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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Station | Timescale | Std Ref | Model | Std Model | RMSE | Corr | CRMSE | MAE | MAPE |
| 40700 | SPI\_1 | 0.925 | ExtraTrees | 0.442 | 1.063 | -0.09 | 1.06 | 0.835 | 223.082 |
| RandomForest | 0.214 | 0.986 | -0.108 | 0.971 | 0.769 | 158.688 |
| SVR | 0.113 | 0.964 | 0.049 | 0.926 | 0.744 | 152.981 |
| LSTM | 0.438 | 0.955 | 0.198 | 0.942 | 0.759 | 267.785 |
| WTLSTM | 0.483 | 1.023 | 0.055 | 1.019 | 0.798 | 290.658 |
| SPI\_3 | 0.887 | ExtraTrees | 0.584 | 0.906 | 0.364 | 0.867 | 0.687 | 177.944 |
| RandomForest | 0.341 | 0.921 | 0.397 | 0.814 | 0.694 | 198.44 |
| SVR | 0.229 | 0.835 | 0.562 | 0.781 | 0.624 | 120.697 |
| LSTM | 0.593 | 0.717 | 0.603 | 0.71 | 0.501 | 377.608 |
| WTLSTM | 0.888 | 0.854 | 0.543 | 0.849 | 0.673 | 406.555 |
| SPI\_6 | 0.853 | ExtraTrees | 0.632 | 1.77 | 0.462 | 0.793 | 1.586 | 689.051 |
| RandomForest | 0.455 | 1.114 | 0.221 | 0.874 | 0.833 | 168.123 |
| SVR | 0.321 | 0.708 | 0.821 | 0.617 | 0.544 | 95.265 |
| LSTM | 0.649 | 0.674 | 0.832 | 0.477 | 0.551 | 160.672 |
| WTLSTM | 0.71 | 0.447 | 0.894 | 0.386 | 0.342 | 113.007 |
| SPI\_9 | 0.845 | ExtraTrees | 0.441 | 1.741 | 0.251 | 0.849 | 1.529 | 701.074 |
| RandomForest | 0.485 | 0.745 | 0.539 | 0.712 | 0.577 | 250.38 |
| SVR | 0.291 | 0.78 | 0.859 | 0.614 | 0.609 | 131.383 |
| LSTM | 0.783 | 0.658 | 0.81 | 0.505 | 0.519 | 259.526 |
| WTLSTM | 0.745 | 0.446 | 0.876 | 0.408 | 0.346 | 217.096 |
| SPI\_12 | 0.749 | ExtraTrees | 0.267 | 0.944 | 0.311 | 0.712 | 0.72 | 137.928 |
| RandomForest | 0.203 | 0.926 | 0.262 | 0.723 | 0.713 | 124.499 |
| SVR | 0.25 | 0.669 | 0.905 | 0.533 | 0.528 | 108.569 |
| LSTM | 0.621 | 0.392 | 0.876 | 0.363 | 0.289 | 104.44 |
| WTLSTM | 0.637 | 0.288 | 0.931 | 0.28 | 0.222 | 220.483 |
| SPI\_24 | 0.633 | ExtraTrees | 0.186 | 0.961 | 0.176 | 0.627 | 0.764 | 126.625 |
| RandomForest | 0.069 | 1.235 | -0.078 | 0.642 | 1.062 | 145.108 |
| SVR | 0.231 | 1.003 | 0.834 | 0.458 | 0.894 | 172.043 |
| LSTM | 0.295 | 0.618 | 0.671 | 0.486 | 0.442 | 70.531 |
| WTLSTM | 0.318 | 2.996 | -0.079 | 0.73 | 2.907 | 690.006 |
| 40706 | SPI\_1 | 0.912 | ExtraTrees | 0.473 | 1.093 | -0.138 | 1.083 | 0.902 | 235.363 |
| RandomForest | 0.217 | 1.008 | -0.248 | 0.988 | 0.801 | 130.39 |
| SVR | 0.12 | 0.957 | -0.333 | 0.958 | 0.765 | 131.39 |
| LSTM | 0.2 | 0.954 | -0.023 | 0.938 | 0.749 | 122.566 |
| WTLSTM | 0.387 | 1.039 | -0.151 | 1.043 | 0.846 | 183.634 |
| SPI\_3 | 0.961 | ExtraTrees | 0.505 | 0.992 | 0.288 | 0.949 | 0.8 | 251.499 |
| RandomForest | 0.355 | 1.128 | -0.01 | 1.029 | 0.872 | 209.238 |
| SVR | 0.256 | 0.841 | 0.604 | 0.832 | 0.672 | 135.528 |
