

Outline

1. Objectives, Methodology: Ulrike

2. (Preliminary) Results:

- Questionnaire of mayors: *Ulrike, Stefan & Florian*
- Indicators: *Delia, Caroline, Marc*
- Factor Analysis: *Delia*
- Cluster Analysis: *Delia*

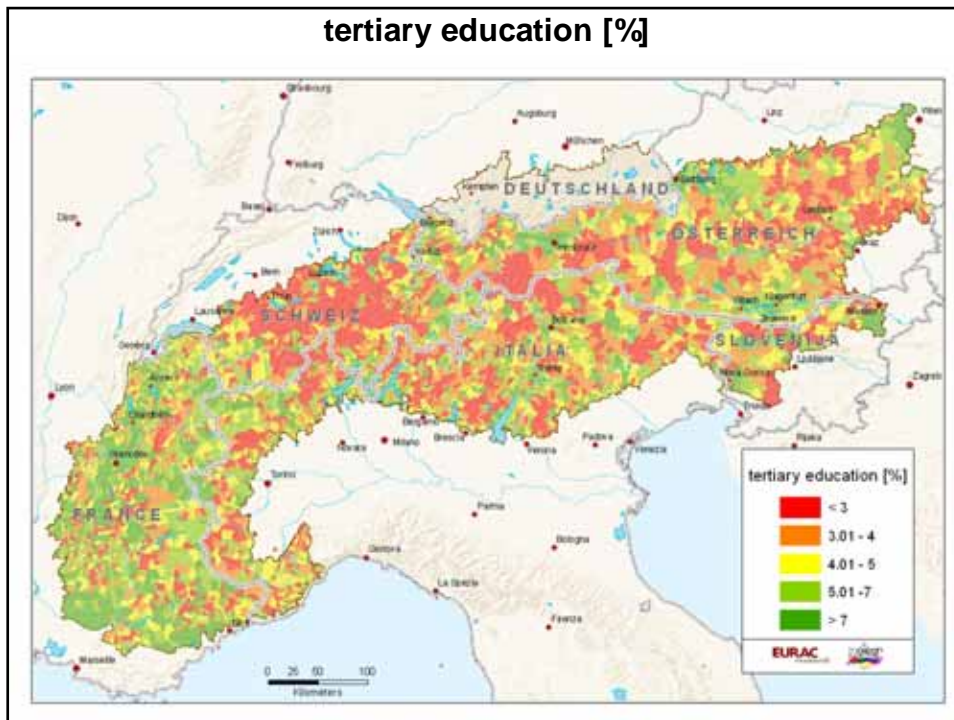
