

Compiling a Literature Review: an Introductory Workshop

Autumn 2022

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Outline

- Search process
- Types of sources
- Peer review
- Evaluating what you find
- Library catalog
- Finding journal articles with subject databases
- Searching Google
- Citation guides

Why the literature review?

- Exposes gaps in knowledge
- Helps identify general patterns
- Explore conflicting findings
- Define terminology or identify variations in definitions
- Identify appropriate research methodologies
- Identify validated scales and instruments

Systematic literature search

- Formulate the research question(s): Select a topic and set criteria (inclusion/exclusion)
- Search the literature
- Gather, read, analyze and assess quality of results
- Search and refine
- Write and reference

Types of sources

- **Primary sources:** a report by the original researchers of a study
- **Secondary sources:** description or study by someone other than the original researcher (e.g. a review article)
- **Conceptual/theoretical:** papers concerned with analysis of theories associated with the topic
- **Anecdotal/opinion:** Views about the subject that are not research, review, or theoretical in nature

Types of sources

- Scholarly publications or journals
- Books or monographs
- Dissertations
- Online sources
- People
- Digital collections
- Government documents

Peer review

- Sometimes called “refereed”
- Reasons for peer review
- How does the peer review process work?
- “Popular” vs. “peer reviewed”

Evaluating web resources

- **Accuracy:** examine references; thoroughness, documentation
- **Authority:** who created site?, “about” page, author qualifications
- **Objectivity:** purpose of site, representative of multiple viewpoints, is there bias?, Examine URL (.gov, .edu, .com, .org, country codes)
- **Currency:** dates listed and updates listed

Types of research questions

- **Prediction:** What is the likely result of X?
- **Historical:** How have we gotten from A to B?
- **Intervention:** Is doing Y better than doing Z?
- **Exploration:** What are the possible explanations for A?
- **Attitudes:** How do people feel about B?
- **Causation:** What are the likely causes of C?
- **Measurement:** What is the size of X, how often does it occur, etc.?
- **Characterization:** How can we understand and specify W?

Define the research problem

Are there papers (and data) that discuss a link between climate change and changes in the jet stream?

climate change + jet stream

Synonyms:

- 1) climate change, global warming, climate variability
- 2) jet stream, jet

*It's harder than it looks to ask good research questions. Often the question with which we start is too vague or unfocused to offer much help for how we should go about answering it.

Search strategies

- Remember variant word endings, Boolean operators (and, or, not) and synonyms
- Limit search terms to specific fields (title, subject heading), within a certain proximity to each other, year ranges
- Note controlled vocabularies and established keywords

Search strategies

To narrow a search:

- Limit by theoretical approach
- Limit to one aspect of subject
- Limit by time, by geographic location, etc.

To broaden a search:

- Generalize your topic
- Check more databases
- Limit jargon
- Check web or newspaper databases if topic is too new

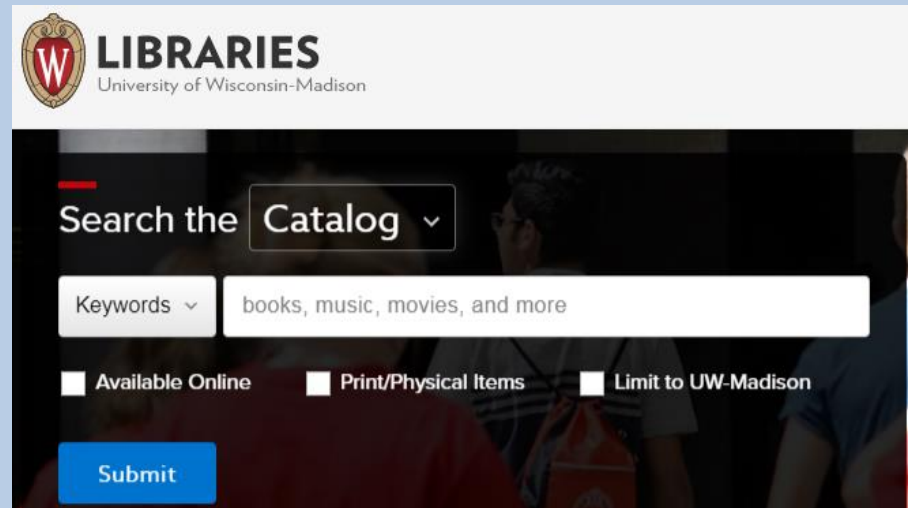
Things to consider

- Develop keywords
- Use scientific names
- Current articles vs. older articles
- Review papers and dissertations


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Library catalog search

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1. Jet stream : a journey through our changing climate
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AUTHOR / CREATOR [Woollings, Tim, author](#)


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
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 **Publication Details**

CREATOR	Tim Woollings
FORMAT	Books
PUBLICATION	First edition Oxford ; New York, NY : Oxford University Press, 2020 ©2020
PHYSICAL DETAILS	ix, 230 pages : illustrations, maps ; 22 cm
ISBNs	9780198828518, 0198828519
OCLC	on1088313728

