**Appendix**

Climate Bones of Contention:

How Climate Change Influences Territorial, Maritime, and River Interstate Conflicts

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**Table A1. Summary Statistics.**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Variable | Obs. | Mean | Std. Dev. | Min. | Max. |
| ***Issue Claim Onset Model*** |  |  |  |  |  |
| Issue Claim Onset | 68,708 | 0.002 | 0.049 | 0 | 1 |
| Territory Claim Onset | 68,708 | 0.001 | 0.030 | 0 | 1 |
| River Claim Onset | 68,708 | 0.0005 | 0.022 | 0 | 1 |
| Maritime Claim Onset | 68,708 | 0.001 | 0.035 | 0 | 1 |
| Potential Challenger’s Precipitation | 66,352 | 0.030 | 0.989 | -3.560 | 3.919 |
| Potential Challenger’s Temperature | 66,352 | 0.047 | 1.008 | -3.237 | 3.496 |
| Potential Challenger’s Precipitation Volatility | 66,352 | 0.002 | 0.995 | -2.800 | 4.275 |
| Potential Challenger’s Temperature Volatility | 66,352 | -0.015 | 0.986 | -3.475 | 4.070 |
| Potential Target’s Precipitation | 66,352 | 0.030 | 0.989 | -3.560 | 3.919 |
| Potential Target’s Temperature | 66,352 | 0.047 | 1.008 | -3.237 | 3.496 |
| Potential Target’s Precipitation Volatility | 66,352 | 0.002 | 0.995 | -2.800 | 4.275 |
| Potential Target’s Temperature Volatility | 66,352 | -0.015 | 0.986 | -3.475 | 4.070 |
| Relative Capability (Challenger) | 68,708 | 0.5 | 0.413 | 7.11E-06 | 1.000 |
| Democratic Dyad | 68,708 | 0.272 | 0.445 | 0 | 1 |
| Distance (Log) | 68,708 | 5.870 | 3.294 | 0 | 9.055 |
| Diplomatic Peace Year | 68,708 | 36.811 | 28.877 | 0 | 100 |
|  |  |  |  |  |  |
| ***Militarization Model*** |  |  |  |  |  |
| Militarization | 6,152 | 0.032 | 0.177 | 0 | 1 |
| Potential Challenger’s Precipitation | 6,152 | 0.025 | 0.991 | -3.387 | 3.919 |
| Potential Challenger’s Temperature | 6,152 | 0.011 | 0.994 | -3.143 | 3.274 |
| Potential Challenger’s Precipitation Volatility | 6,152 | -0.013 | 0.997 | -2.782 | 4.275 |
| Potential Challenger’s Temperature Volatility | 6,152 | -0.006 | 1.002 | -3.475 | 4.070 |
| Potential Target’s Precipitation | 6,134 | 0.014 | 0.993 | -3.560 | 3.919 |
| Potential Target’s Temperature | 6,134 | -0.003 | 0.996 | -3.143 | 3.496 |
| Potential Target’s Precipitation Volatility | 6,134 | 0.146 | 1.004 | -2.800 | 4.275 |
| Potential Target’s Temperature Volatility | 6,134 | 0.001 | 1.001 | -3.475 | 3.746 |
| Relative Capability (Challenger) | 6,152 | 0.447 | 0.369 | 0.000 | 1.000 |
| Democratic Dyad | 6,152 | 0.317 | 0.465 | 0 | 1 |
| Distance (Log) | 6,152 | 3.389 | 3.776 | 0 | 8.972 |
| MID Peace Year | 6,152 | 22.327 | 22.318 | 0 | 100 |

**Table A2. Correlations.**

* Issue Claim Onset Model

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | *Challenger* | | | | *Target* | | | |
|  | Issue Claim Onset | Precip. | Temp. | Precip. Volatility | Temp.  Volatility | Precip. | Temp. | Precip.  Volatility | Temp. Volatility |
| Issue Claim Onset | 1.000 |  |  |  |  |  |  |  |  |
| *Challenger* |  |  |  |  |  |  |  |  |  |
| Precipitation | -0.004 | 1.000 |  |  |  |  |  |  |  |
| Temperature | -0.011 | 0.010 | 1.000 |  |  |  |  |  |  |
| Precipitation Volatility | -0.002 | 0.381 | 0.025 | 1.000 |  |  |  |  |  |
| Temperature Volatility | 0.012 | -0.175 | -0.256 | 0.019 | 1.000 |  |  |  |  |
| *Target* |  |  |  |  |  |  |  |  |  |
| Precipitation | -0.005 | 0.203 | 0.046 | 0.076 | -0.038 | 1.000 |  |  |  |
| Temperature | -0.008 | 0.046 | 0.470 | 0.007 | -0.098 | 0.010 | 1.000 |  |  |
| Precipitation Volatility | 0.005 | 0.076 | 0.007 | 0.122 | 0.013 | 0.381 | 0.025 | 1.000 |  |
| Temperature Volatility | 0.006 | -0.038 | -0.098 | 0.013 | 0.289 | -0.175 | -0.256 | 0.019 | 1.000 |

* Militarization Model

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | *Challenger* | | | | *Target* | | | |
|  | Militarization | Precip. | Temp. | Precip. Volatility | Temp.  Volatility | Precip. | Temp. | Precip.  Volatility | Temp. Volatility |
| Militarization | 1.000 |  |  |  |  |  |  |  |  |
| *Challenger* |  |  |  |  |  |  |  |  |  |
| Precipitation | 0.030 | 1.000 |  |  |  |  |  |  |  |
| Temperature | 0.026 | -0.025 | 1.000 |  |  |  |  |  |  |
| Precipitation Volatility | 0.004 | 0.435 | 0.066 | 1.000 |  |  |  |  |  |
| Temperature Volatility | 0.039 | -0.077 | -0.200 | 0.037 | 1.000 |  |  |  |  |
| *Target* |  |  |  |  |  |  |  |  |  |
| Precipitation | -0.019 | 0.326 | 0.052 | 0.145 | -0.074 | 1.000 |  |  |  |
| Temperature | 0.016 | 0.038 | 0.598 | 0.057 | -0.085 | -0.004 | 1.000 |  |  |
| Precipitation Volatility | 0.001 | 0.147 | 0.093 | 0.230 | 0.008 | 0.414 | 0.099 | 1.000 |  |
| Temperature Volatility | 0.031 | 0.016 | -0.079 | 0.048 | 0.439 | -0.142 | -0.196 | -0.007 | 1.000 |

**Figure A1. Challenger State’s Precipitation on Probability of Initiating a Territorial Issue Claim.**



**Figure A2. Target State’s Precipitation on Probability of being Targeted in a River Claim.**



**Figure A3a. Challenger State’s Precipitation on Probability of Initiating a Maritime Claim.**



**Figure A3b. Challenger State’s Temperature on Probability of Initiating a Maritime Claim.**



**Figure A3c. Target State’s Precipitation on Probability of Being Targeted in Maritime Claim.**



**Figure A4. Challenger State’s Temperature Volatility on Probability of Initiating a Maritime Claim.**

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**Figure 5a. Challenger’s Precipitation on Territorial Issue Militarization.**