3. General Discussion

pillar

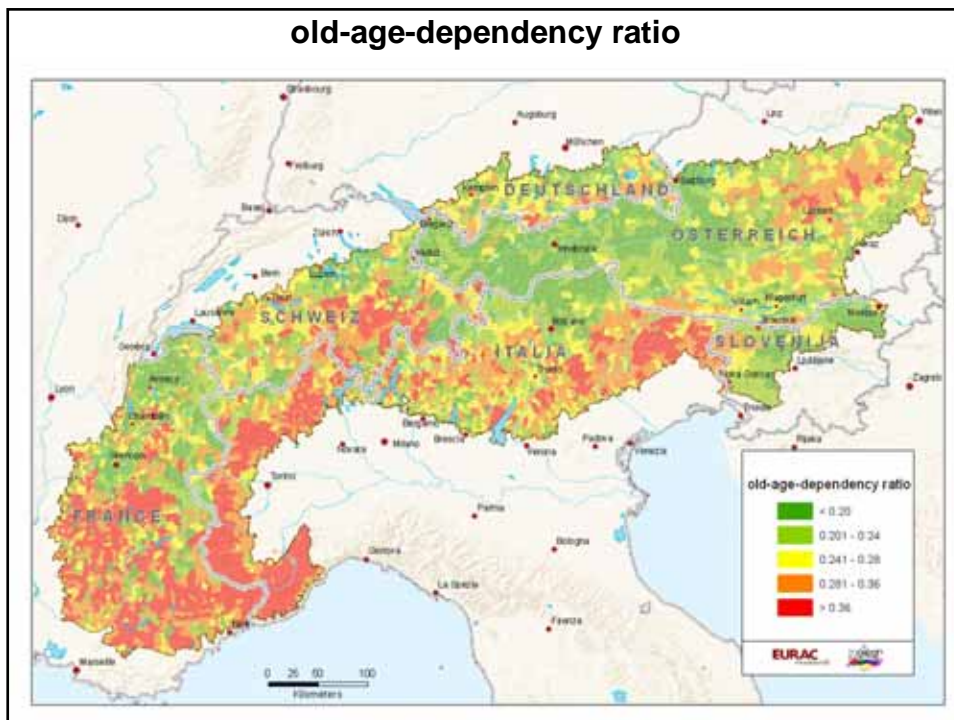
indicators

economy	} 32
society	} 14
environment	} 14

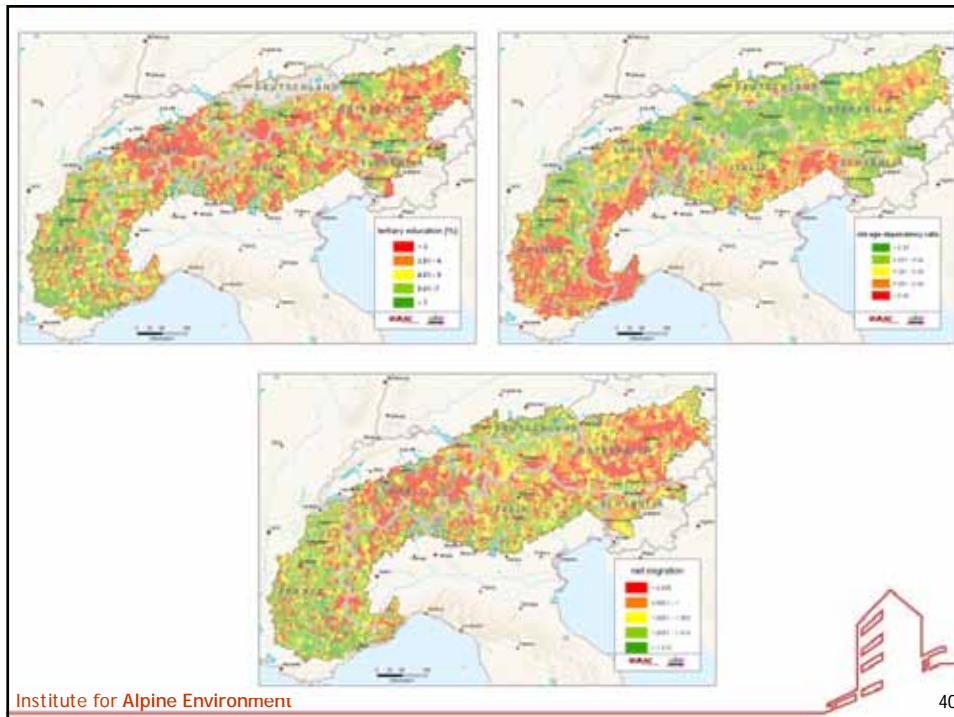
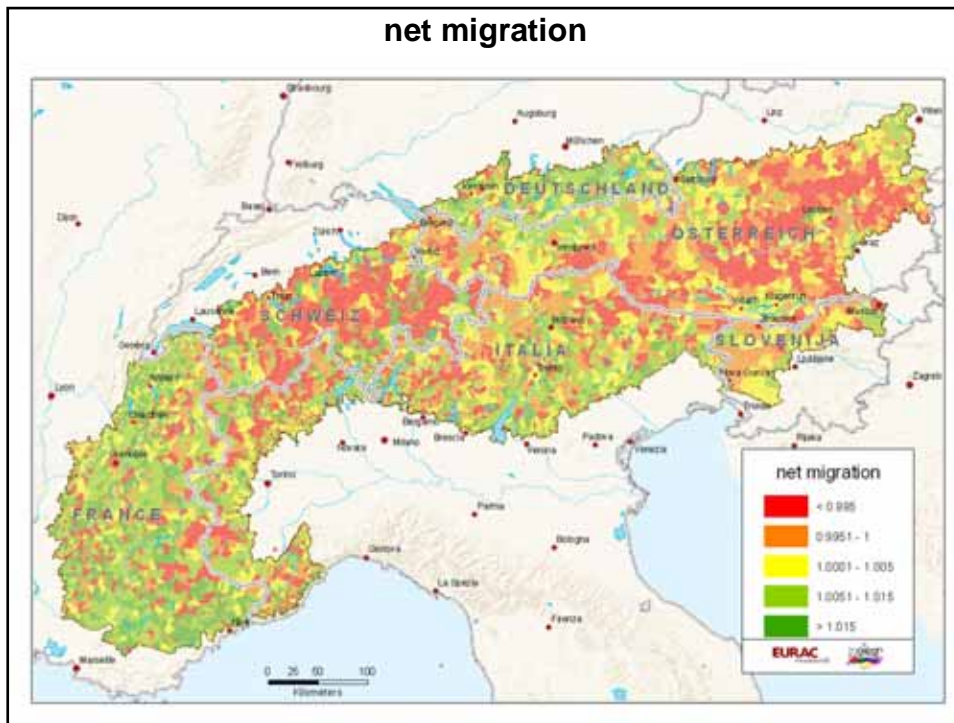
tertiary education [%]



