ENVIRONMENTAL INTELLIGENCE LAB

EGU General Assembly 2022

Session CL3.2.6

Climate extremes, biosphere and society: impacts, cascades, feedbacks, and resilience

Contrasting farmers' perception of climate change and climatic data: How (in)consistency supports risk reduction and resilience?

Sandra Ricart and Andrea Castelletti
Politecnico di Milano

Claudio Gandolfi
University of Milan

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POLITECNICO MILANO 1863

MODFABE adapting by learning

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INTRODUCTION, AIM AND METHODS

Timely and accurate climate change perception determines farmers' actions

However, perception may not be consistent with the direction and significance of observational data, conditioning farmers' adaptive capacity.

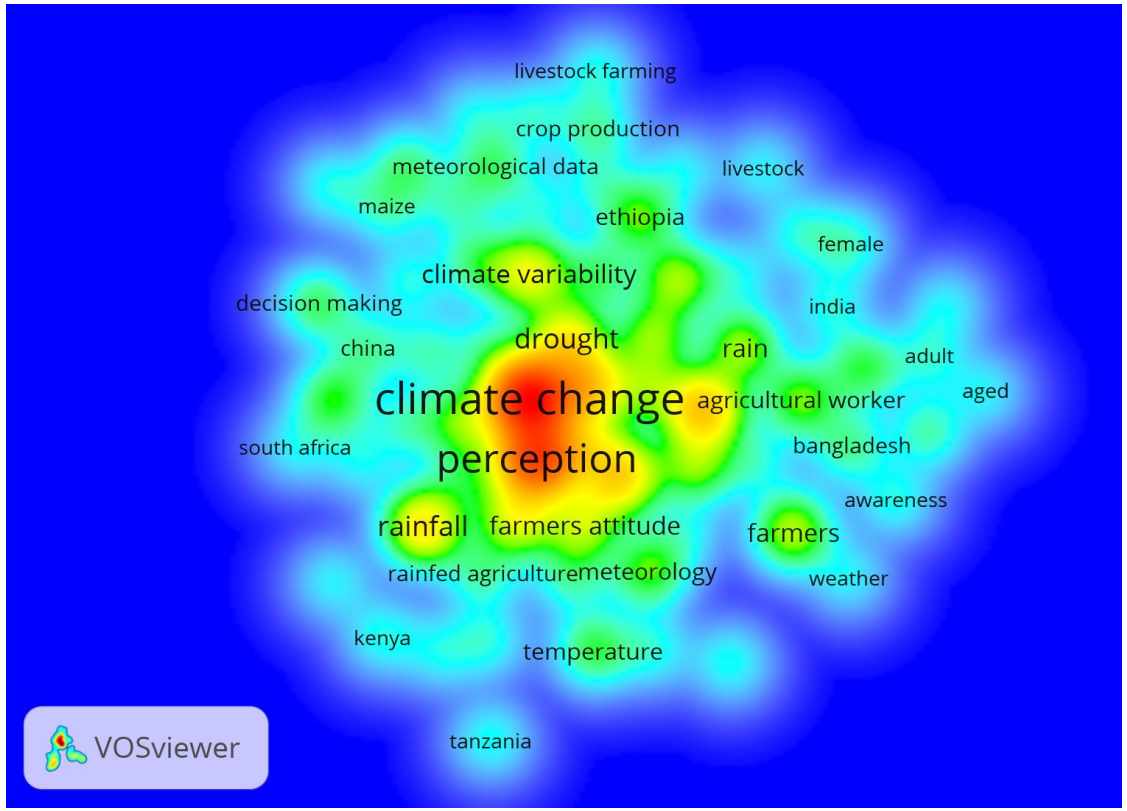
A systematic mapping

How the literature measures and contrast both issues?

