-143 | 0628260, 6781208 |  |
| 11-42 | 0618451, 6790935 |  |
| 11-101 | 0626171, 6782297 |  |
| 11-117 | 0626764, 6780873 |  |
| 12-10 | 0619035, 6789751 |  |
|  |  |  |
| *Retrogressed eclogite* |  |
| 11-136 | 0634779, 6780635 |  |
|  |  |  |
| *Serpentinite* |  |  |
| 11-39 | 0618349, 6790941 |  |
|  |  |  |
| *Metasedimentary rock* |  |
| 11-93 | 0626547, 6781336 |  |
| 12-01 | 0618526, 6790306 |  |
| 12-22 | 0618848, 6790004 |  |
|  |  |  |
| *Metatonalite* |  |  |
| 11-94 | 0626543, 6781389 |  |
| 11-98 | 0626445, 6781946 |  |
| 11-114 | 0626570, 6781168 |  |
| 11-121 | 0630776, 6780456 |  |
| 12-17 | 0618920, 6788985 |  |
| 12-18 | 0618918, 6788995 |   |

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| **Table DR-2.** Representative amphibole composition in eclogite. |
| Sample | 12-10 | 12-10 | 12-10 | 10-115 | 10-115 | 10-115 | 11-117 | 11-117 | 11-117 |
| Mineral | matrix grain in equil with Omp | Am inclusion in Garnet | Am inclusion in Garnet | matrix grain in equil with Omp | within Am+Pl symplectite | Am inclusion in Garnet | matrix grain in equil with Omp | Am inclusion in Garnet | Am inclusion in Garnet |
| Analysis # | 4/1 | 3/1 | 1/1 | 5/1 | 8/1 | 1/1 | 5/1 | 3/1 | 8/1 |
| SiO2 | 43.555 | 43.157 | 45.969 | 51.394 | 45.248 | 44.240 | 43.784 | 45.343 | 39.331 |
| TiO2 | 0.749 | 0.899 | 0.890 | 0.380 | 0.953 | 0.358 | 0.881 | 0.420 | 1.471 |
| Al2O3 | 16.179 | 16.749 | 11.266 | 10.107 | 11.458 | 15.539 | 15.151 | 11.625 | 16.815 |
| FeO | 12.082 | 11.311 | 12.024 | 10.899 | 12.343 | 15.595 | 13.986 | 14.847 | 17.075 |
| MnO | 0.067 | 0.057 | 0.127 | 0.085 | 0.059 | 0.104 | 0.023 | 0.096 | 0.045 |
| MgO | 11.175 | 11.604 | 13.418 | 13.330 | 13.320 | 9.018 | 10.160 | 10.928 | 8.378 |
| CaO | 9.243 | 9.544 | 10.595 | 7.485 | 11.137 | 9.001 | 8.984 | 11.270 | 11.215 |
| Na2O | 3.675 | 3.565 | 2.606 | 4.561 | 2.915 | 4.351 | 4.340 | 3.107 | 3.052 |
| K2O | 0.757 | 0.879 | 0.583 | 0.374 | 0.576 | 0.586 | 0.731 | 0.000 | 0.631 |
| Wt % total | 97.482 | 97.765 | 97.478 | 98.615 | 98.009 | 98.792 | 98.040 | 97.636 | 98.013 |
| Mineral formulas and names based on 23 oxygens and sum of cations - (Ca + Na + K) = 13 |
| Si | 6.291 | 6.208 | 6.634 | 7.211 | 6.558 | 6.433 | 6.384 | 6.687 | 5.873 |
| Ti | 0.081 | 0.097 | 0.097 | 0.040 | 0.104 | 0.039 | 0.097 | 0.047 | 0.165 |
| Al | 2.754 | 2.839 | 1.916 | 1.671 | 1.957 | 2.663 | 2.603 | 2.021 | 2.959 |
| Fe3+ | 0.472 | 0.454 | 0.510 | 0.268 | 0.335 | 0.252 | 0.267 | 0.062 | 0.373 |
| Fe2+ | 0.987 | 0.907 | 0.941 | 1.011 | 1.161 | 1.645 | 1.438 | 1.769 | 1.759 |
| Mn | 0.008 | 0.007 | 0.016 | 0.010 | 0.007 | 0.013 | 0.003 | 0.012 | 0.006 |
| Mg | 2.406 | 2.488 | 2.887 | 2.788 | 2.878 | 1.955 | 2.208 | 2.403 | 1.865 |
| Ca | 1.430 | 1.471 | 1.638 | 1.125 | 1.729 | 1.402 | 1.403 | 1.781 | 1.794 |
| Na | 1.029 | 0.994 | 0.729 | 1.241 | 0.819 | 1.227 | 1.227 | 0.888 | 0.884 |
| K | 0.139 | 0.161 | 0.107 | 0.067 | 0.106 | 0.109 | 0.136 | 0.000 | 0.120 |
| Name | taramite | taramite | magnesio-hornblende | winchite | pargasite | katophorite | katophorite | pargasite | sadanagaite |

am – amphibole, omp – omphacite, pl – plagioclase

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| --- | --- | --- | --- | --- | --- | --- | --- |
| **Table DR-3.** Representative garnet composition. |   |   |   |   |   |   |   |
| Rock type |  | Eclogite | Metatonalite | Metasedimentary rock |
| Sample |   | 10-143 | 10-143 | 10-143 | 12-10 | 12-10 | 12-18 | 12-18 | 12-22 | 12-22 | 12-22 |
| Mineral  |   | core | intermediate | rim | core | rim | core | rim | core | intermediate | rim |
| Analysis # |   | 10/1 | 6/1 | 1/1 | 2/16 | 2/1 | 1/10 | 1/1 | 1/9 | 1/4 | 1/1 |
| SiO2 |  | 38.513 | 38.313 | 38.751 | 38.675 | 39.548 | 38.369 | 39.017 | 37.878 | 39.325 | 37.789 |
| TiO2 |  | 0.265 | 0.155 | 0.040 | 0.195 | 0.034 | 0.070 | 0.122 | 0.046 | 0.066 | 0.250 |
