

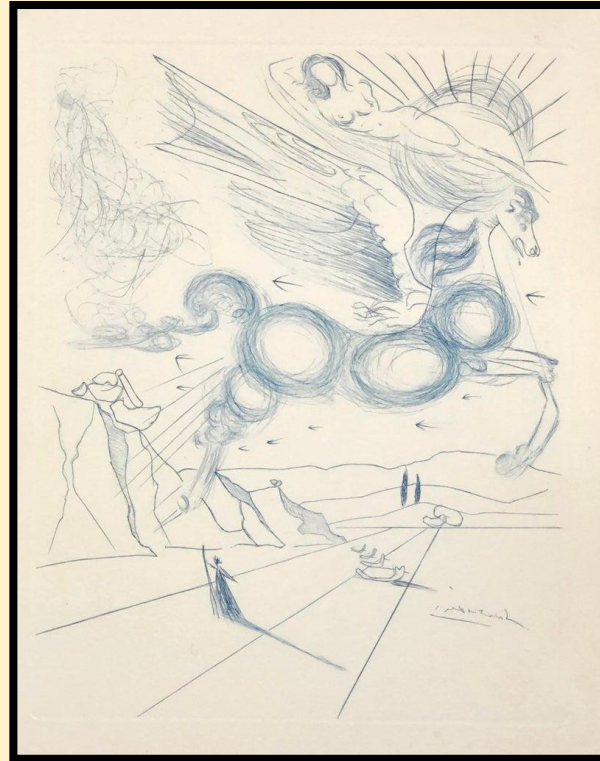
Institute of Mathematical Geography



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## ***Solstice: An Electronic Journal of Geography and Mathematics***

Volume XXXII Number 1  
June 20, 2021

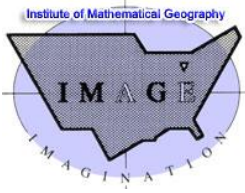


Salvador Dali: "Pegasus in Flight with Angel," 1970.



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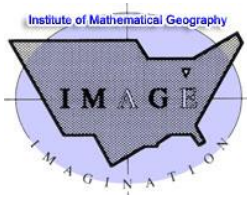
**32 YEARS OF PUBLICATION!**

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Virtual reality of The University of Michigan "Diag", below. Note the observatory dome atop Angell Hall, in the foreground.





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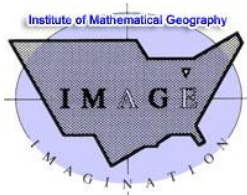
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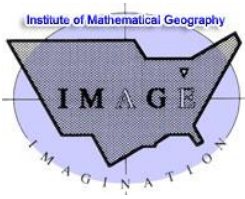
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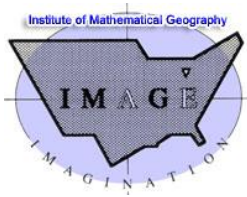
## Frontmatter

*Solstice* was born digital in 1990, before the advent of the Internet. Early volumes were typeset using the digital typesetting language, TeX. The digital files were sent to subscribers via email and the receiver printed out the TeX code, if desired, to produce a typeset-quality journal, on-demand. Selected monographs in the IMaGe Monograph series contain typeset versions of *Solstice*, printed from the code transmitted as the original version of that issue of *Solstice*. Later, when the Internet became available, *Solstice* switched to the Internet as the platform for transmission, writing documents in html rather than TeX.

Early in *Solstice*'s production history, some authors worried that their electronic files could be maliciously altered by random readers and uploaded to replace their own writings. Of course, that could not have happened (because everything was passworded). However, as reassurance to prospective authors not yet familiar with the mechanics of servers and such, early documents were edited to introduce deliberate errors in spacing, inserted by hand, that a random word-processed document would fail to automatically duplicate. Hence, a bogus copy could be detected simply by overlaying a 'new' printout on the 'old' printout on a light table. The hand-insertion of erroneous spaces motivated the oriental rug motif, photographed from a Bokhara rug from the 1964 New York City World's Fair; that symbol is carried forward (although the practice itself is not) in *Solstice* today, as a subtle reminder of one element of the journal's history.

Over the years, *Solstice* has gained media attention from a variety of sectors: from *Science* (AAAS) and *Science News* early on. A bit later with interaction with a museum, the Exploratorium (San Francisco), and the TV show, *Nova*. For all these notices, as well as for those in more conventional academic arenas, our primary thanks go to our contributors, volunteers, and readers who have been with us for so many years. Best wishes to all!





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**Founder and Editor-in-Chief:** Sandra Lach Arlinghaus. Contact for article, note, or comment submission information: [sarhaus@umich.edu](mailto:sarhaus@umich.edu)

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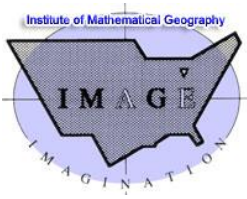
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\*Former (Deceased) Board Members: William D. Drake, Frederick L. Goodman.

**AUTHORS OF ORIGINAL MATERIALS APPEARING IN SOLSTICE, 1990-present:**

Ainslie, V. | Albert, D. | Ard, K. | Arlinghaus, D. E. | Arlinghaus, S. L. | Arlinghaus, W. C. | Arlinghaus, W. E. | Austin, R. F. | Baird, N. D. | Bandyopadhyay, G. | Barmore, F. E. | Barr, D. | Batty, M. | Beal, F. J. | Beier, K.-P. | Bhatia, S. S. | Blake, B. | Borgers, A. W. J. | Burkhalter, B. R. | Chattopadhyay, S. | Chaudhuri, S. | Childers, P. E. | Chirapiwat, T. | Crane, J. | Crawford, T. C. | De la Sierra, R. | Derudder, B. | Dison, A. C. | Drake, W. D. | Eagle, K. A. | Earl, E. | Favro, R. | Frank, A. I. | Gober, C. | Goodman, F. L. | Gorstein, J. | Griffith, D. A. | Haidar, S. | Hall, B. | Hall, D. | Hamilton, R. C. | Han, S.-H. | Harary, F. | Haug, R. | Haynes, D. | Hoffman, L. L. | Hogh, G. | Iyer, S. D. | Jacobs, D. A. | Kaur, K. | Kelbaugh, D. S. | Kerski, J. | Kim, E.-Y. | Koenig, R. | Kos, S. | Kwon, T. | Lach, A. | Larimore, A. E. | Laug, A. | Lazzaro, A. A. | Lee, H. | Licate, J. A. | Lindemann, W. | Maeda, J. | Martin, P. | McCloskey, J. C. | Metzler, D. | Mokray, G. | Moore, K. | Muhilal | Naud, M. | Noguchi, M. | Nystuen, J. A. | Nystuen, J. D. | Onstott, B. | Oppenheim, P. J. | Oswald, K. S. | Pak, S. | Phillips, L. R. | Pogany, T. | Ponce de Leon, J. S. | Pothukuchi, K. | Purvis, E. M. | Ram, B. | Rayle, R. | Robinson, Craig | Rosenblum, A. | Ross, S. | Rushing, D. | Ryznar, R. | Sammataro, D. | Schlossberg, M. | Schumann, L. | Stern, H. L. | Stuckman, P. | Tarwotjo, I. | Tilden, R. | Timmermans, H. J. P. | Tobler, W. R. | Van Acker, V. | Wagner, T. | Wallace, R. | Walton, A. | Ward, M. | Wilson, M. L. | Wilson, S. | Witlox, F. J. A. | Woldenberg, M. J. | Zander, R. H.



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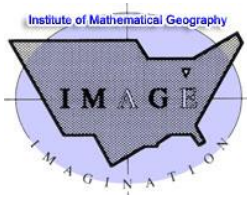
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## **Kerski Receives Prestigious NCGIA Award!**

University Consortium for Geographic Information Science (UCGIS) announced that Dr. Joseph J.

Kerski has been awarded its Lifetime Achievement in GIScience Education Award. [Link to text.](#)

Joseph is a long-time *Solstice* Author and Advisory Board Member. Congratulations to Joseph on a most well-deserved award!



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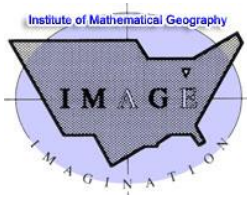
### Update on Activities...

The ongoing pandemic has changed life for everyone. It has, however, been a good time for creating ideas and thinking of ways to spend pent-up energies on projects. A few that are currently waiting in the wings, ready to move forward when in-person communications resume, are mentioned below. For each, there is a set of links and article section heads for material previously published in *Solstice*, as well as 'next steps.'

#### Kudzu Project

- **External reference:**
  - Arlinghaus, S. L.; Arlinghaus, W. E.; and Lindemann, W. "Eating the 'Vine that Ate the South,' Turnabout Is Fair Play." Les Dames d'Escoffier International, *Quarterly*, Spring 2020, p. 28 in the 'Green Tables' section. <http://www.ldei.org/uploads/archives/96.pdf>
- **Previous Work in *Solstice***
  - [2020. Volume XXXI. Number 2](#)
    - Update on Activities...Meridian History Garden Pilot Project—A Garden of UnintendedConsequences.
    - Planning Units: Kudzu Opportunity Zones? (S. Arlinghaus, W. E. Arlinghaus, and W. Lindemann)
      - General Background
      - Idea Background: Kudzu and Carbon
        - Swap Concept
        - The Environmental End of the Swap: Kudzu
      - Steps to Pilot Project Development
        - Scientific Basis
        - References
      - Opportunity Zones: One Rationale for Geographical Boundary Decisions
        - Boundary Criteria and Mapping





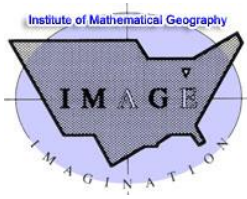
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- Boundary Observations: Usage
  - Kudzu, Carbon Footprint, and Bioplastics (S. Arlinghaus, W. E. Arlinghaus, and W. Lindemann)
- [2020, Volume XXXI. Number 1,](#)
  - Isolation in East Central Mississippi: From Fiction to Non-Fiction. (S. Arlinghaus with input from W. E. Arlinghaus and W. Lindemann, et al.)
    - Fiction. Meridian: A Place without Parallel
    - Non-Fiction. Appendix: Benefit Swaps—Developmental for Environmental Resource Protection
      - Swap Concept
      - The Environmental End of the Swap: Kudzu
      - Implementing Kudzu Removal: Planning Approaches
      - Environmental Impact Issues: City Input
      - Examples
- [2019, Volume XXX. Number 2,](#) Special Issue on Bonus Use.
  - Kudzu Cascades: Bonus Use Leads to Economic Opportunity? (S. Arlinghaus, W. E. Arlinghaus, W. Lindemann).
    - Introduction
    - Kudzu Control: Why Does it Matter?
    - Estimating Future Prospects: Green Is Green, Be it Money or Kudzu
    - Kudzu-Carbon Intervention
      - Kudzu: Supply and Demand
      - Economic Opportunity
- [2018. Volume XXIX. Number 2.](#) Cascade; Observation and Challenge (S. L. Arlinghaus)



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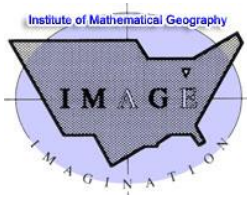
### • Next Steps

- Kemper County Kudzu Plant—approach State to consider the option of re-use for the unused Kemper County Coal Plant (in a remote location) to serve as a magnet for the storage and reuse of kudzu. New opportunity might be created in a variety of contexts.
- Introduce kudzu/economic swaps in municipal arena.
- Continue with the Meridian History Garden Pilot Project

### Project My Heart / Your Heart

#### • Previous Work in *Solstice*

- [2020, Volume XXXI, Number 1](#), Project My Heart / Your Heart: Update on the Mississippi Connection (Notes of W. E. Arlinghaus communicated to S. L. Arlinghaus).
- [2019, Volume XXX, Number 2](#), Special Issue on Bonus Use.
  - Introduction to Special Issue (S. Arlinghaus). Bonus Uses: Here, There, Everywhere
    - Bonus Use: Pacemakers
    - Bonus Use: Category Theory
- [2019, Volume XXX, Number 1](#),
  - Words Matter! (S. L. Arlinghaus; W. E. Arlinghaus; K. A. Eagle; T. C. Crawford; E. M. Purvis; M. Ward; D. Haynes; J. Crane).
    - Overview
    - The Case of Mississippi
- [2018: Volume XXIX, Number 1](#), Project My Heart / Your Heart: Announcing the Mississippi Connection (S. L. Arlinghaus, K. A. Eagle, T. C. Crawford, E. M. Purvis, M. Ward, D. Haynes, J. Crane).
- [2014: Volume XXV, Number 1](#), The Diffusion of a Medical Innovation: Visualization Using Google Earth (Sandra L. Arlinghaus, Thomas C. Crawford, Kim A. Eagle).
- [2014: Volume XXV, Number 1](#). The Diffusion of a Medical Innovation: Visualization Using Google Earth (Sandra L. Arlinghaus, Thomas C. Crawford, Kim A. Eagle).



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- [2014: Volume XXV, Number 2](#). The Diffusion of a Medical Innovation: Part 2. (Sandra L. Arlinghaus, Thomas C. Crawford, Kim A. Eagle)..

- **Next Steps**

- Approach the State of Mississippi to consider including pacemakers in their organ donation mark on driver licenses. This state is of particular importance because it has the lowest use of cremation in the nation. Pacemakers must be removed prior to cremation (lest the crematorium explode). Hence, there is the highest percentage of pacemaker burial possibility in Mississippi; and thus, the greatest potential for waste.
- Once Mississippi agrees to pacemakers (perhaps other non-living embedded medical devices, too), ask for help in communicating this project to encourage other states to follow the lead set by Mississippi.
- Consider the implications, in terms of supply and demand, and legal questions associated with advance directives, in regard to new leadless pacemakers.

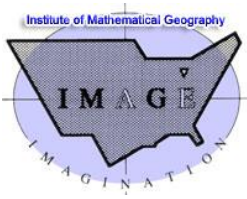
## Senior Education

- **Previous Work**

- IMaGe Monograph #25. Recently, a small group has been interacting about precollegiate education--its merits and drawbacks. The thoughts of some of us are presented in the brand new IMaGe Monograph #25, [Pre-Collegiate Education in Utopia](#).

- **Next Steps** It is not a long conceptual leap to consider similarities and differences in the education of pre-collegiate students and the continuing education of the elderly population. A disproportionately large share of the elderly lack comfort with, and knowledge of, the contemporary technological world.

- State websites for scheduling appointments to receive vaccines against the coronavirus disease causing the current global pandemic, reveal all too well the magnitude of the senior digital divide...a gap that may keep some from obtaining the vaccine they need more than others.



