# An Analysis of Surveys Regarding Absentee Ballots Across Several States 

William M. Briggs

November 23, 2020

## 1 Summary

Survey data was collected from individuals in several states, sampling those who the states listed as not returning absentee ballots. The data was provided by Matt Braynard.

The survey asked respondents whether they (a) had ever requested an absentee ballot, and, if so, (b) whether they had in fact returned this ballot. From this sample I produce predictions of the total numbers of: Error \#1, those who were recorded as receiving absentee ballots without requesting them; and Error \#2, those who returned absentee ballots but whose votes went missing (i.e. marked as unreturned).

The sizes of both errors were large in each state. The states were Georgia, Michigan, Wisconsin, and Arizona where ballots were across parties. Pennsylvania data was for Republicans only.

## 2 Analysis Description

Each analysis was carried out separately for each state. The analysis used (a) the number of absentee ballots recorded as unreturned, (b) the total responding to the survey, (c) the total of those saying they did not request a ballot, (d) the total of those saying they did request a ballot, and of these (e) the number saying they returned their ballots. I assume survery respondents are representative and the data is accurate.

From these data a simple parameter-free predictive model was used to calculate the probability of all possible outcomes. Pictures of these probabilities were derived, and the $95 \%$ prediction interval of the relevant numbers was calculated. The pictures appear in the Appendix at the end. They are summarized here with their $95 \%$ prediction intervals.

Error \#1: being recorded as sent an absentee ballot without requesting one.
Error \#2: sending back an absentee ballot and having it recorded as not returned.

| State | Unreturned ballots | Error \#1 | Error \#2 |
| :--- | :---: | :---: | :---: |
| Georgia | 138,029 | $16,938-22,771$ | $31,559-38,866$ |
| Michigan | 139,190 | $29,611-36,529$ | $27,928-34,710$ |
| Pennsylvania* | 165,412 | $32,414-37,444$ | $26,954-31,643$ |
| Wisconsin | 96,771 | $16,316-19,273$ | $13,991-16,757$ |
| Arizona | 518,560 | $208,333-229,937$ | $78,714-94,975$ |

*Number for Pennsylvania represent Republican ballots only.
Ballots that were not requested, and ballots returned and marked as not returned were classed as troublesome. The estimated average number of troublesome ballots for each state were then calculated using the table above and are presented next.

| State | Unreturned ballots | Estimated average <br> troublesome ballots | Percent |
| :--- | :---: | :---: | :---: |
| Georgia | 138,029 | 53,489 | $39 \%$ |
| Michigan | 139,190 | 62,517 | $45 \%$ |
| Pennsylvania* | 165,412 | 61,780 | $37 \%$ |
| Wisconsin | 96,771 | 29,594 | $31 \%$ |
| Arizona | 518,560 | 303,305 | $58 \%$ |
| *Number for Pennsylvania represent Republican ballots only. |  |  |  |

## 3 Conclusion

There are clearly a large number of troublesome ballots in each state investigated. Ballots marked as not returned that were never requested are clearly an error of some kind. The error is not small as a percent of the total recorded unreturned ballots.

Ballots sent back and unrecorded is a separate error. These represent votes that have gone missing, a serious mistake. The number of these missing ballots is also large in each state.

Survey respondents were not asked if they received an unrequested ballot whether they sent these ballots back. This is clearly a lively possibility, and represents a third possible source of error, including the potential of voting twice (once by absentee and once at the polls). No estimates or likelihood can be calculated for this potential error due to absence of data.

## 4 Declaration of William M. Briggs, PhD

1. My name is William M. Briggs. I am over 18 years of age and am competent to testify in this action. All of the facts stated herein are true and based on my personal knowledge.
2. I received a Ph.D of Statistics from Cornell University in 2004.
3. I am currently a statistical consultant. I make this declaration in my personal capacity.
4. I have analyzed data regarding responses to questions relating to mail ballot requests, returns and related issues.
5. I attest to a reasonable degree of professional certainty that the resulting analysis are accurate.

I declare under the penalty of perjury that the foregoing is true and correct.


