Dominantly silica with advanced–argillic acid–sulphate alteration

Argillic and propylitic alteration, includes some advanced argillic

Jg — Island Plutonic Suite

IJBr — Bonanza dacite/rhyolite

IJBv — Bonanza andesite and basalt

uTrPB — Parson Bay sediments

uTrQ — Quatsino limestone

uTrK — Karmutsen basalt

NW Expo

Red Dog

Hep

Hepler Crk.

Nahwitti Lake

Kains Creek

Nahwitti River

limit of mapping

Hushamu

92AP3/1-7 (Hb)

91AP12/49 (Hb)

91AP12/50 (Se)

Mount McIntosh

Goodspeed River

limit of mapping

5612000N

Holberg

92AP-EC-150 (Al)

South McIntosh

92AP15/4-73a (Al)

92AP15/2-72b (Al)

92AP15/1-71b (Al)

Cleskiagh Creek

Hushamu

Pemberton Hills

Youghpan Creek

Wanokana Creek

Wann

15km to Island Copper Mine

Holberg Inlet

582000E

N

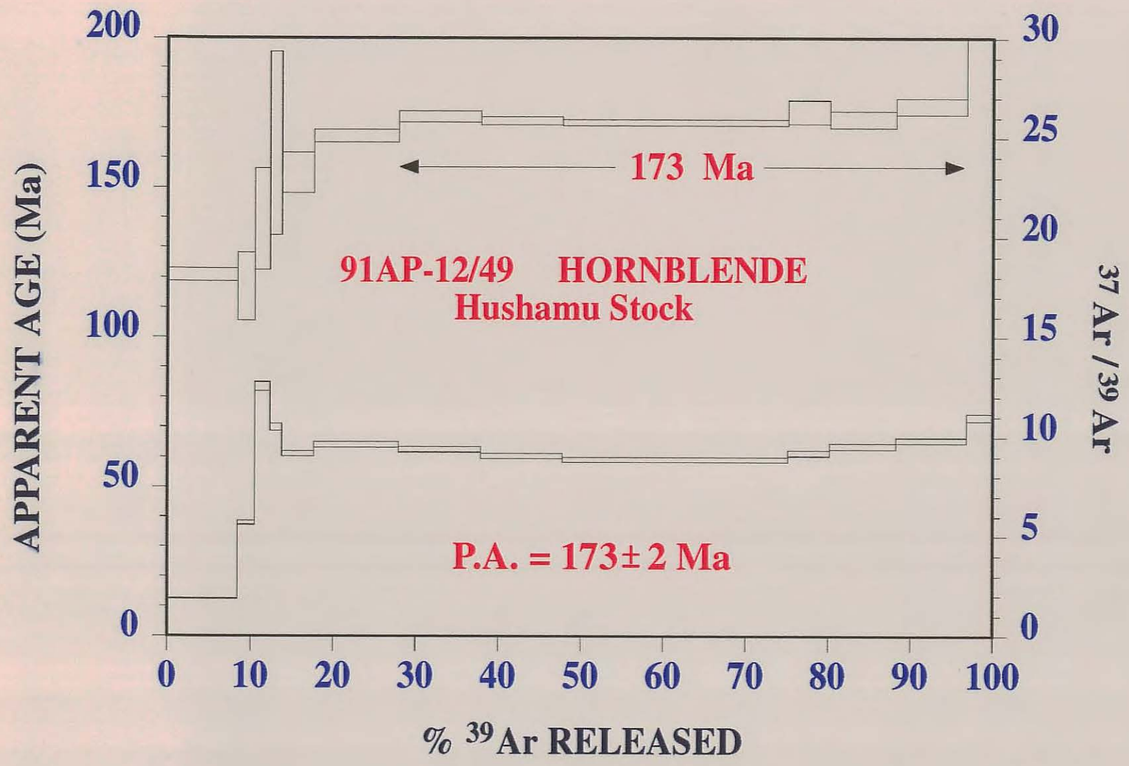
scale: kilometres

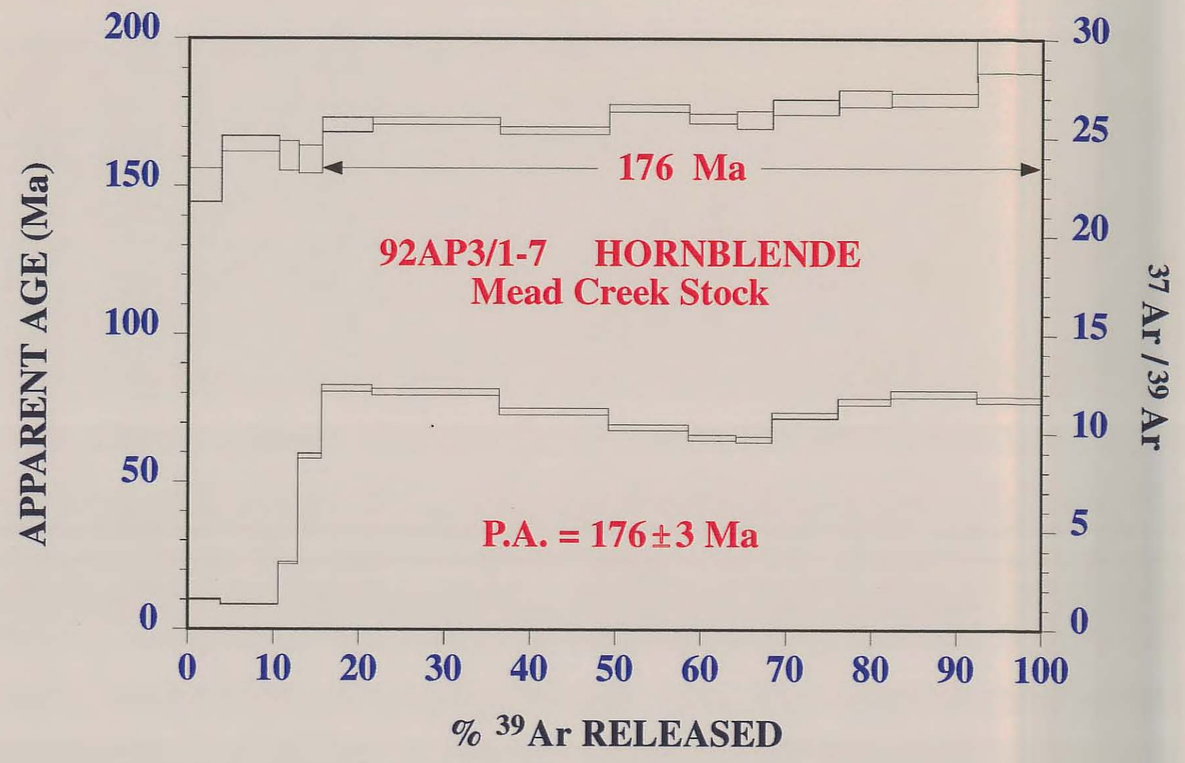
0 1 2 3 4 5km

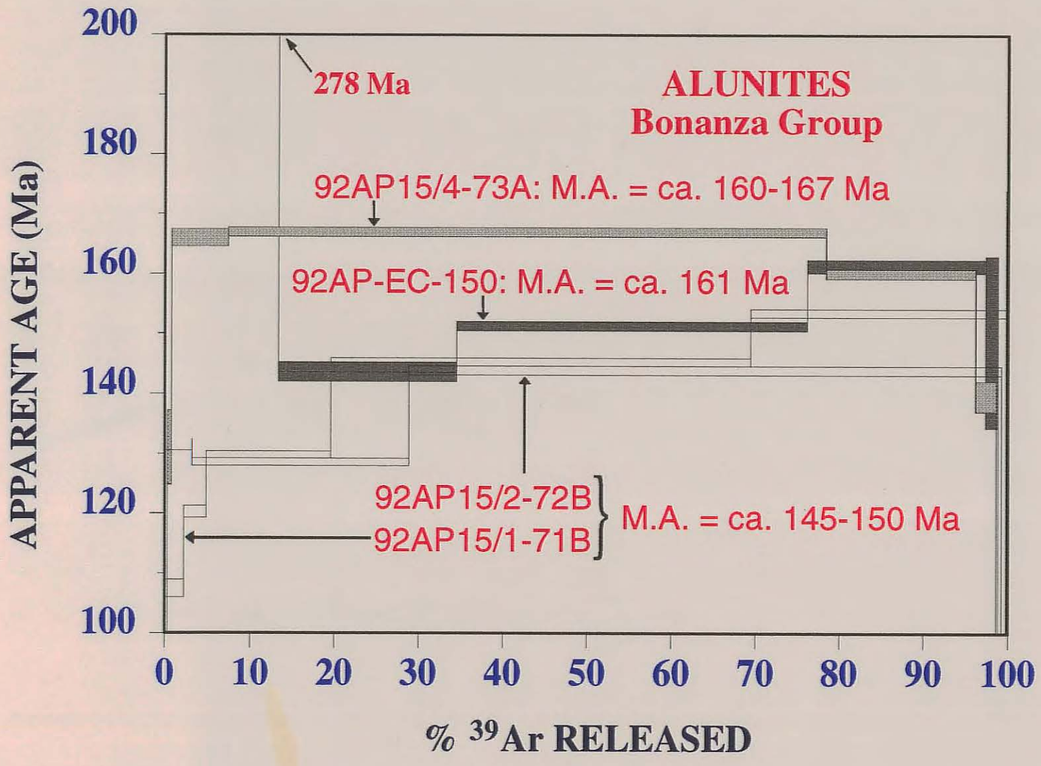
# TABLE 2: ANALYTICAL DATA

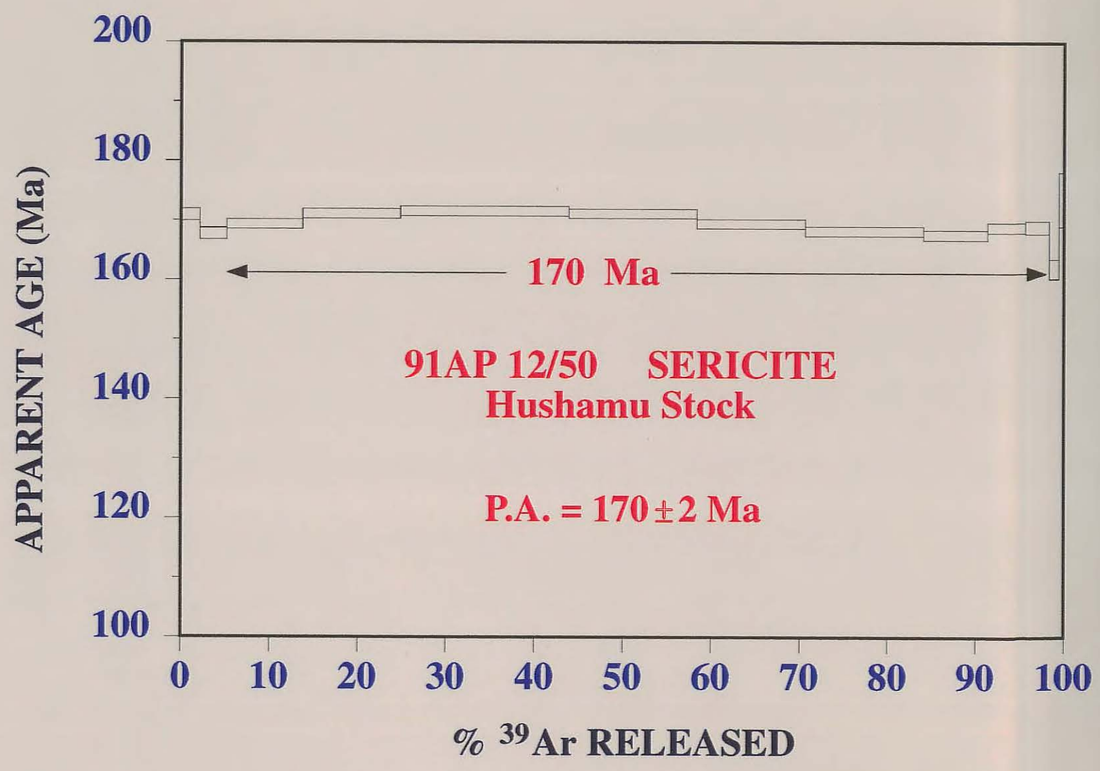
| Temp °C | mV $^{39}$Ar | %$^{39}$Ar | AGE (Ma) | AGE +/- | %ATM | $^{37}$Ar/$^{39}$Ar | $^{36}$Ar/$^{40}$Ar | $^{39}$Ar/$^{40}$Ar | %IIC |
|---|---|---|---|---|---|---|---|---|---|
| **Sample 91AP12/49 Hornblende** | | | | | | | | | |
| 750 | 16.8 | 8.3 | 120.8 | 2.1 | 33.2 | 1.87 | 0.001125 | 0.022353 | 0.59 |