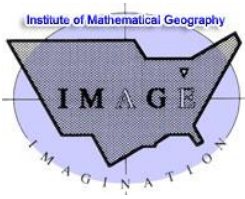
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- So, next steps are to train the well-educated seniors to a level of comfort with technology sufficient so that they are comfortable training others. Focus on using peers, rather than younger people (who may be good with computers but not be sensitive to elder needs), to bring the over 65 population up to speed.
- Create materials, one-pagers in large type, on particular simple skills that seniors may not know but others would assume that they do. For example—“what is a browser?” Or, “what are ‘scroll bars’ and where are they located?” Or, “how do I turn my Windows 10 machine off?”
- Distribute materials, perhaps with State assistance, in hospitals and clinics. Also with assistance from churches and other community groups.
- Create a network of resource people.



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## **Phoenix Meets Pegasus?**

**Kelly Moore contributed a critical idea<sup>1</sup>**

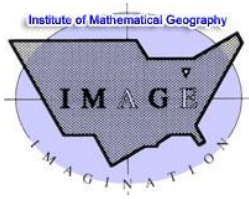
Article conceived of, and written by, Sandra L. Arlinghaus<sup>2</sup>

With added input from: William E. Arlinghaus<sup>3</sup>, Sonya Ross<sup>4</sup>, and Stacy Wilson<sup>5</sup>.

**February 4, 2021**

Saturday morning, February 4, residents of the Front Street Lofts on Front Street in downtown Meridian, Mississippi were rudely awakened to smoke, pollution, and odor from a burning historic building across the street from them. Sonya Ross, Property Manager at the Lofts, notes that tenant Stacy Wilson was among the first to see the fire. According to [Ross](#), "She [Wilson] made the 911 call at 6:57 am. The fire started in the smaller building. By 7:04 it had spread to the Baum building. The building is scheduled to be demo'd as early as tonight and finished by tomorrow. It's a sad day for those of us who loved the promise these beautifully designed buildings offered." Indeed, residents and business owners up and down Front Street, and throughout the City of Meridian, shared Sonya's heartfelt feelings.

Wilson captured the early scene in a few images ([Ross](#) FaceBook page). In Figure 1, we see the flames emanating from the 'small' building as the start of the fire. Figure 2 shows that the fire has spread to the larger red 'Baum' building in the foreground of the picture. Figure 3 reveals the full-blown extent of the fire as both buildings burn; the Meridian Fire Department and Police Department arrived swiftly on the scene. Wilson and Ross, who both lived near the burning buildings remained on the scene; Ross notified Front Street merchants and arranged for the delivery of coffee and a small amount of food to hard working firefighters. Soon afterwards, [WTOK TV](#) in Meridian interviewed Ross and others; reporters flocked to the scene. General Manager of the Brickhaus Brewtique (two blocks away on Front Street), Bill Arlinghaus, arrived from his home several miles away. Other business owners kept watch and offered support.



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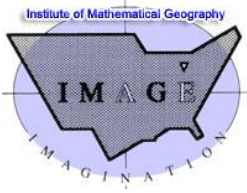
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**Figure 1.** Fire starts in small building. Photo by Stacy Wilson.





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**Figure 2.** Fire/smoke from small and large buildings. Photo by Stacy Wilson.



**Figure 3.** Flames evident in large building. Photo by Stacy Wilson.

Bill focused on documenting, photographically, the efforts to fight the fire. He captured that effort in a few images (Figures 4 and 5) showing use of local fire-fighting equipment from a street-level vantage point. [WTOK](#) showed it from an aerial perspective.

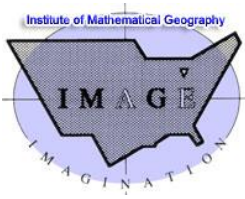


**Figure 4.** A snorkel-style truck pumps water into the building. Photo by W. E. Arlinghaus.





**Figure 5.** Multiple aerial approaches involving water and power lines were employed. Photo by W. E. Arlinghaus.



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Despite valiant approaches by the firefighters, hot spots remained over the course of the next few days. Power, however, was swiftly restored to the Front Street area and business in this corridor was able to resume without too much interference. As of this writing, the future of the burned area remains unclear.

### **Kelly's Idea**

Within the lack of clarity for the future of the burned-out site, Kelly Moore (Chef at the Brickhaus) reflected on the future of Meridian (between hand-made food orders). Surely, he thought, there must be groups thinking about general beautification of the downtown. Indeed, over the past few years, two large new museums have been built: The Mississippi Arts and Entertainment Experience (the "MAX") on Front Street and the very recently opened Children's Museum on 22<sup>nd</sup> Avenue. New street lighting on Front Street, near the Brickhaus and Courtyard, and the MAX, will serve to illuminate this downtown historic district (Figures 6a and 6b). A new Marriott hotel, in the 17-story historic Threefoot Building, will add a needed anchor for downtown business travelers and visitors. Indeed, a compact, efficiently organized central cultural area of historic character is set to spring forth. The missing existing Meridian attraction (not in the downtown) is the Dentzel Carousel, one of two remaining carousels of its type in the nation. The carousel and its historic housing are currently located in Highland Park, a remote location that attracts few visitors to this national-level carousel (Wikipedia, 2020; US National Register, 2017; Charleton, 1985; National Park Service, 1979). So, Kelly thought:

**LET'S MOVE THE HISTORIC CAROUSEL AND HOUSING TO THE LEVELLED SITE OF THE  
BURNED-OUT BUILDINGS!**





**Figure 6a.** New pad for streetlight near the Brickhaus and Courtyard. Photo by W. E. Arlinghaus.



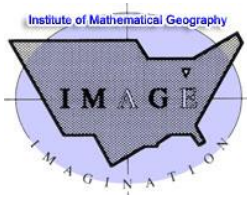


**Figure 6b.** New streetlights to be installed along a block of the Front Street historic district. Photo by W. E. Arlinghaus.



**Figure 7.** Dentzel Carousel inside its specially designed housing. Source: [U.S. National Register of Historic Places on Waymarking](#).





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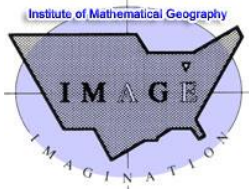
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## **The Dentzel Carousel—Planning Focal Point?**

Kelly communicated his idea to Bill, who then did so to Sandy, and subsequently to others around town from various backgrounds and interest levels. All agreed that Kelly's idea was an outstanding one. Indeed, it is a highly suitable one in terms of location. Consider that the City of Meridian, for years, has been promoting the placement of carousel horses around town as a fund-raiser for local charities. Other cities have employed similar approaches: go to Chicago and see painted cows on the sidewalk; come to Meridian and see custom-painted [carousel horses on the sidewalk](#). In the downtown of Meridian, there are about 15 carousel horses in front of, and supported by, various businesses (Arlinghaus, S. L., Arlinghaus, W.E., Dyson, A. C., and Hamilton, R. C., [2017](#)). Figures 8a and 8b show examples of the over 60 horses scattered around town, around the downtown grouping of 15 horses. One might imagine that a 'good' location for the Dentzel Carousel would be one that is central to the horses that it spawns, offsite. Kelly's proposed location is just such a site. In Figure 8c, the magenta dot indicates the proposed location on the burned-out site; the yellow arrows represent current horse sculpture locations. Note that Highland Park, the current (remote) Carousel site, does not appear in the aerial.



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**Figure 8a.** Carousel horse already on Front Street in downtown Meridian. “Legacy,” 2216 Front Street. Source: [Visit Meridian](http://VisitMeridian.com).





**Figure 8b.** Each carousel horse is unique. "Fair Filly," 821, 22<sup>nd</sup> Avenue. Source: [Visit Meridian](http://VisitMeridian.com).

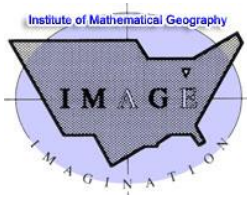


**Figure 8c.** Dentzel Carousel proposed location in magenta; current carousel horse locations yellow arrows. Source: [Sidewalk Carousel Horses](#).

With the Dentzel Carousel moved to the downtown site, it becomes an easy stretch of the imagination to visualize carousel horses flying off the historical Carousel as it spins around, plopping them down in front of various businesses, in much the way the Julie Andrews and Dick Van Dyke spun carousel horses off the spinning Merry-Go-Round ride in the movie the [Sound of Music](#), to help in the charming fox/hounds animated chase!

Further, the transplanted Carousel and housing helps to define a missing edge, to the West, of the downtown historic district. With a western focal point in place, a defined historic planning unit is circumscribed: the Carousel on the west, the MAX and train station on the East, the Threefoot





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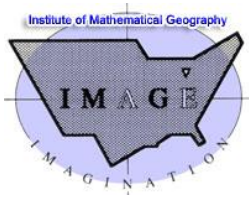
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Building on the north, and the Children's Museum on the south. Local leaders will no doubt voice various versions of such an idea involving extra parks, boulevarded streets, upscale business opportunities, and a whole host of other possible land uses. It seems important, at the outset however, to suggest that circumscribing an entire region, and then filling it in, works better than piecemeal extension with undefined limits—much as one builds the edge pieces and then fills in the interior of a jigsaw puzzle.

### **Phoenix Transformed: Pegasus Rises from the Ashes**

What caused Chef Kelly to move his focus from his kitchen and menu creation/planning to focus on horses and a carousel? Perhaps he did so because he works near the burned-out site. Or, because he lives in the Lofts across the street from them. Then again, Chefs are creative dreamers and one might imagine that Kelly's dream of horses arose from the ashes, in much the way we hear of the Phoenix rising from the ashes....perhaps Salvador Dali's "Pegasus in Flight with Angel" was the Phoenix transformed, that appeared to Kelly in a dream of a cloud over the burning buildings (Figure 9)!



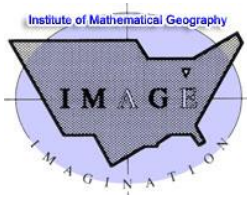
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**Figure 9.** Phoenix meets Pegasus in downtown Meridian, MS?



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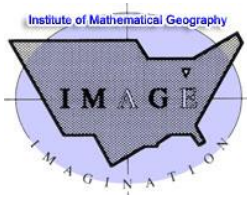
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- WTOK TV, Sky11 view: <https://www.wtok.com/video/2021/02/05/exclusive-sky-footage-front-street-fire/>





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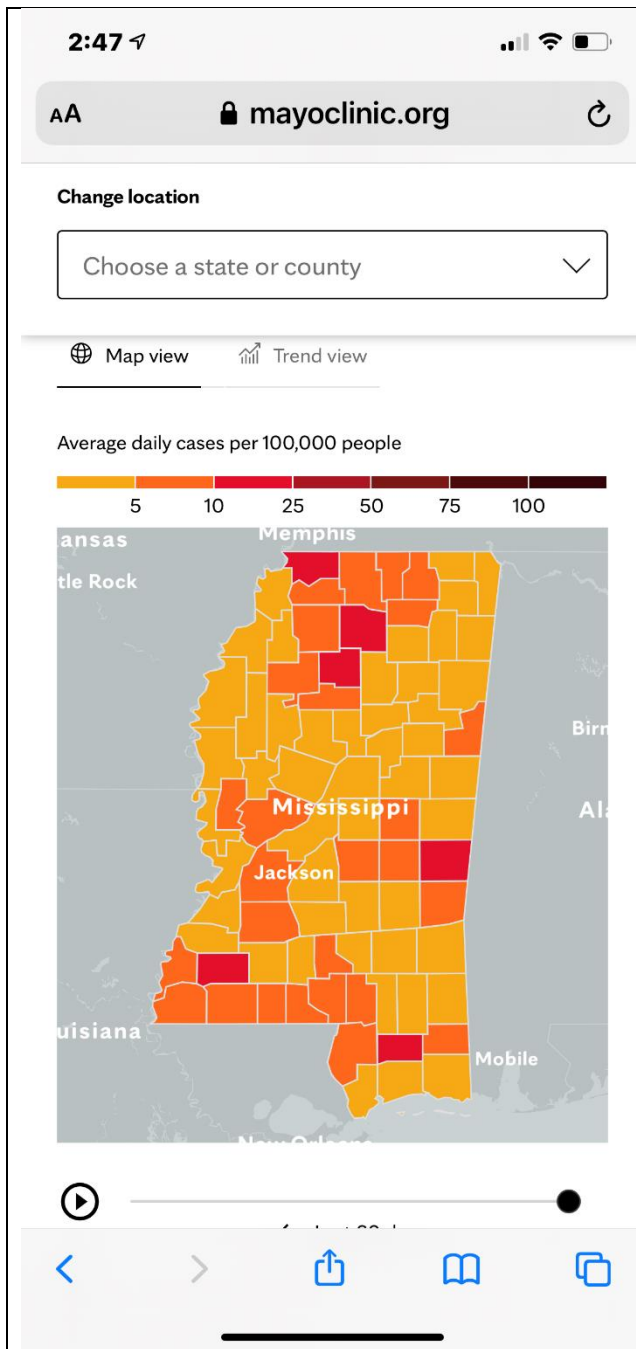
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### About the Authors; Disclosures

1. Kelly Moore is Chef at the Brickhaus Brewtique in downtown Meridian, MS. He is Servsafe Certified. He is a resident of the Front Street Lofts in downtown Meridian, MS. Mr. Moore provided the idea of moving the Dentzel Carousel from its current location to the burned-out parcels downtown—his idea is the central, pivotal idea of this article.
2. Sandra L. Arlinghaus, Ph.D., is Adjunct Professor, School of Environment and Sustainability, and past Adjunct Professor in the Taubman School of Architecture and Urban Planning, The University of Michigan, Ann Arbor. She is former Planning Commissioner (nine years) of the City of Ann Arbor including service as Chair, Vice-Chair, Secretary, and former member (six years) of the Environmental Commission of the City of Ann Arbor. She has a wide range of service on municipal committees including “Ordinance Revisions Committee of Planning Commission” and Northeast Area Master Planning Committee of Planning Commission” both of the City of Ann Arbor. She has received awards for her service to community from the local to the federal levels. She is also co-owner of the Brickhaus Courtyard in downtown Meridian, MS and Past-President, Co-Founder, and Charter Member of the Ann Arbor Chapter of Les Dames d’Escoffier. [Link](#) to home page. Dr. Arlinghaus created the text of this article (as well as the Dali collage), integrating specific input from the group in a broad urban/environmental framework.
3. William E. Arlinghaus, B.A., is General Manager of Brickhaus Brewtique, and co-owner of the adjacent Brickhaus Courtyard in downtown Meridian, MS. He is also a certified Cicerone (‘sommelier’ for craft beer) and an Affiliate Member of the Ann Arbor Chapter of Les Dames d’Escoffier. Mr. Arlinghaus supplied a few photos (as noted) and served as a liaison between Mr. Moore and others, encouraging idea formulation, keeping track of the situation after fire fighters had left (phoning 911 to report hot spots), and generally keeping an eye on several blocks of Front Street.
4. Sonya Ross is Property Manager of the Front Street Lofts in downtown Meridian, MS, and owner of a nearby business, Shear Madness (Hair Salon), on Front Street. She is a professional hair stylist and cosmetologist. Ms. Ross created a FaceBook page with helpful text and images (as cited).
5. Stacy Wilson is a resident of the Front Street Lofts in downtown Meridian, MS. Ms. Wilson shared some fire photos with Ms. Ross (as noted in the text).

