

DATA REPOSITORY ITEM FOR: *Expansion of alpine glaciers in Pacific North America in the first millennium A.D.*

TABLE DR1. LOCATION OF GLACIER STUDY SITES

| Site                 | Location         |                   |
|----------------------|------------------|-------------------|
|                      | Latitude<br>(°N) | Longitude<br>(°W) |
| Lillooet Glacier     | 50°45'           | 123°46'           |
| Bridge Glacier       | 50°49'           | 123°29'           |
| Miserable Glacier    | 51°04'           | 123°52'           |
| Tiedemann Glacier    | 51°21'           | 124°56'           |
| Frank Mackie Glacier | 56°20'           | 130°05'           |
| Todd Glacier         | 56°12'           | 129°46'           |
| Surprise Glacier*    | 56°12'           | 129°36'           |
| Forrest Kerr Glacier | 56°55'           | 130°51'           |
| Beare Glacier        | 60°01'           | 141°41'           |
| Sheridan Glacier     | 60°38'           | 145°09'           |
| Nizina Glacier       | 61°38'           | 142°27'           |
| Kuskulana Glacier    | 61°38'           | 143°36'           |
| Copper Glacier       | 62°09'           | 143°46'           |
| Tebenkof Glacier     | 60°41'           | 148°31'           |
| Bartlett Glacier     | 60°37'           | 148°58'           |
| Grewingk Glacier     | 59°35'           | 150°57'           |
| Dinglestadt Glacier  | 59°48'           | 150°36'           |

\*Unofficial name.

TABLE DR2. RADIOCARBON AGES.

| <sup>14</sup> C age<br>(years BP) | Calibrated<br>age range<br>(years AD)* | Laboratory<br>number <sup>†</sup> | Description and significance for<br>first millennium AD glacier advance <sup>§</sup> | Reference                |
|-----------------------------------|--|-----------------------------------|--|--------------------------|
| <u>Lillooet Glacier</u>           |  |                                   |  |                          |
| 1090±50                           | 780 - 1030                             | GSC-6606                          | Branch on peat between two tills: min. age   | Reyes and Clague, 2004   |
| 1390±50                           | 540 - 770                              | GSC-6760                          | Log on paleosol between two tills: direct age  | Reyes and Clague, 2004   |
| 1527±41                           | 420 - 620                              | Wk-12310                          | Twig from paleosol between two tills: max. age                                       | Reyes and Clague, 2004   |
| 1549±45                           | 410 - 620                              | Wk-12309                          | Wood fragment in paleosol between two tills: max. age                                | Reyes and Clague, 2004   |
| 1600±70                           | 260 - 620                              | TO-9754                           | Branch in paleosol between two tills: max. age                                       | Reyes and Clague, 2004   |
| 1700±80                           | 130 - 540                              | GSC-6767                          | Log on paleosol between two tills: direct age  | Reyes and Clague, 2004   |
| 1720±42                           | 230 - 430                              | Wk-12306                          | Charcoal in paleosol between two tills: max. age                                     | Reyes and Clague, 2004   |
| <u>Bridge Glacier</u>             |  |                                   |  |                          |
| 1500±50                           | 430 - 650                              | Beta-171549                       | Exhumed in situ stump: direct age  | Allen and Smith, 2004    |
| <u>Tiedemann Glacier</u>          |  |                                   |  |                          |
| 1270±140                          | 400 - 1050                             | GSC-977                           | Basal peat in a moraine-dammed pond: min. age  | Fulton, 1971             |
| 1330±65                           | 600 - 880                              | S-1473                            | Log in glaciofluvial gravel in lateral moraine: max. age                             | Ryder and Thomson, 1986  |
| <u>Frank Mackie Glacier</u>       |  |                                   |  |                          |
| 1440±40                           | 540 - 670                              | TO-2897                           | Wood fragment in glaciolacustrine mud: max. age                                      | Clague and Mathews, 1992 |
| 1520±50                           | 420 - 640                              | GSC-5386                          | Wood fragment in glaciolacustrine mud: max. age                                      | Clague and Mathews, 1992 |
| 1600±40                           | 340 - 570                              | TO-2898                           | Conifer needles in deltaic sands: max. age   | Clague and Mathews, 1992 |
| <u>Todd Glacier</u>               |  |                                   |  |                          |
| 1540±60                           | 410 - 650                              | Beta-181860                       | Log in till: max. age  | Laxton, 2005             |
| 1680±60                           | 230 - 540                              | Beta-199708                       | Log in till: max. age  | Laxton, 2005             |

