NATIONAL CONSORTIUM FOR REMOTE SENSING EDUCATION, RESEARCH, AND APPLICATIONS

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Landsat Remote Sensing Literature Study with Computational Text Analysis

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Figure 1. The annual trend of Landsat research in study area, research topics, research techniques, and products from 1975 to 2021. X: publication year; Y: annual number of publications; Red dash line: year 2008 when Landsat was open to public.

<u>Content</u>: Landsat satellites have monitored our earth for 50 years since 1972, collecting long-term medium-resolution remote sensing images. In this project, we analyzed 30,164 Landsat journal articles from 1975 to 2021 to investigate the trends of Landsat research, and the impacts of the open Landsat in 2008. We applied Natural Language Processing and computational text analysis on journal article titles and abstracts to understand the research topics, study area, research techniques/methodology, and products generated using Landsat images (Figure 1).

Finding highlights:

• Explosive increase of journal articles since open Landsat in 2008 (about 72.5% articles was published in the past 13 years).



- Forest, urban, water are three main study areas using Landsat.
- Surface temperature and climate change are two rapid increasing research topics.
- Random forest is one of the most popular research algorithms used in Landsat research, and there is a significant growth of studies using Google earth engine and machine learning.
- LULC, NDVI, and LST are main Landsat products. Studies using NDWI increase exponentially recently since 2019.

FOR FURTHER READING:

Project GitHub Repository:

https://github.com/DrShaoGang/LandsatProject2022