



PROJECT PRESSURE

## Instructions for Submitting an Image

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## **Introduction**

Thank you for your contribution to the global glacial archive. Your images will be paired with comparative images, creating historic timelines, documenting glacier fluctuations. This information is important for scientific research, education, and capturing public attention.

It is crucial that shots are paired with co-ordinates so they can be recreated in the future and viewed on maps and our bespoke digital platform.

### **1. Before heading out**

#### **Check for comparative images** (admin@project-pressure)

If previous images have been taken of the glacier you are visiting, it is essential you reproduce this image as closely as possible. Check with Project Pressure to see if they have comparative images and their GPS co-ordinates.

#### **Digital Reconnaissance**

If you have comparative images, drop them into Google Earth and plan your expedition accordingly. Think about access and aspect. Where will the midday sun be?

#### **Carry Laminated Copies Of Comparative Images With You**

Create an A4 sheet complete with the comparative image, GPS co-ordinates and glacier map.

#### **Weather**

Visibility can greatly reduce the value of images. Travel in the correct season and build contingency time into your itinerary.

## Do you have the correct Equipment?

- Best is a camera with build-in GPS
- Handheld GPS unit (best w. camera)
- Compass
- Tripod
- Handheld GPS unit

## 2. In The Field

### Expedition DATA Capture Process

For each shot in take a reference picture using on a GPS (with a camera function)

Alternatively make a *waypoint* on the GPS.

Using the same camera that is used to shoot the glaciers. Keep the camera in the tripod and shoot a compass in front of the actual landscape. Make sure the focus in on the compass.

For each set up.

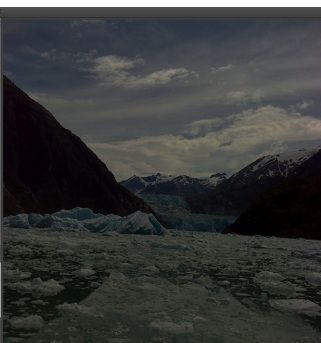
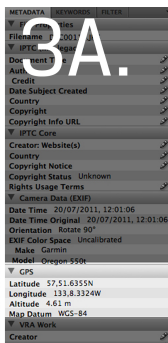
1 Shoot the landscape/glacier detail, use a tripod if possible. If the glacier is too big to fit in frame, shoot multiple shots to create a panoramic view.

2 Photograph the compass in front of landscape.

3A take a picture on the GPS, make sure there is a GPS signal in GPS device.

3B (alternative) make a *waypoint* on GPS and note the *waypoint* on camera. Fx shoot the GPS in front of landscape so the *waypoint* number is readable. This way the picture and co-ordinates can easily be matched up afterwards.

If you trek its good to keep the GPS on, so you get the route marked, then the photo position can found retrospectively if needed.



### 3. Back Home – How To Input YOUR NAME & info Into Image File

#### a) Input Data Using Photoshop

1. Open the file in Photoshop CS5.
2. From the menu bar select 'file' then 'file info'
3. From this window all metadata fields can be entered. See table below for inputting instructions. The panel names are also listed to help with navigation.

| Panel Name | Field Name                                               | Content                                                                                   |
|------------|----------------------------------------------------------|-------------------------------------------------------------------------------------------|
| ITPC       | Creator                                                  | Your Name                                                                                 |
|            | Creators job title                                       | Photographer                                                                              |
|            | Description                                              | TIFF (or what file format it is)                                                          |
|            | Copyright notice                                         | In public domain. Can be used for all non commercial use - education, scientific and more |
|            | Source                                                   | <a href="http://www.project-pressure.org">www.project-pressure.org</a>                    |
|            | Rights usage terms                                       | Commercial copyright YOUR NAME for Project-pressure.org                                   |
|            | Date created                                             | 00/00/0000                                                                                |
|            | Country                                                  | Eg: Uganda                                                                                |
| Advanced   | EXIF properties: Longitude, latitude, altitude           | Entered using Houdahgeo                                                                   |
| Generic    | Glacier name (Prominent)                                 | Eg: Stanley                                                                               |
|            | Multiple glaciers L - R                                  | Eg: Margherita, Edward                                                                    |
|            | Source for GPS co-ordinates                              | GPS or Manually pinpointed                                                                |
|            | Level of uncertainty                                     | Pinpoint                                                                                  |
|            | Compass reading (Not corrected for magnetic declination) | Numeric value only                                                                        |

**Note:** All text in blue is fixed for every image. Fixed CS5 metadata templates can be created in the 'file info' window, this can effectively speed up the process.

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If you use a camera with inbuilt in GPS receiver, it automatically writes the GPS information into the image data.

If this is not the case with your camera, then you will have to do it manually.

## **b) Input GPS co-ordinates into high-resolution image files**

The below is long to read but makes sense once you start it is also important:

**Software needed:** Garmin Basecamp, Houdah geo, Picasa

Definitions:

GPS ref. – This refers to the JPEG taken using hand-held GPS device with embedded GPS coordinates.

High Resolution Image – this is the superior quality image, processed, and ready for submission.

Waypoints – Is the name Houdahgeo uses for GPS positions, extracted from a GPX file.

Meatdata – name given to all data input into image file

1. Copy entire folder of 'GPS ref' JPEGs to the desktop, label folder 'copy' in the end.
2. Visually match up 'GPS ref' shot to High Resolution Image.
3. Rename the GPS ref. by adding the High Resolution image filename to the GPS ref filename. KEEP the GPS ref original filename.

example: GPS ref file name: DSC0007

High resolution image file name: 2010 Greenland S4 F6

GPS ref copy file name after visually paring:

2010 Greenland S4 F6 DSC0007

Once renamed, open two windows in Finder/File Explorer and cross-reference visuals and names.