| Al2O3 |  | 21.855 | 21.762 | 22.083 | 21.473 | 22.103 | 21.564 | 21.753 | 21.013 | 21.505 | 20.951 |
| FeO |  | 24.196 | 26.673 | 26.831 | 25.116 | 21.739 | 24.276 | 23.628 | 26.648 | 26.087 | 16.548 |
| MnO |  | 1.705 | 0.947 | 0.647 | 0.901 | 0.420 | 2.570 | 1.326 | 6.856 | 6.807 | 12.033 |
| MgO |  | 3.810 | 2.154 | 6.138 | 4.257 | 6.999 | 1.940 | 3.827 | 3.300 | 2.973 | 0.430 |
| CaO |  | 10.848 | 11.400 | 6.490 | 9.422 | 8.741 | 11.299 | 10.280 | 4.194 | 3.654 | 11.802 |
| Wt % total |  | 101.192 | 101.404 | 100.979 | 100.039 | 99.584 | 100.088 | 99.953 | 99.935 | 100.417 | 99.803 |
| Mineral formulas based on 12 oxygens |  |  |  |  |  |  |  |  |
| Si |  | 2.978 | 2.987 | 2.984 | 3.023 | 3.043 | 3.030 | 3.050 | 3.025 | 3.126 | 3.024 |
| Ti |  | 0.015 | 0.009 | 0.002 | 0.011 | 0.002 | 0.004 | 0.007 | 0.003 | 0.004 | 0.015 |
| Al |  | 1.992 | 2.000 | 2.004 | 1.978 | 2.005 | 2.007 | 2.004 | 1.978 | 2.015 | 1.976 |
| Fe3+ |  | 0.020 | 0.008 | 0.024 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| Fe2+ |  | 1.544 | 1.731 | 1.704 | 1.642 | 1.399 | 1.603 | 1.544 | 1.779 | 1.734 | 1.107 |
| Mn |  | 0.112 | 0.063 | 0.042 | 0.060 | 0.027 | 0.172 | 0.088 | 0.464 | 0.458 | 0.815 |
| Mg |  | 0.439 | 0.250 | 0.705 | 0.496 | 0.803 | 0.228 | 0.446 | 0.393 | 0.352 | 0.051 |
| Ca |  | 0.899 | 0.952 | 0.535 | 0.789 | 0.721 | 0.956 | 0.861 | 0.359 | 0.311 | 1.012 |
| Endmembers |  |  |  |  |  |  |  |  |  |  |  |
| *X*Alm |  | 0.52 | 0.58 | 0.57 | 0.55 | 0.47 | 0.54 | 0.53 | 0.59 | 0.61 | 0.37 |
| *X*Sps |  | 0.04 | 0.02 | 0.01 | 0.02 | 0.01 | 0.06 | 0.03 | 0.15 | 0.16 | 0.27 |
| *X*Prp |  | 0.15 | 0.08 | 0.23 | 0.17 | 0.27 | 0.08 | 0.15 | 0.13 | 0.12 | 0.02 |
| *X*Grs |  | 0.30 | 0.32 | 0.18 | 0.26 | 0.24 | 0.32 | 0.29 | 0.12 | 0.11 | 0.34 |
| *X*Mg=Mg/(Mg+Fe) | 0.22 | 0.13 | 0.29 | 0.23 | 0.36 | 0.12 | 0.22 | 0.18 | 0.17 | 0.04 |

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| **Table DR-4.** Representative biotite, epidote group, plagioclase and K-feldspar composition. |   |   |   |
| Rock type | eclogite | meta-tonalite | meta-sediment | eclogite | meta-tonalite | meta-sediment | eclogite | meta-tonalite | meta-sediment | meta-tonalite |
| Sample | 11-117 | 11-94 | 11-93 | 10-06 | 12-18 | 12-22 | 10-143 | 11-94 | 12-22 | 11-94 |
| Mineral | Bt | Bt | Bt | Ep | Ep | Czo | Pl | Pl | Pl | Kfs |
| Mineral Analysis | within Ph symp | in matrix | in matrix | incl in Grt | repl Pl | repl Pl | incl in Grt | in matrix | in matrix | repl Pl |
| Analysis # | 3/1 | 4/1 | 6/1 | 5/1 | 2/1 | 5/1 | 11/1 | 1/1 | 14/1 | 6/1 |
| SiO2 | 46.183 | 35.981 | 36.620 | 38.202 | 38.283 | 38.873 | 64.967 | 63.572 | 65.973 | 62.760 |
| TiO2 | 1.391 | 1.668 | 2.243 | 0.053 | 0.086 | 0.000 |  |  |  | 0.027 |
| Al2O3 | 20.167 | 18.073 | 19.103 | 28.463 | 28.723 | 33.018 | 21.732 | 23.140 | 21.472 | 19.317 |
| FeO | 9.187 | 18.420 | 18.818 | 7.125 | 6.223 | 0.663 | 0.397 | 0.012 | 0.000 | 0.135 |
| MnO | 0.000 | 0.339 | 0.053 | 0.176 | 0.054 | 0.548 | 0.032 |  |  | 0.000 |
| MgO | 7.259 | 10.052 | 9.842 | 0.111 | 0.028 | 0.000 | 0.000 |  |  | 0.008 |
| CaO | 0.815 | 0.000 | 0.000 | 23.288 | 23.797 | 23.497 | 2.537 | 3.858 | 1.527 | 0.033 |
| Na2O | 3.977 | 0.080 | 0.259 |  |  |  | 10.560 | 9.396 | 10.818 | 0.679 |
| K2O | 5.543 | 9.368 | 8.940 |  |  |  | 0.021 | 0.133 | 0.104 | 15.179 |
| BaO |  |  |  |  |  |  |  |  |  | 1.889 |
| Wt % total | 94.522 | 93.981 | 95.878 | 97.418 | 97.194 | 96.599 | 100.245 | 100.111 | 99.894 | 100.027 |
| Oxygen | 11 | 11 | 11 | 12.5 | 12.5 | 12.5 | 8 | 8 | 8 | 8 |
| Si | 3.238 | 2.765 | 2.744 | 2.810 | 2.837 | 2.974 | 2.861 | 2.804 | 2.898 | 2.937 |
| Ti | 0.073 | 0.096 | 0.126 | 0.003 | 0.005 | 0.000 |  |  |  | 0.001 |
| Al | 1.667 | 1.637 | 1.687 | 2.467 | 2.509 | 2.976 | 1.128 | 1.203 | 1.112 | 1.065 |
| Fe2+ | 0.539 | 1.184 | 1.179 | 0.876 | 0.771 | 0.085 | 0.015 | 0.000 | 0.000 | 0.005 |