23 November 2020
William M. Briggs

## 5 Appendix

The probability pictures for each state for each outcome as mentioned above.
Probability of numbers of un-requested absentee ballots listed as
not returned for Georgia



Probability of numbers of un-requested absentee ballots listed as not returned for Michigan


Probability of numbers of absentee ballots returned but listed as not returned for Michigan


Probability of numbers of un-requested absentee ballots listed as not returned for Pennsylvania


Probability of numbers of absentee ballots returned but listed as not returned for Pennsylvania


Probability of numbers of un-requested absentee ballots listed as not returned for Wisconsin


Probability of numbers of absentee ballots returned but listed as not returned for Wisconsin


Probability of numbers of un-requested absentee ballots listed as not returned for Arizona


Probability of numbers of absentee ballots returned but listed as not returned for Arizona

AZ Unreturned Live Agent - Mass Markets

|  | $\begin{aligned} & \infty \\ & \underset{\sim}{\infty} \\ & 0 \\ & \sim \end{aligned}$ | $\begin{aligned} & 0 \\ & \hline \mathbf{N} \\ & \hline \end{aligned}$ | $\begin{aligned} & \infty \\ & \hline \\ & \hline \end{aligned}$ | $\underset{\substack{\text { ָ } \\ \underset{\sim}{2} \\ \hline}}{ }$ |  | or |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | $\left\|\begin{array}{l} \infty_{\infty} \\ \infty \\ \sigma^{\prime} \end{array}\right\|$ | $\stackrel{N}{N}$ | 1 | $\stackrel{N}{\stackrel{N}{2}}$ | $\begin{aligned} & 0 \\ & 0 \\ & 0 \\ & \\ & \end{aligned}$ |  |  |  |  |  |
|  | $\stackrel{9}{\mathbf{n}}$ | $\stackrel{\square}{\square}$ | O | Nop |  | $\stackrel{10}{\sim}$ |  |  |  |  |


| Q1 - May I please speak to <lead <br> on screen>? | Response | 11/15/2020 | $\mathbf{1 1 / 1 6 / 2 0 2 0}$ | 11/17/2020 |  |
| ---: | ---: | :--- | ---: | ---: | ---: |
| 1,812 | $40.05 \%$ | A-Reached Target | 307 | 554 | 951 |
| 335 | $7.40 \%$ | Uncertain | 80 | 124 | 131 |
| 2,377 | $52.54 \%$ | X = Refused | 382 | 854 | 1,141 |
| 0 | $0.00 \%$ |  |  |  |  |
| 4,524 | $\mathbf{1 0 0 . 0 0 \%}$ | Sum of All Responses | $\mathbf{7 6 9}$ | $\mathbf{1 , 5 3 2}$ | $\mathbf{2 , 2 2 3}$ |


| Q2 - Did you request Absentee <br> Ballot in state of AZ? | Response |  |  |  |
| ---: | :--- | ---: | ---: | ---: |
| 1,120 |  | $11 / 15 / 2020$ | $11 / 16 / 2020$ | $11 / 17 / 2020$ |



| Q4 - Can you please give us the <br> best phone number to reach you <br> at? | Response |  |  |  |  |
| :--- | :--- | :--- | ---: | ---: | ---: |
| 678 | $82.48 \%$ | Q5] | $1 / 15 / 2020$ | $11 / 16 / 2020$ | $11 / 17 / 2020$ |
| 144 | $17.52 \%$ | B-Refused [Go to Q5] | 116 | 212 | 350 |


| 0 | $0.00 \%$ |  |  |  |  |
| ---: | ---: | :--- | ---: | ---: | ---: |
| 0 | $0.00 \%$ |  |  |  |  |
| $\mathbf{8 2 2}$ | $\mathbf{1 0 0 . 0 0 \%}$ | Sum of All Responses | 154 | $\mathbf{2 6 2}$ | 406 |


| Q5 - Can you provide us your <br> email address? | Response |  |  |  |  |
| ---: | :--- | :--- | ---: | ---: | ---: |
| 127 | $18.57 \%$ | 01-Yes [Go to Close B] | $11 / 15 / 2020$ | $11 / 16 / 2020$ | $11 / 17 / 2020$ |
| 557 | $81.43 \%$ | 02-No [Go to Close B] | 24 | 36 | 67 |
| 0 | $0.00 \%$ |  | 92 | 176 | 289 |
| 684 | $\mathbf{1 0 0 . 0 0 \%}$ | Sum of All Responses | 116 | $\mathbf{2 1 2}$ | $\mathbf{3 5 6}$ |

