



Hes·so

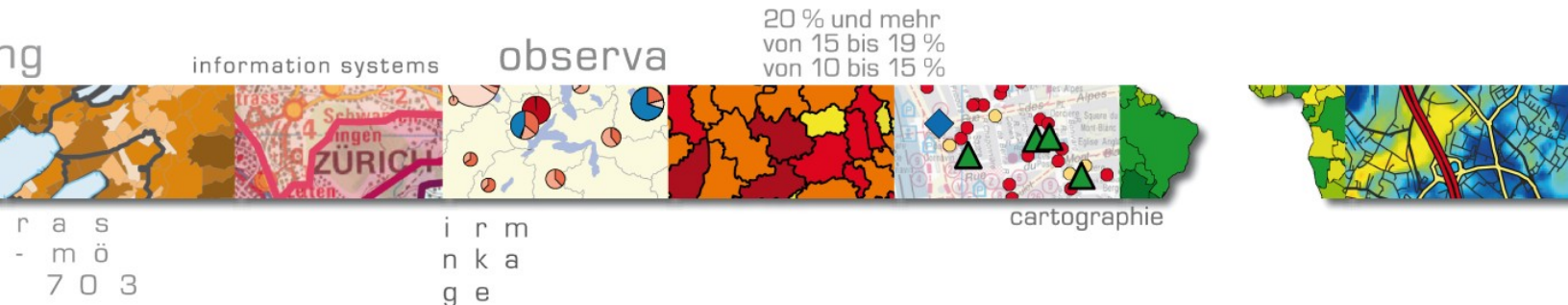
Haute Ecole Spécialisée
de Suisse occidentale
Fachhochschule Westschweiz
University of Applied Sciences
Western Switzerland

Think spatial Map your Data

„J“ CarThema



Migration of a thematic mapping application using Java GIS Toolkits







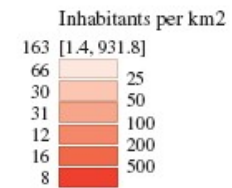
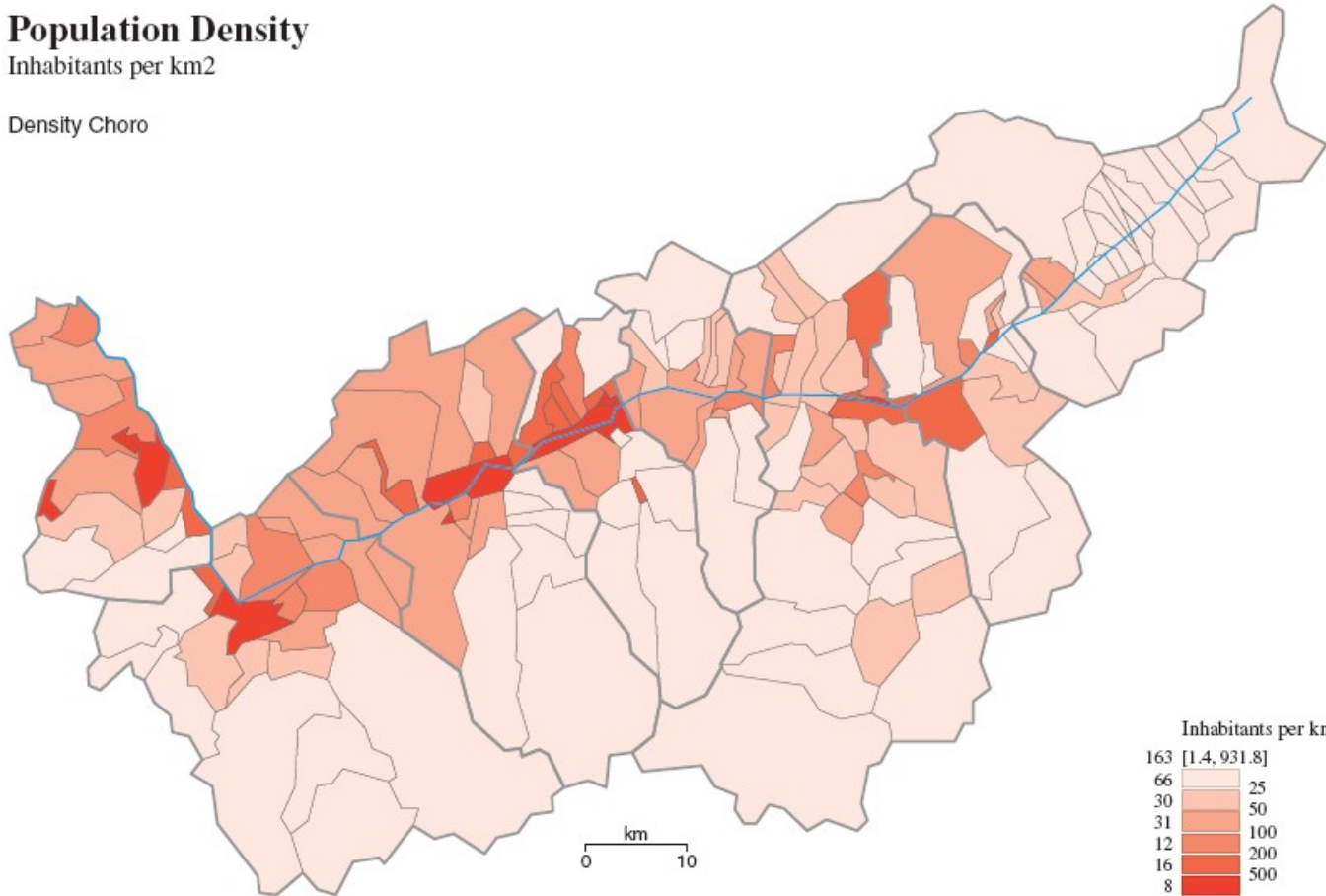
- ◆ Zone maps (choropleth maps)
- ◆ Symbol maps
 - ◆ Character symbols
 - ◆ Oriented symbols
 - ◆ Multiple symbols
 - ◆ Pie and bar charts
 - ◆ Multiple charts
- ◆ Line maps
- ◆ Flow maps