old-age-dependency ratio



net migration



pillar

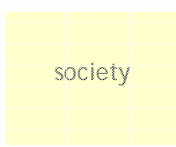
indicators



economy



32



society



14



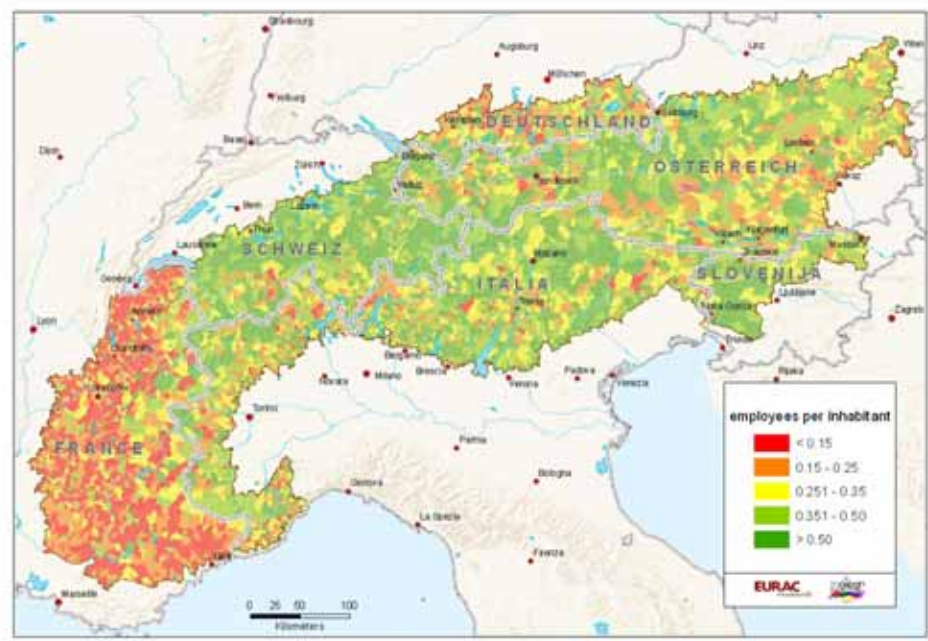
environment