| 900 | 4.1 | 2.0 | 116.9 | 11.3 | 56.6 | 5.70 | 0.001918 | 0.015000 | 1.86 |
| 950 | 3.7 | 1.8 | 139.5 | 16.8 | 58.6 | 12.53 | 0.001984 | 0.011936 | 3.55 |
| 975 | 2.9 | 1.4 | 164.8 | 30.5 | 48.6 | 10.49 | 0.001646 | 0.012453 | 2.61 |
| 1000 | 7.6 | 3.8 | 155.0 | 6.7 | 38.1 | 9.16 | 0.001291 | 0.015992 | 2.39 |
| 1025 | 20.6 | 10.2 | 167.3 | 2.1 | 22.0 | 9.62 | 0.000747 | 0.018605 | 2.36 |
| 1050 | 20.0 | 10.0 | 173.8 | 1.8 | 13.6 | 9.38 | 0.000463 | 0.019801 | 2.24 |
| 1075 | 19.7 | 9.8 | 172.4 | 1.4 | 12.0 | 9.06 | 0.000409 | 0.020341 | 2.17 |
| 1100 | 54.9 | 27.3 | 171.7 | 1.0 | 7.7 | 8.86 | 0.000262 | 0.021425 | 2.13 |
| 1125 | 10.1 | 5.0 | 175.3 | 3.9 | 21.6 | 9.19 | 0.000732 | 0.017817 | 2.18 |
| 1200 | 16.0 | 8.0 | 172.8 | 2.7 | 24.8 | 9.54 | 0.000840 | 0.017351 | 2.28 |
| 1275 | 17.2 | 8.5 | 177.3 | 2.7 | 31.2 | 9.84 | 0.001057 | 0.015446 | 2.31 |
| 1350 | 6.4 | 3.2 | 287.2 | 13.8 | 54.7 | 10.99 | 0.001853 | 0.006081 | 1.83 |
| **Total Gas Age = 169.5 Ma; J = 0.02321** | | | | | | | | | |
| **Sample 91AP12/50 Sericite** | | | | | | | | | |
| 550 | 52.8 | 2.1 | 170.9 | 0.9 | 7.8 | 0.00 | 0.000266 | 0.020462 | 0.00 |
| 600 | 76.8 | 3.0 | 167.7 | 0.9 | 5.7 | 0.00 | 0.000195 | 0.021347 | 0.00 |