| Mn | 0.000 | 0.022 | 0.003 | 0.011 | 0.003 | 0.036 | 0.001 |  |  | 0.000 |
| Mg | 0.759 | 1.152 | 1.100 | 0.012 | 0.003 | 0.000 | 0.000 |  |  | 0.001 |
| Ca | 0.061 | 0.000 | 0.000 | 1.835 | 1.889 | 1.926 | 0.120 | 0.182 | 0.072 | 0.002 |
| Na | 0.541 | 0.012 | 0.038 |  |  |  | 0.902 | 0.803 | 0.921 | 0.062 |
| K | 0.496 | 0.918 | 0.855 |  |  |  | 0.001 | 0.007 | 0.006 | 0.906 |
| Ba |  |  |  |  |  |  |  |  |  | 0.035 |
| XMg=Mg/(Mg+Fe) | 0.58 | 0.49 | 0.48 |  |  |  |  |  |  |  |
| *X*Fe3+=Fe3+/(Fe3++Al) |  |  |  | 0.26 | 0.24 | 0.03 |  |  |  |  |
| *X*Ca =Ca/(Ca+Na) |   |   |   |   |   |   | 0.88 | 0.82 | 0.93 | 0.03 |

bt – biotite, czo – clinozoisite, ep – epidote, grt – garnet, Kfs – K-feldspar, ph – phengite, pl – plagioclase

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| **Table DR-5.** Whole-rock geochemistry for eclogite samples. |
| Sample | 10-06 | 10-72 | 10-143 | 11-101 | 11-136 | 10-114a | 10-115a | 11-42a | 11-117a | 12-10a |
| SiO2 (wt. %) | 48.17  | 49.73  | 51.14  | 50.40  | 50.36  | 48.97  | 50.36  | 45.16  | 49.31  | 48.77  |
| TiO2   | 1.85  | 2.40  | 1.85  | 1.67  | 1.85  | 2.10  | 1.85  | 2.74  | 2.20  | 1.82  |
| Al2O3  | 14.02  | 13.10  | 13.44  | 13.50  | 14.04  | 13.66  | 13.89  | 14.18  | 14.24  | 15.04  |
| FeOb | 12.25  | 14.95  | 12.14  | 11.11  | 10.80  | 13.71  | 13.16  | 12.88  | 14.32  | 11.66  |
| MnO  | 0.22  | 0.29  | 0.21  | 0.20  | 0.16  | 0.26  | 0.21  | 0.47  | 0.25  | 0.20  |
| MgO  | 6.08  | 4.99  | 6.48  | 6.91  | 6.87  | 6.74  | 6.84  | 8.74  | 6.47  | 7.25  |
| CaO  | 12.78  | 8.86  | 10.51  | 11.72  | 11.17  | 10.37  | 10.20  | 8.40  | 10.15  | 11.43  |
| Na2O  | 2.92  | 3.99  | 3.62  | 3.11  | 2.49  | 3.27  | 3.13  | 2.61  | 3.19  | 2.91  |
| K2O  | 0.28  | 0.14  | 0.11  | 0.24  | 0.08  | 0.27  | 0.32  | 2.77  | 0.19  | 0.29  |
| P2O5  | 0.32  | 0.27  | 0.14  | 0.23  | 0.16  | 0.15  | 0.14  | 0.46  | 0.16  | 0.13  |
| Total | 98.90  | 98.70  | 99.65  | 99.09  | 97.98  | 99.50  | 100.10  | 98.41  | 100.46  | 99.49  |
| Sc (ppm) | 43.9 | 40.9 | 44.4 | 43.3 | 40.1 | 48.3 | 46.0 | 29.1 | 48.4 | 47.7 |
| Pb | 2.65 | 0.77 | 0.62 | 1.54 | 0.36 | 1.00 | 0.70 | 3.30 | 0.80 | 1.50 |
| Rb | 13.1 | 1.5 | 1.8 | 7.3 | 1.9 | 3.9 | 5.8 | 90.5 | 1.9 | 3.8 |
| Cs | 0.53 | 0.02 | 0.06 | 0.23 | 0.55 |  |  |  |  |  |
| Ba | 196 | 51 | 26 | 159 | 15 | 76 | 119 | 1495 | 34 | 75 |
| Sr | 384 | 88 | 257 | 152 | 108 | 124 | 148 | 251 | 185 | 85 |
| Ta | 0.19 | 0.44 | 0.21 | 0.17 | 0.21 |  |  |  |  |  |
| Nb | 2.70 | 6.13 | 2.96 | 2.30 | 2.75 | 3.50 | 3.50 | 58.00 | 4.50 | 2.80 |
| Hf | 3.05 | 7.66 | 3.03 | 2.78 | 3.11 |  |  |  |  |  |
| Zr | 110 | 283 | 109 | 99 | 111 | 122 | 109 | 149 | 142 | 115 |
| Y | 38.87 | 72.37 | 38.60 | 34.86 | 41.90 | 44.30 | 39.10 | 26.60 | 48.10 | 37.80 |
| Th | 0.23 | 0.58 | 0.33 | 0.18 | 0.22 | 0.00 | 1.10 | 5.00 | 0.40 | 0.60 |
| U | 0.29 | 0.23 | 0.10 | 0.09 | 0.07 | 0.00 | 0.00 | 2.90 | 0.00 | 0.00 |
| La | 4.76 | 10.56 | 5.57 | 4.07 | 3.95 | 5.90 | 3.70 | 36.50 | 2.00 | 4.10 |
| Ce | 14.24 | 30.57 | 15.32 | 12.26 | 12.43 | 17.80 | 11.50 | 65.10 | 14.80 | 11.20 |
| Pr | 2.41 | 4.98 | 2.45 | 2.10 | 2.18 |  |  |  |  |  |
| Nd | 13.20 | 25.60 | 12.90 | 11.63 | 11.73 | 13.70 | 10.80 | 30.80 | 12.60 | 10.80 |
| Sm | 4.95 | 8.64 | 4.27 | 4.32 | 4.38 |  |  |  |  |  |
| Eu | 2.28 | 2.72 | 1.53 | 1.64 | 1.55 |  |  |  |  |  |
| Gd | 6.83 | 11.33 | 5.76 | 5.80 | 6.11 |  |  |  |  |  |
| Tb | 1.19 | 2.08 | 1.08 | 1.03 | 1.15 |  |  |  |  |  |
| Dy | 7.43 | 13.31 | 7.12 | 6.58 | 7.82 |  |  |  |  |  |
| Ho | 1.57 | 2.89 | 1.57 | 1.40 | 1.68 |  |  |  |  |  |
| Er | 4.32 | 8.07 | 4.34 | 3.87 | 4.70 |  |  |  |  |  |
| Tm | 0.64 | 1.23 | 0.64 | 0.56 | 0.68 |  |  |  |  |  |
| Yb | 3.96 | 7.59 | 3.90 | 3.50 | 4.24 |  |  |  |  |  |
| Lu | 0.62 | 1.21 | 0.62 | 0.55 | 0.67 |   |   |   |   |   |
| a Trace element data collected via X-ray fluorescence. Not included in Fig. 13. |
| b Fe reported as total Fe |