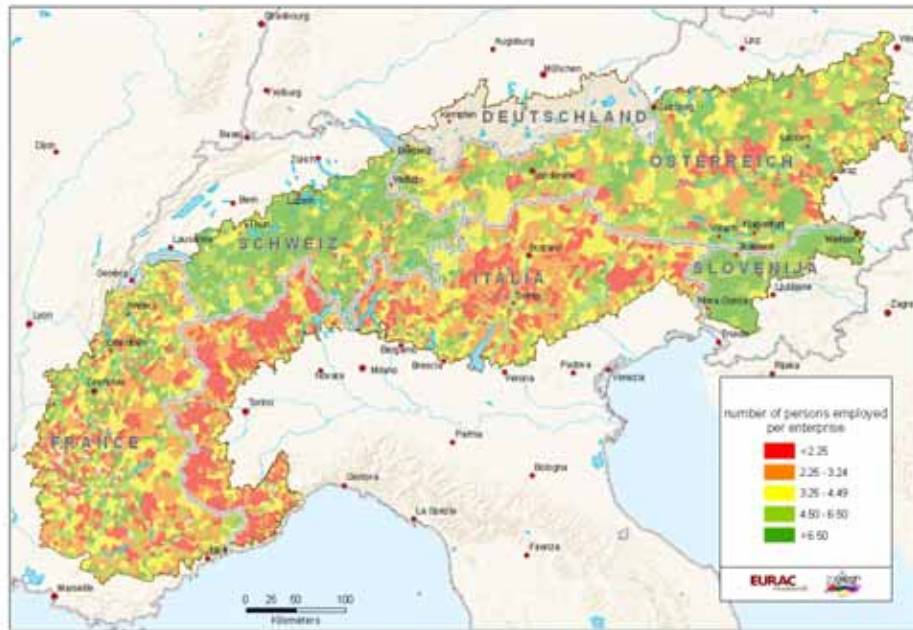
14



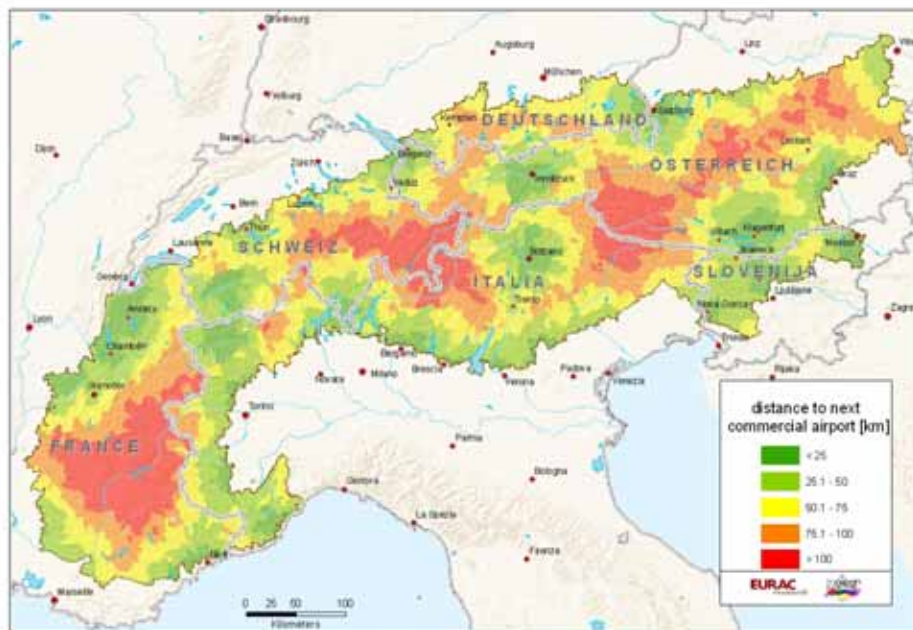
employees per inhabitant

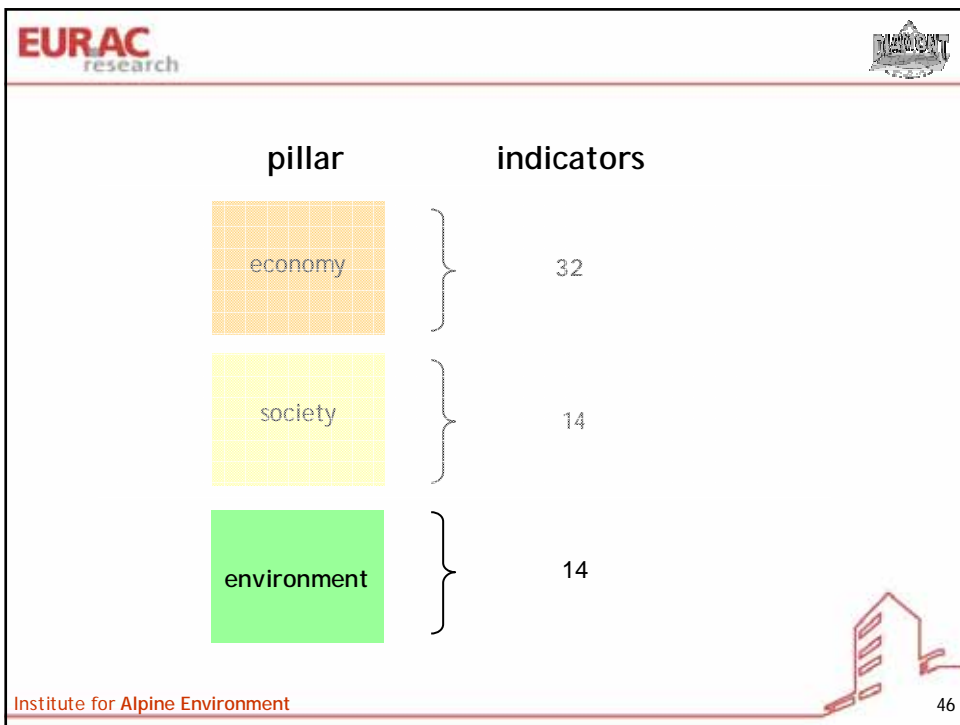
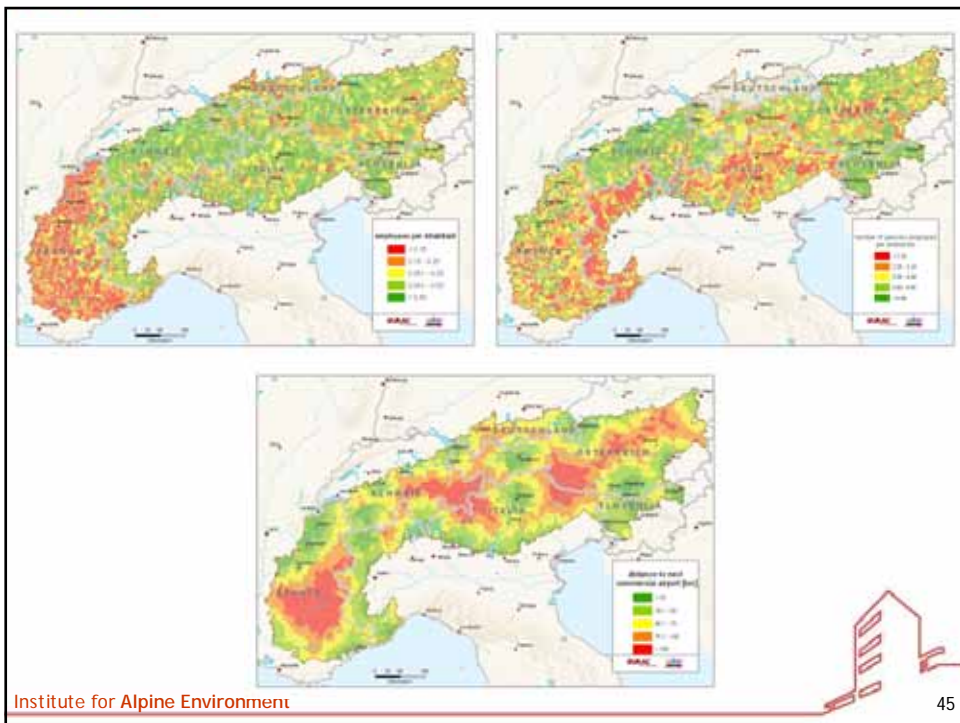


