# Correlations Between Homeowner Mold Insurance Claims and Weather Databases in Texas

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## ABSTRACT

Limiting moisture problems and mold growth in homes requires both controlling moisture levels in interior spaces, and managing water vapor transport and bulk water intrusion in the building envelope, such as infiltration of humid air and the penetration of rainwater into building envelopes. In 2001, the Texas Department of Insurance (TDI) issued a Special Call for Homeowners Mold Experience. This cursory analysis couples that database with key historical weather conditions from the National Climatic Data Center (NCDC) for that same time period to show more humid climate zones in Texas to be more prone to incidences of mold and resulting mold claims. A statistical correlation between higher outdoor dew point temperatures and greater numbers of mold damage claims (per 1000 policyholders) is clearly evident. However, no such clear correlation is evident between precipitation amounts and the number of mold damage claims.

## BACKGROUND

Recent research has brought recognition to the infiltration of humid air and the intrusion of rainwater into building envelope cavities as significant and often dominant mechanisms for moisture transport in wall and roof systems (Trechel 2001). Moist air infiltration through a home's envelope can be driven by winds or negative pressurization caused by exhaust fans, unbalanced air distribution, and/or leaky ductwork. In hot and humid climates, colder surfaces in the envelope created by air conditioning the interior can create an elevated relative humidity (RH), or even set up a condensation plane where infiltrating moist air can reach its dew point temperature. For mold to grow, spores must be present along with nutrients under conducive temperature and humidity conditions. Inside or outside the home, mold spores are always present in the air and most common building materials have nutrients to support mold growth on their surfaces. When the RH adjacent to a surface is above 70% RH, the conditions are sufficient for mold growth if the dry bulb temperature is between 40 and 100 $^{o}$F (Lstiburek and Carmody 1994). Infiltrating air can raise the relative humidity to that threshold level for limited mold growth on surfaces, or even saturate building cavities for extensive mold colonization. Repeated water intrusions through rain penetration of wall and roof systems or plumbing leaks into building envelopes can produce the same, and often more catastrophic results.

In recent years the insurance industry in Texas has seen a four fold increase in water damage losses with such claims accounting for 60% of all homeowner losses by 2002 (Mills 2005). This crisis led to the implementation of policies with clearly stated mold exclusions with "buy back" provisions at limited mold remediation liability levels for covered water damage in homeowner policies (TDI 2002A).

Those in the insurance field have long recognized the increased risk of homeowner property coverage in areas prone to natural disasters, such as hurricanes along the Gulf Coast, and homeowners living in the affected areas are seeing greater property insurance cost increases than those outside such regions (Yerak 2005). The recent trends in mold coverage are another example of identifying, and even separating out, high risk elements from mainstream homeowner policies and charging more for that additional risk coverage.

In the instance of mold coverage though, the combined insurance industry and individual state commission response has been especially swift and sweeping in states like Texas with dramatic increases in such losses. However, as the understanding of the building science field grows regarding how construction practices, building operations, and climate all factor into mold production, then a more refined approach may emerge that better assigns cost to the leading risk factors. This paper makes an initial, cursory attempt at better understanding the relationship between weather factors and mold claim activity.

## MOLD INSURANCE CLAIMS DATABASE

In 2000, the insurance industry first began uniquely coding and separating out mold losses from water damage claims. In 2001, the Texas Department of Insurance (TDI) issued a Special Call for Homeowners Mold Experience for the period January 1, 2000 through December 31, 2001, to the top 5 insurance carriers representing 70% of the residential policies in the state. The policies covered single family (detached and attached) homeowners, but not mobile homeowners, condominium owners, or renters. The database is summarized on the Mold Resources Page of the TDI website (www.tdi.state.tx.us/commish/mold.html). The Mold Data Territory Summary for the period January 1, 2000 through December 31, 2001 is reproduced in Table 1 (TDI 2002B).

The first column of Table 1 identifies a territory from the state insurance benchmark rate system at that time. The territories are broad groupings of contiguous counties, with single county territories established where there is a major city. Table 2 identifies all 254 Texas county assignments to those territories. Figure 1 overlays those territories on the state map of Texas with county boundary outlines in the background. Of particular interest will be the territories near the moisture laden air masses of the Gulf of Mexico. Territory 10 consists of the counties immediately on the coast, with separate territories created for Galveston (Territory 8/Galveston County) and Corpus Christi (Territory 9/ Nueces County), the major cities on the coast. The so-called second tier counties (those one county removed from the coast), with the exception of Houston (Territory 1/Harris County), comprise Territory 11 (TDI 2006).

The fourth column of Table 1 contains the average mold claim cost in that territory. The third column displays the average annual cost per policyholder of all the mold losses in that territory. The sixth column calculates the percentage difference between those average annual costs per policyholder in that territory (third column) versus the statewide average (last row). The fifth column of Table 1 presents the number of mold claims per 1000 insured homeowners in that territory. (Note that some insured homeowners may have multiple policies, i.e., second homes.) It is the number of mold claims (per 1000 insured homeowners) that will be the basis for the correlations to key weather data parameters. The second column identifies sample cities in that territory which serve as the basis for weather data location selections.

## WEATHER DATABASE

In hot and humid climates, such as along the Texas coast of the Gulf of Mexico, the water vapor in infiltration air can condense on cool surfaces in building envelopes if those surface temperatures are below the dew point of the outside air. Infrequent or or shorter term exposure of lower temperature surfaces to higher dew point air will not likely result in major mold damage, but if the those conditions are prolonged mold growth can be sustained. Generally, it is recommended that the dew point conditions be averaged over weeks or months when investigating the potential for condensation due to infiltrating air (Trechsel 1994). A 3 month average for dew point temperature is used in this analysis.

The weather database generated for the mold claim correlations encompasses three weather parameters considered relevant for mold development: dry bulb temperature, dew point temperature, and precipitation. Only 16 of the 23 territories in Table 1 had sample cities with weather stations providing data for all three of the selected weather parameters. Table 3 repeats those territories and sample cities from Table 1 in the first and second columns. The third through fifth columns in Table 3 identify the city, site description, and WBAN # for the weather data stations used in the mold claim correlations. Note that Dallas (Territory 2) and Fort Worth (Territory 3) used the same weather data location. Also note that Territory 11 is represented by 2 cities (Victoria and McAllen), as is Territory 15N (Midland and San Angelo).

The source for the weather data used is the National Climatic Data Center (NCDC). The weather data obtained from the NCDC originated from two data sets: the Daily Surface Data set (DSD), containing data for over 19,000 U.S. cities, and the Monthly Surface Data set (MSD), containing monthly aggregated data for nearly 18,000 sites worldwide. Both the DSD and MSD are organized into data files accessible through the NCDC web site (http://cdo.ncdc.noaa.gov/CDO/dataproduct). But neither data set provided all three of the needed weather parameters for every weather site, hence the need to use both data sets. The needed parameters were obtained from the MSD set when available, then complemented with the DSD set when needed additional data was not available in the monthly set. When the DSD set was used to generate monthly values, the data was either averaged (average dry bulb temperature and average dew point temperature), or summed (total precipitation). This weather database is provided in Tables 4A-C.