AZ Unreturned Live Agent - Mass Markets

|  | $\begin{aligned} & \infty \\ & \underset{\sim}{\infty} \\ & 0 \\ & \sim \end{aligned}$ | $\begin{aligned} & 0 \\ & \hline \mathbf{N} \\ & \hline \end{aligned}$ | $\begin{aligned} & \infty \\ & \hline \\ & \hline \end{aligned}$ | $\underset{\substack{\text { ָ } \\ \underset{\sim}{2} \\ \hline}}{ }$ |  | or |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | $\left\|\begin{array}{l} \infty_{\infty} \\ \infty \\ \sigma^{\prime} \end{array}\right\|$ | $\stackrel{N}{N}$ | 1 | $\stackrel{N}{\stackrel{N}{2}}$ | $\begin{aligned} & 0 \\ & 0 \\ & 0 \\ & \\ & \end{aligned}$ |  |  |  |  |  |
|  | $\stackrel{9}{\mathbf{n}}$ | $\stackrel{\square}{\square}$ | O | Nop |  | $\stackrel{10}{\sim}$ |  |  |  |  |


| Q1 - May I please speak to <lead <br> on screen>? | Response | 11/15/2020 | $\mathbf{1 1 / 1 6 / 2 0 2 0}$ | 11/17/2020 |  |
| ---: | ---: | :--- | ---: | ---: | ---: |
| 1,812 | $40.05 \%$ | A-Reached Target | 307 | 554 | 951 |
| 335 | $7.40 \%$ | Uncertain | 80 | 124 | 131 |
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| 0 | $0.00 \%$ |  |  |  |  |
| 4,524 | $\mathbf{1 0 0 . 0 0 \%}$ | Sum of All Responses | $\mathbf{7 6 9}$ | $\mathbf{1 , 5 3 2}$ | $\mathbf{2 , 2 2 3}$ |


| Q2 - Did you request Absentee <br> Ballot in state of AZ? | Response |  |  |  |
| ---: | :--- | ---: | ---: | ---: |
| 1,120 |  | $11 / 15 / 2020$ | $11 / 16 / 2020$ | $11 / 17 / 2020$ |




| Q4 - Can you please give us the <br> best phone number to reach you <br> at? | Response |  |  |  |  |
| :--- | :--- | :--- | ---: | ---: | ---: |
| 678 | $82.48 \%$ | Q5] | $1 / 15 / 2020$ | $11 / 16 / 2020$ | $11 / 17 / 2020$ |
| 144 | $17.52 \%$ | B-Refused [Go to Q5] | 116 | 212 | 350 |


| 0 | $0.00 \%$ |  |  |  |  |
| ---: | ---: | :--- | ---: | ---: | ---: |
| 0 | $0.00 \%$ |  |  |  |  |
| $\mathbf{8 2 2}$ | $\mathbf{1 0 0 . 0 0 \%}$ | Sum of All Responses | 154 | $\mathbf{2 6 2}$ | 406 |


| Q5 - Can you provide us your <br> email address? | Response |  |  |  |  |
| ---: | :--- | :--- | ---: | ---: | ---: |
| 127 | $18.57 \%$ | 01-Yes [Go to Close B] | $11 / 15 / 2020$ | $11 / 16 / 2020$ | $11 / 17 / 2020$ |
| 557 | $81.43 \%$ | 02-No [Go to Close B] | 24 | 36 | 67 |
| 0 | $0.00 \%$ |  | 92 | 176 | 289 |
| 684 | $\mathbf{1 0 0 . 0 0 \%}$ | Sum of All Responses | 116 | $\mathbf{2 1 2}$ | $\mathbf{3 5 6}$ |