number of persons employed per enterprise

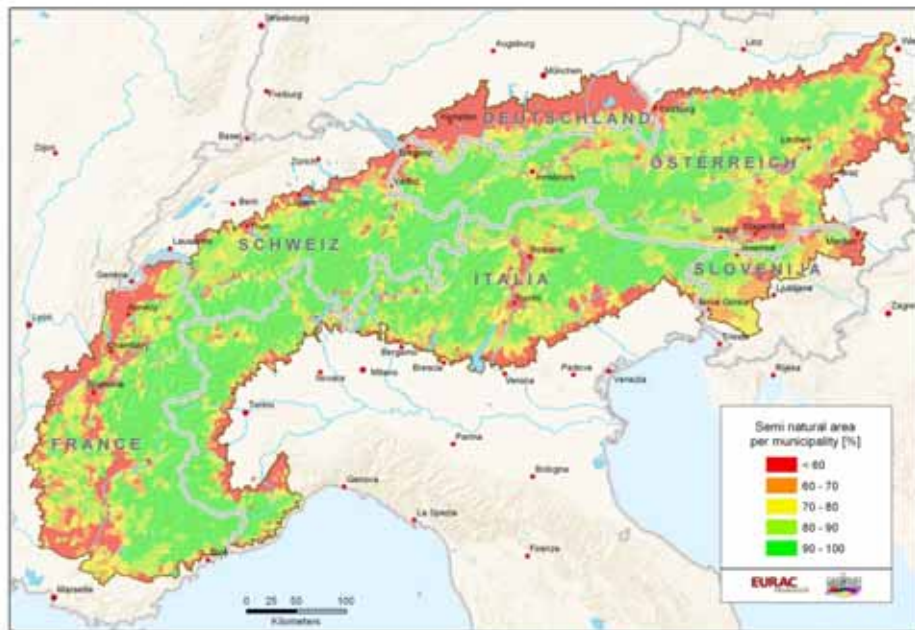


distance to next commercial airport [km]