**Figure 5b. Target’s Precipitation on Territorial Issue Militarization.**



**Figure 6. Challenger’s Temperature on River Issue Militarization.**



**Figure 7. Challenger’s Temperature Volatility on River Issue Militarization.**

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**Table A3a. Effect of Climate Change and Volatility on Issue Claim Onset (PRD, Western Hemisphere), 1901-2001**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Standardized Precipitation and Temperature | | | | Volatility | | | |
|  | Model 1: Territory | Model 2:  River | Model 3: Maritime | Model 4:  All | Model 5: Territory | Model 6:  River | Model 7: Maritime | Model 8:  All |
| *Potential Challenger* |  |  |  |  |  |  |  |  |
| Precipitation | 0.033 | -0.074 | -0.012 | -0.071 |  |  |  |  |
|  | (0.166) | (0.225) | (0.174) | (0.114) |  |  |  |  |
| Precipitation Squared | 0.177\*\* | 0.015 | 0.115\* | 0.088 |  |  |  |  |
|  | (0.089) | (0.107) | (0.067) | (0.057) |  |  |  |  |
| Temperature | -0.096 | -0.011 | -0.354 | -0.219 |  |  |  |  |
|  | (0.300) | (0.285) | (0.307) | (0.163) |  |  |  |  |
| Temperature Squared | -0.221 | 0.083 | -0.909\*\*\* | -0.205 |  |  |  |  |
|  | (0.256) | (0.150) | (0.317) | (0.134) |  |  |  |  |
| Precipitation Volatility |  |  |  |  | -0.013 | -0.374\* | 0.202 | -0.075 |
|  |  |  |  |  | (0.201) | (0.220) | (0.150) | (0.115) |
| Temperature Volatility |  |  |  |  | 0.006 | 0.195 | 0.504\*\*\* | 0.283\*\* |
|  |  |  |  |  | (0.167) | (0.223) | (0.151) | (0.111) |
| *Potential Target* |  |  |  |  |  |  |  |  |
| Precipitation | 0.897\*\* | 0.602 | -0.162 | 0.164 |  |  |  |  |
|  | (0.374) | (0.383) | (0.195) | (0.142) |  |  |  |  |
| Precipitation Squared | -1.072\*\*\* | -0.371 | -0.018 | -0.184\* |  |  |  |  |
|  | (0.381) | (0.236) | (0.093) | (0.094) |  |  |  |  |
| Temperature | -0.018 | -0.126 | 0.118 | 0.087 |  |  |  |  |
|  | (0.265) | (0.256) | (0.202) | (0.138) |  |  |  |  |
| Temperature Squared | -0.113 | 0.143 | 0.150\* | 0.128\* |  |  |  |  |
|  | (0.195) | (0.136) | (0.087) | (0.074) |  |  |  |  |
| Precipitation Volatility |  |  |  |  | 0.259 | 0.345\* | 0.021 | 0.146 |
|  |  |  |  |  | (0.172) | (0.209) | (0.147) | (0.108) |
| Temperature Volatility |  |  |  |  | 0.210 | -0.024 | -0.214 | -0.080 |
|  |  |  |  |  | (0.146) | (0.234) | (0.181) | (0.112) |
| *Controls* |  |  |  |  |  |  |  |  |
| Relative Capability | -0.261 | -2.322\*\* | 1.127\*\* | -0.126 | -0.205 | -2.313\*\*\* | 1.042\* | -0.181 |
|  | (0.522) | (0.934) | (0.529) | (0.343) | (0.531) | (0.883) | (0.542) | (0.330) |
| Democratic Dyad | 0.326 | 1.821\*\*\* | 1.213\*\* | 1.304\*\*\* | 0.178 | 1.820\*\*\* | 1.088\*\* | 1.230\*\*\* |
|  | (0.552) | (0.518) | (0.491) | (0.290) | (0.556) | (0.465) | (0.462) | (0.277) |
| Distance | -0.160\*\*\* |  | -0.058 | -0.178\*\*\* | -0.165\*\*\* |  | -0.063 | -0.180\*\*\* |
|  | (0.062) |  | (0.057) | (0.037) | (0.063) |  | (0.059) | (0.037) |
| Diplomatic Peace Year | -0.017 | -0.020\*\* | -0.019\*\* | -0.019\*\*\* | -0.020\* | -0.021\*\*\* | -0.021\*\* | -0.020\*\*\* |
|  | (0.010) | (0.008) | (0.009) | (0.005) | (0.011) | (0.008) | (0.009) | (0.005) |
| Constant | -4.711\*\*\* | -4.604\*\*\* | -5.971\*\*\* | -4.213\*\*\* | -5.144\*\*\* | -4.596\*\*\* | -6.195\*\*\* | -4.254\*\*\* |
|  | (0.401) | (0.508) | (0.513) | (0.288) | (0.354) | (0.428) | (0.514) | (0.257) |
| Observations | 15974 | 6198 | 15974 | 15974 | 15974 | 6198 | 15974 | 15974 |

**Table A3b. Effect of Climate Change and Volatility on Issue Claim Onset (PRD, Europe), 1901-2001**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Standardized Precipitation and Temperature | | | | Volatility | | | | |
|  | Model 1: Territory | Model 2:  River | Model 3: Maritime | Model 4:  All | Model 5: Territory | Model 6:  River | Model 7: Maritime | Model 8:  All |
| *Potential Challenger* |  |  |  |  |  |  |  |  |
| Precipitation | -0.251 | 0.484 | -0.051 | -0.099 |  |  |  |  |
|  | (0.307) | (0.586) | (0.211) | (0.169) |  |  |  |  |
| Precipitation Squared | -0.082 | -1.385\*\* | 0.047 | -0.031 |  |  |  |  |
|  | (0.275) | (0.690) | (0.098) | (0.115) |  |  |  |  |
| Temperature | -0.694\*\* | -1.216\* | 0.498 | -0.209 |  |  |  |  |
|  | (0.270) | (0.686) | (0.393) | (0.206) |  |  |  |  |
| Temperature Squared | 0.029 | 0.069 | -0.834\*\*\* | -0.106 |  |  |  |  |
|  | (0.149) | (0.305) | (0.293) | (0.122) |  |  |  |  |
| Precipitation Volatility |  |  |  |  | -0.126 | 0.354 | -0.165 | -0.088 |
|  |  |  |  |  | (0.235) | (0.319) | (0.208) | (0.146) |
| Temperature Volatility |  |  |  |  | 0.245 | 0.383 | -0.060 | 0.060 |
|  |  |  |  |  | (0.237) | (0.411) | (0.209) | (0.155) |
| *Potential Target* |  |  |  |  |  |  |  |  |
| Precipitation | -0.408 | 0.619 | -0.143 | -0.183 |  |  |  |  |
|  | (0.276) | (0.426) | (0.228) | (0.173) |  |  |  |  |
| Precipitation Squared | -0.021 | -0.416 | 0.061 | 0.031 |  |  |  |  |
|  | (0.245) | (0.437) | (0.102) | (0.107) |  |  |  |  |
| Temperature | 0.164 | 0.233 | -0.298 | -0.156 |  |  |  |  |
|  | (0.291) | (0.281) | (0.351) | (0.232) |  |  |  |  |
| Temperature Squared | 0.034 | -0.043 | -0.257 | -0.086 |  |  |  |  |
|  | (0.177) | (0.264) | (0.278) | (0.146) |  |  |  |  |
| Precipitation Volatility |  |  |  |  | 0.060 | 0.428\* | 0.098 | 0.129 |
|  |  |  |  |  | (0.235) | (0.248) | (0.244) | (0.157) |
| Temperature Volatility |  |  |  |  | 0.146 | -0.189 | 0.098 | 0.132 |
|  |  |  |  |  | (0.299) | (0.602) | (0.186) | (0.160) |
| *Controls* |  |  |  |  |  |  |  |  |
| Relative Capability | -0.235 | -2.938\*\* | 1.275\*\* | 0.305 | -0.376 | -3.129\*\* | 1.339\*\* | 0.305 |
|  | (0.588) | (1.432) | (0.563) | (0.369) | (0.550) | (1.321) | (0.528) | (0.348) |
| Democratic Dyad | 0.341 | 2.098\* | 0.296 | 0.451\* | 0.307 | 1.942\* | 0.286 | 0.435\* |
|  | (0.423) | (1.097) | (0.375) | (0.262) | (0.415) | (1.085) | (0.374) | (0.259) |
| Distance | -0.498\*\*\* | -0.442\*\*\* | -0.093 | -0.231\*\*\* | -0.489\*\*\* | -0.433\*\*\* | -0.101\* | -0.231\*\*\* |
|  | (0.111) | (0.147) | (0.058) | (0.041) | (0.113) | (0.147) | (0.055) | (0.041) |
| Diplomatic Peace Year | -0.038\*\*\* | 0.006 | -0.006 | -0.013\*\* | -0.044\*\*\* | -0.005 | -0.007 | -0.016\*\*\* |
|  | (0.010) | (0.019) | (0.007) | (0.006) | (0.011) | (0.016) | (0.006) | (0.006) |
| Constant | -5.332\*\*\* | -7.463\*\*\* | -6.440\*\*\* | -5.055\*\*\* | -4.918\*\*\* | -7.439\*\*\* | -6.932\*\*\* | -5.084\*\*\* |
|  | (0.538) | (1.764) | (0.615) | (0.374) | (0.414) | (1.256) | (0.593) | (0.337) |
| Observations | 24754 | 24754 | 24754 | 24754 | 24754 | 24754 | 24754 | 24754 |