MI Unreturned Live Agent - Mass Markets


| Q1 - May I please speak to <lead on <br> screen>? | Response |  |  |  |  |
| ---: | ---: | :--- | ---: | ---: | ---: |
| 958 | $23.65 \%$ | A-Reached Target | $\mathbf{1 1 / 1 5 / 2 0 2 0}$ | $\mathbf{1 1 / 1 6 / 2 0 2 0}$ | $\mathbf{1 1 / 1 7 / 2 0 2 0}$ |
| 142 | $3.51 \%$ | Uncertain | - | 158 | 800 |
| 2,950 | $72.84 \%$ | X = Refused | - | 57 | 85 |
| 0 | $0.00 \%$ |  | - | 883 | 2,067 |
| 4,050 | $\mathbf{1 0 0 . 0 0 \%}$ | Sum of All Responses | - | $\mathbf{1 , 0 9 8}$ | $\mathbf{2 , 9 5 2}$ |


| Q2 - Did you request Absentee <br> Ballot in state of MI? | Response |  |  |  |
| :--- | :--- | ---: | ---: | ---: |
| 752 | $49.64 \%$ | A-Yes [Go to Q3] | $11 / 15 / 2020$ | $11 / 16 / 2020$ |


| 239 | $15.78 \%$ | B-No [Go to Q4] | - | 39 | 200 |
| ---: | ---: | :--- | ---: | ---: | ---: |
| 50 | $3.30 \%$ | Member) [Go to Q3] |  | 5 | 45 |
| 17 | $1.12 \%$ | Member) [Go to Q4] |  | - | 2 |
| 37 | $2.44 \%$ | E-Unsure [Go to Close A] | - | 4 | 33 |
| 11 | $0.73 \%$ | Moment [Go to Close A] | - | 2 | 9 |
| 409 | $27.00 \%$ | X = Refused |  | - | 63 |
|  |  |  |  |  | 346 |
|  |  |  |  |  |  |
| $\mathbf{1 , 5 1 5}$ | $\mathbf{1 0 0 . 0 0 \%}$ | Sum of All Responses | $\mathbf{2 8 2}$ | $\mathbf{1 , 2 3 3}$ |  |


| Q3 - Did you mail your ballot back? |  | Response | 11/15/2020 | 11/16/2020 | 11/17/2020 |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 232 | 21.28\% | A-Yes [Go to Q4] |  | 41 | 191 |
| 472 | 43.30\% | B-No [Go to Close A] |  | 109 | 363 |
| 10 | 0.92\% | Member) [Go to Q4] |  | 2 | 8 |
| 28 | 2.57\% | Member) [Go to Close A] |  | 2 | 26 |
| 22 | 2.02\% | Close A] |  | 5 | 17 |
| 326 | 29.91\% | X = Refused |  | 60 | 266 |
|  |  |  |  |  |  |
|  |  |  |  |  |  |
| 1,090 | 100.00\% | Sum of All Responses | - | 219 | 871 |

Q4 - Can you please give us the best phone number to reach you at?

246 106

| Q4 - Can you please give us the <br> best phone number to reach you <br> at? | Response |  |  |  |  |
| :--- | :--- | :--- | ---: | ---: | ---: |
| 246 | $69.89 \%$ | to Q5] | $11 / 15 / 2020$ | $11 / 16 / 2020$ | $11 / 17 / 2020$ |
| 106 | $30.11 \%$ | B-Refused [Go to Q5] | -26 | 210 |  |


| 0 | $0.00 \%$ |  |  |  |  |
| ---: | ---: | :--- | :--- | :--- | :--- |
| 0 | $0.00 \%$ |  |  |  |  |
| 352 | $100.00 \%$ | Sum of All Responses | - | 63 | 289 |


| Q5 - Can you provide us your email address? |  | Response | 11/15/2020 | 11/16/2020 | 11/17/2020 |
| :---: | :---: | :---: | :---: | :---: | :---: |
| 18 | 7.26\% | 01-Yes [Go to Close B] |  | 5 | 13 |
| 230 | 92.74\% | 02-No [Go to Close B] |  | 31 | 199 |
| 0 | 0.00\% |  |  |  |  |
| 248 | 100.00\% | Sum of All Responses | - | 36 | 212 |

