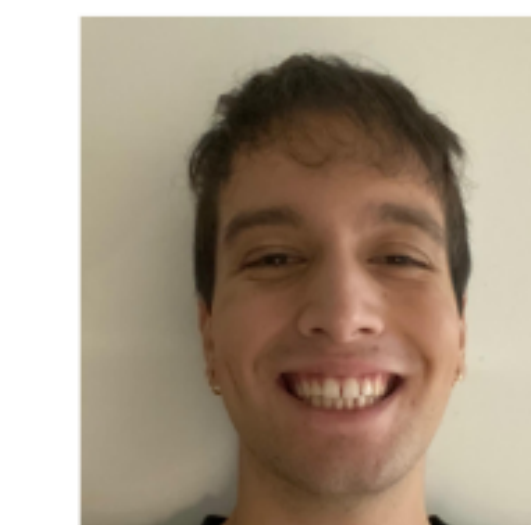


Impact-based humanitarian forecasting using machine learning for floods

A literature survey

PRESENTER:

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4. Results

Out of the 10 solutions reviewed:

- 1. Ensemble methods and deep learning solutions are present in 9.**
- 2. Data sources span from rainfall, water level, historical flooding, satellite.**
- All 10 papers present some issue with data quality or availability.**
- 3. Hydrological, socioeconomic, and transportation impacts are used to create warnings and understand risks.**
- 4. Humanitarian focus, scalability, lead times, fast deployment, and integration influence their adoption.**

4 out of 10 papers respect these criteria



1. Research Question

Under what conditions can machine learning techniques be used effectively for impact-based flood humanitarian forecasting?

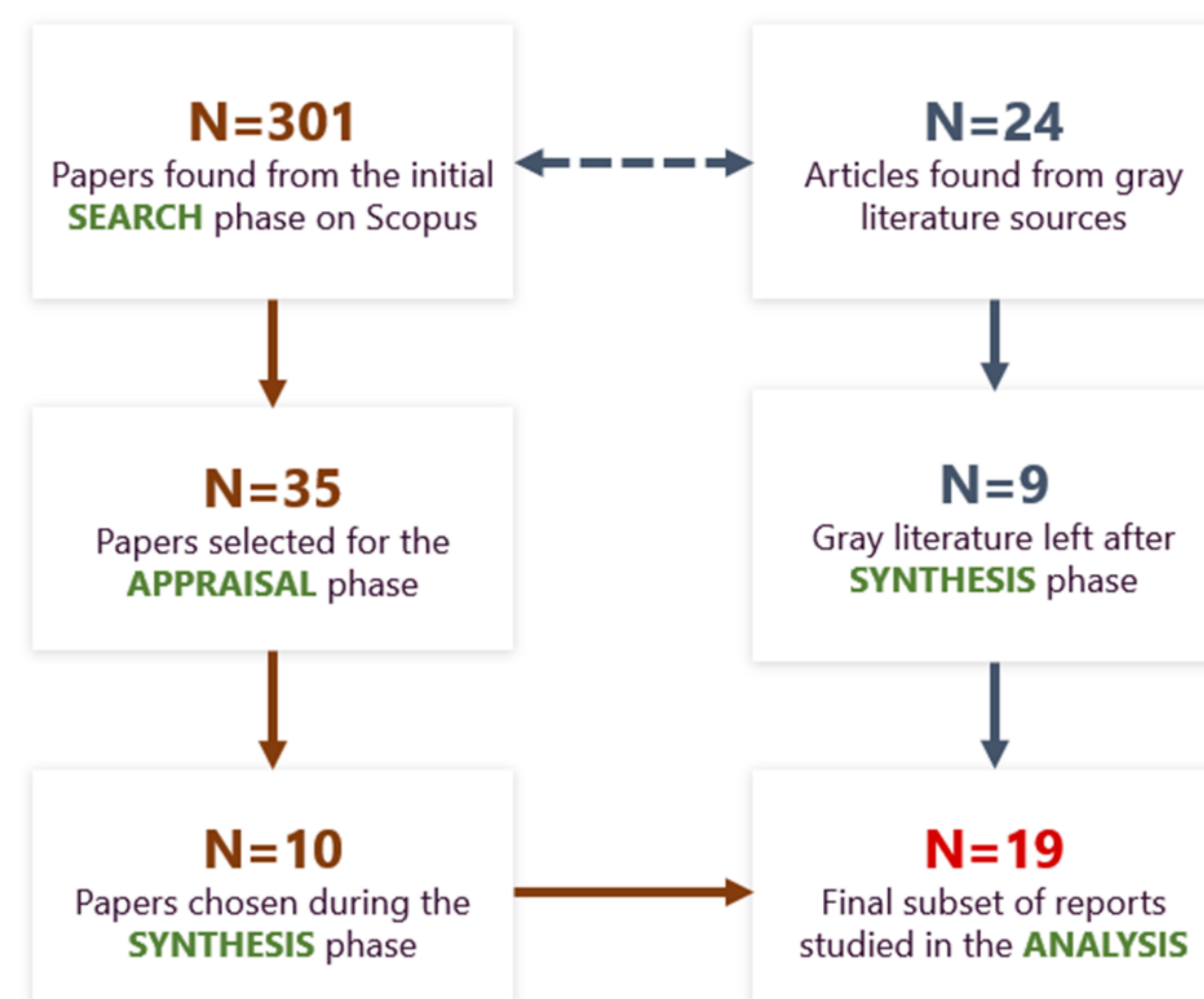
1. What types of machine learning models are used?
2. What are the sources and challenges of data collection?
3. How are impacts considered in these models?
4. What practical considerations influence the adoption of these models in humanitarian settings?

2. Research Gap

- Little use of gray literature
- Large consideration of hydrological models in the past
- Little to zero consideration of humanitarian action
- Non-reproducible studies
- Lack of impact-based forecasting



3. Methodology



5. Conclusions

- Models used by papers are complex and don't always scale well
- Solutions benefit from data-efficiency
- Humanitarian protocols have longer lead times
- Most papers lack humanitarian focus
- ML is still expanding in the field



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