| LSTM | 0.887 | 1.058 | 0.374 | 1.036 | 0.869 | 404.639 |
| WTLSTM | 0.785 | 0.697 | 0.699 | 0.697 | 0.567 | 329.613 |
| SPI\_6 | 0.991 | ExtraTrees | 0.61 | 1.354 | -0.368 | 1.341 | 1.091 | 219.898 |
| RandomForest | 0.508 | 1.265 | -0.331 | 1.254 | 1.015 | 195.902 |
| SVR | 0.446 | 0.656 | 0.853 | 0.653 | 0.517 | 71.401 |
| LSTM | 0.723 | 0.782 | 0.708 | 0.7 | 0.552 | 153.766 |
| WTLSTM | 0.805 | 0.485 | 0.872 | 0.488 | 0.363 | 85.523 |
| SPI\_9 | 1.072 | ExtraTrees | 0.572 | 1.104 | 0.21 | 1.104 | 0.949 | 167.471 |
| RandomForest | 0.376 | 1.411 | -0.116 | 1.177 | 1.183 | 218.994 |
| SVR | 0.486 | 0.7 | 0.874 | 0.689 | 0.582 | 92.253 |
| LSTM | 0.781 | 0.703 | 0.833 | 0.603 | 0.586 | 166.945 |
| WTLSTM | 0.836 | 0.418 | 0.933 | 0.42 | 0.318 | 110.202 |
| SPI\_12 | 1.106 | ExtraTrees | 0.567 | 1.422 | -0.163 | 1.322 | 1.274 | 329.59 |
| RandomForest | 0.369 | 1.223 | -0.118 | 1.207 | 1.074 | 175.154 |
| SVR | 0.57 | 0.633 | 0.938 | 0.604 | 0.535 | 81.356 |
| LSTM | 0.967 | 0.483 | 0.929 | 0.413 | 0.387 | 169.864 |
| WTLSTM | 1.134 | 0.476 | 0.909 | 0.479 | 0.382 | 169.457 |
| SPI\_24 | 1.094 | ExtraTrees | 0.21 | 1.061 | 0.298 | 1.051 | 0.939 | 115.43 |
| RandomForest | 0.035 | 1.087 | 0.183 | 1.088 | 0.923 | 108.509 |
| SVR | 0.475 | 0.698 | 0.921 | 0.682 | 0.589 | 74.166 |
| LSTM | 0.317 | 1.375 | 0.291 | 1.047 | 1.226 | 183.995 |
| WTLSTM | 0.598 | 0.595 | 0.915 | 0.597 | 0.496 | 56.822 |
| 40708 | SPI\_1 | 0.893 | ExtraTrees | 0.515 | 1.059 | -0.077 | 1.065 | 0.828 | 178.602 |
| RandomForest | 0.228 | 0.934 | -0.072 | 0.937 | 0.763 | 134.188 |
| SVR | 0.073 | 0.903 | -0.05 | 0.9 | 0.736 | 112.852 |
| LSTM | 0.362 | 0.985 | -0.082 | 0.991 | 0.801 | 154.185 |
| WTLSTM | 0.356 | 0.994 | -0.118 | 1.0 | 0.818 | 162.617 |
| SPI\_3 | 0.906 | ExtraTrees | 0.524 | 0.836 | 0.471 | 0.805 | 0.657 | 513.323 |
| RandomForest | 0.265 | 0.821 | 0.446 | 0.823 | 0.63 | 438.35 |
| SVR | 0.226 | 0.799 | 0.628 | 0.784 | 0.614 | 398.068 |
| LSTM | 0.889 | 1.244 | 0.096 | 1.207 | 1.0 | 705.646 |
| WTLSTM | 0.775 | 0.707 | 0.654 | 0.71 | 0.583 | 504.979 |
| SPI\_6 | 0.943 | ExtraTrees | 0.627 | 0.964 | 0.289 | 0.97 | 0.859 | 530.897 |
| RandomForest | 0.482 | 1.022 | 0.203 | 0.967 | 0.834 | 308.927 |
| SVR | 0.259 | 0.783 | 0.786 | 0.756 | 0.628 | 163.435 |
| LSTM | 0.746 | 0.816 | 0.7 | 0.679 | 0.634 | 294.119 |
| WTLSTM | 0.815 | 0.52 | 0.833 | 0.522 | 0.405 | 224.661 |
| SPI\_9 | 0.923 | ExtraTrees | 0.378 | 0.988 | 0.037 | 0.984 | 0.783 | 245.701 |
| RandomForest | 0.219 | 0.887 | 0.271 | 0.889 | 0.682 | 185.309 |
| SVR | 0.286 | 0.766 | 0.744 | 0.736 | 0.595 | 172.359 |
| LSTM | 0.695 | 0.7 | 0.653 | 0.705 | 0.534 | 176.47 |