**Table A4a. Effect of Climate Change and Volatility on Militarization (Claim Dyad Years, Western Hemisphere), 1901-2001**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Standardized Precipitation and Temperature | | | | Volatility | | | |
|  | Model 1: Territory | Model 2:  River | Model 3: Maritime | Model 4:  All | Model 5: Territory | Model 6:  River | Model 7: Maritime | Model 8:  All |
| *Challenger* |  |  |  |  |  |  |  |  |
| Precipitation | 0.517\*\*\* | 0.203 | 0.049 | 0.300\*\*\* |  |  |  |  |
|  | (0.130) | (0.815) | (0.144) | (0.091) |  |  |  |  |
| Precipitation Squared | 0.053 | 0.226 | 0.116 | 0.075 |  |  |  |  |
|  | (0.060) | (0.525) | (0.087) | (0.047) |  |  |  |  |
| Temperature | 0.125 | -1.099 | 0.185 | 0.098 |  |  |  |  |
|  | (0.165) | (0.918) | (0.292) | (0.133) |  |  |  |  |
| Temperature Squared | -0.072 | 0.499\*\*\* | -0.072 | -0.047 |  |  |  |  |
|  | (0.088) | (0.119) | (0.113) | (0.059) |  |  |  |  |
| Precipitation Volatility |  |  |  |  | 0.153 | 0.612 | 0.133 | 0.122 |
|  |  |  |  |  | (0.120) | (0.438) | (0.139) | (0.091) |
| Temperature Volatility |  |  |  |  | 0.294\*\* | 1.227\*\*\* | 0.275 | 0.322\*\*\* |
|  |  |  |  |  | (0.119) | (0.407) | (0.168) | (0.098) |
| *Target* |  |  |  |  |  |  |  |  |
| Precipitation | -0.318\*\* | -1.107\*\* | 0.010 | -0.197\*\* |  |  |  |  |
|  | (0.140) | (0.543) | (0.156) | (0.093) |  |  |  |  |
| Precipitation Squared | 0.025 | 0.325 | -0.036 | 0.009 |  |  |  |  |
|  | (0.068) | (0.271) | (0.095) | (0.054) |  |  |  |  |
| Temperature | 0.007 | 1.543 | 0.062 | 0.074 |  |  |  |  |
|  | (0.158) | (1.021) | (0.225) | (0.115) |  |  |  |  |
| Temperature Squared | 0.043 | 0.008 | 0.116 | 0.089\* |  |  |  |  |
|  | (0.084) | (0.296) | (0.089) | (0.051) |  |  |  |  |
| Precipitation Volatility |  |  |  |  | -0.058 | 0.083 | -0.154 | -0.073 |
|  |  |  |  |  | (0.126) | (0.407) | (0.166) | (0.094) |
| Temperature Volatility |  |  |  |  | 0.009 | 0.036 | -0.086 | -0.046 |
|  |  |  |  |  | (0.122) | (0.437) | (0.193) | (0.104) |
| *Controls* |  |  |  |  |  |  |  |  |
| Relative Capability | 0.962\*\*\* | 4.140\*\* | 0.624\* | 0.944\*\*\* | 0.922\*\*\* | 2.426\* | 0.610\* | 0.937\*\*\* |
|  | (0.318) | (1.694) | (0.379) | (0.213) | (0.302) | (1.285) | (0.325) | (0.209) |
| Democratic Dyad | 0.316 | -0.517 | 0.495 | 0.033 | 0.340 | 0.711 | 0.611\* | 0.205 |
|  | (0.380) | (1.304) | (0.316) | (0.216) | (0.370) | (1.276) | (0.316) | (0.210) |
| Distance | -0.322\*\*\* |  | -0.032 | -0.157\*\*\* | -0.320\*\*\* |  | -0.025 | -0.151\*\*\* |
|  | (0.087) |  | (0.040) | (0.033) | (0.085) |  | (0.040) | (0.032) |
| Mid Peace Year | -0.069\*\*\* | -0.022 | -0.042\*\*\* | -0.053\*\*\* | -0.071\*\*\* | 0.007 | -0.041\*\* | -0.054\*\*\* |
|  | (0.017) | (0.048) | (0.016) | (0.011) | (0.019) | (0.022) | (0.017) | (0.011) |
| Constant | -2.484\*\*\* | -8.114\*\*\* | -3.641\*\*\* | -2.931\*\*\* | -2.372\*\*\* | -6.416\*\*\* | -3.516\*\*\* | -2.828\*\*\* |
|  | (0.259) | (0.839) | (0.390) | (0.199) | (0.243) | (1.012) | (0.327) | (0.184) |
| Observations | 2110 | 345 | 1556 | 4011 | 2110 | 345 | 1556 | 4011 |

**Table A4b. Effect of Climate Change and Volatility on Militarization (Claim Dyad Years, Europe), 1901-2001.**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Standardized Precipitation and Temperature | | | Volatility | | |
|  | Model 1:  Territory | Model 2:  Maritime | Model 3:  All | Model 4:  Territory | Model 5:  Maritime | Model 6:  All |
| *Challenger* |  |  |  |  |  |  |
| Precipitation | 0.137 | 0.122 | 0.110 |  |  |  |
|  | (0.516) | (0.350) | (0.283) |  |  |  |
| Precipitation Squared | 0.315 | -0.066 | 0.181 |  |  |  |
|  | (0.238) | (0.227) | (0.220) |  |  |  |
| Temperature | 0.968 | 0.365 | 0.245 |  |  |  |
|  | (0.953) | (0.692) | (0.472) |  |  |  |
| Temperature Squared | 0.138 | -0.711\*\* | -0.102 |  |  |  |
|  | (0.292) | (0.290) | (0.261) |  |  |  |
| Precipitation Volatility |  |  |  | -0.114 | 0.198 | 0.062 |
|  |  |  |  | (0.229) | (0.249) | (0.160) |
| Temperature Volatility |  |  |  | -0.766 | 0.008 | -0.215 |
|  |  |  |  | (0.512) | (0.360) | (0.294) |
| *Target* |  |  |  |  |  |  |
| Precipitation | -0.055 | -0.073 | -0.099 |  |  |  |
|  | (0.563) | (0.357) | (0.282) |  |  |  |
| Precipitation Squared | 0.070 | -0.019 | 0.008 |  |  |  |
|  | (0.209) | (0.308) | (0.204) |  |  |  |
| Temperature | -1.231 | -0.229 | -0.442 |  |  |  |
|  | (0.989) | (0.447) | (0.404) |  |  |  |
| Temperature Squared | 0.246 | 0.241 | 0.248 |  |  |  |
|  | (0.405) | (0.162) | (0.161) |  |  |  |
| Precipitation Volatility |  |  |  | 0.288 | 0.174 | 0.284 |
|  |  |  |  | (0.363) | (0.373) | (0.240) |
| Temperature Volatility |  |  |  | 1.153\*\*\* | -0.022 | 0.486 |
|  |  |  |  | (0.445) | (0.453) | (0.320) |
| *Controls* |  |  |  |  |  |  |
| Relative Capability | -0.659 | 0.237 | 0.586 | -0.466 | 0.101 | 0.434 |
|  | (1.539) | (0.817) | (0.669) | (1.670) | (0.899) | (0.691) |
| Democratic Dyad | -2.663\*\* | -0.833 | -1.439\*\* | -2.501\* | -0.878 | -1.469\*\*\* |
|  | (1.240) | (0.807) | (0.582) | (1.433) | (0.746) | (0.552) |
| Distance | -0.173 | 0.224 | 0.109 | -0.132 | 0.206 | 0.111 |
|  | (0.160) | (0.171) | (0.088) | (0.203) | (0.161) | (0.083) |
| Mid Peace Year | 0.002 | -0.043 | -0.029 | 0.002 | -0.042 | -0.029\* |
|  | (0.017) | (0.031) | (0.019) | (0.024) | (0.031) | (0.017) |
| Constant | -3.766\*\*\* | -3.686\*\*\* | -4.099\*\*\* | -3.263\*\*\* | -3.869\*\*\* | -3.710\*\*\* |
|  | (1.371) | (1.220) | (0.773) | (0.999) | (1.072) | (0.620) |
| Observations | 592 | 515 | 1186 | 592 | 515 | 1186 |