### **Converting GPS to GPX**

Next the folder with the **renamed files** needs to be exported as GPX file

Take folder '2010 Greenland GPS REF Copy'

4. Open Garmin Basecamp, open 'preferences' and make sure the 'Position format' is set to: " Lat/Lon hddd°mm'ss.s' "
5. Create a new list. Go to menu FILE>NEW LIST
6. Name the list the same as the folder with visually matched GPS ref images, example '2010 Greenland GPS REF Copy'
7. Import all the visually matched GPS ref images to 'New list' just created. Drag and Drop GPS ref folder From: Desktop>2010 Greenland GPS REF Copy To: Basecamp> New list created ('2010 Greenland GPS REF Copy')
8. Export list as .GPX file. By selecting list just created with GPS ref added. Go to menu FILE->"export (the name will show) Keep the name of the list.

### **Pairing High Resolution Images with GPX data. Importing GPX data into High Resolution Image metadata**

9. Open Houdahgeo, open preferences and make sure the coordinate display is set to "Degrees Minutes Seconds ".
10. Drag High Resolution Image files into Houdahgeo, this creates a list
11. Import the .GPX file you created, to Houdahgeo. Select Geocode from the menu>Load GPS Data from File

### **Match High Resolution Image with GPS Coordinates.**

12. Select High Resolution Image (start from the top)

13. Select matching GPS data from GPX file. (The TIFF file name should be a part of 'Waypoint') Inspector window, in the box 'Titel' and 'Comment', delete exsisting information.

14. Write EXIF data to High Resolution Image. In the menu EXPORT>WRITE EXIF TAGS

15. Repeat for all High Resolution Images

**Cross reference GPS location on map.**

16. Open Picasa

17. Drag geo-tagged High Resolution Image into Picasa. File name: 2010 Greenland S4 F6

18. Click on the show places panel. (Make sure you can see a places location needle) Zoom in as much as possible.

19. Make a screenshot Including Image, GPS coordinates and file name

20. Drag matching original GPS ref JPG into Picasa.

File name: DSC0007

20. Click on the show places panel. (Make sure you can see a places location needle)

21. Zoom in as much as possible.

22. Make a screenshot Including Image, GPS coordinates and file name

23. Open the two screenshots in preview next to each other and compare images and location on map.

24. **Get a second person to validate**

#### **4. If you have images but do not have GPS co-ordinates**

1. Create copies of the file you are working from, do not work from the originals.
2. Use Google Earth Pro to source GPS values (Longitude, Latitude, Altitude), these correspond to the mouse movement, and can be fixed using markers – all values are displayed at the foot of the window.
3. Open Houdahgeo – open preferences select the units tab, click 'co-ordinate display' and select 'Degrees, Minutes, Seconds.' The image can now be imported by dragging the file onto the Houdahgeo dock icon.
4. The co-ordinates & altitude can now be typed into the corresponding fields, or using the side window. Once you press enter the field will format itself.
5. The files can now be exported: click the icon on the top bar 'Export, write to EXIF/XMP/IPTC'. A second window will in which you must select bypass 'XMP sidecars', 'tag masters/originals', 'co-ordinates' and Altitude'. This will implement the files with the metadata.
6. Verify the files using either Picasa, or from generating KMZ files for Google Earth.

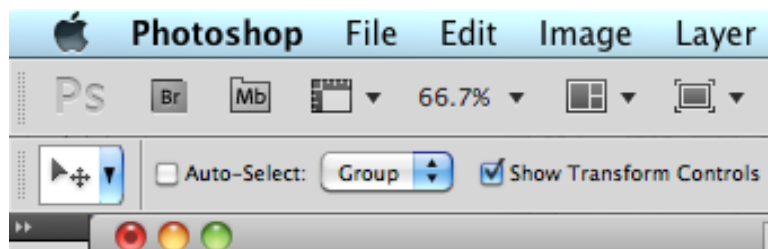
## 5. How to submit?

Please submit two copies of each image to [admin@project-pressure.org](mailto:admin@project-pressure.org)

- 1<sup>st</sup> image = JPG with correct META data
- 2<sup>nd</sup> Image = JPG with compass image overlaid

### How To JPG

### Image



### Overlay with Compass

1. Open Glacier and reference compass image in Photoshop
2. Using the Move tool to drag compass onto glacier
3. Select *Show Transform Controls* Box on taskbar (Figure 1)
4. Reduce Compass size accordingly
5. Save As > Glacier Name \_ Compass – Format JPG



Figure 1

Thank you for contribution.

