1 Introduction

Thank you for taking the time to review the 1981 – 2010 climate maps for British Columbia. While much hard work has gone into creating the review maps that you will soon be assessing, there is still much work to be done. To accomplish that work, we need your help. A critical part of historical (i.e. back when maps where hand-contoured) and present-day climate mapping has been peer review of the maps before their final release. It's impossible for a single person to be familiar with conditions across any large area, especially one as large as BC. And, while PRISM is one of the best ways of distributing station data to provide an estimate of the climate at high resolution, it's not a perfect too, but is one of the best station-based climate mapping tools out there. Issues arise with the model as well as with the station data that drive the model. These factors necessitate your help.

This document outlines the use of the review map portal as well as the overall expectations and process of the review. Please read this document carefully. If you find yourself having difficulty reviewing the maps, please don't hesitate to contact me, Faron Anslow (fanslow@uvic.ca), for assistance. This review will be live for the next two weeks which will disappear faster than you think. Don't feel obligated to review or be overwhelmed by the large area of BC. Focus on regions you are familiar with and then expand from there if you have time or a particular interest in other areas. Together, we can review the whole region.

2 What is Being Reviewed and What to Focus on?

This review is part of the production of the 1981 through 2010 PRISM climate maps. In October, 2014, climate maps were released for the 1971 – 2000 period for all months of the year and the annual mean or total for minimum and maximum temperature and total precipitation. However, the current climate normal period is approaching five years old. In the contiguous 48 United States, PRISM maps for the new normal period have been available since 2012. In Canada, Environment Canada has made station climatologies for the current period available. Finally, the Climate Related Monitoring Project in British Columbia as enabled PCIC to gather up-to date station data for the province from which station climatologies can be made. All of these factors have necessitated a new set of climate normal maps for British Columbia. This will provide an up-to-date climatology for the province as well as serve as the firs application of the PRISM mapping tools native to PCIC.

This review process is a critical part of the PRISM mapping process as outlined above. To accomplish the review, maps of July maximum temperature, January minimum temperature, and total annual precipitation have been created. Although much work has gone into producing these maps, they are not yet perfect. There remain some issues with station data, and some minor issues with map parameterizations that will be corrected soon. The review process will provide valuable assistance in making those corrections.

The review tool allows investigation of the station data that contributed to individual maps. In addition to traditional measurement stations, these maps include winter precipitation estimates from snow survey data and glacier presence. The snow survey sites are denoted according to the Ministry of Environment 4 character survey site code. For glacier data, the station name will start with 'glac'. For both sources, data will only be present for winter months. For temperature, we have utilized data from the North American Regional Reanalysis at the 700 mb and 600 mb levels which corresponds roughly to 3000 m and 4200 m (the elevation corresponds to the climatological height for that month). These

stations are denoted with GGUAS in the name and ID.

To plant a seed for your review efforts, there are some important areas that should be highlighted. First, it's most useful to focus on areas that you are most familiar with or where stations exist whose data you know well. The practitioner's understanding of regions is a critical aspect of PRISM mapping. Secondly, where stations exist that you know well, please help make sure that PCIC's meta data is correct for those stations. Check the location, elevation, and if possible, the climate normal values to make sure they are in agreement with what you expect. Specifically for precipitation, investigate areas where there is a known rainshadow and see if this is reflected in the maps. If you have experience with snow accumulation, check the precipitation near snow survey sites to determine if the maps reflect observations.

3 Use of the Review Portal

For this latest iteration of PRISM maps, PCIC has developed a new online tool for viewing the climate maps, individual pixel values, station data, and for recording comments. If you reviewed the 1970 – 2000 climate maps almost two years ago, you will see that the technology has changed, but the functionality is about the same. This section describes the use of the new portal so you may effectively perform your reviews.

3.1 A Tour of Review Tool Features

A screenshot of the review portal is shown in Figure 1.

- The map shows a colourized representation of the variable of interest – total annual precipitation in this case – surrounded by a basemap of the surrounding states and provinces.
- Plotted on top of the precipitation map are numbered circles:

  along with placemarks

  These represent groups of stations and individual stations respectively and will be described below.
- In the upper left corner of the map are a “+” and “-” allowing for a zoom in and out.

- Throughout the interface, a click and drag will pan the map.
- Also in the top left, below the zoom buttons, are buttons for with polygon and placemark symbols.