0270 PA Absentee Live ID Topline


| Q2 - Did you request an <br> absentee ballot? | Response | 9-Nov | 10-Nov | 11-Nov |
| ---: | :--- | ---: | ---: | ---: |
| 1,114 | $43.91 \%$ | 1. Yes. [Go to Go to Q3]. | 331 | 783 |
| 531 | $20.93 \%$ | 2. No. [Go to Q4]. | 131 | 400 |



## Q3 - Did you mail back that

 ballot?

| Q3 - Did you mail back that <br> ballot? | Response | 9-Nov | 10-Nov | 11-Nov |
| ---: | :--- | ---: | ---: | ---: |
| 452 | $39.75 \%$ | 1. Yes. [Go to Go to Q4]. | 90 | 362 |
| 632 | $55.58 \%$ | 2. No [Go to Close A]. | 229 | 403 |
| 11 | $0.97 \%$ | Confirmed "Yes" [Go to Q4] | 1 | 10 |
| 11 | $0.97 \%$ | Confirmed "No" [Go to Close A] | 4 | 7 |
| 15 | $1.32 \%$ | 5. Unsure. [Go to Close A]. | 6 | 9 |
| 2 | $0.18 \%$ | moment. [Go to Close A] | 0 | 2 |
| 14 | $1.23 \%$ | X = Refused <Go to CLOSE A> | 5 | 9 |
| 13 | $1.14 \%$ | Q = Hangup <Go to CLOSE A> | 8 | 5 |
| $\mathbf{1 , 1 3 7}$ | $\mathbf{1 0 0 . 0 0 \%}$ | Sum of All Responses | $\mathbf{3 4 3}$ | $\mathbf{8 0 7}$ |


| 世4-cali you please give us |  |
| :--- | :--- |
| the best phone number to | Response |

ranch van_?

| Q4 - CaIt youplease give us <br> the best phone number to <br> roach vant? | Response | 9-Nov | 10-Nov | 11-Nov |
| ---: | :--- | ---: | ---: | ---: |
| 834 | $87.61 \%$ | 01 = Yes <Go to CLOSE B> | 178 | 656 |
| 118 | $12.39 \%$ | X = Refused <Go to CLOSE A> | 36 | 82 |
| 67 | $7.04 \%$ | Q = Hangup <Go to CLOSE A> | 17 | 50 |
| 952 | $\mathbf{1 0 0 . 0 0 \%}$ | Sum of All Responses | $\mathbf{2 3 1}$ | $\mathbf{7 8 8}$ |

0276 GA Unreturned_Absentee Live ID Topline

|  |  |  | 11/16/2020 | 11/17/2020 |
| :---: | :---: | :---: | :---: | :---: |
| 15179 | Completes |  | 8143 | 7036 |
|  |  |  |  |  |
| 184 | Q5=01 or 02 | status = C | 64 | 120 |
| 13,479 | Answering Machines | status = AM | 7090 | 6389 |
| 1,516 | up/RC | status = R, IR, RC, DC | 989 | 527 |
| 4,902 | Numbers/Language | status = D, BC,WN, NE | 2436 | 2466 |
| 0 | MA | status = MA | 0 | 0 |
|  |  |  |  |  |
| 58.45\% | List Penetration |  |  |  |
|  |  |  |  |  |
| 34,355 | Data Loads |  | 34,355 |  |


| Q1 - May I please speak to <lead on <br> screen>? | Response | 16-Nov | 17-Nov |  |
| ---: | ---: | :--- | ---: | ---: |
| 767 | $65.28 \%$ | 1. Reached Target [Go to Q2]. | 446 | 321 |
| 255 | $21.70 \%$ | [Go to Q2]. | 165 | 90 |
| 153 | $13.02 \%$ | X = Refused <Go to CLOSE A> | 104 | 49 |
| 385 | $32.77 \%$ | Q = Hangup <Go to CLOSE A> | 267 | 118 |
| $\mathbf{1 , 1 7 5}$ | $\mathbf{1 0 0 . 0 0 \%}$ | Sum of All Responses | $\mathbf{9 8 2}$ | $\mathbf{5 7 8}$ |


| Q2 - Did you request an absentee <br> ballot? | Response | 16-Nov | 17-Nov |
| ---: | :--- | ---: | ---: |
| 591 | $61.31 \%$ | 1. Yes. [Go to Go to Q3]. | 343 |
| 128 | $13.28 \%$ | 2. No. [Go to Q4]. | 84 |