TABLE DR2. RADIOCARBON AGES (cont.).

| <u>Surprise Glacier</u>     |            |             |  |                                 |
|-----------------------------|------------|-------------|--|---------------------------------|
| 1400±60                     | 530 - 780  | Beta-197986 | Log between two tills: direct age                    | Jackson and Smith, 2005         |
| 1690±60                     | 220 - 540  | Beta-197985 | Log between two tills: direct age                    | Jackson and Smith, 2005         |
| <u>Forrest Kerr Glacier</u> |            |             |  |                                 |
| 1490±60                     | 430 - 660  | Beta-197977 | Wood in till: max. age                               | Lewis and Smith, 2005           |
| 1690±50                     | 230 - 540  | Beta-197979 | Exhumed in situ stump: direct age                    | Lewis and Smith, 2005           |
| 1720±50                     | 170 - 430  | Beta-197980 | Exhumed in situ stump: direct age                    | Lewis and Smith, 2005           |
| 1780±60                     | 80 - 410   | Beta-197981 | Exhumed in situ stump: direct age                    | Lewis and Smith, 2005           |
| <u>Beare Glacier</u>        |            |             |  |                                 |
| 1480±70                     | 420 - 670  | Beta-95990  | In situ stump beneath till: direct age               | Johnson et al., 1997            |
| <u>Sheridan Glacier</u>     |            |             |  |                                 |
| 1610±100                    | 230 - 650  | I-1986      | Glacier-pushed log: direct age                       | Tuthill et al., 1968            |
| 1670±40                     | 210 - 570  | CURL-5298   | In situ stump in gravel: direct age                  | D.J. Barclay, unpub. data, 2001 |
| 1670±75                     | 250 - 540  | CURL-5294   | In situ stump in gravel: direct age                  | D.J. Barclay, unpub. data, 2001 |
| <u>Nizina Glacier</u>       |            |             |  |                                 |
| 1140±60                     | 720 - 1020 | Beta-122974 | Transported alder branch between two tills: min. age | Wiles et al., 2002              |
| 1810±60                     | 70 - 390   | Beta-122975 | Organic-rich silt in diamicton: max. age             | Wiles et al., 2002              |
| 1810±70                     | 60 - 400   | Beta-122976 | Organic-rich silt in diamicton: max. age             | Wiles et al., 2002              |
| <u>Kuskulana Glacier</u>    |            |             |  |                                 |
| 1720±60                     | 130 - 440  | Beta-133814 | In situ stump beneath till and outwash: direct age   | Wiles et al., 2002              |
| 1760±60                     | 130 - 420  | Beta-133815 | In situ stump beneath till and outwash: direct age   | Wiles et al., 2002              |

TABLE DR2. RADIOCARBON AGES (cont.).

|  |            |            |  |                        |
|--|------------|------------|--|------------------------|
| <u>Tebenkof Glacier</u>  |            |            |  |                        |
| 1460±70  | 430 - 680  | Beta-93991 | Log in till: max. age                              | Wiles et al., 1999     |
| <u>Bartlett Glacier</u>  |            |            |  |                        |
| 1385±200   | 200 - 1050 | W-318      | Stump between two tills: direct age                | Karlstrom, 1964        |
| <u>Grewingk Glacier</u>  |            |            |  |                        |
| 1440±70  | 430 - 720  | BGS-1278   | Exhumed in situ stump: direct age                  | Wiles and Calkin, 1994 |
| <u>Dinglestadt Glacier</u>   |            |            |  |                        |
| 1440±70  | 430 - 720  | BGS-1271   | In situ stump beneath till and outwash: direct age | Wiles and Calkin, 1994 |
| *Determined from the calibration dataset IntCal98 (Stuiver et al., 1998) using the program OxCal 3.9 (Bronk Ramsey, 2001). Age ranges are $\pm 2\sigma$ calculated with an error multiplier of 1.  |            |            |  |                        |
| †Beta - Beta Analytic, USA; BGS - Brock University, Canada; CURL - University of Colorado, USA; GSC - Geological Survey of Canada; I - Teledyne Isotopes, USA; S - Saskatchewan Research Council, Canada; TO - Isotracer Laboratories, Canada; W - United States Geological Survey; Wk - Waikato University, New Zealand |            |            |  |                        |
| §Min. - minimum; max. - maximum.   |            |            |  |                        |

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