

On the attributes and challenges of regional climate services

Francis Zwiers

Pacific Climate Impacts Consortium

University of Victoria, Victoria, Canada

Photo: F. Zwiers

Outline

- **Some rambling on regional climate services**
- **Some climate service delivery**



Photo: F. Zwiers

The RCS Niche

- Fits square pegs into round holes
- Understands just enough about the stakeholder's problem to be able to assist with knowledge translation
- Undertakes innovation
 - not for its own sake, but ...
 - as required to deliver service

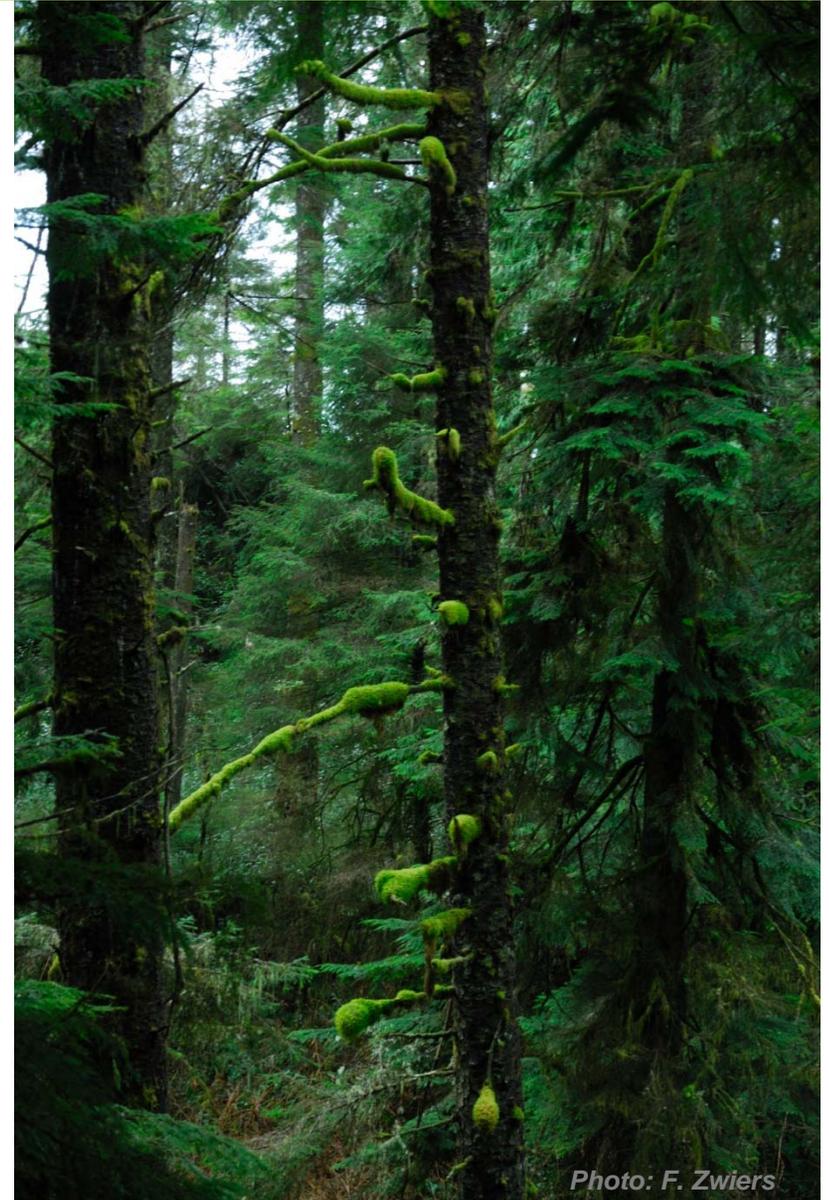


Photo: F. Zwiers

What kinds of services?