Population Density

Inhabitants per km²

Density Choro

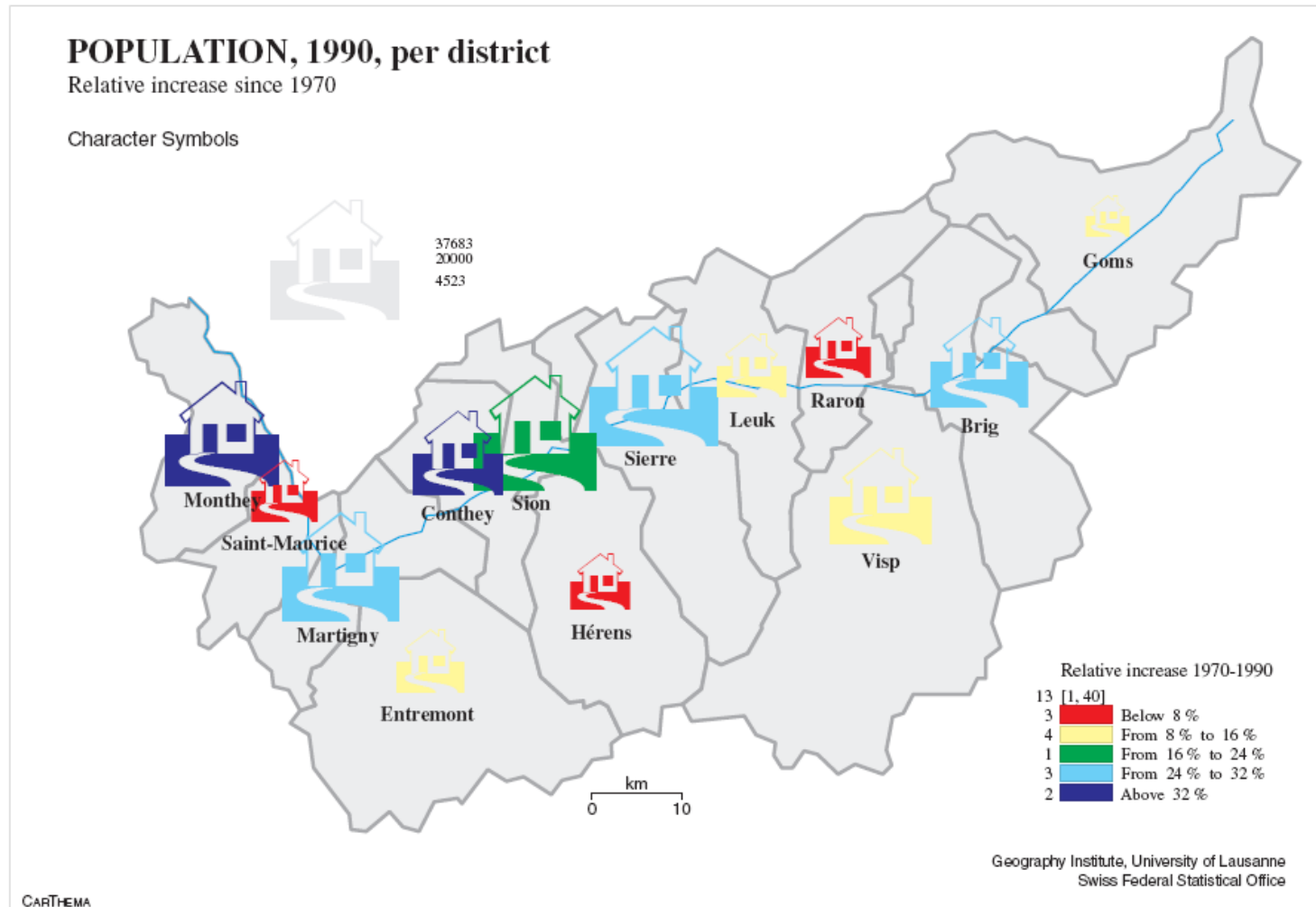


Geography Institute, University of Lausanne
Swiss Federal Statistical Office

CARTHEMA

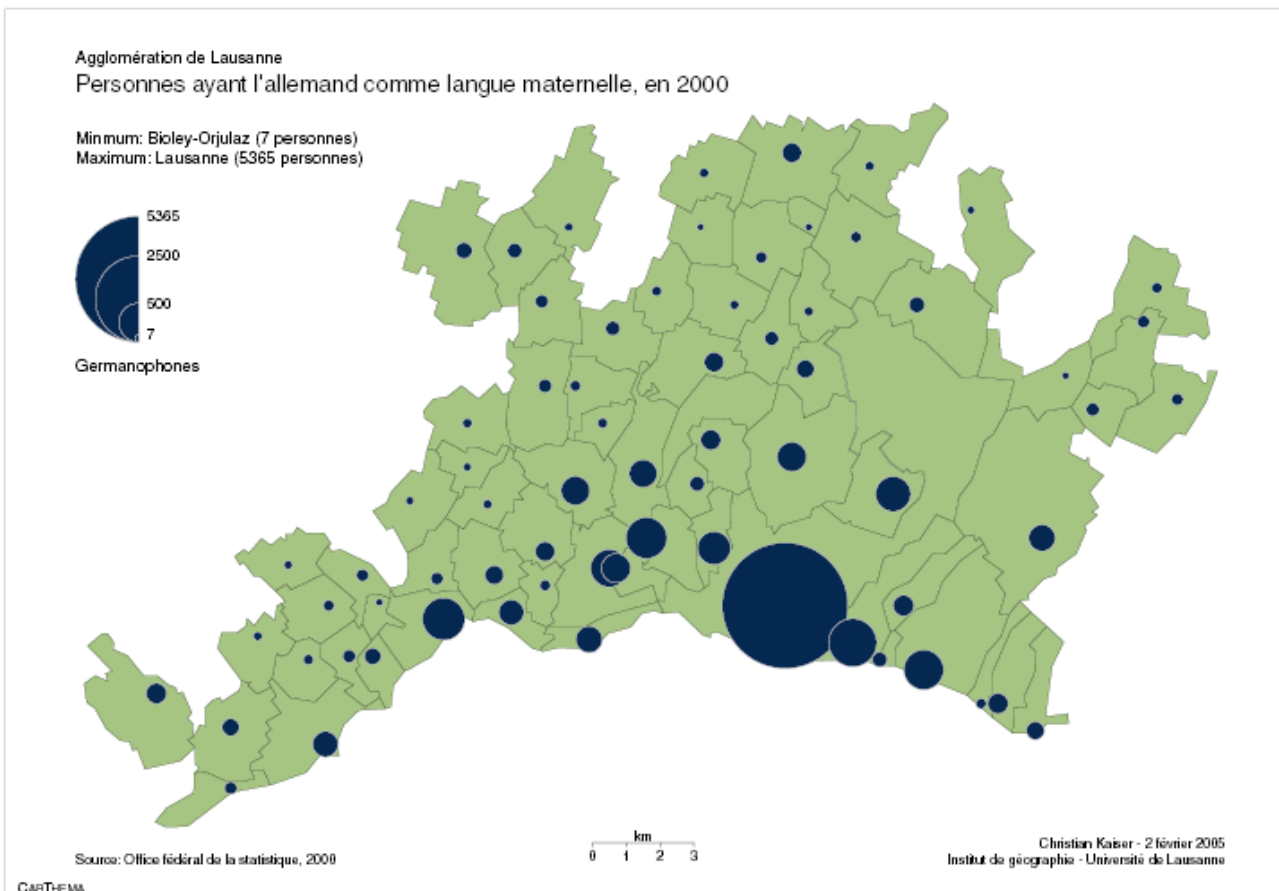
Thematic Cartography

Symbol maps: Character maps



Thematic Cartography

Symbol maps: Circle symbol



Thematic Cartography

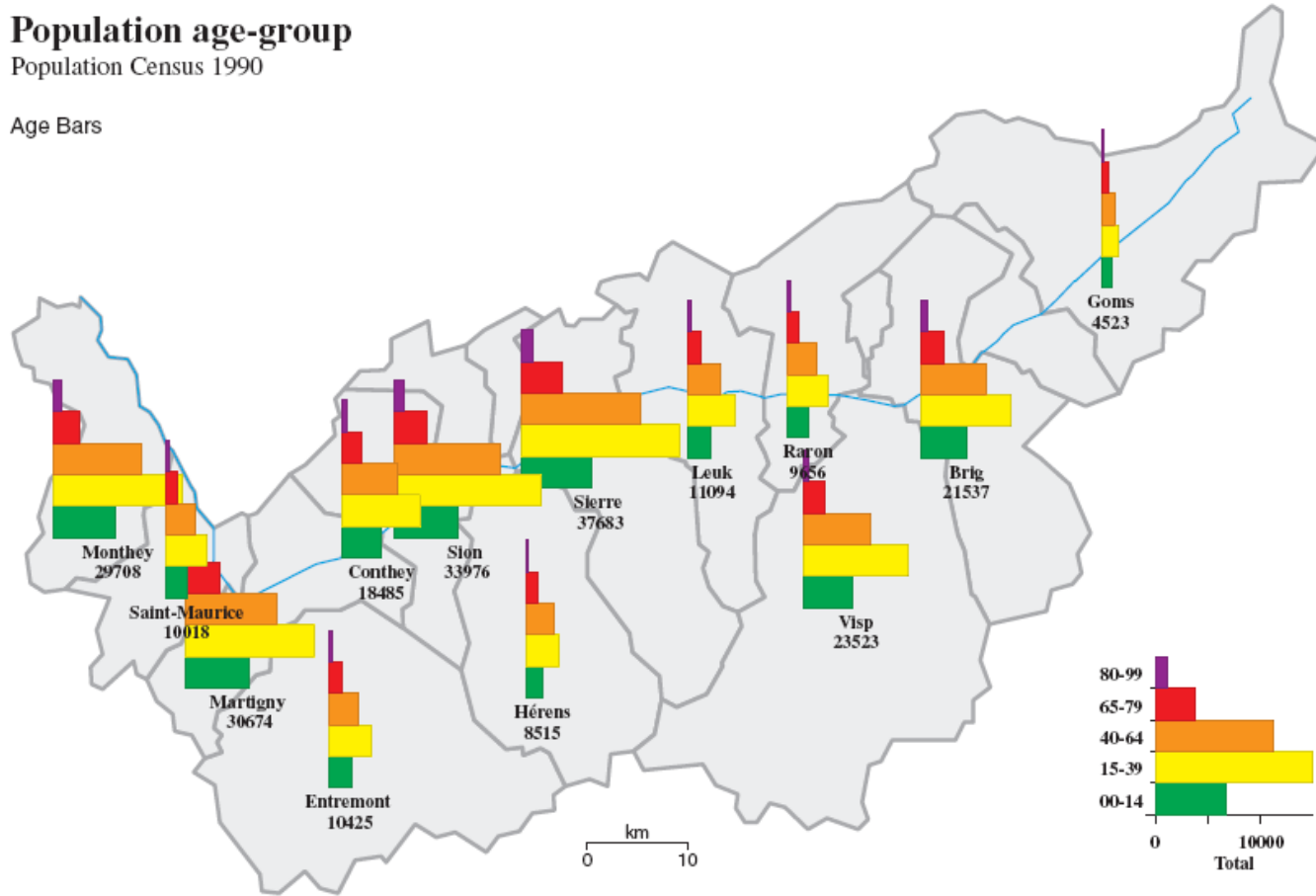
Symbol maps: Histogram chart



Population age-group

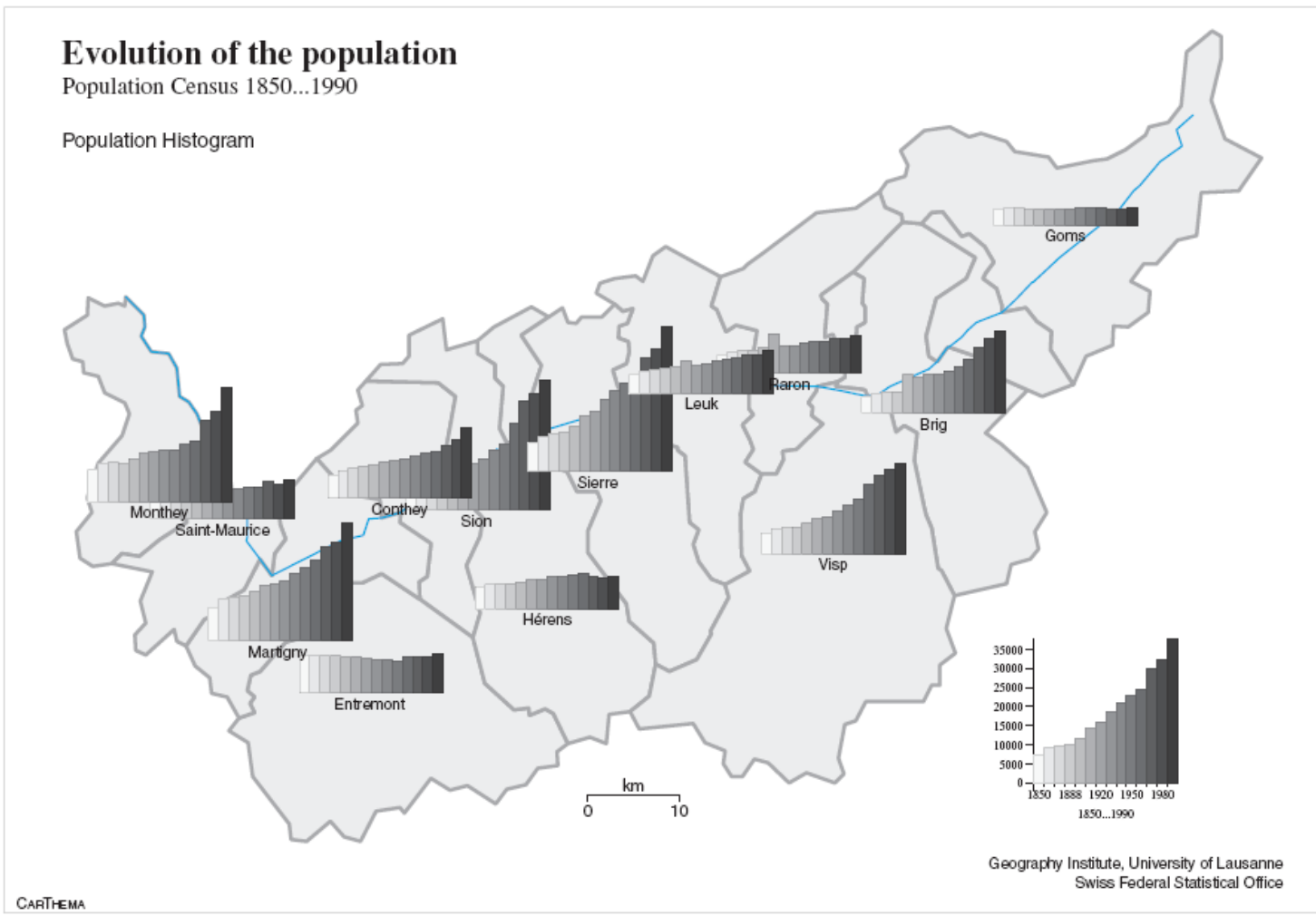