| Q3 - Did you mail back that ballot? |  | Response | 16-Nov | 17-Nov |
| ---: | :--- | :--- | ---: | ---: |
| 240 | $38.52 \%$ | 1. Yes. [Go to Go to Q4]. | 149 | 91 |
| 317 | $50.88 \%$ | 2. No. [Go to Close A]. | 174 | 143 |
| 17 | $2.73 \%$ | member confirmed "Yes" [Go to | 10 | 7 |
| 9 | $1.44 \%$ | member confirmed "No" [Go to | Close A] | 4 |
| 24 | $3.85 \%$ | 5. Unsure. [Go to Close A]. | 14 | 10 |
| 11 | $1.77 \%$ | moment. [Go to Close A] | 8 | 3 |
| 5 | $0.80 \%$ | X = Refused <Go to CLOSE A> | 5 | 0 |
| 7 | $1.12 \%$ | Q = Hangup <Go to CLOSE A> | 3 | 4 |
| $\mathbf{6 2 3}$ | $\mathbf{1 0 0 . 0 0 \%}$ | Sum of All Responses | $\mathbf{3 6 7}$ | $\mathbf{2 6 3}$ |

Q4-cantyou please give us me

best phone number to reach you | 313 |  |
| ---: | ---: |
| 49 | 19 |
| 18 |  |

| $100.00 \%$ | Sum of All Responses | 254 | 145 |
| :---: | ---: | ---: | ---: |


| Q5 - May we please have an email <br> address to follow-up as well? | Response | 16-Nov | 17-Nov |  |
| ---: | :--- | :--- | ---: | ---: |
| 99 | $28.86 \%$ | 01 = Yes <Go to CLOSE B> | 64 | 35 |
| 229 | $66.76 \%$ | 02 = No <Go to CLOSE B> | 144 | 85 |
| 15 | $4.37 \%$ | X = Refused <Go to CLOSE A> | 11 | 4 |
| 19 | $5.54 \%$ | Q = Hangup <Go to CLOSE A> | 12 | 7 |
| $\mathbf{3 4 3}$ | $\mathbf{1 0 0 . 0 0 \%}$ | Sum of All Responses | $\mathbf{2 3 1}$ | $\mathbf{1 3 1}$ |

William M. Briggs, PhD<br>Statistician to the Stars!<br>matt@wmbriggs.com<br>917-392-0691

## 1. Experience

(1) 2016: Author of Uncertainty: The Soul of Modeling, Probability \& Statistics, a book which argues for a complete and fundamental change in the philosophy and practice of probability and statistics. Eliminate hypothesis testing and estimation, and move to verifiable predictions. This includes AI and machine learning. Call this The Great Reset, but a good one.
(2) 2004-2016 Adjunct Professor of Statistical Science, Cornell University, Ithaca, New York
I taught a yearly Masters course to people who (rightfully) hate statistics. Interests: philosophy of science \& probability, epistemology, epidemiology (ask me about the all-too-common epidemiologist fallacy), Bayesian statistics, medicine, climatology \& meteorology, goodness of forecasts, overconfidence in science; public understanding of science, limitations of science, scientism; scholastic metaphysics (as it relates to epistemology).
(3) 1998-Present. Statistical consultant, Various companies

Most of my time is spent coaxing people out of their money to tell them they are too sure of themselves. All manner of analyses cheerfully undertaken. Example: Fraud analysis; I created the Wall Street Journal's College Rankings. I consultant regularly at Methodist and other hospitals, start-ups, start-downs, and with any instition willing to fork it over.
(4) 2003-2010. Research Scientist, New York Methodist Hospital, New York
Besides the usual, I sit/sat on the Institutional Review Committee to assess the statistics of proposed research. I was an Associate Editor for Monthly Weather Review (through 2011). Also a member of the American Meteorological Society's Probability and Statistics Committee (through 2011). At a hospital? Yes, sir; at a hospital. It rains there, too, you know.
(5) Fall 2007, Fall 2010 Visiting Professor of Statistics, Department of Mathematics, Central Michigan University, Mt. PleasAnt, MI
Who doesn't love a visit from a statistician? Ask me about the difference between "a degree" and "an education."
(6) 2003-2007, Assistant Professor Statistics, Weill Medical College of Cornell University, New York, New York
Working here gave me a sincere appreciation of the influences of government money; grants galore.
(7) 2002-2003. Gotham Risk Management, New York

