

# Bibliometrix Analaysis for Lake Urmia Peer Reviewed Literature: 1900 to Sept. 2020

David E. Rosenberg

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## Introduction

This is an R Markdown document. The script is modified from <https://cran.r-project.org/web/packages/bibliometrix/vignettes/bibliometrix-vignette.html>

The Scopus database was queried for articles with the key words ( “Lake” AND ( “Urmia” OR “orumiye” OR “Orumiye” ) ). The queries were done in two batches: from 1) 1900 to August 2019, and 2) August 2019 to September 2020. Duplicates were removed.

## Input files:

1. **Scopus-LakeUrmia-Aug8-2019.bib** - Scopus database query made on August 8, 2019 (initial batch of articles)
2. **Scopus-LakeUrmia-Sept15-2020.bib** - Scopus database query made on Sept 15, 2020 (2nd batch of articles)
3. **LakeUrmiaWaterLevel-1966-Vaheddost.xlsx** - Monthly lake level data provided by Vaheddost via email. Used in Figure 1.
4. **Lake\_Urmia\_WaterLevel\_Precip\_Data.xlsx** - Annual lake level and precipitation data provided by Parsinejad. Used in Figure 6 in Section 4.7.

## Output files:

1. **BibliometrixUrmia2020.pdf** - pdf file with all the figures
2. **UrmiaArticlesSorted2020.csv** - Comma separated values of all articles sorted by number of authors (largest to smallest)

## Outputs

1. Plot of articles versus time compared to lake level (Fig. 1 in the synthesis article)
2. Plot of observed and planned lakes levels vs basin precipitation (Figure 6 in Section 4.7 of the synthesis article)

Then the Bibliometrix package was used to make the remaining plots of article data.

## Recommended Citation

David E. Rosenberg (2021). “Bibliometrix Analysis for Lake Urmia Peer Reviewed Literature: 1900 to Sept. 2020”, Utah State University, Logan, Utah.

## Summary of Articles from SCOPUS

Keyword search = TITLE-ABS-KEY ( “Lake” AND ( “Urmia” OR “Ormayeh” OR “Orumiyeh” ) )