| 660 | 213.0 | 8.5 | 169.3 | 0.8 | 1.8 | 0.00 | 0.000063 | 0.022002 | 0.00 |
| 700 | 276.8 | 11.0 | 171.1 | 0.8 | 1.8 | 0.00 | 0.000063 | 0.021771 | 0.00 |
| 750 | 474.0 | 18.9 | 171.5 | 0.8 | 1.0 | 0.00 | 0.000035 | 0.021899 | 0.00 |
| 780 | 362.2 | 14.5 | 171.1 | 0.8 | 1.3 | 0.00 | 0.000047 | 0.021876 | 0.00 |
| 810 | 306.3 | 12.2 | 169.4 | 0.8 | 1.1 | 0.00 | 0.000040 | 0.022150 | 0.00 |
| 850 | 334.2 | 13.3 | 168.2 | 0.7 | 1.7 | 0.00 | 0.000059 | 0.022188 | 0.00 |
| 890 | 183.6 | 7.3 | 167.6 | 0.8 | 3.1 | 0.00 | 0.000105 | 0.021971 | 0.00 |
| 950 | 105.8 | 4.2 | 168.8 | 0.8 | 4.1 | 0.00 | 0.000139 | 0.021568 | 0.00 |
| 1025 | 67.2 | 2.6 | 168.9 | 1.0 | 8.1 | 0.00 | 0.000274 | 0.020667 | 0.00 |
| 1100 | 27.9 | 1.1 | 161.8 | 1.6 | 22.8 | 0.00 | 0.000772 | 0.018143 | 0.00 |
| 1200 | 14.6 | 0.5 | 173.6 | 4.6 | 34.7 | 0.00 | 0.001174 | 0.014266 | 0.00 |
| **Total Gas Age = 169.8 Ma; J = 0.002208** | | | | | | | | | |
| **Sample 92AP-EC-150 Alunite** | | | | | | | | | |
| 525 | 29.7 | 13.3 | 277.6 | 25.2 | 85.1 | 0.07 | 0.002882 | 0.001821 | 0.01 |
| 550 | 47.0 | 21.1 | 143.6 | 1.5 | 29.0 | 0.01 | 0.000984 | 0.017486 | 0.00 |
| 575 | 92.6 | 41.6 | 151.2 | 0.8 | 9.8 | 0.01 | 0.000331 | 0.021072 | 0.00 |
| 600 | 47.2 | 21.2 | 161.2 | 1.1 | 12.5 | 0.05 | 0.000423 | 0.019116 | 0.01 |
