**Table 5.** Supplementary document for average seasonal values by year (not for publication)

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Year and Season | PPT | TMIN | TMAX | CC | PPT>10 | PPT>20 | PPT>50 | TMAX>34 | TMAX>30 | TMAX<25 | TMIN<0 |
| **Moab, Utah** |  |  |  |  |  |  |  |  |  |  |  |
| *Winter* |  |  |  |  |  |  |  |  |  |  |  |
| 1997 | .65 | -5.44 | 6.67 | 48.78 | 0 | 0 | 0 | 0 | 0 | 1 | .978 |
| 1998 | .41 | -4.60 | 7.56 | 48.36 | 0 | 0 | 0 | 0 | 0 | 1 | .912 |
| 1999 | .34 | -4.49 | 9.17 | 38.26 | 0 | 0 | 0 | 0 | 0 | 1 | .900 |
| 2000 | .63 | -3.25 | 9.05 | 47.60 | 0 | 0 | 0 | 0 | 0 | 1 | .747 |
| 2001 | .68 | -5.54 | 6.79 | 49.19 | .022 | 0 | 0 | 0 | 0 | 1 | .922 |
| 2002 | .24 | -6.36 | 7.36 | 39.09 | 0 | 0 | 0 | 0 | 0 | 1 | 1 |
| 2003 | .78 | -3.78 | 8.61 | 43.70 | .022 | 0 | 0 | 0 | 0 | 1 | .878 |
| 2004 | .63 | -5.98 | 5.57 | 44.39 | .022 | 0 | 0 | 0 | 0 | 1 | .879 |
| 2005 | .93 | -2.84 | 8.70 | 48.69 | .011 | 0 | 0 | 0 | 0 | 1 | .778 |
| 2006 | .23 | -5.18 | 7.94 | 35.39 | 0 | 0 | 0 | 0 | 0 | 1 | .956 |
| 2007 | .96 | -5.62 | 6.63 | 44.88 | .033 | 0 | 0 | 0 | 0 | 1 | .846 |
| 2008 | .94 | -6.03 | 5.68 | 46.71 | 0 | 0 | 0 | 0 | 0 | 1 | .923 |
| 2009 | .51 | -6.14 | 5.93 | 35.41 | .011 | 0 | 0 | 0 | 0 | 1 | .878 |
| 2010 | 1.06 | -4.98 | 5.15 | 47.45 | .011 | 0 | 0 | 0 | 0 | 1 | .922 |
| 2011 | .23 | -7.12 | 4.91 | 33.92 | 0 | 0 | 0 | 0 | 0 | 1 | .956 |
| 2012 | .51 | -4.93 | 7.59 | 43.07 | 0 | 0 | 0 | 0 | 0 | 1 | .890 |
| 2013 | .55 | -8.83 | 2.90 | 34.62 | .022 | 0 | 0 | 0 | 0 | 1 | .978 |
| 2014 | .46 | -3.50 | 8.09 | 43.00 | .011 | 0 | 0 | 0 | 0 | 1 | .778 |
| 2015 | .68 | -4.27 | 7.48 | 37.50 | .011 | 0 | 0 | 0 | 0 | 1 | .889 |
| 2016 | .62 | -5.39 | 6.31 | 27.02 | 0 | 0 | 0 | 0 | 0 | 1 | .891 |
| *Spring* |  |  |  |  |  |  |  |  |  |  |  |
| 1997 | .85 | 4.61 | 21.23 | 44.32 | .011 | 0 | 0 | 0 | .120 | .663 | .217 |
| 1998 | .67 | 4.42 | 19.80 | 49.85 | 0 | 0 | 0 | 0 | .044 | .725 | .209 |
| 1999 | .77 | 4.26 | 20.55 | 45.22 | .011 | 0 | 0 | 0 | .054 | .750 | .174 |
| 2000 | .55 | 5.96 | 22.11 | 38.43 | 0 | 0 | 0 | 0 | .163 | .620 | .152 |
| 2001 | .75 | 6.12 | 21.84 | 45.38 | 0 | 0 | 0 | .033 | .174 | .630 | .098 |
| 2002 | .17 | 4.76 | 22.22 | 33.87 | 0 | 0 | 0 | .033 | .143 | .593 | .209 |
