

Climate change at Utah ski resorts: Impacts, perceptions, and adaptation strategies



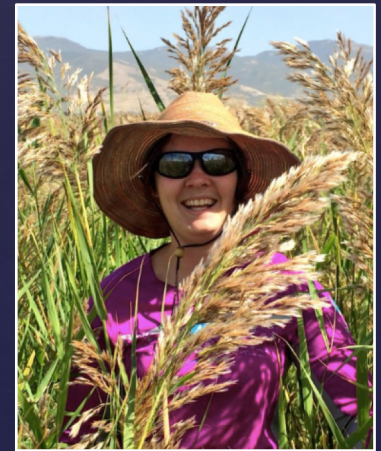
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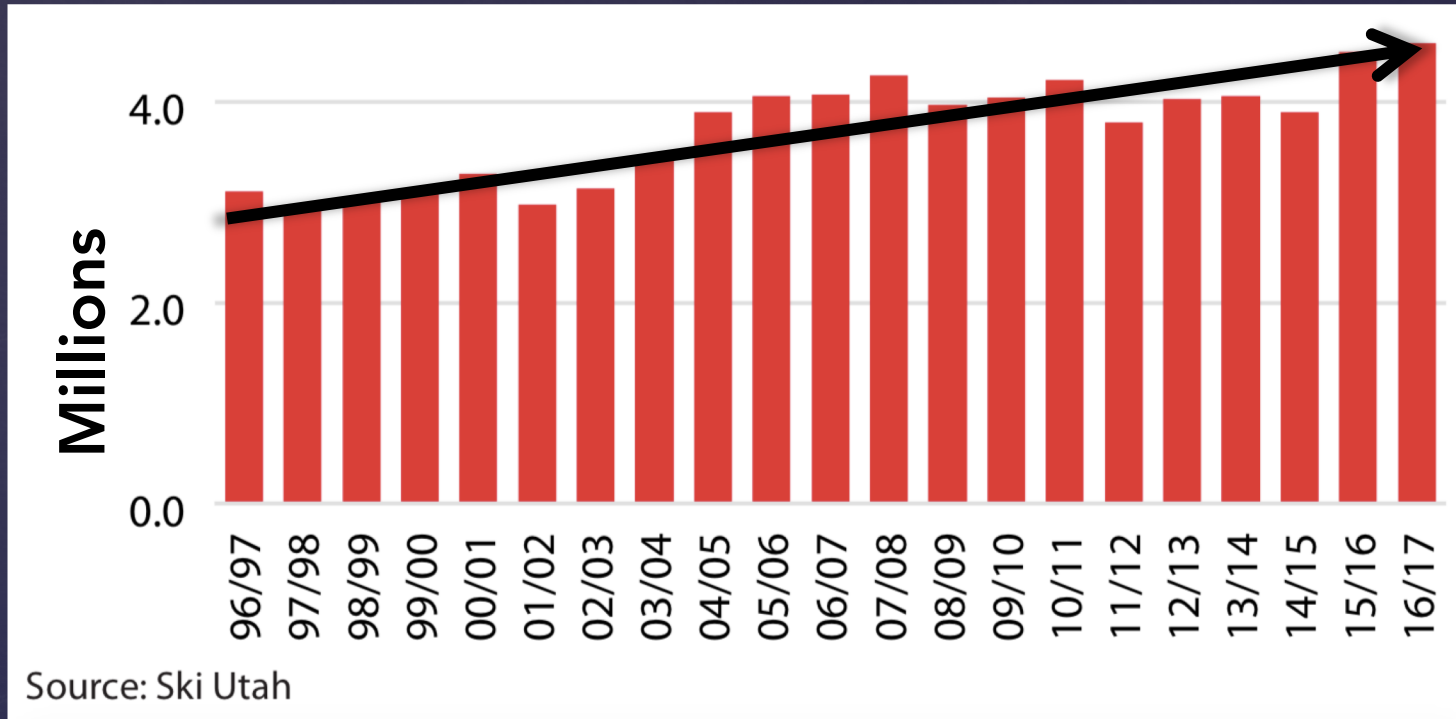


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Utah Total Skier Days



Source: Ski Utah

Image: Leaver, 2018

\$1.43 billion in economic impact statewide!

