

## الملاحق

بيانات الدراسة المولدة من برنامج : Matlab

| البيانات المولدة ذات المدى الطويل (٢٠٠ مشاهدة) |              | البيانات المولدة ذات المدى الطويل نسبياً (٨٠ مشاهدة) |              | البيانات المولدة ذات المدى القصير (٤٠ مشاهدة) |              |
|--|--------------|--|--------------|---|--------------|
| سلسلة المدخل                                   | سلسلة المخرج | سلسلة المدخل   | سلسلة المخرج | سلسلة المدخل                                  | سلسلة المخرج |
| 0.055953                                       | 0.744868     | 0.360031   | 0.574737     | 0.406727                                      | 0.503888     |
| 0.816855                                       | 0.892267     | 0.454212   | 0.326042     | 0.666932                                      | 0.64681      |
| 0.528922                                       | 0.242603     | 0.38639  | 0.456425     | 0.933726                                      | 0.307746     |
| 0.694351                                       | 0.129597     | 0.775555   | 0.713796     | 0.81095                                       | 0.138725     |
| 0.212405                                       | 0.225068     | 0.734271   | 0.884405     | 0.484548                                      | 0.475573     |
| 0.54328  | 0.350014     | 0.430278   | 0.720856     | 0.756749                                      | 0.362459     |
| 0.70252  | 0.287085     | 0.693753   | 0.018613     | 0.417047                                      | 0.788113     |
| 0.956435                                       | 0.927488     | 0.945213   | 0.674776     | 0.971786                                      | 0.780296     |
| 0.444542                                       | 0.051314     | 0.784233   | 0.438509     | 0.987975                                      | 0.668512     |
| 0.085398                                       | 0.592667     | 0.705572   | 0.43782      | 0.864148                                      | 0.133504     |
| 0.05734  | 0.162899     | 0.109334   | 0.117037     | 0.388884                                      | 0.021556     |
| 0.62945  | 0.838406     | 0.389931   | 0.814682     | 0.454742                                      | 0.559841     |
| 0.796179                                       | 0.167561     | 0.590905   | 0.324855     | 0.246687                                      | 0.300819     |
| 0.691191                                       | 0.502201     | 0.45938  | 0.246228     | 0.784423                                      | 0.93941      |
| 0.345308                                       | 0.999329     | 0.05034  | 0.342713     | 0.882838                                      | 0.980904     |
| 0.946817                                       | 0.355407     | 0.228688   | 0.375692     | 0.913712                                      | 0.28662      |
| 0.52019  | 0.047078     | 0.834189   | 0.546554     | 0.558285                                      | 0.80082      |
| 0.953813                                       | 0.213661     | 0.015645   | 0.56192      | 0.598868                                      | 0.896111     |
| 0.073596                                       | 0.397839     | 0.863711   | 0.395822     | 0.148877                                      | 0.597527     |
| 0.207032                                       | 0.333668     | 0.078069   | 0.398131     | 0.899713                                      | 0.884017     |
| 0.775028                                       | 0.229603     | 0.669043   | 0.515367     | 0.450394                                      | 0.943732     |
| 0.914188                                       | 0.93612      | 0.500211   | 0.657531     | 0.205672                                      | 0.549158     |
| 0.782551                                       | 0.683189     | 0.217994   | 0.950915     | 0.899651                                      | 0.728387     |
| 0.295534                                       | 0.962114     | 0.571616   | 0.722349     | 0.762586                                      | 0.576758     |
| 0.151846                                       | 0.437973     | 0.122189   | 0.40008      | 0.882486                                      | 0.025857     |
| 0.847911                                       | 0.940337     | 0.671166   | 0.831871     | 0.28495                                       | 0.446531     |
| 0.784855                                       | 0.005834     | 0.599586   | 0.134338     | 0.673226                                      | 0.646302     |
| 0.270832                                       | 0.610307     | 0.055976   | 0.060467     | 0.66428                                       | 0.521203     |
| 0.227811                                       | 0.801076     | 0.056343   | 0.084247     | 0.122815                                      | 0.372313     |
| 0.321023                                       | 0.232982     | 0.152501   | 0.163898     | 0.407318                                      | 0.937135     |
| 0.829562                                       | 0.932469     | 0.019621   | 0.32422      | 0.275287                                      | 0.829533     |
| 0.822182                                       | 0.763263     | 0.435176   | 0.301727     | 0.71667                                       | 0.849085     |

