Climate change in winter sport
- a new approach to transdisciplinary research and implementation

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Relevance of winter (sport) tourism in Austria

- Austria’s winter tourism is highly linked with winter sport activities;
- Ca. 57 Mio. over-night stays in the winter season;
- A yearly average of 150,000 employees in tourism (~5% of the Austrian employees);
- 70% of the guest beds are in destinations on lower altitudes than 1,000 m;
- Revenues in winter sport tourism are highly temporal and spatial concentrated;
- The number of overnight stays is already stagnating;
- Increasing interest of the alpine communities and regions for climate change scenarios and their further development prospects;
2. Brainstorming: some aspects ...

- Adaptation of models of climate change scenarios to the local conditions
- Including local knowledge (e.g. on local climatic conditions)
- Compensation via artificial snow?
- Attitudes of the ski enthusiasts related to snow conditions
- Role of the media
- Destination management and local players, stakeholders
- Compensation of unsufficient snow conditions developing other touristical products
- Reliability of investments in winter sport facilities
- Choice and preferences of the tourists
- How to implement a sustainable tourism development?
- .....
What is Transdisciplinarity?

- To find solutions in cooperation of Sciences, consultants and planners, local decision makers and community;
- Transdisciplinary work is a special strategy of interdisciplinary work that integrates non scientific and scientific consultants in research in a practice relevant project;
- It is a problem oriented research approach that helps to identify and prevent further problems and contributes to sustainable solutions for unresolved social problems;
- Characteristics of transdisciplinary research:
  - Discipline independent comprehension and definition of problems;
  - Fragmentation of problems with the aim of later integration of the disciplinary results;
  - Each discipline is using and developing its own methods in context to the entire problem;
  - In the whole process there is the connection between the single working tasks and the subordinated problem or research question.

Source: Internationale Konferenz über Transdisziplinarität, ETHZ 2000
Transdisciplinary approach

Climate Change / Climate Research

Spatial Planning and Regional Development

Integration in locale trade-offs and decision making processes

Market Research

Stratege

Local Knowledge

Tourism Research and Tourism Destination Management

Spatial Planning and Regional Development

Integration in locale trade-offs and decision making processes

Tourism Research and Tourism Destination Management

Market Research

Stratege

Local Knowledge

Tourism Research and Tourism Destination Management
Constitution of a transdisciplinary research concept

1. Knowledge about the current situation:
   • Analysis of regional climate and regional adapted climate scenarios;
   • Analysis of market research inquiries for the cable car companies;
   • Analysis of the regional situation and the structure of local actors

2. Cooperation with schools and universities
   Development of lectures and student projects

3. Knowledge about the development goals
   • Market research on the preferences of winter sport tourists using the results of climate change scenarios and other compensation models
   • Integration of the results of the market research and the results of the regional analysis;

4. Knowledge about future development
   Adaptation of the participative Management framework for a sustainable tourism land use TOMM (Tourism Optimisation Management Model)

5. Education and public information
   Preparation of lecture materials using the research methods and results, development of new teaching methods and the integration of education and research

Results:
• Scenarios of climate change, importance of snow, regional ecological, economic and social key data,

Results:
• Alternative leisure activities and other compensation models

Results:
• Attitudes and behaviour pattern for the target groups
• Consequences on economic decision making processes
• Consequences for the activity and destination choice of the consumers

Results:
Development goals and strategies as well as indicators for a sustainable tourism development in the region under conditions of climate change;
ECHAM5- Temperature Scenario for the region of Schladming in winter time (3 Ensembles A2-Scenario)

First Modelling based on local data of Schladming; Dr. H. Formayer, Institute for Meteorology
Roeckner, Erich; Lautenschlager, Michael; Schneider, Heiko 2006; IPCC-AR4 MPI-ECHAM5_T63L31 MPI-OM_GR1.5L40 SRESA2 run no.3: atmosphere monthly mean values MPImet/MaD Germany. [doi: 10.1594/WDCC/EH5-T63L31_OM-GR1.5L40_A2_3_MM]
Attitudes of the ski enthusiasts on Snow

- The significance of snow for destination choice
  - Snow conditions are extremely important
  - Furthermore
    1. Size of the ski resort – 56%
    2. Travel distance – 39 %
- Which target group is very sensitive:
  1. Frequent visitors (Stammgast)
  2. „Pleasure skiers“ (Genussskifahrer)
  3. Skiers from Germany and Austria
Motives of winter sport tourists

- Learn a new activity
- Participation in an event
- Have party
- Outdoor activities besides skiing
- Winter experience
- Spend time with family
- Recreation
- Enjoy the sun
- Nature experience
- Local traditions
- Make new friends
- Spend time with friends
- Physical activities
- Recreation

Percentage distribution:

- Important
- Indifferent
- Unimportant

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Destination choice – influencing Factors

- sureness of snow
- winter experience
- size of skiable area
- waiting time at lift
- high quality of accommodation
- cheap accommodation
- slopes down to the valley
- technical snow
- restaurants
- snow independent activities
- Après-Ski
- shopping facilities

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provision

a project of the program proVISION, financed by the Austrian Federal Ministry of Education, Science and Culture

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Adaptations strategies of alpine communities on changing climate conditions

Ensure winter sport tourism

- technical snow;
- extension of ski areas in higher altitudes;
- distribution of financial risks and benefits;
- ......

Substitutes in the winter season

- temporary measures at the:
  - ski destination:
  - Improvement of services,
  - wellness and Spa-facilities;
  - snow-independent attraction;
  - indoor sports;
  - compensation programme in winters lack of snow;
  ...