Table 1. TDI Mold Data Territory Summary for 2000 -2001 (TDI 2002B)

| Territory | Sample Cities | Average Cost Per Policyholder Per Year | Average Cost Per Claim | # Claims Per 1,000 Insureds | %Territory Cost Above (Below) Statewide Cost |
|---|---|---|---|---|---|
| **1** | Houston | $292.02 | $40,547 | 7.2 | 58.10% |
| **2** | Dallas | $113.59 | $35,995 | 3.16 | -38.50% |
| **3** | Fort Worth | $67.46 | $32,815 | 2.06 | -63.50% |
| **4** | Denton | $49.32 | $34,630 | 1.42 | -73.30% |
| | Plano | | | | |
| **5** | San Antonio | $119.39 | $33,225 | 3.59 | -35.40% |
| **6** | Austin | $265.50 | $43,200 | 6.15 | 43.70% |
| **7** | El Paso | $0.81 | $15,218 | 0.05 | -99.60% |
| **8** | Galveston | $232.24 | $33,203 | 6.99 | 25.70% |
| **9** | Corpus Christi | $1,367.95 | $50,169 | 27.27 | 640.50% |
| **10** | Beaumont, Brownsville, | $559.25 | $44,988 | 12.43 | 202.70% |
| | Angleton | | | | |
| **11** | Orange | $443.33 | $35,374 | 12.53 | 140.00% |
| | Liberty | | | | |
| | Victoria, McAllen | | | | |
| **12** | Laredo | $71.57 | $40,917 | 1.75 | -61.30% |
| | Del Rio, Kerrville | | | | |
| **13** | Bryan | $114.23 | $39,849 | 2.87 | -38.20% |
| | Temple | | | | |
| | Georgetown, Round Rock | | | | |
| **14** | Tyler, Longview | $105.54 | $39,029 | 2.7 | -42.90% |
| | Conroe, Nacogdoches | | | | |
| | Lufkin, Corsicana, Palestine | | | | |
| **15C** | Fort Stockton, Pecos | $24.12 | $20,969 | 1.15 | -86.90% |
| | Alpine | | | | |
| **15N** | Midland | $69.25 | $30,728 | 2.25 | -62.50% |
| | Odessa | | | | |
| | Big Spring | | | | |
| | San Angelo | | | | |
| | Sweetwater | | | | |
| **16C** | Waco | $58.89 | $30,789 | 1.91 | -68.1 |
| | Brownwood, Cleburne | | | | |
| **16N** | Abilene | $62.02 | $27,133 | 2.29 | -66.40% |
| **17** | Texarkana, Paris, Denison | $37.25 | $29,316 | 1.27 | -79.80% |
| | Greenville | | | | |
| | Sherman | | | | |
| **18** | Lubbock | $61.22 | $29,266 | 2.09 | -66.90% |
| | Plainview | | | | |
| **19C** | Weatherford | $100.68 | $37,632 | 2.68 | -45.50% |
| | Gainesville | | | | |
| | Mineral Wells | | | | |
| **19N** | Wichita Falls | $63.31 | $27,813 | 2.28 | -65.70% |
| | Vernon | | | | |
| **20** | Amarillo | $93.71 | $26,520 | 3.53 | -49.30% |
| **999** | Texas Statewide | $184.74 | $38,997 | 4.74 | 0.00% |

Table 2. County Assignments to Insurance Territories (TDI 2006)

| Territory | County | Territory | County | Territory | County | Territory | County | Territory | County |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Harris | 12 | Uvalde | 14 | Newton | 16C | Kimble | 18 | Lamb |
| 2 | Dallas | 12 | Val Verde | 14 | Panola | 16C | Mason | 18 | Lubbock |
| 3 | Tarrant | 12 | Webb | 14 | Polk | 16C | Menard | 18 | Lynn |
| 4 | Collin | 12 | Zapata | 14 | Rusk | 16C | Mills | 18 | Motley |
| 4 | Denton | 12 | Zavala | 14 | Sabine | 16C | Somervell | 18 | Parmer |
| 4 | Rockwall | 13 | Austin | 14 | San Augustine | 16C | McCulloch | 18 | Scurry |
| 5 | Bexar | 13 | Bastrop | 14 | San Jacinto | 16C | McLennan | 18 | Stonewall |
| 6 | Travis | 13 | Bell | 14 | Shelby | 16N | Callahan | 18 | Swisher |
| 7 | El Paso | 13 | Blanco | 14 | Smith | 16N | Coleman | 18 | Terry |
| 8 | Galveston | 13 | Brazos | 14 | Trinity | 16N | Concho | 18 | Yoakum |
| 9 | Nueces | 13 | Burleson | 14 | Tyler | 16N | Runnels | 19C | Cooke |
| 10 | Aransas | 13 | Burnet | 14 | Walker | 16N | Taylor | 19C | Jack |
| 10 | Brazoria | 13 | Caldwell | 14 | Waller | 17 | Bowie | 19C | Montague |
| 10 | Calhoun | 13 | Colorado | 15C | Brewster | 17 | Camp | 19C | Palo Pinto |
| 10 | Cameron | 13 | Comal | 15C | Crockett | 17 | Cass | 19C | Parker |
| 10 | Chambers | 13 | Coryell | 15C | Culberson | 17 | Delta | 19C | Stephens |
| 10 | Jefferson | 13 | DeWitt | 15C | Hudspeth | 17 | Fannin | 19C | Wise |
| 10 | Kenedy | 13 | Falls | 15C | Jeff Davis | 17 | Franklin | 19C | Young |
| 10 | Kleberg | 13 | Fayette | 15C | Loving | 17 | Grayson | 19N | Archer |
| 10 | Matagorda | 13 | Gillespie | 15C | Pecos | 17 | Harrison | 19N | Baylor |
| 10 | Refugio | 13 | Gonzales | 15C | Presidio | 17 | Hopkins | 19N | Clay |
| 10 | San Patricio | 13 | Guadalupe | 15C | Reeves | 17 | Hunt | 19N | Foard |
| 10 | Willacy | 13 | Hays | 15C | Schleicher | 17 | Kaufman | 19N | Hardeman |
| 11 | Bee | 13 | Karnes | 15C | Sutton | 17 | Lamar | 19N | Haskell |
| 11 | Brooks | 13 | Kendall | 15C | Terrell | 17 | Marion | 19N | Jones |
| 11 | Fort Bend | 13 | Lampasas | 15N | Andrews | 17 | Morris | 19N | Knox |
| 11 | Goliad | 13 | Lavaca | 15N | Coke | 17 | Rains | 19N | Shackelford |
| 11 | Hardin | 13 | Lee | 15N | Crane | 17 | Red River | 19N | Throckmorton |
| 11 | Hidalgo | 13 | Llano | 15N | Ector | 17 | Titus | 19N | Wichita |
| 11 | Jackson | 13 | Milam | 15N | Glasscock | 17 | Upshur | 19N | Wilbarger |
| 11 | Jim Wells | 13 | Robertson | 15N | Howard | 17 | Van Zandt | 20 | Armstrong |
| 11 | Liberty | 13 | San Saba | 15N | Irion | 17 | Wood | 20 | Carson |
| 11 | Live Oak | 13 | Washington | 15N | Martin | 18 | Bailey | 20 | Collingsworth |
| 11 | Orange | 13 | Williamson | 15N | Midland | 18 | Borden | 20 | Dallam |
| 11 | Victoria | 13 | Wilson | 15N | Mitchell | 18 | Briscoe | 20 | Deaf Smith |
| 11 | Wharton | 14 | Anderson | 15N | Nolan | 18 | Castro | 20 | Donley |
| 12 | Atascosa | 14 | Angelina | 15N | Reagan | 18 | Childress | 20 | Gray |
| 12 | Bandera | 14 | Cherokee | 15N | Sterling | 18 | Cochran | 20 | Hansford |
| 12 | Dimmit | 14 | Ellis | 15N | Tom Green | 18 | Cottle | 20 | Hartley |
| 12 | Duval | 14 | Freestone | 15N | Upton | 18 | Crosby | 20 | Hemphill |
| 12 | Edwards | 14 | Gregg | 15N | Ward | 18 | Dawson | 20 | Hutchinson |
| 12 | Frio | 14 | Grimes | 15N | Winkler | 18 | Dickens | 20 | Lipscomb |
| 12 | Jim Hogg | 14 | Henderson | 16C | Bosque | 18 | Fisher | 20 | Moore |
| 12 | Kerr | 14 | Houston | 16C | Brown | 18 | Floyd | 20 | Ochiltree |
| 12 | Kinney | 14 | Jasper | 16C | Comanche | 18 | Gaines | 20 | Oldham |
| 12 | La Salle | 14 | Leon | 16C | Eastland | 18 | Garza | 20 | Potter |
| 12 | Maverick | 14 | Limestone | 16C | Erath | 18 | Hale | 20 | Randall |
| 12 | McMullen | 14 | Madison | 16C | Hamilton | 18 | Hall | 20 | Roberts |
| 12 | Medina | 14 | Montgomery | 16C | Hill | 18 | Hockley | 20 | Sherman |
| 12 | Real | 14 | Nacogdoches | 16C | Hood | 18 | Kent | 20 | Wheeler |
| 12 | Starr | 14 | Navarro | 16C | Johnson | 18 | King | **Total 254 Counties** | |

| Territory | Major City |
|---|---|
| 1 | Houston |
| 2 | Dallas |
| 3 | Fort Worth |
| 5 | San Antonio |
| 6 | Austin |
| 7 | El Paso |
| 8 | Galveston |
| 9 | Corpus Christi |