| 2003 | .60 | 5.41 | 21.48 | 43.36 | .022 | 0 | 0 | .087 | .120 | .728 | .130 |
| 2004 | .69 | 7.06 | 22.55 | 34.90 | .022 | 0 | 0 | 0 | .087 | .609 | .065 |
| 2005 | .65 | 5.39 | 20.94 | 44.05 | .011 | 0 | 0 | .054 | .130 | .761 | .120 |
| 2006 | .53 | 5.62 | 21.86 | 41.07 | .011 | 0 | 0 | .043 | .152 | .641 | .163 |
| 2007 | .74 | 5.97 | 22.12 | 38.14 | .011 | .011 | 0 | 0 | .187 | .681 | .110 |
| 2008 | .40 | 3.56 | 19.71 | 34.06 | .011 | 0 | 0 | .022 | .043 | .772 | .250 |
| 2009 | .70 | 5.74 | 21.59 | 39.18 | .022 | 0 | 0 | .011 | .120 | .641 | .207 |
| 2010 | .76 | 4.49 | 18.93 | 44.88 | .033 | 0 | 0 | 0 | .033 | .761 | .196 |
| 2011 | .69 | 4.51 | 19.17 | 48.54 | .011 | 0 | 0 | 0 | .011 | .846 | .165 |
| 2012 | .14 | 6.82 | 23.02 | 27.39 | 0 | 0 | 0 | .022 | .141 | .543 | .141 |
| 2013 | .46 | 5.16 | 20.44 | 36.82 | 0 | 0 | 0 | 0 | .087 | .761 | .163 |
| 2014 | .87 | 5.20 | 20.25 | 40.43 | .022 | .011 | 0 | .011 | .076 | .739 | .109 |
| 2015 | 1.03 | 5.18 | 20.70 | 38.37 | .033 | 0 | 0 | 0 | .011 | .815 | .109 |
| 2016 | .80 | 4.94 | 20.28 | 41.00 | .011 | 0 | 0 | 0 | .033 | .780 | .154 |
| *Summer* |  |  |  |  |  |  |  |  |  |  |  |
| 1997 | .75 | 16.38 | 33.46 | 31.97 | .011 | 0 | 0 | .511 | .859 | .011 | 0 |
| 1998 | .51 | 16.63 | 34.27 | 23.59 | 0 | 0 | 0 | .587 | .848 | .033 | 0 |
| 1999 | 1.38 | 16.50 | 32.82 | 30.69 | .033 | .011 | 0 | .413 | .793 | .033 | 0 |
| 2000 | .50 | 17.62 | 35.75 | 25.97 | .011 | 0 | 0 | .728 | .957 | 0 | 0 |
| 2001 | 1.08 | 17.13 | 34.82 | 24.79 | .043 | 0 | 0 | .641 | .924 | .011 | 0 |
| 2002 | .34 | 17.53 | 36.68 | 25.66 | 0 | 0 | 0 | .783 | .957 | 0 | 0 |
| 2003 | .37 | 17.69 | 35.82 | 23.35 | 0 | 0 | 0 | .674 | .957 | 0 | 0 |
| 2004 | .25 | 16.48 | 34.11 | 23.17 | 0 | 0 | 0 | .609 | .891 | 0 | 0 |
| 2005 | .78 | 16.02 | 38.84 | 26.79 | .022 | 0 | 0 | .489 | .837 | .043 | 0 |
| 2006 | .70 | 17.49 | 35.18 | 22.91 | .022 | 0 | 0 | .696 | .924 | 0 | 0 |
| 2007 | .76 | 17.74 | 35.84 | 20.85 | .011 | .011 | 0 | .793 | .946 | .022 | 0 |
| 2008 | .60 | 17.27 | 35.04 | 28.83 | .011 | 0 | 0 | .761 | .880 | .033 | 0 |
| 2009 | .39 | 17.18 | 33.86 | 30.50 | 0 | 0 | 0 | .533 | .793 | 0 | 0 |
| 2010 | .78 | 17.94 | 34.01 | 23.38 | .022 | 0 | 0 | .565 | .902 | .022 | 0 |