- **Climate is changing**
(IPCC, 2014)
- **Resorts may struggle or close**
(Dawson & Scott, 2013)
- **Literature:**
 - **Adaptation?**
 - **Manager perceptions?**
(Wolfsegger, Gossling, & Scott, 2008)

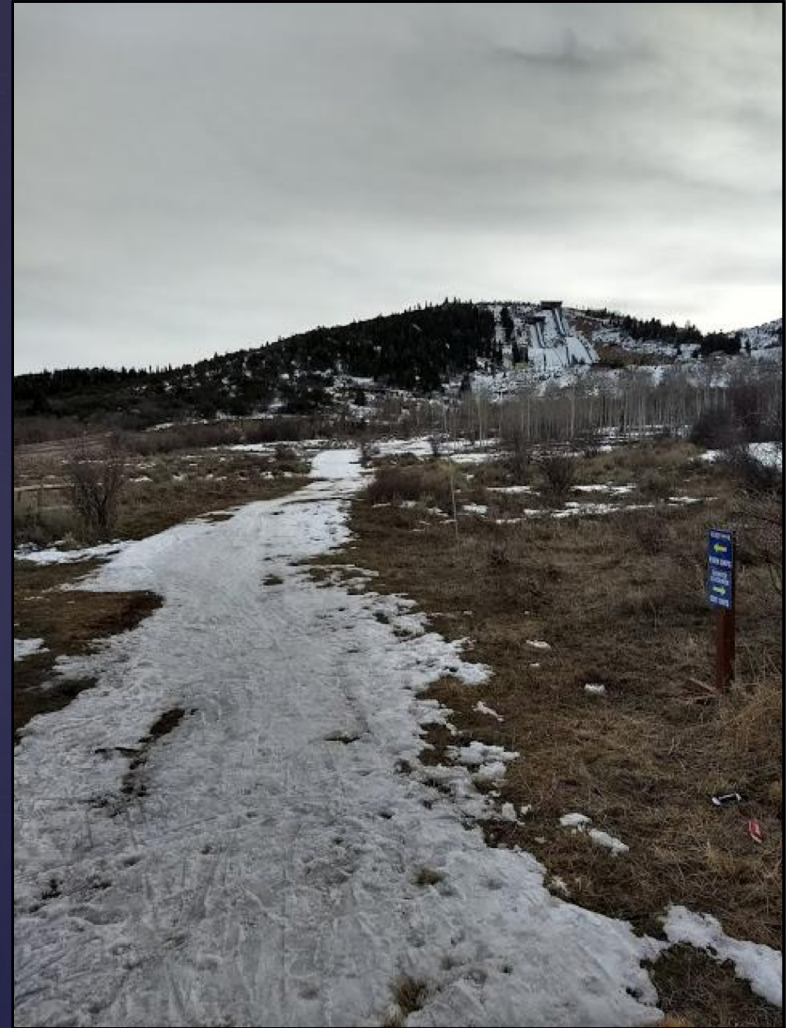


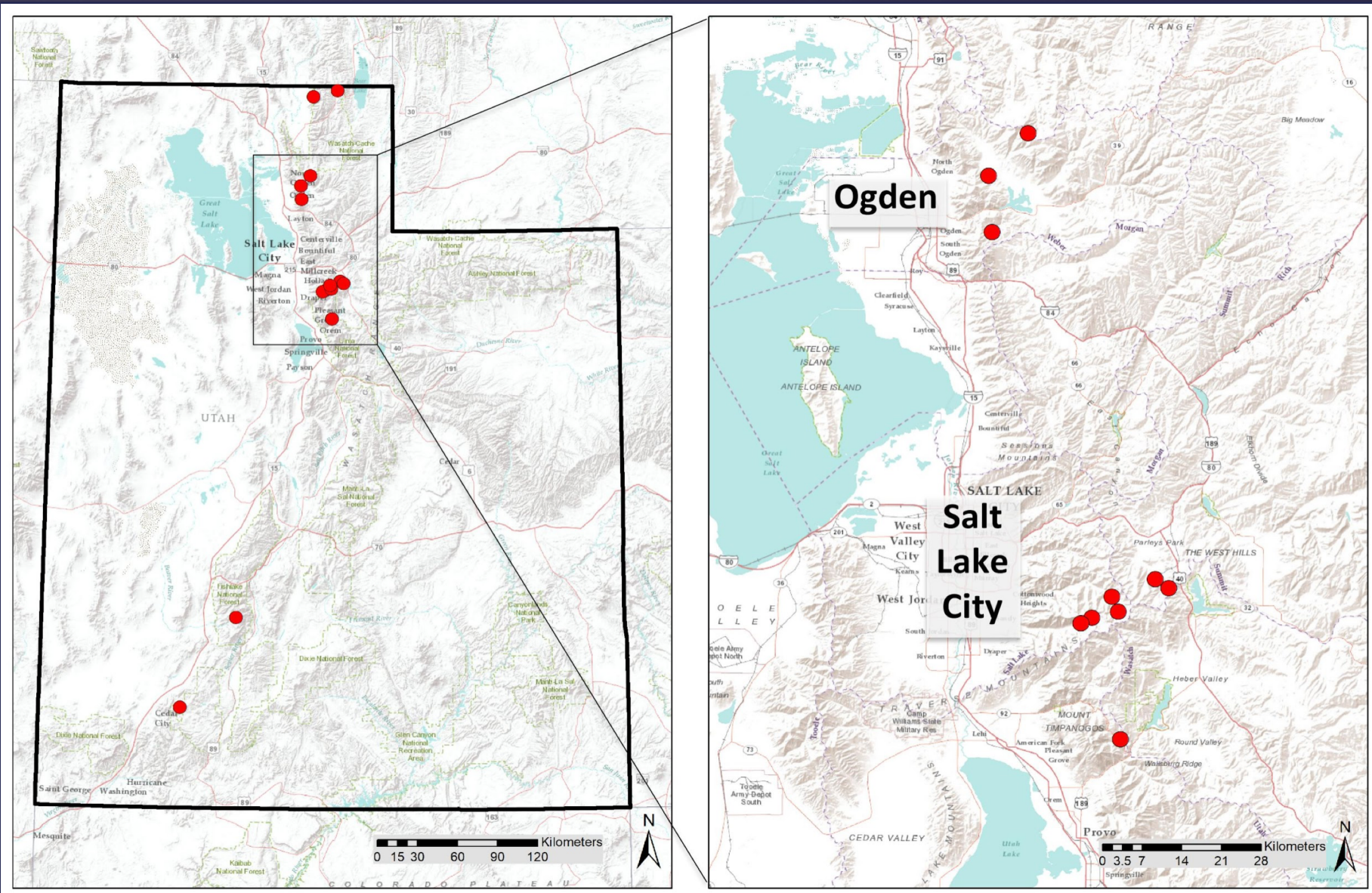
Image: Wasatch Winter Weenies

Research Questions

What are the historic and predicted future climate trends for Utah ski resorts?

How do Utah ski resort managers perceive climate trends, impacts on tourism, and adaptation strategies?

Study Site



Data Collection

Past weather:



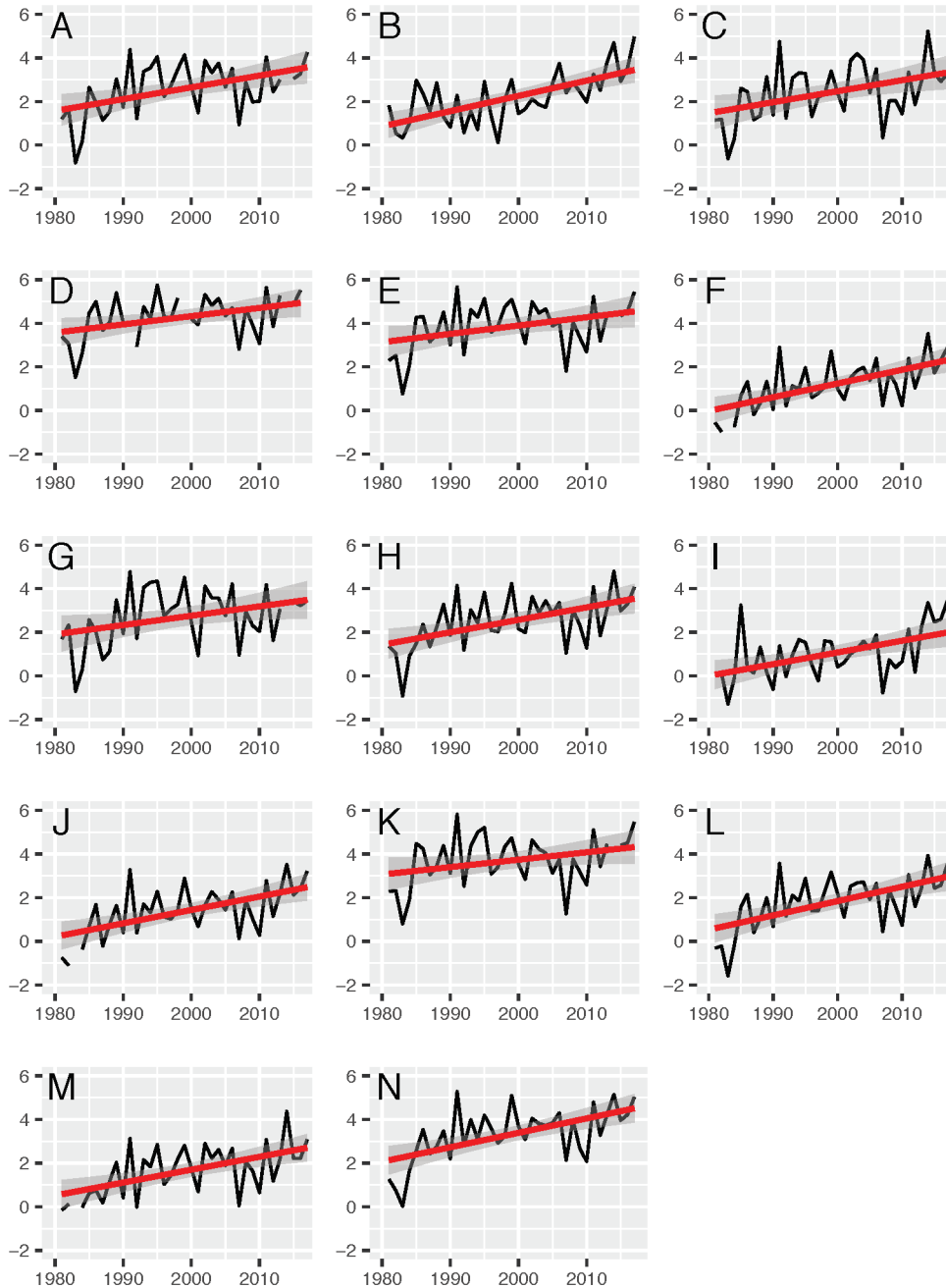
Future projections:

NA-CORDEX

RCA-4 model

- **Semi-structured interviews with Utah resort managers**
 - 8 resorts participated
 - Recorded, transcribed, coded
 - Thematic network analysis using NVivo

Mean maximum daily temperature (°C)
by ski resort season (1981 – 2017)