## What's Wrong with This Picture?

Sandra L. Arlinghaus

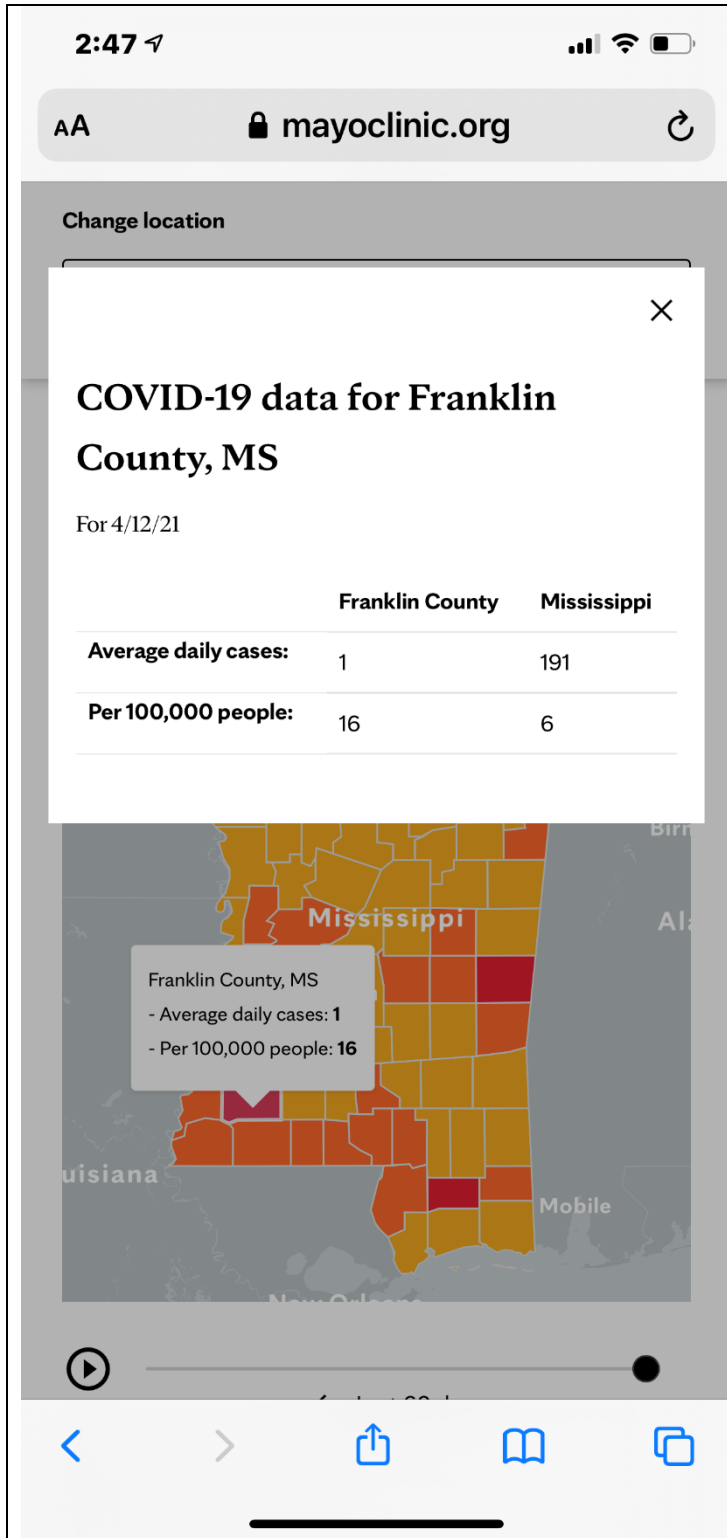


### Introduction

Suppose I am planning a trip by car and wish to stay away, insofar as possible, from counties where the coronavirus disease, Covid-19, is particularly high in relation to other counties in the state. Many fine Internet sites offer data and maps. Often, the data is standardized in some way for purposes of comparison. One value that appears on many sites, including on the useful maps produced by the Mayo Clinic, is 'average number of daily cases per 100,000 population'. A quick look at one of the MayoMaps, shows counties coded by color according to case load (Figure 1). It would appear that I would wish to avoid counties in the darkest color.

**Figure 1.** To the left, the map shows counties in Mississippi colored by numbers of covid-19 cases, average daily cases per 100,000 people. The darker the color, the higher the value.

Notice the counties in the darkest shades of red. The darkest county near the southwest corner of the state is Franklin County. The darkest county at the northwest corner of the state is DeSoto County.



## Franklin County

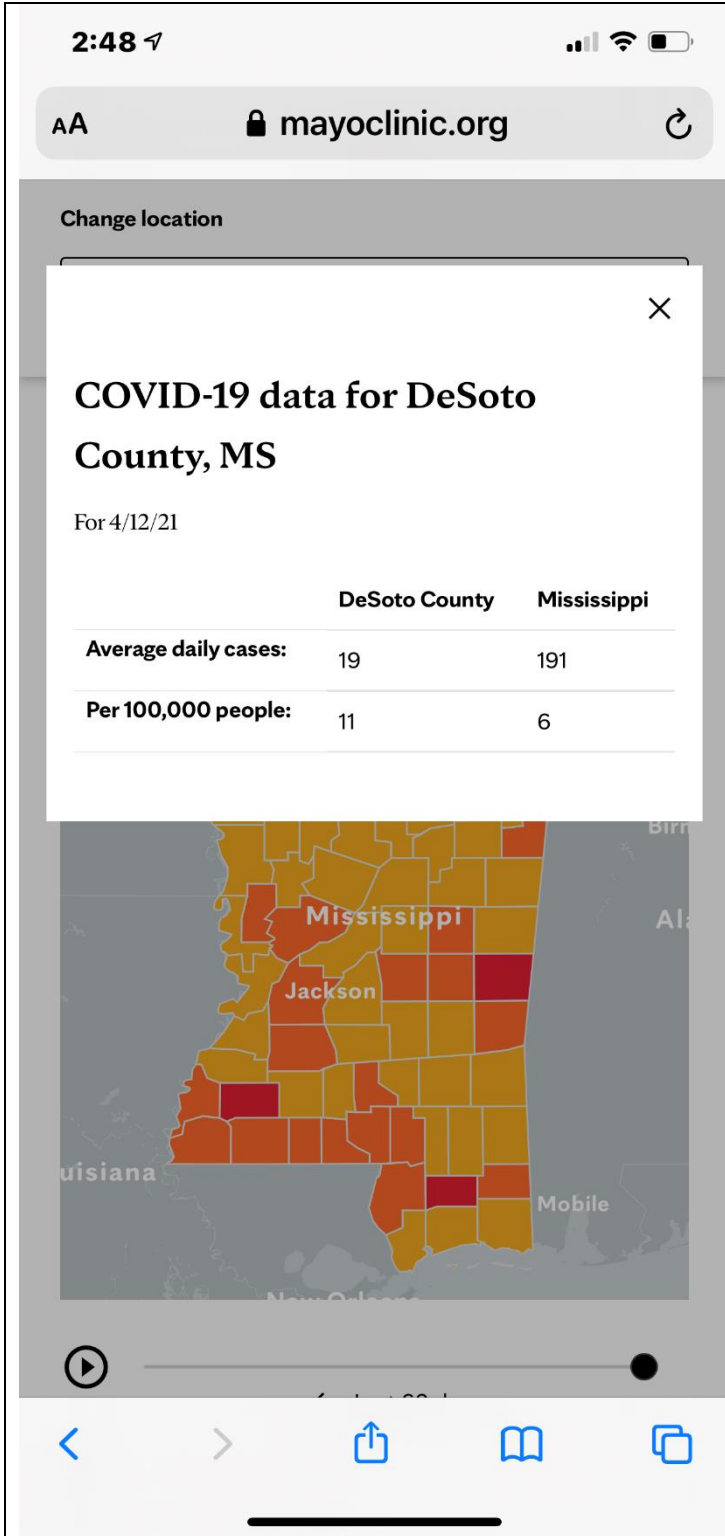
In Franklin County, the number of average daily cases is ONE! Yet, it is ranked as one of the highest in values per 100,000. Certainly, I would not seek to avoid it based on the actual number of cases, but based on the coloring of the map, I might well consider avoidance.

What is happening is simple. The total population of that county is a mere 7,733 people. Does it make sense to talk about a rate per 100,000 people when there are, in fact, nowhere near even one set of 100,000 people, let alone multiples of that?

In order to calculate the rate per hundred thousand, one simply brings the actual population up to 100,000. The actual population value used for Franklin County, on the map, appears to have been about 6,250. Multiply that by 16 to get to 100,000. Then, multiply 1, the actual average number of daily cases, by 16. The value of 16 is only calculated, not actual.

**Figure 2.** Franklin County. Population 7,733 ([source](#) in references, based on US Bureau of Census data).



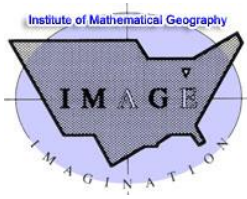


### DeSoto County

In DeSoto County (adjacent to Memphis TN), the number of average daily cases is 19. It is ranked as one of the highest in values per 100,000. I would seek to avoid it based on the actual number of cases and based on the coloring of the map.

Here, the actual total population of that county is 178,975 people. To calculate the rate per hundred thousand, one simply factors the actual population down to 100,000. The actual population value used for Franklin County, on the map, appears to have been about 172,727. So, factor down the actual number of cases from 19. Multiply 19 by 100,000 and divide by 172,727. The result is 11. Note, that the value of 11 is only a calculated value, not an actual one.

**Figure 3.** DeSoto County. Population 178,975 ([source](#) in references, based on US Bureau of Census data).



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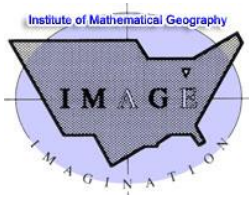
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### Trip Planning

According to the map, Franklin County and DeSoto County are both ranked in the highest group of disease incidence per 100,000 people: Franklin County with a value of 16 and DeSoto County with a value of 11. Yet in actual values, Franklin County is one of the least dangerous with DeSoto County having 19 times more cases than Franklin! The measure of rate per 100,000 population is not useful here; we are comparing apples and oranges, with one value factored up and presenting a number of cases that never existed and the other value factored down reducing the actual problem. Indeed, this measure of incidence (rate per 100,000 people) appears not only totally inappropriate but also quite misleading. Asking questions about the data portrayed on a map is once again a good idea.

### A Better Measure?

If one measure is useless (indeed deceptive), find a better one. Probably what I am really interested in knowing is whether I am likely, by chance, to find myself in a location close to someone who has Covid-19. So, disease density per unit area is likely a better measure for me than disease incidence. The land area of Franklin County is 563.78 square miles. The land area of DeSoto County is 476.15 square miles. Thus, the number of cases per square mile is the actual number of cases in the county divided by the area (in square miles) of the county. In Franklin County, that value is  $1/563.78=0.00177374$ . In DeSoto County, that value is  $19/476.15=0.03990399$ . Disease density is much worse in DeSoto County than in Franklin County, as I clearly know from comparing the average number of daily cases values of 19 (in DeSoto) to 1 in Franklin. In fact, when 0.03990399 is divided by 0.00177374, the value is 22.4967536. So, when land area is taken into account, DeSoto County is in fact more than 22 times more dangerous to me than is Franklin County. Where maps are concerned, as with many other things, "Caveat Emptor"!



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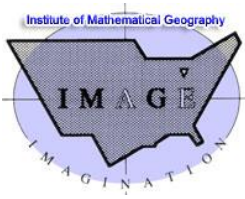
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## References

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- Index Mundi. Mississippi Land area in square miles, 2010 by County. <https://www.indexmundi.com/facts/united-states/quick-facts/mississippi/land-area#map>



## **Magnolias and Mockingbirds: A Twisted Assessment of Danger**

Sandra L. Arlinghaus

With input from William E. Arlinghaus

### **Introduction**

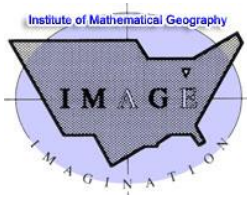
Magnolias, mockingbirds, and missing data may all be found in the State of Mississippi. Two of them are delightful; the third one is not and should be eliminated. It is an old story that one can massage data to suit various needs or interests. The challenge is to detect, and hopefully correct, error. A simple case occurred in Meridian MS in 2019 when [USA Today](#) published (May 1, 2019) an article (entitled “Travelers, beware: These are the most dangerous cities in every state”) based on previous work by Stebbins and Sauter (April 25, 2019) in [24/7 Wall Street](#). Both documents assert that, on data in the 2017 [Uniform Crime Reports](#) published by the FBI, Meridian was the most dangerous city in Mississippi. Even a brief reading of the article is, in my view, likely to cause a reader with experience in many American cities to wonder how the rankings were calculated—as considered in subsequent sections below.

William E. Arlinghaus (“Bill”) owns a leading local bar and restaurant and keeps his finger on the pulse of the community. He found that many were panicked by this assertion, about a town they might otherwise have viewed as a bit bucolic generally, with some crime in specific neighborhoods. I remember seeing the article and saying, as did a number of others, ‘well that doesn’t make any sense’ and assuming that in a matter of a few weeks the article would be long gone in the trash. However, the assertion persisted and indeed persists to this day.

On May 3, 2019, the local Meridian ABC television affiliate, WTOK, picked up on this situation and sent reporter Brianna Bynum [to interview](#) citizens who reflected either view—belief that there was danger lurking all around, or that this whole issue was way overblown. Bynum took care also to interview Police Chief Benny DuBose:

"USA Today can say whatever they choose; it sells papers. But the facts are here," Dubose said.





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The data [24/7 Wall Street](#) used to determine Meridian is the most dangerous is from a 2017 Uniform Crime Report. However, all cities in Mississippi aren't included in the analysis, one of them being the state's capital of Jackson. Chief Dubose considers this a major error.

Meridian was actually considered one of the safest cities in the state just two years ago. Chief Dubose says according to the FBI's Uniform Crime Report, Meridian's violent crimes have declined every year since 2013.

"I will put those numbers up against any other city in the state," Dubose said.

Although the chief says Meridian can do better to be a safer city, he says it is improving.

Let's go back and look at the primary source material, in the style of good academic tradition, rather than relying on secondary information when primary source material is readily available.

