




Summary of the GIS Retrospective Research Colloquium

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**The research colloquium was held at
the Esri Campus, Redlands, CA
February 13-14, 2015**



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The colloquium was held at the Esri campus, February 13-14, 2015. Background materials providing context and the rationale for the colloquium include *AutoCarto Six Retrospective*, and two articles in the *International Journal of Applied Geospatial Research* (Wellar, 2014, 2015). Details are in the references section.

In terms of focus, the colloquium was organized around a directive question:

How can looking back at what has been done, or not been done in the field of geographic information systems (GIS), contribute insights into why and how the field of GIS could and should evolve in the coming years?

With that question providing an overall sense of purpose, the 2015 colloquium is an important event in the process of elaborating what we can learn from the past, and how we can learn from the past, to inform the futures of three core, related missions:

- Designing, developing, and implementing geographic information systems (GIS) technology;
- Defining and elaborating the methods, techniques, and operations of geographic information science (GIScience); and
- Using geographic information systems technology and/or geographic information science in government, academia, business, the media, and other organizations, as well as by individuals, community associations, and other interests.

The discussion among on-site and off-site participants (connected via Lync) centered around 13 slide presentations:

- 1** Fundamentals of Mining for GIS Nuggets: Introductory Remarks
Barry Wellar
- 2** Developing a Compendium of Ideas on Using the Retrospective Approach to Mine for GIS Nuggets: Initial Design and Module Considerations
Barry Wellar
- 3** Developing a Compendium of Ideas on Using the Retrospective Approach to Mine for GIS Nuggets: Populating the Questions Module
Barry Wellar
- 4** Looking Back, Looking Ahead: Industry Thoughts for the GIS Retro Colloquium
Jack Dangermond
- 5** Mining Open Data in Search of GIS Nuggets
Gordon Plunkett

- 6** Abuse v. Care of Land, Water, and Air, 1990-2015: The Doomsday Map and Stewardship Map Concepts as Compelling Arguments to Retrospectively Mine the Popular Literature for GIS Nuggets
Barry Wellar
- 7** The Role of Federal Agencies in Directing the Research Agenda: Is this a Case of the Cart Before the Horse? A TIGER Case Study
Tim Trainor
- 8** Searching for GIS Nuggets: Mining Annual Reports by Canada's Commissioner of Environment and Sustainable Development
Barry Wellar
- 9** Preserving Institutional Memory: Capturing Knowledge Key to GIScience
Stephen Guptill
- 10** Mining for GIS Nuggets in Reports by Ontario's Commissioner of Environment
Barry Wellar
- 11** Extracting Nuggets – Data Quality and Metadata
Nick Chrisman
- 12** Revisiting Classical Land Classification, Assessment, and Management Literature to Inform GIS Research
Mike Demers
- 13** Integrated Land Evaluation – Story of a Track Not Taken
Nick Chrisman

The slide decks can be viewed at: [Slide Presentations, Research Colloquium on Using the Retrospective Approach to Mine for GIS Nuggets.](#)

In addition, six papers which elaborated slide presentations were also published.

1. Developing a Compendium of Ideas on Using the Retrospective Approach to Mine for GIS Nuggets: Initial Considerations
Barry Wellar
2. Abuse v. Care of Land, Water, and Air, 1990-2015: The Doomsday Map and Stewardship Map Concepts as Compelling Arguments to Retrospectively Mine the Popular Literature for GIS Nuggets
Barry Wellar
3. Searching for GIS Nuggets: Mining Annual Reports by Canada's Commissioner of Environment and Sustainable Development
Barry Wellar

4. Mining for GIS Nuggets in Reports by Ontario's Commissioner of Environment
Barry Wellar
5. Mining Open Data in Search of GIS Nuggets
Gordon Plunkett
6. Revisiting Classical Land Classification, Assessment, and Management Literature to Inform GIS Research
Mike DeMers

The papers can be viewed at: [Proceedings, Research Colloquium on Using the Retrospective Approach to Mine for GIS Nuggets.](#)

For this brief summary, there are three features of the colloquium that I wish to emphasize.

First, while many of us tend to focus on literature that is traditionally most significant in our respective day-to-day activities in academia, government, business, and so on, the colloquium considered that when it comes to mining for GIS nuggets, any of the following bodies of literature and other productions in Table 1 could be pertinent.