**Table A5a. Territorial Claim Onset (Contiguous Borders), 1901-2000.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Model 1 | Model 2 | Model 3 | Model 4 |
| *Potential Challenger* |  |  |  |  |
| Precipitation | 0.038 | 0.040 |  |  |
|  | (0.061) | (0.067) |  |  |
| Precipitation Squared | 0.061\* | 0.073\* |  |  |
|  | (0.034) | (0.037) |  |  |
| Temperature | -0.279\*\*\* | -0.169\* |  |  |
|  | (0.085) | (0.089) |  |  |
| Temperature Squared | -0.004 | 0.019 |  |  |
|  | (0.055) | (0.053) |  |  |
| Precipitation Volatility |  |  | 0.114\*\* | 0.124\*\* |
|  |  |  | (0.056) | (0.060) |
| Temperature Volatility |  |  | -0.043 | -0.041 |
|  |  |  | (0.059) | (0.066) |
| *Potential Target* |  |  |  |  |
| Precipitation | -0.063 | -0.069 |  |  |
|  | (0.062) | (0.069) |  |  |
| Precipitation Squared | -0.013 | -0.011 |  |  |
|  | (0.042) | (0.045) |  |  |
| Temperature | -0.193\*\* | -0.051 |  |  |
|  | (0.082) | (0.085) |  |  |
| Temperature Squared | -0.071 | -0.040 |  |  |
|  | (0.056) | (0.054) |  |  |
| Precipitation Volatility |  |  | -0.014 | -0.010 |
|  |  |  | (0.053) | (0.058) |
| Temperature Volatility |  |  | 0.112\* | 0.141\*\* |
|  |  |  | (0.059) | (0.065) |
| *Controls* |  |  |  |  |
| Relative Capability |  | 0.119 |  | 0.120 |
|  |  | (0.167) |  | (0.161) |
| Democratic Dyad |  | -0.216 |  | -0.306\*\* |
|  |  | (0.154) |  | (0.152) |
| Distance |  | -0.184\*\*\* |  | -0.192\*\*\* |
|  |  | (0.023) |  | (0.023) |
| Diplomatic Peace Year |  | -0.052\*\*\* |  | -0.054\*\*\* |
|  |  | (0.006) |  | (0.006) |
| Constant | -4.999\*\*\* | -3.784\*\*\* | -4.967\*\*\* | -3.651\*\*\* |
|  | (0.083) | (0.143) | (0.056) | (0.124) |
| Observations | 48016 | 48016 | 47716 | 47716 |

*t* statistics in parentheses \* p<.1, \*\* p<.05, \*\*\* p<.01

**Table A5b. Territorial Claim Militarization (Claim Dyad), 1901-2000.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Model 1 | Model 2 | Model 3 | Model 4 |
| *Challenger* |  |  |  |  |
| Precipitation | 0.162\*\*\* | 0.176\*\*\* |  |  |
|  | (0.045) | (0.050) |  |  |
| Precipitation Squared | 0.056\*\* | 0.059\*\* |  |  |
|  | (0.024) | (0.027) |  |  |
| Temperature | 0.061 | 0.093\* |  |  |
|  | (0.048) | (0.057) |  |  |
| Temperature Squared | -0.015 | -0.025 |  |  |
|  | (0.027) | (0.031) |  |  |
| Precipitation Volatility |  |  | 0.154\*\*\* | 0.145\*\*\* |
|  |  |  | (0.042) | (0.045) |
| Temperature Volatility |  |  | 0.078\* | 0.085 |
|  |  |  | (0.045) | (0.052) |
| *Target* |  |  |  |  |
| Precipitation | -0.033 | -0.050 |  |  |
|  | (0.045) | (0.050) |  |  |
| Precipitation Squared | 0.018 | 0.012 |  |  |
|  | (0.031) | (0.031) |  |  |
| Temperature | -0.152\*\*\* | -0.081 |  |  |
|  | (0.046) | (0.055) |  |  |
| Temperature Squared | 0.077\*\* | 0.094\*\*\* |  |  |
|  | (0.030) | (0.032) |  |  |
| Precipitation Volatility |  |  | 0.039 | 0.059 |
|  |  |  | (0.043) | (0.046) |
| Temperature Volatility |  |  | 0.009 | 0.012 |
|  |  |  | (0.045) | (0.051) |
| *Controls* |  |  |  |  |
| Relative Capability |  | 0.304\*\* |  | 0.309\*\* |
|  |  | (0.124) |  | (0.122) |
| Democratic Dyad |  | -0.286\*\* |  | -0.217\* |
|  |  | (0.131) |  | (0.126) |
| Distance |  | -0.090\*\*\* |  | -0.090\*\*\* |
|  |  | (0.013) |  | (0.013) |
| Mid Peace Year |  | -0.079\*\*\* |  | -0.079\*\*\* |
|  |  | (0.010) |  | (0.010) |
| Constant | -2.733\*\*\* | -1.964\*\*\* | -2.595\*\*\* | -1.834\*\*\* |
|  | (0.063) | (0.107) | (0.042) | (0.095) |
| Observations | 8949 | 8949 | 8856 | 8856 |

*t* statistics in parentheses \* p<.1, \*\* p<.05, \*\*\* p<.01

**Table A6a. River Claim Onset, Replicating Brochmann and Hensel (2009).**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Model 1 | Model 2 | Model 3 | Model 4 |
| *Upstream* |  |  |  |  |
| Precipitation | -0.015 | -0.020 | -0.090\* | -0.106\*\* |
|  | (0.039) | (0.037) | (0.053) | (0.050) |
| Precipitation Squared |  | 0.034\* |  | 0.031 |
|  |  | (0.020) |  | (0.029) |
| Temperature | 0.104\*\* | 0.090\* | 0.111 |  |
|  | (0.046) | (0.046) | (0.070) |  |
| Temperature Squared |  | 0.018 |  |  |
|  |  | (0.027) |  |  |
| *Downstream* |  |  |  |  |
| Precipitation | -0.040 | -0.037 | -0.032 | -0.021 |
|  | (0.038) | (0.038) | (0.052) | (0.052) |
| Precipitation Squared |  | -0.003 |  | -0.006 |
|  |  | (0.023) |  | (0.036) |
| Temperature | -0.054 | -0.059 | -0.063 | 0.014 |
|  | (0.047) | (0.046) | (0.069) | (0.050) |
| Temperature Squared |  | 0.015 |  | 0.015 |
|  |  | (0.028) |  | (0.036) |
| *Controls* |  |  |  |  |
| Log(basin runoff) |  |  | -0.383\*\*\* | -0.383\*\*\* |
|  |  |  | (0.022) | (0.022) |
| Log(pop. density) |  |  | 0.242\*\*\* | 0.241\*\*\* |
|  |  |  | (0.030) | (0.030) |
| Log(river length) |  |  | 0.882\*\*\* | 0.882\*\*\* |
|  |  |  | (0.067) | (0.067) |
| Cross-border river |  |  | 0.852\*\*\* | 0.850\*\*\* |
|  |  |  | (0.198) | (0.198) |
| Any river treaty |  |  | 1.199\*\*\* | 1.198\*\*\* |
|  |  |  | (0.119) | (0.118) |
| Log(shared IGOs) |  |  | 0.043 | 0.045 |
|  |  |  | (0.029) | (0.029) |
| Joint democracy |  |  | -1.322\*\*\* | -1.310\*\*\* |
|  |  |  | (0.140) | (0.139) |
| Downstream capabilities |  |  | -0.763\*\*\* | -0.770\*\*\* |
|  |  |  | (0.145) | (0.145) |
| Constant | -3.595\*\*\* | -3.660\*\*\* | -6.063\*\*\* | -6.101\*\*\* |
|  | (0.039) | (0.057) | (0.362) | (0.366) |
| Observations | 25341 | 25341 | 19694 | 19694 |

**Table A6b. River Claim and Negotiation Onset (Heckman Probit), Replicating Brochmann and Hensel (2009).**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Model 1: Base | | Model 2: Squared | |
| Negotiation Onset |  |  |  |  |
|  |  |  |  |  |
| Chal's precipitation | 0.062 | (1.00) | 0.066 | (1.05) |
| Chal's precipitation squared |  |  | -0.050 | (-1.12) |
| Target's precipitation | -0.110 | (-1.60) | -0.104 | (-1.54) |
| Target's precipitation squared |  |  | 0.059\* | (1.81) |
| Log(basin runoff) | -0.146\*\*\* | (-3.24) | -0.150\*\*\* | (-3.33) |
| Log(pop. density) | -0.048 | (-0.72) | -0.039 | (-0.60) |
| Log(river length) | 0.260\*\*\* | (2.84) | 0.272\*\*\* | (3.07) |
| Cross-border river | -0.502 | (-1.16) | -0.432 | (-0.94) |
| Salience | 0.050 | (1.42) | 0.045 | (1.35) |
| Relevant river treaty | 0.362\*\*\* | (2.84) | 0.363\*\*\* | (3.22) |
| Log(shared IGOs) | 0.079\*\* | (2.43) | 0.073\*\* | (2.09) |
| Joint democracy | -0.143 | (-0.70) | -0.166 | (-0.83) |
| Chal's capabilities | -0.362 | (-1.29) | -0.313 | (-1.03) |
| Constant | -2.117\*\* | (-2.51) | -2.279\*\*\* | (-2.79) |
| River Claim |  |  |  |  |
|  |  |  |  |  |
| Upstream precipitation | -0.041\* | (-1.67) | -0.041\* | (-1.78) |
| Upstream precipitation squared |  |  | 0.016 | (1.19) |
| Downstream precipitation | -0.012 | (-0.50) | -0.012 | (-0.51) |
| Downstream precipitation squared |  |  | -0.000 | (-0.00) |
| Log(basin runoff) | -0.181\*\*\* | (-17.78) | -0.181\*\*\* | (-17.80) |
| Log(pop. density) | 0.110\*\*\* | (8.60) | 0.109\*\*\* | (8.59) |
| Log(river length) | 0.393\*\*\* | (13.31) | 0.394\*\*\* | (13.33) |
| Cross-border river | 0.411\*\*\* | (5.45) | 0.411\*\*\* | (5.46) |
| Any river treaty | 0.594\*\*\* | (11.22) | 0.597\*\*\* | (11.33) |
| Log(shared IGOs) | 0.021\* | (1.66) | 0.020 | (1.58) |
| Joint democracy | -0.600\*\*\* | (-10.01) | -0.601\*\*\* | (-10.03) |
| Downstream capabilities | -0.263\*\*\* | (-3.47) | -0.257\*\*\* | (-3.19) |
| Constant | -2.982\*\*\* | (-18.23) | -3.002\*\*\* | (-18.16) |
|  |  |  |  |  |
| Rho (S.E.): | 1.229 | (1.42) | 1.426 | (1.11) |
| Observations | 19694 |  | 19694 |  |
| *t* statistics in parentheses \* p<.1, \*\* p<.05, \*\*\* p<.01 | | | | |

