

Workshop Output WS 1.4.B

Title of workshop: Mountain trails, trade routes & migration

Prepared by

Moderators	Michael Meyer, Caroline von Nicolai (U. Munich)
Participants*	Robert Brunswig (U. Northern Colorado, US); Janet Battentier (U. Cote d'Azur; France); Velantina Coia (EURAC, Italy); Meghan Dudley (U. Oklahoma, US); Andrea Fischer (ÖAW); Michael Frchetti (Washington U. in St. Louis, US); Bonnie Pitblado (U. Oklahoma US); Jennifer Herkes (Carcross/Tagish First Nation, Canada); Joachim Pechtl (U. Innsbruck); Mark Aldenderfer (U. Merced, California); Caroline von Nicolai (U. Munich, Germany)

* Workshop participants that have submitted contributions to the workshop

General questions to please be answered in the workshop reporting

- 1) What was the focus of the workshop? Methodological issues and advancements or thematic issues (systems knowledge, transformation knowledge, target knowledge). Please check and fill in the matrix in the output section.

Methodological issues and advancements	Thematic issues		
	System knowledge	Transformation knowledge	Target Knowledge
x	x		

- 1) Which key points were discussed in the workshop as a whole? (This should be more a synthesis and not simply a summary of the key points in each presentation)

This workshop focused on the various methods and advances in documenting and understanding past human migration in mountainous regions such as the European Alps and other (high) alpine settings.

Key points discussed in workshop - specifically with respect to new developments, innovations and change in perceptions during the past ca. 10 years:

- Change of perception in community concerning the human use of mountain landscapes: mountain ranges (≤ 3000 m asl) should not be primarily viewed as hostile topographic barriers to human movement; rather, mountain ranges and their dynamic ecosystems served as attractive living spaces or even refugia since Paleolithic times (high agreement, medium evidence)
- The human pre-conditioning of alpine and high alpine ecosystems and catchments and sediment cascades (which for some catchments is reaching back into Neolithic times), has relevance for interpreting their modern status. The time-depth of human use of alpine catchments and their degree of pre-conditioning is frequently overlooked by scientists concerned with their modern status and future trajectories (high agreement, medium evidence)
- In order to improve system knowledge a clear tendency towards „big data approaches“ can be seen; partly because any interpretation of the paleoenvironmental and archaeological

records in mountain regions are strongly limited by preservation issues and due to the high erosion potential in mountain landscapes (high agreement, robust evidence)

- The development and application of modelling approaches is changing the research field rapidly; a major research gap in modelling of past migration routes and human movement in mountain landscape: how to include the cultural dimension in these models, specifically how to parameterize the sacred and social dimension of the landscape? High agreement, robust evidence
- The archaeological and geoarchaeological research community will probably benefit from an open (workshop based) conference format, because of the interdisciplinary nature of such a format and because it brings together specialists (archaeologists) working in mountains but focusing on different archaeological time periods. High agreement, medium evidence

2) What is your opinion on the current state of knowledge concerning your topic(s) (focusing on mountain regions)? *Please check and fill in the matrix on the following page.*

Overall assessment of the state of:

What is your personal opinion on the current state of knowledge concerning the topic(s) addressed in your workshop. Please tick the appropriate field. Brief explanations are appreciated.

State of knowledge	Very good	Good	Poor	Very poor	Not appropriate	Comments
Global				x		<i>The time depth and movement patterns of humans and causes of human movements are different for each mountain range as well as for each time period under consideration (Paleolithic, Neolithic, Bronze, Iron age, Medieval period). Understanding human movement is also heavily depending on two different realms (i) the natural realm (climate & environmental change) and (ii) the social/behavioral (including religious) realm. For the mountain ranges worldwide large data and knowledge gaps exist.</i>
Regional			x			<i>On a regional scale a broad understanding emerges, yet large spatial and temporal are still evident, hence no causal linkages can be drawn (European Alps, North America, Asia)</i>
Scattered case study-based knowledge		x				<i>For selected areas and time slices a fair understanding exists (often via a combination of high resolution archaeological and paleoenvironmental data and modelling); e.g. for selected sub-ranges of the Rocky Mountains (Paleo-, Neolithic), Central Asia Steppe Corridor/Silk Road (Bronze Age), selected catchments/passes of the European Alps (different time slices)</i>
Knowledge about past states/trends					x	<i>The session had a geoarchaeological focus and as such investigated the paleo perspective of human movement; yet, for each time-slice / archaeological period under consideration the state of knowledge is different. Thus we feel that this and most of the questions below do not apply to our workshop topic. Generally, for more recent time-slices the data coverage is better ,hence more robust interpretations are possible while for older time periods the relation between humans, mountains and migration becomes more speculative</i>
Knowledge about current situation					x	

Knowledge about future states/trends/thresholds					x	
Knowledge about the system			x			<i>Different migration and movement patterns for different archaeological time periods and mountain ranges apply. The system knowledge is good in as far as the community is aware about (i) the importance of paleoclimatic and ecological differences and their impact on past human movement as well as (ii) the importance of social and behavioral aspects of human communities that are (strongly?) influencing human movement too, but remain difficult to measure.</i>
Knowledge about shaping pathways to more sustainable development (transformation knowledge)					x	
Knowledge about envisaged goals (target knowledge)					x	

Ideas for questions to potentially be answered by the moderators after the workshop in the reporting (please delete what is not useful):

- 1) Were there any new insights and/or findings presented? If yes, which ones?
- 2) What was the main message/consensus of your workshop?
- 3) Were major uncertainty issues identified and discussed? If yes, which ones?
- 4) Was there any significant controversy (if so, what?) that requires new data (or further exploration of existing data) to resolve the issue? (explain)
- 5) Were new research questions raised? If yes, would working on these questions need to involve other disciplines (which ones)?
- 6) Did the workshop identify research topics (e.g. environmental drivers other than climate) that are, in your opinion, currently greatly underrepresented in mountain research, but should urgently be addressed?

Further Comments