

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

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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-Sep15-2020.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.

## Ouput files:

1. **BibliometrixUrmia2020.pdf** - pdf file with all the figures
2. **UrmiaArticlesSorted2020.csv** - Comma separated values of all articles sorted by number of authros (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 Secton 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. <https://github.com/dzeke/UrmiaCoding/tree/main/LiteratureSynthesis>

## 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

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

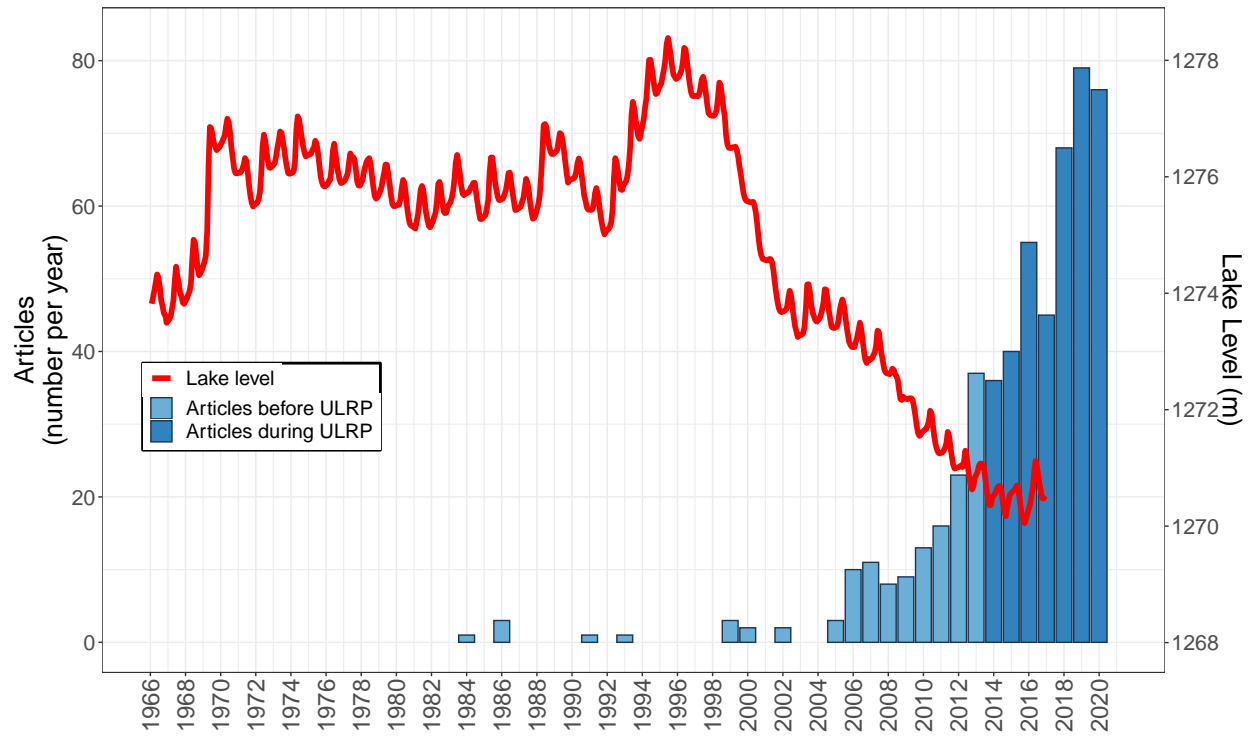
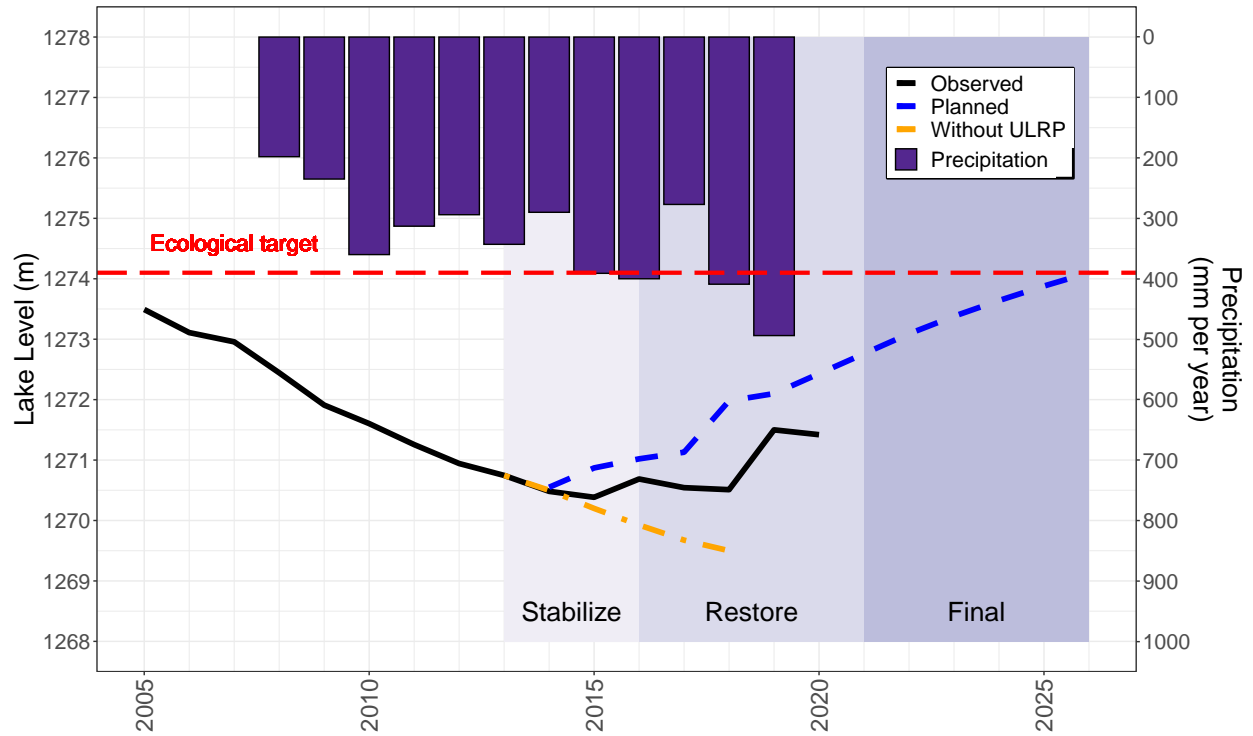
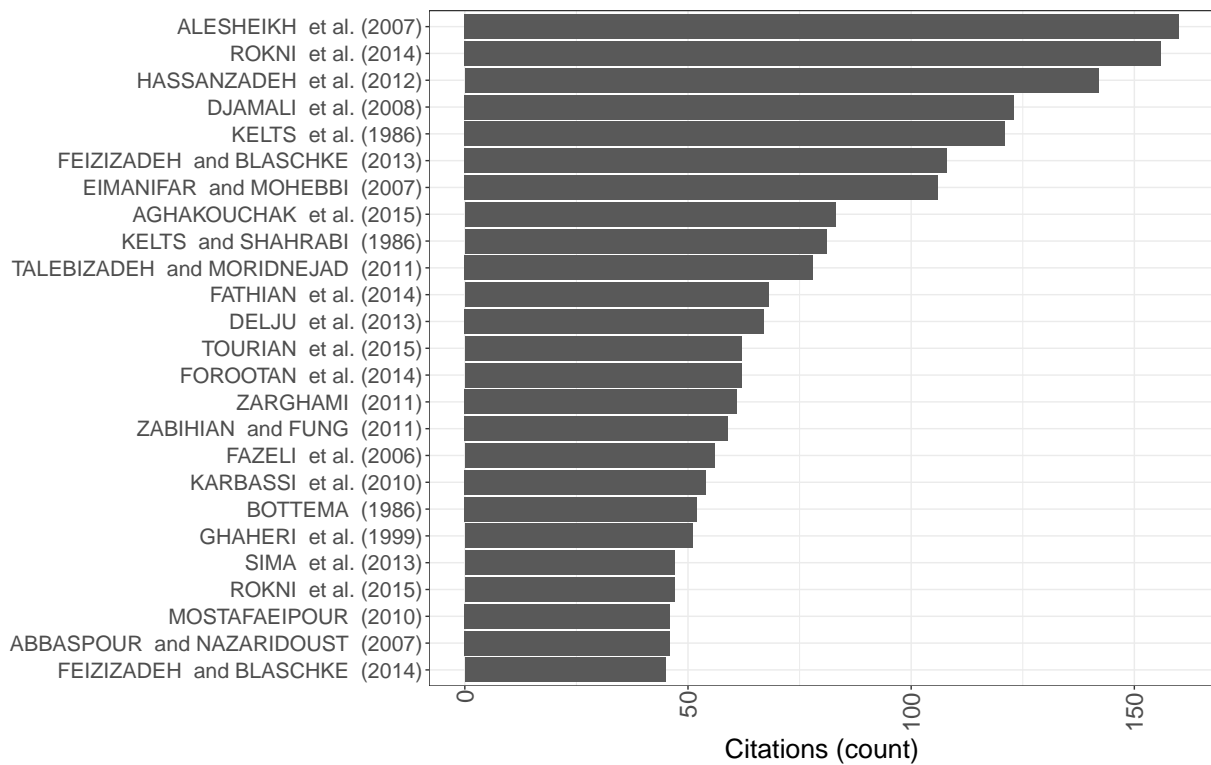