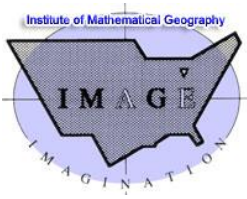
### Error Detection

Stebbins and Sauter noted that "Mississippi has a relatively low violent crime rate." Indeed, as time has passed since the original appearance of their article and the derivative one in *USA Today*, local Meridianites have been heard to blow this material out of proportion, even asserting that Meridian is more dangerous than 93% of all US cities. That hardly seems likely, even if Meridian is the most dangerous city in this State that has a "relatively low violent crime rate." But is Meridian the most dangerous city in Mississippi? Let's begin by reconstructing the analysis that appeared in 2019, based on 2017 FBI data.

The article in *USA Today* states, in introducing its rankings of worst city in each state:

[24/7 Wall St.](#) reviewed violent crime rates in the nearly 2,000 cities and towns tracked by the FBI's 2017 Uniform Crime Report to identify the most dangerous city in each state. They examined each state's figures for murder, nonnegligent manslaughter, rape, robbery and aggravated assault -- offenses that comprise the violent crime category -- and also reviewed figures for burglaries, larceny, motor vehicle thefts and arson -- all classified as property crimes. Only cities with populations of at least 20,000 were considered.

There is no clue as to how the FBI data set was analyzed...simply that one set of variables was 'examined' and another was 'reviewed'. They say they used 2017 Uniform Crime Report data. Two



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values they seem to find of interest are: 2017 Violent Crimes per 100,000 people and Number of Violent Crimes in 2017. [Table 8](#) of the FBI Uniform Crime Report for 2017 has a column that shows Total Violent Crime. Figure 1 presents screen captures directly from the FBI site: primary source material.

**FBI: UCR**

Home • Crime in the U.S. • 2017 • Crime in the U.S. 2017 • Tables • Table 8 • Table 8 State Cuts • Mississippi

# 2017 CRIME in the UNITED STATES

Criminal Justice Information Services Division      Feedback | Contact Us | Data Quality Guidelines | UCR Home

Home | Offenses Known to Law Enforcement | **Violent Crime** | Property Crime | Clearances | Persons Arrested | Police Employee Data

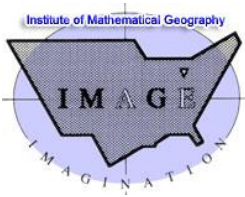
### Table 8

**MISSISSIPPI**  
Offenses Known to Law Enforcement  
by City, 2017

Data Declaration    Download Excel    Table 8 State Listing

State	Population	Violent crime	Murder and nonnegligent manslaughter	Rape <sup>1</sup>	Robbery	Aggravated assault	Property crime	Burglary	Larceny-theft	Motor vehicle theft	Arson
Ackerman <sup>2</sup>	1,458		0		0	4	44	17	26	1	0
Batesville	7,380	30	1		0	20	9	305	53	241	11
Biloxi	46,263	178	1	39	74	64	2,963	871	1,933	159	7
Brandon	24,125	27	0	1	3	23	224	18	189	17	0
Brookhaven	12,334	67	1	2	10	54	342	147	170	25	2
Byram	11,549	18	0	4	7	7	238	25	203	10	0
Clinton <sup>2</sup>	25,202		0		15	63	493	71	406	16	0
D'Iberville	11,852	10	0	4	3	3	907	46	835	26	0
Edwards <sup>2</sup>	1,001		0		1	22	22	13	9	0	0
Florence <sup>2</sup>	4,438		0		0	1	20	6	13	1	0
Flowood	9,032	12	0	1	4	7	339	49	286	4	0





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**FBI: UCR**

Vicksburg <sup>2</sup>	22,772		5		18	97	1,362	231	1,079	52	8
Waveland <sup>2</sup>	6,426		0		1	0	348	33	302	13	0
West Point	10,817	49	0	3	15	31	276	108	167	1	5
Wiggins <sup>2</sup>	4,567		0		4	10	257	57	192	8	0

<sup>1</sup> The figures shown in this column for the offense of rape were reported using only the revised Uniform Crime Reporting (UCR) definition of rape. See the data declaration for further explanation.  
<sup>2</sup> This agency/state submits rape data classified according to the legacy UCR definition; therefore the rape offense and violent crime total, which rape is a part of, is not included in this table. See the data declaration for further explanation.

**Data Declaration**  
Provides the methodology used in constructing this table and other pertinent information about this table.

**Publications**  
Crime in the United States  
Law Enforcement Officers Killed and Assaulted (LEOKA)  
Hate Crime Statistics  
National Incident-Based Reporting System (NIBRS)  
Cargo Theft 2014 (pdf)  
Cargo Theft 2013 (pdf)  
Human Trafficking (pdf)

**General Resources**  
A Word About UCR Data  
UCR Statistics, Their Proper Use (pdf)  
Data Quality Guidelines  
UCR Program—Summary of Authorities  
UCR Program Quarterly  
State Program Bulletins and Newsletters  
UCR Program Contacts  
State UCR Program Contacts  
UCR Quality Assurance Review  
Related Sites

**Data Collections**  
National Incident-Based Reporting System (NIBRS)  
Summary Reporting System (SRS)  
Law Enforcement Officers Killed and Assaulted (LEOKA)  
Hate Crime Statistics  
Cargo Theft

**Documentation**  
Technical Specifications  
User Manuals

**More**  
Overview  
NIBRS Overview

Accessibility | eRulemaking | Freedom of Information/Privacy Act | Legal Notices | Legal Policies and Disclaimers | Links | Privacy Policy | USA.gov | White House | No FEAR Act  
FBI.gov is an official site of the U.S. government, U.S. Department of Justice

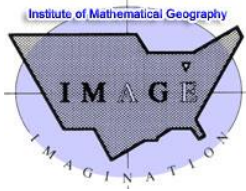
**Figure 1.** Three screen-shots of data directly from the FBI site. Run your eye down the column on Violent Crime.

The FBI site also permits the download of data as an Excel spreadsheet. That download is shown in Figure 2. The interested reader can compare the download (Figure 2) with the original (Figure 1) to make sure no data have been altered. Notice that there are apparently two different measures that might have been used for ‘rape’. Only one of those was included in Table 8 so that cities not reporting in the format for this table have no entries for ‘rape’ and no entries for the associated column ‘Violent Crime’ whose entries are summed across all types of violent crimes.

### **Replication of Results**

The next step in attempting to replicate the *USA Today*, and earlier, analysis is to consider, as they did, only cities with population greater than 20,000. Figure 3 shows FBI Table 8 with only cities of 20,000 remaining.





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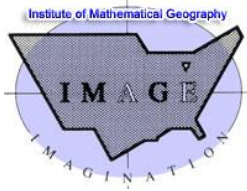
Institute of Mathematical Geography ([imagenet.org](http://imagenet.org)) and the authors.

<b>MISSISSIPPI</b>												
<b>Offenses Known to Law Enforcement</b>												
<b>by City, 2017</b>												
State	Population	Violent crime	Murder and nonnegligent manslaughter	Rape <sup>1</sup>	Robbery	Aggravated assault	Property crime	Burglary	Larceny-theft	Motor vehicle theft	Arson	
Ackerman <sup>2</sup>	1,458		0		0	4	44	17	26	1	0	
Batesville	7,380	30	1	0	20	9	305	53	241	11	0	
Biloxi	46,263	178	1	39	74	64	2,963	871	1,933	159	7	
Brandon	24,125	27	0	1	3	23	224	18	189	17	0	
Brookhaven	12,334	67	1	2	10	54	342	147	170	25	2	
Byram	11,549	18	0	4	7	7	238	25	203	10	0	
Clinton <sup>2</sup>	25,202		0		15	63	493	71	406	16	0	
D'Iberville	11,852	10	0	4	3	3	907	46	835	26	0	
Edwards <sup>2</sup>	1,001		0		1	22	22	13	9	0	0	
Florence <sup>2</sup>	4,438		0		0	1	20	6	13	1	0	
Flowood	9,032	12	0	1	4	7	339	49	286	4	0	
Fulton <sup>2</sup>	4,085		0		1	2	215	23	191	1	0	
Gautier	18,451	64	2	6	8	48	721	193	458	70	4	
Greenwood	14,146	84	0	5	23	56	830	197	614	19	2	
Gulfport	72,792	299	10	26	82	181	3,662	562	2,897	203	16	
Hattiesburg	47,116	130	3	9	43	75	2,113	347	1,645	121	3	
Holly Springs <sup>2</sup>	7,682		5		17	78	259	63	176	20	0	
Horn Lake	27,199	32	1	0	20	11	703	129	532	42	1	
Iuka <sup>2</sup>	2,983		0		0	0	104	24	67	13	2	
Jackson <sup>2</sup>	168,397		60		542	591	7,449	2,006	4,696	747	75	
Laurel	18,790	84	2	10	30	42	915	297	562	56	0	
Madison	26,339	11	0	1	1	9	251	13	231	7	0	
McComb <sup>2</sup>	12,812		1		15	89	833	321	492	20	0	
Meridian	38,778	194	9	18	89	78	1,502	435	975	92	10	
Ocean Springs	17,698	32	2	3	10	17	671	83	542	46	0	
Oxford	24,071	36	0	10	11	15	664	85	567	12	0	
Pascagoula	21,928	72	0	25	22	25	1,450	246	1,135	69	4	
Pass Christian	5,902	5	0	0	3	2	157	45	110	2	0	
Petal <sup>2</sup>	10,743		0		2	1	90	37	41	12	0	
Ridgeland	24,551	59	0	2	20	37	633	53	564	16	0	
Southaven	53,928	75	5	8	26	36	1,479	196	1,219	64	5	
Starkville	25,852	41	1	2	11	27	922	455	440	27	1	
Summit <sup>2</sup>	1,642		0		0	0	33	14	17	2	0	
Vicksburg <sup>2</sup>	22,772		5		18	97	1,362	231	1,079	52	8	
Waveland <sup>2</sup>	6,426		0		1	0	348	33	302	13	0	
West Point	10,817	49	0	3	15	31	276	108	167	1	5	
Wiggins <sup>2</sup>	4,567		0		4	10	257	57	192	8	0	

<sup>1</sup> The figures shown in this column for the offense of rape were reported using only the revised Uniform Crime Reporting (UCR) definition of rape. See the data declaration for further explanation.

<sup>2</sup> This agency/state submits rape data classified according to the legacy UCR definition; therefore the rape offense and violent crime total, which rape is a part of, is not included in this table. See the data declaration for further explanation.

**Figure 2.** Direct Download, from FBI site, of Figure 1.



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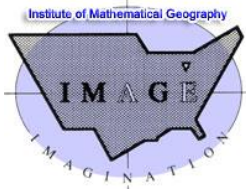
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<b>MISSISSIPPI</b>											
<b>Offenses Known to Law Enforcement</b>											
<b>by City, 2017</b>											
State of Mississippi Cities	Population	Violent crime	Murder and nonnegligent manslaughter	Rape <sup>1</sup>	Robbery	Aggravated assault	Property crime	Burglary	Larceny-theft	Motor vehicle theft	Arson
Jackson <sup>2</sup>	168,397		60		542	591	7,449	2,006	4,696	747	75
Gulfport	72,792	299	10	26	82	181	3,662	562	2,897	203	16
Southaven	53,928	75	5	8	26	36	1,479	196	1,219	64	5
Hattiesburg	47,116	130	3	9	43	75	2,113	347	1,645	121	3
Biloxi	46,263	178	1	39	74	64	2,963	871	1,933	159	7
Meridian	38,778	194	9	18	89	78	1,502	435	975	92	10
Horn Lake	27,199	32	1	0	20	11	703	129	532	42	1
Madison	26,339	11	0	1	1	9	251	13	231	7	0
Starkville	25,852	41	1	2	11	27	922	455	440	27	1
Clinton <sup>2</sup>	25,202		0		15	63	493	71	406	16	0
Ridgeland	24,551	59	0	2	20	37	633	53	564	16	0
Brandon	24,125	27	0	1	3	23	224	18	189	17	0
Oxford	24,071	36	0	10	11	15	664	85	567	12	0
Vicksburg <sup>2</sup>	22,772		5		18	97	1,362	231	1,079	52	8
Pascagoula	21,928	72	0	25	22	25	1,450	246	1,135	69	4

**Figure 3.** Figure 2 table with only cities of population over 20,000 remaining. Content arranged in order of population size, largest to smallest.

The Violent Crime column shows that 194 violent crimes were committed in Meridian in 2017, the number that appears in the *USA Today* (and earlier) article. However, the city of Gulfport shows a total of 299 for Violent Crime in 2017. On the basis of that column, alone, Meridian is not the most dangerous city in the State. The population of Gulfport is larger than that of Meridian so perhaps it is not surprising that it has more violent crimes than Meridian. What might raise a flag, however, is that Southaven, Hattiesburg, and Biloxi all have populations larger than Meridian but have fewer violent crimes. One might therefore consider normalizing the data in some way.

The *USA Today* article noted “**Number of violent crimes in 2017:** 194 (2.3% of state total).” It is not clear what the phrase ‘state total’ means. Does it mean all crimes? If so, then Figure 4a shows values calculated by taking the entry for each city and dividing the entry in the Violent Crime column by the sum (in parentheses) of the Totals for Violent Crimes and Property Crimes and multiplying the result by 100. The added column % of Violent Crimes shows the results. Meridian ranks third.