Population Census 1990

Age Bars



Geography Institute, University of Lausanne
Swiss Federal Statistical Office

CARTHEMA



Thematic Cartography

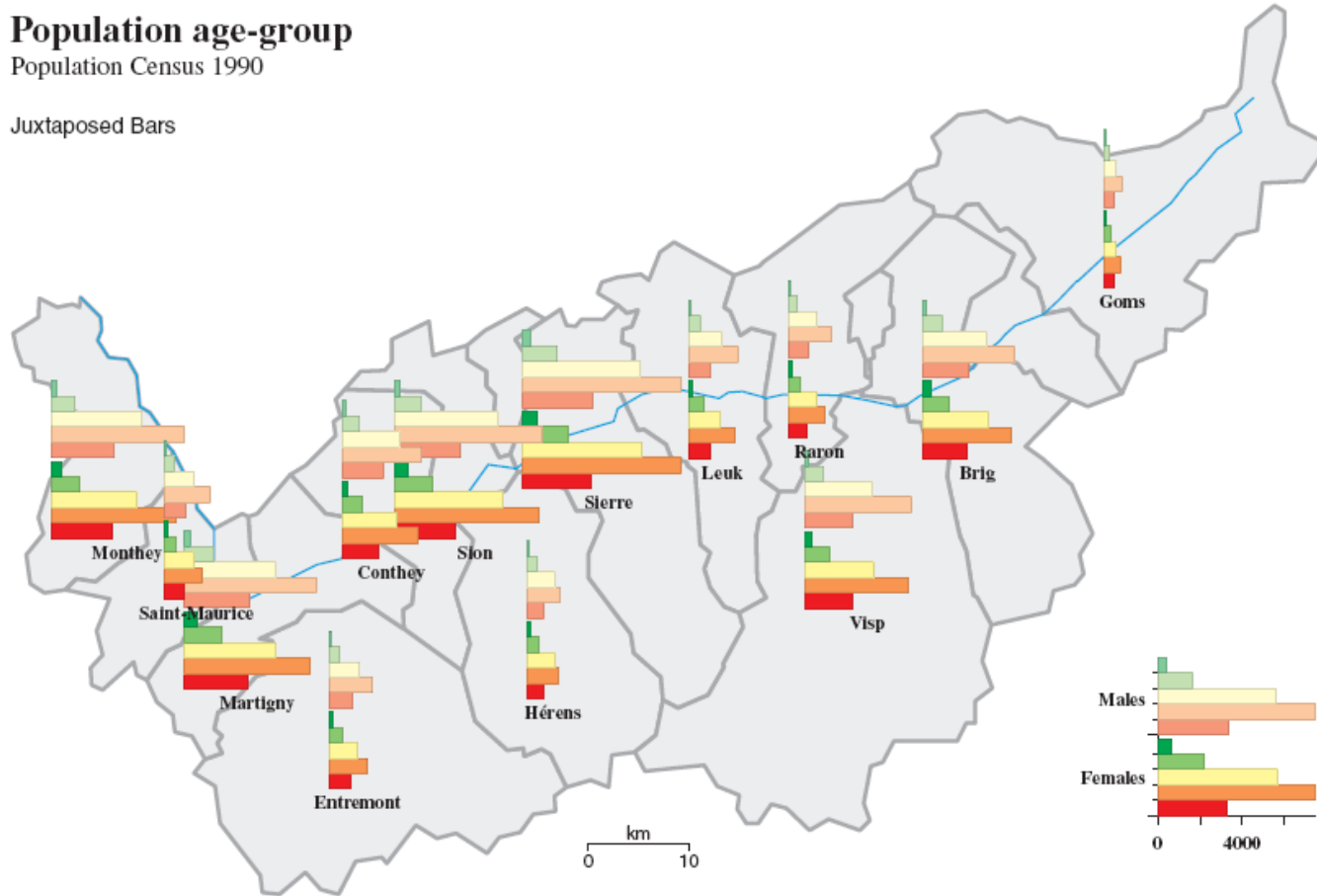
Symbol Maps: Multiple Charts



Population age-group

Population Census 1990

Juxtaposed Bars



Geography Institute, University of Lausanne
Swiss Federal Statistical Office

CARTHEMA

Thematic Cartography

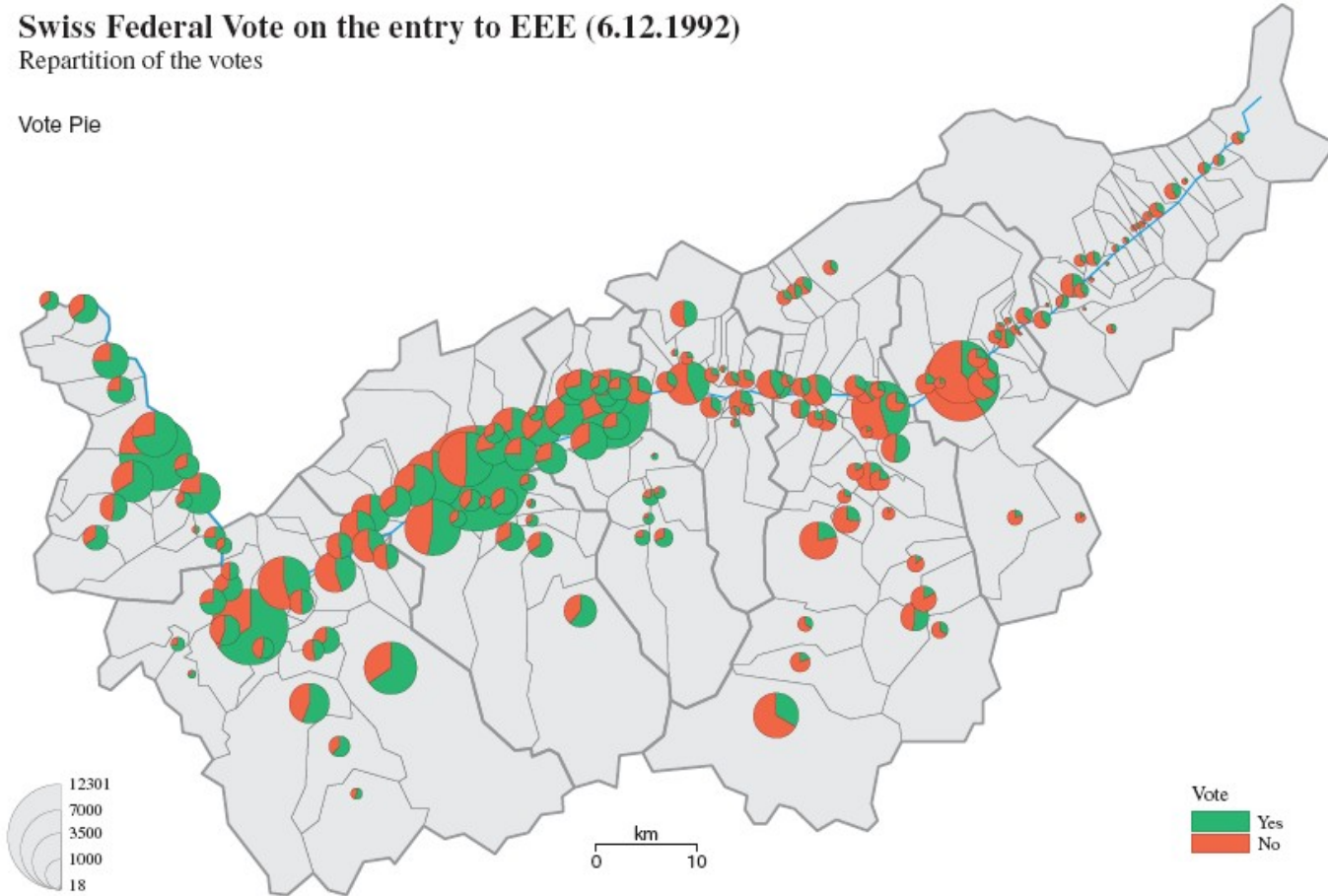
Symbol maps: Pie chart



Swiss Federal Vote on the entry to EEE (6.12.1992)

