

# How to count “alpine” publications?

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## Introduction

What is an alpine publication and which institutions are most productive in alpine research? The answer to an apparently simple question can sometimes be difficult. Körner (2009) stated that the best way to find publications about mountains, high elevations or high altitudes is to use “alpine” as a keyword, since it generally covers studies about different mountain ranges. Ever since Humboldt, the term “alpine” has been synonymous with the vegetation zone above the tree line. However, it is often used for other altitudinal zones and also in a geographical sense (i.e., the Alps). Thus “alpine” can be considered a relevant keyword in a variety of different scientific fields, such as linguistics, geography and biology.

## Methods

The total number of papers published in journals listed in the Web of Science (WoS) using the keyword “alpine” in either the title, abstract or keywords for the period 1899-2010 is 19,100. The resulting list was ranked by institutional affiliations using a threshold of at least 20 papers per institution to analyse only institutions with a noticeable focus on alpine research. Since there may be multiple institutional affiliations for a paper in the Web of Science the remaining 343 institutions with at least 20 relevant papers generated an overall number of 20,639 affiliations after this reduction. We excluded all scientific consortia, academies, university networks and university systems. This step became necessary because we wanted to compare separated institutions, such as for instance the University of Padua with the University of Vienna, but not groupings such as the Chinese Academy of Sciences or the consortium of all Swiss Technical Universities with their affiliated research institutions. At the expense of this comparability, all Academies of Sciences, e.g. the Chinese Academy of Science with 524 papers or the Russian Academy of Science with 157 papers, were excluded.

## Results

The results of data cleaning efforts are 291 institutions with at least 20 publications that were registered in our list and which added up to 18,157 affiliations for the timespan 1899-2010 and 7,378 affiliations between 2006 and 2010 (Table 1).

Table 1. Number of institutional affiliations on papers on alpine literature 2006-2010 of institutions with at least 10 relevant papers (SCI-EXPANDED, SSCI and A&HCI, N= 7,378)

Rank	Institution	Affiliations/Papers
1.	ETH ZURICH	294
2.	UNIV INNSBRUCK	229
3.	UNIV BERN	188
4.	WSL (CH)	136
5.	LANZHOU UNIV	132
6.	UNIV ZURICH	128
7.	UNIV COLORADO	124
8.	UNIV BASEL	123
9.	UNIV MILAN	119
10.	UNIV GRENOBLE 1	117
11.	UNIV PADUA	105
12.	UNIV LAUSANNE	102
13.	UNIV VIENNA	97
14.	UNIV TURIN	85
15.	UNIV OSLO	78
18.	SALZBURG UNIV	57
23.	UNIV NAT RESOURCES, VIENNA	55
36.	VIENNA UNIV TECHNOL	43
48.	UNIV GRAZ	38
236.	UNIV LOEBEN	10

Among the different disciplines the Natural Science appear the most productive producers of “alpine” publications (Fig. 1).

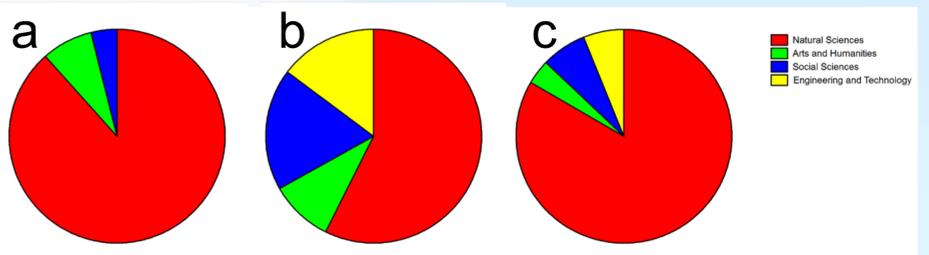


Fig. 1: Assignment of “alpine” publications to different disciplines. a) Books (N=13); b) Book chapters (N=95); c) Journal papers (N=148). Source: Research database (FLD), Univ. Innsbruck

Despite its small size Austria is among the most productive countries for “alpine” publications (Fig. 2).

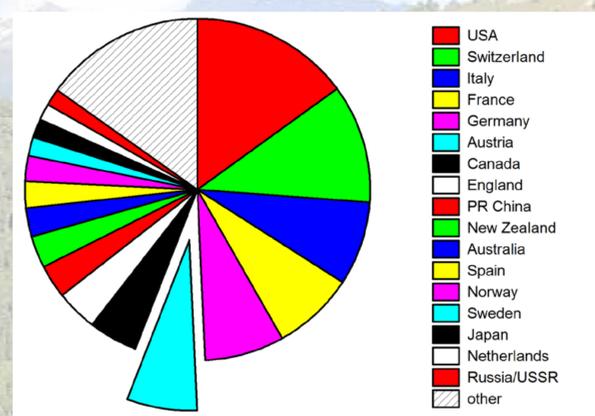


Fig. 2: Contribution per country or Territory. Authors for most “alpine” publications reside in the United States, followed by Switzerland Italy France, Germany and Austria.

## Conclusions

Ellen Hazelkorn (2011) reminds us to remain sceptical in front of the “... growing obsession with university rankings around the world”. The “ranking” we provide here, however, is rather straightforward based on text mining and number counting (no algorithms, no weighting). We think it is necessary to know where we are when it comes to alpine research, the building of research foci at universities and research centres, and to concentrate forces in small countries such as Austria. Thus we suggest regarding these results as a stimulus to improve our productivity and to increase cooperative research programs between natural and social sciences, arts and humanities on “alpine” topics.

Hazelkorn, E. 2011. Rankings and the reshaping of education: the battle for world wide excellence. <http://arrow.dit.ie/eserbk/10>

Körner, C. 2009. Global statistics of “mountain” and “alpine” research. *Mountain Research and Development* 29: 97-102