## List of High Priority Glaciers

| High Priority |                         |          |          |
|---------------|-------------------------|----------|----------|
| Country       | Glacier                 | LAT      | LONG     |
| Antarctica    | HURD                    | -62.6878 | -60.4015 |
| Antarctica    | JOHNSONS                | -62.6690 | -60.3539 |
| Antarctica    | HOWARD                  | -77.7600 | 163.5100 |
| Antarctica    | G1                      | -63.0000 | -60.6000 |
| Antarctica    | GALINDEZ ICE CAP        | -65.2500 | -64.2800 |
| Antarctica    | STRANDLINE              | -74.7000 | 164.0300 |
| Antarctica    | ALBERICH                | -77.5800 | 161.6200 |
| Antarctica    | JEREMY SYKES            | -77.6000 | 161.5500 |
| Antarctica    | SPARTAN                 | -71.0500 | -68.3300 |
| Antarctica    | TARN FLAT               | -75.0000 | 165.0000 |
| Antarctica    | ANVERS I ICE CAP        | -64.7500 | -63.7500 |
| Antarctica    | MESERVE MPII            | -77.5500 | 162.3700 |
| Antarctica    | FLAGSTAFF               | -62.0800 | -58.4100 |
| Antarctica    | LITTLE DOME             | -62.2000 | -59.0400 |
| Argentina     | PILOTO ESTE             | -32.2220 | -70.0540 |
| Argentina     | BROWN SUPERIOR          | -29.9830 | -69.6420 |
| Argentina     | CONCONTA NORTE          | -29.9760 | -69.6450 |
| Argentina     | MARTIAL                 | -54.7800 | -68.4200 |
| Austria       | WURTEN K.               | 47.0388  | 13.0054  |
| Austria       | GOLDBERG K.             | 47.0400  | 12.9700  |
| Austria       | JAMTAL F.               | 46.8700  | 10.1700  |
| Austria       | FILLECK K.              | 47.1300  | 12.6000  |
| Austria       | KLEINFLEISS K.          | 47.0500  | 12.9500  |
| Austria       | OCHSENTALERGL.          | 46.8500  | 10.1000  |
| Austria       | VERMUNTGL.              | 46.8500  | 10.1300  |
| Austria       | LANGTALER F.            | 46.7888  | 11.0193  |
| Austria       | HALLSTAETTER G.         | 47.4800  | 13.6200  |
| Austria       | ZETTALUNITZ/MULLWITZ K. | 47.0800  | 12.3800  |
| Austria       | KLOSTERTALER N          | 46.8700  | 10.0700  |
| Austria       | GAISSBERG F.            | 46.8300  | 11.0700  |
| Austria       | ROTMOOS F.              | 46.8200  | 11.0500  |
| Austria       | NIEDERJOCH F.           | 46.7800  | 10.8700  |
| Austria       | HORN K.(ZILLER)         | 47.0000  | 11.8200  |
| Austria       | MARZELL F.              | 46.7800  | 10.8800  |
| Austria       | SPIEGEL F.              | 46.8300  | 10.9500  |
| Austria       | MITTERKAR F.            | 46.8800  | 10.8700  |
| Austria       | ROFENKAR F.             | 46.8800  | 10.8800  |
| Austria       | DIEM F.                 | 46.8106  | 10.9454  |
| Austria       | HOCHJOCH F.             | 46.7800  | 10.8200  |
| Austria       | WAXEGG K.               | 47.0000  | 11.8000  |
| Austria       | SCHWARZENSTEIN          | 47.0200  | 11.8500  |
| Austria       | GEPATSCH F.             | 46.8500  | 10.7700  |
| Austria       | GUSLAR F.               | 46.8500  | 10.8000  |
| Austria       | GROSSELEND K.           | 47.0300  | 13.3200  |

## List of High Priority Glaciers

|         |                                   |          |           |
|---------|-----------------------------------|----------|-----------|
| Austria | DAUNKOGEL F.                      | 47.0000  | 11.1000   |
| Austria | OBERSULZBACH K.                   | 47.1110  | 12.2931   |
| Austria | GRUENAU F.                        | 46.9800  | 11.2000   |
| Austria | KLEINELEND K.                     | 47.0700  | 13.2500   |
| Austria | SULZENAU F.                       | 46.9800  | 11.1500   |
| Austria | ALPEINER F.                       | 47.0500  | 11.1300   |
| Austria | FERNAU F.                         | 46.9800  | 11.1300   |
| Austria | TASCHACH F.                       | 46.9016  | 10.8486   |
| Austria | WEISSEE F.                        | 46.8500  | 10.7200   |
| Austria | HOCHALM K.                        | 47.0200  | 13.3300   |
| Austria | TAUFKAR F.                        | 46.8800  | 10.9000   |
| Austria | SCHALF F.                         | 46.7800  | 10.9300   |
| Austria | SEXEGERTEN F.                     | 46.9000  | 10.8000   |
| Austria | KAELBERSPITZ K.                   | 47.0300  | 13.2800   |
| Austria | SCHLATEN K.                       | 47.1122  | 12.3839   |
| Austria | BERGLAS F.                        | 47.0700  | 11.1200   |
| Austria | UNTERSULZBACH K.                  | 47.1300  | 12.3500   |
| Austria | KRIMMLER K.                       | 47.0800  | 12.2500   |
| Austria | LITZNERGL.                        | 46.8815  | 10.0479   |
| Austria | SIMMING F.                        | 46.9800  | 11.2500   |
| Austria | UMBAL K.                          | 47.0500  | 12.2500   |
| Bolivia | CHACALTAYA                        | -16.3500 | -68.1200  |
| Bolivia | CHARQUINI SUR                     | -16.1700 | -68.0900  |
| Canada  | MEIGHEN ICE CAP                   | 79.9500  | -99.1300  |
| Canada  | DEVON ICE CAP NW                  | 75.4200  | -83.2500  |
| Canada  | MELVILLE SOUTH ICE CAP            | 75.4000  | -115.0000 |
| Canada  | BABY GLACIER                      | 79.4300  | -90.9700  |
| Canada  | SENTINEL                          | 49.9000  | -122.9800 |
| Canada  | BARNES ICE CAP SOUTH DOME N SLOPE | 69.7800  | -72.4200  |
| Canada  | SYKORA                            | 50.8700  | -123.5800 |
| Canada  | ZAVISHA                           | 50.8000  | -123.4200 |
| Canada  | ANDREI                            | 56.9300  | -130.9700 |
| Canada  | RAM RIVER                         | 51.8500  | -116.4800 |
| Canada  | WOOLSEY                           | 51.1200  | -118.6200 |
| Canada  | YURI                              | 56.9700  | -130.6800 |
| Canada  | ALEXANDER                         | 57.1000  | -130.8200 |
| Canada  | BENCH                             | 51.4300  | -124.9200 |
| Canada  | ST PATRICK BAY NE ICE CAP         | 81.9500  | -64.5000  |
| Canada  | TIEDEMANN                         | 51.3300  | -125.0500 |
| Canada  | LAIKA GLACIER                     | 75.8800  | -79.5000  |
| Canada  | BRIDGE                            | 50.8200  | -123.5700 |
| Canada  | DECADE                            | 69.6600  | -69.9200  |
| Canada  | WARD H. I. RISE                   | 83.1200  | -74.1700  |
| Canada  | WARD H. I. SH.                    | 83.0800  | -73.8000  |
| Canada  | BARNES ICE CAP NORTH OF 70N       | 70.2000  | -73.6000  |
| Canada  | MURRAY ICE CAP                    | 81.3500  | -69.2500  |

