CPGIS

The International Association of Chinese Professionals in Geographic Information Sciences

国际华人地理信息科学协会

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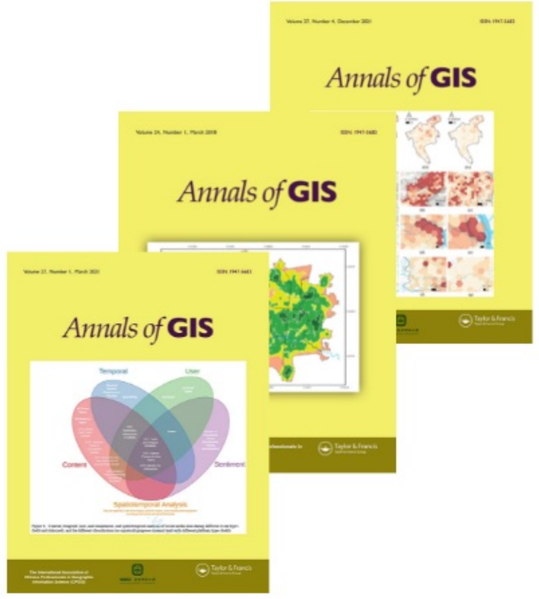
Increasing the likelihood of your paper being accepted: the perspectives from an Editor-in-Chief



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Status of Annals of GIS

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Aim: Original contributions in GISciences and its applications

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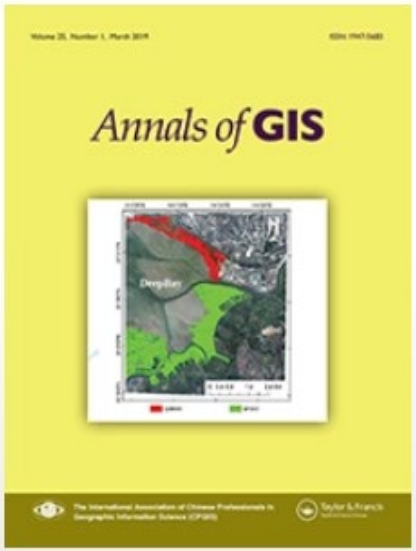
https://www.tandfonline.com/toc/TAGI/current#



Current Status

Up to September 2021

Journal metrics

Usage

- **173K** annual downloads/views

Citation metrics

- **3.5 (2020)** CiteScore
- **Q1 (2020)** CiteScore Best Quartile
- **1.611 (2020)** SNIP
- **0.685 (2020)** SJR

Speed/acceptance

- **44** days avg. from submission to first decision
- **54** days avg. from submission to first post-review decision
- **23** days avg. from acceptance to online publication
- **45%** acceptance rate

Indexed by:

- ESCI (Clarivate)
- Scopus
- DOAJ (Open access journals)
- GEOBASE
- PubMed
- CSA Sustainability Science Abstracts
- Environmental Sciences and Pollution Management

The Mock Impact Factor for 2021 was
3.2 to date (estimated)

Awards

- Most cited paper awards
- Most down paper awards
- Best paper awards (CPGIS)

Key points about Annals of GIS

1) Open Access paid for a broader international audience

2) Indexed in major databases (good status)
   Such as ESCI (Clarivate), Scopus, DOAJ

3) Fast processing time

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Increasing the likelihood of your paper being accepted: the perspectives from an Editor-in-Chief

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Outline

1. **The characteristics of an empirical research paper**

2. **A structure to adopt for your paper**

3. **How to make the characteristics outstanding**

4. **Summary**

Examples used in this talk:

1. Due et al., 2020, “Spatial prediction of flea index of transmitting plague based on environmental similarity”, Annals of GIS 26:3, 227-236, DOI: 10.1080/19475683.2020.1788639

2. Qiu et al., 2020, “Error checking of large land quality databases through data mining based on low frequency associations”, Land Degradation & Development, https://doi-org.ezproxy.library.wisc.edu/10.1002/ldr.3581

The characteristics of an empirical research paper

1) A clear research aim (question)

2) Well justified novelty (question)

3) Structured around the research question

It is the scientific question that is at the center of the paper

The characteristics (1/3)

A clear research aim (question)

One and only one research question. It must be a clear statement about the research aim (question, issue) this paper is to address.

Good examples:

a) It is apparent that new techniques which do not impose the above requirements on sample size, sample distribution and stationarity of the extracted relationships are much needed in spatial predication of plague. This paper aims to explore the use of the Third Law of Geography for the development of such techniques for spatial prediction of plague (How to develop a spatial prediction technique for plague prediction without strict requirements on samples?) (Du et al., 2020, Annals of GIS).

b) The main aim of this study is to explore the use of low-frequency associations among data elements for error checking of cultivated land quality databases (Can the low-frequency associations among data elements be used for error checking in databases?) (Qiu et al., 2020, LDD).

