

ClimateNews is a snapshot of new and emerging climate change adaptation and mitigation activities in BC's Natural Resource Sector.

This issue includes:

- **Canada's Changing Climate Report (CCCR)**
- **The Process towards a New BC Provincial Adaptation Strategy**
- **ClimateBCv6.0 Released**
- **Wildfire Prevention Cost-Benefit Analysis Research**
- **PCIC Update: Project and Research Updates**
 - **Recently Published Wildfire Research**
 - **Recent Research on Precipitation Extremes**
 - **Incorporating the Findings of Climate Science into Engineering Designs**
- **The Natural World Can Save Us From Climate Catastrophe - George Monbiot**

Canada's Changing Climate Report (CCCR)

According to a media report released on Monday, April 1, Canada is, on average, experiencing warming at twice the rate of the rest of the world, with Northern Canada heating up at more than twice the global average.

The information is from a report entitled *Canada's Changing Climate Report* (CCCR). The study was commissioned by the federal Environment and Climate Change Department and was released on Tuesday, April 2, 2019.

Media is reporting that since 1948, Canada's annual average temperature over land has warmed 1.7°C, with higher rates seen in the north, prairies, and northern British Columbia. In northern Canada, the annual average temperature has increased by 2.3°C.

Preliminary briefing material on the report provided to the Ministry of Environment and Climate Change Canada, lists the following determinations:

- Canada's climate has warmed and will warm further in the future, driven by human influence;
- Global emissions of carbon dioxide from human activity will largely determine how much warming Canada and the world will experience in the future;
- This warming is effectively irreversible
- Future warming in Canada depends directly on global emissions;
- The seasonal availability of freshwater is changing with an increased risk of water supply shortages in summer; and
- Coastal flooding is expected to increase in many areas of Canada due to local sea-level rise.

Summary courtesy of the Climate Action Secretariat (CAS), BC Ministry of Environment. For more information, please contact ClimateRisk@gov.bc.ca.

The Process towards a New BC Provincial Adaptation Strategy

The Provincial Government will release a new, comprehensive Climate Change Adaptation Strategy (the Strategy) in 2020. Led by CAS, the Strategy will be developed by early and meaningful engagement with Indigenous peoples. The Province will also engage with rural and urban communities, professional and industry associations, non-profit organizations, youth and others throughout BC to provide input into the Strategy. The Strategy will be

a collaborative effort across government and informed by the results of the Provincial Climate Risk Assessment. Engagement is anticipated in spring and fall of 2019 and public policy proposals are expected to be released in early 2020.

- Together with other ministries, CAS will work to align the Strategy and existing initiatives across the provincial government and sectors that are currently making progress toward understanding and addressing climate risks.
- CAS is also working to develop tools and engagement resources for other Provincial Government ministries, the broader public service, Indigenous peoples, local authorities, professionals, and others. These tools will build capacity and readiness to understand climate risks and meaningfully contribute to the development of the Strategy.

These actions complement work underway within provincial government ministries and at other agencies such as local health authorities and school districts. Such work includes strategies to reduce climate risk and address gaps in climate data, resources, and tools.

The section above is from pages 22-23 of the Abbott and Chapman Action Plan. For the full report please click [here](#)

ClimateBCv6.0 Released

ClimateBC is extensively used in BC to match monthly climate data to the spatial scales necessary in resource management. There is a web-based version and a stand-alone computer program that enable users to obtain monthly historic climate variables and those projected under climate change scenarios based on the latitude, longitude, and elevation of a location. There is also a version for North America (ClimateNA). The climate data

includes maximum, minimum, and average monthly temperature, total precipitation, and a suite of annual derived variables such as degree days, frost free period, precipitation, evaporative demand, and climatic moisture deficit.

The latest version was produced in a response to user needs such as mapping and spatial analysis of climate information. ClimateBC now reads raster files produced from a digital elevation model and then outputs the required variables as raster files which can be directly loaded to ArcGIS, other mapping software, and the R software for statistical computing and graphics. This option is only available for the stand-alone PC version. Changes in the downscaling methodology will improve the look of high resolution maps produced with the aforementioned software. These changes also increased the speed at which ClimateBC processes requests for information.