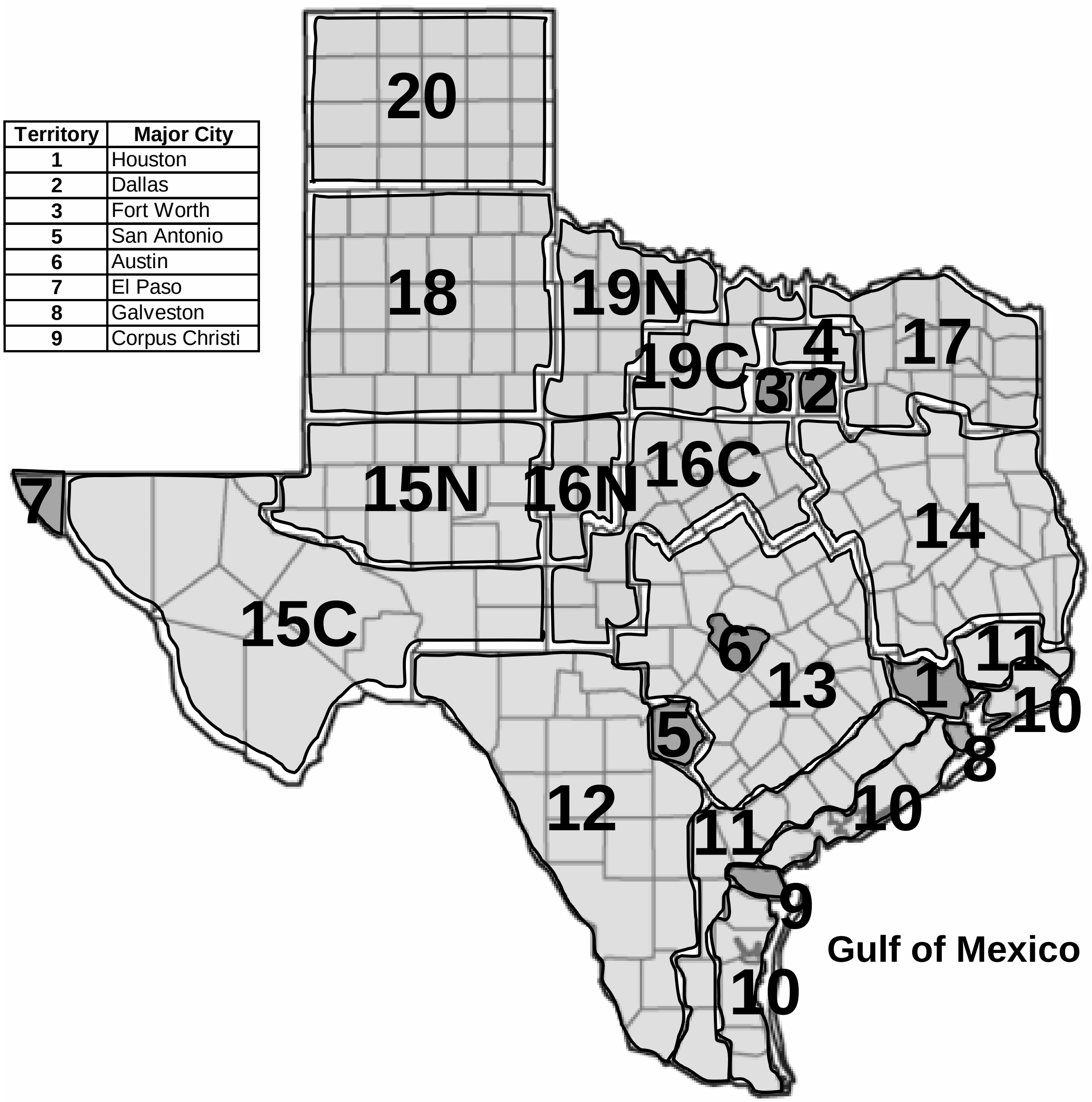



Figure 1. Texas County and Insurance Territory Map

Note the light gray shaded areas are larger territory groupings of counties and the darker gray shaded areas are single counties with major cities shown here in the inserted table.

Table 3. NCDC Weather Data Locations by TDI Mold Claim Territory

| TDI Territory | TDI Sample Cities | NCDC City with Required Data* | NCDC Weather Station Description | NCDC WBAN # |
|---|---|---|---|---|
| **1** | Houston | Houston | Houston Bush Intercontinental Airport | 12960 |
| **2** | Dallas | Dallas/Fort Worth | Dallas-Fort Worth International Airport | 03927 |
| **3** | Fort Worth | Dallas/Fort Worth | Dallas-Fort Worth International Airport | 03927 |
| **4** | Denton | None Available | | |
| | Plano | | | |
| **5** | San Antonio | San Antonio | San Antonio International Airport | 12921 |
| **6** | Austin | Austin | Austin Mueller Municipal Airport | 13958 |
| **7** | El Paso | El Paso | El Paso International Airport | 23044 |
| **8** | Galveston | None Available | | |
| **9** | Corpus Christi | Corpus Christi | Corpus Christi International Airport | 12924 |
| **10** | Beaumont, Brownsville, | Brownsville | Brownsville Padre Island International Airport | 12919 |
| | Angleton | | | |
| **11** | Orange | Victoria | Victoria Regional Airport | 12912 |
| | Liberty | McAllen | McAllen Miller International Airport | 12959 |
| | Victoria, McAllen | | | |
| **12** | Laredo | Del Rio | Del Rio International Airport | 22010 |
| | Del Rio, Kerrville | | | |
| **13** | Bryan | None Available | | |
| | Temple | | | |
| | Georgetown, Round Rock | | | |
| **14** | Tyler, Longview | None Available | | |
| | Conroe, Nacogdoches | | | |
| | Lufkin, Corsicana, Palestine | | | |
| **15C** | Fort Stockton, Pecos | None Available | | |
| | Alpine | | | |
| **15N** | Midland | Midland | Midland International Airport | 23023 |
| | Odessa | San Angelo | San Angelo Mathis Field | 23034 |
| | Big Spring | | | |
| | San Angelo | | | |
| | Sweetwater | | | |
| **16C** | Waco | Waco | Waco Regional Airport | 13959 |
| | Brownwood, Cleburne | | | |
| **16N** | Abilene | Abilene | Abilene Regional Airport | 13962 |
| **17** | Texarkana, Paris, Denison | None Available | | |
| | Greenville | | | |
| | Sherman | | | |
| **18** | Lubbock | Lubbock | Lubbock International Airport | 23042 |
| | Plainview | | | |
| **19C** | Weatherford | None Available | | |
| | Gainesville | | | |
| | Mineral Wells | | | |
| **19N** | Wichita Falls | Wichita Falls | Wichita Falls Municipal Airport | 13966 |
| | Vernon | | | |
| **20** | Amarillo | Amarillo | Amarillo International Airport | 23047 |