## List of High Priority Glaciers

|             |                                   |          |           |
|-------------|-----------------------------------|----------|-----------|
| Canada      | ABRAHAM                           | 58.9300  | -63.5300  |
| Canada      | BERENDON                          | 56.2500  | -130.0800 |
| Canada      | HIDDEN                            | 58.9300  | -63.5500  |
| Canada      | MINARET                           | 58.8800  | -63.6800  |
| Canada      | SUPERGUKSOAK                      | 58.9500  | -63.7800  |
| Canada      | BOAS                              | 67.5800  | -65.2700  |
| Canada      | SIMMONS ICE CAP                   | 81.3500  | -68.8300  |
| Canada      | BARNES ICE CAP SOUTH DOME S SLOPE | 69.7300  | -72.4200  |
| Canada      | JOHN EVANS                        | 79.6700  | -74.0000  |
| Canada      | LAIKA GL + ICE                    | 75.8800  | -79.5000  |
| Canada      | NIRUKITTUQ                        | 79.5500  | -83.3000  |
| Canada      | PER ARDUA                         | 81.4500  | -76.5800  |
| Canada      | QUVIAGIVAA                        | 79.5500  | -83.3400  |
| Canada      | ST PATRICK BAY SW ICE CAP         | 81.9300  | -64.5300  |
| Canada      | TATS                              | 59.6800  | -137.7700 |
| Canada      | NEW MOON                          | 53.9200  | -127.7700 |
| Switzerland | PLAINE MORTE                      | 46.3800  | 7.4900    |
| Switzerland | ADLER                             | 46.0100  | 7.8700    |
| Switzerland | HUEFI                             | 46.8200  | 8.8500    |
| Switzerland | SALEINA                           | 45.9800  | 7.0700    |
| Switzerland | LANG                              | 46.4590  | 7.9284    |
| Switzerland | KALTWASSER                        | 46.2500  | 8.0800    |
| Switzerland | PARADIES                          | 46.5000  | 9.0700    |
| Switzerland | GRAND PLAN NEVE                   | 46.2500  | 7.1500    |
| Switzerland | PRAPIO                            | 46.3200  | 7.2000    |
| Switzerland | MOIRY                             | 46.0800  | 7.6000    |
| Switzerland | PANEYROSSE                        | 46.2700  | 7.1700    |
| Switzerland | VORAB                             | 46.8800  | 9.1700    |
| Chile       | ESPERANZA                         | -29.3300 | -70.0370  |
| Chile       | GUANACO                           | -29.3250 | -70.0070  |
| Chile       | TORO 1                            | -29.3320 | -70.0190  |
| Chile       | TORO 2                            | -29.3300 | -70.0240  |
| Chile       | MOCHO CHOSHUENCO SE               | -39.9200 | -72.0300  |
| China       | URUMQI GLACIER NO. 1 W-BRANCH     | 43.0800  | 86.8200   |
| China       | URUMQI GLACIER NO. 1 E-BRANCH     | 43.0800  | 86.8200   |
| China       | XIAO DONGKZMADI                   | 33.1700  | 92.1300   |
| China       | QIYI                              | 39.2300  | 97.9000   |
| China       | MEIKUANG                          | 35.7500  | 94.3000   |
| China       | HAILUOGOU                         | 29.5800  | 101.9300  |
| China       | GURENHEKOU                        | 30.1830  | 90.4670   |
| China       | MUZTAG ATA                        | 38.2330  | 75.0500   |
| China       | NAIMONA NYI                       | 30.4500  | 81.3330   |
| China       | PARLANG ZANGBO: CN5O282A1094      | 29.3830  | 96.9830   |
| China       | PARLANG ZANGBO: CN5O282B0012      | 29.3000  | 96.9000   |
| China       | KANGWURE                          | 28.4500  | 85.7500   |
| China       | DEMULA: CN5O291B0390              | 29.3500  | 97.0170   |

