

Mountains, snow and spirits

Perceptions and impacts of climate change in Tibetan villages

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Introduction

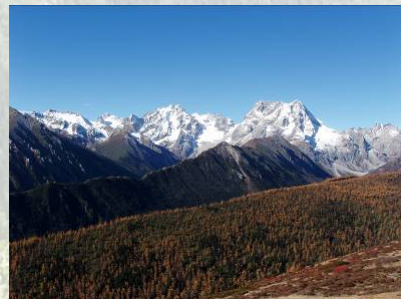
Climate change impacts

- Differences between
 - Regions & areas
 - People's livelihood strategies
- Most models coarse scale
- Responses to climate changes depend on perceptions of changes

Introduction

Mountain areas

- Especially vulnerable to climate changes
 - Large changes in temperature & precipitation
 - Steep ecological & geophysical gradients
→ large impact



Introduction

Mountain areas

- Species migration and/or extinctions
- Melt water run off & water regimes
- Erosion, avalanche, flood and drought risk
- Timing of seasons



Introduction

Eastern Tibet

- Mountainous & dissected
- Livelihood systems:
use different ecological zones
- Sacred landscape:
Mountains, glaciers,
waterfalls, rivers, hills, ...



Introduction

Research questions

1. Are people already noticing changes in Tibetan northwest Yunnan?
2. Are perceptions of climate changes dependent on factors such as age, gender and location?
3. How do climate changes impact people's lives?
4. How do people make sense of these changes?



Study area

- Northwest Yunnan
- Six Tibetan villages
- Differences
 - Elevation (2150-3275m), temperature & precipitation
 - Road connection
 - Tourism
 - Size (15-30 houses) & amenities



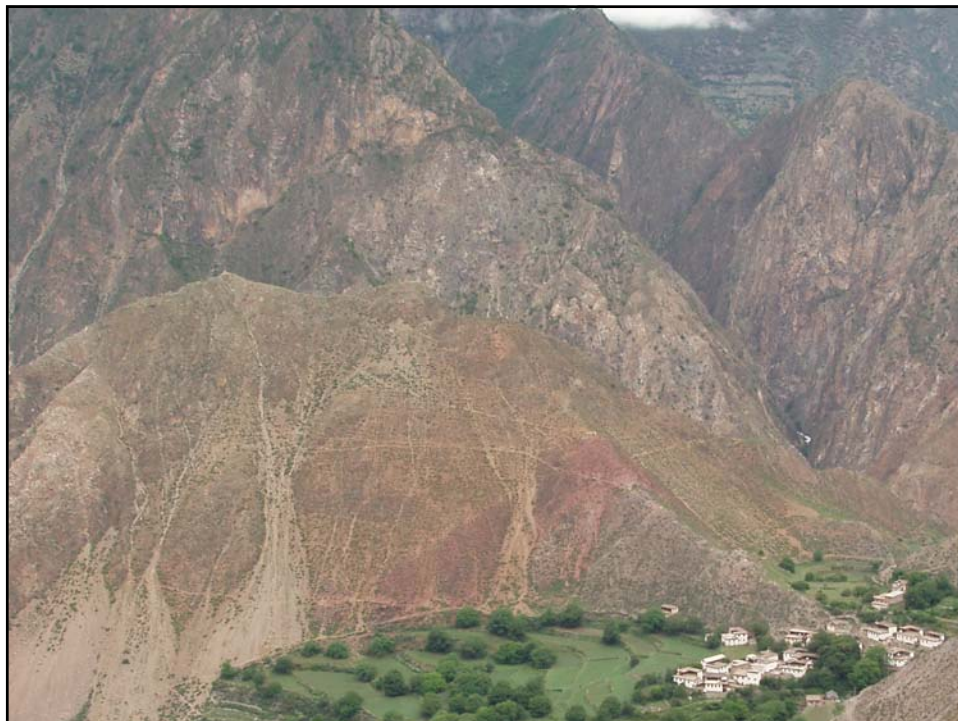
Methods

- 15 inhabitants/village (47 women, 43 men; 28-85 yrs)
- Semi-structured interviews (changes, causes, impacts)
- Repeat photographs



Methods

- 15 inhabitants/village (47 women, 43 men; 28-85 yrs)
- Semi-structured interviews
- Repeat photographs
- Qualitative analyses
- Post-hoc grouping of responses
- Linear models (Anova, linear regression, logistic regression)