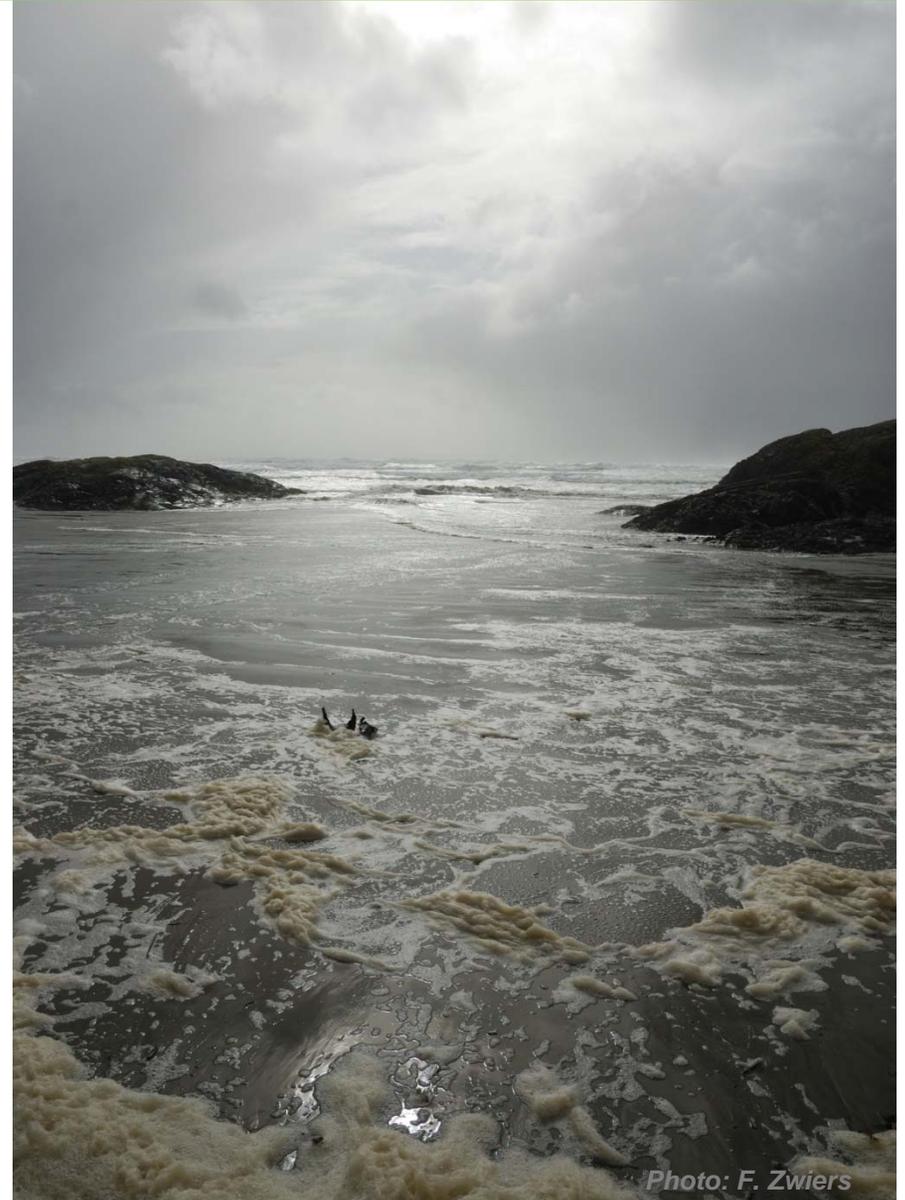


Photo: F. Zwiers

- Translation and interpretation of regional *and broader scale* science for the region
- Focused on regional stakeholders and concerns
 - Water resources, hydrological balance, air quality, extremes
 - Historical variability and change
 - Short term predictions and long term climate change
- Specifics jointly determined with users
- Products include
 - Historical and current data (e.g., CAM/CRMP), forecasts, projections, applied science for the region

Regional vs other service providers

- Distinguishing factors
 - Nature of the users (e.g., strategic services)
 - Spatial scale (if regional requires continental scale info, then national requires global scale info)
 - User base
 - Extent to which regional knowledge is required
- Who pays?
 - Cost is shared ...
- How are resources leveraged?
 - Primarily in kind ...



Some desirable characteristics



- Credible, sceptical and cautious (avoid overselling)
- Service oriented
- Concerned with broad span of time scales (not just the abstractly distant future)
- Sufficient critical mass to develop and maintain leading edge expertise in at least 1-2 areas
- Advocacy should be anathema (except advocacy for an ethic of quality service and a commitment to deliver unbiased information)

Regional variations

- Affected by political setting, stakeholder and provincial gov't interests, regional stressors, regional climate and climate influences
- Areas of critical expertise will be region specific (the same physics apply to water flow everywhere, but the BC climate and land mass characteristics are different from those in Quebec ... leading to a requirement to be expert on water flow in your backyard).
- Areas of activity will, in part, depend upon related federal, provincial and university capacity in the same region.
 - For PCIC, this means collaborating on water, forest, transportation, and municipal climate issues, provincial data resources and their interpretation, adding value to EC products