## List of High Priority Glaciers

|               |                              |          |          |
|---------------|------------------------------|----------|----------|
| China         | PARLANG ZANGBO: CN5O282B0010 | 29.2830  | 96.9000  |
| China         | YANGLONGHE NO.5              | 39.2300  | 98.5700  |
| China         | ZHADANG                      | 30.4760  | 90.6450  |
| China         | ZHONGXI                      | 30.8670  | 91.4500  |
| China         | SHUIGUANHE NO.4              | 37.5500  | 101.7500 |
| China         | KOXXKAR: CN5Y674A0005        | 41.7700  | 80.1100  |
| China         | PARLANG ZANGBO: CN5O282B0004 | 29.2260  | 96.9200  |
| China         | LAOHUGOU                     | 39.4300  | 96.5500  |
| China         | 24K                          | 29.7570  | 95.7300  |
| China         | CHONGCE ICE CAP              | 35.2400  | 81.1200  |
| Colombia      | LOS RITACUBAS                | 6.4500   | -72.3000 |
| France        | SARENNE                      | 45.1366  | 6.1367   |
| France        | ARGENTIERE                   | 45.9535  | 6.9846   |
| France        | GEBROULAZ                    | 45.2979  | 6.6288   |
| France        | MER DE GLACE                 | 45.8800  | 6.9300   |
| France        | BIONNASSAY                   | 45.8468  | 6.8128   |
| France        | MARINET                      | 45.5500  | 6.8700   |
| France        | BOSSONS                      | 45.8796  | 6.8649   |
| Georgia       | TBILISA                      | 43.1310  | 42.4700  |
| Georgia       | KOIAVGAN                     | 42.7500  | 43.3000  |
| Georgia       | VIATAU                       | 42.7500  | 43.3000  |
| Georgia       | VISYACHIY                    | 42.7500  | 43.3000  |
| Greenland     | AMITSULOQ ISKA.              | 66.1200  | -50.2200 |
| Greenland     | QAPIARFIUP SER.              | 65.6000  | -52.1300 |
| Greenland     | VALHALTINDEGL.               | 61.4400  | -45.3100 |
| Greenland     | GLACIER 33                   | 64.0100  | -50.6500 |
| Greenland     | NARSSAQ BRAE                 | 60.9900  | -45.9000 |
| Greenland     | CHRISTIAN ERICHSEN ICE CAP   | 81.9500  | -33.5000 |
| Greenland     | HARE                         | 82.5000  | -37.5000 |
| Greenland     | P-MOUNTAIN                   | 76.4000  | -68.6800 |
| South Georgia | HODGES                       | -54.2700 | -36.5400 |
| South Georgia | HAMBERG                      | -54.4000 | -36.5000 |
| India         | CHHOTA SHIGRI                | 32.2000  | 77.5000  |
| India         | SHAUNE GARANG                | 31.2800  | 78.3300  |
| India         | GARA                         | 31.4000  | 78.5000  |
| India         | GOR GARANG                   | 31.3700  | 78.4900  |
| India         | NEH NAR                      | 34.1600  | 75.5200  |
| India         | CHANGMEKHANGPU               | 27.9500  | 88.6800  |
| India         | CHORABARI                    | 30.7600  | 79.0560  |
| India         | TIPRA BANK                   | 30.7300  | 79.6800  |
| India         | HAMTAH                       | 32.2372  | 77.3736  |
| India         | DUNAGIRI                     | 30.5500  | 79.9000  |
| India         | DOKRIANI                     | 30.8550  | 78.8180  |
| India         | NARADU                       | 31.3980  | 78.4070  |
| India         | KOLAHOI                      | 34.2000  | 75.4700  |
| India         | SHISHRAM                     | 34.2000  | 75.4300  |