| 625 | 3.1 | 1.3 | 148.6 | 14.2 | 55.8 | 0.70 | 0.001890 | 0.010502 | 0.17 |
| 800 | 2.6 | 1.1 | --- | --- | --- | 0.85 | 0.003479 | 0.010665 | 2.38 |
| **Total Gas Age = 167.3 Ma; J = 0.002044** | | | | | | | | | |
| **Sample 92AP15/1-71B Alunite** | | | | | | | | | |
| 500 | 27.4 | 2.2 | 107.4 | 1.4 | 30.0 | 0.12 | 0.001016 | 0.023345 | 0.04 |
| 525 | 30.9 | 2.5 | 120.2 | 0.9 | 10.6 | 0.03 | 0.000360 | 0.026543 | 0.01 |
| 550 | 181.6 | 14.8 | 129.8 | 0.6 | 2.7 | 0.02 | 0.000092 | 0.026706 | 0.00 |
| 575 | 610.9 | 49.8 | 145.3 | 0.6 | 0.6 | 0.02 | 0.000021 | 0.024269 | 0.00 |
| 600 | 372.3 | 30.3 | 153.4 | 0.7 | 0.8 | 0.03 | 0.000027 | 0.022885 | 0.00 |
| 625 | 0.7 | 0.0 | 65.5 | 105.0 | 86.2 | 0.97 | 0.002919 | 0.007610 | 0.47 |
| 700 | 2.0 | 0.1 | 63.8 | 24.7 | 86.9 | 0.39 | 0.002941 | 0.007427 | 0.19 |
| **Total Gas Age = 143.8 Ma; J = 0.002049** | | | | | | | | | |
| **Sample 92AP15/2-72B Alunite** | | | | | | | | | |
| 550 | 70.9 | 3.0 | 131.5 | 0.8 | 16.4 | 0.03 | 0.000557 | 0.022520 | 0.00 |
| 575 | 604.4 | 25.8 | 128.5 | 0.6 | 2.1 | 0.01 | 0.000072 | 0.026998 | 0.00 |
| 600 | 1646.8 | 70.3 | 143.9 | 0.6 | 2.0 | 0.02 | 0.000068 | 0.024048 | 0.00 |
| 625 | 12.4 | 0.5 | 77.3 | 3.0 | 57.0 | 0.46 | 0.001931 | 0.019970 | 0.02 |