A start-up then, after Enron's shenanigans, a start-down. We set future weather derivative and weather insurance contract prices that incorporated information from medium- and long-range weather and climate forecasts.
(8) 1998-2002. DoubleClick, New York

Lead statistician. Lot of computer this and thats; enormous datasets.
(9) 1993-1998. Graduate student, Cornell University

2

Meteorology, applied climatology, and finally statistics. Was Vice Chair of the graduate student government; probably elected thanks to a miracle.
(10) 1992-1993. National Weather Service, Sault Ste. Marie, MI Forecast storms o' the day and launched enormous balloons in the name of Science. My proudest moment came when I was able to convince an ancient IBM-AT machine to talk to an analog, 110 baud, phone-coupled modem, all using BASIC!
(11) 1989-1992. Undergraduate student, Central Michigan UniverSITY
Meteorology and mathematics. Started the local student meteorology group to chase tornadoes. Who knew Michigan had so few? Spent a summer at U Michigan playing with a (science-fiction-sounding) lidar.
(12) 1983-1989. United States Air Force

Cryptography and other secret stuff. Shot things; learned pinochle. I adopted and became proficient with a fascinating and versatile vocabulary. Irritate me for examples. TS/SCI, etc. security clearance (now inactive).

## 2. Education

(1) Ph.D., 2004, Cornell University. Statistics.
(2) M.S., 1995, Cornell University. Atmospheric Science.
(3) B.S., Summa Cum Laude, 1992, Central Michigan University. Meteorology and Math.

## 3. Publications

3.0.1. Popular.
(1) Op-eds in various newspapers; articles in Stream, Crisis Magazine, The Remnant, Quadrant, Quirks; blog with $\sim 70,000$ monthly readers. Various briefs submitted to government agencies, such as California Air Resources Board, Illinois Department of Natural Resources. Talks and holding-forths of all kinds.
3.0.2. Books.
(1) Richards, JW, WM Briggs, and D Axe, 2020. UThe Price of Panic: How the Tyranny of Experts Turned a Pandemic into a Catastrophe. Regnery. Professors Jay Richards, William Briggs, and Douglas Axe take a deep dive into the crucial questions on the minds of millions of Americans during one of the most jarring and unprecedented global events in a generation.
(2) Briggs, WM., 2016. Uncertainty: The Soul of Modeling, Probability $\mathcal{E}$ Statistics. Springer. Philosophy of probability and statistics. A new (old) way to view and to use statistics, a way that doesn't lead to heartbreak and pandemic over-certainty, like current methods do.
(3) Briggs, WM., 2008 Breaking the Law of Averages: Real Life Probability and Statistics in Plain English. Lulu Press, New York. Free text for undergraduates.
(4) Briggs, WM., 2006 So You Think You're Psychic? Lulu Press, New York. Hint: I'll bet you're not.
3.0.3. Methods.
(1) Briggs, WM and J.C. Hanekamp, 2020. Uncertainty In The MAN Data Calibration \& Trend Estimates. Atmospheric Environment, In review.
(2) Briggs, WM and J.C. Hanekamp, 2020. Adjustments to the Ryden \& McNeil Ammonia Flux Model. Soil Use and Management, In review.
(3) Briggs, William M., 2020. Parameter-Centric Analysis Grossly Exaggerates Certainty. In Data Science for Financial Econometrics, V Kreinovich, NN Thach, ND Trung, DV Thanh (eds.), In press.
(4) Briggs, WM, HT Nguyen, D Trafimow, 2019. Don't Test, Decide. In Behavioral Predictive Modeling in Econometrics, Springer, V Kreinovich, S Sriboonchitta (eds.). In press.
(5) Briggs, William M. and HT Nguyen, 2019. Clarifying ASA's view on pvalues in hypothesis testing. Asian Journal of Business and Economics, 03(02), 1-16.
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