A recent report from the IPCC emphasised the need for the global temperature increase over this century to remain below 2°C and preferably no more than 1.5°C globally. In the IPCC's 5th Assessment Report, the emissions trajectory represented in RCP2.6 approximates what needs to be achieved to meet the goal of 1.5°C increase. Projections from 13 global climate models for this emissions trajectory were added in version 6 to allow users to explore what changes in temperature and precipitation might be expected for BC.

ClimateBC and ClimateNA can be downloaded for free from:

<https://cfcg.forestry.ubc.ca/projects/climate-data/climatebcwna/>.

For more information, please contact Dave Spittlehouse, Climate Change and Integrated Planning Branch, FLNRORD, Victoria, Dave.Spittlehouse@gov.bc.ca.

Wildfire Prevention Cost-Benefit Analysis Research

The Province of BC is working with researchers from the University of British Columbia to develop a cost-benefit analysis (CBA) framework for simulating and assessing the relative costs and benefits of increasing the adoption of proactive strategies to wildfire management. The framework will support the assessment of a range of strategies applied to reduce fuel hazards and wildfire risk (e.g. landscape and wildland/urban interface fuel treatments on public lands and FireSmart on private property), their associated costs, and the effect of integrating these activities. This framework will help wildfire managers and decision-makers to develop and evaluate the business case for wildfire mitigation for different activities and the investment required.

This is a three-year study involving case studies and field work in the Cariboo Region, Thompson/Okanagan Region, as well as Alberta. The work is funded by the provinces of BC and Alberta and Natural Resources Canada.

For more information, please contact Darius.Tolkien-Spurr@gov.bc.ca.

PCIC Update: Project and Research Updates

Recently Published Wildfire Research

Research undertaken at the Pacific Climate Impacts Consortium (PCIC) and Environment and Climate Change Canada determined the impact of anthropogenic climate change on key aspects of the 2017 wildfire season. The researchers found that climate change had a large influence on the 2017 wildfire season. Climate change was more than 95% likely to have contributed to the extremely warm temperatures at the time of the wildfires, the fire

risk was elevated by a factor of two to four than what would have previously been predicted, and increased the expected area burned by a factor of seven to eleven.

To see PCIC Update: Project and Research Updates click [here](#)

Recent Research on Precipitation Extremes

Extreme precipitation and flooding have large impacts on infrastructure. The understanding of how these impacts may change as a result of climate change is important for planning future infrastructure projects. The research done by PCIC focuses on different aspects of precipitation extremes, including working to understand potential changes to Probable Maximum Precipitation (PMP); this is the maximum amount of precipitation that theoretically could fall over a given area within a given time. The research completed at PCIC has resulted in a multivariate extreme value analyst approach to estimating PMP (Ben Alaya et al., 2018). This method ensures that the uncertainty of PMP estimates produced can be quantified.

See: Ben Alaya, M. A., F. W. Zwiers and X. Zhang, 2018: [Probable maximum precipitation: its estimation and uncertainty quantification using bivariate extreme value analysis](#). Journal of hydrometeorology, 19, 4, 679-694, doi: 10.1175/JHM-D-17-0110.1.

Incorporating the Findings of Climate Science into Engineering Design

PCIC supports engineers in their efforts to answer questions about climate change impacts in engineering projects. In one project with BC Housing, PCIC is developing training materials to inform engineers and other building professionals on

how to include future projections into their building designs.

To see PCIC's full update, click [here](#)

The Natural World Can Help Save Us from Climate Catastrophe - George Monbiot

It is now too late to reach our goal of preventing 1.5°C or less of global mean temperature increase. If global emissions were immediately reduced to zero, it is likely that the increase would still be above this crucial temperature limit. To prevent a climate change catastrophe, we need to decarbonize our economy in a short period of time as well as draw down carbon dioxide from the atmosphere that has already been released. After a couple invasive and expensive ideas were proposed, it had been determined that a cheaper and more natural climate solution was to draw carbon from the atmosphere. This can be done through restoring living systems, making this option one with greatest potential so far. This approach protects and restores natural forests which allow native trees to repopulate deforested land. This could help with climate and ecological breakdown. The research shows that both natural climate solutions and rapid comprehensive decarbonization of our economy is needed.

To read this full article click [here](#)