| 800 | 5.8 | 0.2 | 151.5 | 22.4 | 87.4 | 0.27 | 0.002959 | 0.002917 | 0.06 |
| **Total Gas Age = 139.2 Ma; J = 0.002039** | | | | | | | | | |
| **Sample 92AP15/4-73A Alunite** | | | | | | | | | |
| 450 | 4.2 | 0.2 | --- | --- | --- | 1.15 | 0.003546 | 0.009063 | 1.57 |
| 500 | 7.0 | 0.4 | 131.0 | 6.1 | 52.9 | 0.17 | 0.001792 | 0.012743 | 0.04 |
| 550 | 96.9 | 6.5 | 166.0 | 1.4 | 10.0 | 0.09 | 0.000341 | 0.019033 | 0.02 |
| 600 | 1044.1 | 71.0 | 166.9 | 0.7 | 1.0 | 0.04 | 0.000035 | 0.020819 | 0.00 |
| 625 | 261.1 | 17.7 | 160.0 | 0.7 | 5.3 | 0.04 | 0.000181 | 0.020819 | 0.01 |
| 700 | 36.1 | 2.4 | 139.6 | 2.5 | 49.3 | 0.09 | 0.001670 | 0.012837 | 0.02 |
| 1000 | 19.7 | 1.3 | 54.2 | 4.1 | 79.4 | 0.21 | 0.002688 | 0.013738 | 0.12 |
| **Total Gas Age = 162.8 Ma; J = 0.002041** | | | | | | | | | |
| **Sample 92AP3/1-7 Hornblende** | | | | | | | | | |
| 750 | 19.0 | 3.8 | 150.3 | 5.6 | 65.8 | 1.52 | 0.002227 | 0.008784 | 0.39 |
| 900 | 33.8 | 6.7 | 164.3 | 2.6 | 39.6 | 1.25 | 0.001342 | 0.014133 | 0.30 |
| 950 | 11.1 | 2.2 | 160.3 | 4.9 | 46.1 | 3.37 | 0.001560 | 0.012958 | 0.83 |
| 1000 | 13.5 | 2.7 | 159.0 | 4.7 | 48.5 | 8.82 | 0.001642 | 0.012476 | 2.19 |
| 1025 | 29.4 | 5.9 | 170.8 | 2.4 | 31.2 | 12.24 | 0.001058 | 0.015467 | 2.88 |
| 1050 | 74.2 | 14.8 | 172.1 | 1.2 | 20.0 | 12.07 | 0.000677 | 0.017851 | 2.82 |
