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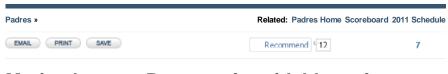
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Marine layer at Petco as formidable as faraway fences

By Chris Jenkins 4:57 p.m., June 1, 2011

Wind? Not much to speak of, really. Compared to the howling gales that play havoc and influence games at so many other stops around baseball — Wrigley Field, AT&T Park, etc. — Petco Park's a breeze. And a gentle one at that.

Rain? C'mon, it's San Diego. Droughtsville, dude. Padres home games get called off on account of precipitation every, oh, six years or so. Sweltering, oppressive heat? Knee-buckling humidity? Lightning storms? Hardly ever. Elsewhere, meanwhile, big league games are postponed by waist-deep snow and tornadoes and hurricanes.

"Face it," said Art Miller. "We have essentially very little weather here."

Miller ought to know. Weather's his life, or a big part of it. So is baseball. Miller, now the director of the Climate, Atmospheric Science and Physical Oceanography (CASPO) Division at Scripps Institution of Oceanography, has been attending Padres games regularly since he first came to UCSD as a graduate student in 1980.

You don't need a Ph.D. in meteorology, or hardball aerodynamics, to see the difference between the way a baseball travels before and after sundown at Petco Park. But it helps to understand the elements involved: prohibitive as the big numbers painted onto the distant outfield fences are to hitters, they're also victimized by the "marine layer" that usually rolls in from the nearby ocean at dusk and seems to grab hold of the ball soon after its flight reaches deep-outfield air space.

"In the simplest terms, when you're close to the water, there's more moisture in the air and the air is cooler," said Miller. "The air becomes less dense with water in it, lighter than typical air molecules, so the ball can fly farther in the moister air. But when the marine layer moves in, like a big blob of cold air pouring over the stadium walls and onto the field, the air is more dense and harder for the ball to go through.

"Those two effects compete against each other, and depending on which one is winning at the time, the ball goes farther or not as far when it's hit."

The third factor is the sea breeze that's relatively mild on the coast of Southernmost California. Close as it is to the water, Petco Park is buffered from the stronger Pacific gusts that hit Coronado and disperse over San Diego Bay. In the afternoon, the breeze comes over and around the enclosed side of the ballpark and helps the airborne baseball along.

However, when the heat of the day dissipates with darkness, so does whatever wind is in play. Those flags in the open catwalk high in right field go from whipping around in late afternoon to perfectly still in the second or third inning.







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If some of the Padres' more frustrated hitters feel like Petco Park is conspiring against them — and the San Diego offense has been particularly weak at home this season — they're not altogether

"If that cutoff of the sea breeze always occurs during the game, there's a higher chance that it will work to the slight advantage of the visiting team, because it's batting first," said Miller. "The visiting team will always have just a little bit more wind than the Padres do. So there could be a quantifiable measure if you actually measured the wind break (at Petco) and compared that to the statistics of the team hitting."

The good news for hitters both home and visiting is that the marine layer generally is a condition of springtime in San Diego and clears out for the summer months of July, August and September.



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