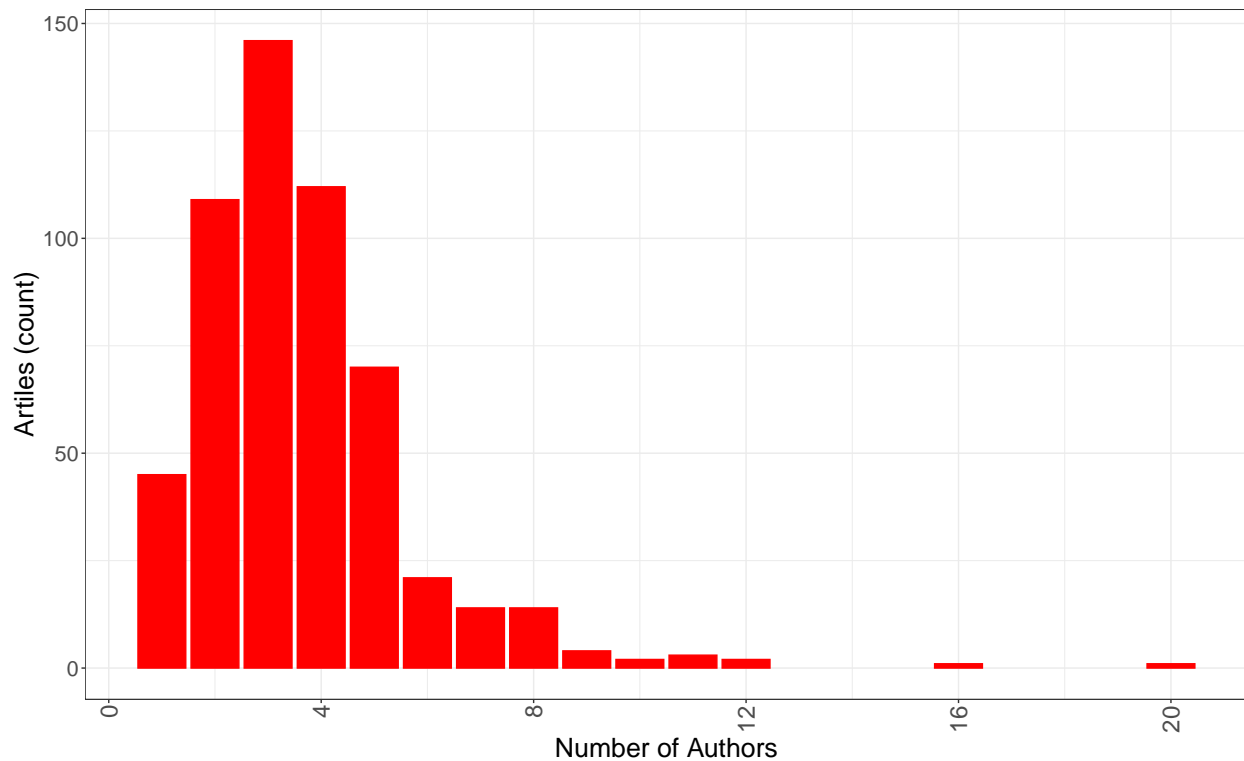
Figure for Section 4.7. Lake Restoration efforts: Lake level vs precipitation