Number of articles = 544

Number of authors = 1319

Number of multi-authored articles = 1283

Number of single-authored articles = 36

Figure 1. Journal articles by year vs Lake Level

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## New names:
## * Month -> Month...3
## * Month -> Month...4
```

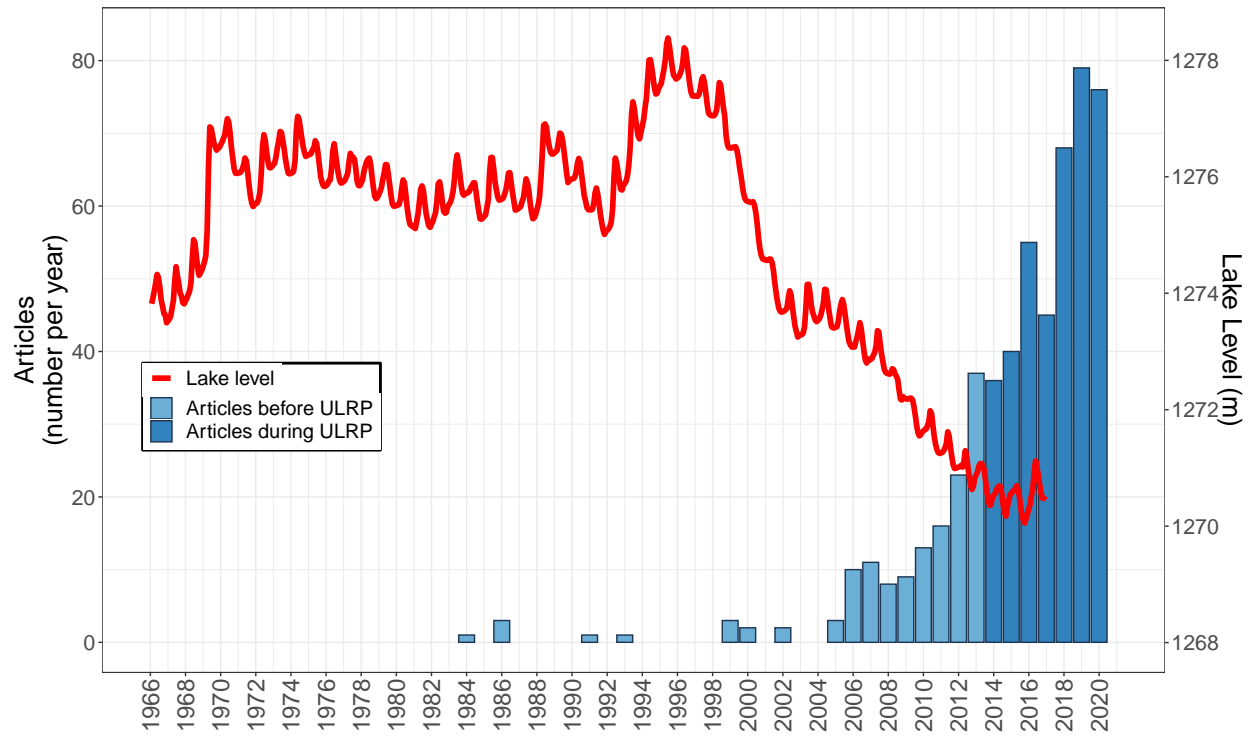
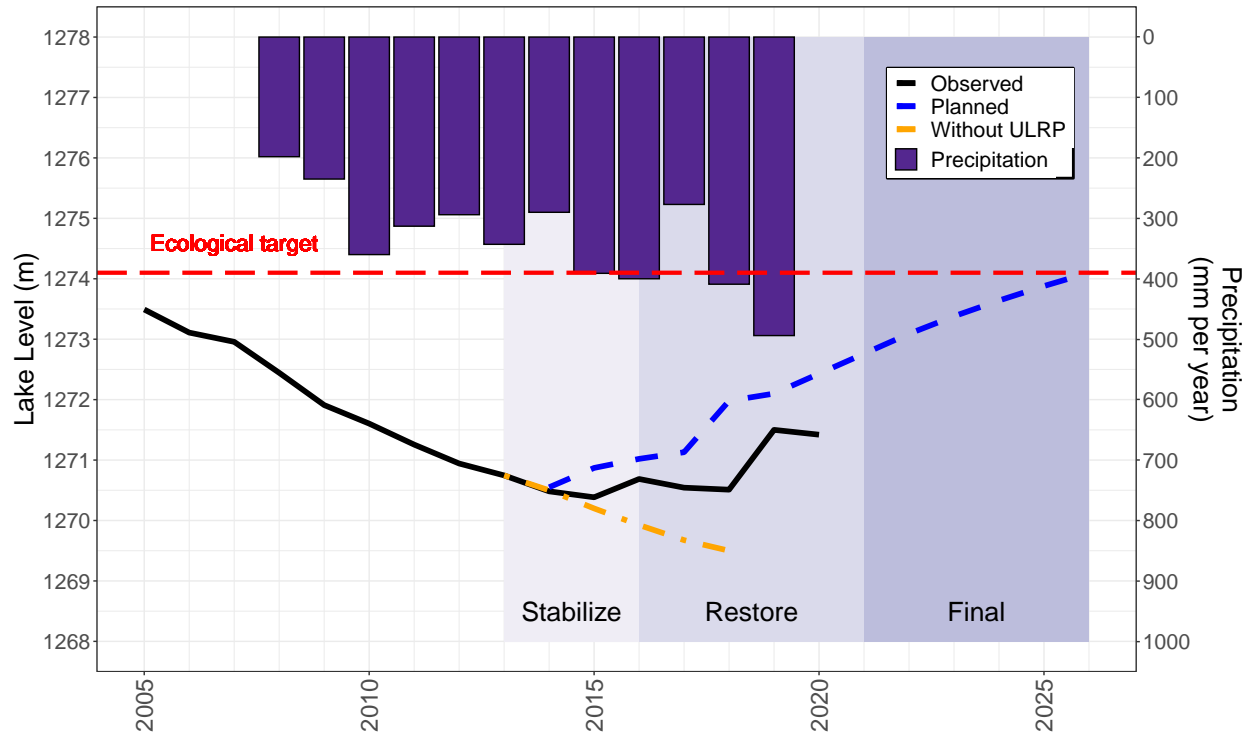