Scientific question directed

Bad examples:

a) The current study aims to (1) explore dataset by factor analysis and reveal the soil properties in association with heavy metal pollution in urban areas, and (2) create prediction surfaces with the purpose of delineating and quantifying the pollution hazards, using kriging and GIS. (*focusing on carrying out a specific task or a process*)

b) The objective of this study was to detect the change in land use/land cover and its impact on land surface temperature over the past 40 years (1981–2020) in the 973 watershed, in the northeastern China. To achieve this overall objective, the following specific objectives were formulated:

- Analyze the magnitude and patterns of spatiotemporal land use/ cover change;
- Examine the spatiotemporal variation of land surface temperature;
- Investigate impacts of land use/land cover change on land surface temperature;
- Explore the correlation between LST and the normalized difference vegetation index (NDVI).

(*focusing on the outcomes of a specific area and carrying out a specific task or a process*)

Project report like

The characteristics (2/3)

Well justified novelty (question)

What is novelty:

Questions that have not been addressed or not sufficiently addressed in the literature.

It should be a gap in our knowledge (literature) or something which is incorrect in our understanding (literature).

It is not a question you do not know, nor a question a group of people do not know.

How to achieve this:

It has to be sufficiently justified through a well structured, focused and thorough literature review (Done earlier in the paper, often either in the introduction section or literature review section).

Example:

1. Introduction in Due et al., 2020, Annals of GIS 26:3, 227-236,
   DOI: 10.1080/19475683.2020.1788639
2. Introduction in Qiu et al., 2020, Land Degradation & Development
   https://doi-org.ezproxy.library.wisc.edu/10.1002/ldr.3581

Example 1: Introduction in Due et al., 2020, Annals of GIS

Background on Plague prediction and importance

1. Introduction

Plague is a natural infectious disease which has a high mortality rate and has killed 200 million people in the history of three world plague epidemics (Stenseth et al. 2008). The global plague prevalence has been rising since the 1990s (Zhang et al. 2016). In 2017, Madagascar reported plague outbreak cases, which led to the deaths of 202 people (WHO, 2017). The plague is mainly transmitted through infected fleas that exchange and transfer *Yersinia pestis* to different rodent hosts (flea-bitten rats) over geographical landscape where the infected rats live. When humans enter this environment they can be infected (Fang et al. 2012). Studies have shown that an outbreak is likely to occur if the flea index is higher (Singchai et al. 2003). Thus, spatial prediction of flea index is a vital method of preventing and controlling plague and is receiving increasing attention in the plague preventing and controlling communities (Zhao and Yin 2016).

There are two major types of spatial prediction methods that have been applied to the prediction of epidemic analysis. The first is based on the concept of spatial autocorrelation (Isaaks and Srivastava 1989; Goovaerts 1999) and uses the spatial autocorrelation of the target variable (plague vector in this case), such as inverse distance weighted and kriging methods (Krige 1951; Bihrmann et al. 2012). Zhuang et al. (2016) used spatial autocorrelation on flea index, and found that the spatial distribution of plague clustered in their study region. Hu et al. (2011) used spatial indicators such as Moran's I to conduct spatial autocorrelation statistics on dengue cases in Queensland, Australia, and These methods first extract the spatial autocorrelation of the target variables from a set of field samples and then use the extracted spatial autocorrelation to predict the values of the target variable at unsampled locations. This type of methods often requires samples to be large enough in size and with a distribution sufficiently capturing the spatial variation of the target variable to characterize the spatial autocorrelation of the target variable over the study area. In addition they also require the extracted spatial autocorrelation to be stable over the study area.

Narrow the focus to the key area of concern (area that your research question lies)

Focused, structured, thorough review

The second type of methods is based on the correlation between the target variable and a set of environmental covariates (variables which co-vary with the target variable, such as multiple linear regression, generalized linear models (Buckley et al. 2015). Zhuang et al. (2016) used linear regression and indicated that temperature, rainfall, DEM, host density and Normalized difference vegetation index can affect the spatial cluster of *Meriones unguiculatus* (rat). These methods, different from those based on spatial autocorrelation, extract relationships (or correlations) between the target variable and the covariates (often referred to as 'environmental variables') from samples and then use the extracted relationships and the values of the covariates at the unsampled sites to predict values of the target variable at these sites. Like the spatial autocorrelation methods these methods also require sufficient field samples with a spatial distribution well representing the relationships over the area. Similarly, the extracted relationships also need to be stable over the study area.

