Computer-Aided Support for Understanding Climate Variability

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Recent research by Hewitt et al. (2008) has projected that climate variations will impact Canadian Prairie regions, leading to changes in the suitability of crop production. With this increasing climate variability worldwide, producers (and consumers) must become more knowledgeable about adaptation to this variability. Understanding how changes to regional and local climates will impact current practises, and then being able to understand new alternatives is key to building sustainable societies. By developing computer-aided modelling tools, all citizens will be enabled to visualize projected changes. Producers will be able to visualize alternatives crops and potential opportunities. Educators and researchers will be able to teach, simulate and evaluate projected scenarios. Furthermore, consumers will be able to understand the availability of local food selections, aiding them in making healthy and sustainable choices.

There currently exist computer-aided support tools similar to that described. For example, the United Nations Food and Agriculture Organization's Ecocrop database[1] is a web tool that enables highly knowledgeable individuals to search for plant types given specific environmental criteria. Furthermore, Illinois State University's Water Survey Alternative Crop Suitability Maps[2] and Otago Polytechnic's Crop Database[3] provide similar functionality. The Otago system, in particular, is an excellent example of the potential utility of such a computer-aided design. However, these systems tend to focus their efforts on expert users, producers and climate researchers, those specifically knowledgeable about individual regions and those highly knowledgeable with advanced climate terminology.

We wish to build upon these tools by placing emphasis on supporting all citizens ~ producers, educators/researchers, and consumers ~ and democratizing access to the information. We are currently designing the prototype system, focusing on three Canadian regions: the Okanagan region of British Columbia, the Western Prairie region of Saskatchewan, and the St. Lawrence/Ottawa region of Ontario.

References:

J. Hewitt, T. Brierley, K. Chen, and H.Hill. *Assessment of Climate Change Impacts on Agricultural Land-Use Suitability*. 2008. http://www4.agr.gc.ca/resources/prod/doc/pfra/pdf/accp_eng.pdf (Accessed February 2011)

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1   UN's Ecocrop tool: http://ecocrop.fao.org/ecocrop/srv/en/home (Accessed February 2011)
2   Illinois State's Alternative Crop Suitability Maps: http://www.isws.illinois.edu/data/altcrops/ (Accessed February 2011)
3   Otago Polytechnic's Crop Database: http://crops.orc.govt.nz/ (Accessed February 2011)