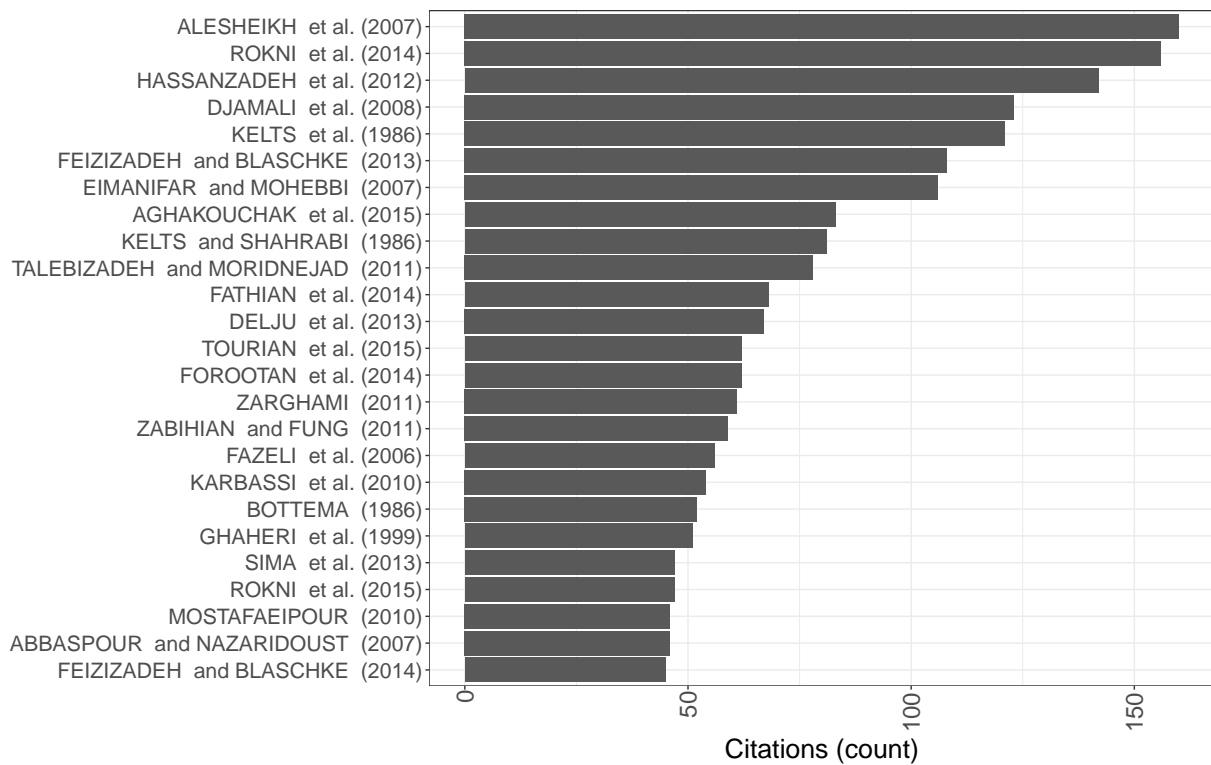


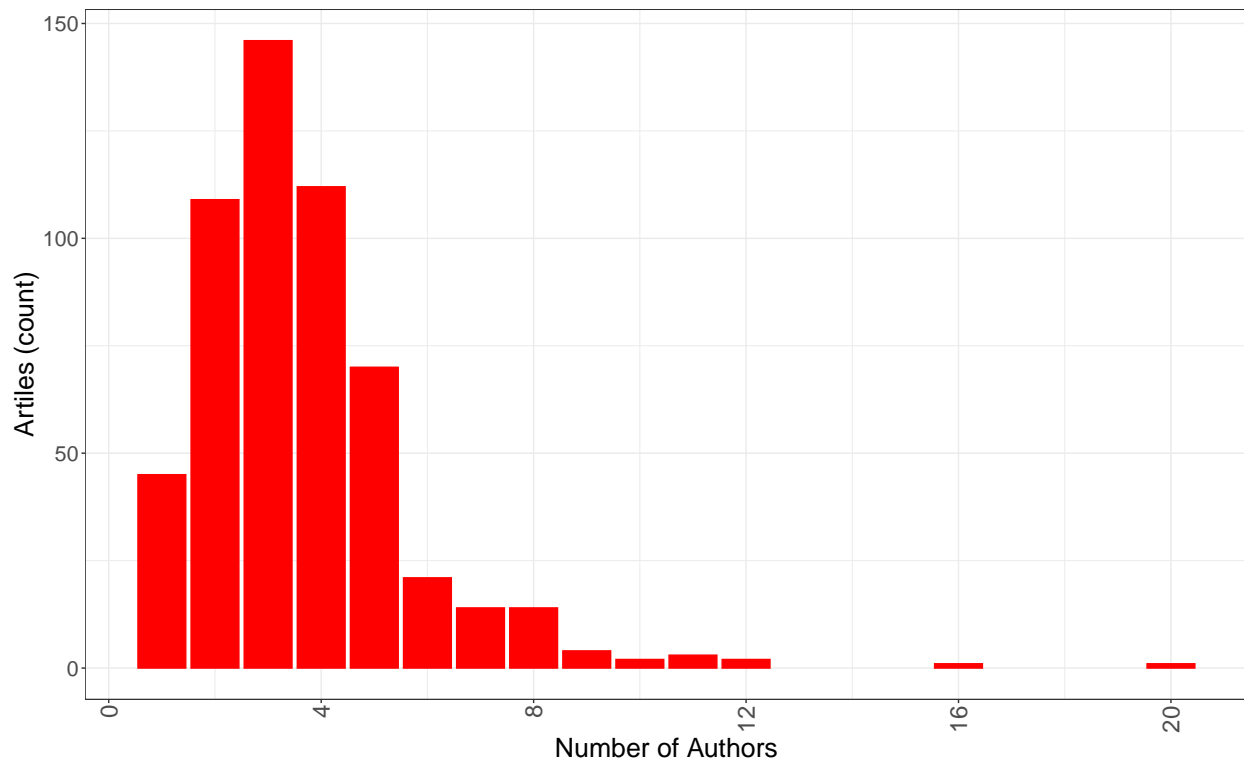
Figure for Section 4.7. Lake Restoration efforts: Lake level vs precipitation



**Figure 2. Top cited articles**



