Materials for the Media
on the Alberta's Agroclimatic Changes from 1901 to 2002

By Sam Shen and Tom Goddard

Since the publication of the paper S.S.P. Shen, H. Yin, K. Cannon, A. Howard, S. Chetner, and T.R. Karl, Temporal and spatial changes of agroclimate in Alberta during 1901-2002, *J. Appl. Meteo.* **44**, 1090-1105 (2005) in late July 2005 and the press release from the Alberta Agriculture, Food and Rural Development in late August 2005, many media have contacted Alberta Agriculture and me for data and stories. To facilitate the media writing and to ensure the accuracy of media stories, we have included in this website the following materials [Click each item to get relevant files]:

1. Alberta Agriculture, Food and Rural Development's press release.
2. PDF file of the published paper.
3. Original manuscript of the paper in MS WORD format. This file will help the writers to search for specific terms, such as corn heat units, and May-August precipitation.
4. Figures that are directly related to the results of the paper. The conclusions of the figures are the same as those in the paper, but the figures here are reformatted and their captions are rewritten.

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Main media features are below.

1. This is the first comprehensive and scientifically refereed document on the agroclimatic changes of Alberta for the period that almost coincides with the history of Alberta province, founded in 1905. Alberta province was established then based on agricultural economy.
2. The project reflects an international and multi-disciplinary collaboration. The research team includes scientists from Alberta Agriculture, Food and Rural Development, US National Climatic Data Center, and new immigrants to Canada from China. One scientist (Allan Howard) moved on the Canadian National Climate Information Service under the Ministry of Agriculture and Agri-Food Canada, and he is advocating for a nationwide

agroclimatic change documentation.

3. The resulted data and quantitative conclusions are useful to a variety of users, ranging from agriculture producers, to governmental decision makers, and to research scientists. The main conclusions fro the agroclimatic changes from 1901 to 2002 are as follows.

   3.1. The amount of precipitation that falls between May to August has increased overall by 14%. However this precipitation change has spatial variability across Alberta. The north and northwest regions of the province had the largest increment of precipitation increase (ranging from 30 to 90 mm). Whereas in central and southern areas, the precipitation increases were smaller or even negative, but then the precipitation change becomes large again in the southeast corner (reaching 30 mm).

   3.2. No significant long-term changes were found in growing seasons' length and the dates of when they started and ended.

   3.3. The date for the last spring frost has come earlier and the date of the first fall frost has come later. Also a longer frost-free period was obvious for all regions of the province. This trend then reduces the risk of frost damage to crops.

   3.4. The area now suitable for corn planting has extended northwards in the province by about 200 to 300 km compared to that of the 1913 to1932 normal and by about 50 to 100 km compared to that of the 1943 to 1972 normal.

   3.5. A warming trend exists in Alberta, which will affect crop and livestock management decisions, however this trend does vary with location. Although the warming climate and increased precipitation benefit agriculture in Alberta, more studies need to be made in the future. In addition, the potential impacts of climate change on agriculture are far more complicated that what the nine agroclimatic parameters have addressed here.

References:

1. S.S.P. Shen, H. Yin, K. Cannon, A. Howard, S. Chetner, and T.R. Karl, Temporal and spatial changes of agroclimate in Alberta during 1901-2002, *J. Appl. Meteo.* 44, 1090-1105 (2005).
2. S.S.P. Shen, P. Dzikowski, G. Li and D. Griffith, Interpolation of 1961-1997 daily climate data onto Alberta polygons of ecodistrict and soil landscape of Canada, *J. Applied Meteo.* 40, 2162-2177 (2001).

3. S. Chetner and the Agroclimatic Atlas Working Group, Agroclimatic Atlas of Alberta, 1971 to 2000. Alberta Agriculture, Food and Rural Development, Agdex071-1, Edmonton, Alberta (2003), 89pp. (S.S.P. Shen is included in the Working Group. http://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/sag6278?opendocument