**Table DR-6.** SHRIMP U–Pb geochronologic data and apparent ages.

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Spota | Ub (ppm) | Th (ppm) | Th/U | 206Pb\*b (ppm) | f206Pbcb | 238U/206Pbc |  | 207Pb/206Pbc |  | 206Pb/238Ud (Ma) |  |
| Sample 11-94 |
| 1.1 | 1567 | 6 | 0.004 | 55 | 0.05 | 24.355 | (1.2) |  .05179 | (1.2) | 259 | (3) |
| 2.1 | 275 | 0.6 | 0.002 | 10 | 0.39 | 23.194 | (1.4) | .05482 | (2.6) | 271 | (4) |
| 3.1 | 1243 | 220 | 0.18 | 56 | 0.17 | 19.247 | (1.2) | .05428 | (1.0) | 326 | (4) |
| 4.1 | 242 | 0.5 | 0.002 | 9 | 0.14 | 23.925 | (1.5) | .05260 | (2.8) | 264 | (4) |
| 5.1 | 3295 | 472 | 0.15 | 157 | 0.10 | 18.004 | (1.2) | .05427 | (0.6) | 348 | (4) |
| 6.1 | 46 | 0.1 | 0.002 | 2 | 0.47 | 23.831 | (2.4) | .05528 | (6.3) | 264 | (6) |
| 6.2 | 276 | 2 | 0.01 | 9 | 0.15 | 25.310 | (1.4) | .05240 | (2.1) | 249 | (3) |
| 7.1 | 712 | 128 | 0.19 | 33 | 0.02 | 18.619 | (1.3) | .05335 | (1.4) | 337 | (4) |
| 8.1 | 617 | 90 | 0.15 | 28 | <0.01 | 18.726 | (1.3) | .05286 | (1.5) | 336 | (4) |
| 9.1 | 377 | 2 | 0.004 | 14 | <0.01 | 23.908 | (1.4) | .05081 | (2.2) | 264 | (4) |
| 10.1 | 243 | 1 | 0.004 | 9 | <0.01 | 22.262 | (1.5) | .05061 | (2.8) | 284 | (4) |
| 12.1 | 544 | 1 | 0.002 | 20 | 0.19 | 23.612 | (1.3) | .05308 | (1.8) | 267 | (3) |
| 13.1 | 278 | 1 | 0.004 | 10 | 0.26 | 23.173 | (1.4) | .05374 | (2.5) | 272 | (4) |
| 14.1 | 1349 | 3 | 0.002 | 50 | 0.10 | 23.239 | (1.2) | .05248 | (1.1) | 271 | (3) |
| 15.1 | 1639 | 322 | 0.20 | 74 | <0.01 | 19.053 | (1.2) | .05242 | (1.0) | 330 | (4) |
| 16.1 | 310 | 1 | 0.004 | 11 | 0.18 | 24.803 | (1.4) | .05274 | (2.4) | 254 | (4) |
| 17.1 | 402 | 1 | 0.002 | 14 | <0.01 | 24.034 | (1.3) | .05064 | (2.2) | 263 | (4) |
| 18.1 | 400 | 5 | 0.013 | 14 | 0.12 | 23.840 | (1.3) | .05249 | (2.1) | 265 | (4) |
| 19.1 | 605 | 209 | 0.36 | 27 | 0.14 | 18.913 | (1.3) | .05419 | (1.5) | 332 | (4) |
| 20.1 | 242 | 1 | 0.005 | 9 | <0.01 | 23.343 | (1.4) | .05052 | (2.7) | 271 | (4) |
| 21.1 | 1832 | 187 | 0.11 | 76 | 0.80 | 20.669 | (1.2) | .05881 | (1.6) | 302 | (4) |
| 22.1 | 504 | 3 | 0.005 | 19 | 0.06 | 22.665 | (1.3) | .05229 | (1.9) | 278 | (4) |
| 23.1 | 282 | 1 | 0.004 | 10 | 0.26 | 24.896 | (1.4) | .05337 | (2.4) | 253 | (3) |
| Sample 11-114 |
| 1.1 | 931 | 151 | 0.17 | 40 | <0.01 | 19.741 | (1.2) | .05260 | (1.3) | 319 | (4) |
| 2.1 | 134 | 1 | 0.004 | 5 | 1.47 | 25.245 | (1.6) | .06292 | (4.1) | 247 | (4) |
| 3.1 | 411 | 57 | 0.14 | 17 | 18.57 | 20.432 | (1.4) | .20002 | (1.5) | 252 | (4) |
| 4.1 | 259 | 6 | 0.02 | 9 | 6.18 | 23.462 | (1.5) | .10078 | (3.2) | 253 | (4) |
| 5.1 | 536 | 154 | 0.30 | 24 | 1.42 | 19.459 | (1.3) | .06416 | (4.8) | 319 | (4) |
| 6.1 | 1126 | 187 | 0.17 | 51 | 0.34 | 18.917 | (1.2) | .05578 | (1.1) | 331 | (4) |
| 7.1 | 221 | 1 | 0.005 | 10 | 14.00 | 19.485 | (1.6) | .16417 | (5.6) | 278 | (6) |
| 8.1 | 3907 | 1563 | 0.41 | 181 | 0.35 | 18.589 | (1.2) | .05601 | (0.6) | 337 | (4) |
| 9.1 | 3208 | 1217 | 0.39 | 145 | 0.93 | 19.005 | (1.2) | .06046 | (2.0) | 328 | (4) |
| 10.1 | 2004 | 62 | 0.03 | 69 | 4.85 | 24.821 | (1.2) | .08983 | (1.1) | 243 | (3) |
| 11.1 | 819 | 90 | 0.11 | 47 | 27.53 | 15.093 | (1.2) | .27360 | (3.2) | 302 | (6) |
| 12.1 | 1550 | 285 | 0.19 | 70 | 0.55 | 19.014 | (1.2) | .05745 | (0.9) | 329 | (4) |