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|----------|----------|----------|----------|----------|----------|
| 0.570683 | 0.82645  | 0.832221 | 0.011681 | 0.283384 | 0.372534 |
| 0.57183  | 0.573464 | 0.61739  | 0.539905 | 0.896199 | 0.593185 |
| 0.286018 | 0.792582 | 0.520129 | 0.095373 | 0.826579 | 0.872553 |
| 0.699134 | 0.329041 | 0.863868 | 0.146515 | 0.390027 | 0.933502 |
| 0.796258 | 0.223462 | 0.097698 | 0.631141 | 0.497903 | 0.668464 |
| 0.441589 | 0.312386 | 0.908052 | 0.85932  | 0.694805 | 0.206776 |
| 0.446216 | 0.584523 | 0.108017 | 0.974222 | 0.834369 | 0.653851 |
| 0.465662 | 0.829914 | 0.516997 | 0.570838 | 0.60963  | 0.072052 |
| 0.279039 | 0.290462 | 0.143156 | 0.99685  |          |          |
| 0.675375 | 0.402554 | 0.559371 | 0.553542 |          |          |
| 0.903665 | 0.862057 | 0.00458  | 0.515458 |          |          |
| 0.908526 | 0.61474  | 0.766682 | 0.330682 |          |          |
| 0.747197 | 0.991188 | 0.848709 | 0.430002 |          |          |
| 0.260512 | 0.203699 | 0.916821 | 0.491806 |          |          |
| 0.689638 | 0.827209 | 0.986968 | 0.071037 |          |          |
| 0.131831 | 0.675862 | 0.505133 | 0.887739 |          |          |
| 0.123501 | 0.248949 | 0.271422 | 0.064634 |          |          |
| 0.190903 | 0.475786 | 0.100751 | 0.436185 |          |          |
| 0.145732 | 0.399075 | 0.507849 | 0.82663  |          |          |
| 0.585044 | 0.599438 | 0.585609 | 0.394535 |          |          |
| 0.073362 | 0.800523 | 0.762887 | 0.613475 |          |          |
| 0.822326 | 0.105069 | 0.082963 | 0.818641 |          |          |
| 0.722903 | 0.821442 | 0.661596 | 0.886235 |          |          |
| 0.925858 | 0.841086 | 0.516979 | 0.931112 |          |          |
| 0.492639 | 0.354506 | 0.171048 | 0.190785 |          |          |
| 0.654883 | 0.430069 | 0.938558 | 0.258582 |          |          |
| 0.890123 | 0.572239 | 0.590483 | 0.897866 |          |          |
| 0.538526 | 0.700825 | 0.440635 | 0.593362 |          |          |
| 0.282205 | 0.74247  | 0.941919 | 0.50384  |          |          |
| 0.975958 | 0.757884 | 0.655914 | 0.61281  |          |          |
| 0.036426 | 0.389129 | 0.451946 | 0.819422 |          |          |
| 0.326245 | 0.429302 | 0.839697 | 0.531889 |          |          |
| 0.973014 | 0.956345 | 0.532624 | 0.202075 |          |          |
| 0.365033 | 0.572971 | 0.553887 | 0.453893 |          |          |
| 0.30915  | 0.849722 | 0.680066 | 0.427911 |          |          |
| 0.120912 | 0.276345 | 0.36719  | 0.966053 |          |          |
| 0.915766 | 0.622324 | 0.239291 | 0.620055 |          |          |
| 0.135478 | 0.588362 | 0.578923 | 0.69539  |          |          |
| 0.332118 | 0.963468 | 0.866887 | 0.720165 |          |          |
| 0.89748  | 0.085903 | 0.406777 | 0.346895 |          |          |
| 0.499649 | 0.500499 | 0.112615 | 0.51699  |          |          |
| 0.615288 | 0.52159  | 0.443846 | 0.556695 |          |          |
| 0.583133 | 0.090166 | 0.300184 | 0.156495 |          |          |