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**Table 8**

**MISSISSIPPI**

**Offenses Known to Law Enforcement**

by City, 2017

State of Mississippi Cities	Population	Violent crime	Murder and nonnegligent manslaughter	Rape <sup>1</sup>	Robbery	Aggravated assault	Property crime	Burglary	Larceny-theft	Motor vehicle theft	Arson	% Violent Crime
Jackson <sup>2</sup>	168,397		60		542	591	7,449	2,006	4,696	747	75	
Gulfport	72,792	299	10	26	82	181	3,662	562	2,897	203	16	1.68736
Southaven	53,928	75	5	8	26	36	1,479	196	1,219	64	5	0.42325
Hattiesburg	47,116	130	3	9	43	75	2,113	347	1,645	121	3	0.73363
Biloxi	46,263	178	1	39	74	64	2,963	871	1,933	159	7	1.00451
Meridian	38,778	194	9	18	89	78	1,502	435	975	92	10	1.09481
Horn Lake	27,199	32	1	0	20	11	703	129	532	42	1	0.18059
Madison	26,339	11	0	1	1	9	251	13	231	7	0	0.06208
Starkville	25,852	41	1	2	11	27	922	455	440	27	1	0.23138
Clinton <sup>2</sup>	25,202		0		15	63	493	71	406	16	0	
Ridgeland	24,551	59	0	2	20	37	633	53	564	16	0	0.33296
Brandon	24,125	27	0	1	3	23	224	18	189	17	0	0.15237
Oxford	24,071	36	0	10	11	15	664	85	567	12	0	0.20316
Vicksburg <sup>2</sup>	22,772		5		18	97	1,362	231	1,079	52	8	
Pascagoula	21,928	72	0	25	22	25	1,450	246	1,135	69	4	0.40632
Totals		1,154					16,566					

**Figure 4a.** Figure 3 with added column showing % Violent Crime of State Total Crime (all types).

**Table 8**

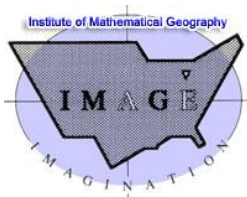
**MISSISSIPPI**

**Offenses Known to Law Enforcement**

by City, 2017

State of Mississippi Cities	Population	Violent crime	Murder and nonnegligent manslaughter	Rape <sup>1</sup>	Robbery	Aggravated assault	Property crime	Burglary	Larceny-theft	Motor vehicle theft	Arson	% Violent Crime
Jackson <sup>2</sup>	168,397		60		542	591	7,449	2,006	4,696	747	75	
Gulfport	72,792	299	10	26	82	181	3,662	562	2,897	203	16	25.9099
Southaven	53,928	75	5	8	26	36	1,479	196	1,219	64	5	6.49913
Hattiesburg	47,116	130	3	9	43	75	2,113	347	1,645	121	3	11.2652
Biloxi	46,263	178	1	39	74	64	2,963	871	1,933	159	7	15.4246
Meridian	38,778	194	9	18	89	78	1,502	435	975	92	10	16.8111
Horn Lake	27,199	32	1	0	20	11	703	129	532	42	1	2.77296
Madison	26,339	11	0	1	1	9	251	13	231	7	0	0.95321
Starkville	25,852	41	1	2	11	27	922	455	440	27	1	3.55286
Clinton <sup>2</sup>	25,202		0		15	63	493	71	406	16	0	
Ridgeland	24,551	59	0	2	20	37	633	53	564	16	0	5.11265
Brandon	24,125	27	0	1	3	23	224	18	189	17	0	2.33969
Oxford	24,071	36	0	10	11	15	664	85	567	12	0	3.11958
Vicksburg <sup>2</sup>	22,772		5		18	97	1,362	231	1,079	52	8	
Pascagoula	21,928	72	0	25	22	25	1,450	246	1,135	69	4	6.23917
Totals		1,154					16,566					

**Figure 4b.** Figure 3 with added column showing % Violent Crime of State Total Violent Crime.



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Or, does that phrase mean the percent violent crimes out of total violent crimes? If so, then Figure 4b shows values calculated by taking each entry for each city and dividing the entry in the Violent Crime column by the Total for Violent Crimes and multiplying the result by 100. The added column % of Violent Crimes shows the results. Meridian ranks second.

Neither value derived for Meridian matches the value of 2.3 derived in the *USA Today* (and earlier) article but there is no indication as to how that value was derived. So, two interpretations of the phrase '2.3% of state total' yield two different results on either side of 2.3. And in neither case is the value associated with Meridian the highest one.

A value that I might have chosen to calculate with this data set, but which is not a percentage of any state total, is to determine what percentage of all crime in a city is violent crime. Figure 4c shows the results of doing so, and in that case, Meridian does come out ranked number 1; a larger percentage of its crimes of all types are 'violent'.

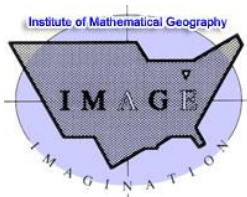
**Table 8**

**MISSISSIPPI**  
**Offenses Known to Law Enforcement**  
by City, 2017

State of Mississippi Cities	Population	Violent crime	Murder and nonnegligent manslaughter	Rape <sup>1</sup>	Robbery	Aggravated assault	Property crime	Burglary	Larceny-theft	Motor vehicle theft	Arson	% Violent Crime
Jackson <sup>2</sup>	168,397		60		542	591	7,449	2,006	4,696	747	75	
Gulfport	72,792	299	10	26	82	181	3,662	562	2,897	203	16	7.51823
Southaven	53,928	75	5	8	26	36	1,479	196	1,219	64	5	4.81078
Hattiesburg	47,116	130	3	9	43	75	2,113	347	1,645	121	3	5.78807
Biloxi	46,263	178	1	39	74	64	2,963	871	1,933	159	7	5.65438
Meridian	38,778	194	9	18	89	78	1,502	435	975	92	10	11.3716
Horn Lake	27,199	32	1	0	20	11	703	129	532	42	1	4.34783
Madison	26,339	11	0	1	1	9	251	13	231	7	0	4.19847
Starkville	25,852	41	1	2	11	27	922	455	440	27	1	4.25311
Clinton <sup>2</sup>	25,202		0		15	63	493	71	406	16	0	
Ridgeland	24,551	59	0	2	20	37	633	53	564	16	0	8.52601
Brandon	24,125	27	0	1	3	23	224	18	189	17	0	10.757
Oxford	24,071	36	0	10	11	15	664	85	567	12	0	5.14286
Vicksburg <sup>2</sup>	22,772		5		18	97	1,362	231	1,079	52	8	
Pascagoula	21,928	72	0	25	22	25	1,450	246	1,135	69	4	4.71822
Totals		1,154					16,566					

**Figure 4c.** Percentage of violent crimes in a city, out of all crimes for that city.





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Does that make Meridian the most dangerous city in Mississippi for a traveler, as *USA Today* asserts? That is not the data they used. But, had they used it, might their assertion have been reasonable. Perhaps. Perhaps not. It might depend on how many of the violent crimes were committed by a stranger. We do not know that. Thus, we were able to only partially replicate results involving number of violent crimes, although we were able to introduce an alternative analysis that forced the stated result. The only match is to the value of 194 Violent Crimes, which is second to Gulfport’s value of 299. On the single indicator “Violent Crime”, Gulfport is the worst.

The article also claimed “**2017 violent crimes per 100,000 people: 500 (state: 286)**” as a measure for assessing dangerous cities. Figure 5 shows the introduction of a column to calculate that value, taking the number of violent crimes in a city, dividing that by the population of the city, and multiplying the result by 100,000. When that was done, the value for Meridian worked out to be about 500 and so tallied with the result from *USA Today*. And on this value, Meridian was the worst.

**Table 8**

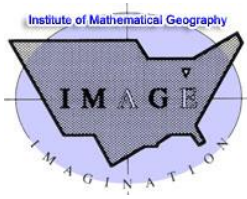
**MISSISSIPPI**

**Offenses Known to Law Enforcement**

by City, 2017

State of Mississippi Cities	Population	Violent crime	Murder and nonnegligent manslaughter	Rape <sup>1</sup>	Robbery	Aggravated assault	Property crime	Burglary	Larceny-theft	Motor vehicle theft	Arson	Violent Crimes per 100K
Jackson <sup>2</sup>	168,397		60		542	591	7,449	2,006	4,696	747	75	
Gulfport	72,792	299	10	26	82	181	3,662	562	2,897	203	16	410.75942
Southaven	53,928	75	5	8	26	36	1,479	196	1,219	64	5	139.07432
Hattiesburg	47,116	130	3	9	43	75	2,113	347	1,645	121	3	275.91476
Biloxi	46,263	178	1	39	74	64	2,963	871	1,933	159	7	384.75672
Meridian	38,778	194	9	18	89	78	1,502	435	975	92	10	500.28367
Horn Lake	27,199	32	1	0	20	11	703	129	532	42	1	117.65138
Madison	26,339	11	0	1	1	9	251	13	231	7	0	41.763165
Starkville	25,852	41	1	2	11	27	922	455	440	27	1	158.59508
Clinton <sup>2</sup>	25,202		0		15	63	493	71	406	16	0	
Ridgeland	24,551	59	0	2	20	37	633	53	564	16	0	240.31608
Brandon	24,125	27	0	1	3	23	224	18	189	17	0	111.9171
Oxford	24,071	36	0	10	11	15	664	85	567	12	0	149.55756
Vicksburg <sup>2</sup>	22,772		5		18	97	1,362	231	1,079	52	8	
Pascagoula	21,928	72	0	25	22	25	1,450	246	1,135	69	4	328.34732
Totals		1,154					16,566					

**Figure 5.** Violent crime per 100,000 population, 2017. Meridian value matches *USA Today*. Again, the value for the entire state did not replicate; the detail of that is left to the interested reader.



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We were able to gain a modest replication of results. Based on those, it might seem a bit of a stretch on those alone, with Meridian showing up ‘worst’ on one of two indicators, to make a strong claim about it as the most dangerous city in the state. Because such a claim can affect business, demographic, and economic patterns for years into the future, erring on the side of caution is critical.

### ***The Key Point***

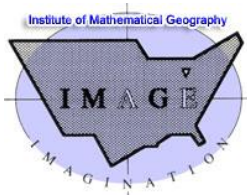
One might argue over small points in the analysis, as suggested in the partial replication of results in the previous section. Indeed, a writer accused of presenting ‘flawed’ results might make a reasonable case that the results are not flawed by illustrating in more detail how various values were obtained. But what is not a point that can be argued is the fact that the City of Jackson, MS, the State capital and by far the largest city must be included in any analysis of crime. It was NOT included in the *USA Today* article and that fact alone, as we will see below, should disqualify any assessment of most dangerous cities.

There is no data for Jackson in the Violent Crime column of Figure 3 because Jackson reported ‘rape’ data using a ‘legacy’ form rather than the current form. There is, however, as one looks at individual crimes, data in each of the other individual columns for Jackson. Thus, one sees that in 2017 there were 60 murders and nonnegligent manslaughters in Jackson and 9 in Meridian. There were 542 robberies reported in Jackson and 89 in Meridian. There were 591 aggravated assaults in Jackson and 78 in Meridian. In terms of absolute numbers, Jackson clearly trumps Meridian; any analysis of most dangerous city in Mississippi that omits Jackson is flawed through a sin of omission (rather than commission). The data set becomes skewed and twisted.

***What is missing is the fundamental issue. There is a huge error in all of the Figures above--  
Jackson is missing from the analysis!***

### **Error Correction**

The simple way to include Jackson is to remove the variable ‘rape’ from the analysis. Create entries in the Violent Crime column from the sum of entries in the Murder, Robbery, and Aggravated Assault



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columns. When that is done, Figure 3 becomes Figure 6, with entries for Jackson and other blank entries in the Violent Crimes column filled in (highlighted in red).

**Table 8**

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**Offenses Known to Law Enforcement**

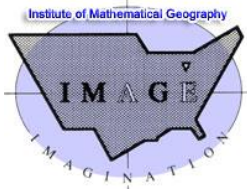
by City, 2017

State of Mississippi Cities	Population	Violent crime	Murder and nonnegligent manslaughter	Robbery	Aggravated assault	Property crime	Burglary	Larceny-theft	Motor vehicle theft	Arson
Jackson	168,397	1,193	60	542	591	7,449	2,006	4,696	747	75
Gulfport	72,792	273	10	82	181	3,662	562	2,897	203	16
Southaven	53,928	67	5	26	36	1,479	196	1,219	64	5
Hattiesburg	47,116	121	3	43	75	2,113	347	1,645	121	3
Biloxi	46,263	139	1	74	64	2,963	871	1,933	159	7
Meridian	38,778	176	9	89	78	1,502	435	975	92	10
Horn Lake	27,199	32	1	20	11	703	129	532	42	1
Madison	26,339	10	0	1	9	251	13	231	7	0
Starkville	25,852	39	1	11	27	922	455	440	27	1
Clinton	25,202	78	0	15	63	493	71	406	16	0
Ridgeland	24,551	59	0	20	37	633	53	564	16	0
Brandon	24,125	27	0	3	23	224	18	189	17	0
Oxford	24,071	36	0	11	15	664	85	567	12	0
Vicksburg	22,772	120	5	18	97	1,362	231	1,079	52	8
Pascagoula	21,928	72	0	22	25	1,450	246	1,135	69	4

**Figure 6.** Rape column deleted and data filled in blanks in Violent Crime column by summing remaining individual violent crime values.

Not only is it clear that Jackson contributes a great deal in terms of data, but to a much lesser extent Clinton and Vicksburg do, as well—both of the latter are particularly high within their peer group of population values. But Jackson is far and away the leader in number of violent crimes.

Next, we recast the tables from above (with ‘rape’ data but without Jackson, Clinton, and Vicksburg) to look at the indicator of Violent Crime (without the ‘rape’ data but with Jackson, Clinton, and Vicksburg) in three different ways. Figures 7a, 7b, and 7c, are created in parallel with Figures 4a, 4b, and 4c. In Figure 7a, with % violent crime calculated as the percentage of all crime that is violent, Jackson has a score of over 4% while all the other cities in the set of 15 cities of over 20,000 population, have scores of under 1%.



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**Table 8**

**MISSISSIPPI**

**Offenses Known to Law Enforcement  
by City, 2017**

State of Mississippi Cities	Population	Violent crime	Murder and nonnegligent manslaughter	Robbery	Aggravated assault	Property crime	Burglary	Larceny-theft	Motor vehicle theft	Arson	% Violent Crime
Jackson	168,397	1,193	60	542	591	7,449	2,006	4,696	747	75	4.21376
Gulfport	72,792	273	10	82	181	3,662	562	2,897	203	16	0.96426
Southaven	53,928	67	5	26	36	1,479	196	1,219	64	5	0.23665
Hattiesburg	47,116	121	3	43	75	2,113	347	1,645	121	3	0.42738
Biloxi	46,263	139	1	74	64	2,963	871	1,933	159	7	0.49096
Meridian	38,778	176	9	89	78	1,502	435	975	92	10	0.62164
Horn Lake	27,199	32	1	20	11	703	129	532	42	1	0.11303
Madison	26,339	10	0	1	9	251	13	231	7	0	0.03532
Starkville	25,852	39	1	11	27	922	455	440	27	1	0.13775
Clinton	25,202	78	0	15	63	493	71	406	16	0	0.2755
Ridgeland	24,551	59	0	20	37	633	53	564	16	0	0.20839
Brandon	24,125	27	0	3	23	224	18	189	17	0	0.09537
Oxford	24,071	36	0	11	15	664	85	567	12	0	0.12715
Vicksburg	22,772	120	5	18	97	1,362	231	1,079	52	8	0.42385
Pascagoula	21,928	72	0	22	25	1,450	246	1,135	69	4	0.25431
Total	649,313	2,442				25,870					

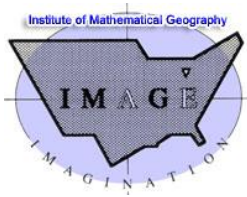
**Figure 7a.** Figure 6 with added column showing % Violent Crime of State Total Crime (all types). The values for total violent crime and total property crime are different from those in the sequence of Figures 4a, 4b, and 4c, because Jackson, Clinton, and Vicksburg were not included there.

In Figure 7b, % Violent Crime is calculated as a percentage of Total Violent Crime for the State. In this case, Jackson contributes a whopping 48% of violent crime committed in the entire state. Gulfport contributes 11% and the remaining 13 cities contribute less than 10% each.

In Figure 7c, % Violent Crime is calculated as a percentage of crimes in a city that are violent out of all crimes for that city. Jackson once again leads the pack with Clinton not far behind.