| 13.1 | 846 | 171 | 0.21 | 42 | 0.97 | 17.477 | (1.2) | .06144 | (1.2) | 355 | (4) |
| 14.1 | 872 | 167 | 0.20 | 40 | 0.11 | 18.636 | (1.2) | .05408 | (1.2) | 337 | (4) |
| 15.1 | 177 | 4 | 0.02 | 7 | 7.63 | 21.849 | (1.6) | .11277 | (6.0) | 267 | (5) |
| Sample 12-17 |
| 1.1 | 249 | 109 | 0.45 | 12 | <0.01 | 18.309 | (0.7) | .05188 | (2.2) | 343 | (3) |
| 2.1 | 60 | 0.3 | 0.005 | 2 | 0.23 | 24.204 | (1.6) | .05326 | (4.8) | 260 | (4) |
| 3.1 | 384 | 1 | 0.002 | 14 | 0.39 | 23.958 | (0.7) | .05459 | (2.0) | 263 | (2) |
| 4.1 | 32 | 0.1 | 0.003 | 1 | 0.09 | 23.795 | (2.5) | .05224 | (7.5) | 265 | (7) |
| 5.1 | 55 | 0.2 | 0.004 | 2 | 4.0 | 23.958 | (1.9) | .08357 | (6.3) | 253 | (5) |
| 6.1 | 144 | 0.4 | 0.003 | 5 | 0.50 | 24.177 | (1.1) | .05545 | (4.2) | 260 | (3) |
| 7.1 | 30 | 0.3 | 0.01 | 1 | 29 | 17.978 | (2.1) | .28171 | (2.9) | 250 | (6) |
| 8.1 | 69 | 0.2 | 0.004 | 2 | 0.58 | 23.926 | (1.6) | .05617 | (4.8) | 262 | (4) |
| 9.1 | 34 | 0.1 | 0.002 | 1 | 0.21 | 22.808 | (2.2) | .05345 | (6.6) | 276 | (6) |
| 10.1 | 165 | 43 | 0.27 | 8 | -0.02 | 18.784 | (0.9) | .05300 | (2.7) | 334 | (3) |
| 11.1 | 662 | 179 | 0.28 | 30 | 0.29 | 18.850 | (0.5) | .05541 | (1.3) | 332 | (2) |
| 12.1 | 607 | 11 | 0.02 | 21 | <0.01 | 24.423 | (0.6) | .05098 | (1.7) | 259 | (1) |
| 13.1 | 45 | 0.4 | 0.009 | 2 | 0.74 | 24.617 | (2.0) | .05727 | (5.9) | 255 | (5) |
| 14.1 | 911 | 5 | 0.005 | 34 | 0.12 | 23.291 | (0.4) | .05264 | (1.2) | 271 | (1) |
| 15.1 | 98 | 0.3 | 0.003 | 4 | <0.01 | 23.680 | (1.2) | .04807 | (3.8) | 268 | (3) |
| Note: All analyses were performed on the SHRIMP-RG ion microprobe at the United States Geological Survey - Stanford University Microanalytical Ce ter, Stanford, CA. Calibration concentrations and isotopic compositions were based on replicate analyses of CZ3 and R33 (419 Ma; Black et al. 2004), respectively. Analytical routine followed Williams (1998). Data reduction utilized Ludwig (2003).  |
| a 1.1 = grain1, spot 1. |
| b Pb\* denotes radiogenic Pb; Pbc denotes common Pb; f206Pbc = 100\*(206Pbc/206Pbtotal). |
| c Reported ratios are not corrected for common Pb. Errors are reported in parentheses as percent at the 1 σ level.  |
| d Ages calculated from ratios corrected for common Pb using 207Pb for the 206Pb/238U ages and 204Pb for the 207Pb/206Pb ages. Uncertainties in millions of years reported as 1 σ.  |
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| **Table DR-7.** Zircon trace element data. |
| Spota | CL | 49Ti | Fe | Y | La | Ce | Nd | Sm | Eu | Gd | Dy | Er | Yb | Hf | Ce/Ce\* | Eu/Eu\* | Yb(N)/ Gd(N) | T (°C) |
| Sample 11-94 |
| 1.1 | c |  |  | 482 | 0.02 | 0.1 | 0.02 | 0.1 | 0.08 | 1.2 | 19 | 117 | 628 | 12,089 | 2 | 0.7 | 503 |  |
| 2.2 | r |  |  | 245 | 0.17 | 0.9 | 0.10 | 0.2 | 0.13 | 1.9 | 16 | 38 | 72 | 12,798 | 3 | 0.7 | 37 |  |
| 3.1 | c |  |  | 1,776 | 0.51 | 13 | 2.0 | 3.4 | 0.80 | 37 | 161 | 298 | 511 | 11,728 | 8 | 0.2 | 14 |  |
| 4.1 | o |  |  | 225 | 0.02 | 0.1 | 0 | 0.0 | 0.04 | 0.5 | 9 | 53 | 258 | 12,507 |   | 1.0 | 492 |  |
| 5.1 | c |  |  | 3,163 | 14.12 | 88 | 29.2 | 15.9 | 7.14 | 87 | 319 | 560 | 1,017 | 17,569 | 2 | 0.6 | 12 |  |
| 6.1 | r |  |  | 191 | 0.02 | 0.1 | 0.005 | 0.0 | 0.02 | 0.4 | 7 | 43 | 157 | 15,004 | 3 | 0.6 | 392 |  |
| 6.2 | c |  |  | 118 | 0.02 | 0.2 | 0.01 | 0.0 | 0.28 | 3.0 | 12 | 14 | 21 | 12,965 | 7 | 1.0 | 7 |  |