***Required Minimum Weather Data:** Monthly Average Dry Bulb Temperature
Monthly Average Dew Point Temperature
Monthly Total Precipitation
from January 2000 through December 2001

Table 4A. Weather Data Summary for 2000-2001

| Year | Month | ABILENE | | | AMARILLO | | | AUSTIN | | | BROWNSVILLE | | | CORPUS CHRISTI | | | DALLAS / FT. WORTH | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Mean DB Temp | Mean DP Temp | Precip inches | Mean DB Temp | Mean DP Temp | Precip inches | Mean DB Temp | Mean DP Temp | Precip inches | Mean DB Temp | Mean DP Temp | Precip inches | Mean DB Temp | Mean DP Temp | Precip inches | Mean DB Temp | Mean DP Temp | Precip inches |
| 2000 | Jan | 49.48 | 28.27 | 0.17 | 39.68 | 19.95 | 0.24 | 55.65 | 41.03 | 2.85 | 66.00 | 57.47 | 0.85 | 62.71 | 53.61 | 0.51 | 50.60 | 34.66 | 1.59 |
| 2000 | Feb | 56.03 | 34.47 | 0.44 | 47.41 | 22.87 | 0.04 | 62.28 | 49.70 | 1.75 | 70.30 | 62.06 | 0.19 | 67.72 | 59.09 | 0.61 | 57.30 | 42.05 | 3.30 |
| 2000 | Mar | 60.48 | 40.50 | 0.88 | 49.45 | 33.53 | 4.14 | 66.55 | 54.82 | 1.14 | 74.40 | 65.85 | 2.89 | 71.48 | 63.83 | 3.68 | 60.90 | 48.03 | 2.92 |
| 2000 | Apr | 67.93 | 45.79 | 0.64 | 58.13 | 38.16 | 0.43 | 70.60 | 57.36 | 2.40 | 75.60 | 65.99 | 0.39 | 73.40 | 64.05 | 1.02 | 65.20 | 51.95 | 4.28 |
| 2000 | May | 79.65 | 57.00 | 2.59 | 69.97 | 44.15 | 1.14 | 79.29 | 68.96 | 3.25 | 82.50 | 73.09 | 1.87 | 80.13 | 73.58 | 4.80 | 76.60 | 64.27 | 3.17 |
| 2000 | Jun | 78.53 | 65.82 | 5.48 | 72.20 | 59.60 | 5.54 | 81.87 | 70.22 | 5.27 | 84.20 | 73.74 | 0.85 | 82.17 | 74.08 | 2.61 | 80.60 | 68.77 | 5.93 |
| 2000 | Jul | 85.94 | 60.43 | 0.01 | 80.32 | 58.52 | 0.16 | 86.97 | 67.58 | 1.87 | 85.70 | 72.70 | 0.28 | 85.10 | 73.22 | 0.01 | 87.30 | 66.38 | 0.00 |
| 2000 | Aug | 87.10 | 57.29 | 0.00 | 82.06 | 52.34 | 0.29 | 87.39 | 68.25 | 0.13 | 84.00 | 74.18 | 4.29 | 84.97 | 73.07 | 0.96 | 90.20 | 63.31 | 0.00 |
| 2000 | Sep | 78.70 | 50.58 | 1.08 | 74.00 | 44.01 | 0.03 | 81.77 | 61.16 | 1.76 | 82.60 | 70.10 | 0.66 | 81.93 | 68.03 | 2.03 | 80.40 | 58.37 | 0.16 |
| 2000 | Oct | 67.23 | 53.87 | 7.01 | 59.97 | 46.10 | 3.95 | 71.68 | 62.26 | 6.03 | 74.80 | 66.97 | 2.71 | 74.13 | 66.22 | 1.90 | 69.60 | 56.29 | 4.38 |
| 2000 | Nov | 48.30 | 39.52 | 2.51 | 39.83 | 27.09 | 0.96 | 56.17 | 48.95 | 7.95 | 68.50 | 59.58 | 0.41 | 63.80 | 56.46 | 2.27 | 49.80 | 41.98 | 6.95 |
| 2000 | Dec | 39.74 | 28.88 | 0.91 | 33.35 | 19.80 | 1.47 | 45.68 | 35.77 | 2.87 | 57.20 | 49.51 | 1.10 | 53.55 | 44.58 | 1.68 | 39.40 | 31.18 | 3.57 |
| 2001 | Jan | 42.03 | 31.46 | 1.07 | 35.03 | 26.01 | 1.67 | 48.58 | 38.99 | 2.72 | 59.50 | 52.90 | 0.48 | 54.97 | 47.31 | 1.74 | 42.60 | 35.24 | 2.44 |
| 2001 | Feb | 48.61 | 39.07 | 2.70 | 41.43 | 30.16 | 0.93 | 56.39 | 47.12 | 1.41 | 67.50 | 61.46 | 1.43 | 63.89 | 55.99 | 0.72 | 50.10 | 42.33 | 6.17 |
| 2001 | Mar | 51.42 | 40.62 | 1.92 | 45.29 | 34.90 | 3.96 | 55.16 | 45.56 | 5.51 | 66.90 | 57.73 | 0.36 | 61.68 | 52.57 | 2.41 | 51.80 | 43.55 | 5.27 |
| 2001 | Apr | 64.27 | 53.18 | 0.57 | 61.27 | 38.73 | 0.49 | 71.00 | 61.31 | 0.50 | 78.00 | 68.71 | 1.10 | 75.10 | 65.57 | 0.12 | 67.80 | 57.14 | 0.89 |
| 2001 | May | 74.10 | 58.78 | 3.63 | 65.42 | 52.28 | 3.05 | 76.68 | 65.11 | 3.27 | 80.60 | 71.82 | 0.49 | 78.13 | 69.09 | 1.55 | 74.20 | 63.54 | 5.58 |
| 2001 | Jun | 81.90 | 61.83 | 1.38 | 76.77 | 54.40 | 1.99 | 82.87 | 68.84 | 0.85 | 85.70 | 75.34 | 2.21 | 83.03 | 72.95 | 4.88 | 80.20 | 67.52 | 1.28 |
| 2001 | Jul | 87.77 | 61.93 | 0.03 | 84.16 | 56.15 | 0.04 | 87.29 | 69.43 | 0.34 | 85.70 | 75.70 | 1.81 | 84.65 | 74.10 | 1.82 | 86.70 | 71.39 | 3.85 |
| 2001 | Aug | 83.61 | 63.03 | 3.39 | 78.97 | 57.96 | 1.39 | 86.52 | 69.56 | 9.48 | 86.50 | 75.69 | 1.80 | 84.90 | 74.37 | 7.83 | 84.90 | 68.95 | 2.72 |
| 2001 | Sep | 74.63 | 59.70 | 2.32 | 70.60 | 53.00 | 3.03 | 77.43 | 65.93 | 1.71 | 81.70 | 73.56 | 3.25 | 80.27 | 70.96 | 6.78 | 74.60 | 64.99 | 3.72 |
| 2001 | Oct | 65.68 | 46.87 | 0.49 | 60.42 | 37.04 | 0.05 | 68.42 | 56.69 | 2.46 | 76.30 | 66.08 | 0.36 | 73.58 | 64.42 | 2.47 | 65.00 | 52.43 | 1.86 |
| 2001 | Nov | 58.67 | 45.99 | 3.39 | 51.07 | 37.55 | 1.86 | 63.07 | 53.79 | 10.00 | 70.40 | 60.98 | 2.42 | 67.37 | 60.78 | 7.44 | 59.70 | 49.52 | 1.11 |
| 2001 | Dec | 48.06 | 33.57 | 0.98 | 40.65 | 22.17 | 0.23 | 54.00 | 44.57 | 4.62 | 64.40 | 55.84 | 1.02 | 60.29 | 53.10 | 1.66 | 49.40 | 37.38 | 3.24 |