The requirements of the existing methods can hardly be met in spatial prediction of plague flea index. It is extremely difficult to collect spatial distribution of plague due to the lack of plague surveillance. A large set of samples with distribution capturing the nature of spatial variation of plague over an area is almost impossible. In addition, spatial variation of plague often does not manifest itself in a stable and constant way (Lin and Zi-Hou 2014). The same can be true for correlation between the target variable and the covariates. Furthermore, these methods do not report the uncertainty associated when the sparse plague samples with limited spatial representation are used with these methods (Zhuang et al. 2016).

It is apparent that new techniques which do not impose the above requirements on sample size, sample distribution and stationarity of the extracted relationships are much needed in spatial predication of plague. This paper aims to explore the use of the Third Law of Geography (Zhu et al. 2018) for the development of such techniques for spatial prediction of plague. We will first

Justification:
Analysis of the literature and presentation of the question

The characteristics (3/3)

Structured around the research question

The entire paper should be structured to focus on the research question.

Which means:

- The method should be directed to those specifically for answering the research question
- The experiment for the research should be designed to answer the research question only
- The results should be those providing direct answers to the research question
- The discussion should focus on the context (stability) your answers to the research question and the conclusion you draw.

Example:
1. Due et al., 2020, Annals of GIS;
2. Qiu et al., 2020, Land Degradation and Development

A structure to adopt for your paper

Basic structure

0. Abstract
1. Introduction
2. Methods (including experiment design)
3. Results
4. Discussion
5. Conclusions

Modify this based on the nature of your paper to make the key focus, *the above characteristics,* outstandingly clear.

A structure to adopt for your paper

0. Abstract

A nutshell of the paper can be used independently. It is definitely NOT the introduction or part of the introduction of the paper.

Typically consists of three parts：

a. The research question
b. A summary of the methods used
c. Key results (often quantative) and findings

A structure to adopt for your paper

1.Introduction

It is the beginning of the paper. It is to established the research question (achieving the first two characteristics).

It consists of four key parts:

Part 1: Provide the background of the research and identify the key issue researchers are concerned with in this area.

Part 2: Conduct a structured literature review (in the form of advancement in idea)

Part 3: Synthesize what provided in Part 2 and clearly identify the research gap (question) based on the synthesis.

Part 4: Provide the objective of the paper (the aim).

Example 2: Introduction in Qiu et al., 2020, Land Degradation & Development

Part 1: Provide the background of the research and identify the key issue researchers are concerned about in this area.

1 | INTRODUCTION

The assessment of cultivated land quality is an important part of the process for land degradation and development evaluation. Accurate databases on land quality are an important prerequisite in this process (Al-Ruzouq, Hamad, Shanableh, et al., 2017; Bouma & Droogers, 1998; Wang, Wang, Xu, Huang, & Wu, 2012). However, the accuracy of land quality databases subjects to many factors including accuracy of source data, quality control in data entry process, the compatibility of data creation guidelines from the different departments involved (Fang, Yue, & Yu, 2010; Liu, Peng, Chen, Liao, & Zhang, 2015; Song, Du, & Chen, 2011). Thus, erroneous or incomplete data are not uncommon in land quality databases, particularly when they are compiled across different departments. The increased volumes of these land quality databases make it difficult to locate and correct errors in these databases. Therefore, error checking of large land quality databases is an important issue in land quality and land degradation assessment (Stankute & Asche, 2011).

Part 2: Conduct a structured literature review (in the form of advancement in idea)

There are three basic types of methods for error checking of large land quality databases. The first is the manual method which achieves error checking through human–computer interactions with which the land quality databases are visualized by displaying the records on a computer screen in the form of graphics, images or tables for an operator to spot errors (Wan, Shi, Gao, Chen, & Hua, 2015; Zhang, Wu, & Zhao, 2011). This type of method is solely based on manual work, which greatly depends on the experience, energy, and concentration of the human operator. It is not only inefficient, labour intensive, but also error prone.

The second type of methods checks the data quality using information from the metadata on the databases. This type of methods utilizes metadata to establish a detailed multi-level table about the properties of data items in databases to check the attributes in the database for violation of any of the properties (such as ranges and/or type) of the data items (Su, Deng, Wang, & &Li, X.W., 2003). For example, Fang, Liu, and Zhong (2004) used metadata first to define and describe the attribute information of standard data, such as type, precision, and field length, and then create a metadata base. If the attribute information of actual land quality database is inconsistent with the defined standard attributes in the metadata base, it will be

Part 3: Synthesize what provided in Part 2 and clearly identify the research gap (question) based on the synthesis.

The above analysis shows that manual checking is very cumbersome compared with other data quality checking methods. Although the metadata and the rule-based methods have improved upon manual checking, these rules are not only subjective but also often incomplete and limited to specific types of errors, particularly those errors which are within the normal ranges of attributes but wrongly associated with other attribute values. For example, a cultivated field would have the following combination of horizons: the top is loam, and below which might be loam/ loamy clay/loamy sand. It would be very rare to have a loam surface horizon which immediately followed by a gravel horizon. Often such combination is a result of data entry error. However, the rule-based methods would not be able to catch this unless an explicit rule for this instance is built, which is often difficult to do due to the factorial combinations of various attribute values.