Some redundancy is inevitable



- How much is acceptable/unavoidable?
- There will be overlap, redundant costs and approaches in different regions
 - CCCSN vs Plan2Adapt
 - CAM/CRMP in BC, similar data efforts elsewhere
 - Hydrologic modelling within their specific domains
- RCS's may take complementary risks
 - PCIC is learning about PRISM, another might take on the operation of an RCM
- Doing all things in all RCS's is not desirable (which implies there should be some pooling of resources and sharing of expertise)

Some redundancy is inevitable

- The cost of a reasonable level of redundancy may be lower than the management and coordination cost required to avoid redundancy
- Can avoid a lot of redundancy in tools development by using “off the shelf” community products
- RCS’s can contribute both to improvement (by increasing the user base) and to specific tool development

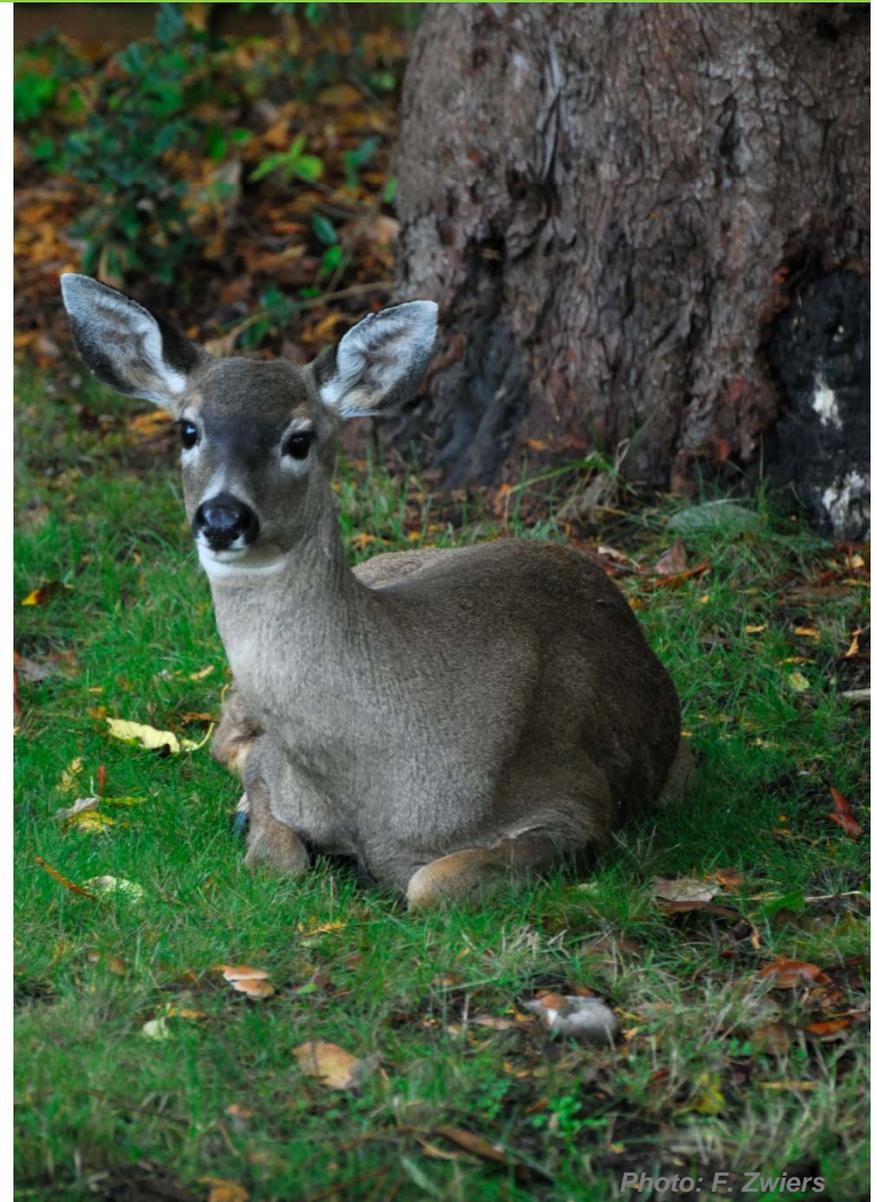


Photo: F. Zwiers

Some coming challenges