Subjects

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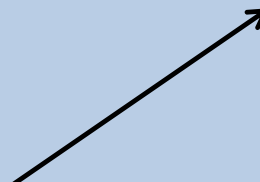
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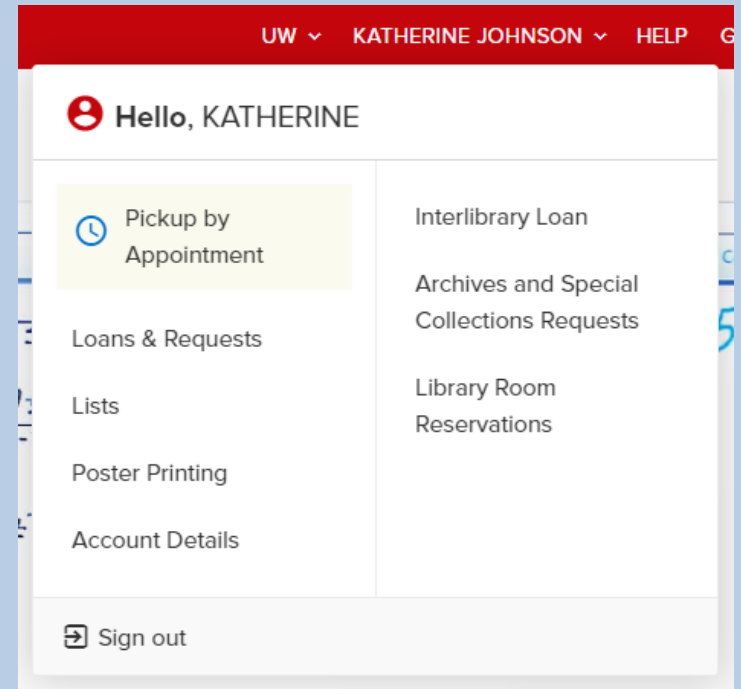
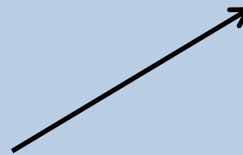
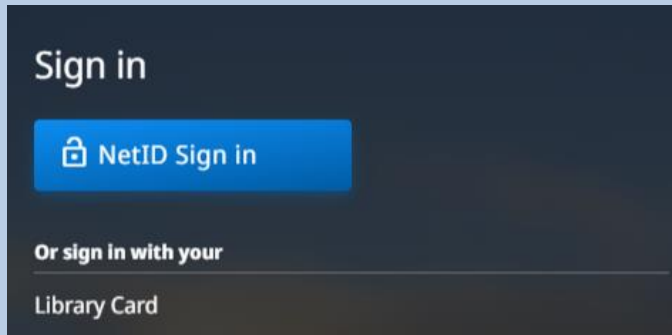
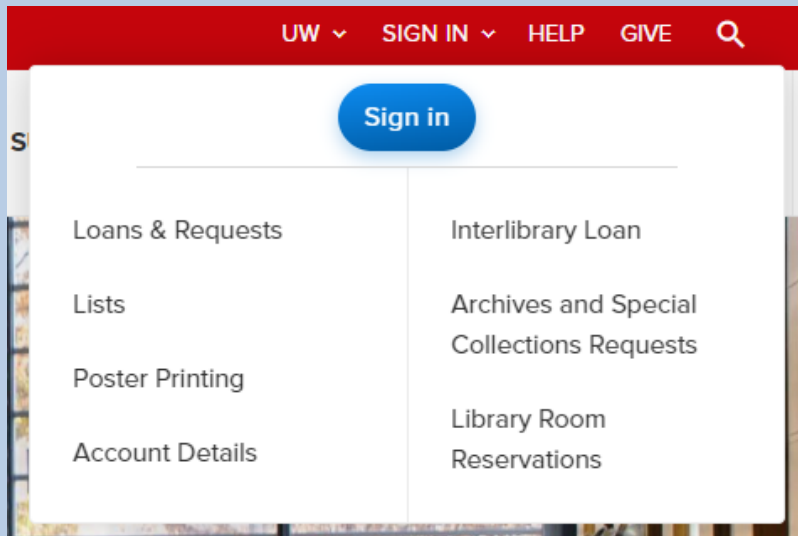
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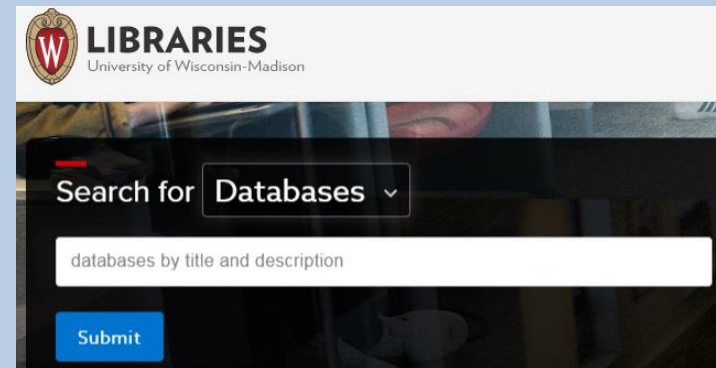
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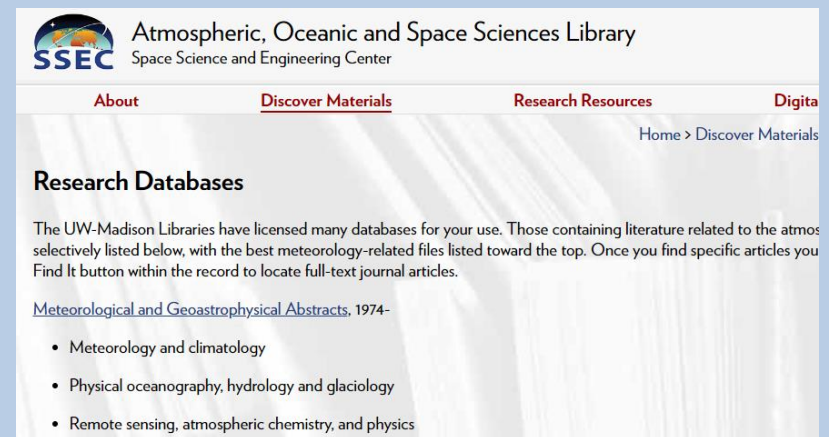
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Le Page, M