Table 1. Bodies of literature and other productions to mine for GIS nuggets

1. Corporate/Institutional-Private Literature
2. Corporate/Institutional-Public Literature
3. Learned Literature
4. Legal Literature
5. Oversight Agency Literature
6. Popular (Media) Literature
7. Professional Literature
8. Public Interest Literature
9. Regulatory Agency Literature
10. Special Interest Literature
11. Vested Interest Literature
12. Other Productions

Second, the colloquium emphasis on simultaneously considering GIS technology, GIScience methods and techniques, and the uses of GIS technology and GIScience methods and techniques, promoted a wide-ranging discussion about why and how to mine various bodies of literature for GIS nuggets. Table 2 is an indicative short list of possible nuggets to be derived by mining initiatives.

Table 2. Possible nuggets to be derived from using the retrospective approach to examine “the literature”

1. New or different reasons to add to GIS technology;
2. New or different ways to add to GIS technology;
3. New or different reasons to add to geospatial data;
4. New or different reasons to add to geospatial information;
5. New or different reasons to add to geospatial knowledge;
6. New or different ways to add to geospatial data;
7. New or different ways to add to geospatial information;
8. New or different ways to add to geospatial knowledge;
9. New or different uses of GIS technology;
10. New or different uses of geospatial data;
11. New or different uses of geospatial information;
12. New or different uses of geospatial knowledge;
13. New or different uses of GIScience research methods;
14. New or different uses of GIScience research techniques;
15. New or different uses of GIScience research operations

Third, participants advocated vigorously on behalf of the questions approach used the slide presentations and papers, and urged that more attention be paid to formulating incisive questions in order to effectively probe the thinking and doing behind the evolution of GIS technology, GIScience methodology, and their uses. The questions in Table 3 (from Wellar’s compendium slides and paper) are indicative of the many issues that participants considered during the colloquium, and serve as models of questions that direct initiatives to critically mine the literature and other productions for GIS nuggets.

Table 3. Examples of directive questions to guide retroactively mining the literature and other productions for GIS nuggets

1. How can the ‘retro approach’ contribute to documenting the GIS field as science?
2. How can the ‘retro approach’ contribute to more informed use of time-geospatial continuum knowledge in federal government programs?
3. How can the ‘retro approach’ contribute to more informed use of time-geospatial continuum knowledge in business?
4. How can the ‘retro approach’ promote continuity among members of the GIS community?
5. How can the ‘retro approach’ contribute to reducing the hype in communications about “analytics”?
6. How did best practice concepts affect GIS evolution?
7. How did curiosity- and client-driven research combine to affect GIS evolution?
8. How did enterprise GIS ideas arise and evolve?
9. How has GIS affected news media?
10. How has GIS affected quantitative synthesis?
11. How has GIS affected urban design?

12. How has GIS affected spatial cataloguing?
13. How have GIS and geo-based data added to processes examined in the medical sciences?
14. How have GIS and geo-based data added to processes examined in the natural sciences?
15. How have GIS and geo-based data added to processes examined in the social sciences?
16. How have GIS and geo-based data affected examination of built environment processes?
17. How have GIS and geo-based data been used to counter claims of climate change?
18. How have GIS and geo-based data been used to demonstrate the cascading process which affects interdependent spatial infrastructures?
19. How have GIS and geo-based data contributed to indexes for measuring pedestrians' safety?
20. What were the origins of incorporating GIS in standard of care practice?

An applied research seminar at the Esri Federal User Conference in 2016 in Washington will build on the colloquium slide materials and papers. Current plans are that 3-4 presentations with federal government emphasis will be the basis of seminar discussions. To promote an interactive session, seminar materials will be available at <http://www.wellar.ca/wellarconsulting/> prior to the seminar.

References

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About the Author

Barry Wellar is Professor Emeritus, University of Ottawa, President of the Information Research Board Inc., and Owner and Principal of Wellar Consulting Inc. He is a past president (1978), Urban and Regional Information Systems Association (URISA), and is a member of the GIS Hall of Fame. Awards include the Anderson Medal of Honor, the Horwood Award, the Ullman Award, the URISA Leadership Award, and the CAG Service to Government Award.