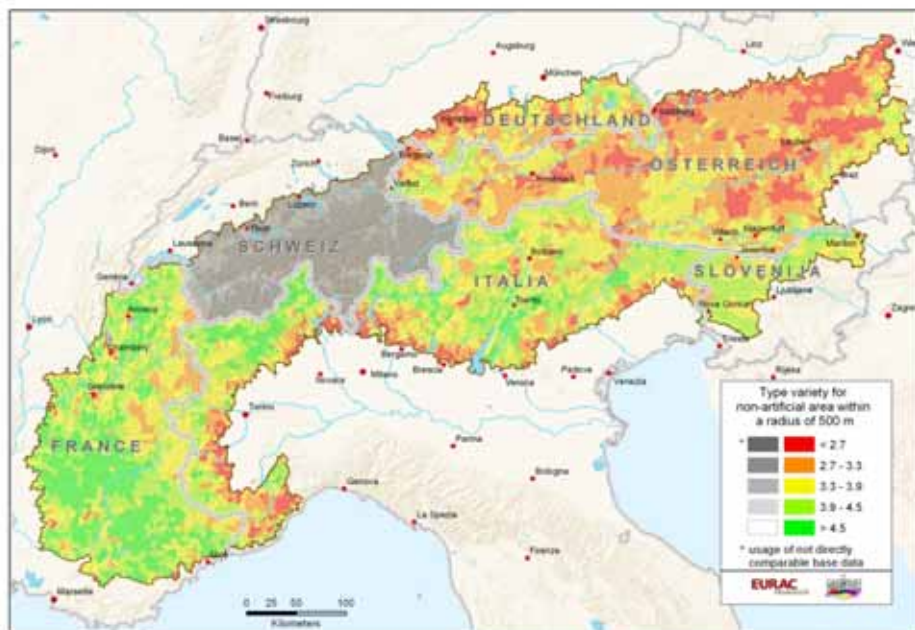




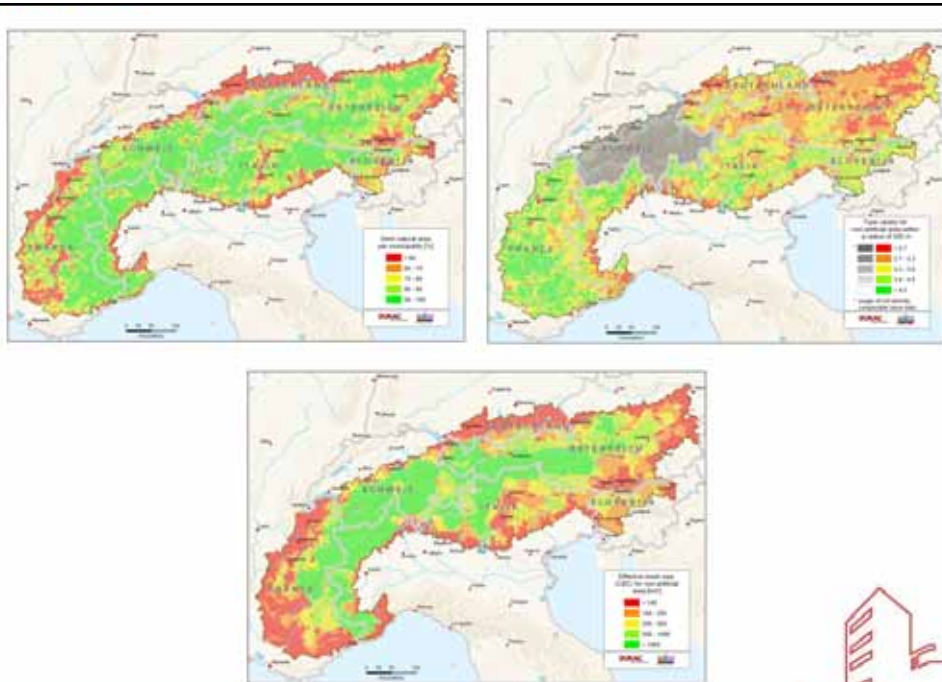
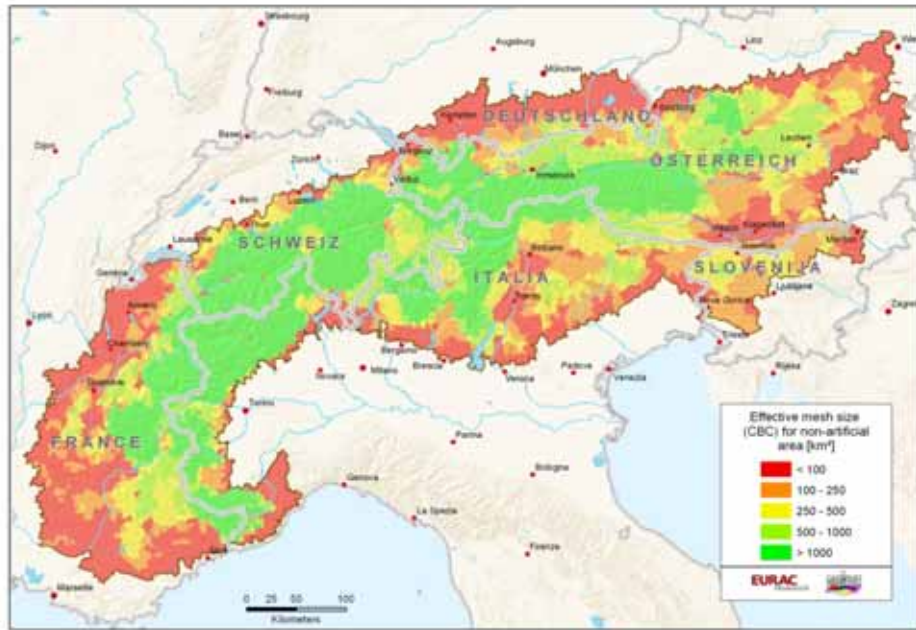
semi natural area per municipality [%]



type variety for non-artificial area within a radius of 500m



effective mesh size (cbc) for non-artificial area [km²]



conclusions

- informative and heterogeneous pattern
 - clusters of equally structured regions visible
 - sum of indicators visually difficult to interpret
- statistical approach required:
factor analysis & clustering

Data reduction: factor analysis

objective:

1. Data reduction
2. Identification of a structure in the relationship between the indicators (classification of the indicators)

We get:

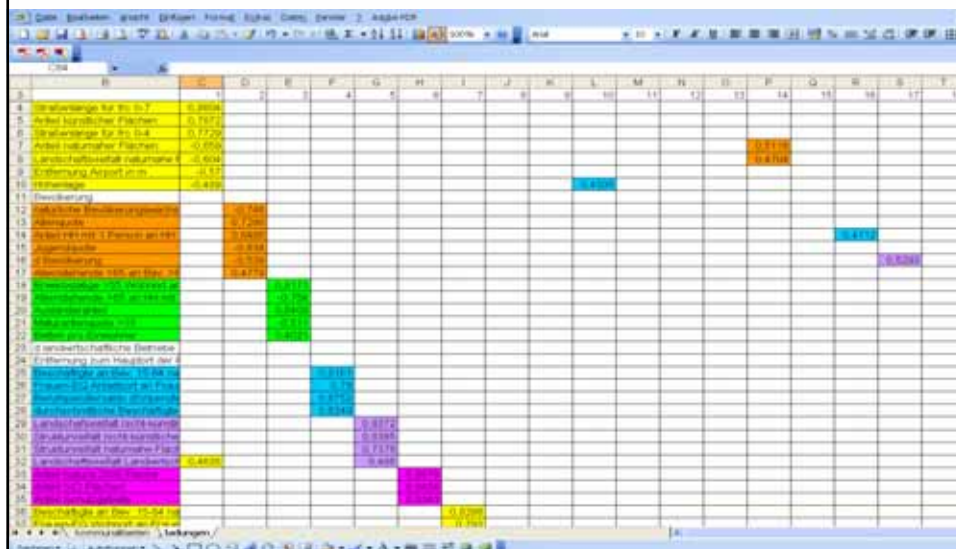
- Factor loadings: coefficient with which a factor explains the variable (importance of the factor for each variable)
- Factor values: for each factor we compute factor values for all municipalities