**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**

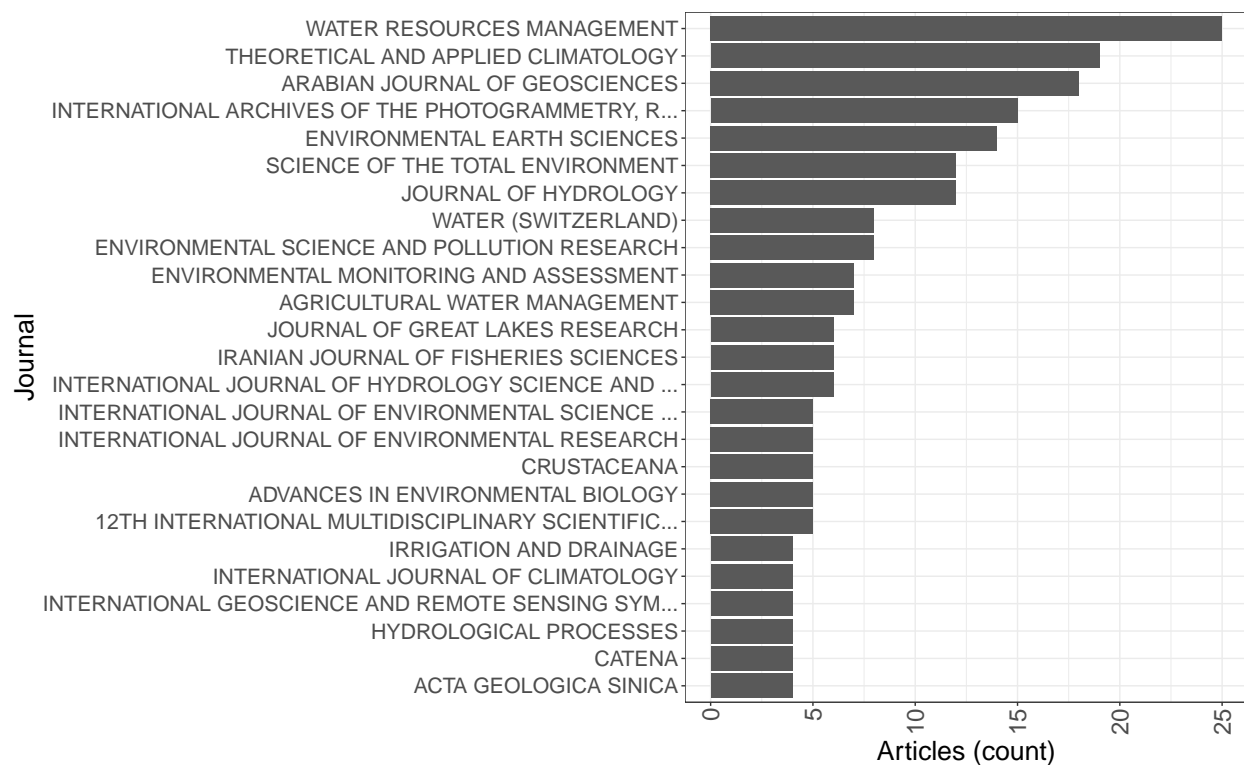