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **2000** | **Jun** | **78.53** | **65.82** | | **72.20** | **59.60** | | **81.87** | **70.22** | | **84.20** | **73.74** | | **82.17** | **74.08** | | **80.60** | **68.77** | |
| **2000** | **Jul** | **85.94** | **60.43** | | **80.32** | **58.52** | | **86.97** | **67.58** | | **85.70** | **72.70** | | **85.10** | **73.22** | | **87.30** | **66.38** | |
| **2000** | **Aug** | **87.10** | **57.29** | | **82.06** | **52.34** | | **87.39** | **68.25** | | **84.00** | **74.18** | | **84.97** | **73.07** | | **90.20** | **63.31** | |
| **2001** | **Jun** | **81.90** | **61.83** | | **76.77** | **54.40** | | **82.87** | **68.84** | | **85.70** | **75.34** | | **83.03** | **72.95** | | **80.20** | **67.52** | |
| **2001** | **Jul** | **87.77** | **61.93** | | **84.16** | **56.15** | | **87.29** | **69.43** | | **85.70** | **75.70** | | **84.65** | **74.10** | | **86.70** | **71.39** | |
| **2001** | **Aug** | **83.61** | **63.03** | | **78.97** | **57.96** | | **86.52** | **69.56** | | **86.50** | **75.69** | | **84.90** | **74.37** | | **84.90** | **68.95** | |
| | **Average** | **84.18** | **61.70** | | **79.13** | **56.49** | | **85.52** | **68.97** | | **85.30** | **74.56** | | **84.15** | **73.63** | | **85.03** | **67.72** | |
| **2000** | **2 Year** | | | | | | | | | | | | | | | | | | |
| **2001** | **Total** | | | **43.59** | | | **37.08** | | | **80.14** | | | **33.22** | | | **61.50** | | | **74.38** |

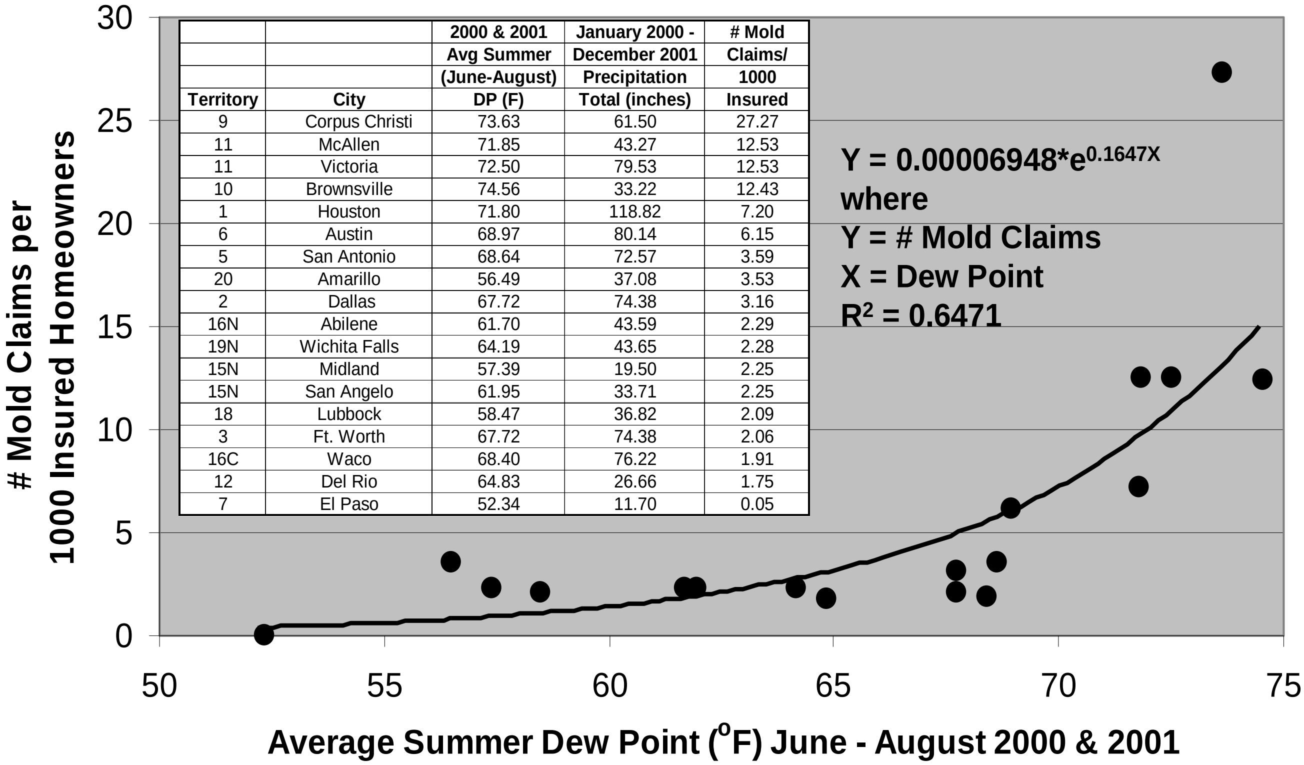
Table 4B. Weather Data Summary for 2000-2001