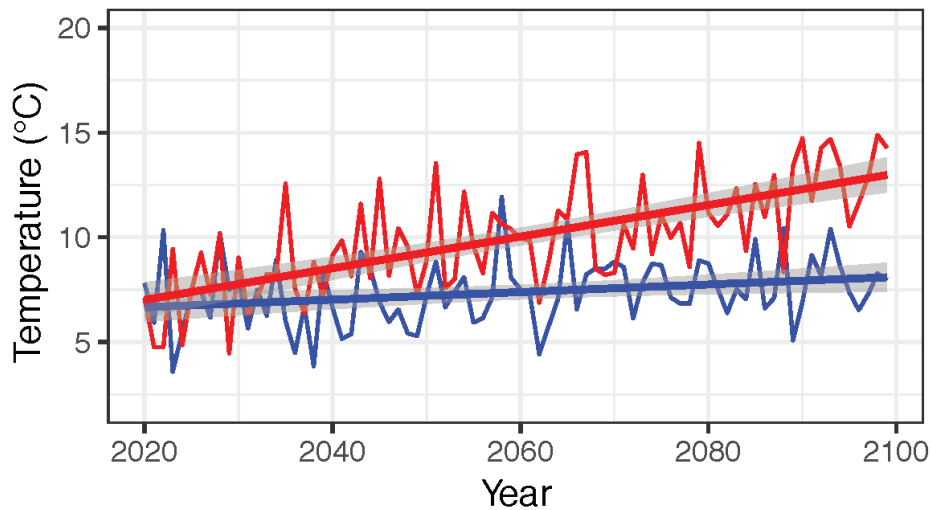
Results

Regression
coefficients:
0.042 – 0.072

1.6 – 2.7 °C
increase
over 37 years

Future Projection for Mean Maximum Temperature (Dec–March)

Northern Utah

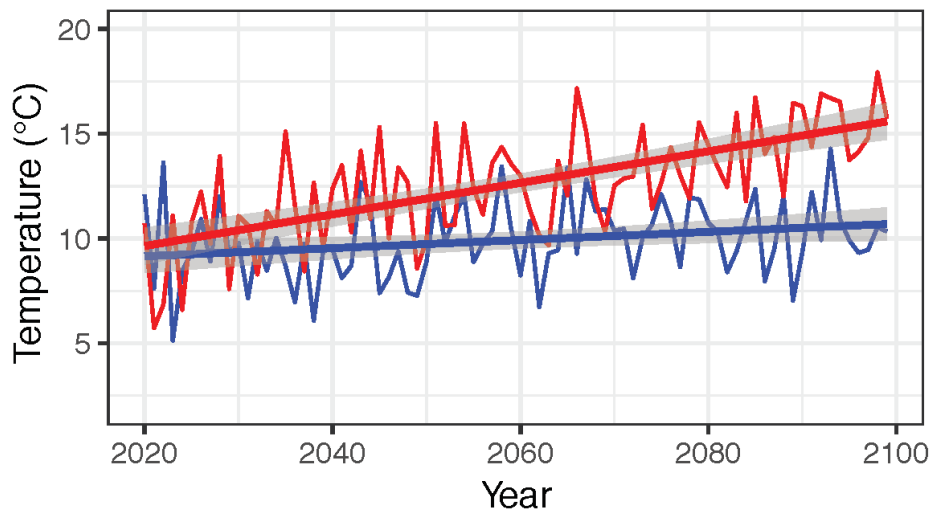


RCP Scenario

2.6

8.5

Southern Utah



RCP Scenario

2.6

8.5

Regression coefficients:
0.014 (low)
0.071 (high)

0.016 (low)
0.071 (high)

**5.7 °C
warming!**

Perceptions of impacts

- Resorts are (somewhat) concerned
- Shorter seasons
- Less *quality* snow
- Will impact advanced skiers more

Adaptation

- **11/14 resorts use snowmaking**
- **Diversification of offerings**
 - All season & winter
- **Joining conglomerates**
- **Less mentioned:**
 - Increasing lift capacity
 - Avoiding southern slopes

Conclusions

- **Utah resorts warming faster than global trends**
 - Likely to continue
- **Resorts are adapting!**
 - But shouldn't rely on snowmaking alone
- **Future research:**
 - Compare adaptation capacity of resorts
 - Water availability for snowmaking

Questions?

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**CLIMATE
ADAPTATION
SCIENCE**