| 2011 | .78 | 17.60 | 34.41 | 24.23 | .011 | 0 | 0 | .652 | .891 | 0 | 0 |
| 2012 | .58 | 19.07 | 35.52 | 26.55 | .022 | 0 | 0 | .783 | .957 | .011 | 0 |
| 2013 | .63 | 18.88 | 34.80 | 28.99 | .011 | 0 | 0 | .652 | .924 | .011 | 0 |
| 2014 | .92 | 17.50 | 33.47 | 28.57 | .011 | .011 | 0 | .478 | .804 | .011 | 0 |
| 2015 | 1.03 | 17.18 | 33.49 | 29.72 | .022 | 0 | 0 | .50 | .848 | .033 | 0 |
| 2016 | .63 | 17.63 | 34.63 | 40.09 | .022 | 0 | 0 | .620 | .902 | .011 | 0 |
| *Fall* |  |  |  |  |  |  |  |  |  |  |  |
| 1997 | 1.39 | 5.26 | 20.34 | 38.84 | .033 | 0 | 0 | 0 | .132 | .659 | .286 |
| 1998 | 1.30 | 6.36 | 21.50 | 33.79 | .044 | 0 | 0 | .044 | .209 | .571 | .187 |
| 1999 | .22 | 4.35 | 22.97 | 20.36 | 0 | 0 | 0 | 0 | .121 | .560 | .209 |
| 2000 | .77 | 4.91 | 20.25 | 36.18 | 0 | 0 | 0 | .066 | .220 | .593 | .297 |
| 2001 | .47 | 6.19 | 24.10 | 28.39 | .011 | 0 | 0 | .110 | .319 | .549 | .143 |
| 2002 | 1.10 | 4.60 | 20.40 | 40.90 | .011 | .011 | 0 | .033 | .099 | .692 | .286 |
| 2003 | .47 | 5.59 | 21.89 | 29.77 | 0 | 0 | 0 | .022 | .198 | .538 | .198 |
| 2004 | 1.24 | 5.75 | 20.10 | 41.93 | .011 | 0 | 0 | .044 | .165 | .692 | .165 |
| 2005 | .75 | 6.12 | 21.78 | 31.88 | .022 | 0 | 0 | 0 | .110 | .637 | .176 |
| 2006 | 1.83 | 4.54 | 19.94 | 33.66 | .055 | .022 | 0 | 0 | .099 | .747 | .242 |
| 2007 | .62 | 5.50 | 22.60 | 29.91 | .022 | .011 | 0 | .055 | .220 | .648 | .209 |
| 2008 | .45 | 5.76 | 22.40 | 22.60 | .011 | 0 | 0 | 0 | .242 | .582 | .176 |
| 2009 | .47 | 6.15 | 20.86 | 30.52 | .011 | 0 | 0 | .055 | .187 | .681 | .231 |
| 2010 | .73 | 6.18 | 21.84 | 28.40 | .011 | 0 | 0 | .077 | .275 | .571 | .242 |
| 2011 | .65 | 5.83 | 21.07 | 27.60 | 0 | 0 | 0 | .055 | .165 | .604 | .264 |
| 2012 | .37 | 6.77 | 22.63 | 24.41 | 0 | 0 | 0 | .011 | .220 | .593 | .187 |
| 2013 | 1.40 | 5.46 | 19.61 | 31.08 | .022 | .022 | 0 | .055 | .088 | .725 | .176 |
| 2014 | .75 | 6.58 | 21.87 | 27.66 | .022 | .011 | 0 | .033 | .209 | .615 | .231 |
| 2015 | 1.17 | 6.92 | 22.03 | 32.64 | .033 | 0 | 0 | .022 | .242 | .516 | .242 |
| 2016 | .56 | 7.30 | 22.89 | 35.96 | .022 | 0 | 0 | .011 | .187 | .593 | .088 |
| Year and Season | PPT | TMIN | TMAX | CC | PPT>10 | PPT>20 | PPT>50 | TMAX>34 | TMAX>30 | TMAX<25 | TMIN<0 |