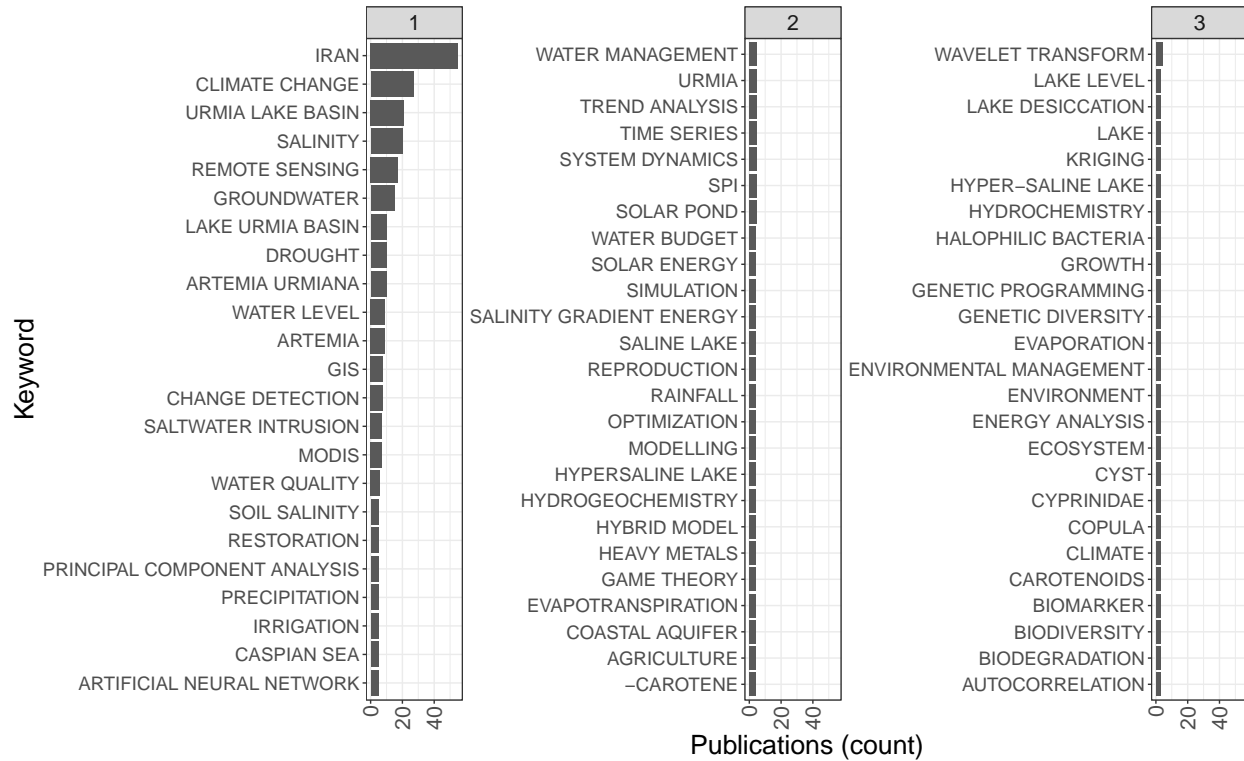
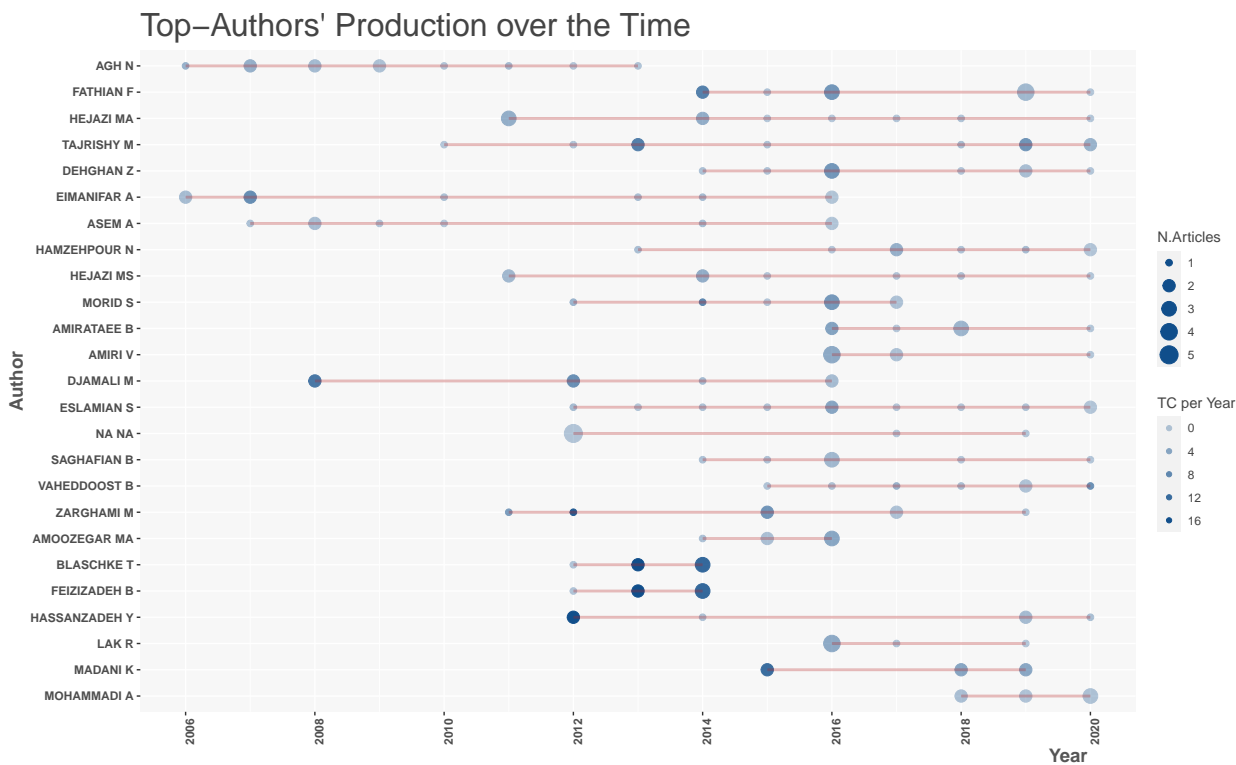