**Figure 3. Author team size**



Save the article data frame to the CSV file UrmiaArticlesSorted2020.csv

Articles are sorted by number of authors (largest to smallest)

Figure 4. Most frequent journals

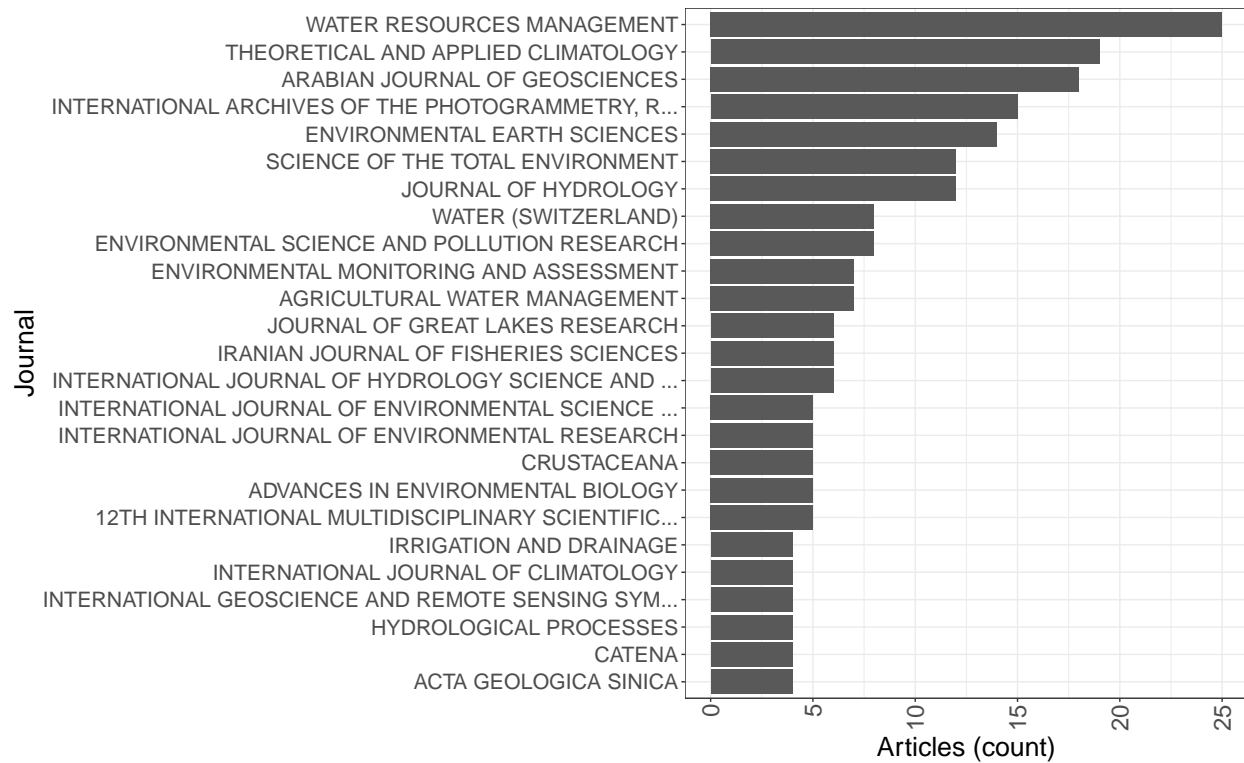
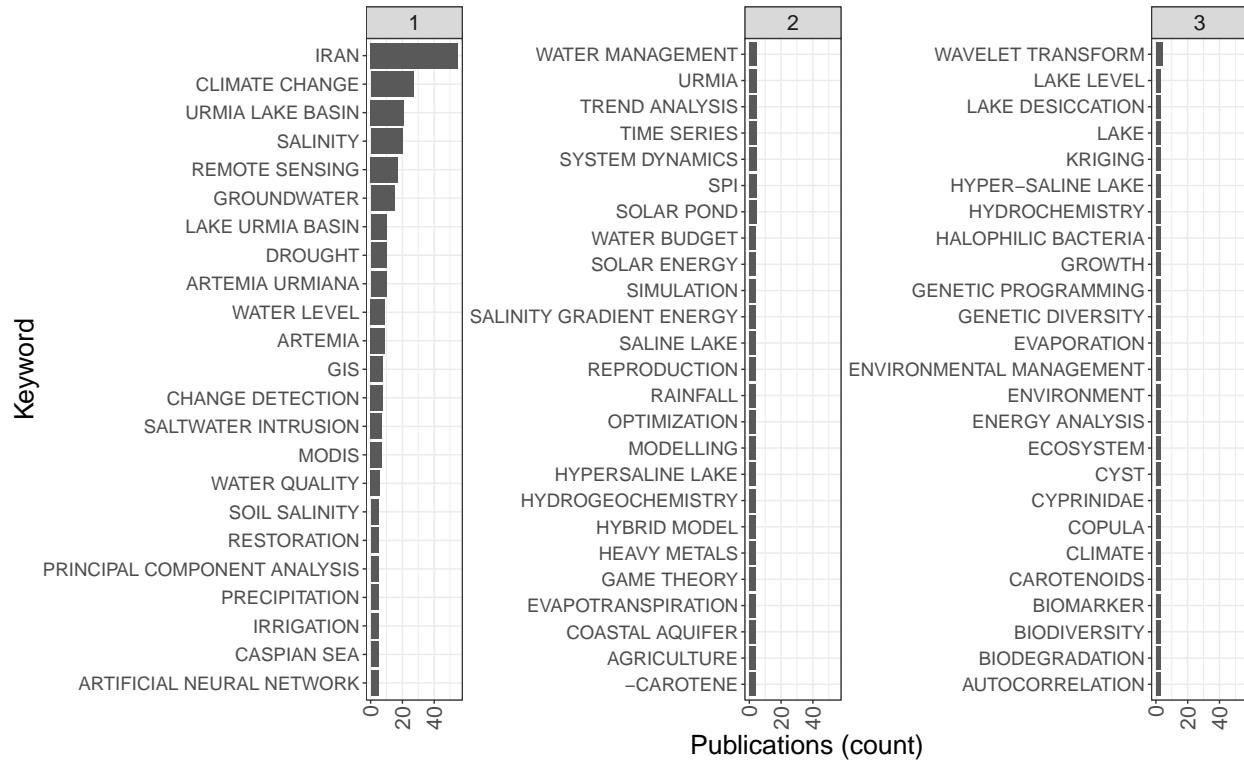
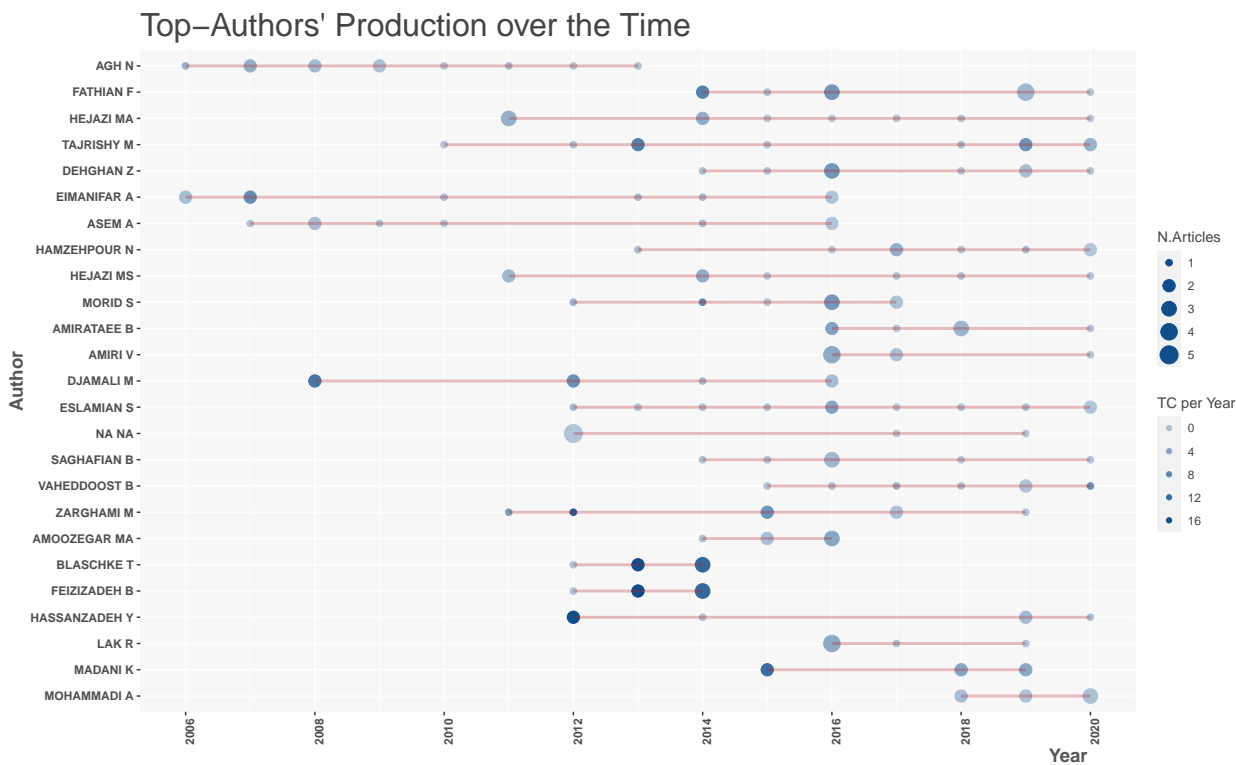


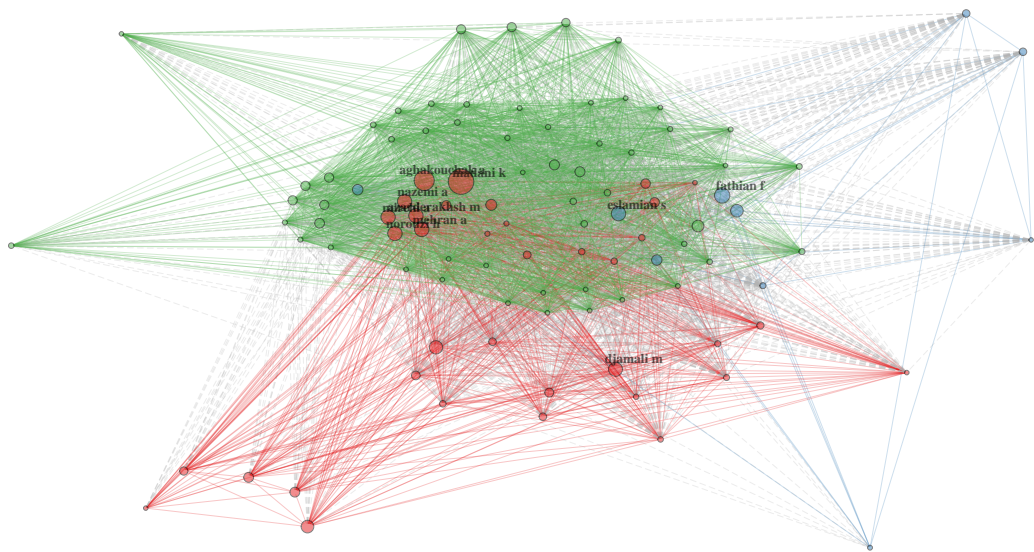
Figure 5. Author keyword frequency