Repartition of the votes

Vote Pie

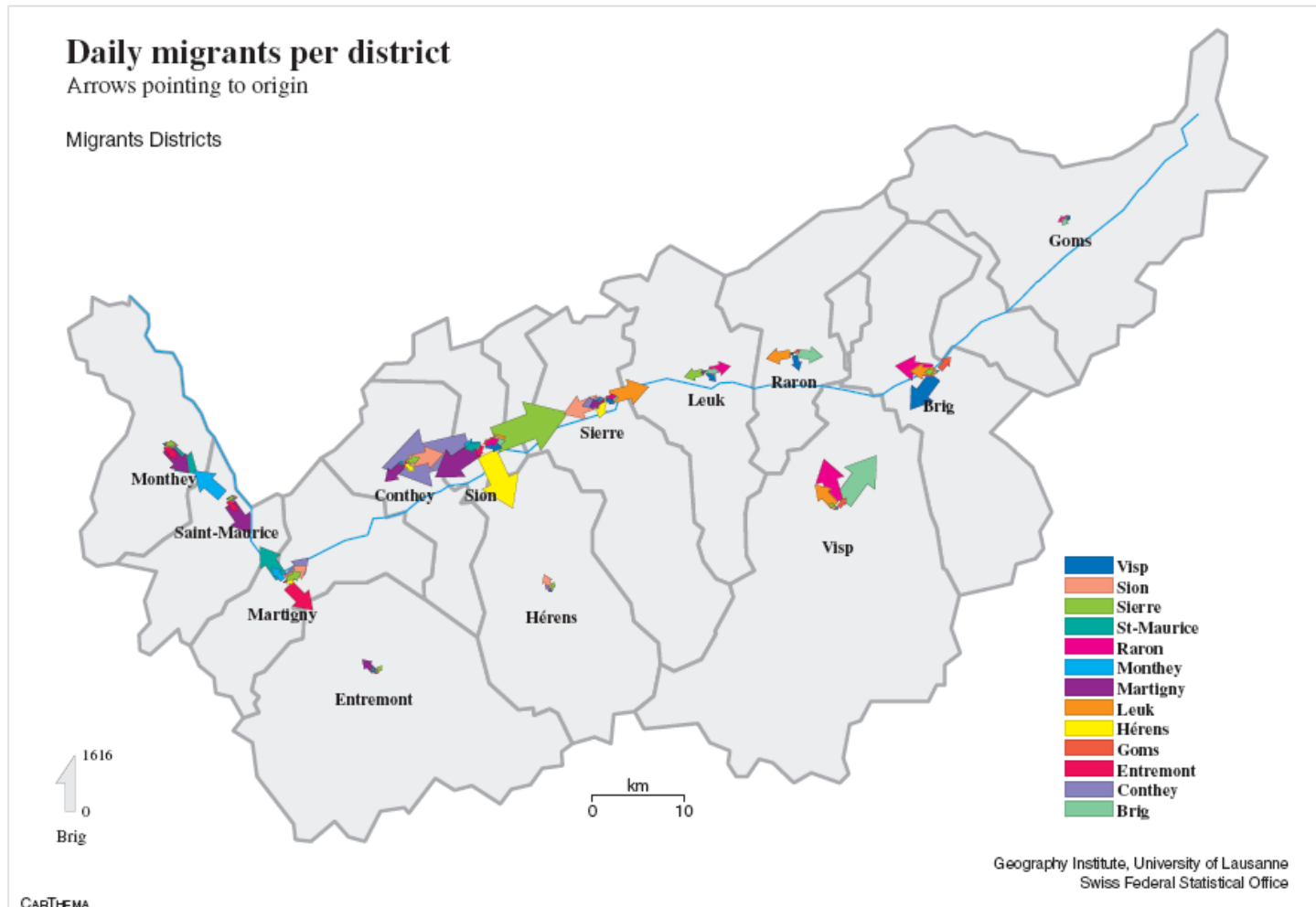


Geography Institute, University of Lausanne
Swiss Federal Statistical Office

CARTHEMA

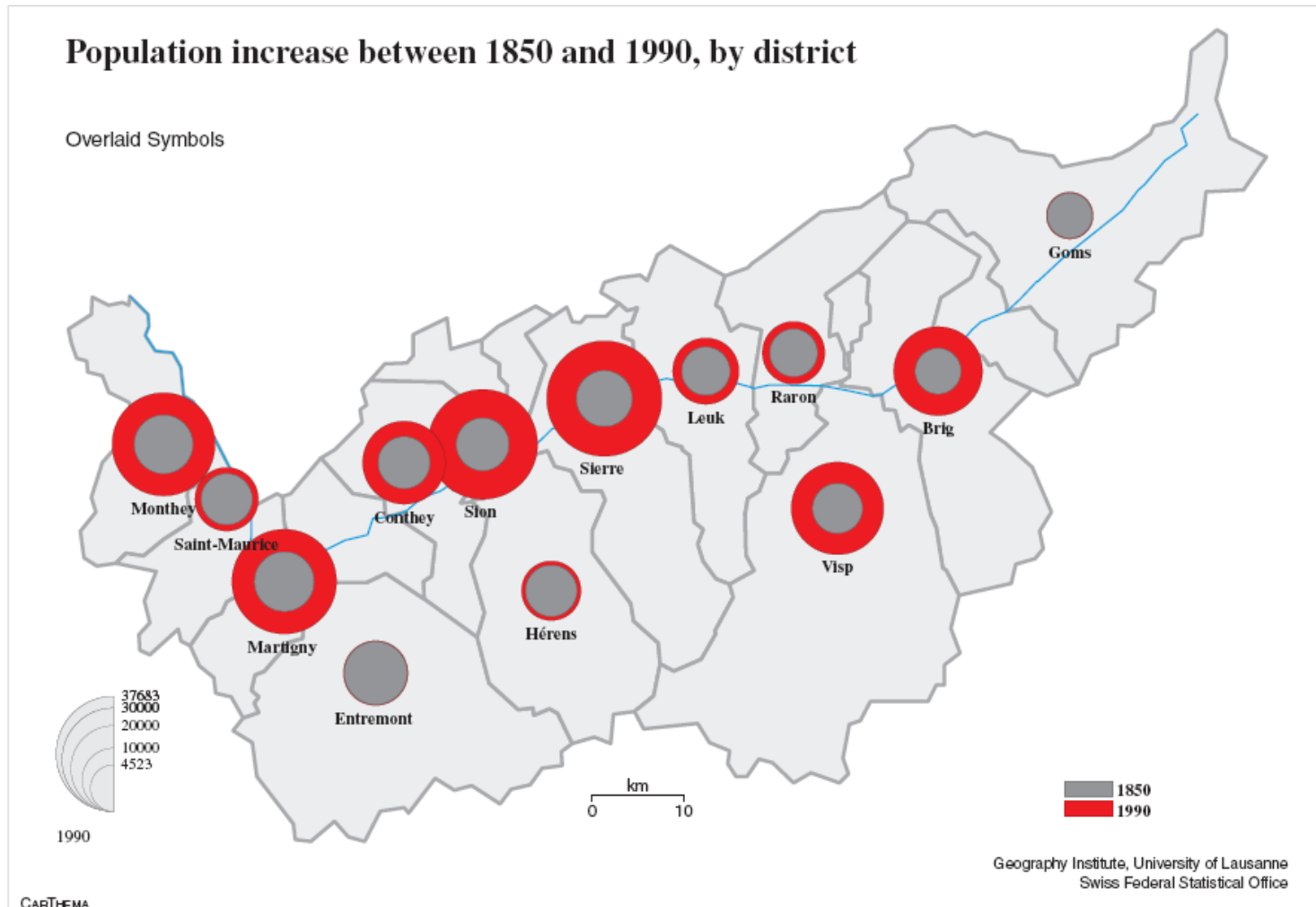
Thematic Cartography