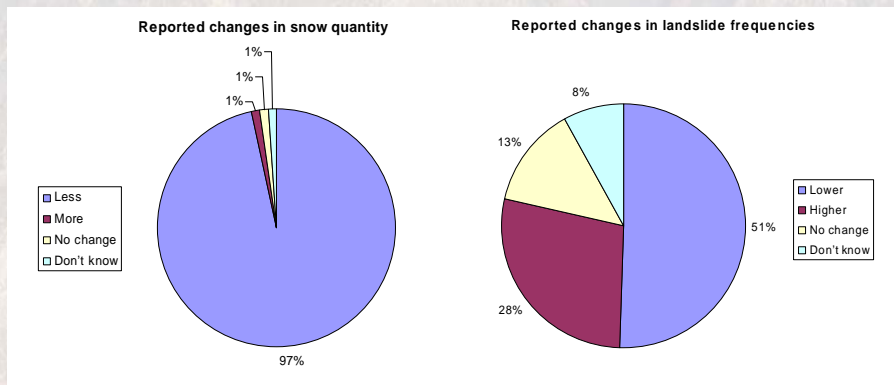
Results

1. Are people already noticing changes in Tibetan northwest Yunnan? **YES!**

- All people had noticed some changes
- Variation among people and types of changes

Results

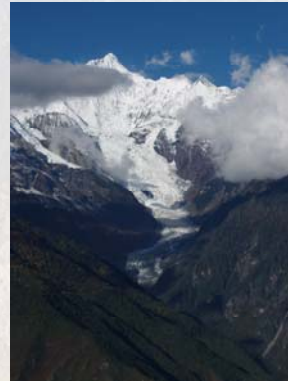
Variation in types of changes



Results

General trends in observations:

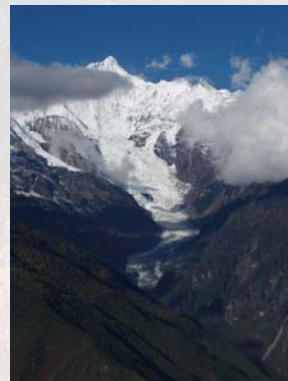
- Snow and rain: ↓
- Glaciers: ↓
- Avalanche frequency: ↓
- Temperatures: ↑
- Harvest output: ↓
- Crop disease loads and insect attacks: ↑
- Wild plants: no change
- River levels and landslides frequency: uncertain



Results

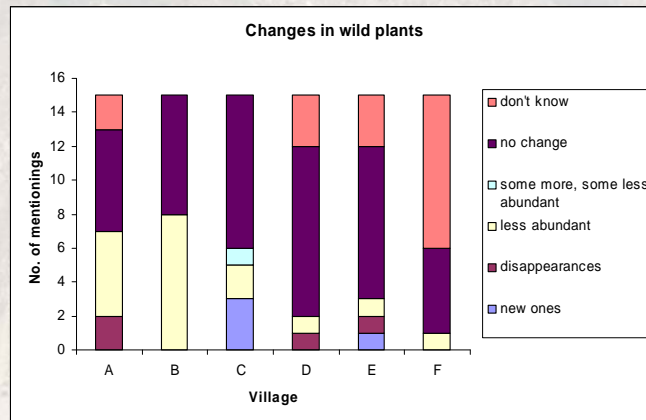
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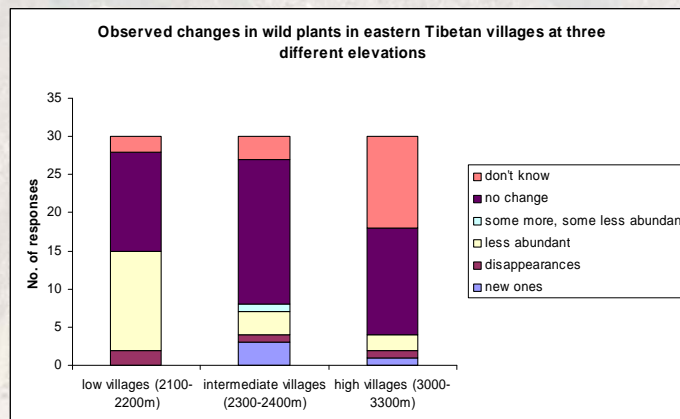
Results