| **Gatlinburg, Tennessee** |  |  |  |  |  |  |  |  |  |  |  |
| *Winter* |  |  |  |  |  |  |  |  |  |  |  |
| 1997 | .65 | -1.19 | 9.83 | 49.86 | .078 | .033 | 0 | 0 | 0 | 1 | .600 |
| 1998 | 4.36 | .65 | 10.99 | 55.70 | .132 | .044 | 0 | 0 | 0 | 1 | .527 |
| 1999 | 3.01 | .90 | 11.51 | 44.90 | .133 | .011 | 0 | 0 | 0 | 1 | .589 |
| 2000 | 2.58 | -2.71 | 9.16 | 41.72 | .077 | .033 | 0 | 0 | 0 | 1 | .703 |
| 2001 | 3.58 | -1.00 | 11.02 | 45.44 | .167 | .044 | 0 | 0 | 0 | 1 | .556 |
| 2002 | 3.72 | -1.84 | 10.87 | 39.74 | .110 | .055 | 0 | 0 | 0 | 1 | .681 |
| 2003 | 3.89 | -2.53 | 8.10 | 44.95 | .122 | .033 | 0 | 0 | 0 | 1 | .722 |
| 2004 | 3.48 | -2.25 | 9.22 | 44.80 | .121 | .055 | 0 | 0 | 0 | 1 | .714 |
| 2005 | 2.70 | -.87 | 10.38 | 46.76 | .089 | .011 | 0 | 0 | 0 | 1 | .567 |
| 2006 | 2.68 | -.74 | 12.31 | 42.18 | .089 | .011 | 0 | 0 | 0 | 1 | .622 |
| 2007 | 2.14 | -1.54 | 10.87 | 43.89 | .077 | .011 | 0 | 0 | 0 | 1 | .615 |
| 2008 | 4.14 | -1.50 | 10.45 | 45.48 | .154 | .055 | 0 | 0 | 0 | 1 | .637 |
| 2009 | 4.04 | -2.56 | 9.50 | 43.72 | .111 | .044 | .011 | 0 | 0 | 1 | .722 |
| 2010 | 3.67 | -4.46 | 5.03 | 44.32 | .122 | .033 | 0 | 0 | 0 | 1 | .789 |
| 2011 | 3.49 | -1.35 | 10.67 | 42.41 | .099 | .055 | 0 | 0 | 0 | 1 | .659 |
| 2012 | 3.69 | .59 | 12.6 | 43.61 | .176 | .011 | 0 | 0 | 0 | 1 | .505 |
| 2013 | 6.30 | -.39 | 10.73 | 49.3 | .189 | .089 | .033 | 0 | 0 | 1 | .611 |
| 2014 | 3.33 | -2.74 | 8.84 | 46.09 | .122 | .033 | .011 | 0 | 0 | 1 | .689 |
| 2015 | 3.90 | -1.59 | 10.19 | 45.23 | .144 | .056 | 0 | 0 | 0 | 1 | .667 |
| 2016 | 3.59 | -.98 | 9.48 | 45.43 | .12 | .043 | 0 | 0 | 0 | 1 | .620 |
| *Spring* |  |  |  |  |  |  |  |  |  |  |  |
| 1997 | 4.77 | 4.67 | 20.31 | 46.08 | .163 | .065 | 0 | 0 | .011 | .859 | .174 |
| 1998 | 4.50 | 7.41 | 20.33 | 51.26 | .176 | .044 | 0 | 0 | .044 | .681 | .154 |
| 1999 | 3.41 | 5.85 | 20.48 | 45.70 | .109 | 022 | .011 | 0 | 0 | .685 | .207 |
| 2000 | 4.08 | 6.67 | 21.83 | 43.46 | .120 | .054 | .011 | 0 | .043 | .674 | .152 |
| 2001 | 2.50 | 6.72 | 20.93 | 43.26 | .076 | .022 | 0 | 0 | .054 | .663 | .152 |
| 2002 | 4.04 | 7.35 | 21.97 | 47.21 | .121 | .011 | 0 | 0 | .044 | .626 | .165 |