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| 0.698254 | 0.904666 | 0.401387 | 0.562056 |  |  |
| 0.029332 | 0.884389 | 0.833364 | 0.694803 |  |  |
| 0.527883 | 0.43899  | 0.403629 | 0.426456 |  |  |
| 0.032073 | 0.781723 | 0.390176 | 0.83627  |  |  |
| 0.827142 | 0.148465 | 0.360449 | 0.731387 |  |  |
| 0.339986 | 0.619816 |          |          |  |  |
| 0.846711 | 0.260624 |          |          |  |  |
| 0.24607  | 0.445656 |          |          |  |  |
| 0.581491 | 0.844    |          |          |  |  |
| 0.937677 | 0.196205 |          |          |  |  |
| 0.047787 | 0.303852 |          |          |  |  |
| 0.053978 | 0.483295 |          |          |  |  |
| 0.020618 | 0.337812 |          |          |  |  |
| 0.681479 | 0.798486 |          |          |  |  |
| 0.598629 | 0.987488 |          |          |  |  |
| 0.11403  | 0.159048 |          |          |  |  |
| 0.796245 | 0.23688  |          |          |  |  |
| 0.617851 | 0.702237 |          |          |  |  |
| 0.070214 | 0.375472 |          |          |  |  |
| 0.069279 | 0.973705 |          |          |  |  |
| 0.136007 | 0.972306 |          |          |  |  |
| 0.788891 | 0.643698 |          |          |  |  |
| 0.092398 | 0.860099 |          |          |  |  |
| 0.237869 | 0.401883 |          |          |  |  |
| 0.243648 | 0.631931 |          |          |  |  |
| 0.104822 | 0.985237 |          |          |  |  |
| 0.858353 | 0.559477 |          |          |  |  |
| 0.6982   | 0.933592 |          |          |  |  |
| 0.733742 | 0.720343 |          |          |  |  |
| 0.650531 | 0.484039 |          |          |  |  |
| 0.516271 | 0.639031 |          |          |  |  |
| 0.326388 | 0.887637 |          |          |  |  |
| 0.661776 | 0.198737 |          |          |  |  |
| 0.117565 | 0.395366 |          |          |  |  |
| 0.147817 | 0.992175 |          |          |  |  |
| 0.019765 | 0.402352 |          |          |  |  |
| 0.964292 | 0.658856 |          |          |  |  |
| 0.970373 | 0.901348 |          |          |  |  |
| 0.123861 | 0.995382 |          |          |  |  |
| 0.46741  | 0.653163 |          |          |  |  |
| 0.656694 | 0.108436 |          |          |  |  |
| 0.290186 | 0.036114 |          |          |  |  |
| 0.754537 | 0.618091 |          |          |  |  |

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| 0.558118 | 0.567144 |
| 0.427793 | 0.961965 |
| 0.267194 | 0.746105 |
| 0.753736 | 0.662516 |
| 0.898376 | 0.523313 |
| 0.728444 | 0.259894 |
| 0.40683  | 0.961994 |
| 0.938316 | 0.540204 |
| 0.255427 | 0.03027  |
| 0.533163 | 0.696314 |
| 0.954755 | 0.519716 |
| 0.267748 | 0.059031 |
| 0.250085 | 0.890036 |
| 0.927673 | 0.330202 |
| 0.068582 | 0.229701 |
| 0.2994   | 0.113949 |
| 0.591584 | 0.310923 |
| 0.203299 | 0.228432 |
| 0.635883 | 0.651997 |
| 0.79837  | 0.06616  |
| 0.501701 | 0.275431 |
| 0.650812 | 0.28182  |
| 0.795955 | 0.880066 |
| 0.233374 | 0.44433  |
| 0.600839 | 0.755914 |
| 0.112462 | 0.603296 |
| 0.515766 | 0.783266 |
| 0.837841 | 0.113931 |
| 0.92079  | 0.978564 |
| 0.498228 | 0.848597 |
| 0.277611 | 0.050646 |
| 0.65252  | 0.466202 |
| 0.917299 | 0.325653 |
| 0.509839 | 0.630205 |
| 0.974191 | 0.230299 |
| 0.197279 | 0.579885 |
| 0.111185 | 0.603156 |
| 0.297354 | 0.599879 |
| 0.396419 | 0.448428 |
| 0.420756 | 0.035423 |
| 0.311475 | 0.513815 |
| 0.693843 | 0.40773  |
| 0.091872 | 0.108046 |