These types of errors can be located, or problematic attributes values can be at least flagged by considering the nature of combinational relationships between attributes in databases, which the existing methods do not consider. A combinational relationship between data items refers to the intrinsic relationship (or association) between multiple data items describing an object (or record) (Jie et al., 2018). For example, in a land quality database the texture combinations of soil horizons along a profile exhibit important relationships which are

Part 4: Provide the objective of the paper (the aim).

The main aim of this study is to explore the use of low-frequency associations among data elements for error checking of cultivated land quality databases. Data mining techniques were first employed to

A structure to adopt for your paper

2.Methodology

2.1 Basic Idea

The idea or the strategy in answering the question (not about the procedures or processes to be undertaken. It is the idea, the key contribution of the paper)

2.2 Methods

The methods for implementing or realizing the idea. It is not about the complete workflow; it is the key methods which are at the heart of answering the question.

2.3 Experiments (Experiment Design)

The description of the design of the controlled experiments to find the answers, and consists of:

1) Study area and data
2) Processes and procedures (key steps) in implementing the key methods to realize the idea (strategy). There is no need to describe the details of the common methodology for data preparation and data analysis, unless the methodology would have significant impacts on the answers. If so, then include them in the discussion section.
3) Evaluation strategies and methods

The key is to provide a scientific process to gather the evidence for the answer.

A structure to adopt for your paper

3.Results

The results from the experiments which directly answer the research question.

There is no need to list the intermediate outputs from the analysis (such as products from the data preprocessing).

If the variation of products from these intermediate steps impacts the answers significantly (changing the conclusion), then these should be included in the discussion section.

A structure to adopt for your paper

4.Discussion

This section is to discuss the context of your findings and their implications

Consists of the following aspects：

1) Stability of the results, assessed from two basic angles:
    a) Examine if different techniques in the key method section would change the outcomes of the experiments, in turn alter the findings or the conclusion drawn.
    b) Examine if different parameter settings of the key method or techniques would change the outcomes of the experiments.

2) The conditions or boundaries of the findings (the context)

3) The impacts of the findings on existing knowledge

A structure to adopt for your paper

5. Conclusions or Summaries

The key findings and their implications, consists of the followings

- A summary of the key method in addressing the questions
- Key findings and their implications.
- Conditions and context of the conclusion

No numerical results are expected in this section.

How to make the characteristics outstanding

1) A clear research aim (question)

2) Well justified novelty (question)

Introduction section

3) Structured to answer the research question

The basic idea section

Strategy to answer

Methods Section

How to answer the question

Results section

Directly related to answers

Discussion section

Context of your answers

How to make the characteristics outstanding

Example: improving car engine

1. Introduction

   Identification and justification of the research question from the literature

   Identification and justification of the deficiency of the engine (here just one)

2. Methods

   2.1 Basic idea

   The idea to address the question

   The idea or strategy to address this deficiency based on the knowledge of engine mechanics

   2.2 Methods:

   Key methods for realizing this idea or strategy in addressing the question

   The key methods for addressing the engine deficiency based on the above idea.

   2.3 Experiments

   Implementation (including study area, data, other procedures) of the solution (the idea and the key methods) and control experiments for evaluating the new strategy.

   Build a new engine based on the idea and the key methods; Assemble a new car with this new engine and assemble another car with the old engine with rest of the parts being same, then compare the performance of these two cars.

How to make the characteristics outstanding

Example: improving car engine

3. Results

   Results directly answering the research question and related explanation

   Performance of the new engine such as horsepower, acceleration and explanation of these measures, comparison in performance with the other car (with the same assembling parts but just a different engine)

4. Discussion

   Impacts on the results (conclusion) if the key methods are changed or some of the parameters are changed. Implications for knowledge in this area (contributions).

   Impacts on (sensitivity of) the performance of the new engine if any of the key materials or methods used to build the new engine changes. Conditions for the improved performance of the new engine. Prospects of the new engine and implications for engine manufacturing.

5. Conclusions

   Summary statements about the finding and innovation.

   Conclusive statements about the improved engine and its prospects, its contributions to engine manufacturing.

Summaries

A scientific paper is NOT a project report documenting the processes and procedures in completing a task or a project.

It is a paper about addressing a research gap (question) in the literature, which documents the justification of a research gap in the literature, the idea and experiments in addressing this gap, and the answers to the question, and the implications of the answers to literature.

The scientific question!
The scientific question!
The scientific question!

Thank you for your attention !

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