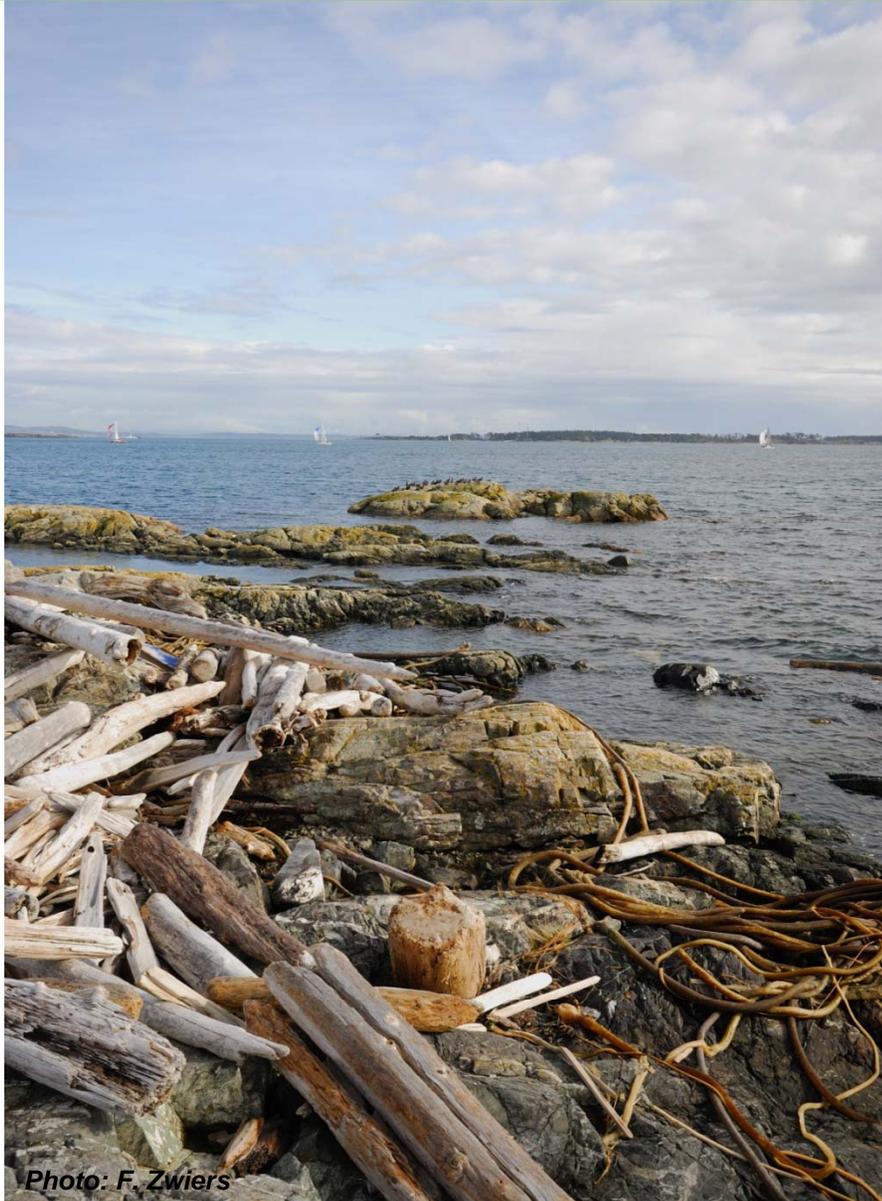


Photo: F. Zwiers

- WCRP sets part of the context – it is in flux
- Data and model output
 - CMIP5 will be huge
 - the anticipated data flow from future satellites even larger,
 - insitu networks will be under cost pressure
- Strongest user demands will concern extremes
- In a real sense, we will be asked to do more with comparatively less information

Some coming challenges

- Quantifying and communicating uncertainty in a useful manner as we go to increasingly smaller scales
 - how do we characterize the cascade of uncertainty as we go from a global emissions scenario to an impacts projection in Cache Creek where the downscaling target is a gridded historical dataset with 800m resolution?
- Understanding that while human influence is projected to be large in the future, it remains a challenge to attribute current changes and events to causes on a regional scale.



Thank You!



Photo: F. Zwiers

www.PacificClimate.org