Sep 18 2021 | NEW SCIENTIST 245 (3352) , pp.9-9

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- ☐ 2 The Sensitivity of the Jet Stream Response to Climate Change to Radiative Assumptions

Tan, ZH; Lachmy, Q and Shaw, TA

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Comprehensive climate models exhibit a large spread in the magnitude of projected poleward eddy-driven jet shift in response to warming. The spread has been connected to the radiative response to warming. To understand how different radiative assumptions alone affect the jet shift in response to warming, we introduce a new clear-sky longwave radiation hierarchy that spans idealized (gray versus ... Show more

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By: Zhou, WY (Zhou, Wenyu) ^[1]; Leung, LR (Leung, L. Ruby) ^[1]; Lu, J (Lu, Jian) ^[1]

JOURNAL OF CLIMATE

Volume: 35 Issue: 16 Page: 5433-5447
DOI: 10.1175/JCLI-D-21-0723.1
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Abstract

A distinct feature of the atmospheric circulation response to increasing greenhouse gas forcing is the poleward shift of the zonal-mean westerly jet. The dynamical mechanisms of the zonal-mean poleward jet shift have been extensively studied in literature. At seasonal/regional scales, however, the westerly jets can shift equatorward, such as in the early-summer Asia-Pacific region, the late-winter America-Atlantic region, and the winter/spring east Pacific. These equatorward jet shifts imply climate impacts distinct from those of the poleward shifts, yet their causes are not well understood. Here, based on a hierarchy of coupled, prescribed-SST, and aquaplanet simulations, we attribute the seasonal/regional equatorward jet shifts to the enhanced tropical upper-level warming (ETUW), which arises from both the tropical moist adiabat and the enhanced equatorial surface warming. By steepening the meridional temperature gradient in the subtropical upper-to-middle level and assisted by positive eddy feedback, the ETUW increases the zonal wind equatorward of the climatological jet. When the regional/seasonal meridional temperature gradients (or equivalently the westerly jets) are weak and peak close to the tropics, the ETUW effect overcomes the poleward jet-shift mechanisms and leads to the equatorward jet shifts. This climatological-state dependency is consistently seen in the decomposed jet responses to uniform warming and surface warming pattern, and further demonstrated through idealized aquaplanet experiments with designed climatological states. For uniform warming, the ETUW arising from moist adiabat makes the general poleward jet shifts insignificant in the aforementioned favorable regions/seasons. For warming pattern, the ETUW from enhanced equatorial warming drives substantial equatorward jet shifts in these favorable seasons/regions.

Keywords

Author Keywords: Atmospheric circulation; Jets; Climate change
Keywords Plus: PHASE SPEED SPECTRA; CIRCULATION RESPONSE; WINTER PRECIPITATION; SURFACE WESTERLIES; LATITUDE; STREAM

Author Information

Corresponding Address: Zhou, Wenyu (corresponding author)

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


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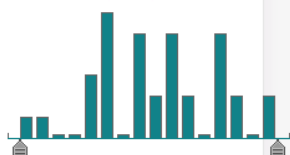
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In recent decades, southeast Australia has experienced both extreme drought and record-breaking rainfall, with devastating societal impacts. Variations in the Australian polar-front jet (PFJ) and the subtropical jet (STJ) determine, for example, the location and frequency of the cool season (April–September) weather systems influencing rainfall events and, consequently, water availability for the southern half of Australia. Changes in jet stream wind speeds also are important for aviation fuel and safety requirements. A split jet occurs when the single jet separates into the STJ and PFJ in the early cool season (April–May). This study focusses on split jet characteristics over Australian/New Zealand longitudes in recent decades. During the accelerated global warming from the mid-1990s, higher mean wind speeds were found in the PJF across the Australian region during June–September, compared to the STJ. In contrast, significant wind speed increases occur in the early cool season (April–May) at STJ latitudes, which straddle the East Coast of Australia

Details

Subject	Cool season; Global warming; Air safety; Wind speed; Weather; Jet stream;
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