| Year | Month | DEL RIO | | | EL PASO | | | HOUSTON | | | LUBBOCK | | | MCALLEN | | | MIDLAND | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Mean DB Temp | Mean DP Temp | Precip inches | Mean DB Temp | Mean DP Temp | Precip inches | Mean DB Temp | Mean DP Temp | Precip inches | Mean DB Temp | Mean DP Temp | Precip inches | Mean DB Temp | Mean DP Temp | Precip inches | Mean DB Temp | Mean DP Temp | Precip inches |
| **2000** | **Jan** | 56.71 | 36.08 | 0.03 | 49.70 | 24.66 | 0.00 | 56.50 | 44.97 | 1.25 | 43.00 | 21.62 | 0.00 | 66.58 | 53.52 | 0.52 | 47.52 | 24.93 | 0.61 |
| **2000** | **Feb** | 63.69 | 45.89 | 0.94 | 53.90 | 26.39 | 0.03 | 61.70 | 52.55 | 2.32 | 50.40 | 24.28 | 0.05 | 71.59 | 59.21 | 0.46 | 55.62 | 27.43 | 0.00 |
| **2000** | **Mar** | 69.55 | 49.28 | 0.28 | 57.10 | 26.54 | 0.06 | 66.40 | 58.31 | 1.35 | 53.70 | 34.05 | 2.78 | 75.55 | 63.18 | 1.40 | 59.29 | 34.35 | 0.76 |
| **2000** | **Apr** | 75.10 | 53.16 | 0.90 | 68.30 | 33.10 | 0.28 | 67.90 | 59.31 | 5.52 | 62.10 | 39.31 | 1.67 | 77.60 | 63.78 | 0.60 | 67.63 | 37.40 | 0.19 |
| **2000** | **May** | 83.68 | 64.08 | 1.03 | 79.00 | 34.09 | 0.00 | 78.10 | 70.53 | 12.35 | 74.70 | 46.47 | 0.78 | 84.55 | 71.45 | 0.04 | 78.97 | 48.50 | 1.05 |
| **2000** | **Jun** | 84.07 | 68.54 | 4.38 | 80.20 | 52.70 | 2.45 | 81.40 | 71.96 | 3.29 | 74.00 | 61.90 | 8.48 | 84.67 | 72.35 | 3.45 | 78.93 | 62.88 | 3.14 |
| **2000** | **Jul** | 89.97 | 62.77 | 0.65 | 84.00 | 54.07 | 1.59 | 85.20 | 69.66 | 0.64 | 80.50 | 61.03 | 2.06 | 88.55 | 69.88 | 1.41 | 85.65 | 55.02 | 0.24 |
| **2000** | **Aug** | 88.77 | 64.07 | 0.11 | 81.50 | 52.99 | 0.70 | 84.80 | 70.64 | 2.11 | 81.30 | 55.75 | 0.01 | 86.16 | 72.06 | 2.95 | 83.39 | 54.78 | 0.06 |
| **2000** | **Sep** | 83.23 | 57.74 | 1.32 | 78.60 | 44.14 | 0.00 | 79.40 | 64.51 | 4.34 | 74.60 | 45.33 | 0.00 | 83.43 | 67.79 | 2.69 | 78.07 | 46.17 | 0.00 |
| **2000** | **Oct** | 70.26 | 61.27 | 5.00 | 62.50 | 43.10 | 0.82 | 70.90 | 62.24 | 3.27 | 62.30 | 49.06 | 3.27 | 74.97 | 66.64 | 2.80 | 64.45 | 50.97 | 2.39 |
| **2000** | **Nov** | 56.37 | 47.83 | 2.82 | 47.60 | 28.23 | 1.06 | 57.60 | 50.59 | 8.50 | 43.40 | 32.14 | 1.25 | 68.40 | 57.67 | 1.48 | 47.17 | 35.35 | 0.88 |
| **2000** | **Dec** | 48.19 | 36.61 | 0.51 | 44.00 | 23.42 | 0.42 | 47.60 | 39.15 | 2.69 | 35.10 | 23.08 | 0.92 | 56.39 | 47.47 | 1.14 | 40.65 | 26.53 | 0.33 |
| **2001** | **Jan** | 50.58 | 40.13 | 1.08 | 41.80 | 24.34 | 0.06 | 49.30 | 42.23 | 4.25 | 36.80 | 28.73 | 1.46 | 59.35 | 49.75 | 0.44 | 41.77 | 29.78 | 0.69 |
| **2001** | **Feb** | 58.29 | 47.48 | 0.54 | 50.10 | 23.82 | 0.24 | 59.30 | 52.16 | 0.82 | 44.40 | 33.56 | 0.51 | 67.75 | 58.69 | 1.44 | 48.75 | 37.38 | 1.24 |
| **2001** | **Mar** | 60.48 | 47.15 | 0.90 | 56.30 | 27.25 | 0.40 | 56.40 | 48.39 | 7.97 | 48.30 | 37.25 | 2.45 | 67.68 | 55.93 | 0.49 | 52.16 | 38.08 | 0.78 |
| **2001** | **Apr** | 74.63 | 58.91 | 0.22 | 65.50 | 27.27 | 0.00 | 71.70 | 64.22 | 2.00 | 64.30 | 40.64 | 0.38 | 79.50 | 67.53 | 0.13 | 67.07 | 44.65 | 0.00 |
| **2001** | **May** | 81.32 | 61.50 | 1.33 | 76.00 | 33.41 | 0.18 | 75.90 | 67.57 | 3.53 | 70.10 | 52.80 | 4.20 | 82.55 | 69.71 | 0.58 | 76.23 | 49.27 | 1.14 |
| **2001** | **Jun** | 88.13 | 63.92 | 0.00 | 83.20 | 43.21 | 0.30 | 80.50 | 71.16 | 19.21 | 80.70 | 53.95 | 0.47 | 87.07 | 72.10 | 3.42 | 83.87 | 54.57 | 0.01 |
| **2001** | **Jul** | 89.42 | 64.28 | 0.13 | 84.30 | 55.43 | 0.36 | 83.60 | 73.99 | 2.05 | 85.30 | 57.75 | 0.60 | 86.77 | 71.94 | 2.54 | 86.74 | 56.64 | 0.00 |
| **2001** | **Aug** | 88.61 | 65.49 | 0.35 | 81.00 | 55.39 | 1.72 | 83.50 | 73.37 | 4.83 | 79.70 | 60.39 | 1.11 | 86.48 | 72.78 | 5.26 | 82.19 | 60.53 | 3.44 |
| **2001** | **Sep** | 80.03 | 63.18 | 2.24 | 76.80 | 48.08 | 0.30 | 77.00 | 68.40 | 8.82 | 71.90 | 54.19 | 0.85 | 81.63 | 71.38 | 4.47 | 75.27 | 56.18 | 0.95 |
| **2001** | **Oct** | 71.61 | 53.52 | 0.43 | 67.60 | 36.17 | 0.00 | 66.90 | 58.44 | 8.95 | 61.60 | 39.43 | 0.02 | 76.52 | 63.09 | 0.10 | 66.19 | 43.94 | 0.03 |
| **2001** | **Nov** | 63.47 | 50.74 | 1.12 | 54.70 | 36.29 | 0.60 | 63.40 | 55.58 | 2.58 | 52.50 | 40.12 | 3.37 | 70.23 | 58.58 | 4.19 | 54.63 | 41.28 | 1.47 |
| **2001** | **Dec** | 54.39 | 39.94 | 0.35 | 42.70 | 20.24 | 0.13 | 56.00 | 48.03 | 6.18 | 42.50 | 25.44 | 0.13 | 63.10 | 52.83 | 1.27 | 45.03 | 27.72 | 0.10 |

| | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **2000** | **Jun** | **84.07** | **68.54** | | **80.20** | **52.70** | | **81.40** | **71.96** | | **74.00** | **61.90** | | **84.67** | **72.35** | | **78.93** | **62.88** | |
| **2000** | **Jul** | **89.97** | **62.77** | | **84.00** | **54.07** | | **85.20** | **69.66** | | **80.50** | **61.03** | | **88.55** | **69.88** | | **85.65** | **55.02** | |
| **2000** | **Aug** | **88.77** | **64.07** | | **81.50** | **52.99** | | **84.80** | **70.64** | | **81.30** | **55.75** | | **86.16** | **72.06** | | **83.39** | **54.78** | |
| **2001** | **Jun** | **88.13** | **63.92** | | **83.20** | **43.21** | | **80.50** | **71.16** | | **80.70** | **53.95** | | **87.07** | **72.10** | | **83.87** | **54.57** | |
| **2001** | **Jul** | **89.42** | **64.28** | | **84.30** | **55.43** | | **83.60** | **73.99** | | **85.30** | **57.75** | | **86.77** | **71.94** | | **86.74** | **56.64** | |
| **2001** | **Aug** | **88.61** | **65.49** | | **81.00** | **55.39** | | **83.50** | **73.37** | | **79.70** | **60.39** | | **86.48** | **72.78** | | **82.19** | **60.53** | |
| | **Average** | **88.18** | **64.83** | | **82.37** | **52.34** | | **83.19** | **71.80** | | **80.28** | **58.47** | | **86.63** | **71.85** | | **83.48** | **57.39** | |
| **2000** | **2 Year** | | | | | | | | | | | | | | | | | | |
| **2001** | **Total** | | | **26.66** | | | **11.70** | | | **118.82** | | | **36.82** | | | **43.27** | | | **19.50** |