Symbol maps: Oriented Symbols



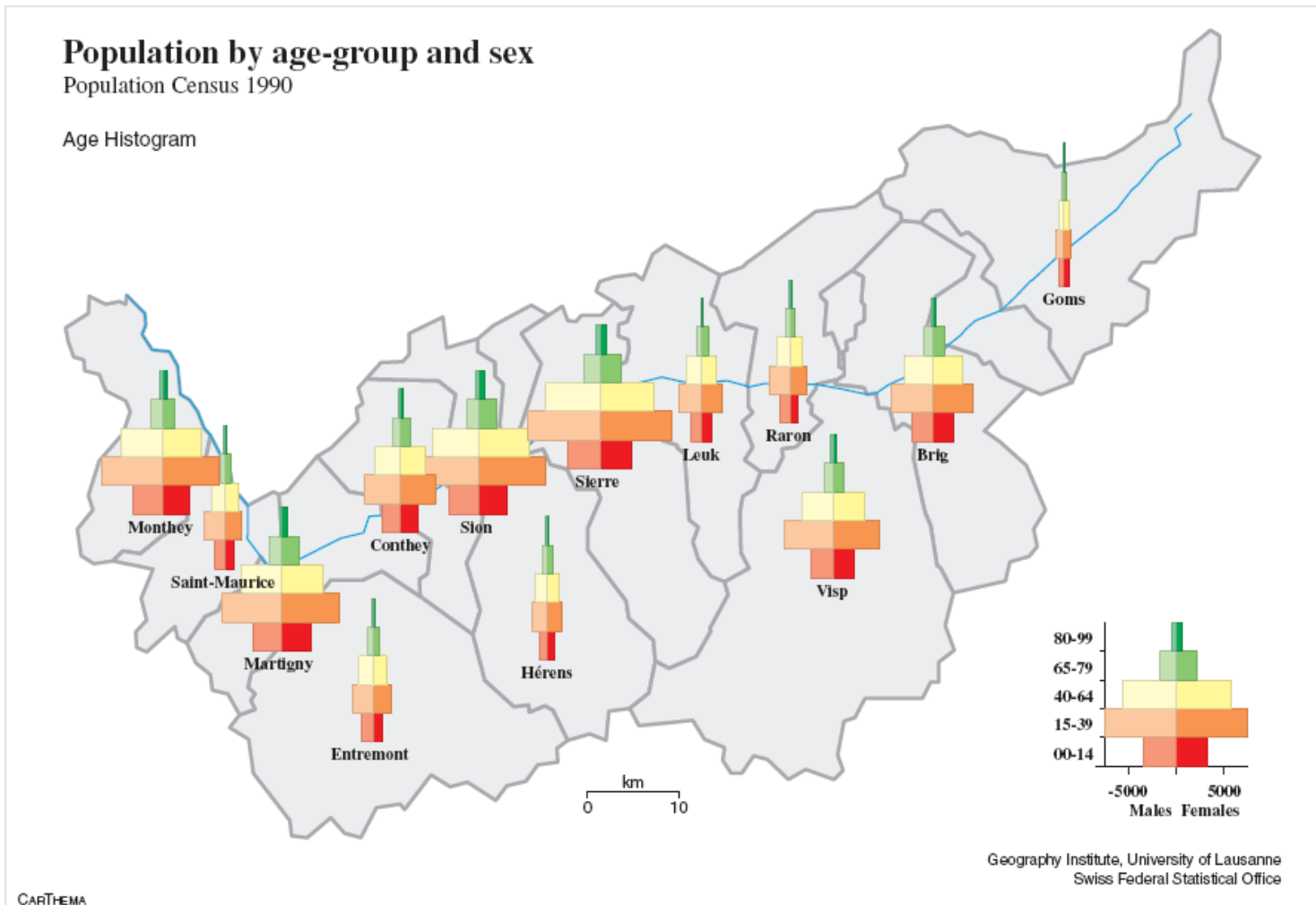
Thematic Cartography

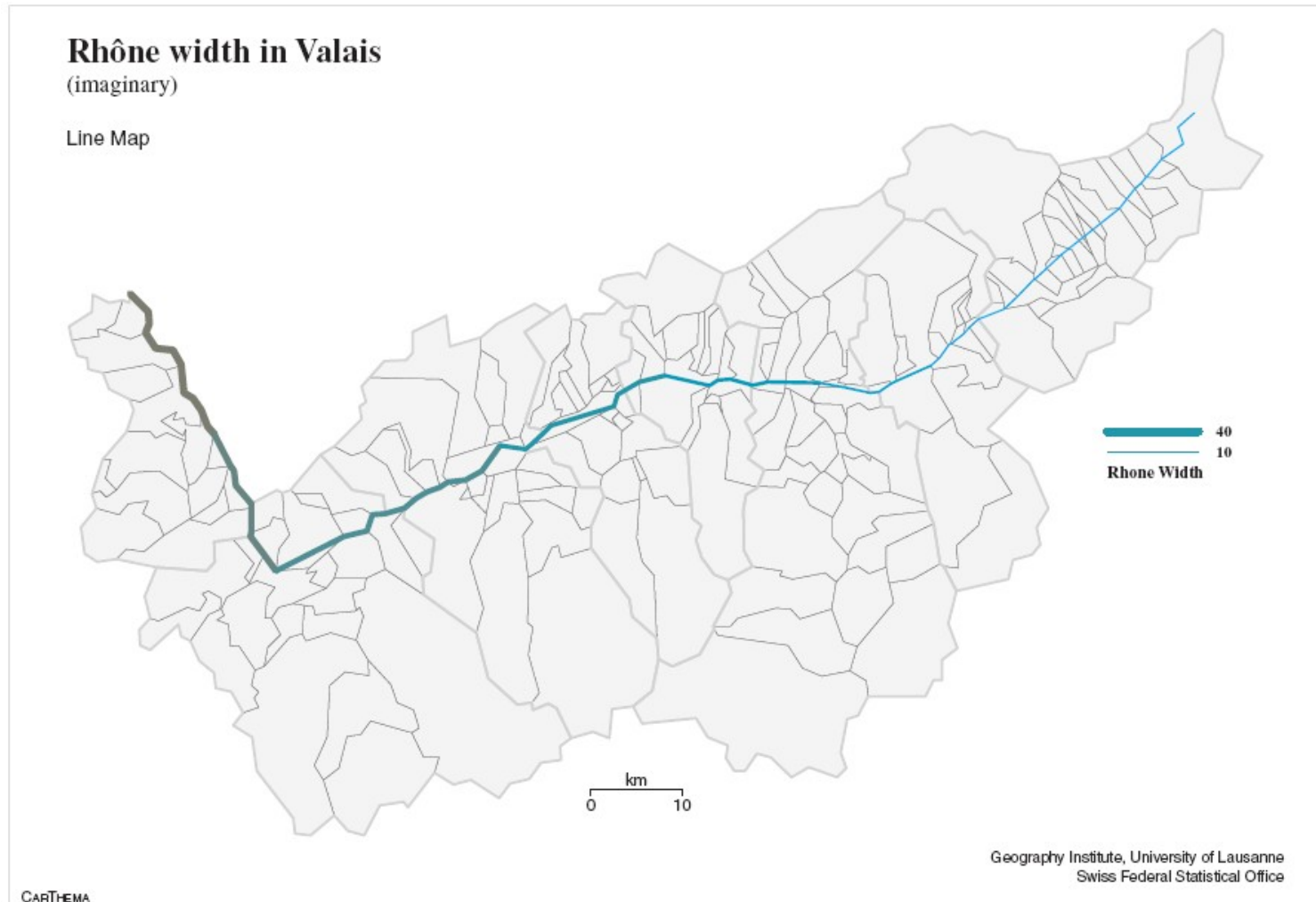
Symbol maps: Multiple symbols

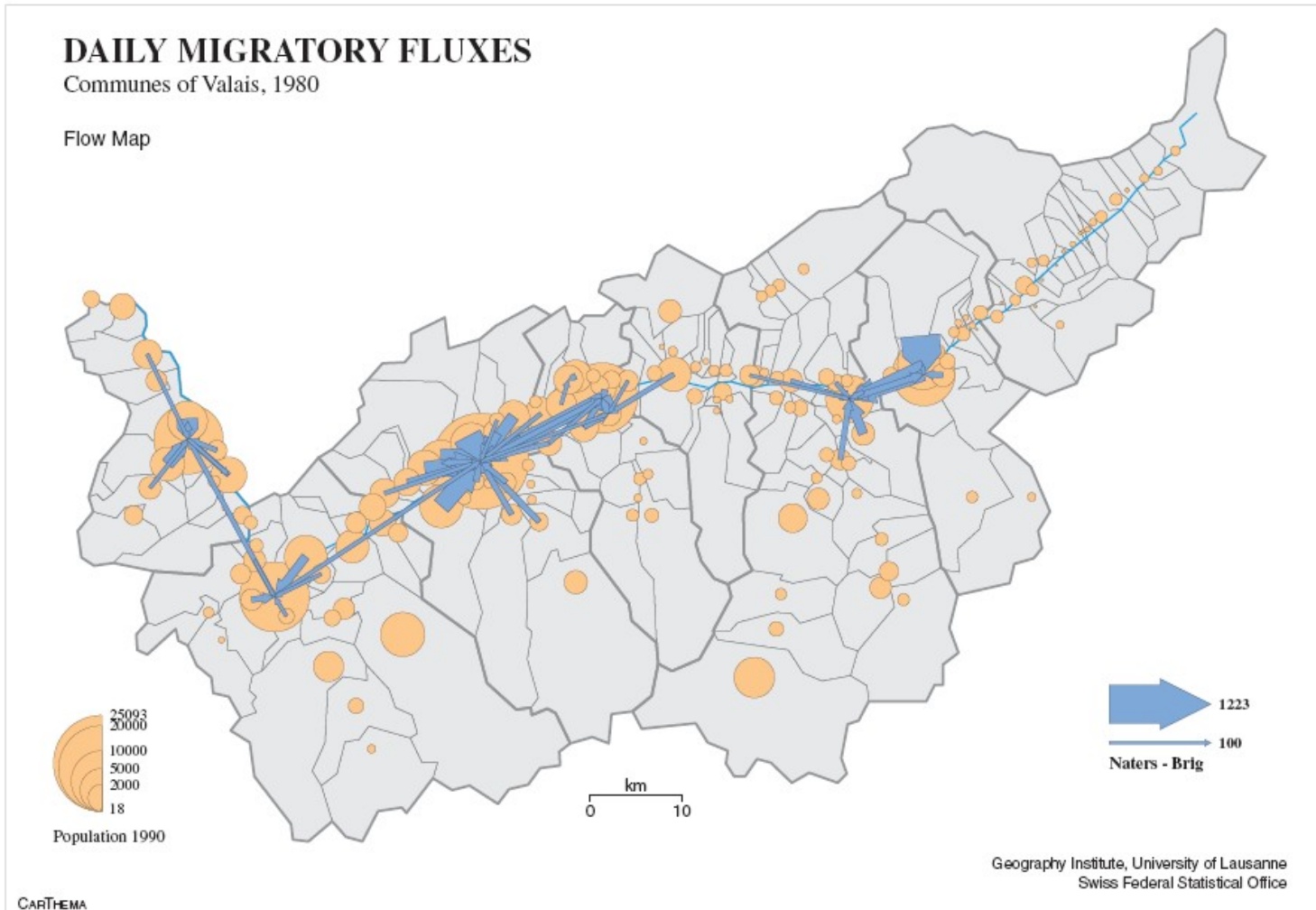


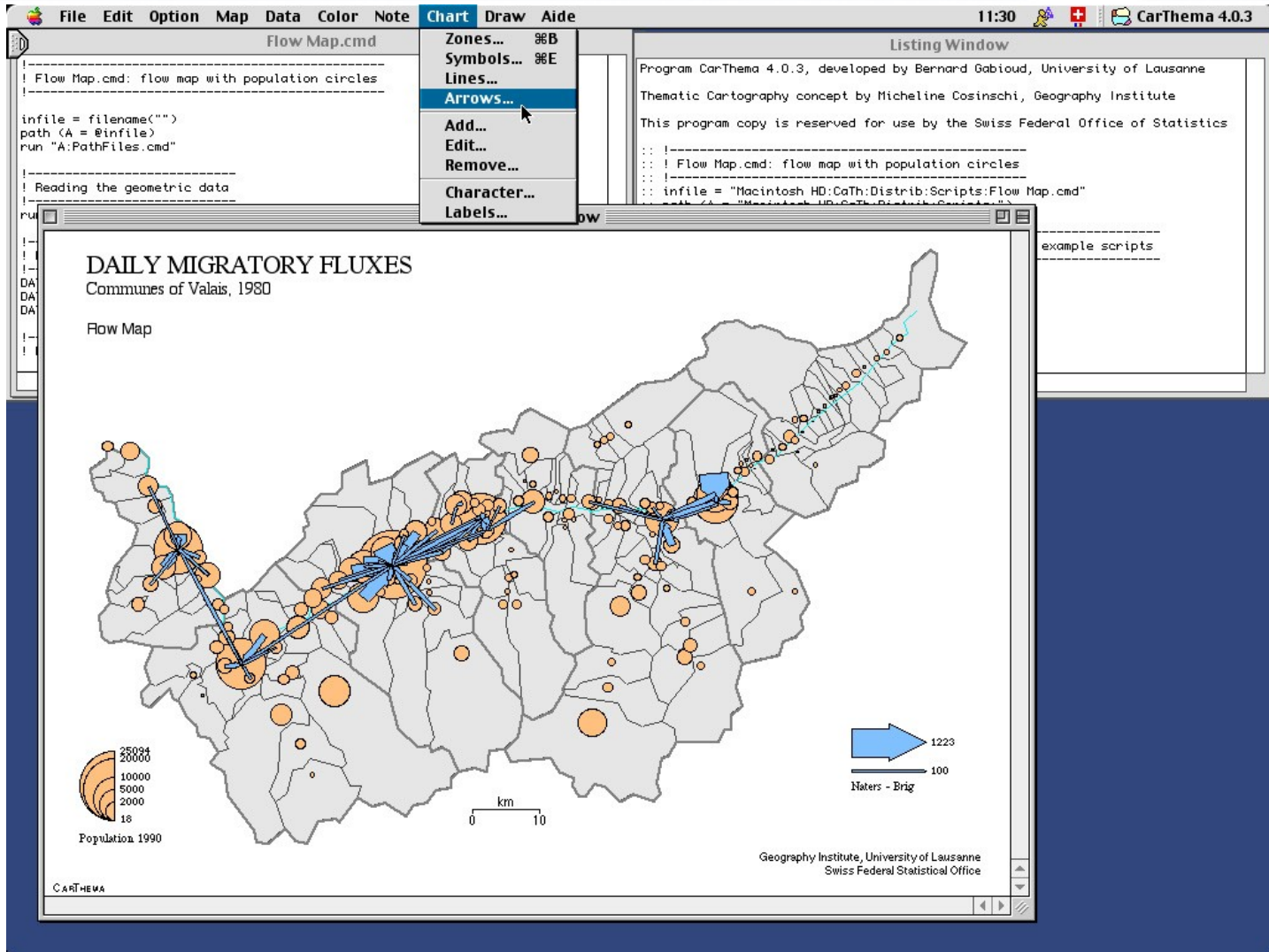
Thematic Cartography

Symbol maps: Multiple charts









File Edit Option Map Data Color Note Chart Draw Aide 11:30 CarThema 4.0.3

Flow Map.cmd

Zones... ⌘B
Symbols... ⌘E
Lines...
Arrows...
Add...
Edit...
Remove...
Character...
Labels...