| 7.1 | o |  |  | 428 | 0.03 | 3.1 | 0.11 | 0.5 | 0.28 | 6 | 32 | 81 | 204 | 9,396 | 35 | 0.5 | 36 |  |
| 8.1 | o |  |  | 387 | 0.02 | 2 | 0.12 | 0.4 | 0.23 | 5 | 28 | 75 | 198 | 9,809 | 29 | 0.5 | 41 |  |
| 9.1 | r |  |  | 171 | 0.03 | 0.4 | 0.08 | 0.3 | 0.35 | 5 | 17 | 18 | 19 | 13,799 | 5 | 0.8 | 4 |  |
| 10.1 | r |  |  | 70 | 0.03 | 0.2 | 0.03 | 0.2 | 0.15 | 2 | 7 | 9 | 14 | 14,086 | 3 | 0.8 | 7 |  |
| 11.1 | c |  |  | 1,256 | 0.28 | 5 | 1.5 | 2.6 | 0.60 | 26 | 112 | 220 | 424 | 10,533 | 5 | 0.2 | 16 |  |
| 12.1 | o |  |  | 484 | 0.02 | 0.1 | 0.005 | 0.1 | 0.05 | 1 | 18 | 115 | 596 | 11,264 | 2 | 0.7 | 599 |  |
| 13.1 | r |  |  | 110 | 0.18 | 1 | 0.3 | 0.2 | 0.19 | 2 | 10 | 14 | 24 | 12,864 | 2 | 1.0 | 13 |  |
| 14.1 | p |  |  | 675 | 0.03 | 0.1 | 0.04 | 0.1 | 0.06 | 2 | 27 | 158 | 650 | 13,531 | 1 | 0.5 | 412 |  |
| 15.1 | r |  |  | 2,142 | 0.20 | 13 | 1.2 | 2.9 | 0.84 | 36 | 190 | 401 | 794 | 11,019 | 17 | 0.3 | 22 |  |
| 16.1 | r |  |  | 123 | 0.01 | 0.2 | 0.03 | 0.2 | 0.22 | 4 | 15 | 11 | 10 | 13,935 | 7 | 0.7 | 2 |  |
| 17.1 | p |  |  | 393 | 0.02 | 0.1 | 0.00 | 0.0 | 0.06 | 1 | 14 | 97 | 504 | 12,121 |   | 1.2 | 822 |  |
| 18.1 | p |  |  | 123 | 0.07 | 1 | 0.11 | 0.2 | 0.86 | 3 | 13 | 15 | 20 | 12,628 | 3 | 2.9 | 6 |  |
| 19.1 | o |  |  | 1,848 | 0.14 | 14 | 1.7 | 4.9 | 2.93 | 46 | 175 | 333 | 619 | 7,575 | 20 | 0.6 | 13 |  |
| 20.1 | r |  |  | 87 | 0.03 | 0.2 | 0.04 | 0.1 | 0.38 | 3 | 9 | 9 | 12 | 12,601 | 3 | 2.0 | 5 |  |
| 21.1 | o |  |  | 2,024 | 17.73 | 139 | 40.8 | 24.4 | 7.52 | 95 | 209 | 318 | 587 | 11,557 | 0.48 | 3 | 6 |  |
| 22.1 | c |  |  | 96 | 0.01 | 0.2 | 0.03 | 0.1 | 0.14 | 2 | 10 | 11 | 14 | 13,386 | 6 | 0.8 | 6 |  |
| Sample 11-114 |
| 1.1 | c |  |  | 1,234 | 0.02 | 3 | 0.6 | 2.3 | 0.77 | 25 | 108 | 221 | 429 | 8,233 | 0.31 | 22 | 0.3 |  |
| 2.1 | r |  |  | 75 | 0.16 | 1 | 0.3 | 0.2 | 0.10 | 1 | 5 | 13 | 29 | 14,571 | 0.65 | 2 | 0.7 |  |
| 3.1 | r |  |  | 315 | 4.47 | 79 | 10.7 | 6.0 | 1.80 | 18 | 36 | 51 | 111 | 9,266 | 0.52 | 6 | 0.5 |  |
| 4.1 | r |  |  | 108 | 5.66 | 21 | 6.1 | 3.0 | 1.06 | 8 | 9 | 15 | 59 | 10,486 | 0.67 | 2 | 0.7 |  |
| 5.1 | r |  |  | 233 | 1.85 | 7 | 3.0 | 1.7 | 0.50 | 9 | 23 | 42 | 100 | 9,152 | 0.39 | 2 | 0.4 |  |
| 6.1 | c |  |  | 1,177 | 0.35 | 5 | 1.3 | 2.0 | 0.62 | 27 | 110 | 209 | 369 | 9,342 | 0.25 | 4 | 0.3 |  |
| 7.1 | r |  |  | 88 | 1.49 | 3 | 0.9 | 0.6 | 0.18 | 2 | 6 | 18 | 72 | 10,507 | 0.49 | 1 | 0.5 |  |
| 8.1 | c |  |  | 1,659 | 1.60 | 22 | 4.7 | 7.4 | 1.93 | 60 | 181 | 275 | 436 | 9,706 | 0.28 | 5 | 0.3 |  |
| 9.1 | c |  |  | 1,787 | 4.06 | 31 | 10.8 | 11.1 | 2.80 | 69 | 191 | 293 | 464 | 8,004 | 0.31 | 3 | 0.3 |  |
| 10.1 | r |  |  | 926 | 7.33 | 40 | 13.5 | 8.7 | 4.48 | 31 | 73 | 162 | 493 | 11,901 | 0.83 | 2 | 0.8 |  |
| 11.1 | c |  |  | 824 | 21 | 576 | 9.5 | 4.3 | 1.02 | 22 | 76 | 151 | 309 | 10,353 | 0.32 | 17 | 0.3 |  |
| 12.1 | c |  |  | 1,821 | 0.17 | 5 | 1.0 | 3.2 | 1.01 | 42 | 178 | 316 | 567 | 8,998 | 0.27 | 9 | 0.3 |  |
| 13.1 | r |  |  | 404 | 3.63 | 22 | 4.8 | 2.9 | 1.28 | 13 | 38 | 68 | 142 | 13,951 | 0.63 | 3 | 0.6 |  |
| 14.1 | c |  |  | 1,431 | 0.02 | 2 | 0.9 | 2.6 | 0.88 | 33 | 136 | 247 | 451 | 8,179 | 0.29 | 16 | 0.3 |  |
| 15.1 | r |  |  | 67 | 0.89 | 3 | 0.8 | 0.4 | 0.19 | 2 | 4 | 14 | 64 | 12,321 | 0.73 | 2 | 0.7 |  |
| Sample 12-17 |