## List of High Priority Glaciers

|            |                             |         |          |
|------------|-----------------------------|---------|----------|
| Iceland    | HOFJSJOEKULL N              | 64.9500 | -18.9200 |
| Iceland    | HOFJSJOEKULL E              | 64.8000 | -18.5800 |
| Iceland    | HOFJSJOEKULL SW             | 64.7200 | -19.0500 |
| Iceland    | BRUARJOEKULL                | 64.6700 | -16.1700 |
| Iceland    | EYJABAKKAJOEKULL            | 64.6500 | -15.5800 |
| Iceland    | KOELDUKVISLARJ.             | 64.5800 | -17.8300 |
| Iceland    | TUNGNAARJOEKULL             | 64.3200 | -18.0700 |
| Iceland    | LANGJOEKULL ICE CAP         | 64.6700 | -20.1000 |
| Iceland    | DYNGJUJOEKULL               | 64.6700 | -17.0000 |
| Iceland    | BREIDAMJOEKULL E. B.        | 64.2200 | -16.3300 |
| Iceland    | HOFFELLSJOEKULL             | 64.4800 | -15.5700 |
| Iceland    | THRANDARJOEKULL             | 64.7000 | -14.8800 |
| Iceland    | BAEGISARJOEKULL             | 65.5900 | -18.3700 |
| Iceland    | SIDUJOEKULL                 | 64.1500 | -17.8000 |
| Italy      | SFORZELLINA                 | 46.3496 | 10.5143  |
| Italy      | GRAND ETRET                 | 45.4760 | 7.2188   |
| Italy      | CARESER OCCIDENTALE         | 46.4500 | 10.6900  |
| Italy      | CARESER ORIENTALE           | 46.4500 | 10.7000  |
| Italy      | MARMOLADA CENTR.            | 46.4374 | 11.8667  |
| Italy      | CARESER CENTRALE            | 46.4500 | 10.6900  |
| Italy      | LYS                         | 45.9000 | 7.8300   |
| Italy      | PRE DE BAR                  | 45.9075 | 7.0444   |
| Italy      | VENTINA                     | 46.2700 | 9.7700   |
| Italy      | RUTOR                       | 45.5000 | 7.0022   |
| Kyrgyzstan | KARA-BATKAK                 | 42.1000 | 78.3000  |
| Kyrgyzstan | SUEK/SUYOK ZAPADNIY         | 41.7900 | 77.7500  |
| Kyrgyzstan | SARY TOR (NO.356)           | 41.8300 | 78.1800  |
| Kyrgyzstan | NO.131                      | 41.8500 | 77.7700  |
| Kyrgyzstan | DAVIDOV                     | 42.0300 | 80.0000  |
| Kyrgyzstan | GREGORIEV                   | 41.9600 | 77.9200  |
| Kyrgyzstan | DAVYDOVA                    | 41.8300 | 78.1700  |
| Kyrgyzstan | GLACIER NO. 354 (AKSHIIRAK) | 41.7990 | 78.1506  |
| Kazakhstan | SHUMSKIY                    | 45.0800 | 80.2300  |
| Kazakhstan | MOLODEZHNIY                 | 43.0100 | 77.0900  |
| Kazakhstan | MANSHUK MAMETOVA            | 43.0400 | 77.1000  |
| Kazakhstan | IGLI TUYUKSU                | 43.0100 | 77.1200  |
| Kazakhstan | MAYAKOVSKIY                 | 43.0200 | 77.1100  |
| Kazakhstan | ORDZHONIKIDZE               | 43.0300 | 77.1200  |
| Kazakhstan | PARTIZAN                    | 43.0300 | 77.0800  |
| Kazakhstan | VISYACHIY-1-2               | 43.0400 | 77.0800  |
| Kazakhstan | ZOYA KOSMODEMYANSKAYA       | 43.0200 | 77.1000  |
| Kazakhstan | MURAVLEV                    | 45.1000 | 80.2300  |
| Kazakhstan | SHOKALSKIY                  | 43.0000 | 77.3000  |
| Kazakhstan | KORZHENEVSKIY               | 43.0800 | 77.3600  |
| Mexico     | VENTORRILLO                 | 19.0300 | -98.6250 |
| Norway     | BREIDABLIKKBREA             | 60.0709 | 6.3650   |

## List of High Priority Glaciers

|             |                      |          |          |
|-------------|----------------------|----------|----------|
| Norway      | OKSTINDBREEN         | 66.0190  | 14.2940  |
| Norway      | STORE SUPHELLEBREEN  | 61.5200  | 6.8000   |
| Norway      | TROLLBERGDALSBREEN   | 66.7160  | 14.4410  |
| Norway      | STORSTEINSFJELLBREEN | 68.2200  | 17.9200  |
| Norway      | STORGLOMBREEN        | 66.6700  | 14.0000  |
| Norway      | SVARTISHEIBREEN      | 66.5540  | 13.7620  |
| Norway      | HOEGTUVBREEN         | 66.4540  | 13.6380  |
| Norway      | BLOMSTOELSKARDSBREEN | 59.9490  | 6.3320   |
| Norway      | BLAAISEN             | 68.3390  | 17.8520  |
| Norway      | BONDHUSBREA          | 60.0300  | 6.3300   |
| Norway      | AUSTRE MEMURUBREEN   | 61.5500  | 8.5000   |
| Norway      | JOSTEFONN            | 61.4190  | 6.5520   |
| Norway      | OMNSBREEN            | 60.6320  | 7.4830   |
| Norway      | VESTRE MEMURUBREEN   | 61.5300  | 8.4500   |
| Norway      | CHARLES RABOT BREEN  | 66.0150  | 14.3560  |
| Norway      | CAINHAVARRE          | 68.1060  | 17.9970  |
| Norway      | SPOERTEGGBREEN       | 61.6143  | 7.4690   |
| Norway      | KJOELBREEN           | 66.6600  | 14.0600  |
| Norway      | TVERRAABREEN         | 61.6004  | 8.3039   |
| Norway      | BLOEBREEN            | 61.6600  | 6.2200   |
| Norway      | MIDTRE FOLGEFONNA    | 60.1500  | 6.4800   |
| Norway      | TRETTE-NULL-TOBREEN  | 66.7200  | 14.0200  |
| Norway      | SVARTFJELLJOEKELEN   | 70.2380  | 21.9520  |
| Norway      | VESLEDALSBREEN       | 61.8460  | 7.2620   |
| Norway      | BRIKSDALSBREEN       | 61.6650  | 6.9320   |
| Norway      | STEGHOLT BREEN       | 61.8010  | 7.3140   |
| Norway      | AUSTERDALSBREEN      | 61.6200  | 6.9300   |
| Norway      | STYGGEDALSBREEN      | 61.4730  | 7.8850   |
| Nepal       | MERA                 | 27.7000  | 86.9000  |
| Nepal       | POKALDE              | 27.9000  | 86.8000  |
| Nepal       | RIKHA SAMBA          | 28.8300  | 83.5000  |
| New Zealand | IVORY                | -43.1300 | 170.9200 |
| New Zealand | JACKSON              | -43.8800 | 169.7800 |
| Peru        | YANAMAREY            | -9.6500  | -77.2700 |
| Peru        | ARTESONRAJU          | -8.9500  | -77.6200 |
| Peru        | SANTA ROSA           | -10.4800 | -76.7200 |
| Peru        | QUELCCAYA            | -13.9300 | -70.8200 |
| Pakistan    | SIACHEN              | 35.4700  | 77.0400  |
| Russia      | LEVIY AKTRU          | 50.0800  | 87.7200  |
| Russia      | VODOPADNIY (NO.125)  | 50.1000  | 87.7000  |
| Russia      | GARABASHI            | 43.3000  | 42.4700  |
| Russia      | BEZENGI              | 43.1300  | 42.9700  |
| Russia      | KORYTO               | 54.6800  | 161.0000 |
| Russia      | MARUKHSKIY           | 43.3635  | 41.4172  |
| Russia      | NO.31                | 62.6000  | 140.8700 |
| Russia      | TSEYA                | 42.9200  | 43.6700  |