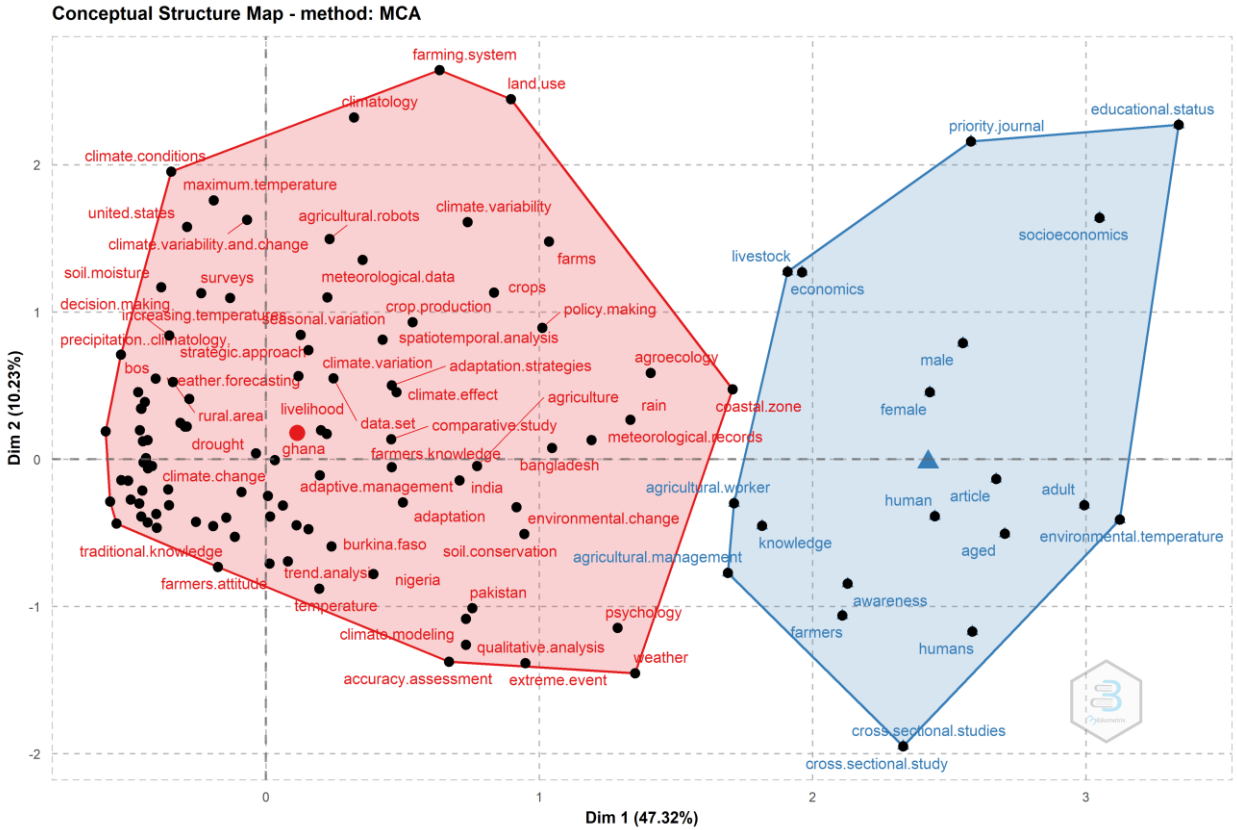
Farmers' experience *vs* Meteorological data

Scopus library catalogue
2000-2021 slot
PRISMA protocol
Bibliometrics (VOSviewer + R *bibliometrix* package): 147 papers
Literature review (exploratory content analysis): 98 papers (only case studies)

RESULTS - BIBLIOMETRICS



Keywords co-occurrence analysis



2 clusters (conceptual structure)

1) adaptive capacity & risk perception
2) farmers' profile & climate change awareness
3) crops production vulnerability (ppt/t° patterns)
4) forecasting affects on decision-making

4 clusters (co-occurrence)

Red cluster (triple-loop)

a) observed data (e.g., weather forecasting, extreme events)
b) agricultural impacts (e.g., soil moisture)
c) adaptation measures (e.g., strategies, decision-making)

Blue cluster: farmers' profiles (e.g., gender, age, education)

RESULTS – LITERATURE REVIEW

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Data collection tools

- **Surveys** (89%)
  Focus group (52%)
  Interviews (49%)

Tools combination (70%)

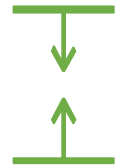
- **National meteo services + stations**
  data ≥30 years (85%)

Farmers' experience

- **Conceptual barrier:** hardly understanding 'climate change' or 'global warming'
- **High comprehension** of weather patterns