Alternatives for winter sport tourism

- Enhance Summer tourism;
- Use of ski infrastructure in summer time;
- Alternative sport options?
- ?
- ?

Strategies to ensure the Tourism in the alpine space

Avoiding Climate Chance
Where to go after some winters lack of snow?

High loyalty to austrian ski destinations of the Viennese – what about the foreign guests?
Impacts of press reporting about climate change

- Press reporting about the impacts of climate change can influence the public awareness by photos, movies and reports;
- This may lead to a breach of confidence at visitors and causes adaptation processes;

- Examples from the past:
  - 1986 press report about forest dieback in consequence of acid rain in the Black Forest resulted in a strong decrease in booking numbers;
  - The media reports about the pollution of Italian beaches were followed by decreasing number of bookings;
Network of Regional players

Winter tourism
(sphere of influence of cable car companies)

Travniczek
Hotel-errichtung

Breitfuss
Alt-Obmann ÖAV

Baier
Planaibahn

Grogl
WSV Marketing

Grogl
WSV

Winter
Bgm. Schladming

Winter sport events

Royer
Bürger-schaft

Baier
Planalbahn

Grogl
WSV

Thaller
Alt-Obmann WSV

Pilz
Bgm. Rohrmoos

Resch
Bgm. Haus

Pfleger
Tourismus-verband

Peyker
Ortsplaner

Schrempf
Bgm. Ramsau

Source: ÖIR

“Proms of Schladming”

Kahr
Trainer legend

Fam. Tritscher
ski profi

Walcher
downhill world champion

Stadlober
Cross country world champion

Communities

Tourism association
Tourism Optimisation Management Model (TOMM)

- The main goals of TOMM:
  - Definition of the optimal terms and conditions concerning:
    - The environment,
    - The regional economy,
    - Marketing,
    - the experiences at the destination,
    - Social and cultural aspects.
  - Definition of representative indicators to describe the optimal terms and conditions and participative definition of acceptable development ranges;
  - Development of a data base to identify and measure needs and impacts of tourism;
  - Development of a management framework that measures whether the actual situation accords to the defined ranges of optimal terms of conditions or not;
  - Deduce management measure to attain the defined goals;
Example for an indicator in TOMM

Visitor satisfaction

<table>
<thead>
<tr>
<th>Indicator:</th>
<th>High satisfaction of visitors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area:</td>
<td>Quality of experience</td>
</tr>
<tr>
<td>Optimal condition:</td>
<td>High expectations of the major parts of visitors are accomplished</td>
</tr>
<tr>
<td>Criteria/measured value:</td>
<td>Share of visitors, who are very satisfied with their stay in the region (summer and winter)</td>
</tr>
<tr>
<td>Acceptable range</td>
<td>Between x und y % of the visitors are very satisfied</td>
</tr>
<tr>
<td>Source of information:</td>
<td>Customer satisfaction inquiry</td>
</tr>
</tbody>
</table>
Conclusions

- Transdisciplinary research is required
  - to deal with an uncertain future development
  - to solve complex research questions by the combination of partners from different research fields, the local population and from the affected branch
  - to enhance the decision making process on a local level
  - to find strategies for a sustainable spatial development.

- See: www.Klimawandel-wintersport.at
Projekt Partners

- Österreichisches Institut für Raumplanung
  Franz-Josefs-Kai 27, 1010 Wien

- Institut für Meteorologie
  Peter Jordan Str. 82, 1190 Wien,

- Manova Marktforschung
  Ungargasse 53, 1030 Wien,

- Institut für Landschaftsentwicklung, Erholungs- und
  Naturschutzplanung, Peter Jordan Str.82, 1190 Wien

- Planaibahn, Schladming und Dachstein-Region,
  A-8970 Schladming, Coburgstr. 52

- Verband der Österreichischen Seilbahnen
The procedure of TOMM

**Initiation**
- Introduction of TOMM in the region, identification of local actors, discussions and consultation;

**Inventory and Assessment**
- description of the current situation of tourism in the region;
- analysis of existing policy planning;
- discussion about the regional potentials, values and approaches;
- consideration and development of alternative scenarios for the future;

**Monitoring Programme**
- definition of the optimal terms and conditions in tourism;
- participative definition of representative indicators to describe the aspired terms and conditions;
- participative definition of acceptable ranges for each indicator;

**Management-Response-System**
- Control: are we in the acceptable range?
  - continue monitoring
  - YES
  - NO
  - Monitoring reaction (measures)

**pro:vision**

A project of the program pro:VISION, financed by the Austrian Federal Ministry of Education, Science and Culture

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Example for an indicator in TOMM

Satisfaction of local inhabitants

<table>
<thead>
<tr>
<th>Indicator:</th>
<th>High satisfaction of local inhabitants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area:</td>
<td>Quality of life</td>
</tr>
<tr>
<td>Optimal condition:</td>
<td>High satisfaction of local inhabitants with the quality of life</td>
</tr>
<tr>
<td>Criteria/measured value:</td>
<td>Share of inhabitants, who feel good and is satisfied with the quality of life in their community/region</td>
</tr>
<tr>
<td>Acceptable range</td>
<td>Between x und y % of the local inhabitants feel good in their community/region</td>
</tr>
<tr>
<td>Source of information:</td>
<td>Inquiry of the local inhabitants to the topics: feel good factors, quality of accommodation, working, provision, education, recreation, transport, communication and financial situation; Regional statistics: income, migration, movement of labours</td>
</tr>
</tbody>
</table>