# Article information:

Water | Free Full-Text | Monitoring Variations in Lake Water Storage with Satellite Imagery and Citizen Science
<https://www.mdpi.com/2073-4441/13/7/949>

# Article summary:

1. The study focuses on variations in lake water storage in small, unregulated lakes in North Carolina, Washington, Illinois, and Wisconsin using lake level measurements from citizen scientists and satellite imagery.

2. The accuracy of the lake level measurements gathered by citizen scientists is shown to be high when compared to automated gauges.

3. The study finds that variations in lake water storage between pairs of lakes within the study regions are moderately positively correlated on average, suggesting regional-scale drivers, but there is also substantial variation indicating the importance of local factors specific to each lake.

# Article rating:

May be slightly imbalanced: The article presents the information in a generally reliable way, but there are minor points of consideration that could be explored further or claims that are not fully backed by appropriate evidence. Some perspectives may also be omitted, and you are encouraged to use the research topics section to explore the topic further.

# Article analysis:

The article titled "Monitoring Variations in Lake Water Storage with Satellite Imagery and Citizen Science" discusses the use of satellite imagery and citizen science to monitor variations in lake water storage. The article provides an overview of the importance of lakes as a water resource and the limitations of current monitoring systems for small lakes. It then presents the methodology used in the study, which combines lake level measurements from citizen scientists with satellite imagery to measure changes in lake water storage over time.

Overall, the article provides a comprehensive analysis of the research topic and presents relevant information on the importance of monitoring small lakes. However, there are several potential biases and limitations that should be considered.

Firstly, the article primarily focuses on small, unregulated lakes in specific regions of the United States. While this is mentioned in the introduction, it limits the generalizability of the findings to other regions or types of lakes. The study would benefit from including a more diverse range of lake types and locations to provide a broader understanding of variations in lake water storage.

Additionally, there is limited discussion on potential sources of bias in the data collected by citizen scientists. The article mentions that the lake level measurements were compared to automated gauges to assess accuracy but does not provide details on how this comparison was conducted or any potential limitations or sources of error in the citizen-collected data. This lack of discussion raises questions about the reliability and validity of the data used in the study.

Furthermore, while the article acknowledges that satellite radar altimetry is limited to larger lakes, it does not explore alternative methods or technologies that could be used to monitor smaller lakes. This omission limits the scope of potential solutions for monitoring small lakes and leaves unanswered questions about how best to address this issue.

Another limitation is that there is no discussion on potential risks or negative impacts associated with citizen science involvement in lake monitoring. While citizen science can be a valuable tool for data collection, it also raises concerns about data quality, consistency, and potential biases introduced by non-experts. The article does not address these concerns or provide any recommendations for mitigating potential risks.

In terms of reporting, the article provides a balanced presentation of the research findings and includes relevant data and analysis. However, there is limited discussion on potential limitations or uncertainties in the results. The authors could have provided more context on the variability in correlations between lake pairs and discussed possible explanations for these variations.

Overall, while the article provides valuable insights into monitoring variations in lake water storage using satellite imagery and citizen science, there are several biases and limitations that should be considered. These include the limited scope of the study, potential biases in the citizen-collected data, lack of exploration of alternative monitoring methods for small lakes, and limited discussion on potential risks associated with citizen science involvement. Addressing these limitations would strengthen the overall analysis and provide a more comprehensive understanding of variations in lake water storage.

# Topics for further research:

* Alternative methods for monitoring small lakes water storage
* Potential risks and negative impacts of citizen science in lake monitoring
* Comparison of citizen-collected data with automated gauges in lake level measurements
* Generalizability of findings to different types and regions of lakes
* Technologies for monitoring small lakes other than satellite radar altimetry
* Variability in correlations between lake pairs in monitoring lake water storage

# Report location:

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