## List of High Priority Glaciers

|            |                     |         |           |
|------------|---------------------|---------|-----------|
| Russia     | PRAVIY AKTRU        | 50.0800 | 87.7300   |
| Russia     | NO.104              | 79.3700 | 95.6500   |
| Russia     | KHAKEL              | 43.2304 | 41.8498   |
| Russia     | MALYY BERELSKIY     | 49.8100 | 86.7300   |
| Russia     | IGAN                | 67.6100 | 66.0300   |
| Russia     | MUTNOVSKIY NE       | 52.4600 | 158.2200  |
| Russia     | MUTNOVSKIY SW       | 52.4500 | 158.1900  |
| Russia     | BOLSHOI BEREL       | 49.8100 | 86.7400   |
| Russia     | KELBASHI            | 43.0700 | 43.0500   |
| Russia     | OBRUCHEV            | 67.6300 | 65.8000   |
| Russia     | SOFIYSKIY           | 49.7800 | 87.7700   |
| Russia     | STAGER              | 50.1200 | 87.6800   |
| Russia     | KROPOTKIN           | 54.3200 | 160.0200  |
| Russia     | GRECHISHKIN         | 58.0000 | 160.6500  |
| Russia     | PERVENETS           | 66.5100 | -179.0300 |
| Russia     | SEDOV               | 80.1800 | 52.9000   |
| Russia     | YUNOM               | 43.2300 | 42.8700   |
| Sweden     | BJOERLINGS GLACIAER | 67.8900 | 18.5400   |
| Svalbard   | KONGSVEGEN          | 78.8000 | 12.9800   |
| Svalbard   | HANSBREEN           | 77.0800 | 15.6700   |
| Svalbard   | FINSTERWALDERBREEN  | 77.4830 | 15.2500   |
| Svalbard   | VOERINGBREEN        | 78.0500 | 13.9400   |
| Svalbard   | BOGERBREEN          | 78.1500 | 15.6000   |
| Svalbard   | IRENEBREEN          | 78.6500 | 12.1000   |
| Svalbard   | BERTILBREEN         | 78.6800 | 16.2700   |
| Svalbard   | DAUDBREEN           | 78.1000 | 18.5000   |
| Svalbard   | LONGYEARBREEN       | 78.2000 | 15.5000   |
| Svalbard   | FRIDTJOVBREEN       | 77.8330 | 14.4330   |
| Svalbard   | ELISEBREEN          | 78.6400 | 12.2500   |
| Svalbard   | KRONEBREEN          | 78.9670 | 13.1830   |
| Svalbard   | ALDEGONDABREEN      | 77.9700 | 14.0920   |
| Svalbard   | WERENSKIOLD         | 77.0670 | 15.3670   |
| Svalbard   | GROENFJORD E        | 77.9500 | 14.3000   |
| Svalbard   | GROENFJORD W        | 77.9500 | 14.2000   |
| Svalbard   | AUSTRE LOVENBREEN   | 78.5200 | 12.0900   |
| Svalbard   | 14 JULY             | 79.1300 | 12.2200   |
| Tajikistan | DIKHADANG (NO.314)  | 39.3700 | 70.1200   |
| USA        | BLUE GLACIER        | 47.8200 | -123.6800 |
| USA        | FOSS                | 47.5500 | -121.2000 |
| USA        | ICE WORM            | 47.5500 | -121.1700 |
| USA        | YAWNING             | 48.4500 | -121.0300 |
| USA        | NOISY CREEK         | 48.6700 | -121.5300 |
| USA        | NORTH KLAUWATTI     | 48.5700 | -121.1200 |
| USA        | SILVER              | 48.9800 | -121.2500 |
| USA        | SANDALEE            | 48.4200 | -120.8000 |
| USA        | ELIOT               | 45.3800 | -121.6800 |

