



Pacific Institute  
for Climate Solutions  
Knowledge. Insight. Action.

## **Climate Insights 101 Questions and Discussion Points Module 2, Lesson 2: Projected Climate Change in British Columbia**

Available at: <http://pics.uvic.ca/education/climate-insights-101>

### **1. Future climate projections**

#### **Questions**

What are the three SRES emissions scenarios considered in this course and which scenario are we closest to following so far? (Ref slide 2)

Why is it important to consider a range of projected change in future rather than just a single number? (Ref slide 2)

What are the two main sources of uncertainty in projected future climate? (Ref slide 2)

How does the projected warming for British Columbia compare with projected warming for the globe as a whole? Explain some possible reasons for the difference. (Ref slide 3)

#### **For Discussion**

Explain why a few degrees Celsius of warming can be considered a large change even though the weather can vary by many degrees Celsius from one day to the next. How long has it been since British Columbia was on average 2°Celsius warmer than present? 4°Celsius? What was the flora and fauna like in the Province at those times? (Ref slides 3 & 4)

Why is it important to consider year-to-year variability when interpreting long term climate projections? Discuss some of the problems that might arise if decisions were made to adapt to climate change that made use only of projected changes in long term averages but failed to consider that year-to-year variability will also exist in future. (Ref slide 24)

### **2. Downscaling**

#### **Questions**

Why is downscaling of particular importance for in British Columbia? (Ref slide 9)

What is the main assumption that statistical downscaling methods must make? (Ref slide 10)

Describe the steps of the delta method of downscaling. (Ref slide 10)

Which type of downscaling can produce future projections even in locations without historical observations? (Ref slide 11)

Which type of downscaling always constrains different variables to be physically consistent with each other? (Ref slide 11)

### **For Discussion**

What is the significance of locations with annual average temperatures below freezing in the Coast and Rocky Mountains? What are some possible implications of projected warming such that virtually no locations have below freezing annual average temperatures in these regions in future? (Ref slide 9)

Compare and contrast statistical and dynamical downscaling with each other including several advantages and disadvantages of each type (Ref slides 10 & 11). Provide two or more examples relevant to your work in which each type would be most suitable for use.

### **3. Online tools**

#### **Questions**

Provide six examples of online tools for regional climate change projections. (Ref slide 23)

List six variables for which climate projections are displayed on the Plan2Adapt summary tab. (Ref slide 23)

What is indicated by the dark grey and light grey shading in the plots displayed by Plan2Adapt? (Ref slide 23)

What method of downscaling is used in the maps displayed on Plan2Adapt? (Ref slide 23)

### **For Discussion**

Use the Plan2Adapt tool to see how much warming is projected for your region. Discuss some implications of the projected warming and how planning might be different for the high end of the range of projected warming than the low end of the range. Consider

some of the possible impacts listed in the impacts tab. What are some impacts from the table that are actually not applicable in your area? What are some possible climate change impacts of concern in your area that are absent from the impacts tab results? (Ref slides 2, 3, 4, 26)