**When Jackson is included, it is clearly the highest on % Violent Crime (excluding rape). It is in a league by itself. No other city, including Meridian, is even close to being at the top.**





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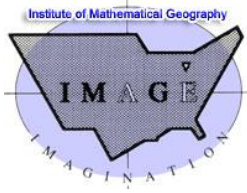
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<b>Table 8</b>											
<b>MISSISSIPPI</b>											
<b>Offenses Known to Law Enforcement</b>											
<b>by City, 2017</b>											
State of Mississippi Cities	Population	<b>Violent crime</b>	Murder and nonnegligent manslaughter	Robbery	Aggravated assault	<b>Property crime</b>	Burglary	Larceny-theft	Motor vehicle theft	Arson	<b>% Violent Crime</b>
Jackson	168,397	1,193	60	542	591	7,449	2,006	4,696	747	75	48.8534
Gulfport	72,792	273	10	82	181	3,662	562	2,897	203	16	11.1794
Southaven	53,928	67	5	26	36	1,479	196	1,219	64	5	2.74365
Hattiesburg	47,116	121	3	43	75	2,113	347	1,645	121	3	4.95495
Biloxi	46,263	139	1	74	64	2,963	871	1,933	159	7	5.69206
Meridian	38,778	176	9	89	78	1,502	435	975	92	10	7.20721
Horn Lake	27,199	32	1	20	11	703	129	532	42	1	1.3104
Madison	26,339	10	0	1	9	251	13	231	7	0	0.4095
Starkville	25,852	39	1	11	27	922	455	440	27	1	1.59705
Clinton	25,202	78	0	15	63	493	71	406	16	0	3.1941
Ridgeland	24,551	59	0	20	37	633	53	564	16	0	2.41605
Brandon	24,125	27	0	3	23	224	18	189	17	0	1.10565
Oxford	24,071	36	0	11	15	664	85	567	12	0	1.4742
Vicksburg	22,772	120	5	18	97	1,362	231	1,079	52	8	4.914
Pascagoula	21,928	72	0	22	25	1,450	246	1,135	69	4	2.9484
Total	649,313	2,442				25,870					100

**Figure 7b.** Figure 6 with added column showing % Violent Crime of State Total Violent Crime.



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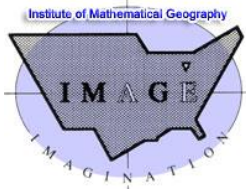
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<b>MISSISSIPPI</b>											
<b>Offenses Known to Law Enforcement</b>											
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State of Mississippi Cities	Population	Violent crime	Murder and nonnegligent manslaughter	Robbery	Aggravated assault	Property crime	Burglary	Larceny-theft	Motor vehicle theft	Arson	% Violent Crime
Jackson	168,397	1,193	60	542	591	7,449	2,006	4,696	747	75	13.6859
Gulfport	72,792	273	10	82	181	3,662	562	2,897	203	16	6.90964
Southaven	53,928	67	5	26	36	1,479	196	1,219	64	5	4.31979
Hattiesburg	47,116	121	3	43	75	2,113	347	1,645	121	3	5.40903
Biloxi	46,263	139	1	74	64	2,963	871	1,933	159	7	4.47089
Meridian	38,778	176	9	89	78	1,502	435	975	92	10	10.4265
Horn Lake	27,199	32	1	20	11	703	129	532	42	1	4.34783
Madison	26,339	10	0	1	9	251	13	231	7	0	3.83142
Starkville	25,852	39	1	11	27	922	455	440	27	1	4.05405
Clinton	25,202	78	0	15	63	493	71	406	16	0	13.6602
Ridgeland	24,551	59	0	20	37	633	53	564	16	0	8.55072
Brandon	24,125	27	0	3	23	224	18	189	17	0	10.8
Oxford	24,071	36	0	11	15	664	85	567	12	0	5.21739
Vicksburg	22,772	120	5	18	97	1,362	231	1,079	52	8	8.05369
Pascagoula	21,928	72	0	22	25	1,450	246	1,135	69	4	4.7968

**Figure 7c.** Percentage of violent crimes in a city, out of all crimes for that city. Both Jackson and Clinton have a larger percentage of their crimes that are violent than does Meridian.

Finally, we recast the data associated with Violent Crime per 100,000 population. Figure 8 shows the parallel to Figure 5, with Jackson, Clinton, and Vicksburg included. When the corresponding calculations are made for Violent Crimes per 100,000 population, Jackson has a value of 708 per 100,000, Vicksburg has a value of 527 per 100,000, and then Meridian is third with a value of 453 (down from 500 in Figure 5) per 100,000. In fact, the values for Jackson and Vicksburg, without rape, are greater than the value for Meridian with rape (500)!

**When Jackson is included, it is clearly the highest on Violent Crimes per 100,000. It is in a league by itself. No other city, including Meridian, is even close to being at the top.**



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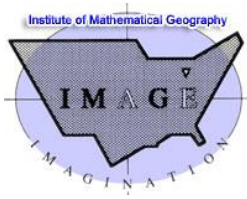
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<b>MISSISSIPPI</b>											
<b>Offenses Known to Law Enforcement</b>											
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State of Mississippi Cities	Population	Violent crime	Murder and nonnegligent manslaughter	Robbery	Aggravated assault	Property crime	Burglary	Larceny-theft	Motor vehicle theft	Arson	Violent Crimes per 100,000
Jackson	168,397	1,193	60	542	591	7,449	2,006	4,696	747	75	708.44492
Gulfport	72,792	273	10	82	181	3,662	562	2,897	203	16	375.04121
Southaven	53,928	67	5	26	36	1,479	196	1,219	64	5	124.23973
Hattiesburg	47,116	121	3	43	75	2,113	347	1,645	121	3	256.81297
Biloxi	46,263	139	1	74	64	2,963	871	1,933	159	7	300.45609
Meridian	38,778	176	9	89	78	1,502	435	975	92	10	453.86559
Horn Lake	27,199	32	1	20	11	703	129	532	42	1	117.65138
Madison	26,339	10	0	1	9	251	13	231	7	0	37.966514
Starkville	25,852	39	1	11	27	922	455	440	27	1	150.85873
Clinton	25,202	78	0	15	63	493	71	406	16	0	309.49925
Ridgeland	24,551	59	0	20	37	633	53	564	16	0	240.31608
Brandon	24,125	27	0	3	23	224	18	189	17	0	111.9171
Oxford	24,071	36	0	11	15	664	85	567	12	0	149.55756
Vicksburg	22,772	120	5	18	97	1,362	231	1,079	52	8	526.96294
Pascagoula	21,928	72	0	22	25	1,450	246	1,135	69	4	328.34732
Totals	649,313	2,442				25,870					
Violent Crime / 100,000 pop., State-wide.	376										

**Figure 8.** Meridian is not even close to the top value in violent crimes per 100,000 population.

Chief DuBose was right; clearly, Meridian is not the ‘most dangerous’ city in Mississippi. The material in *USA Today* presents a twisted picture of the situation. He was also right that there is room for improvement. And he was right that the data sets about Meridian are not particularly out of line in relation to most cities in Mississippi.

Why did this happen? If *USA Today*, and others, had taken a closer look at the data, and realized the situation with Jackson, this incorrect characterization of Meridian should not have happened. If the folks reporting ‘rape’ data from Jackson to the FBI had used a contemporary, rather than a legacy, submission form, this situation should not have happened. How do we keep situations such as this one from arising again and gain accurate analysis without either leaving out big cities (such as Jackson) or major variables (such as rape)? It seems as if the simplest and most direct approach to untwisting this analysis dilemma would be for the Federal Government to require all municipal or State entities to use only contemporary, and not legacy, forms for reporting all violent crimes.



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### Where Do We Go from Here?

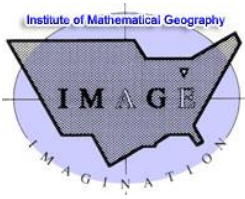
Even when well-considered, different methods of analysis of the same data sets will yield results of varying value. Different interest groups may want the focus on one aspect of an issue while others want it on yet another. Small clerical reporting errors may twist the data a bit and are to be expected when multiple people from varying backgrounds, capabilities, and interest levels fill out federal forms (Harms, 2021). One way to handle these problems is to have multiple ways of analyzing data. A few ideas are offered below for directions for future study; some are highly local while others are more far-flung.

- Follow up with [Stebbins and Sauter](#).
  - See if they might have more information to share as to how their analysis was conducted.
  - Ask them to clarify comments that might appear at odds with each other involving low violent crime rates statewide and high poverty rates statewide.
  - Rework all cities in that article in the manner that Meridian was reworked.
  - Submit corrections to them; the last update on the original 2019 article was dated in 2020.
- Follow up with other media.
  - A [figure caption](#) in one article states:

“Is Meridian the most dangerous city in Mississippi? According to analysis website 24/7 Wall Street, Meridian is the most violent city in the state. The site says Meridian has a violent crime rate of 500 reported incidents a year.”

In fact, the site does not say that at all. The reported number of violent crimes in 2017 was 194; the number of violent crimes per 100,000 in 2017 was 500. That is a serious error that can cause grave misunderstanding, leading to inappropriate action, on the part of a reader. There is a substantial problem that arises from reporting rates per hundred thousand when the entire spatial unit associated with the data does not even contain a population of 100,000. In this case, the population of the entire county, Lauderdale County, containing Meridian, is far less than 100,000. In low population





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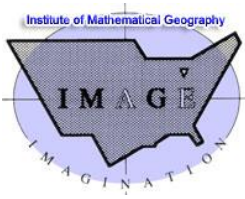
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counties, it might make more sense to report data in relation to areal unit size. For example, a value of 194 crimes in an area of 50 square miles presents an entirely different feeling of security than does a value of 194 crimes in an area of 1000 square miles. Note the discussion involving differences between measures based on concepts of population versus areal measures, but in relation to Covid-19, in the previous article.

- Local hyperbole (and perhaps literal statements), some of which even go so far as to claim that Meridian is one of the most dangerous cities in the country, need to be corrected. Indeed, [Stebbins and Sauter](#) note that “Mississippi has a relatively low crime rate.” How then, might Meridian, not even the most dangerous city in this state, be reasonably cast as one of the most dangerous cities in the USA? Such an assertion is nonsense. And, it is dangerous nonsense when it is repeated by anyone with authority in business, politics, or other influential roles. Alarmist reactions can negatively transform, and even destroy, a local economy.
- The error of leaving Jackson out of the analysis appears to have propagated ([link](#) to one current example) throughout the Internet. Error correction at that level needs to occur, lest business and residential opportunity be destroyed in many smaller cities throughout the State.
- Check out the remaining points that Chief DuBose made, particularly in regard to tracking Meridian data over time (perhaps tracking it over the past decade). Having a timeline with associated data can track planning progress, political progress, and more.
- Share materials with municipal officials and business organizations so that any growing negativity surrounding Meridian might be dispelled.
- Crime data. Seek out extra data that breaks the categories for violent crime into crimes committed by strangers versus crimes committed by someone known to the victim. Most travelers, and local people, are probably far more fearful of crimes committed by strangers.
- Geographical analysis of crime data.
  - Offer data normalized by city area in addition to by 100,000 population.



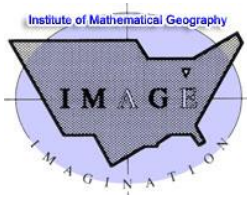
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- Find areas of the city where crime is high/low—violent crime by census tract, for example. Map the data in addition to tabular presentation. Circulate maps to local and other publications. Use contemporary data sets. [Stebbins and Sauter](#) make indirect (at least) recognition of variation by neighborhood.
- Integrate demographic (Census) data sets with the FBI crime data.
- It may be difficult to find direct overlays on the Internet of local crime data on Census polygons. One way to overcome this difficulty is to make a simple 'stick-pin' map. The old-fashioned, but nonetheless effective, way to do this is to mount a large paper map of Meridian showing all streets on cardboard. Get pins with different color heads to stick in the map at addresses where crimes have occurred. Use one color for 'murder' 'another for 'rape' and so forth. Or, use one color for 'by a stranger' and a different one for 'by a known assailant'. Modify as desired. Modify according to different timing elements. The Police Department should have such data. When mapped in this manner, clusters of different types of issues will emerge. Police response can be adjusted to fit with different needs. Because points (pin-heads) are used for the mapping, rather than polygons (such as tracts) there is no room for gerrymandering or other boundary issues. A physical map of this sort is simple and inexpensive to create; it requires no sophisticated mapping knowledge.
- Physical maps of the sort above may also be produced as virtual maps in GIS, or other, software. The Appendix to this article illustrates how to use free software, Google Earth, to execute this process on a small sample of data. When an electronic stick-pin map is complete, one can overlay the stick-pin map easily on various other electronic maps and associate any number of demographic or other variables with crime clusters derived from existing police data.
- Involve local businesses and chambers in promoting the positive aspects of the city based on sensible analysis of federal and other official data. Work to undo any negativity present on social media or elsewhere in the community. Study what other communities have done.



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## **Appendix. Clusters and Response Time: From Elevators to Urban Security**

### *General Context*

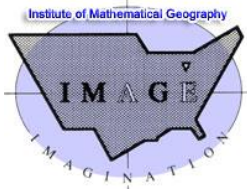
Mapped clusters of information about a problem can reveal pattern that improves response to the underlying cause of that problem. Dr. John Snow's 1854 cholera map (ESRI), showing point-locations of residences affected by the disease led officials of the time to associate a particular water pump with the disease outbreak in London, England. Identification of clusters offered a quick response to solve the problem—remove the pump handle, effectively rendering the pump, and cholera-laden water, useless.

More contemporary settings employ similar strategies. Any participant in a major conference held in a large, tall, urban hotel is quite familiar with worrying about getting an elevator between sessions. A simple solution there is to not park all elevators at the same level, but to scatter their 'parked' position at varying levels in the shafts so they can respond efficiently by optimizing distance travelled: a nearby elevator is the responder (Carlson, 2007). Distributing resources to improve response time is a common-sense strategy used in a variety of contexts.

Similarly, if one knows where clusters of crimes take place it is simple common sense to consider that a corresponding increase in improvement in police response time would result through reallocation of crime-fighting resources. The Monthly Crime Map in the *Ann Arbor Observer* stratifies crimes by types (murders, rapes, burglaries, etc.) and by nature (committed by a stranger or non-stranger), (*Ann Arbor Observer* 2021).. Different communities might choose different categories based on their data availability and on their resources. Whatever the specifics might be, such stratification is straightforward to do.

### *Making the Map: One Example of One Simple Strategy*

The example below illustrates the use of existing data to create a simple cluster crime map for the period of one month in Meridian, Mississippi. The source of datasets is the crime beat reported by local news (WTOK-TV); the software employed is Microsoft Word and Google Earth. The ideas are



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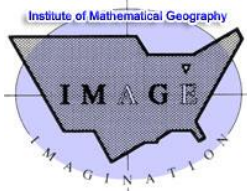
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easy to execute and are no doubt in use in many contexts around the world using a variety of software (free and not free) and technique; thus, we offer one simple case to illustrate concepts.