## List of High Priority Glaciers

|     |                |         |           |
|-----|----------------|---------|-----------|
| USA | LYMAN          | 48.1700 | -120.8900 |
| USA | SPIDER         | 48.1400 | -120.8300 |
| USA | MCCALL         | 69.2800 | -143.8300 |
| USA | NISQUALLY      | 46.8200 | -121.7400 |
| USA | EMMONS         | 46.8500 | -121.7200 |
| USA | GILMAN         | 58.8200 | -137.0700 |
| USA | ARIKAREE       | 40.0500 | -105.0300 |
| USA | SHERMAN        | 60.5500 | -145.1500 |
| USA | ELDORADO       | 48.5100 | -121.0700 |
| USA | LEWIS (WA)     | 48.5000 | -120.7100 |
| USA | EKLUTNA        | 61.2500 | -148.9700 |
| USA | WATSON         | 48.6500 | -121.5700 |
| USA | MACLAREN       | 63.3500 | -146.5300 |
| USA | MACLURE        | 37.7500 | -119.2800 |
| USA | SUSITNA        | 63.5200 | -146.9500 |
| USA | WEST FORK      | 63.5200 | -147.3800 |
| USA | SPERRY         | 48.6300 | -113.7500 |
| USA | MENDENHALL     | 58.4800 | -134.5300 |
| USA | WEST GULKANA   | 63.2600 | -145.4900 |
| USA | ARAPAHO        | 40.0500 | -105.0300 |
| USA | ISABELLE       | 40.0700 | -105.0200 |
| USA | EAST FORK      | 63.4300 | -146.7800 |
| USA | GRAND UNION    | 65.0200 | -165.3400 |
| USA | GRASSHOPPER    | 45.1300 | -109.8800 |
| USA | VARIEGATED     | 60.0000 | -139.3000 |
| USA | VESPER         | 48.0000 | -121.5000 |
| USA | COLUMBIA (627) | 61.0000 | -147.1000 |
| USA | ANDREWS        | 40.2800 | -104.9800 |
| USA | FAIR           | 40.0700 | -105.0200 |
| USA | NAVAJO         | 40.0500 | -105.0200 |
| USA | ST VRAIN NO 1  | 40.1500 | -105.0300 |
| USA | ST VRAIN NO 2  | 42.1500 | -105.0300 |
| USA | ST VRAIN NO 3  | 42.1500 | -105.0200 |
| USA | ST VRAIN NO 4  | 42.1700 | -105.0200 |
| USA | ST VRAIN NO 5  | 40.1700 | -105.0000 |
| USA | ST VRAIN NO 6  | 40.1700 | -105.0000 |
| USA | DINWOODY       | 43.1800 | -109.5800 |

## List of Important Glaciers

| Important   |                        |          |           |
|-------------|------------------------|----------|-----------|
| Country     | Glacier                | LAT      | LONG      |
| Argentina   | DE LOS TRES            | -49.3300 | -73.0000  |
| Canada      | PLACE                  | 50.4300  | -122.6000 |
| Switzerland | PLATTALVA              | 46.8300  | 8.9800    |
| Switzerland | SURETTA                | 46.5200  | 9.3800    |
| Switzerland | ZINAL                  | 46.0700  | 7.6300    |
| Switzerland | FORNO                  | 46.3000  | 9.7000    |
| Switzerland | MONT FORT              | 46.0800  | 7.3200    |
| Switzerland | ROSEG                  | 46.3777  | 9.8391    |
| Switzerland | WALLENBUR              | 46.7072  | 8.4701    |
| Switzerland | PUNTEGLIAS             | 46.7906  | 8.9493    |
| Switzerland | SARDONA                | 46.9200  | 9.2700    |
| Switzerland | BRUNNI                 | 46.7300  | 8.7800    |
| Switzerland | LENTA                  | 46.5129  | 9.0376    |
| Switzerland | LAVAZ                  | 46.6300  | 8.9300    |
| Switzerland | BRESCIANA              | 46.5000  | 9.0300    |
| Switzerland | SCHWARZ                | 46.4200  | 7.6700    |
| Switzerland | GRIESSEN(OBWA.)        | 46.8500  | 8.5000    |
| Switzerland | BIFERTEN               | 46.8200  | 8.9500    |
| Switzerland | FIRNALPELI             | 46.7800  | 8.4700    |
| Switzerland | GRIESS(KLAUSEN)        | 46.8300  | 8.8300    |
| Switzerland | RAETZLI (PLAINE MORTE) | 46.3900  | 7.5100    |
| Switzerland | GIETRO                 | 46.0000  | 7.3800    |
| Switzerland | MONT DURAND            | 45.9200  | 7.3300    |
| Switzerland | GLAERNISCH             | 47.0000  | 8.9800    |
| Switzerland | GAULI                  | 46.6200  | 8.1800    |
| Switzerland | ALPETLI(KANDER)        | 46.4800  | 7.8000    |
| Switzerland | SESVENNA               | 46.7129  | 10.4109   |
| Switzerland | MONT MINE              | 46.0200  | 7.5500    |
| Switzerland | STEINLIMMI             | 46.7000  | 8.4000    |
| Switzerland | MITTELALETSCHE         | 46.4500  | 8.0300    |
| Switzerland | SCALETTA               | 46.7000  | 9.9500    |
| Switzerland | ALBIGNA                | 46.3022  | 9.6441    |
| Switzerland | GELTEN                 | 46.3500  | 7.3300    |
| Greenland   | FREYA                  | 74.3800  | -20.8200  |
| Kenya       | LEWIS                  | -0.1500  | 37.3000   |
| Kyrgyzstan  | ABRAMOV                | 39.6300  | 71.6000   |
| Norway      | GRAASUBREEN            | 61.6570  | 8.6000    |
| Norway      | HANSEBREEN             | 61.7500  | 5.6800    |
| Norway      | MIDTDALSBREEN          | 60.5700  | 7.4700    |
| New Zealand | TASMAN                 | -43.5200 | 170.3200  |
| New Zealand | FOX                    | -43.5300 | 170.1500  |
| Russia      | MALIY AKTRU            | 50.0800  | 87.7500   |
| Russia      | KOZELSKIY              | 53.2300  | 158.8200  |
| Svalbard    | AUSTRE BROEGGERBREEN   | 78.8800  | 11.8300   |
| Svalbard    | MIDTRE LOVENBREEN      | 78.8800  | 12.0700   |