Table 4C. Weather Data Summary for 2000-2001

| Year | Month | SAN ANGELO | | | SAN ANTONIO | | | VICTORIA | | | WACO | | | WICHITA FALLS | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Mean DB Temp | Mean DP Temp | Precip inches | Mean DB Temp | Mean DP Temp | Precip inches | Mean DB Temp | Mean DP Temp | Precip inches | Mean DB Temp | Mean DP Temp | Precip inches | Mean DB Temp | Mean DP Temp | Precip inches |
| **2000** | **Jan** | 51.06 | 29.70 | 0.08 | 55.55 | 40.44 | 1.40 | 59.65 | 48.42 | 3.73 | 51.52 | 38.92 | 2.05 | 45.06 | 30.33 | 0.48 |
| **2000** | **Feb** | 57.76 | 35.47 | 0.23 | 62.86 | 48.50 | 2.20 | 64.93 | 55.22 | 0.69 | 58.03 | 47.92 | 4.54 | 53.21 | 36.20 | 1.20 |
| **2000** | **Mar** | 63.23 | 40.21 | 0.77 | 67.19 | 54.40 | 0.91 | 69.26 | 60.29 | 2.16 | 62.23 | 53.00 | 1.60 | 56.32 | 44.36 | 2.51 |
| **2000** | **Apr** | 70.23 | 47.41 | 0.57 | 70.93 | 55.89 | 1.22 | 70.97 | 60.68 | 2.96 | 66.73 | 55.89 | 2.82 | 62.90 | 49.30 | 2.81 |
| **2000** | **May** | 81.35 | 58.37 | 2.21 | 78.81 | 67.58 | 3.59 | 79.48 | 72.22 | 7.88 | 76.94 | 67.44 | 4.95 | 77.16 | 59.32 | 1.33 |
| **2000** | **Jun** | 80.37 | 66.14 | 3.44 | 81.23 | 69.97 | 7.61 | 82.27 | 73.38 | 4.42 | 80.33 | 71.41 | 7.60 | 78.97 | 66.73 | 3.63 |
| **2000** | **Jul** | 87.32 | 59.50 | 0.02 | 86.10 | 66.24 | 0.34 | 85.77 | 71.45 | 0.88 | 86.23 | 66.55 | 0.82 | 87.23 | 64.53 | 0.70 |
| **2000** | **Aug** | 86.00 | 58.42 | 0.00 | 86.55 | 66.74 | 0.16 | 85.74 | 72.00 | 0.94 | 87.90 | 66.53 | 0.05 | 90.58 | 59.84 | 0.00 |
| **2000** | **Sep** | 78.70 | 53.31 | 0.58 | 81.17 | 60.34 | 2.65 | 81.50 | 65.66 | 1.47 | 79.83 | 59.91 | 1.11 | 79.50 | 50.43 | 0.07 |
| **2000** | **Oct** | 66.71 | 55.83 | 3.61 | 71.26 | 62.85 | 5.62 | 73.03 | 64.67 | 4.49 | 71.35 | 59.42 | 4.57 | 67.81 | 53.09 | 6.38 |
| **2000** | **Nov** | 49.30 | 42.14 | 3.08 | 57.13 | 50.49 | 8.58 | 60.30 | 53.98 | 5.21 | 52.77 | 45.66 | 7.76 | 46.80 | 37.49 | 5.16 |
| **2000** | **Dec** | 42.87 | 31.68 | 0.60 | 46.61 | 37.41 | 1.57 | 50.13 | 41.88 | 1.93 | 42.00 | 32.74 | 2.65 | 36.71 | 26.75 | 1.27 |
| **2001** | **Jan** | 43.48 | 33.48 | 1.29 | 49.42 | 40.10 | 2.85 | 51.90 | 44.19 | 2.60 | 45.39 | 37.28 | 2.90 | 40.68 | 31.68 | 1.55 |
| **2001** | **Feb** | 50.75 | 42.59 | 2.17 | 57.71 | 50.08 | 0.70 | 61.21 | 53.40 | 0.44 | 53.21 | 45.45 | 2.53 | 45.00 | 37.07 | 3.51 |
| **2001** | **Mar** | 52.58 | 42.24 | 1.26 | 56.81 | 47.77 | 2.77 | 58.39 | 50.55 | 3.75 | 53.23 | 44.97 | 4.45 | 49.94 | 40.40 | 0.79 |
| **2001** | **Apr** | 67.43 | 53.32 | 0.82 | 71.00 | 62.43 | 2.29 | 72.70 | 64.33 | 0.17 | 69.53 | 58.89 | 0.66 | 65.97 | 53.45 | 1.20 |
| **2001** | **May** | 75.87 | 58.55 | 2.51 | 76.52 | 66.55 | 2.48 | 77.58 | 68.63 | 6.01 | 75.81 | 64.28 | 3.54 | 73.52 | 59.93 | 3.55 |
| **2001** | **Jun** | 83.90 | 61.62 | 0.26 | 82.67 | 68.82 | 3.39 | 82.60 | 72.07 | 0.42 | 81.53 | 68.18 | 1.76 | 81.70 | 63.36 | 0.00 |
| **2001** | **Jul** | 87.55 | 61.91 | 0.57 | 85.65 | 70.31 | 0.50 | 85.39 | 73.00 | 1.20 | 88.35 | 69.29 | 0.24 | 90.23 | 65.11 | 0.00 |
| **2001** | **Aug** | 83.35 | 64.26 | 3.67 | 85.71 | 69.81 | 7.83 | 84.52 | 73.15 | 8.97 | 86.71 | 68.53 | 4.85 | 85.55 | 65.61 | 4.22 |
| **2001** | **Sep** | 74.70 | 60.05 | 0.89 | 77.07 | 65.69 | 4.05 | 78.13 | 69.81 | 7.06 | 76.50 | 65.02 | 2.22 | 75.37 | 59.98 | 0.49 |
| **2001** | **Oct** | 66.00 | 47.15 | 1.48 | 68.13 | 57.65 | 2.06 | 69.90 | 61.25 | 4.81 | 66.13 | 53.79 | 2.89 | 64.65 | 47.15 | 0.57 |
| **2001** | **Nov** | 58.53 | 45.00 | 3.46 | 63.10 | 53.92 | 4.37 | 64.53 | 57.83 | 3.82 | 60.83 | 51.35 | 5.63 | 57.83 | 45.04 | 1.13 |
| **2001** | **Dec** | 47.84 | 34.44 | 0.14 | 54.00 | 43.28 | 3.43 | 57.68 | 50.72 | 3.52 | 51.23 | 42.07 | 4.03 | 45.87 | 31.17 | 1.10 |
| **2000** | **Jun** | **80.37** | **66.14** | | **81.23** | **69.97** | | **82.27** | **73.38** | | **80.33** | **71.41** | | **78.97** | **66.73** | |
| **2000** | **Jul** | **87.32** | **59.50** | | **86.10** | **66.24** | | **85.77** | **71.45** | | **86.23** | **66.55** | | **87.23** | **64.53** | |
| **2000** | **Aug** | **86.00** | **58.42** | | **86.55** | **66.74** | | **85.74** | **72.00** | | **87.90** | **66.53** | | **90.58** | **59.84** | |
| **2001** | **Jun** | **83.90** | **61.62** | | **82.67** | **68.82** | | **82.60** | **72.07** | | **81.53** | **68.18** | | **81.70** | **63.36** | |
| **2001** | **Jul** | **87.55** | **61.91** | | **85.65** | **70.31** | | **85.39** | **73.00** | | **88.35** | **69.29** | | **90.23** | **65.11** | |
| **2001** | **Aug** | **83.35** | **64.26** | | **85.71** | **69.81** | | **84.52** | **73.15** | | **86.71** | **68.53** | | **85.55** | **65.61** | |
| | **Average** | **84.78** | **61.95** | | **84.68** | **68.64** | | **84.40** | **72.50** | | **85.22** | **68.40** | | **85.77** | **64.19** | |
| **2000** | **2 Year** | | | | | | | | | | | | | | | |
| **2001** | **Total** | | | **33.71** | | | **72.57** | | | **79.53** | | | **76.22** | | | **43.65** |




| Territory | City | 2000 & 2001 Avg Summer (June-August) DP (F) | January 2000 - December 2001 Precipitation Total (inches) | # Mold Claims/ 1000 Insured |
|---|---|---|---|---|
| 9 | Corpus Christi | 73.63 | 61.50 | 27.27 |
| 11 | McAllen | 71.85 | 43.27 | 12.53 |
| 11 | Victoria | 72.50 | 79.53 | 12.53 |
| 10 | Brownsville | 74.56 | 33.22 | 12.43 |
| 1 | Houston | 71.80 | 118.82 | 7.20 |
| 6 | Austin | 68.97 | 80.14 | 6.15 |
| 5 | San Antonio | 68.64 | 72.57 | 3.59 |
| 20 | Amarillo | 56.49 | 37.08 | 3.53 |
| 2 | Dallas | 67.72 | 74.38 | 3.16 |
| 16N | Abilene | 61.70 | 43.59 | 2.29 |
| 19N | Wichita Falls | 64.19 | 43.65 | 2.28 |
| 15N | Midland | 57.39 | 19.50 | 2.25 |
| 15N | San Angelo | 61.95 | 33.71 | 2.25 |
| 18 | Lubbock | 58.47 | 36.82 | 2.09 |
| 3 | Ft. Worth | 67.72 | 74.38 | 2.06 |
| 16C | Waco | 68.40 | 76.22 | 1.91 |
| 12 | Del Rio | 64.83 | 26.66 | 1.75 |
| 7 | El Paso | 52.34 | 11.70 | 0.05 |