Factor analysis

Results:

- 18 factors
- explain 69 % of total variance
- 12 factors explain 50 % of total variance

Factor analysis





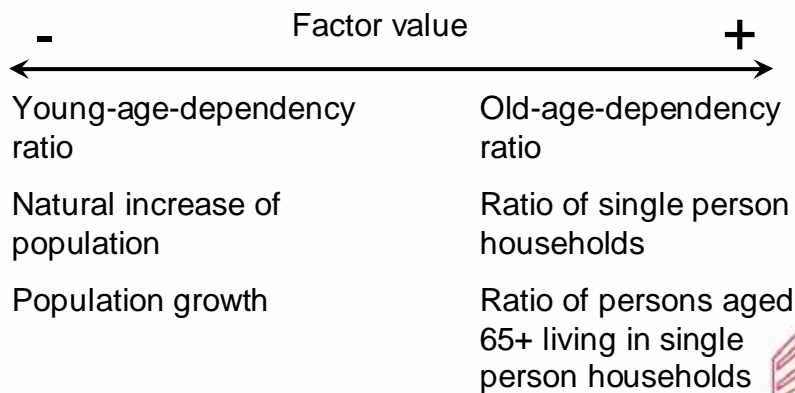
How to interpret a factor

Example: factor 2 - ageing population

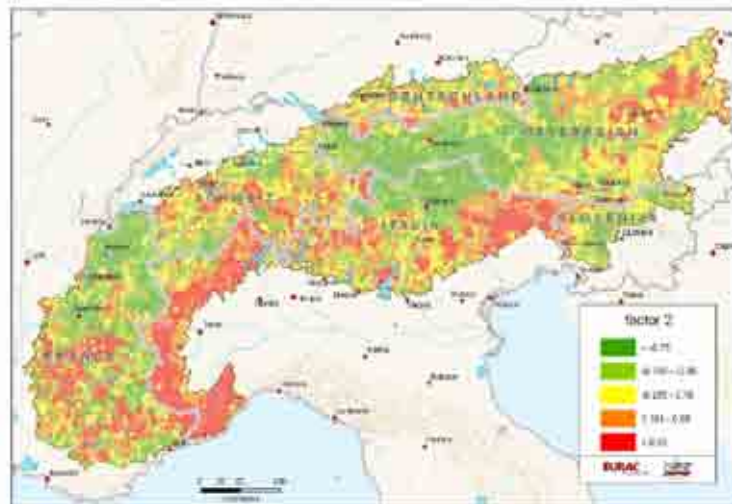
<i>Indicator</i>	<i>Factor loadings</i>
Natural increase in population	-0,74567797
Old-age-dependency ratio	0,72976273
Ratio of single-person households	0,64656833
Young age dependency ratio	-0,63434883
population growth	0,53803194
Ratio of persons aged 65+ living in single person households	0,47793155



Factor 2: ageing population



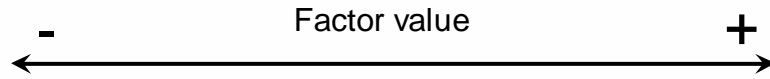
Factor 2: ageing population



Factor 3

<i>Indicator</i>	<i>Factor loadings</i>
share of persons aged 55+ to employees	0,81710407
ratio of population 65+ living in single person households to single-person households	-0,75411078
foreigners	0,64087061
upper secondary education	-0,51096938
number of tourist beds per inhabitant	0,40213882