**Table A6c. River Claim Militarization, Replicating Brochmann and Hensel (2009).**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Model 1 | Model 2 | Model 3 | Model 4 |
| *Challenger* |  |  |  |  |
| Precipitation | 0.044 | 0.045 | 0.282 | 0.431 |
|  | (0.268) | (0.298) | (0.386) | (0.513) |
| Precipitation Squared |  | 0.001 |  | -0.358\* |
|  |  | (0.209) |  | (0.213) |
| Temperature | -0.247 | -0.252 | 0.127 | 0.010 |
|  | (0.351) | (0.343) | (0.396) | (0.381) |
| Temperature Squared |  | 0.070 |  | 0.176 |
|  |  | (0.113) |  | (0.153) |
| *Target* |  |  |  |  |
| Precipitation | 0.269 | 0.234 | 0.314 | 0.323 |
|  | (0.260) | (0.268) | (0.438) | (0.561) |
| Precipitation Squared |  | 0.072 |  | 0.059 |
|  |  | (0.120) |  | (0.225) |
| Temperature | 0.255 | 0.215 | 0.055 | 0.068 |
|  | (0.350) | (0.356) | (0.372) | (0.394) |
| Temperature Squared |  | 0.040 |  | 0.069 |
|  |  | (0.123) |  | (0.183) |
| *Controls* |  |  |  |  |
| Log(basin runoff) |  |  | 0.291 | 0.314 |
|  |  |  | (0.214) | (0.212) |
| Log(pop. density) |  |  | 0.476 | 0.505 |
|  |  |  | (0.464) | (0.456) |
| Log(river length) |  |  | -0.631 | -0.605 |
|  |  |  | (0.404) | (0.392) |
| Salience of river claim |  |  | 0.055 | 0.023 |
|  |  |  | (0.215) | (0.239) |
| Relevant river treaty |  |  | -0.718 | -0.789 |
|  |  |  | (0.722) | (0.741) |
| Log(shared IGOs) |  |  | -0.098 | -0.082 |
|  |  |  | (0.177) | (0.195) |
| Joint democracy |  |  | -0.628 | -0.665 |
|  |  |  | (1.307) | (1.038) |
| Challenger capabilities |  |  | 2.031\* | 2.293\* |
|  |  |  | (1.181) | (1.254) |
| Constant | -3.662\*\*\* | -3.866\*\*\* | -5.368 | -5.907 |
|  | (0.251) | (0.383) | (4.347) | (4.238) |
| Observations | 683 | 683 | 479 | 479 |

Note: Cross-border river is omitted. *t* statistics in parentheses \* p<.1, \*\* p<.05, \*\*\* p<.01

**Table A7a. Maritime Claim Occurrence, Replicating Daniels and Mitchell (2017).**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Model 1 | Model 2 | Model 3 | Model 4 |
| *Country A* |  |  |  |  |
| Precipitation | 0.069\*\*\* | 0.064\*\*\* | 0.019 | 0.022 |
|  | (0.014) | (0.014) | (0.017) | (0.017) |
| Precipitation Squared |  | 0.018\* |  | -0.013 |
|  |  | (0.010) |  | (0.012) |
| Temperature | 0.053\*\*\* | 0.051\*\*\* | -0.036\* | -0.039\* |
|  | (0.014) | (0.015) | (0.020) | (0.020) |
| Temperature Squared |  | 0.002 |  | 0.009 |
|  |  | (0.011) |  | (0.013) |
| *Country B* |  |  |  |  |
| Precipitation | 0.002 | -0.003 | -0.016 | -0.019 |
|  | (0.014) | (0.014) | (0.016) | (0.017) |
| Precipitation Squared |  | 0.023\*\* |  | 0.012 |
|  |  | (0.009) |  | (0.010) |
| Temperature | 0.056\*\*\* | 0.061\*\*\* | 0.047\*\* | 0.051\*\*\* |
|  | (0.014) | (0.016) | (0.018) | (0.020) |
| Temperature Squared |  | -0.015 |  | -0.010 |
|  |  | (0.010) |  | (0.012) |
| *Controls* |  |  |  |  |
| Democratic Dyad |  |  | 0.391\*\*\* | 0.389\*\*\* |
|  |  |  | (0.051) | (0.051) |
| Mixed Dyad |  |  | -0.187\*\*\* | -0.188\*\*\* |
|  |  |  | (0.045) | (0.045) |
| Relative Energy Production |  |  | -2.554\*\*\* | -2.555\*\*\* |
|  |  |  | (0.121) | (0.121) |
| Major Power in Dyad |  |  | 2.871\*\*\* | 2.871\*\*\* |
|  |  |  | (0.051) | (0.051) |
| Dyadic MID |  |  | 2.075\*\*\* | 2.075\*\*\* |
|  |  |  | (0.078) | (0.078) |
| Americas |  |  | 3.137\*\*\* | 3.138\*\*\* |
|  |  |  | (0.057) | (0.057) |
| Europe |  |  | 1.350\*\*\* | 1.351\*\*\* |
|  |  |  | (0.056) | (0.056) |
| Asia |  |  | 2.577\*\*\* | 2.578\*\*\* |
|  |  |  | (0.060) | (0.060) |
| Middle East |  |  | 2.369\*\*\* | 2.370\*\*\* |
|  |  |  | (0.095) | (0.095) |
| Year |  |  | 0.837\*\*\* | 0.843\*\*\* |
|  |  |  | (0.115) | (0.119) |
| Year Squared |  |  | -0.000\*\*\* | -0.000\*\*\* |
|  |  |  | (0.000) | (0.000) |
| Constant | -2.989\*\*\* | -3.018\*\*\* | -829.578\*\*\* | -835.665\*\*\* |
|  | (0.015) | (0.025) | (112.701) | (116.140) |
| Observations | 101854 | 101854 | 80043 | 80043 |

*t* statistics in parentheses \* p<.1, \*\* p<.05, \*\*\* p<.01

**Table A7b. Maritime Claim Militarization, Replicating Daniels and Mitchell (2017).**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Model 1 | Model 2 | Model 3 | Model 4 |
| *Country A* |  |  |  |  |
| Precipitation | 0.086\*\*\* | 0.083\*\*\* | 0.077\*\*\* | 0.075\*\*\* |
|  | (0.026) | (0.026) | (0.028) | (0.028) |
| Precipitation Squared |  | 0.008 |  | 0.000 |
|  |  | (0.018) |  | (0.020) |
| Temperature | -0.047\* | -0.047\* | 0.026 | 0.020 |
|  | (0.026) | (0.027) | (0.032) | (0.032) |
| Temperature Squared |  | -0.005 |  | 0.022 |
|  |  | (0.020) |  | (0.020) |
| *Country B* |  |  |  |  |
| Precipitation | -0.014 | -0.020 | 0.003 | -0.005 |
|  | (0.026) | (0.025) | (0.028) | (0.028) |
| Precipitation Squared |  | 0.023 |  | 0.021 |
|  |  | (0.016) |  | (0.017) |
| Temperature | -0.109\*\*\* | -0.110\*\*\* | -0.042 | -0.044 |
|  | (0.026) | (0.027) | (0.031) | (0.031) |
| Temperature Squared |  | 0.000 |  | 0.004 |
|  |  | (0.018) |  | (0.020) |
| *Controls* |  |  |  |  |
| Democratic Dyad |  |  | -0.879\*\*\* | -0.879\*\*\* |
|  |  |  | (0.115) | (0.115) |
| Mixed Dyad |  |  | 0.197\*\*\* | 0.196\*\*\* |
|  |  |  | (0.071) | (0.071) |
| Relative Energy Production |  |  | -2.299\*\*\* | -2.298\*\*\* |
|  |  |  | (0.206) | (0.206) |
| Major Power in Dyad |  |  | 1.838\*\*\* | 1.836\*\*\* |
|  |  |  | (0.084) | (0.084) |
| Americas |  |  | 0.964\*\*\* | 0.962\*\*\* |
|  |  |  | (0.104) | (0.104) |
| Europe |  |  | 0.506\*\*\* | 0.507\*\*\* |
|  |  |  | (0.094) | (0.094) |
| Asia |  |  | 1.730\*\*\* | 1.730\*\*\* |
|  |  |  | (0.090) | (0.090) |
| Middle East |  |  | 2.145\*\*\* | 2.144\*\*\* |
|  |  |  | (0.126) | (0.126) |
| Year |  |  | 0.632\*\*\* | 0.665\*\*\* |
|  |  |  | (0.171) | (0.179) |
| Year Squared |  |  | -0.000\*\*\* | -0.000\*\*\* |
|  |  |  | (0.000) | (0.000) |
| Constant | -4.204\*\*\* | -4.231\*\*\* | -617.923\*\*\* | -649.962\*\*\* |
|  | (0.026) | (0.044) | (167.256) | (174.359) |
| Observations | 101854 | 101854 | 80043 | 80043 |