Figure 2A. Mold Claims and Average Dew Point Temperature Correlation

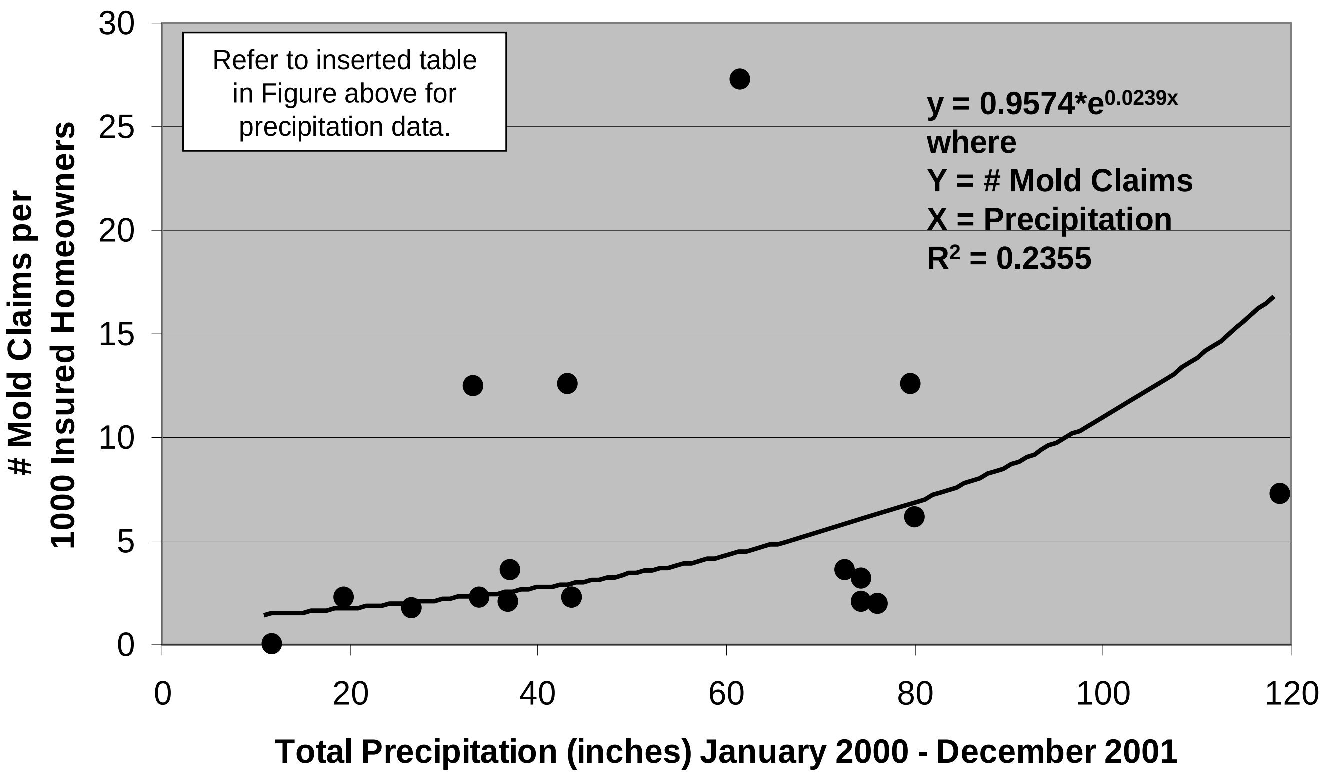



Figure 2B. Mold Claims and Total Precipitation Correlation

## MOLD AND WEATHER CORRELATIONS

Figures 2A and 2B plot the # of mold claims per 1000 insured homeowners versus the average dew point temperature (for the summer months of June through August) and total precipitation, respectively, for the combined years of 2000 through 2001. Note that the dry bulb temperature data was not plotted because average summer data for all cities were in the range sufficient for mold growth.

As discussed before, for sustained mold growth, the average moisture level at a building surface must be fairly high, generally 70% RH or greater, for weeks or months. At a 75 $^{o}$F dry bulb temperature, which is typical of a residential air conditioning setpoint, 70% RH is equivalent to a dew point temperature of 64.5 $^{o}$F. In hot and humid climates, where average outdoor monthly dew point temperatures during the summer reach 64.5 $^{o}$F or higher, infiltrating air can generate 70% and higher RH to sustain mold growth on surfaces cooled to 75 $^{o}$F in building envelopes. Per Figure 2A, all the territories that exhibit greater than the statewide average of 4.74 mold claims per 1000 insured homeowners shown in Table 1, also display the highest average summer dew point temperatures of 69 $^{o}$F or greater, sufficient to create the mold growth conditions above. The highest mold claim and dew point Territories of 1, 9, 10, and 11 are the counties and cities along the Gulf coast. Most of those same Territories -- 1, 9, and 10 -- also experience some of the highest average costs per mold claim, well above the statewide average of $38,997 shown in Table 1. A simple exponential equation was applied to the data in Figure 2A to relate the # of mold claims to the dew point temperature. The resulting curve fit correlation displayed in Figure 2A achieved an $R^2$ of about 0.65.

Per Figure 2B though, no such trend of increasing mold claims with precipitation is seen among the scatter of data points. A review of 2000 - 2001 weather events (NWS 2001 and 2002) for the Texas Gulf coast revealed a few major weather events, including a record breaking heat wave in 2000 and a tropical storm producing large rainfall in 2001 (see Houston June 2001 precipitation in Table 4B), but no hurricane activity that might have triggered large numbers of water damage claims in this two year period. The same simple exponential equation form resulted in a much poorer correlation of the # of mold claims and the precipitation amounts in Figure 2B with an $R^2$ of about 0.24.

## CONCLUSIONS

This cursory analysis couples information on claims from the Texas Department of Insurance (TDI) Special Call on Homeowners Mold Experience with key historical weather conditions from the National Climatic Data Center (NCDC) for the same time period to show more humid territories along the Gulf coast of Texas as more prone to incidences of mold and resulting mold claims. A statistical correlation between higher outdoor dew point temperatures and greater numbers of mold damage claims (per 1000 policyholders) is clearly evident. However, no such clear correlation is evident between precipitation amounts and the number of mold damage claims.

These cursory conclusions though must be tempered by several other considerations noted by TDI (TDI 2006). First, “mold per se was not a covered peril” under a homeowner policy. For a homeowner to be covered, the mold “had to have resulted from a covered peril, such as water damage from say a burst pipe”. So supposedly the mere presence of mold, without a preceding covered cause, would not produce a claim. Second, the TDI noted dramatic differences in “claims consciousness” in certain territories that pre-existed the dramatic rise in mold claims. TDI specifically cited Corpus Christi, where slab/foundation water seepage “claims were rampant”. Coincidentally, that Territory 9 was also “number one on the mold hit parade”. Third, and final, the TDI data consisted of “mold claims reported in 2000 and 2001”, which “might have arisen out of events that had occurred years earlier”.

Notwithstanding all these other considerations, the consistent trend in mold claim increases above the statewide average seen in multiple territories with higher sustained outdoor dew point temperatures is worthy of strong consideration as well. The infiltration of moisture laden outside air and the formation of high %RH/condensation planes provide a building science basis for mold production in the envelopes of houses. If nothing else, this phenomena could accelerate and worsen a mold situation initiated by a preceding covered water damage event.

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