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| 0.402089 | 0.459876 |
| 0.295181 | 0.450883 |
| 0.306497 | 0.55114  |
| 0.105561 | 0.805404 |
| 0.593828 | 0.70085  |
| 0.282728 | 0.872236 |
| 0.155222 | 0.052192 |
| 0.000659 | 0.219681 |
| 0.283595 | 0.459642 |
| 0.550811 | 0.958534 |
| 0.870902 | 0.790045 |
| 0.042253 | 0.451875 |
| 0.904722 | 0.333428 |
| 0.130974 | 0.059095 |
| 0.833729 | 0.740905 |
| 0.800468 | 0.506795 |
| 0.91788  | 0.199925 |
| 0.137304 | 0.427194 |
| 0.504732 | 0.16869  |
| 0.404958 | 0.751695 |
| 0.173572 | 0.368351 |
| 0.575184 | 0.941818 |
| 0.606218 | 0.017173 |
| 0.214446 | 0.829056 |
| 0.519932 | 0.626591 |
| 0.989186 | 0.538747 |
| 0.489915 | 0.650508 |
| 0.694873 | 0.72663  |
| 0.411422 | 0.094489 |
| 0.034777 | 0.877574 |
| 0.292832 | 0.014362 |
| 0.801442 | 0.294303 |
| 0.346502 | 0.179915 |
| 0.083316 | 0.926294 |
| 0.511106 | 0.06818  |
| 0.366833 | 0.581093 |
| 0.73948  | 0.637151 |
| 0.52474  | 0.651269 |
| 0.804521 | 0.864622 |

**بيانات الدراسة التطبيقية :**

| سلسلة المخرج<br>(الكمية المولدة<br>من الكهرباء ) | كمية المياه |
|--|-------------|
| 321  | 421.64      |
| 327  | 421.67      |
| 330  | 421.68      |
| 334  | 421.70      |
| 323  | 421.55      |
| 324  | 421.45      |
| 316  | 421.20      |
| 333  | 420.95      |
| 331  | 420.95      |
| 336  | 420.94      |
| 335  | 420.97      |
| 334  | 420.98      |
| 334  | 421.04      |
| 332  | 420.95      |
| 328  | 421.02      |
| 331  | 420.98      |
| 336  | 420.83      |
| 330  | 420.80      |
| 331  | 420.85      |
| 327  | 420.58      |
| 332  | 420.32      |
| 340  | 420.33      |
| 337  | 420.30      |
| 333  | 420.40      |
| 335  | 420.38      |
| 336  | 420.45      |
| 330  | 420.40      |
| 323  | 420.42      |
| 330  | 420.42      |
| 330  | 420.40      |
| 329  | 420.39      |
| 329  | 420.42      |
| 328  | 420.26      |
| 325  | 420.20      |