*t* statistics in parentheses \* p<.1, \*\* p<.05, \*\*\* p<.01

**Table A8a. Issue Claim Onset Models Combining Climate Deviation and Volatility.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Model 1: Territory | Model 2: River | Model 3: Maritime | Model 4: All |
| *Potential Challenger* |  |  |  |  |
| Precipitation | -0.003 | -0.081 | 0.132 | 0.024 |
|  | (0.143) | (0.216) | (0.142) | (0.102) |
| Precipitation Squared | 0.196\*\* | 0.032 | 0.111\*\* | 0.094\*\* |
|  | (0.076) | (0.113) | (0.053) | (0.047) |
| Precipitation Volatility | -0.000 | -0.247 | 0.035 | -0.055 |
|  | (0.133) | (0.240) | (0.135) | (0.098) |
| Temperature | -0.123 | -0.160 | 0.072 | -0.138 |
|  | (0.200) | (0.320) | (0.191) | (0.117) |
| Temperature Squared | -0.069 | 0.135 | -0.543\*\*\* | -0.135 |
|  | (0.106) | (0.138) | (0.186) | (0.083) |
| Temperature Volatility | 0.151 | 0.142 | 0.368\*\*\* | 0.221\*\* |
|  | (0.133) | (0.255) | (0.141) | (0.100) |
| *Potential Target* |  |  |  |  |
| Precipitation | 0.014 | 0.471\* | -0.352\*\* | -0.129 |
|  | (0.213) | (0.284) | (0.161) | (0.114) |
| Precipitation Squared | -0.306 | -0.375\* | -0.008 | -0.102 |
|  | (0.225) | (0.222) | (0.069) | (0.070) |
| Precipitation Volatility | 0.181 | 0.271 | 0.221 | 0.171\* |
|  | (0.155) | (0.227) | (0.149) | (0.101) |
| Temperature | -0.116 | 0.000 | -0.042 | 0.005 |
|  | (0.200) | (0.304) | (0.154) | (0.110) |
| Temperature Squared | -0.122 | 0.143 | 0.010 | 0.042 |
|  | (0.144) | (0.165) | (0.096) | (0.075) |
| Temperature Volatility | 0.166 | -0.057 | -0.113 | -0.027 |
|  | (0.132) | (0.272) | (0.129) | (0.095) |
| *Controls* |  |  |  |  |
| Relative Capability | -0.624\* | -2.195\*\*\* | 0.812\*\*\* | -0.086 |
|  | (0.356) | (0.716) | (0.306) | (0.217) |
| Democratic Dyad | 0.063 | 1.167\*\*\* | 0.271 | 0.450\*\*\* |
|  | (0.293) | (0.376) | (0.252) | (0.167) |
| Distance | -0.275\*\*\* | -0.505\*\*\* | -0.110\*\*\* | -0.218\*\*\* |
|  | (0.038) | (0.091) | (0.030) | (0.021) |
| Diplomatic Peace Year | -0.025\*\*\* | -0.013 | -0.009\* | -0.014\*\*\* |
|  | (0.007) | (0.008) | (0.005) | (0.003) |
| Constant | -4.751\*\*\* | -5.617\*\*\* | -6.153\*\*\* | -4.574\*\*\* |
|  | (0.307) | (0.529) | (0.322) | (0.209) |
| Observations | 64034 | 64034 | 64034 | 64034 |

**Table A8b. Issue Militarization Models Combining Climate Deviation and Volatility.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Model 1: Territory | Model 2: River | Model 3: Maritime | Model 4: All |
| *Challenger* |  |  |  |  |
| Precipitation | 0.597\*\*\* | 0.814 | 0.100 | 0.315\*\*\* |
|  | (0.151) | (1.038) | (0.140) | (0.093) |
| Precipitation Squared | 0.098\* | 0.398 | 0.046 | 0.065 |
|  | (0.058) | (0.358) | (0.085) | (0.044) |
| Precipitation Volatility | -0.306\*\* | 1.574 | 0.015 | -0.100 |
|  | (0.123) | (1.085) | (0.129) | (0.080) |
| Temperature | 0.282\* | -0.081 | 0.125 | 0.191 |
|  | (0.155) | (0.964) | (0.196) | (0.118) |
| Temperature Squared | -0.009 | 0.280 | -0.022 | -0.006 |
|  | (0.078) | (0.236) | (0.085) | (0.052) |
| Temperature Volatility | 0.195\* | 2.276\*\*\* | 0.190 | 0.219\*\* |
|  | (0.117) | (0.743) | (0.151) | (0.090) |
| *Target* |  |  |  |  |
| Precipitation | -0.343\*\* | -2.979\*\* | 0.002 | -0.189\*\* |
|  | (0.142) | (1.473) | (0.149) | (0.095) |
| Precipitation Squared | -0.019 | 0.050 | -0.039 | -0.018 |
|  | (0.068) | (0.258) | (0.079) | (0.050) |
| Precipitation Volatility | 0.147 | 0.868 | -0.026 | 0.061 |
|  | (0.120) | (0.600) | (0.160) | (0.092) |
| Temperature | -0.089 | 1.013\* | 0.248 | 0.064 |
|  | (0.151) | (0.581) | (0.194) | (0.107) |
| Temperature Squared | 0.002 | 0.676\*\* | -0.004 | 0.027 |
|  | (0.075) | (0.323) | (0.090) | (0.049) |
| Temperature Volatility | 0.094 | -0.919 | 0.068 | 0.063 |
|  | (0.118) | (0.748) | (0.171) | (0.097) |
| *Controls* |  |  |  |  |
| Relative Capability | 0.745\*\*\* | 6.915\*\*\* | 0.094 | 0.498\*\*\* |
|  | (0.256) | (2.632) | (0.341) | (0.188) |
| Democratic Dyad | -0.384 | -2.659 | 0.043 | -0.365\*\* |
|  | (0.304) | (1.633) | (0.250) | (0.181) |
| Distance | -0.136\*\*\* |  | 0.009 | -0.079\*\*\* |
|  | (0.037) |  | (0.033) | (0.022) |
| Mid Peace Year | -0.057\*\*\* | -0.001 | -0.041\*\*\* | -0.048\*\*\* |
|  | (0.013) | (0.049) | (0.013) | (0.009) |
| Constant | -2.587\*\*\* | -13.454\*\*\* | -3.184\*\*\* | -2.773\*\*\* |
|  | (0.237) | (3.157) | (0.364) | (0.185) |
| Observations | 3085 | 420 | 2611 | 6134 |

