

THE ATMOSPHERIC RESERVOIR

Examining the Atmosphere and Atmospheric Resource Management

09-10 Winter Outlook: *Balmy* or *Frosty*?

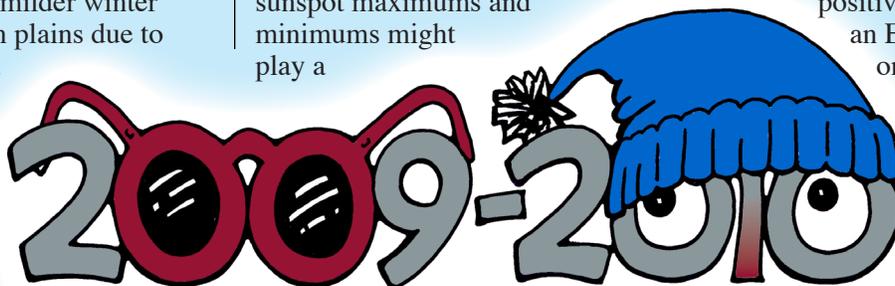
By Mark Schneider

Is there any truth to the statement, “a cold summer means a cold winter?” Not necessarily. Even though this summer went into the record books as much cooler than normal, the National Oceanic and Atmospheric Administration’s (NOAA) Climate Prediction Center is forecasting a milder winter here in the northern plains due to the occurrence of a moderate to strong El Nino. Along with warmer temperatures, El Nino typically brings normal to below normal precipitation; welcome relief for those responsible for shoveling and blowing last winter’s record snows.

This contrasts with the 2010 *Farmers’ Almanac*, which states that the north central U.S. will be cold and snowy this winter. The Managing Editor of *Farmers’ Almanac*, Sandi Duncan, stated that the area between the Rocky Mountains and Appalachian Mountains is going to be an “ice cold sandwich.” It’s worth making the distinction that there are two separate publications, *Farmers’ Almanac* and *The Old Farmer’s Almanac*. *The Old Farmer’s Almanac* is predicting a much colder than normal winter for our state as well, with the exception of southern North Dakota where temperatures are expected to be near normal.

Both *Farmers’ Almanac* and *The Old Farmer’s Almanac* incorporate

sunspot activity, among other things into their predictions each year. Sunspot activity reached a 50-year low in 2008 and we are currently witnessing a prolonged period of minimum solar activity. This is likely part of the reason for the cold, grim winter prediction made by the two publications. It is thought that our sun’s solar variance between sunspot maximums and minimums might play a



significant role in seasonal weather and long-term climate. Scientists have only been able to accurately measure the sun’s energy output with satellites for about the last 30 years though, making any conclusions very preliminary.

Many regional and global factors such as El Nino must be taken into consideration before a prediction or forecast can be made. There are additional oceanic cycles and patterns that can coincide with El Nino to strengthen or weaken its signal. One of those patterns is called the Pacific Decadal Oscillation (PDO). The PDO is an index derived from water temperatures that represent climate variability in the North Pacific Ocean (north of 20 degrees latitude). The PDO was first discovered in 1996 and because its positive and negative phases typically last between 20 to 70 years,

we are limited to just a handful of its occurrences since detailed North Pacific temperature records began in the mid 1800s.

When a positive or warm phase of the PDO occurs, the waters off of eastern Asia cool, while those off the coast of western North America warm. During a negative PDO phase, the opposite is true. When a positive PDO coincides with an El Nino, the effects on regional weather patterns are amplified. We are currently in a negative PDO phase, which could mean that El Nino’s impacts will be lessened this winter. All that said,

there is still debate within the scientific community over the interplay between the PDO and El Nino.

Take your pick whether you believe NOAA’s extended outlooks or the more esoteric, formulated forecast methods that *Farmers’ Almanac* and *The Old Farmer’s Almanac* employ. The certainty lies in the contrast between their temperature and precipitation predictions for North Dakota this winter. In any case, seasonal weather predictions are intriguing and will continue to keep us guessing long into the future.

Atmospheric Resource Board
North Dakota State Water Commission
900 East Boulevard, Bismarck, ND 58505
(701) 328-2788
<http://swc.nd.gov>

ND Weather Modification Association
PO Box 2599, Bismarck, ND 58502
(701) 223-4232