| 1.1 | o | 31.5 | 2 | 1,864 | 0.03 | 2 | 0.75 | 3.07 | 1.05 | 49 | 189 | 320 | 567 | 7,325 | 10 | 0.3 | 12 | 911 |
| 2.1 | p | 5.5 | 48 | 129 | 0.01 | 0 | 0.00 | 0.07 | 0.07 | 0.7 | 8.1 | 19 | 28 | 10,916 | 10 | 0.9 | 42 | 720 |
| 3.1 | mt | 6.8 | 2 | 254 | 0.00 | 0 | 0.03 | 0.10 | 0.15 | 2.4 | 23 | 28 | 37 | 13,480 | 7 | 0.9 | 16 | 741 |
| 4.1 | mt | 3.1 | 2 | 141 | 0.01 | 0 | 0.01 | 0.03 | 0.03 | 0.2 | 6.0 | 30 | 108 | 16,649 | 5 | 0.9 | 454 | 669 |
| 5.1 | r | 12.1 | 102 | 49 | 0.62 | 1 | 0.08 | 0.04 | 0.03 | 0.3 | 2.6 | 9.2 | 29 | 12,794 | 1 | 0.8 | 96 | 798 |
| 6.1 | mt | 7.7 | 2 | 146 | 0.02 | 0 | 0.00 | 0.07 | 0.06 | 1.1 | 12 | 18 | 27 | 14,284 | 5 | 0.7 | 26 | 750 |
| 7.1 | r | 21.7 | 3,898 | 74 | 0.68 | 1 | 0.25 | 0.36 | 0.08 | 0.8 | 4.8 | 15 | 41 | 9,338 | 1 | 0.5 | 49 | 857 |
| 8.1 | p | 4.4 | 1 | 54 | 0.01 | 0 | 0.01 | 0.03 | 0.02 | 0.3 | 3.5 | 7.6 | 11 | 11,423 | 5 | 0.7 | 43 | 698 |
| 9.1 | p | 3.7 | 1 | 30 | 0.01 | 0 | 0.01 | 0.02 | 0.02 | 0.2 | 1.8 | 4.1 | 6 | 11,180 | 4 | 0.8 | 39 | 687 |
| 10.1 | o | 30.1 | 47 | 1,018 | 0.16 | 1 | 0.53 | 1.53 | 0.59 | 18 | 83 | 197 | 417 | 6,600 | 2 | 0.3 | 23 | 898 |
| 11.0 | o | 11.7 | 3 | 3,818 | 0.02 | 5 | 0.90 | 3.87 | 0.53 | 66 | 365 | 706 | 1242 | 11,752 | 33 | 0.1 | 19 | 797 |
| 12.1 | mt | 33.5 | 25 | 273 | 0.02 | 0 | 0.04 | 0.20 | 0.33 | 2.9 | 23 | 33 | 32 | 16,056 | 9 | 1.3 | 11 | 909 |
| 13.1 | p | 3.9 | 1 | 40 | 0.02 | 0 | 0.01 | 0.04 | 0.03 | 0.2 | 2.4 | 6.4 | 12 | 12,644 | 3 | 1.0 | 56 | 688 |
| 14.1 | s | 10.2 | 4 | 193 | 0.00 | 0 | 0.03 | 0.13 | 0.17 | 2.7 | 19 | 20 | 22 | 12,128 | 9 | 0.9 | 8 | 785 |
| 15.1 | s | 6.4 | 3 | 311 | 0.01 | 0 | 0.02 | 0.06 | 0.10 | 1.2 | 18 | 49 | 90 | 11,134 | 3 | 1.0 | 75 | 739 |
| Note: All analyses were performed on the SHRIMP-RG ion microprobe at the United States Geological Survey - Stanford University Microanalytical Center, Stanford, CA following procedure outlined in Mazdab and Wooden (2006). All abundances expressed in ppm.  |
| a Spot labeled as grain number . spot number; CL designations: c = dark homogeneous core; o = oscillatory zoned core; mt = mottled core; p = patchy core; r = rim, s = sector-zoned core.  |
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| **Table DR-8.** LA–MC–ICP–MS U–Pb geochronologic data and apparent ages. |  |  |
| Sample | U (ppm) | 206Pb/ 204Pb | U/Th | 207Pb/ 235U | 1σ (%) error | 206Pb/ 238U | 1σ (%) error | error corr. | 206Pb/238U (Ma) | ± (Ma) | 207Pb/235U (Ma) | ± (Ma) | 206Pb/207Pb (Ma) | ± (Ma) | Best age (Ma) | ± (Ma) |
| 11-98-1  | 5176 | 704249 | 2.7 | 0.39830 | 5.8 | 0.05394 | 5.8 | 1.00 | 339 | 19 | 340 | 17 | 352 | 11 | 339 | 19 |
| 11-98-1  | 533 | 34714 | 302.4 | 0.30287 | 5.0 | 0.04265 | 2.1 | 0.42 | 269 | 6 | 269 | 12 | 264 | 105 | 269 | 6 |
| 11-98-2  | 4597 | 242559 | 5.7 | 0.41179 | 2.2 | 0.05574 | 2.0 | 0.92 | 350 | 7 | 350 | 6 | 354 | 19 | 350 | 7 |
| 11-98-7  | 3315 | 178458 | 3.9 | 0.41706 | 3.2 | 0.05652 | 3.1 | 0.99 | 354 | 11 | 354 | 9 | 351 | 12 | 354 | 11 |
| 11-98-8  | 989 | 64492 | 5.1 | 0.37430 | 2.8 | 0.05145 | 1.6 | 0.57 | 323 | 5 | 323 | 8 | 319 | 52 | 323 | 5 |
| 11-98-9  | 981 | 96496 | 7.3 | 0.39173 | 2.6 | 0.05308 | 1.1 | 0.43 | 333 | 4 | 336 | 7 | 351 | 53 | 333 | 4 |
| 11-98-10  | 1503 | 144276 | 5.1 | 0.39976 | 2.6 | 0.05433 | 2.3 | 0.87 | 341 | 8 | 341 | 8 | 344 | 29 | 341 | 8 |