↑ **t° (90%)** ↓ ppt (75%)

- **drought risk** concerns (frequency/severity)



Climate data covering extreme events

- Two dimensions **(t° + ppt patterns)**
  - ↑ **t°** (+summer) (75%)
  - ↓ **ppt** + erratic patterns (40%)
- **Identify spatial micro-climate** differences is challenging

Accuracy perceived *vs* observed data

- Mostly consistent considering 3 statements:

↑ **t° (79%)** ↓ ppt (36%)

rainfall variability (delayed or untimely) (34%)

- **Discrepancy** summer/annual **rainfall trends**

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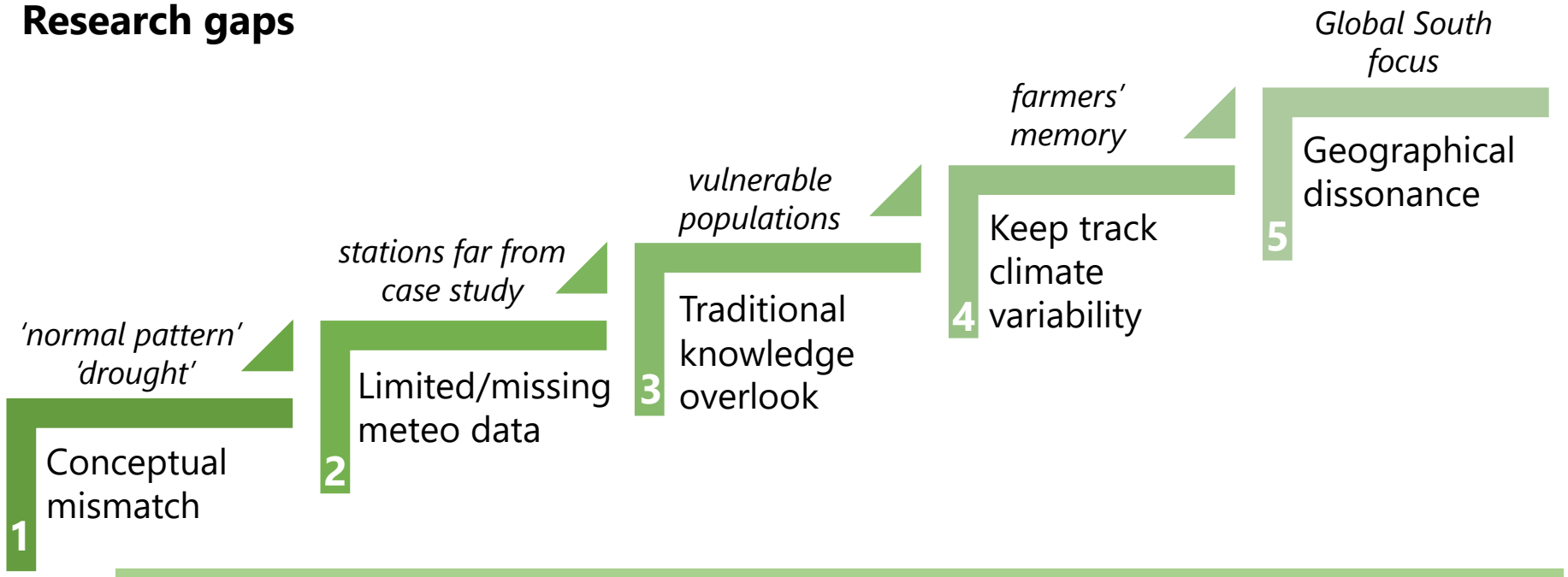
IDENTIFIED GAPS AND FURTHER RESEARCH

The literature is extensive, fast-growing, and spans several disciplines

Research gaps



Regular studies on farmers' perceptions can become a proxy to support or validate instrumental climate data time series

especially when meteo data is

unavailable low quality recent periods

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Sandra Ricart, Andrea Castelletti
Department of Electronics, Information and Bioengineering
Politecnico di Milano

Claudio Gandolfi
Department of Agricultural and Environmental Sciences
University of Milan

Contact information
Sandra Ricart

sandra.ricart@polimi.it

www.modfabe.deib.polimi.it

@modfabe

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