**Table A9a. Effect of Climate Change and Volatility on Issue Claim Onset with a Recursive Rolling Window**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Model 1: Territory | Model 2:  River | Model 3: Maritime | Model 4:  All | Model 5: Territory | Model 6:  River | Model 7: Maritime | Model 8:  All |
| *Challenger* |  |  |  |  |  |  |  |  |
| Precipitation | 0.102 | -0.052 | 0.018 | 0.034 |  |  |  |  |
|  | (0.150) | (0.203) | (0.110) | (0.085) |  |  |  |  |
| Precipitation Squared | 0.086\*\* | 0.007 | 0.042 | 0.037 |  |  |  |  |
|  | (0.035) | (0.079) | (0.031) | (0.028) |  |  |  |  |
| Temperature | 0.034 | -0.105 | 0.093 | -0.036 |  |  |  |  |
|  | (0.160) | (0.290) | (0.200) | (0.115) |  |  |  |  |
| Temperature Squared | 0.056 | 0.079 | -0.283\*\* | -0.059 |  |  |  |  |
|  | (0.050) | (0.131) | (0.139) | (0.068) |  |  |  |  |
| Precipitation Volatility |  |  |  |  | 0.109 | -0.187 | -0.053 | -0.047 |
|  |  |  |  |  | (0.163) | (0.191) | (0.111) | (0.085) |
| Temperature Volatility |  |  |  |  | 0.172 | 0.241 | 0.248\* | 0.214\*\* |
|  |  |  |  |  | (0.131) | (0.217) | (0.142) | (0.101) |
| *Target* |  |  |  |  |  |  |  |  |
| Precipitation | -0.008 | 1.006\*\*\* | -0.134 | -0.008 |  |  |  |  |
|  | (0.237) | (0.335) | (0.121) | (0.098) |  |  |  |  |
| Precipitation Squared | -0.182 | -0.598\*\* | -0.017 | -0.078 |  |  |  |  |
|  | (0.195) | (0.302) | (0.050) | (0.061) |  |  |  |  |
| Temperature | -0.227 | -0.061 | -0.091 | -0.107 |  |  |  |  |
|  | (0.175) | (0.266) | (0.140) | (0.100) |  |  |  |  |
| Temperature Squared | -0.084 | 0.097 | 0.022 | 0.040 |  |  |  |  |
|  | (0.086) | (0.132) | (0.080) | (0.058) |  |  |  |  |
| Precipitation Volatility |  |  |  |  | 0.028 | 0.368\* | -0.017 | 0.059 |
|  |  |  |  |  | (0.153) | (0.196) | (0.111) | (0.086) |
| Temperature Volatility |  |  |  |  | 0.306\*\* | -0.223 | -0.116 | -0.020 |
|  |  |  |  |  | (0.132) | (0.248) | (0.130) | (0.099) |
| *Controls* |  |  |  |  |  |  |  |  |
| Relative Capability | -1.027\*\* | -2.152\*\*\* | 0.657\*\* | -0.126 | -1.006\*\* | -2.264\*\*\* | 0.729\*\* | -0.094 |
|  | (0.430) | (0.740) | (0.334) | (0.246) | (0.445) | (0.730) | (0.324) | (0.241) |
| Democratic Dyad | -0.027 | 1.137\*\*\* | 0.224 | 0.393\*\* | -0.036 | 1.144\*\*\* | 0.208 | 0.392\*\* |
|  | (0.383) | (0.431) | (0.274) | (0.192) | (0.381) | (0.389) | (0.276) | (0.190) |
| Distance | -0.284\*\*\* | -0.683\*\*\* | -0.070\*\* | -0.203\*\*\* | -0.273\*\*\* | -0.688\*\*\* | -0.072\*\* | -0.204\*\*\* |
|  | (0.045) | (0.146) | (0.033) | (0.024) | (0.048) | (0.145) | (0.034) | (0.024) |
| Diplomatic Peace Year | -0.013\* | -0.017\* | -0.011\*\* | -0.015\*\*\* | -0.013 | -0.017\* | -0.011\*\* | -0.015\*\*\* |
|  | (0.008) | (0.009) | (0.005) | (0.004) | (0.008) | (0.009) | (0.005) | (0.004) |
| Constant | -5.047\*\*\* | -5.129\*\*\* | -6.021\*\*\* | -4.456\*\*\* | -5.374\*\*\* | -5.148\*\*\* | -6.288\*\*\* | -4.601\*\*\* |
|  | (0.424) | (0.539) | (0.372) | (0.253) | (0.361) | (0.436) | (0.352) | (0.229) |
| Observations | 52716 | 52716 | 52716 | 52716 | 52760 | 52760 | 52760 | 52760 |

**Table A9b. Effect of Climate Change and Volatility on Militarization with a Recursive Rolling Window**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Model 1: Territory | Model 2:  River | Model 3: Maritime | Model 4:  All | Model 5: Territory | Model 6:  River | Model 7: Maritime | Model 8:  All |
| *Challenger* |  |  |  |  |  |  |  |  |
| Precipitation | 0.260\*\* | 0.050 | 0.066 | 0.171\*\* |  |  |  |  |
|  | (0.107) | (0.622) | (0.111) | (0.075) |  |  |  |  |
| Precipitation Squared | 0.039 | 0.373\*\* | -0.004 | 0.028 |  |  |  |  |
|  | (0.034) | (0.181) | (0.051) | (0.025) |  |  |  |  |
| Temperature | 0.043 | -1.028 | 0.090 | 0.003 |  |  |  |  |
|  | (0.103) | (0.770) | (0.184) | (0.094) |  |  |  |  |
| Temperature Squared | 0.121\*\*\* | 0.404\*\* | -0.077 | 0.066 |  |  |  |  |
|  | (0.045) | (0.169) | (0.078) | (0.040) |  |  |  |  |
| Precipitation Volatility |  |  |  |  | 0.007 | 0.404 | -0.004 | 0.003 |
|  |  |  |  |  | (0.097) | (0.468) | (0.103) | (0.071) |
| Temperature Volatility |  |  |  |  | 0.049 | 1.301\*\*\* | 0.125 | 0.128 |
|  |  |  |  |  | (0.122) | (0.410) | (0.131) | (0.092) |
| Target |  |  |  |  |  |  |  |  |
| Precipitation | -0.250\*\* | -0.843 | -0.077 | -0.182\*\* |  |  |  |  |
|  | (0.106) | (0.793) | (0.111) | (0.072) |  |  |  |  |
| Precipitation Squared | -0.040 | -0.216 | -0.002 | -0.010 |  |  |  |  |
|  | (0.042) | (0.240) | (0.062) | (0.031) |  |  |  |  |
| Temperature | -0.052 | 2.345\*\*\* | 0.021 | -0.003 |  |  |  |  |
|  | (0.128) | (0.498) | (0.157) | (0.100) |  |  |  |  |
| Temperature Squared | -0.186\*\*\* | -0.525 | 0.076 | -0.030 |  |  |  |  |
|  | (0.070) | (0.336) | (0.060) | (0.046) |  |  |  |  |
| Precipitation Volatility |  |  |  |  | 0.005 | 0.056 | -0.032 | -0.004 |
|  |  |  |  |  | (0.094) | (0.322) | (0.116) | (0.071) |
| Temperature Volatility |  |  |  |  | 0.146 | -0.334 | 0.041 | 0.087 |
|  |  |  |  |  | (0.111) | (0.452) | (0.160) | (0.093) |
| *Controls* |  |  |  |  |  |  |  |  |
| Relative Capability | 0.830\*\*\* | 3.219\* | 0.061 | 0.557\*\*\* | 0.916\*\*\* | 1.922 | 0.062 | 0.536\*\*\* |
|  | (0.277) | (1.882) | (0.330) | (0.198) | (0.280) | (1.481) | (0.333) | (0.200) |
| Democratic Dyad | -0.431 | -0.356 | 0.052 | -0.337\* | -0.491 | 0.312 | 0.097 | -0.302\* |
|  | (0.315) | (1.648) | (0.248) | (0.181) | (0.309) | (1.302) | (0.248) | (0.181) |
| Distance | -0.116\*\*\* |  | -0.011 | -0.070\*\*\* | -0.095\*\* |  | -0.011 | -0.068\*\*\* |
|  | (0.037) |  | (0.033) | (0.022) | (0.038) |  | (0.032) | (0.022) |
| Mid Peace Year | -0.067\*\*\* | 0.014 | -0.046\*\*\* | -0.055\*\*\* | -0.069\*\*\* | 0.021 | -0.046\*\*\* | -0.055\*\*\* |
|  | (0.016) | (0.041) | (0.014) | (0.010) | (0.016) | (0.017) | (0.014) | (0.010) |
| Constant | -2.175\*\*\* | -8.524\*\*\* | -2.849\*\*\* | -2.581\*\*\* | -2.204\*\*\* | -6.870\*\*\* | -2.819\*\*\* | -2.490\*\*\* |
|  | (0.278) | (1.699) | (0.356) | (0.204) | (0.260) | (1.038) | (0.315) | (0.185) |
| Observations | 2454 | 392 | 2422 | 5272 | 2456 | 392 | 2422 | 5274 |