  These tools are for highlighting areas you want to review.
- In the top right, there is a list entitled “PRISM Climatologies” with radio buttons for selecting

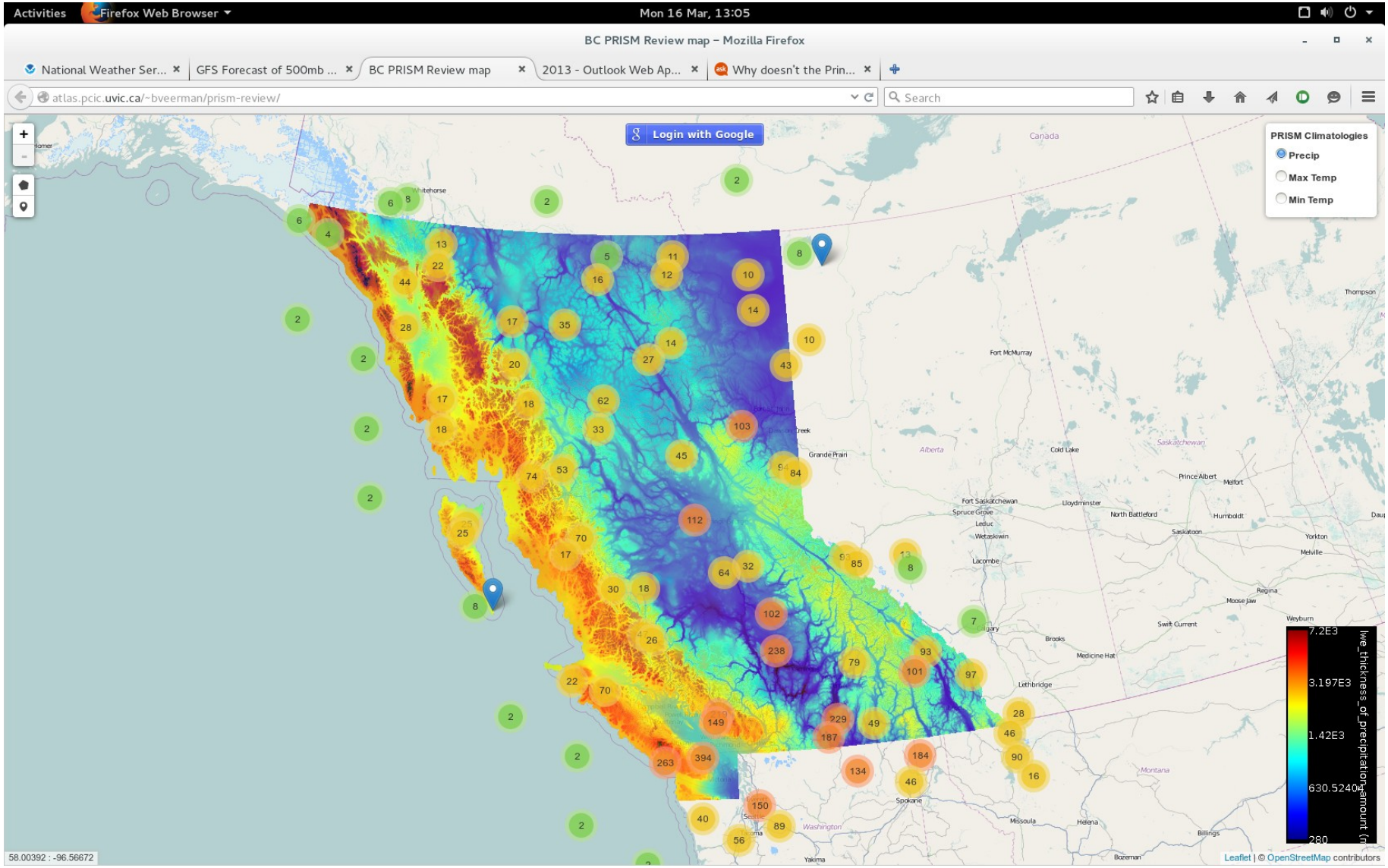
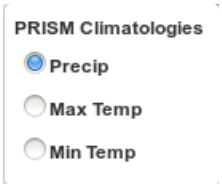


Figure 1: Overview screen shot of PRISM review portal tool.

“Precip”, “Max Temp” or “Min Temp”.



- These allow for selection of layers to review. When selecting one of these options, the underlying colourized climate map as well as the station data changes to match the variable. If you want to see the underlying basemap (for example, to see what geographical features underlie a region of interest) re-click the currently chosen climate layer and it will disappear.
- At the top-centre of the map is the button for logging in with Google. This will be described below and is a necessary step for reviewing the maps.
- The current geographical location of the cursor is shown in the bottom left of the map.
- Finally, in the bottom right there is a colour scale for the currently displayed map. Note that this is automatically generated and large values are given in scientific notation. So, 7.2E3 in the precipitation map indicates 7200mm annual precipitation.