Figure 9 shows a table created from the 'Daily Docket', a set of arrest reports from WTOK-TV, for the month of April. In the interests of privacy protection, only the dates and approximate location (within one block) are shown. Location estimates are given originally in a format such as 'in the 1600 block of Main Street' which, for simplicity in mapping we convert to a mid-block address such as 1650 Main Street. General pattern will be preserved although detailed views will be skewed.

Day	April	R	CoB	ChB	SV	AB	RB	Srep	Sevi
Fri	30	0	0	0	0	1	0	2	1
Thu	29	0	0	0	0	0	1	0	0
Wed	28								
Tue	27	0	3	0	3	4	0	16	3
Mon	26								
Sun	25								
Sat	24								
Fri	23	0	0	0	1	0	0	1	0
Thu	22	0	1	0	0	0	1	2	0
Wed	21	0	0	0	0	1	0	0	0
Tue	20	0	1	0	0	0	0	1	0
Mon	19	0	1	0	1	4	2	22	5
Sun	18								
Sat	17								
Fri	16	0	0	0	1	1	0	2	0
Thu	15								
Wed	14								
Tue	13	1	0	0	1	2	0	5	1
Mon	12	2	0	0	1	1	0	10	3





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Sun	11								
Sat	10								
Fri	9								
Thu	8	0	0	0	0	0	0	5	0
Wed	7	0	0	0	0	0	1	7	1
Tue	6								
Mon	5	0	0	0	2	2	0	10	2
Sun	4								
Sat	3								
Fri	2	1	0	0	1	0	0	8	1
Thu	1	0	0	0	1	0	0	5	1
		<b>4</b>	<b>6</b>	<b>0</b>	<b>12</b>	<b>16</b>	<b>5</b>	<b>97</b>	<b>18</b>

R: Robbery

CoB: Commercial Burglary

ChB: Church Burglary

SV: Stolen Vehicles

AB: Auto Burglary

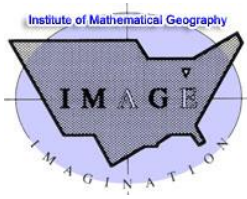
RB: Residential Burglary

Srep: Shootings (gun shots), number reported

Sevi: number for which there was evidence that the reported sound was, in fact, a shooting (gun shot).

**Figure 9.** Data concerning crime by type in Meridian, Mississippi, for the month of April, 2021.  
Source: WTOK-TV, 'Daily Docket' for each day in April.

Next, pull out the data from the 'Daily Docket' by crime type and address. Figure 10 shows an example for Commercial Burglary for the month of April.



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**Commercial Burglary**

At 4:25 AM on April 24, 2021, Meridian Police responded to a commercial burglary in the 2300 block of 8th Street. Entry was gained through a window.

At 8:29 AM on April 26, 2021, Meridian Police responded to a commercial burglary in the 3300 block of 8th Street.

At 4:03 PM on April 26, 2021, Meridian Police responded to a commercial burglary in the 2300 block of Highway 19 North. Entry was gained through a door.

At 9:07 AM on April 21, 2021, Meridian Police responded to a commercial burglary in the 200 block of North Hills Street. Entry was gained through a door.

At 2:57 PM on April 19, 2021, Meridian Police responded to a commercial burglary in the 3400 block of Highway 45 North. Entry was gained through a door.

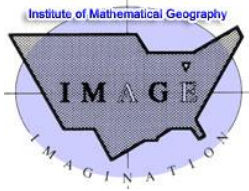
At 11:02 AM on April 18, 2021, Meridian Police responded to a commercial burglary in the 4500 block of 35th Avenue. Entry was gained through a door.

**Figure 10.** Commercial Burglary by location, Meridian MS, April 2021.

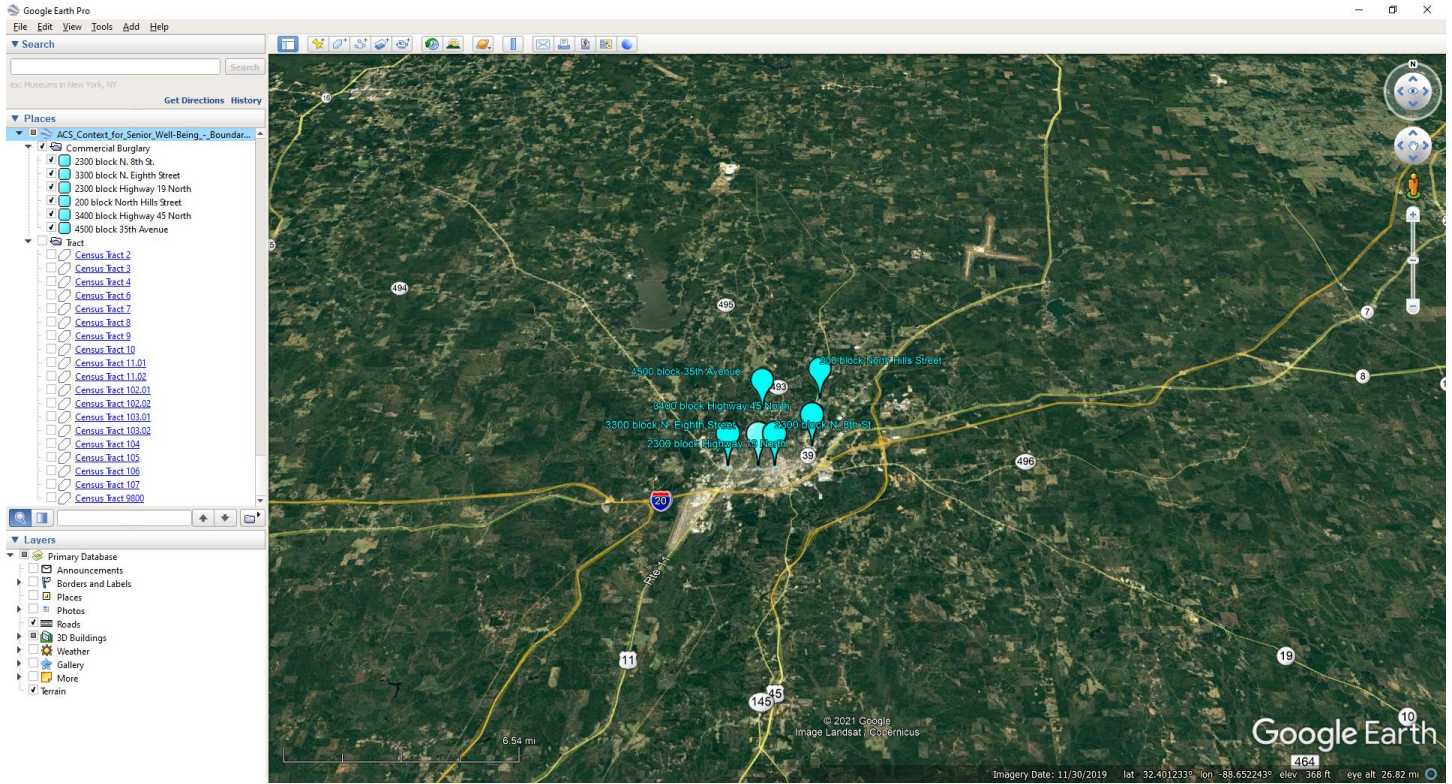
To map the dataset in Google Earth simply requires adding a Placemark for each address. The image zooms to become centered on that Placemark. Then, superimpose a selected stick-pin, a cyan one in this case, on top of the placemark (in the center of the image; the Placemark and the stick-pin will superimpose exactly). Then, turn off the Placemark. Repeat the process. Figure 11 shows the results of creating digital stickpins, by location, for each of the entries in Table 10.

Figure 12 shows the Commercial Burglary stick-pin map with US Census Bureau Census Tracts superimposed. Thus, one can see, at a glance, how many burglaries there are by tract.

Figure 13 illustrates one advantage of the stick-pin map in Google Earth over the conventional paper map. Zoom in to take a closer look at the user-mapped data in association with any of the default datasets already mapped in Google Earth.

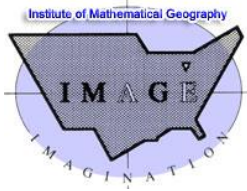


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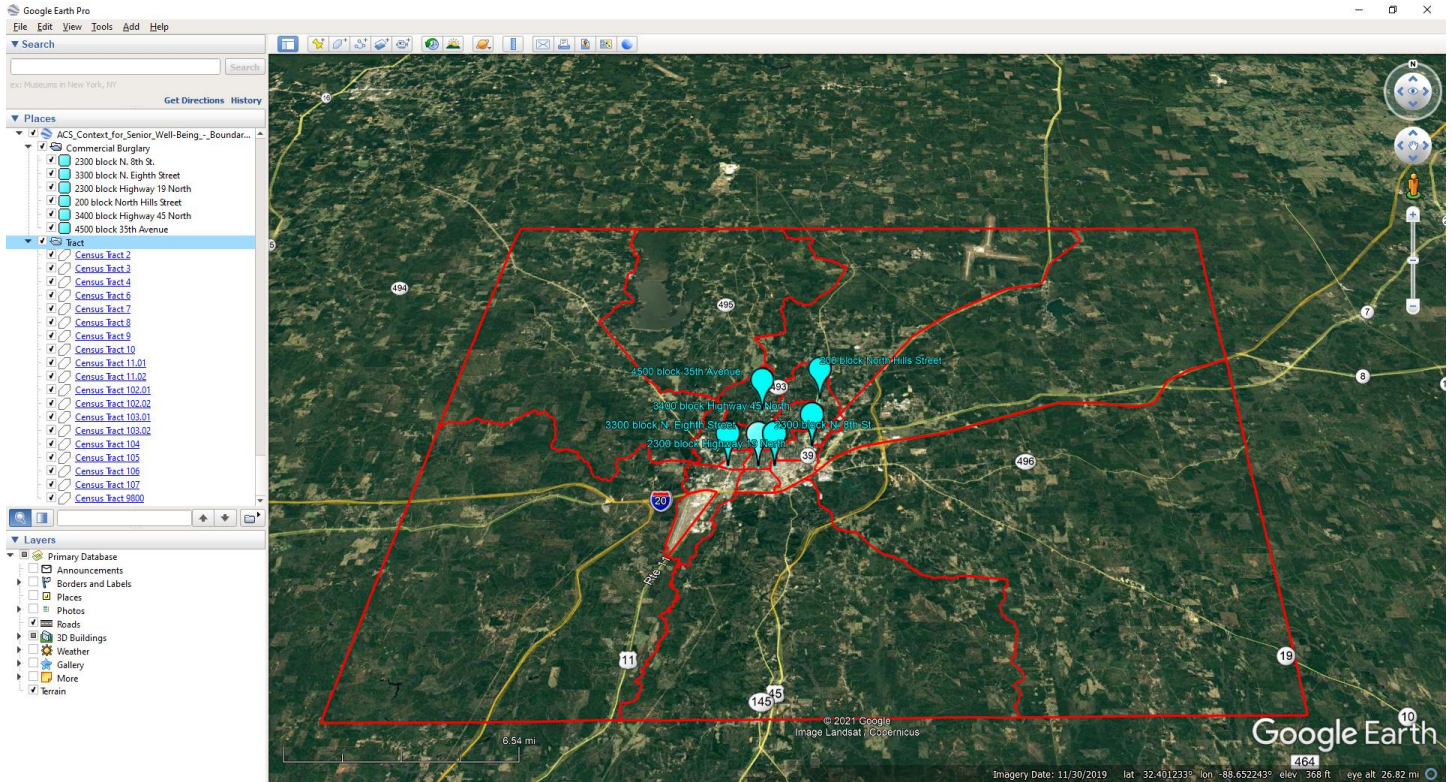


**Figure 11.** Commercial Burglary stick-pin map, April 2021, Meridian, MS.



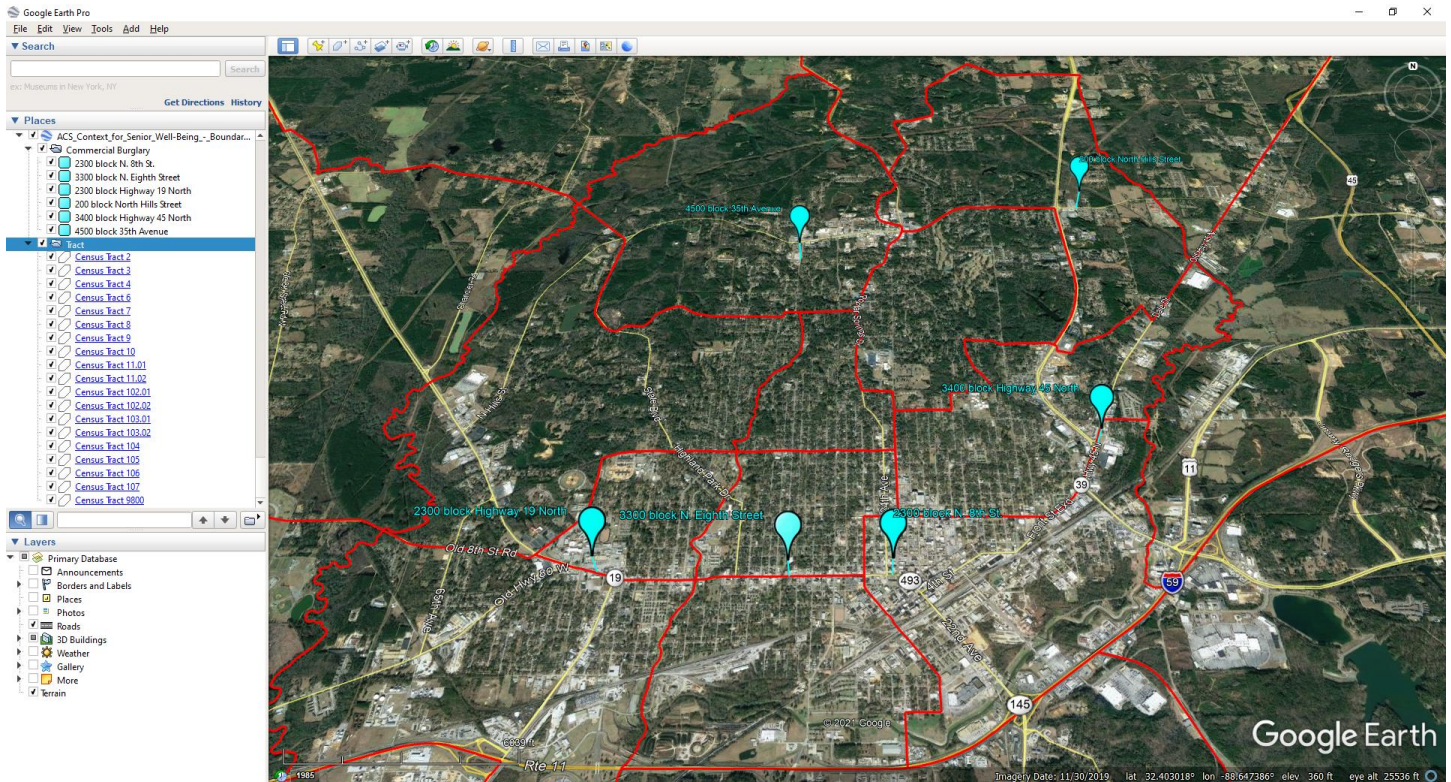


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**Figure 12.** Commercial Burglary stick-pin map, April 2021, Meridian MS with Census Tract boundaries superimposed.