**Table A10a. Effect of Climate Change and Volatility on Issue Claim Onset with a 30-Year Rolling Window**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Model 1: Territory | Model 2: River | Model 3: Maritime | Model 4: All | Model 5: Territory | Model 6: River | Model 7: Maritime | Model 8: All |
| *Challenger* |  |  |  |  |  |  |  |  |
| Precipitation | 0.300 | -0.039 | 0.182 | 0.161 |  |  |  |  |
|  | (0.232) | (0.243) | (0.163) | (0.118) |  |  |  |  |
| Precipitation Squared | -0.007 | 0.001 | -0.015 | -0.020 |  |  |  |  |
|  | (0.069) | (0.083) | (0.053) | (0.040) |  |  |  |  |
| Temperature | 0.802\* | -0.016 | -0.337\* | -0.022 |  |  |  |  |
|  | (0.463) | (0.383) | (0.196) | (0.147) |  |  |  |  |
| Temperature Squared | -0.309 | 0.095 | -0.417\*\* | -0.146 |  |  |  |  |
|  | (0.249) | (0.215) | (0.177) | (0.110) |  |  |  |  |
| Precipitation Volatility |  |  |  |  | 0.096 | -0.423\* | 0.076 | -0.034 |
|  |  |  |  |  | (0.200) | (0.233) | (0.127) | (0.104) |
| Temperature Volatility |  |  |  |  | 0.219 | 0.306 | 0.318\* | 0.271\*\* |
|  |  |  |  |  | (0.185) | (0.261) | (0.185) | (0.134) |
| *Target* |  |  |  |  |  |  |  |  |
| Precipitation | 0.067 | 0.613\*\* | -0.144 | 0.010 |  |  |  |  |
|  | (0.282) | (0.304) | (0.160) | (0.123) |  |  |  |  |
| Precipitation Squared | -0.158 | -0.269 | -0.109 | -0.115 |  |  |  |  |
|  | (0.254) | (0.206) | (0.115) | (0.094) |  |  |  |  |
| Temperature | -0.314 | -0.035 | -0.217 | -0.167 |  |  |  |  |
|  | (0.300) | (0.366) | (0.154) | (0.130) |  |  |  |  |
| Temperature Squared | -0.416\*\* | 0.044 | 0.040 | 0.015 |  |  |  |  |
|  | (0.210) | (0.207) | (0.083) | (0.077) |  |  |  |  |
| Precipitation Volatility |  |  |  |  | -0.177 | 0.399 | 0.008 | 0.013 |
|  |  |  |  |  | (0.226) | (0.244) | (0.122) | (0.105) |
| Temperature Volatility |  |  |  |  | 0.403\*\*\* | -0.373 | -0.134 | -0.065 |
|  |  |  |  |  | (0.148) | (0.232) | (0.170) | (0.127) |
| *Controls* |  |  |  |  |  |  |  |  |
| Relative Capability | -0.891\* | -2.551\*\*\* | 0.893\*\* | 0.023 | -0.928\* | -2.702\*\*\* | 0.964\*\* | 0.040 |
|  | (0.455) | (0.864) | (0.397) | (0.284) | (0.512) | (0.898) | (0.404) | (0.292) |
| Democratic Dyad | -0.813 | 1.094\*\* | 0.024 | 0.174 | -0.773 | 1.170\*\*\* | 0.010 | 0.185 |
|  | (0.542) | (0.463) | (0.317) | (0.226) | (0.559) | (0.424) | (0.324) | (0.227) |
| Distance | -0.206\*\*\* | -0.624\*\*\* | -0.033 | -0.162\*\*\* | -0.196\*\*\* | -0.634\*\*\* | -0.041 | -0.166\*\*\* |
|  | (0.053) | (0.142) | (0.040) | (0.028) | (0.056) | (0.139) | (0.042) | (0.028) |
| Diplomatic Peace Year | -0.013 | -0.027\*\*\* | -0.021\*\*\* | -0.024\*\*\* | -0.012 | -0.028\*\*\* | -0.020\*\*\* | -0.023\*\*\* |
|  | (0.012) | (0.010) | (0.007) | (0.005) | (0.012) | (0.010) | (0.007) | (0.005) |
| Constant | -4.741\*\*\* | -4.364\*\*\* | -5.449\*\*\* | -3.844\*\*\* | -5.429\*\*\* | -4.357\*\*\* | -5.962\*\*\* | -4.154\*\*\* |
|  | (0.637) | (0.638) | (0.513) | (0.335) | (0.574) | (0.567) | (0.476) | (0.314) |
| Observations | 35818 | 35818 | 35818 | 35818 | 35818 | 35818 | 35818 | 35818 |

**Table A10b. Effect of Climate Change and Volatility on Militarization with a 30-Year Rolling Window**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Model 1: Territory | Model 2:  River | Model 3: Maritime | Model 4:  All | Model 5: Territory | Model 6:  River | Model 7: Maritime | Model 8:  All |
| *Challenger* |  |  |  |  |  |  |  |  |
| Precipitation | 0.427\*\*\* | 0.023 | 0.023 | 0.195\*\* |  |  |  |  |
|  | (0.151) | (0.416) | (0.117) | (0.092) |  |  |  |  |
| Precipitation Squared | -0.019 | 0.419\* | -0.009 | 0.004 |  |  |  |  |
|  | (0.044) | (0.227) | (0.064) | (0.032) |  |  |  |  |
| Temperature | 0.159 | -0.336 | -0.030 | 0.038 |  |  |  |  |
|  | (0.189) | (0.686) | (0.187) | (0.125) |  |  |  |  |
| Temperature Squared | 0.042 | 0.157 | -0.135 | -0.013 |  |  |  |  |
|  | (0.079) | (0.233) | (0.100) | (0.064) |  |  |  |  |
| Precipitation Volatility |  |  |  |  | -0.000 | 0.530 | -0.057 | -0.030 |
|  |  |  |  |  | (0.122) | (0.435) | (0.110) | (0.083) |
| Temperature Volatility |  |  |  |  | 0.012 | 1.305\*\*\* | 0.120 | 0.104 |
|  |  |  |  |  | (0.169) | (0.382) | (0.141) | (0.105) |
| *Target* |  |  |  |  |  |  |  |  |
| Precipitation | -0.328\*\* | -0.864\* | -0.064 | -0.214\*\* |  |  |  |  |
|  | (0.130) | (0.494) | (0.126) | (0.084) |  |  |  |  |
| Precipitation Squared | -0.082 | 0.198 | -0.042 | -0.032 |  |  |  |  |
|  | (0.070) | (0.177) | (0.096) | (0.050) |  |  |  |  |
| Temperature | -0.008 | 1.078\* | 0.143 | 0.096 |  |  |  |  |
|  | (0.194) | (0.631) | (0.175) | (0.124) |  |  |  |  |
| Temperature Squared | -0.054 | -0.357 | 0.014 | -0.012 |  |  |  |  |
|  | (0.099) | (0.540) | (0.081) | (0.056) |  |  |  |  |
| Precipitation Volatility |  |  |  |  | -0.033 | -0.235 | -0.006 | -0.018 |
|  |  |  |  |  | (0.124) | (0.340) | (0.123) | (0.084) |
| Temperature Volatility |  |  |  |  | 0.022 | -0.334 | 0.057 | 0.031 |
|  |  |  |  |  | (0.160) | (0.391) | (0.168) | (0.109) |
| *Controls* |  |  |  |  |  |  |  |  |
| Relative Capability | 1.591\*\*\* | 3.341\*\* | -0.017 | 0.415\* | 1.673\*\*\* | 2.170 | -0.035 | 0.381 |
|  | (0.485) | (1.566) | (0.387) | (0.246) | (0.484) | (1.564) | (0.389) | (0.247) |
| Democratic Dyad | -0.441 | -0.030 | 0.116 | -0.300 | -0.457 | 0.217 | 0.184 | -0.231 |
|  | (0.333) | (1.352) | (0.259) | (0.192) | (0.323) | (1.401) | (0.255) | (0.190) |
| Distance | -0.057 |  | -0.025 | -0.066\*\*\* | -0.037 |  | -0.028 | -0.071\*\*\* |
|  | (0.046) |  | (0.033) | (0.024) | (0.046) |  | (0.033) | (0.024) |
| Mid Peace Year | -0.062\*\*\* | -0.005 | -0.046\*\*\* | -0.052\*\*\* | -0.062\*\*\* | 0.011 | -0.046\*\*\* | -0.052\*\*\* |
|  | (0.012) | (0.032) | (0.013) | (0.008) | (0.012) | (0.017) | (0.013) | (0.008) |
| Constant | -2.188\*\*\* | -7.301\*\*\* | -2.389\*\*\* | -2.201\*\*\* | -2.203\*\*\* | -6.322\*\*\* | -2.549\*\*\* | -2.181\*\*\* |
|  | (0.377) | (1.151) | (0.370) | (0.219) | (0.339) | (1.098) | (0.327) | (0.200) |
| Observations | 1541 | 311 | 2027 | 3883 | 1541 | 311 | 2027 | 3883 |