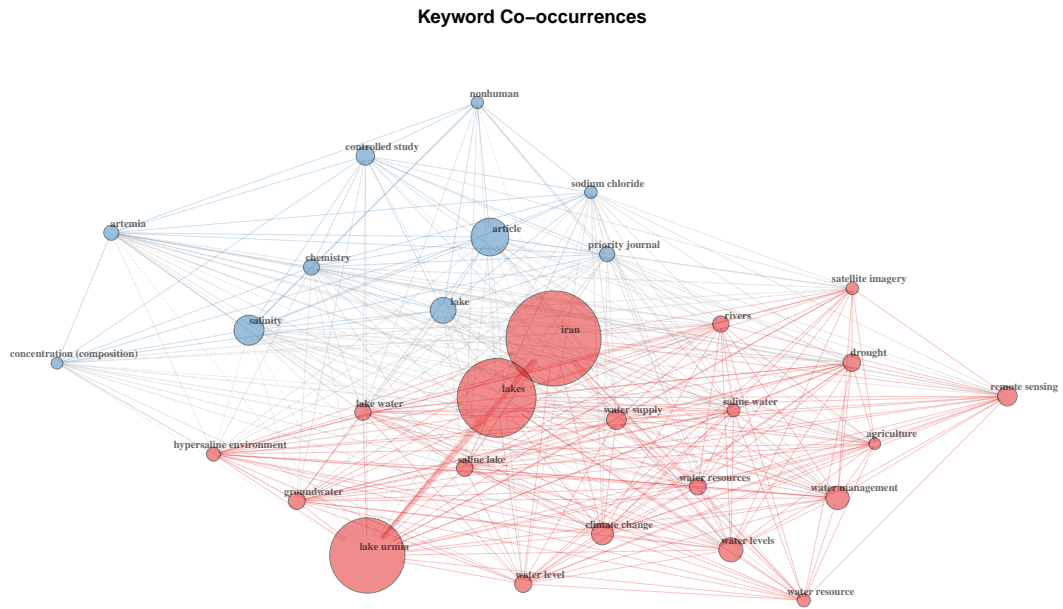
Figures 6 - 8. Network plots



Authors' Coupling







**Figure 9. Historical citation network**

Historical Direct Citation Network

