

# SUMMER 2010: A weather expert's recap

In 2010 weather became a crucial factor for the survival of the golf course industry. The industry had hoped for an upswing in the rounds played following the previous year's economic downturn.

Warmer than normal sea surface temperatures in the far equatorial regions of the Pacific Ocean – known as El Niño – influenced atmospheric patterns and cold, stormy winter weather across the U.S. in January and February. Blustery and, in some cases, near-record cold kicked off the New Year. Winter golfers from the Carolinas to Florida encountered the coldest January in 17 years and the wettest in the last four. Most notable was the persistent cold air that penetrated deep into Florida. Southern Florida courses refused to warm up during the second week of January. On nine mornings the temperature cooled to morning lows in the 30's in Palm Beach County and during one seven-day stretch the mercury briefly topped 60. On January 9 the high in Melbourne on Florida's central Atlantic Coast peaked at 40 degrees after an early morning low in the 20s.

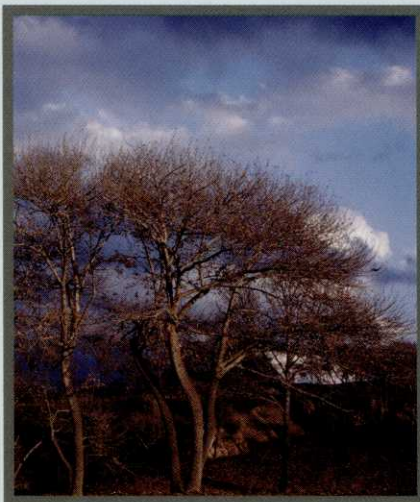
**February** brought stubbornly cold and windy weather. In the transitional states of Texas and Oklahoma to the Carolinas, Georgia and even Florida was some of the coldest in the last 100 winters. Each experienced one of the top ten coldest Februaries ever with morning temps in the 20s and 30s.

**March** rolled in those warm Pacific Ocean temperatures began to cool. The resulting La Niña – cooler oscillation phase of the tropical Pacific surface temps – brought a rather abrupt end to the long-lasting cold that plagued much of the U.S. From the Pacific Northwest through the Midwest and Northeast temperatures warmed to above normal. Rhode Island had its warmest March ever and Maine is second warmest. The Deep South remained slightly cooler than normal, but saw some recovery with relatively mild weather. South Carolina and Georgia courses warmed above 60 most of the time with at least 10 days above 70. However, January-March remained the coldest ever in Florida and second coldest ever in Louisiana.

Despite the arrival of warmer weather in the Northeast, the change in weather patterns delivered one of the wettest months ever to much of the area. March's signature storm on the 13th hit courses hard from southern and coastal sections of New Jersey through Massachusetts, littering fairways and greens with trees and branches. The storm, one of the most intense Nor'easters in a dozen years, knocked out power and dumped rainfall amounts from six to ten inches in Massachusetts, Maine, New Hampshire and New Jersey with wind gusts to near Hurricane (70-75 mph) force. Unfortunately, many flooded courses were hit hard again just two weeks later with another

deluge which brought rainfall totals for the month to their highest ever, with nearly 10 inches in the New York City area, up to 15 inches in the Boston region and almost 17 inches in parts of Rhode Island. Fairways that succumbed to the inundation of rain took the entire month and even longer to dry out and return to normal.

At the start of **April**, the rest of the country was beginning to experience more typical spring conditions. Southern California courses were warming up nicely with near perfect conditions for much of the month, and the Deep South – although still cooler than normal – was delivering a high number of playable days. By the end of the month, even the northeast began drying out. Precipitation was light for most areas east of the Mississippi and only the Pacific Northwest



experienced above normal rainfall. Golf courses across parts of the Great Lakes and Midwest, which had seen mostly light precipitation for much of 2010, needed irrigation more often than not during the spring. Little did we know this would be a harbinger of the more severe heat and drought conditions that would prevail across most of the east during the summer?

As **May** and **June** arrived the combination of a strengthening La Niña, lingering heat from El Niño and some of the warmest Atlantic surface temperatures ever produced continued warmer than normal atmospheric conditions from the leeward slopes of the Rockies to the East Coast. Wet conditions returned to the Midwest and Great Lakes with flooding in the upper Mississippi. It was the wettest ever in Michigan and among the wettest in Iowa and Illinois, as well. May brought the first of many hot days to the Northeast. The Washington DC area saw its first 3 days of 90 degree heat, followed by another nineteen 90 degree plus days in June and one topping 100. The heat intensified during the period from Maine to Florida. In June, Myrtle

Beach courses hit the 90s on all but five days.

**July** and **August** continued to bake many East Coast courses. The four-month period from May to **August** became either the hottest ever or in the Top 3 hottest for every contiguous state from Maine to Florida. The heat intensity was so great that afternoon temperatures topped 100 on more than one occasion as far north as New England. The mercury soared above 90 on about 50 days in the Philadelphia area and an unbelievable 70 days in the District of Columbia, Northern Virginia area. This shattered previous records. Unfortunately, while air temperature reported by weather stations is measured at about 6 feet above the ground, turf surfaces exposed to full sunshine likely reached 110 to 120 degrees or more during the hottest of the summer days. In some cases, 20 consecutive days or more of 90 degree-plus heat prevailed with little or no rain.

In contrast, La Niña's cooling effects on the West Coast continued to produce near ideal conditions from California to Oregon during much of the summer. It was perhaps a bit too cool in Washington State at times, but a great deal more comfortable than what the east was dealing with.

As **autumn** arrived the hottest heat of the summer came to an end but still remained above normal. Overall, the fall weather was the most favorably and forgiving to both courses and players across the U.S. Florida, however, was exceptionally arid for much of the fall, recording a record dry **October** with only an average .39 inches state-wide. The hurricane season was quieter than normal with only minimal affects along the Atlantic and Gulf coasts. Most storms veered out to sea before hitting the mainland.

As 2010 closed, atmospheric steering currents in the northern Pacific again shifted southward, bringing a series of large long-lasting storms to the Pacific coast states and record rains from Oregon to southern California. After escaping the extreme weather most of the year, December brought the "Great California Flood." Although Northern California fared the best, some courses in San Diego County became almost entirely consumed by flooded waters.

The Climate Extreme Index (CEI) is a value that accounts for extreme variation in weather from year to year and has been measured by the National Oceanic and Atmospheric Administration since 1996. In 2010, the index value was 9 percent above normal, a confirmation that yes, the weather during the year did produce more extremes. The good news is that CEI values have been as high as 20 percent above normal back as recently as the late 90s and have been in a decline since. **GC**

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