Listing Window

Program CarThema 4.0.3, developed by Bernard Gabioud, University of Lausanne
Thematic Cartography concept by Micheline Cosinschi, Geography Institute
This program copy is reserved for use by the Swiss Federal Office of Statistics

```
-----  
! Flow Map.cmd: flow map with population circles  
-----  
infile = filename("")  
path (A = @infile)  
run "A:PathFiles.cmd"  
-----  
! Reading the geometric data  
ru
```

example scripts

DAILY MIGRATORY FLUXES
Communes of Valais, 1980

Flow Map

Population 1990

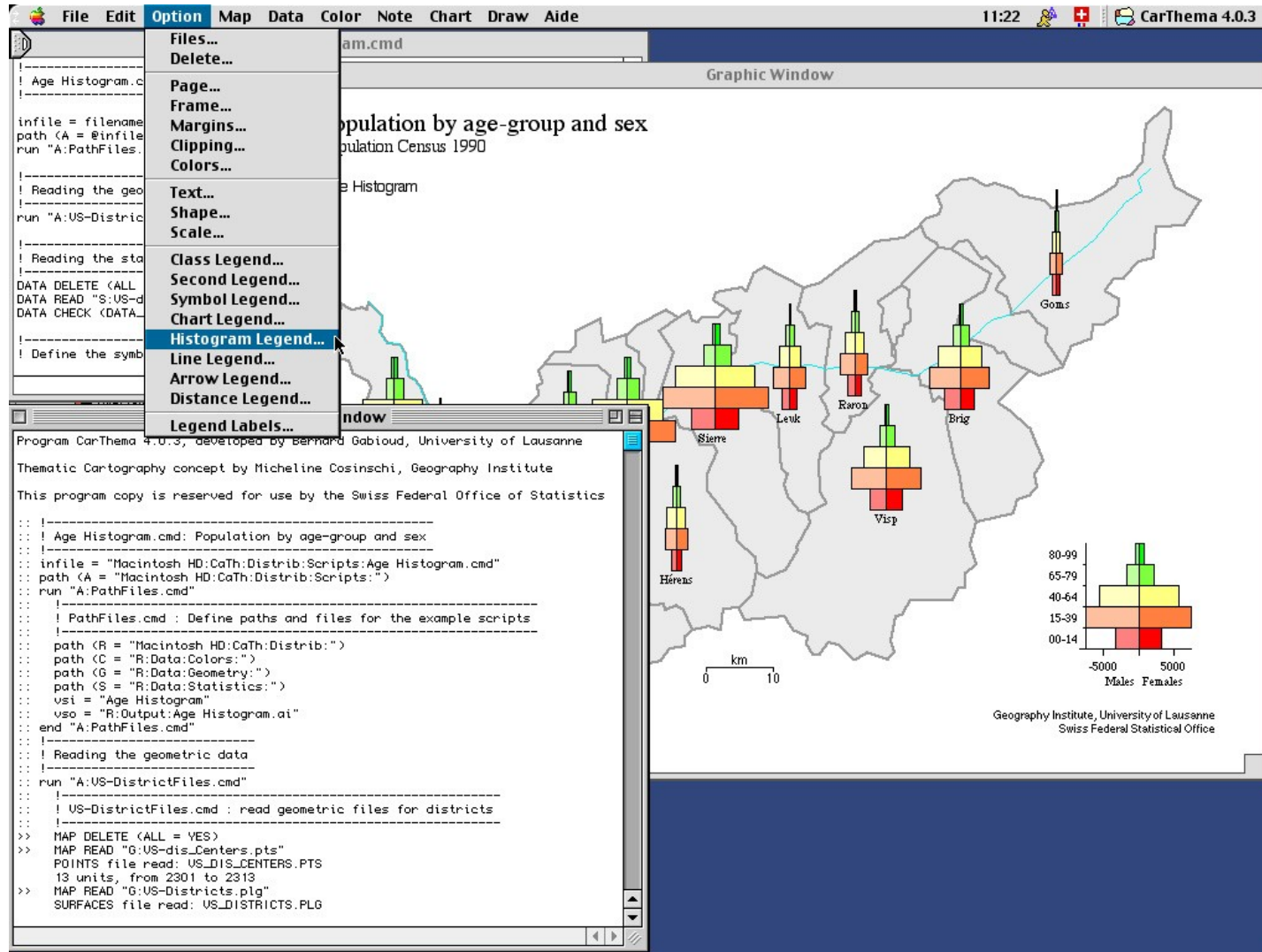
18
2000
5000
10000
20000
25004

km
0 10

1223
100
Naters - Erig

Geography Institute, University of Lausanne
Swiss Federal Statistical Office

CARTHEMA

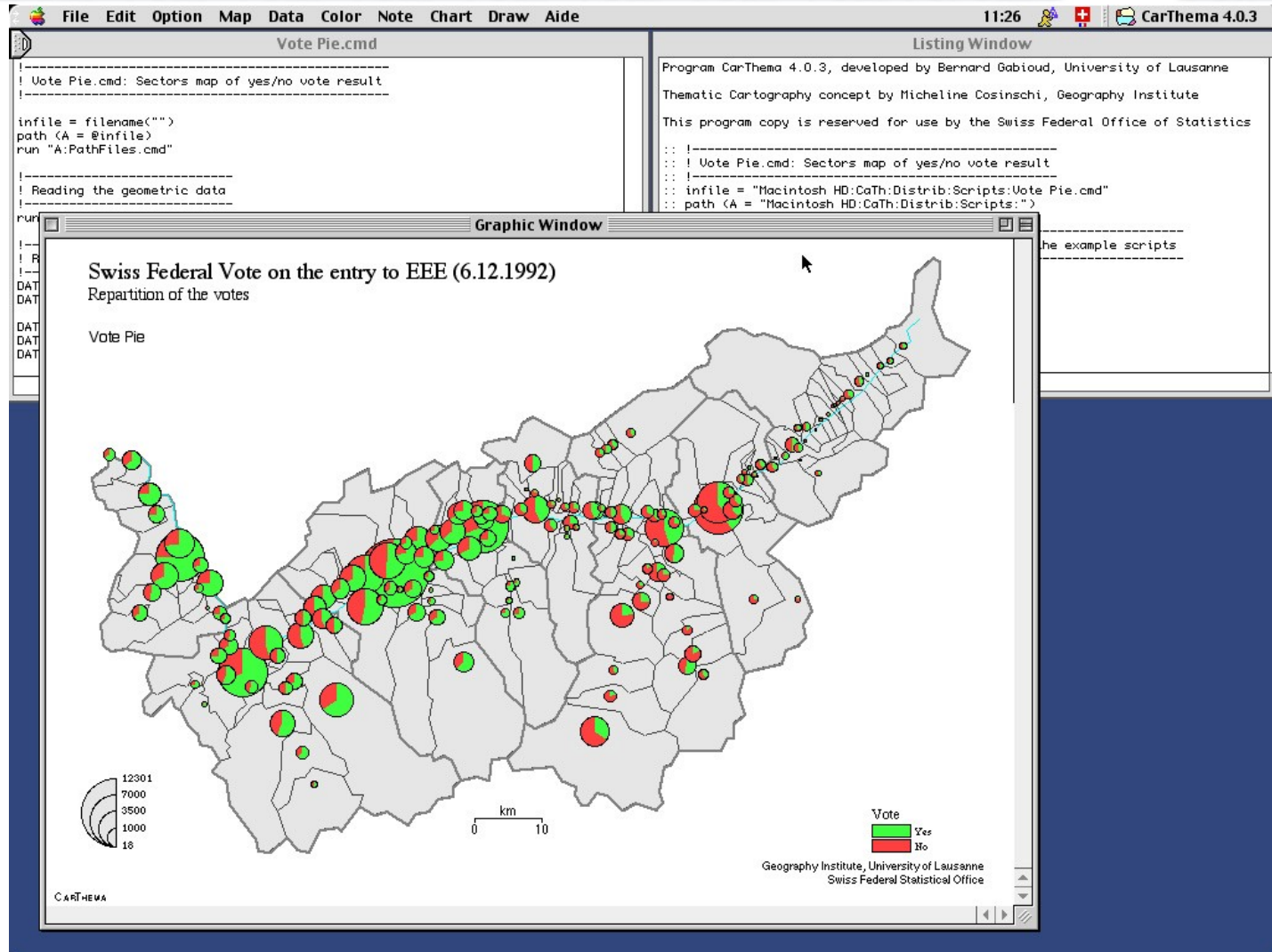
The screenshot shows the CarThema 4.0.3 software interface. The main window displays a map of Switzerland with population pyramids for several districts: Hérens, Siere, Leuk, Raron, Brig, and Visp. A legend window is open, showing the 'Histogram Legend...' option selected. The script editor window displays the following code:

```

Program CarThema 4.0.3, developed by Bernard Gabioud, University of Lausanne
Thematic Cartography concept by Micheline Cosinschi, Geography Institute
This program copy is reserved for use by the Swiss Federal Office of Statistics
...
: | Age Histogram.cmd : Population by age-group and sex
:
: infile = "Macintosh HD:CaTh:Distrib:Scripts:Age Histogram.cmd"
: path (A = "Macintosh HD:CaTh:Distrib:Scripts:")
: run "A:PathFiles.cmd"
:
: | PathFiles.cmd : Define paths and files for the example scripts
:
: path (R = "Macintosh HD:CaTh:Distrib:")
: path (C = "R:Data:Colors:")
: path (G = "R:Data:Geometry:")
: path (S = "R:Data:Statistics:")
: vsi = "Age Histogram"
: vso = "R:Output:Age Histogram.ai"
: end "A:PathFiles.cmd"
:
: | Reading the geometric data
:
: run "A:US-DistrictFiles.cmd"
:
: | US-DistrictFiles.cmd : read geometric files for districts
:
: MAP DELETE (ALL = YES)
>> MAP READ "G:US-dis_Centers.pts"
POINTS file read: US_DIS_CENTERS.PTS
13 units, from 2301 to 2313
>> MAP READ "G:US-Districts.plg"
SURFACES file read: US_DISTRICTS.PLG
  