| 11-98-11  | 5628 | 84218 | 5.0 | 0.38043 | 7.4 | 0.05190 | 7.4 | 1.00 | 326 | 24 | 327 | 21 | 336 | 6 | 326 | 24 |
| 11-98-12  | 1124 | 116982 | 4.7 | 0.40932 | 5.2 | 0.05531 | 4.9 | 0.94 | 347 | 17 | 348 | 15 | 357 | 41 | 347 | 17 |
| 11-98-13  | 1887 | 117360 | 3.6 | 0.39487 | 2.1 | 0.05353 | 1.7 | 0.82 | 336 | 6 | 338 | 6 | 350 | 27 | 336 | 6 |
| 11-98-16  | 1526 | 54837 | 3.3 | 0.39733 | 2.8 | 0.05367 | 2.3 | 0.81 | 337 | 7 | 340 | 8 | 358 | 37 | 337 | 7 |
| 11-98-17  | 1744 | 246429 | 5.4 | 0.38993 | 2.3 | 0.05299 | 1.9 | 0.84 | 333 | 6 | 334 | 6 | 344 | 28 | 333 | 6 |
| 11-98-18  | 4698 | 56647 | 2.7 | 0.38659 | 7.5 | 0.05208 | 7.4 | 0.99 | 327 | 24 | 332 | 21 | 364 | 18 | 327 | 24 |
| 11-98-19  | 1382 | 43590 | 5.7 | 0.42662 | 6.5 | 0.05701 | 6.0 | 0.92 | 357 | 21 | 361 | 20 | 383 | 56 | 357 | 21 |
| 11-98-20  | 1058 | 20682 | 5.2 | 0.38182 | 7.9 | 0.05240 | 7.5 | 0.95 | 329 | 24 | 328 | 22 | 322 | 54 | 329 | 24 |
| 11-98-21  | 3111 | 13589 | 3.5 | 0.43823 | 7.8 | 0.05823 | 7.6 | 0.97 | 365 | 27 | 369 | 24 | 395 | 42 | 365 | 27 |
| 11-98-22  | 1405 | 95718 | 6.5 | 0.38948 | 1.7 | 0.05324 | 1.1 | 0.66 | 334 | 4 | 334 | 5 | 331 | 29 | 334 | 4 |
| 11-98-24  | 2714 | 45748 | 4.9 | 0.39031 | 1.4 | 0.05305 | 1.3 | 0.92 | 333 | 4 | 335 | 4 | 344 | 13 | 333 | 4 |
| 11-98-25  | 3241 | 20709 | 3.9 | 0.39153 | 2.3 | 0.05290 | 2.2 | 0.93 | 332 | 7 | 335 | 7 | 357 | 20 | 332 | 7 |
| 11-98-26  | 3253 | 199291 | 4.9 | 0.40381 | 1.0 | 0.05481 | 0.9 | 0.88 | 344 | 3 | 344 | 3 | 347 | 11 | 344 | 3 |
| 11-98-27  | 1373 | 99399 | 4.3 | 0.41059 | 4.1 | 0.05526 | 3.3 | 0.80 | 347 | 11 | 349 | 12 | 366 | 56 | 347 | 11 |
| 11-98-28  | 3005 | 54743 | 5.7 | 0.39808 | 8.4 | 0.05393 | 8.3 | 1.00 | 339 | 28 | 340 | 24 | 351 | 17 | 339 | 28 |
| 11-98-29  | 1884 | 9389 | 5.1 | 0.39293 | 2.8 | 0.05243 | 1.9 | 0.68 | 329 | 6 | 337 | 8 | 386 | 47 | 329 | 6 |
| 11-98-30  | 1516 | 83326 | 7.2 | 0.41327 | 2.3 | 0.05577 | 2.0 | 0.86 | 350 | 7 | 351 | 7 | 360 | 26 | 350 | 7 |
| 11-98-33  | 1838 | 44333 | 9.1 | 0.38948 | 4.0 | 0.05259 | 3.9 | 0.98 | 330 | 13 | 334 | 11 | 359 | 16 | 330 | 13 |
| 11-98-34  | 187 | 12081 | 2666.7 | 0.26917 | 12.1 | 0.03963 | 4.6 | 0.38 | 251 | 11 | 242 | 26 | 160 | 262 | 251 | 11 |
| 11-98-35  | 1102 | 96946 | 4.9 | 0.37720 | 3.3 | 0.05147 | 3.0 | 0.88 | 324 | 9 | 325 | 9 | 335 | 35 | 324 | 9 |
| 1. All uncertainties are reported at the 1-sigma level, and include only measurement errors. Systematic errors would increase the uncertainty of clusters of ages by 1-2%. |
| 2. U concentration and U/Th are calibrated relative to Arizona Laserchron in-house Sri Lanka zircon and are accurate to ~20%. |
| 3. Common Pb correction is from 204Pb, with composition interpreted from Stacey and Kramers (1975) and uncertainties of 1.0 for 206Pb /204Pb, 0.3 for 207Pb /204Pb, and 2.0 for 208Pb /204Pb. |
| 4. U/Pb and 206Pb /207Pb fractionation is calibrated relative to fragments of a large Sri Lanka zircon of 563.5 ± 3.2 Ma (2σ). |
| 5. U decay constants and composition as follows: 238U = 9.8485 x 10-10, 235U = 1.55125 x 10-10, 238U /235U = 137.8 |
| 6. Best age is determined from 206Pb/238U age. 207Pb/238U |

**Geoscience Canada V. 42 #3, Petrie et al. (2015) Data Repository References:**

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