| 2003 | 4.50 | 8.81 | 21.64 | 44.19 | .163 | .043 | .022 | 0 | .011 | .804 | .098 |
| 2004 | 3.64 | 8.34 | 22.13 | 45.57 | .109 | .043 | 0 | 0 | .065 | .576 | .120 |
| 2005 | 3.87 | 5.91 | 19.74 | 46.17 | .152 | .054 | 0 | 0 | 0 | .739 | .152 |
| 2006 | 4.16 | 7.51 | 21.44 | 40.98 | .141 | .076 | .011 | 0 | .043 | .736 | .098 |
| 2007 | 2.15 | 7.21 | 22.75 | 33.92 | .077 | .033 | 0 | 0 | .110 | .538 | .143 |
| 2008 | 3.12 | 6.69 | 20.77 | 39.19 | .098 | .043 | 0 | 0 | 0 | .728 | .152 |
| 2009 | 4.15 | 7.62 | 20.70 | 46.88 | .163 | .054 | 0 | 0 | .043 | .663 | .087 |
| 2010 | 2.43 | 7.42 | 21.47 | 36.78 | .076 | .022 | .011 | 0 | .054 | .587 | .098 |
| 2011 | 4.25 | 8.40 | 21.77 | 37.43 | .099 | .066 | .011 | 0 | .110 | .593 | .044 |
| 2012 | 3.67 | 10.34 | 24.10 | 41.58 | .130 | .033 | 0 | 0 | .098 | .500 | .054 |
| 2013 | 4.83 | 5.88 | 18.50 | 45.17 | .185 | .109 | .011 | 0 | .022 | .772 | .250 |
| 2014 | 2.76 | 6.61 | 21.10 | 42.19 | .120 | .033 | 0 | 0 | .043 | .652 | .163 |
| 2015 | 3.02 | 8.07 | 21.60 | 44.98 | .87 | .022 | 0 | 0 | .022 | .674 | .109 |
| 2016 | 2.31 | 7.60 | 21.96 | 39.38 | .088 | .022 | 0 | 0 | 0 | .659 | .099 |
| *Summer* |  |  |  |  |  |  |  |  |  |  |  |
| 1997 | 3.43 | 15.96 | 29.02 | 48.56 | .098 | .033 | 0 | .022 | .467 | .087 | 0 |
| 1998 | 3.82 | 16.95 | 30.01 | 44.13 | .130 | .054 | 0 | 0 | .576 | .043 | 0 |
| 1999 | 3.61 | 17.18 | 30.27 | 40.63 | .120 | .043 | 0 | .076 | .565 | .043 | 0 |
| 2000 | 2.94 | 17.05 | 29.89 | 43.05 | .087 | .033 | 0 | .011 | .511 | .022 | 0 |
| 2001 | 3.91 | 17.18 | 29.54 | 48.85 | .087 | .033 | 0 | 0 | .467 | .043 | 0 |
| 2002 | 2.80 | 18.11 | 31.09 | 41.86 | .065 | .033 | 0 | .022 | .761 | .011 | 0 |
| 2003 | 4.34 | 17.47 | 29.30 | 44.24 | .130 | .043 | 0 | 0 | .446 | .043 | 0 |
| 2004 | 4.67 | 17.68 | 28.79 | 45.48 | .174 | .065 | 0 | 0 | .337 | .033 | 0 |
| 2005 | 4.39 | 18.86 | 30.11 | 49.16 | .185 | .054 | 0 | .022 | .576 | .043 | 0 |
| 2006 | 3.30 | 18.02 | 30.82 | 40.56 | .120 | .043 | 0 | .076 | .696 | .022 | 0 |
| 2007 | 3.14 | 17.67 | 31.64 | 36.03 | .098 | .054 | 0 | .196 | .728 | .011 | 0 |
| 2008 | 3.02 | 16.91 | 30.72 | 35.65 | .120 | .043 | 0 | .022 | .663 | .011 | 0 |
| 2009 | 5.08 | 17.46 | 29.28 | 42.46 | .163 | .087 | 0 | 0 | .337 | .043 | 0 |
