

# Data on Sources

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## 1 Guidelines

### 1.1 Keyword Searches

1. Search engine used:
2. Keywords:
3. How many results:
4. How many were peer-reviewed:
5. How many are from 2017 or newer:
6. Calculate % new peer-reviewed:

### 1.2 Augment Keyword Searches (Use synonyms)

1. Search engine used:
2. Keywords:
3. How many results:
4. How many were peer-reviewed:
5. How many are from 2017 or newer:
6. Calculate % new peer-reviewed:

### 1.3 Other Metrics

1. Number of abstracts read:
2. How many articles read:
3. Calculate % of articles read out number of abstracts read:

## 2 List of sources

1. Rice - *Influence of watershed...*

Notes: (I) Abstract: Analyzed 70 years of annual scale streamflow (1940-2009) in CONUS. Focus of study was streamflow variability and at the CONUS scale, the balance between precipitation and evaporative demand, and measures of geographic location were important. Boosted regression tree model was used to study the relationship between watershed characteristics and the magnitude of trends. (II) Intro: A decline in streamflow has been reported in analyses to specific regions. Existing research focused heavily on discrete time intervals but the research is lacking widespread, long-term changes in the periodic structure of streamflow time series. The questions asked are: (1) What patterns emerge in changes in the magnitude of annual scale streamflow variability across the CONUS between 1940 and 2009? (2) How are characteristics of individual water sheds related to variation in the magnitude of those trends? (3) How do these relationships vary spatially? (III) Methods: (Data Overview) Datasets consists of 967 watersheds within the CONUS chosen from the USGS GAGES-II

reference dataset which are considered minimally impacted by human activity. (Wavelet transform and streamflow) Continuous Wavelet transform (CWT) was applied to quantify the magnitude of annual scale variability. Instead of discrete WT, the CWT provides a more effective extraction of information from geophysical time series. (Spatial data) Analysis of relationship between individual watersheds and the mag. of trends in streamflow variability periodicity which focused on four categories: (1) climatology (2) topography (3) basin morphology (4) human disturbance. In order to describe climatology, seven average variables were used: (1) mean annual precipitation ( $P_{mean}$ ) (2) P std. dev (3) mean annual air temp ( $T_{mean}$ ) (4) T std. dev. (5) mean ann. potential evapotranspiration ( $PET_{mean}$ ) (6) PET std. dev. (7) mean ann. dryness index ( $PET/P, DI_{mean}$ ) Topographic variables: (1) mean elevation ( $Ele_{mean}$ ) (2) Ele std. dev. (3) mean slope ( $Slp_{mean}$ ) (4) Slp std. dev. Additional variables include: (1) mean up slope accumulation ( $UAA_{mean}$ ) (2) UAA std. dev. (3) total basin area (4) values from falcone's 2010 study which measured human disturbance (Iv) At the CONUS scale, a general pattern of decreasing trends in ann. scale streamflow was observed with decrease outnumbering increase but at the sub-CONUS scale, deviation was observed. (IV) Discussion: Decline in annual variability was observed especially in mountainous regions but areas like SE Coastal Plain, Central Plains, and Western Xeric ecoregions disagreed. Atmospheric scale process are potential drivers. But overall, results suggest that human activities may magnify or amplify the expression of changes.  $P_{mean}$  &  $DI_{mean}$  were the important variables. Watershed climatology was too varied due to variations amongst the regions being studied

- (a) Search engine used: <https://search.library.pdx.edu/primo-explore/>
  - (b) Keywords: "streamflow variability" AND "human activity"
  - (c) How many results: 8
  - (d) How many were peer-reviewed: 8
  - (e) How many are from 2017 or newer: 5
  - (f) Calculate % new peer-reviewed  $\approx 62.50\%$
  - (g) Link: <https://www-sciencedirect-com.proxy.lib.pdx.edu/science/article/pii/S002216941630436X>
  - (h) type: Peer-reviewed article
2. Fisichelli - *Multiple methods for multiple futures: Integrating qualitative scenario planning and quantitative simulation modeling for natural resource decision making*
- (a) Search engine used: None
  - (b) Keywords:
  - (c) How many results:
  - (d) How many were peer-reviewed:
  - (e) How many are from 2017 or newer:
  - (f) Calculate % new peer-reviewed
  - (g) Link: <https://link-springer-com.proxy.lib.pdx.edu/content/pdf/10.1007/s12665-018-7305-x.pdf>
  - (h) type: Peer-reviewed article
3. USGS - *Data from simulations of ecological and hydrologic response to climate change scenarios at Wind Cave National Park, South Dakota, 1901-2050*
- (a) Search engine used: <https://catalog.data.gov/>
  - (b) Keywords: streamflow
  - (c) How many results: 662 datasets
  - (d) How many were peer-reviewed:
  - (e) How many are from 2017 or newer:

- (f) Calculate % new peer-reviewed
  - (g) Link: <https://www.sciencebase.gov/catalog/item/get/5a281bbfe4b03852bafe1002>
  - (h) type: csv file
4. USGS - *Data from simulations of ecological and hydrologic response to climate change scenarios at Wind Cave National Park, South Dakota, 1901-2050*
- (a) Search engine used: <https://google.com/newssection>
  - (b) Keywords: streamflow and South Dakota
  - (c) How many results: 627
  - (d) How many were peer-reviewed:
  - (e) How many are from 2017 or newer:
  - (f) Calculate % new peer-reviewed
  - (g) Link: [https://www.hpj.com/ag/\\_news/dryness-expands-across-high-plains-region-as-planting-begins/article\\_4c598074-8ae9-11ea-9737-9fc1d3dc9019.html](https://www.hpj.com/ag/_news/dryness-expands-across-high-plains-region-as-planting-begins/article_4c598074-8ae9-11ea-9737-9fc1d3dc9019.html)
  - (h) type: article
5. Water data South Dakota
- (a) Link: <https://waterdata.usgs.gov/sd/nwis/current/?type=flow>
6. Falcone - *Quantifying Human disturbance*

Notes: (I) Abstract: Being able to quantify human disturbances in order to study streamflow is crucial. This study used data from the Geographic Information System (GIS). Datasets of watersheds consisted of 770 of them in the western United State for which the severity of disturbance had previously been classified by the United States Environmental Protection Agency (USEPA). The final index was validated 192 control watershed sample and about two-thirds (68%) were correctly classified from least to most-disturbed classification.

- (a) none
- (b) Keywords: n/a
- (c) How many results:
- (d) How many were peer-reviewed:
- (e) How many are from 2017 or newer:
- (f) Calculate % new peer-reviewed
- (g) Link:
- (h) type: article