Figure 5. Author keyword frequency

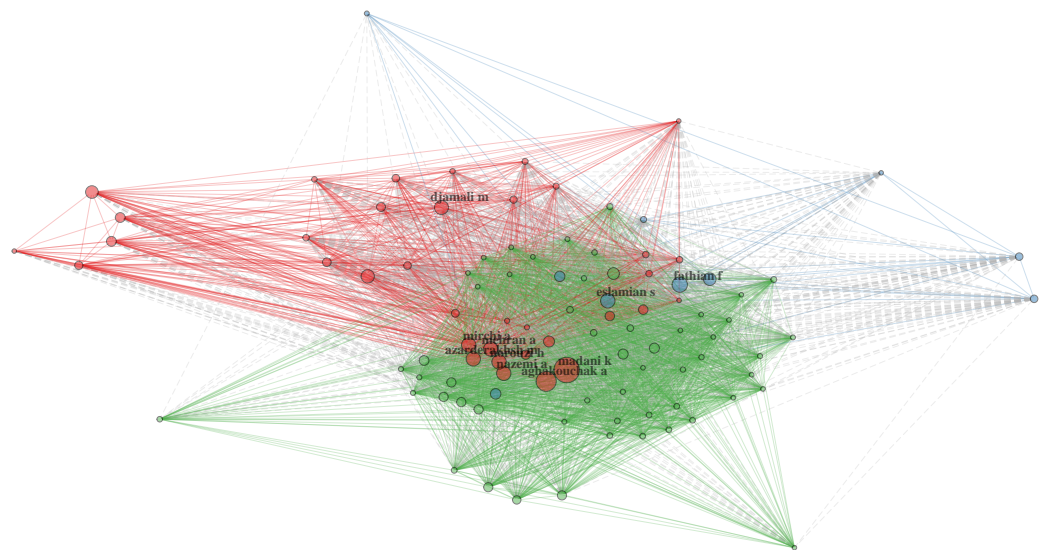


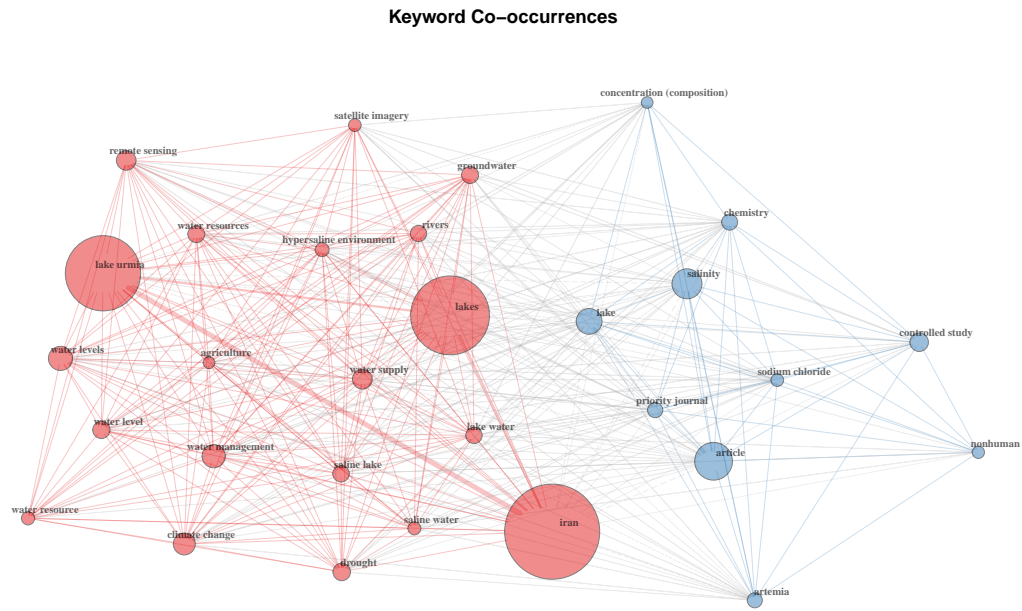


Figures 6 - 8. Network plots



Authors' Coupling





**Figure 9. Historical citation network**

Historical Direct Citation Network