| 2010 | 2.82 | 19.70 | 32.28 | 35.90 | .065 | .022 | 0 | .217 | .848 | 0 | 0 |
| 2011 | 3.99 | 18.80 | 31.50 | 29.37 | .141 | .065 | 0 | .054 | .761 | 0 | 0 |
| 2012 | 4.27 | 17.93 | 30.48 | 36.17 | .174 | .054 | 0 | .109 | .576 | .054 | 0 |
| 2013 | 5.50 | 18.06 | 28.63 | 50.74 | .196 | .076 | 0 | 0 | .217 | .043 | 0 |
| 2014 | 4.98 | 17.62 | 29.22 | 40.73 | .152 | .043 | .011 | 0 | .380 | .022 | 0 |
| 2015 | 3.82 | 18.12 | 29.90 | 37.20 | .098 | .043 | .011 | .022 | .522 | .033 | 0 |
| 2016 | 3.05 | 18.97 | 31.54 | 39.83 | .120 | .033 | 0 | .065 | .837 | 0 | 0 |
| *Fall* |  |  |  |  |  |  |  |  |  |  |  |
| 1997 | 2.75 | 6.62 | 20.06 | 44.35 | .044 | .033 | 0 | 0 | .088 | .626 | .176 |
| 1998 | 1.60 | 8.00 | 23.71 | 30.27 | .055 | .011 | 0 | .033 | .220 | .505 | .132 |
| 1999 | 1.88 | 6.58 | 22.64 | 25.18 | .077 | .011 | 0 | .011 | .110 | .648 | .132 |
| 2000 | 2.02 | 7.49 | 21.90 | 36.02 | .088 | .033 | 0 | 0 | .055 | .538 | .187 |
| 2001 | 1.58 | 6.60 | 22.41 | 25.89 | .077 | 0 | 0 | 0 | .044 | .703 | .187 |
| 2002 | 3.78 | 10.35 | 20.97 | 50.40 | .132 | .044 | 0 | 0 | .132 | .648 | .132 |
| 2003 | 2.95 | 8.31 | 21.68 | 36.37 | .088 | .044 | .011 | 0 | .011 | .670 | .066 |
| 2004 | 3.77 | 10.48 | 21.90 | 45.08 | .154 | .066 | 0 | 0 | .022 | .692 | .044 |
| 2005 | 1.80 | 8.78 | 23.25 | 26.28 | .077 | .022 | 0 | 0 | .165 | .538 | .165 |
| 2006 | 3.80 | 7.46 | 20.35 | 37.36 | .154 | .055 | 0 | 0 | 0 | .736 | .187 |
| 2007 | 1.67 | 8.62 | 23.76 | 26.00 | .044 | .022 | 0 | 0 | .220 | .495 | .165 |
| 2008 | 1.72 | 7.20 | 21.33 | 27.77 | .077 | 0 | 0 | 0 | .132 | .593 | .187 |
| 2009 | 4.56 | 9.39 | 20.91 | 42.46 | .121 | .044 | .022 | 0 | 0 | .780 | .055 |
| 2010 | 3.80 | 8.22 | 23.03 | 32.46 | .143 | .044 | 0 | 0 | .176 | .615 | .066 |
| 2011 | 4.90 | 8.14 | 21.40 | 36.56 | .165 | .066 | .011 | .022 | .066 | .703 | .110 |
| 2012 | 2.51 | 7.30 | 20.44 | 31.94 | .066 | .022 | 0 | 0 | .066 | .659 | .143 |
| 2013 | 2.86 | 8.20 | 20.61 | 34.16 | .099 | .044 | 0 | 0 | .044 | .692 | .220 |
| 2014 | 2.98 | 7.62 | 20.08 | 36.63 | .121 | .033 | 0 | 0 | .033 | .659 | .176 |
| 2015 | 3.57 | 9.74 | 21.98 | 41.83 | .099 | .044 | 0 | 0 | .055 | .703 | .088 |
| 2016 | 1.06 | 9.10 | 24.54 | 39.96 | .044 | .011 | 0 | 0 | .231 | .462 | .099 |