Factor 3



-

ratio of population 65+
living in single person
households to single-
person households

upper secondary education

+

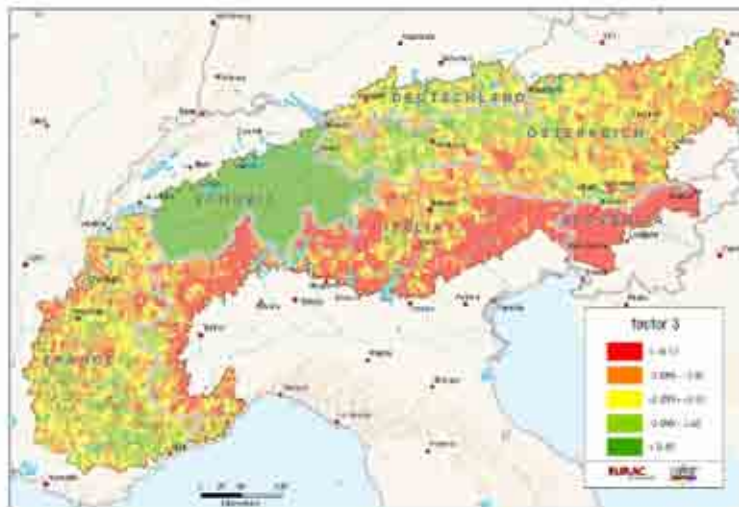
share of persons aged
55+ to employees

foreigners

number of tourist beds
per inhabitant



Factor 3



Clusteranalyse

objective: identification of similar regions

Cluster method: Ward's method,

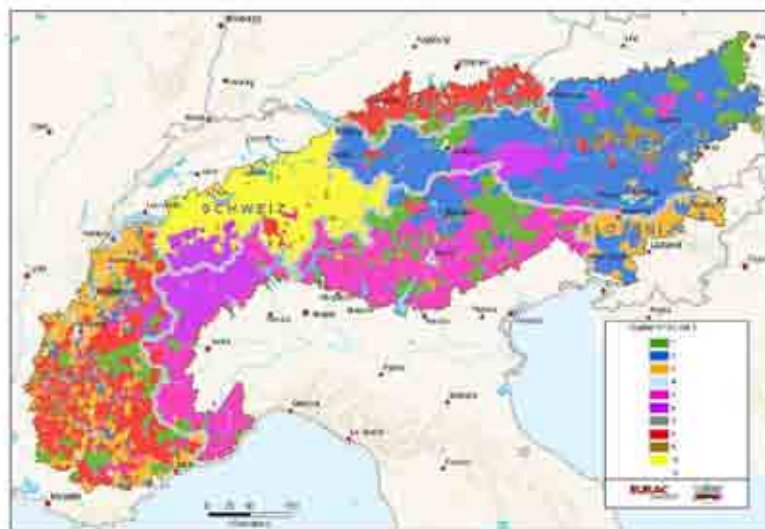
measure: squared Euclidean distance

2 approaches:

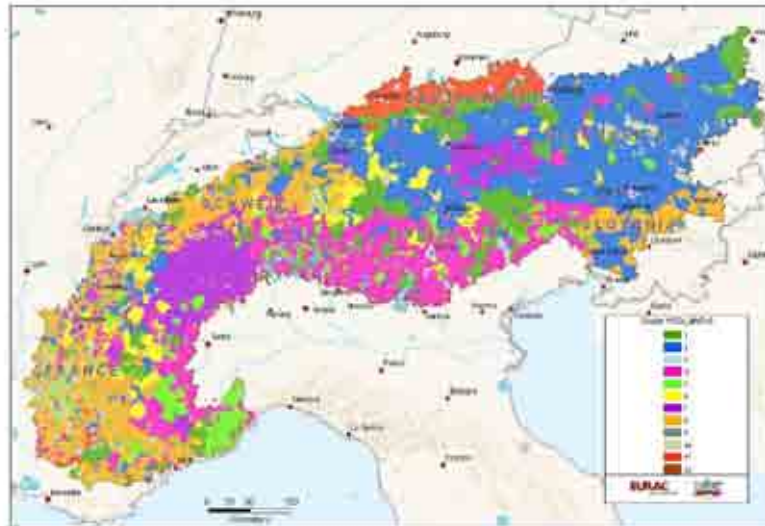
1. Cluster analysis with all factors
2. Cluster analysis excluding factor 3



Cluster analysis with all factors



Cluster analysis without factor 3



Cluster 3: urban centers

- 12.000 inhabitants, increasing
- Economic structure: very well balanced, big enterprises (8,5 employees), few but big hotels, many jobs, increasing employment, positive commuter balance
- Increasing population, balanced age-pyramid, very good educational attainment, many foreigners
- Low type variety, high structural variety, high dissection, low share of protected areas
- High accessibility, altitude: ca. 400 m

Cluster 6: tourism

- 1200 inhabitants, high altitude (1250 m) but good accessibility
- Very high employment rates and many jobs, rather unbalanced economic structure with many and big hotels and a big tertiary sector; many enterprises and many self-employed, positive commuter balance
- Growing population due to strong natural increase of population and low emigration; low old-age-dependency ratio
- Big share of semi-natural areas and many protected areas, little dissection



Cluster 10: degraded municipalities

- 200-250 inhabitants
- bad accessibility, altitude: 600 m
- Declining economy: extremely unbalanced economic structure, few and small enterprises, few and decreasing jobs, low employment rate, many self-employed
- Decreasing population, high old-age-dependency ratio
- Low share of artificial area, average type variety and structural variety

