

## Science

# 'Global' warming is not the trend in Galesburg

## Professor takes a look at temps over 51 years

By PETER SCHWARTZMAN  
for The Register-Mail

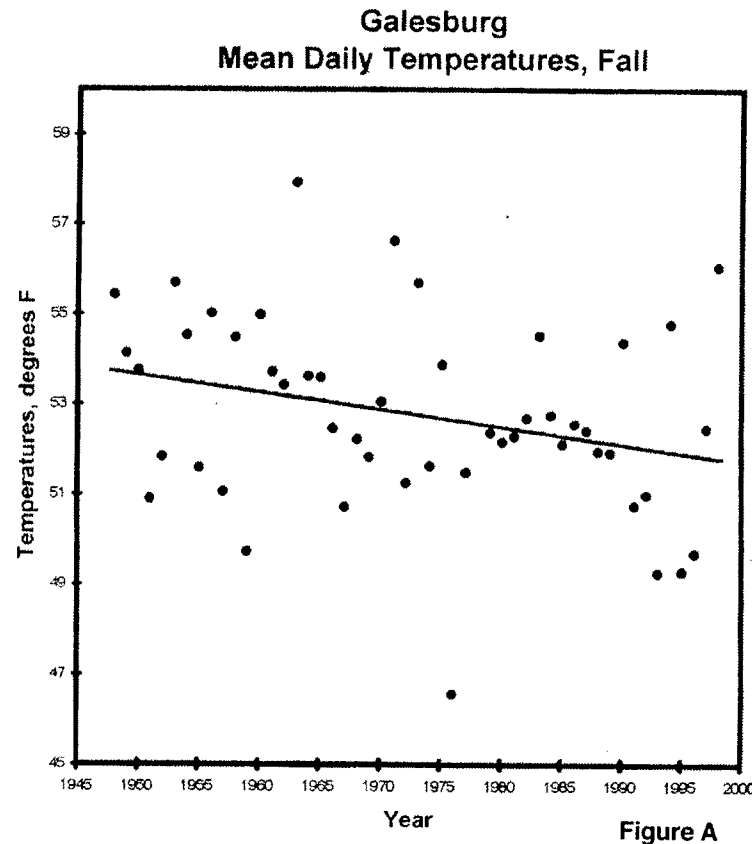
GALESBURG — With all of the hubbub concerning global warming, one might wonder whether the climate is changing here in the heartland of the Midwest, Galesburg.

I have only been a resident of Galesburg for a little more than a year but in that time, I have heard long-time residents say things such as, "The winters are so mild these days," or "Boy, it has been dry lately," or "We never used to get so many tornadoes."

Is there any truth to these statements? As we enter into the new millennium, I thought, being a local climatologist, I'd take a look at the numbers, by examining climatological records, some of which go back to the early part of this century.

### Temperature

First let's look for the presence of temperature change. Since 1948, mean daily temperatures show declines in all seasons except spring, where increases are evident. (The mean is the average of the daily high and the low temperatures.) The magnitude of these changes are as follows, over the 51 years that make up my analysis: winter -2.9 degrees Fahrenheit; spring, +1.6 degrees; summer, -



0.9 degrees; and, fall, -3.6 degrees.

Figure A, accompanying the article, shows the mean temperature records for fall, the months that show the greatest declines; the line shown is the best regression line through the data.

Now while these changes suggest that we are undergoing local cooling more so than local warming, it is important to keep in mind that climate change in Galesburg, or any other location in the world for that matter, should not be taken as a proxy for changes observed or predicted for the entire globe.

To give you an idea of whether these observed changes are important, it is useful to compare them to the changes predicted by modern mathematical climate models.

According to the Intergovernmental Panel on Climate Change (better known as the IPCC), an organization consisting of several thousand scientists from around the world who study climate change, global mean temperatures are expected to increase between 2.7 and 6.3 degrees Fahrenheit by the year 2100. The global temperatures are predicted to

change primarily because of increased atmospheric levels of greenhouse gases (such as carbon dioxide and methane) due to human activities, including driving cars, factory activities, and clearing forests.

Additionally, according to the IPCC, these levels of global temperature change are expected to have considerable influence on the earth's biosphere by way of sea levels rising, glaciers melting, alteration of seasonal cycles, and spread of tropical diseases. However, Galesburg seems to be moving in the opposite direction in at least three of its four seasons, most remarkably in fall and winter.

All of the above said, proponents of global warming are more concerned about the maximum daily temperatures than the mean daily temperatures. Maximum temperatures, particularly during summer, tend to cause the most stress on plants and animals. In hot conditions, plants lose necessary water and animals suffer heat fatigue and other health-related problems. Galesburg's maximum daily temperatures are following a similar pattern to the mean temperatures, with declines in three of four seasons, with greatest declines in fall and winter.

However, surprisingly, minimum daily temperatures are increasing in all seasons, albeit only slightly. This last result is in fact expected in a global warming scenario, where nights are expected to warm more than days.

These temperature results are also consistent with a longer-range study done by the

Illinois State Water Survey. This 1997 study, contained in a report entitled "An Investigation of Historical Temperature and Precipitation Data at Climate Benchmark Stations in Illinois", looks at temperature and precipitation records going back to the beginning of this century. And, as stated in the report, the predominance of cooling rather than warming in Illinois over the past 50 to 100 years does not disprove or prove the concept of global warming, it merely represents the regional condition.

### Precipitation

Now, let's take a look at changes in precipitation (rain, sleet, hail, snow, anything wet falling from the sky). While winter shows fairly constant precipitation totals and spring and summer show slight increases over the fifty-year period, fall exhibits a statistically significant increase of 0.061 inches/year (or a 3.2 inch increase over the period of record).

This may not sound like a lot but consider that Galesburg, on average, gets 8.95 inches of precipitation each fall. Thus, 3.2 inches is very considerable, a 36 percent increase in just 53 years. One might first expect farmers to welcome this rain, but autumn rain may only make harvesting more treacherous and painstaking.

### How to learn more

If you are interested in the climate change topic but don't know where to start, let me recommend the following fairly

accessible books:

(1) "Global Warming: The Complete Briefing," by J.T. Houghton, Cambridge University Press, 1997

(2) "Global Warming" by M.A. Bernarde, Wiley & Sons, 1992

(3) "Is the Temperature Rising?" by S.G. Philander, Princeton Univ. Press, 1998

For those with Internet access, here are a few Web sites to check out:

(1) Illinois Climate Change Project:  
<http://dnr.state.il.us/orep/inrin/e-q/iccp/iccp.htm>

(2) National Oceanic and Atmospheric Administration (NOAA) State of Climate:  
[http://www.esdim.noaa.gov/story/ncdc\\_stateofclimate.html](http://www.esdim.noaa.gov/story/ncdc_stateofclimate.html)

(3) Weather for Active Lives:  
<http://www.intellicast.com/>

Also, if you do a random search on global warming you are likely to run across dozens of matching Web sites. But you have to be careful to inspect what you find closely as everyone seems to have a different take or slant on this monumental issue.

So as you enter the next century, consider that one's intuition about climate change might more than often be misled. And similarly, scientific predictions of climate change on the global scale may not manifest themselves in expected ways locally. 'Tis the season to be jolly, but 'tis also the season to speculate about climate and weather changes.

Dr. Peter Schwartzman is an Assistant Professor of Environmental Studies at Knox College. He can be reached at 309-341-7142, or [pschwartz@knox.edu](mailto:pschwartz@knox.edu)