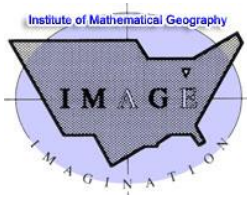
**Figure 13.** A closer look at Figure 12. Some of the default layers present in the underlying software come into view.

Figures 11, 12, and 13 show only a very simple grouping of stick-pins. To invest the effort to make a more meaningful display, it is important to:

- Have access to personnel to train to create maps from primary sources within the City.
- Determine what software capability is already present within the City and what permissions might be required to use such software in association with police datasets.

A project for the future then becomes to work constructively with municipal authorities to possibly assist them to create a digitally-mapped long view of the past datasets. Analysis of the results to determine clusters of crimes by type, location, tract variables, stranger/not-stranger, and so forth, might assist in assigning valuable resources to increase response time and decrease crime overall.





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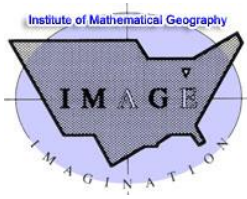
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## Letters/Links: Kerski, Mokray, and Rycus

- Mon, Dec 21, 2020 at 8:34 AM  
Joseph Kerski <[jkerski@esri.com](mailto:jkerski@esri.com)> wrote:

Wonderful issue, thanks Dr Sandy.

1. So sorry about your colleague... he was too young to depart the planet! ☹️
2. On coloring – see my video on creating a map that you can color of your own neighborhood - <https://www.youtube.com/watch?v=6hw-VOrDsKY> [youtube.com]
3. I think I told you when I was at the Census Bureau working on TIGER, I created tons of block group and census tract boundaries; it was great fun actually; also in conjunction with local governments, but when they had no input I used my best geo-skills and created them myself following guidelines.
4. Connecting GIS Education to Bloom's Taxonomy <https://community.esri.com/t5/education-blog/connecting-gis-education-to-bloom-s-taxonomy/ba-p/1011891> Might it be helpful and interesting to the reader?

Joseph

**Joseph J. Kerski, Ph.D., GISP** | Education Manager

Esri | 167 S. Taylor Avenue | Louisville CO 80027-3025 | USA

T 909-369-8237 | M 303 625 3925 | [jkerski@esri.com](mailto:jkerski@esri.com) | [esri.com](http://esri.com)

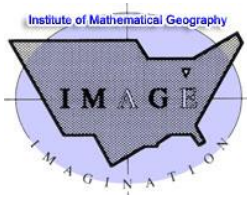
<https://esriurl.com/josephkerski> [esriurl.com] | <https://twitter.com/josephkerski> [twitter.com]

<https://www.youtube.com/watch?v=6hw-VOrDsKY&authuser=0>

- Tues. Feb. 8, 2021 at 12:46 PM.  
George Mokray, [gmoke@world.std.com](mailto:gmoke@world.std.com), wrote:

Geometry Links

- Neomorphic knots  
<https://knots.netlify.app>
- WOWCube Demonstration  
[https://youtu.be/6f\\_i3ujpwLk](https://youtu.be/6f_i3ujpwLk)  
hat tip core77  
<https://www.core77.com/posts/104425/Kid-Imagines-Rubiks-Cube-Made-From-Tiny-Screens-Dad-Invents-it>
- Highest resolution snowflake photos  
<https://www.smithsonianmag.com/innovation/these-are-highest-resolution-photos-ever-taken-snowflakes-180976710/>  
hat tip Azeem Azar



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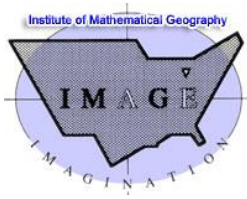
- Graph paper 3-d illusion  
<https://youtu.be/ZbfMINvKBOY>  
hat tip [boingboing.net](http://boingboing.net)
  - Snowshoe Art  
<https://www.cbc.ca/news/canada/thunder-bay/schreiber-snow-art-snowshoe-1.5896921>  
hat tip Marjorie Farrell
  - Laser-cut geometric designs "exploring pattern language with mathematical and historical references through works in paper or wood"  
<http://www.ibbini.com>  
<https://www.instagram.com/juliaibbini/>  
<https://www.treehugger.com/geometric-patterned-laser-cut-vessel-forms-by-ibbini-studio-5101394>
  - Felix Semper makes flexible paper sculptures  
<http://felixsemper.com/sculptures.html>
  - vZome is a desktop app designed primarily for building virtual Zome models  
<https://vzome.com/home/>  
hat tip John Kostick
  - Frank Stella's stars  
<https://thealdrich.org/exhibitions/frank-stellas-stars-a-survey>  
<https://www.nytimes.com/2021/02/04/arts/design/frank-stella-aldrich-museum.html>
  - MC Escher: Journey to Infinity  
<https://www.artnews.com/art-news/reviews/mc-escher-documentary-review-1234582697/>  
<https://vimeo.com/ondemand/escherdoco>  
hat tip Victor Acevedo
  - Gary Doskas' video series on spherical geometry - Gary's models are beautiful and his work is deep  
[https://www.youtube.com/playlist?list=PLQqvAAXNHjlgQy7NQ5wQBeXYvOKU\\_4sZ7](https://www.youtube.com/playlist?list=PLQqvAAXNHjlgQy7NQ5wQBeXYvOKU_4sZ7)
  - The geometry of Pringles™ "potato" chips  
<https://melmagazine.com/en-us/story/mathematicians-pringles-chips-math>  
hat tip [boingboing.net](http://boingboing.net)
- February 20, 2021, 10:22 a.m.  
Joseph Kerski wrote:

Dr Sandy:

Greetings All:

Perfect timing-- here are some new mapping tools for you to examine:

<https://www.esri.com/arcgis-blog/products/js-api-arcgis/3d-gis/explore-mars-with-gis/>



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Measure craters and more, use 3D globes and GIS, place your state or another country on top of Mars to compare sizes, and much more!

Video that guides you to using the above tools:

<https://youtu.be/OhpJyKaIGIM>

Showing that maps are relevant to society, once again! Even on other planets!

Joseph Kerski

**Joseph J. Kerski, Ph.D., GISP** | Education Manager

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T 909-369-8237 | M [303 625 3925](tel:3036253925) | [jkerski@esri.com](mailto:jkerski@esri.com) | [esri.com](http://esri.com)

<https://esriurl.com/josephkerski> | <https://twitter.com/josephkerski>

**THE SCIENCE OF WHERE** ®

- May 27, 2021, 2:45 p.m. From Mitchell Rycus

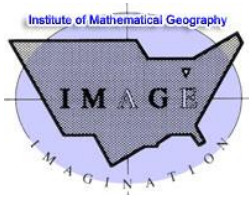
As a response to congratulations (from the Editor of *Solstice*) on his recent publication, long-time *Solstice* participant, Mitch Rycus wrote back and included an invited description, below the line.

---

“This is my only Novella, only around 30,000 words. Here's a brief description:

Was it murder or suicide? That question had hounded Detective Raymond Wojconski for three years. The implications for the deceased's family were momentous since his wife and young daughter would suffer financial hardship if it was suicide. But they would have some economic security if Dwayne was murdered.

Risa Addelson, a WWII widow, was one person suspected in Dwayne's death. She was the woman who accused Dwayne of raping her in high school; however, she had reason to want Dwayne alive. She expected that after years of waiting for some admission of guilt from Dwayne, he was about to pay her off for all the years of shame and suffering her family went through.

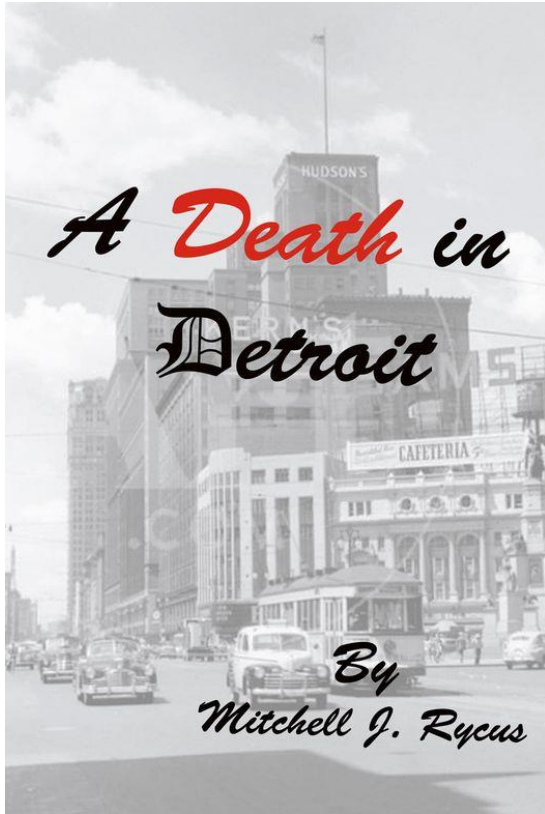


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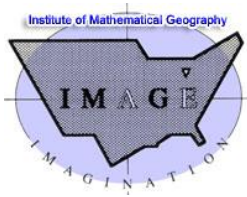


And then there was the antisemitic element in Dwayne's family since his father was close friends with Bernold Kraus. Kraus, an avowed Nazi sympathizer, warned him that Dwayne should not be hiring Jews in his shop. He was referring to Seymore Lefkowski, a high school student who was hired as a gofer. Seymore heard Dwayne's father say, "what's he doing here? Get rid of him, get the Jew out of here," when Seymore showed up for work on that day before Christmas, 1946, the day Dwayne's body was found.

The many elements in the case had Detective Wojcowski obsessed by Dwayne's death, but finally he ended up doing what was right.

eBook and paperback are both available on Amazon. I appreciate your thinking of me, and look forward to *Solstice!* Thanks. Mitch"





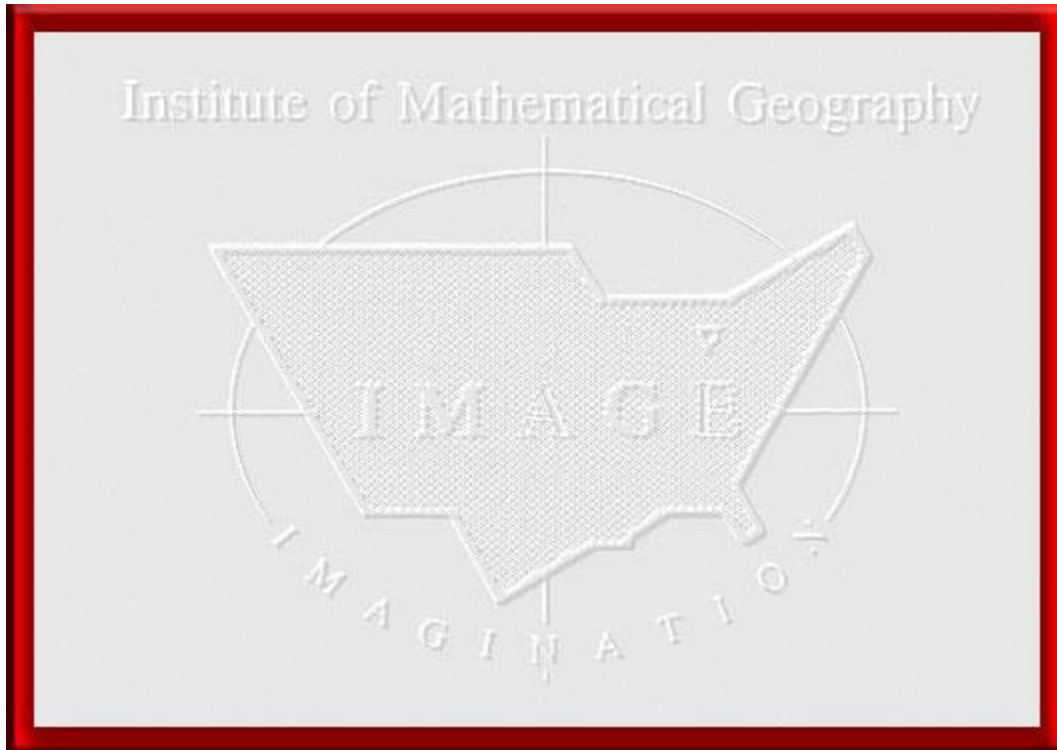
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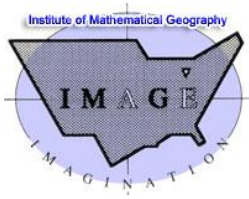
## Endmatter



Original logo designed by Sandra L. Arlinghaus and stylized and redrafted by Allen K. Philbrick.

### AWARDS AND SELECTED COMMENTS

- *Solstice* page translated into Belorussian, April, 2016; many thanks to Valerie Bastiaan.
- *Solstice* cover materials translated into Ukranian, August 25, 2011; many thanks to Galina Miklosic.
- *Solstice* was a Pirelli INTERNETional Award Semi-Finalist, 2001 (top 80 out of over 1000 entries worldwide)
- One article in *Solstice* was a Pirelli INTERNETional Award Semi-Finalist, 2003 (Spatial Synthesis Sampler).
- *American Mathematical Monthly*, September 1992, in Telegraphic Reviews section notes *Solstice* as "one of the world's first electronic journals using TeX." L. A. Steen.
- [Science News](#), 25 January, 1992. Article about *Solstice*.
- [Science](#), AAAS, 29 November, 1991. Article about *Solstice*.



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- IMaGe is listed as a "Collection" in the persistent online archive, [DeepBlue](#), of The University of Michigan library. It is listed under "Mathematical Geography" on the Collections link.
- *Solstice* has been listed in the Directory of Open Access Journals (for its first 28 years) maintained by the University of Lund.
- *Solstice* is listed on the journals section of the website of the American Mathematical Society, <http://www.ams.org/>
- *Solstice* has been listed in the EBSCO database.
- IMaGe has been listed on the website of the Numerical Cartography Lab of The Ohio State University, with thanks to Harold Moellering.
- *Solstice* was listed in Geoscience e-Journals, with thanks to Bruno Granier.



Sandra L. Arlinghaus, celebrated over 30 full years of archived *Solstice* publication in 2020.