This study aims to build on the existing knowledge of Arctic-mid-latitude climate interactions by exploring associations between summer Arctic sea ice decline and variability in hydroclimate and extreme precipitation across the north-central United States.

OBJECTIVES

- Study aims to build on the existing knowledge of Arctic-mid-latitude climate interactions by exploring associations between summer Arctic sea ice decline and variability in hydroclimate and extreme precipitation across the north-central United States.

STUDY AREAS AND METHODS

- Geographical scope includes the UMRV and adjacent regions.
- Spatial analysis is conducted using regression methods.
- Temporal analysis includes a period from 1979 to 2013.

RESULTS: AIR AND DEW POINT TEMPERATURE TENDENCIES

- Negative trends in air and dew point temperatures were observed over the study area.
- Temperature anomalies were significant at the 10% level.

RESULTS: PRECIPITATION CHARACTERISTICS

- Significant increases in precipitation were observed over the study area.
- Precipitation anomalies were significant at the 10% level.

RESULTS: ATMOSPHERIC CONDITIONS

- Decreases in specific humidity were observed over the study area.
- Specific humidity anomalies were significant at the 10% level.

SUMMARY AND CONCLUDING STATEMENTS

- Extreme precipitation events have increased over the past three decades due to recent Arctic sea ice decline.
- Further research is needed to understand the mechanisms driving these changes.

CITED AND RELATED LITERATURE