| 1075 | 63.6 | 12.7 | 168.9 | 1.2 | 17.8 | 11.09 | 0.000606 | 0.018693 | 2.63 |
| 1100 | 46.8 | 9.4 | 176.5 | 1.2 | 11.9 | 10.28 | 0.000405 | 0.019130 | 2.36 |
| 1125 | 27.5 | 5.5 | 173.1 | 1.6 | 17.2 | 9.76 | 0.000583 | 0.018367 | 2.27 |
| 1150 | 21.1 | 4.2 | 172.5 | 3.0 | 23.1 | 9.68 | 0.000784 | 0.017100 | 2.26 |
| 1200 | 38.6 | 7.7 | 176.9 | 2.5 | 35.9 | 10.90 | 0.001216 | 0.013896 | 2.50 |
| 1250 | 30.8 | 6.1 | 179.9 | 2.8 | 39.2 | 11.60 | 0.001330 | 0.012933 | 2.62 |
| 1325 | 50.3 | 10.0 | 179.5 | 2.1 | 35.0 | 11.98 | 0.001187 | 0.013864 | 2.71 |
| 1400 | 38.0 | 7.6 | 194.9 | 7.2 | 68.7 | 11.71 | 0.002328 | 0.006110 | 2.49 |
| **Total Gas Age = 173.5 Ma; J = 0.002235** | | | | | | | | | |

*Error estimates at 1 σ level; %IIC = Interfering Isotopes Correction*
*$^{37}$Ar/$^{39}$Ar, $^{36}$Ar/$^{40}$Ar, and $^{39}$Ar/$^{40}$Ar ratios are corrected for interfering isotopes*
*--- not determined*




Age spectrum diagrams and $^{37}Ar/^{39}Ar$ ratio plots. Half-heights of open rectangles designate the 1σ relative (between-step) uncertainties. Age spectra for the two well-crystallized alunites are stippled. P.A. indicates 'plateau age'; M.A. is maximum age of segment. All errors are quoted at the 2σ level of confidence.