```

The map shows population pyramids for districts: Hérens, Siere, Leuk, Raron, Brig, and Visp. A scale bar indicates 0 to 10 km. A legend window is open, showing the 'Histogram Legend...' option selected. The script editor window displays the following code:

Geography Institute, University of Lausanne
Swiss Federal Statistical Office



CarThema

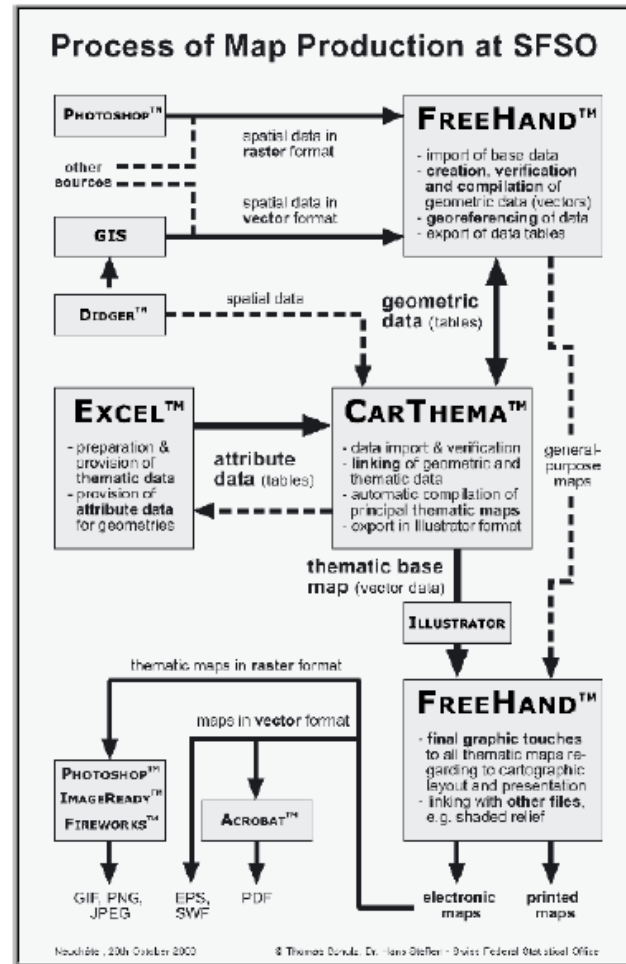
A little historical overview



- ◆ Started in the middle the 90's at UNIL / Geographic institute
- ◆ Written in Pascal
- ◆ Using its own "Application Framework" / Widget Toolkit
- ◆ The last release early 2000
- ◆ Based on Mac OS 8

Cartographic Workflow

Map Production at the BFS

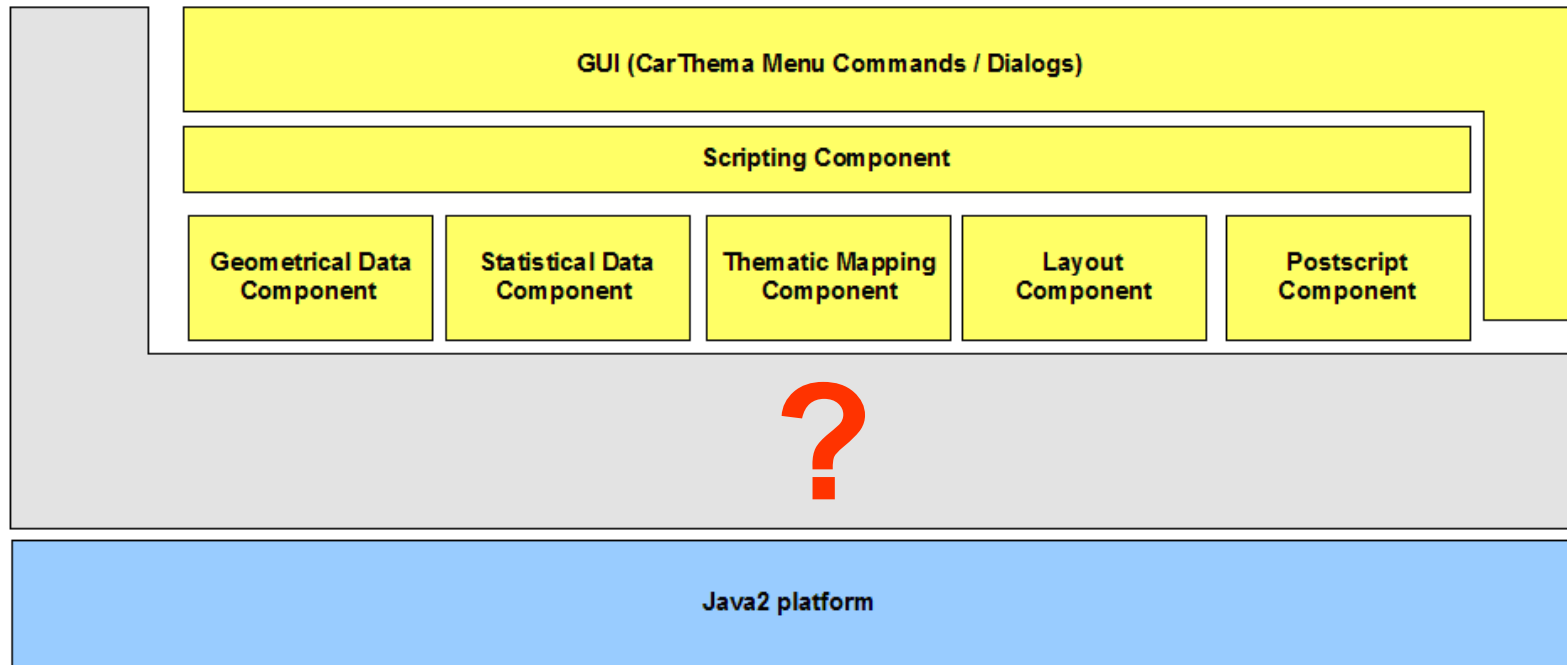


What do we need?

Features of CarThema 4.x



- ◆ Sophisticated Thematic Mapping
- ◆ Reader / Writer
 - ◆ Geometry data (BNA format; Didger, MapMaker)
 - ◆ Attribute data (proprietary ASCII-File; SPSS™, SAS™ or StatView™, Excel)
- ◆ Scripting
- ◆ Postscript output
- ◆ Customer specific GUI
- ◆ Swiss projection





- ◆ 1:1 Feature migration
- ◆ User Specific GUI
- ◆ Time
- ◆ Budget
- ◆ Developer resources and experience

What we like to do?

Looking into the future



- ◆ Solve the task and make the customer happy
- ◆ Making moderate modernizations
- ◆ Not reinvent the wheel
- ◆ Delivering more than the customer expects and asked for
 - ◆ Future possibilities for integration into SDI infrastructure / OGC standards
 - ◆ Provide an open source application for
 - ◆ providing profound thematic mapping capabilities to the community
 - ◆ external enhancements in future (more map types)



?

FMAP

geotools

SWING

SWING

SWT

„Workbench“

ADAMI

eclipse/RCP

OpenJUMP

gvSIG

uDig



- ◆ platform independent
- ◆ more users
- ◆ more interesting algorithm from external contributors
- ◆ platform for the development to create new types of thematic maps (UNIL)

- ◆ BUT what platform to use?



◆ Contact information:

- ◆ Pierre Dessemontet:
pierre.dessemontet@microgis.ch
- ◆ Andreas Meissner:
andreas.meissner@microgis.ch
- ◆ Olivier Hertz: olivier.ertz@heig-vd.ch