2. Are perceptions of climate changes dependent on factors such as age, gender and location?



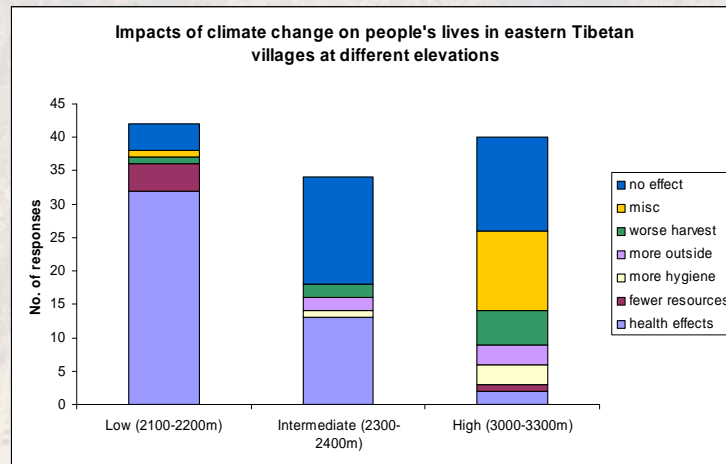
Results

2. Are perceptions of climate changes dependent on factors such as age, gender and location?



Results

3. How do climate changes impact people's lives?



Results

3. How do climate changes impact people's lives?

- More variation in impacts than in observations
- 1/3 of respondents: no impact
- Village differences
- Negative and positive changes
- Lower villages suffer most:
 - Health & Food

Results

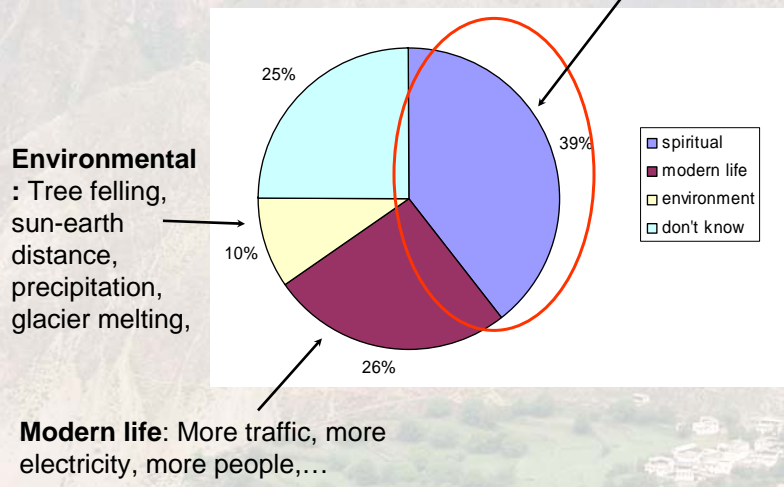
4. How do people make sense of these changes?

- No media focus on climate change
- Local phenomena!
- Causal explanations: Local
 - Tree cutting
 - Tourism
 - Road construction
 - Population growth
 -

Results

Types of causal explanations

Spiritual



Results

Spiritual and biophysical implications of same factor

- Tree cutting
 - Biophysical: Desiccation
 - Spiritual: Angers mountain deities

- Tourism
 - Biophysical: Pollution, Energy, Construction
 - Spiritual: "Pollution", Taboos, Disrespect



Results

Sacred mountains: Physical manifestations of deities

- Easily upset, vengeful, but also protective
- Local:
 - Power: manifest in local weather conditions
 - Local people affected



Results

Spiritual offences:

- Outsiders
 - Tourists
 - State institutions & Companies (Roads, Power stations, Mining,...)
 - Local people
 - Breaking taboos
 - Greed & selfishness
 - Lack of religious fervour
- Climate change as moral & ethnic issue that expresses people's feeling of powerlessness



Results

Impact on deities:

"The mountains are not as beautiful any more, and they do not protect people as they used to." (man, 29 years)

"I am worried that the earth will break if the snow disappears completely." (woman, 85 years)

"If the snow disappears, people will disappear from the earth." (man, 57 years)





Summary & conclusion

Implications for adaptation

- People notice changes
 - Local differences
 - Negative and positive effects
 - One of many problems
 - Spiritual aspects
 - Feeling of powerlessness
 - Anxiety
- ➔ Need to be taken into account





Thank you!

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