Using a Web Map Service to map Little Ice Age glacier extents at regional scales

Johannes Reinthaler1, Frank. Paul1

1 Department of Geography, University of Zurich, Zurich, Switzerland

E-mail: johannes.reinthaler@geo.uzh.ch

# Supplement material

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Table S1: List of regions and subregions and mountain ranges with their specific number of analysed glaciers, LIA area as well as approximate coordinates. Subregions of the 2nd order also appear in Table 4.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| RGI first order region code and name | Subregion2nd order | Subregion 3rd order | Number of glaciers | Mean LIA Date | Area LIA [km2] | Lat. [°] | Long. [°] |
| [1] Alaska | Brooks Range | Brooks Range | 53 | 1890 | 168.26 | 69.23 | -144.04 |
|   | South Alaska | Talkeetna Mountains | 37 | 1850 | 317.17 | 62.04 | -148.76 |
|   |   | Ahklun Mountains | 7 | 1860 | 18.00 | 60.03 | -159.29 |
|   |   | Delta Range | 10 | 1850 | 480.53 | 63.30 | -145.09 |
|   |   | Kenai Mountains | 9 | 1851 | 917.40 | 59.87 | -150.24 |
|   |   | Chilkoot Ranges | 13 | 1850 | 178.12 | 59.82 | -135.69 |
|   |   | South Boundary Ranges | 22 | 1850 | 379.70 | 56.08 | -130.21 |
| [4] Arctic Canada South  | Baffin Island | Pond Inlet | 20 | 1850 | 208.18 | 72.64 | -77.14 |
|   | Bruce Mountains | 18 | 1850 | 95.53 | 71.50 | -72.31 |
|   |   | Kangok Fjord | 2 | 1850 | 21.61 | 68.68 | -68.94 |
|   |   | Mount Viewforth | 13 | 1850 | 58.16 | 68.18 | -67.10 |
|   |   | Quajon & Maktak Fjord | 22 | 1850 | 95.65 | 67.50 | -64.86 |
|   |   | North Pangnirtung & Kangert Fjord | 21 | 1850 | 241.09 | 66.97 | -64.26 |
|   |   | White Wind Peak | 30 | 1850 | 478.19 | 66.54 | -62.49 |
| [9] Russian Arctic | Novaya Zemlya |  | 85 | 1850 | 644.10 | 73.40 | 55.29 |
| [16] Tropics | Mexico | Iztaccíhuatl | 1 | 1850 | 6.60 | 19.18 | -98.64 |
|   |   | Pico de Orizaba | 1 | 1850 | 8.53 | 19.03 | -97.27 |
|   | Sierra Nevada de Santa Marta |  | 37 | 1650 | 44.21 | 10.84 | -73.68 |
|   | Sierra Nevado del Cocuy |  | 15 | 1650 | 61.05 | 6.45 | -72.30 |
|   | Peru | Cordillera Blanca  | 23 | 1630 | 97.70 | -8.99 | -77.65 |
|   | Bolivia | Cordillera Real | 16 | 1658 | 32.83 | -16.24 | -68.18 |
|   |   | Cordillera Quimsa Cruz | 19 | 1652 | 39.44 | -16.94 | -67.39 |
|   | Africa | Rwenzori | 7 | 1880 | 6.55 | 0.38 | 29.89 |
|   |   | Mt Kenya | 9 | 1880 | 1.69 | -0.15 | 37.31 |
|   |   | Kilimanjaro | 1 | 1880 | 19.61 | -3.07 | 37.35 |
|   | Papua | Puncak Jaya | 1 | 1875 | 21.26 | -4.06 | 137.16 |

Table S2: Glaciers with dating records. Glaciers from Africa were taken from photographs and field campaign and Kaser and Osmaston (2002) estimates the area to be about 90% of the LIA maximum extent.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Region | Name | Extent | Year LIA | Reference | Year modern | Area LIA [km2] | Area modern [km2] | Area change rate [% a-1] |
| Alaska | Tustemena Glacier | LIA Max | 1864 | (Wiles and Calkin, 1994) | 2007 | 316.06 | 307.54 | -0.02 |
|  | Bear Glacier | LIA Max | 1888 | (Wiles and Calkin, 1994) | 2005 | 222.68 | 198.09 | -0.09 |
|  | Pederson Glacier | LIA Max | 1885 | (Wiles and Calkin, 1994) | 2005 | 38.83 | 31.63 | -0.15 |
|  | Dinglestadt Glacier | LIA Max | 1824 | (Wiles and Calkin, 1994) | 2005 | 87.18 | 75.89 | -0.07 |
|  | Yalik Glacier | LIA Max | 1889 | (Wiles and Calkin, 1994) | 2005 | 52.01 | 42.25 | -0.16 |
|  | Nuka Glacier | LIA Max | 1724 | (Wiles and Calkin, 1994) | 2005 | 21.64 | 16.40 | -0.09 |
|  | Petrof Glacier | LIA Max | 1904 | (Wiles and Calkin, 1994) | 2005 | 54.12 | 45.45 | -0.16 |
|  | Exit Glacier | LIA Max | 1825 | (Wiles and Calkin, 1994) | 2005 | 41.99 | 37.30 | -0.06 |
|  | Grewingk Glacier | LIA Max | 1858 | (Wiles and Calkin, 1994) | 2007 | 82.89 | 68.63 | -0.12 |
| South America | Huayna Potosi western glaciers | LIA Max | 1657 | (Rabatel and others, 2008) | 1998 | 3.58 | 1.82 | -0.14 |
|  | Huayna Potosi eastern glaciers (Zongo) | LIA Max | 1680 | (Rabatel and others, 2008) | 1998 | 6.45 | 3.47 | -0.15 |
|  | Charquini Sureste | LIA Max | 1664 | (Rabatel and others, 2006) | 1998 | 1.56 | 0.54 | -0.20 |
|  | Charquini Oeste | LIA Max | 1663 | Rabatel and others, 2006) | 1998 | 0.70 | 0.00 | -0.30 |
|  | Charquini Norte | LIA Max | 1663 | Rabatel and others, 2006) | 1998 | 0.93 | 0.22 | -0.23 |
|  | Charquini Sur | LIA Max | 1686 | Rabatel and others, 2006) | 1998 | 1.23 | 0.38 | -0.22 |
|  | Charquini Noreste | LIA Max | 1662 | Rabatel and others, 2006) | 1998 | 0.84 | 0.23 | -0.22 |
|  | Jankhu Uyu & Wila Lluxita glaciers | LIA Max | 1660 | (Rabatel and others, 2008) | 1998 | 1.85 | 0.84 | -0.16 |
|  | San Enrique & Malla Chuma glaciers | LIA Max | 1665 | (Rabatel and others, 2008) | 1998 | 6.91 | 4.64 | -0.10 |
|  | Yaypuri & Jankho Loma glaciers | LIA Max | 1660 | (Rabatel and others, 2008) | 1998 | 5.57 | 3.75 | -0.10 |
| Africa | Kolbe | ~90% | 1913 | (Hastenrath, 2005) | 1993 | 0.07 | 0 |  |
|  | Mt Baker | ~90% | 1906 | (Kaser and Osmaston, 2002) | 2021 | 1.27 | 0.01 | -0.86 |



Figure S1: Overlay of LIA outlines in the Bernina group (Switzerland). In red the outlines from Maisch and others (2000) and in blue outlines from this study.

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