| WTLSTM | 0.669 | 0.516 | 0.837 | 0.516 | 0.409 | 206.397 |
| SPI\_12 | 0.813 | ExtraTrees | 0.522 | 1.239 | 0.289 | 0.83 | 1.07 | 467.855 |
| RandomForest | 0.51 | 0.849 | 0.453 | 0.739 | 0.651 | 248.089 |
| SVR | 0.277 | 0.645 | 0.8 | 0.615 | 0.527 | 144.661 |
| LSTM | 0.561 | 0.581 | 0.768 | 0.524 | 0.46 | 215.456 |
| WTLSTM | 0.639 | 0.424 | 0.863 | 0.416 | 0.337 | 356.058 |
| SPI\_24 | 0.698 | ExtraTrees | 0.175 | 0.639 | 0.485 | 0.632 | 0.522 | 249.659 |
| RandomForest | 0.085 | 0.734 | -0.347 | 0.732 | 0.6 | 281.645 |
| SVR | 0.159 | 0.712 | 0.758 | 0.587 | 0.552 | 120.639 |
| LSTM | 0.26 | 0.808 | 0.532 | 0.602 | 0.642 | 126.547 |
| WTLSTM | 0.301 | 0.708 | 0.706 | 0.53 | 0.553 | 111.818 |
| 40712 | SPI\_1 | 0.92 | ExtraTrees | 0.41 | 1.058 | -0.142 | 1.059 | 0.849 | 175.376 |
| RandomForest | 0.187 | 0.957 | -0.081 | 0.953 | 0.776 | 126.57 |
| SVR | 0.104 | 0.928 | -0.063 | 0.932 | 0.749 | 118.519 |
| LSTM | 0.607 | 0.999 | 0.183 | 1.005 | 0.789 | 356.935 |
| WTLSTM | 0.597 | 1.089 | 0.042 | 1.075 | 0.847 | 214.182 |
| SPI\_3 | 0.978 | ExtraTrees | 0.564 | 1.141 | -0.001 | 1.13 | 0.923 | 257.014 |
| RandomForest | 0.267 | 1.031 | 0.056 | 1.0 | 0.83 | 179.12 |
| SVR | 0.34 | 0.824 | 0.58 | 0.829 | 0.654 | 154.936 |
| LSTM | 0.889 | 0.843 | 0.61 | 0.828 | 0.678 | 190.162 |
| WTLSTM | 0.896 | 0.718 | 0.708 | 0.721 | 0.577 | 400.367 |
| SPI\_6 | 0.999 | ExtraTrees | 0.877 | 1.673 | -0.397 | 1.57 | 1.43 | 480.55 |
| RandomForest | 0.264 | 1.121 | -0.36 | 1.122 | 0.869 | 151.763 |
| SVR | 0.569 | 0.622 | 0.819 | 0.625 | 0.463 | 148.262 |
| LSTM | 0.877 | 0.785 | 0.697 | 0.739 | 0.601 | 205.674 |
| WTLSTM | 0.913 | 0.525 | 0.851 | 0.528 | 0.39 | 131.388 |
| SPI\_9 | 1.02 | ExtraTrees | 0.508 | 1.195 | 0.08 | 1.102 | 0.882 | 158.36 |
| RandomForest | 0.314 | 1.094 | 0.02 | 1.061 | 0.856 | 117.969 |
| SVR | 0.549 | 0.614 | 0.869 | 0.607 | 0.446 | 69.123 |
| LSTM | 0.963 | 0.621 | 0.816 | 0.603 | 0.439 | 103.436 |
| WTLSTM | 1.056 | 0.423 | 0.925 | 0.402 | 0.359 | 81.072 |
| SPI\_12 | 1.051 | ExtraTrees | 0.415 | 1.106 | 0.151 | 1.07 | 0.862 | 139.358 |
| RandomForest | 0.375 | 1.194 | -0.065 | 1.138 | 0.952 | 148.883 |
| SVR | 0.747 | 0.478 | 0.933 | 0.444 | 0.333 | 72.983 |
| LSTM | 1.047 | 0.356 | 0.942 | 0.359 | 0.276 | 75.605 |
| WTLSTM | 1.027 | 0.32 | 0.956 | 0.311 | 0.24 | 85.503 |
| SPI\_24 | 1.012 | ExtraTrees | 0.267 | 0.981 | 0.594 | 0.88 | 0.748 | 155.205 |
| RandomForest | 0.08 | 1.035 | -0.119 | 1.025 | 0.844 | 97.038 |
| SVR | 0.572 | 0.495 | 0.957 | 0.494 | 0.414 | 75.056 |
| LSTM | 0.495 | 0.586 | 0.937 | 0.575 | 0.483 | 73.419 |
| WTLSTM | 0.657 | 1.13 | 0.89 | 0.522 | 1.021 | 313.989 |