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|--------|-----|
| 420.22 | 326 |
| 420.20 | 326 |
| 420.18 | 324 |
| 420.18 | 324 |
| 420.20 | 324 |
| 420.28 | 324 |
| 420.20 | 327 |
| 420.32 | 327 |
| 420.35 | 326 |
| 420.33 | 326 |
| 420.33 | 323 |
| 420.35 | 321 |
| 420.35 | 319 |
| 420.27 | 326 |
| 420.27 | 325 |
| 420.28 | 325 |
| 420.26 | 321 |
| 420.26 | 322 |
| 420.25 | 326 |
| 420.23 | 324 |
| 420.23 | 326 |
| 420.23 | 332 |
| 420.22 | 328 |
| 420.22 | 323 |
| 420.21 | 330 |
| 420.20 | 327 |
| 420.18 | 327 |
| 420.20 | 331 |
| 420.18 | 327 |
| 420.18 | 327 |
| 420.17 | 328 |
| 420.18 | 328 |
| 420.17 | 328 |
| 420.17 | 70  |
| 420.16 | 0   |
| 420.15 | 0   |
| 420.15 | 0   |
| 420.15 | 0   |
| 420.15 | 0   |
| 420.14 | 0   |
| 420.14 | 0   |

|        |     |
|--------|-----|
| 420.14 | 0   |
| 420.14 | 0   |
| 420.13 | 0   |
| 420.13 | 0   |
| 420.12 | 0   |
| 420.10 | 0   |
| 420.15 | 0   |
| 420.10 | 0   |
| 420.20 | 0   |
| 420.17 | 0   |
| 420.12 | 0   |
| 420.12 | 0   |
| 420.14 | 0   |
| 420.14 | 0   |
| 420.14 | 74  |
| 420.15 | 160 |
| 420.14 | 160 |
| 420.15 | 155 |
| 420.15 | 160 |
| 420.13 | 161 |
| 420.12 | 160 |
| 420.15 | 146 |
| 420.16 | 114 |
| 420.13 | 273 |
| 420.13 | 314 |
| 420.14 | 313 |
| 420.12 | 314 |
| 420.14 | 300 |
| 420.20 | 318 |
| 420.17 | 313 |
| 420.12 | 300 |
| 420.17 | 311 |
| 420.12 | 300 |
| 420.15 | 309 |
| 420.18 | 308 |
| 420.10 | 294 |
| 420.13 | 298 |
| 420.18 | 306 |
| 420.22 | 303 |
| 420.13 | 306 |
| 420.18 | 313 |

|        |     |
|--------|-----|
| 420.15 | 310 |
| 420.09 | 308 |
| 420.16 | 311 |
| 420.16 | 310 |
| 420.16 | 310 |
| 420.12 | 308 |
| 420.11 | 300 |
| 420.14 | 311 |
| 420.14 | 306 |
| 420.15 | 307 |
| 420.14 | 305 |
| 420.10 | 307 |
| 420.16 | 313 |
| 420.18 | 307 |
| 420.14 | 297 |
| 420.10 | 299 |
| 420.10 | 310 |
| 420.18 | 313 |
| 420.10 | 293 |
| 420.10 | 282 |
| 420.15 | 291 |
| 420.18 | 304 |
| 420.05 | 295 |
| 420.00 | 290 |
| 420.16 | 284 |
| 419.07 | 287 |
| 419.85 | 269 |
| 419.70 | 270 |
| 419.58 | 253 |
| 419.50 | 249 |
| 419.44 | 243 |
| 419.30 | 235 |
| 419.21 | 221 |
| 419.14 | 232 |
| 418.90 | 224 |
| 418.95 | 226 |
| 418.85 | 249 |
| 418.90 | 252 |
| 418.70 | 230 |
| 418.75 | 233 |
| 418.70 | 245 |

|        |     |
|--------|-----|
| 418.80 | 244 |
| 418.52 | 242 |
| 418.45 | 247 |
| 418.42 | 245 |
| 418.40 | 254 |
| 418.35 | 257 |
| 418.55 | 229 |
| 418.25 | 179 |
| 418.20 | 180 |
| 418.05 | 187 |
| 417.97 | 174 |
| 418.10 | 205 |
| 418.25 | 231 |
| 418.30 | 237 |
| 418.30 | 251 |
| 418.30 | 249 |
| 418.28 | 248 |
| 418.26 | 235 |
| 418.26 | 236 |
| 418.20 | 251 |
| 418.37 | 265 |
| 418.30 | 255 |
| 418.38 | 237 |
| 418.28 | 235 |