3.2 Logging In

When first loading the review portal, you will see a greeting message notifying of the functionality of the portal and indicating our need for a Google Login. Click the 'x' in the upper right of the box to dismiss. Near the top of the page, there is a button asking you to “Login with Google”. We ask that you use a gmail account to log into the portal. When ready, click the log in button and follow the prompts. The purpose of this is to allow your comments to be submitted to PCIC and also to allow us to track who made which comments. Please don't feel a need to be anonymous. It's important for us to be able to contact reviewers directly in order to get more detail regarding their comments. If you don't have a gmail account, I have created a generic one which you can use to log yourself in. Additionally, if you have strong objections to using your personal gmail account, please request the generic log in. However, we strongly encourage the use of your own e-mail account.

3.3 Selection of Layers

The layer selection dialogue in the upper right corner of the map allows the selection of which variable is displayed. This changes both the background map and the station data that are displayed. Note that when zoomed into a detailed section of the map, switching layers can be somewhat slow, so be patient. Note that when entering review text, it's important to select which variable your are commenting on. Please make the appropriate selection (this will be described in a later section) or make a note in your text comment. If you would like to remove all layers and see what is mapped in the base data (rivers, lakes, cities, roads, etc.) click the “base data” entry in the selector box.

3.4 Viewing Station and Raster Values

You may query individual pixel values on the map by clicking anywhere away from station data, but within the province. This enables a more clear understanding of detailed mapped values and may help assess whether the maps capture known small scale climate features. Station data may also be queried.

Where individual station placemarks are mapped, a click on the placemark will reveal the climate normals for the station as well as the basic meta data. Because the precipitation maps are for annual precipitation, all months of a given station are presented. For temperature, only the relevant month is shown (January Tmin or July Tmax). If a coloured circle with a number is present, this indicates that multiple stations are clustered nearby. Click on the circle and the map will zoom and the cluster will break into individual stations. In highly clustered regions, multiple clicks may be needed to fully break up clusters.

3.5 Annotating Maps

When you have identified areas of concern and are ready to make comments on the map please select one of the annotation tools in the upper left corner of the map. There are two available tools for making annotations – a polygon tool and a point tool. The polygon tool can be used for demarcating an area of any size or shape that is of concern to you. Be sure to mark individual areas if you have concerns about multiple separate regions of the map with differing identified issues. The point tool can be used for identifying small scale features of the map, or for raising concerns about individual stations due to siting or station data.

To use the polygon tool, first make sure you are logged into google so your comments may be recorded. Next, select the polygon tool. To draw a polygon, begin clicking on the map to encircle the region of concern. As you continue clicking and identifying verticies, you will notice that a red shaded area is shown which indicates what the completed polygon will look like. When you are satisfied with your boundary, continue your first point and click it to close the loop. You may find it difficult to hit the point, but be persistent! Once the polygon is closed, a dialogue box will appear with pre-filled values for your name, email, the information defining the polygon, a layer selector, and a box in which you can enter your comments (“Report Details”). Click in the report details box and type in your review of the region you just defined. Please make sure you have selected the variable you desire to comment on. This will not be automatically filled. When done entering your comments, you may Submit them or, if you would like to change your polygon or have decided not to enter the review, click “Cancel”.

For the point tool, the process is simpler. Find the area of the map you would like to comment on, select the point tool from the upper left corner, and click on the point of interest. The same dialogue box will present itself and allow you to enter your comment and choose to “Submit” or “Cancel” the comment.

You may continue to comment on the map once your most recent comment has been submitted or cancelled. Simply pan and zoom to your new location of interest and repeat the selection and comment entering process. When you have completed your review, click the “Logout from Google” button at the top centre. If, at a later time, you want to continue your review process, your earlier review comments will be mapped and available for reading when you log back into the review portal.

4 Appendix: Splash Text

Thank you for participating in the PRISM review process. This application allows you to view and provide reviews of PRISM maps of the 1981 – 2010 climatologies of annual total precipitation, January minimum temperature, and July maximum temperature. You can create data reports linked to a geographic areas of interest or single points that will be reviewed by the PRISM team. Full documentation on the review process and portal functionality can be found here (Link to this document)

In order to save your review input, this application requires you to log in with a Google account. We request limited access to your basic information (name and email) to allow us to follow up on your review comments where needed. Once logged in, your data will be automatically saved between sessions so you may revisit the portal at any time during the review period.