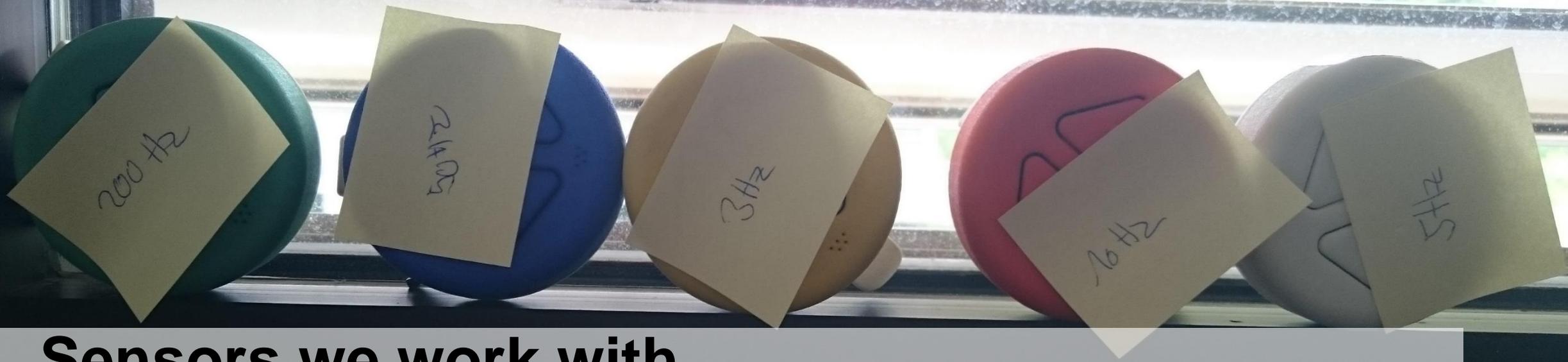


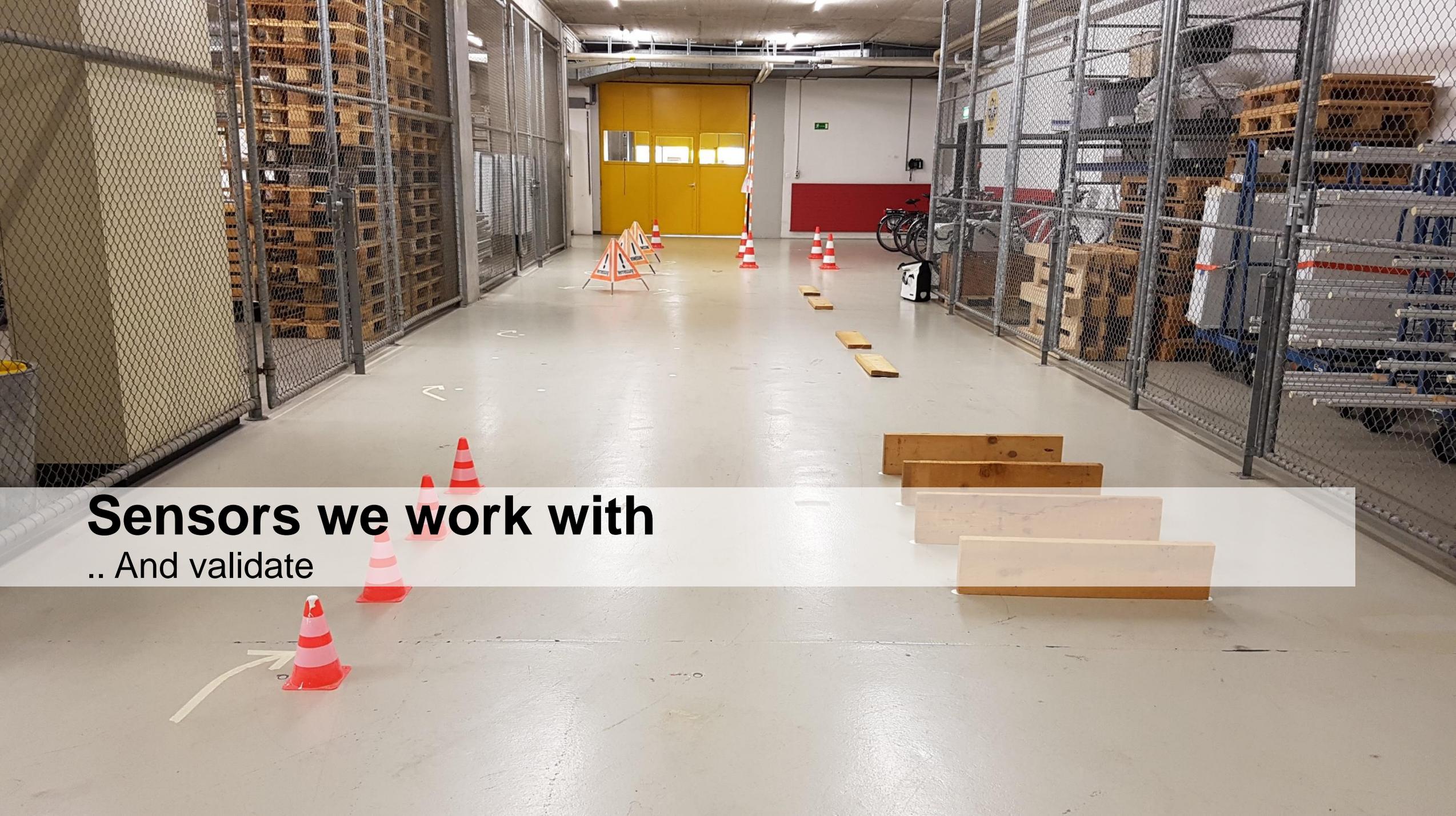
On GIS, Movement and Generalization

GeoBeer #17 – lightning talk by @314a





Sensors we work with



Sensors we work with

.. And validate

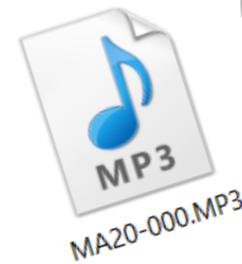
Sensors we work with

.. validate and compare



Date, Time, Longitude, Latitude, Satellites, Recording
 25/11/2015, 21:49:59, NA, NA, NA, NA
 25/11/2015, 21:50:00, NA, NA, NA, NA
 25/11/2015, 21:50:01, 008.549410, 047.397110, 7, 0
 25/11/2015, 21:50:02, 008.549407, 047.397108, 7, 0
 25/11/2015, 21:50:03, 008.549405, 047.397108, 7, 0
 25/11/2015, 21:50:04, Charging, NA, NA, 0
 25/11/2015, 21:50:05, Charging, NA, NA, 0

Date, Time, Acc_X(mg), Acc_Y(mg), Acc_Z(mg)
 25/11/2015, 21:45:51:000, 066.368, -011.590, 1102.819
 25/11/2015, 21:45:51:320, 067.771, -010.614, 1104.344
 25/11/2015, 21:45:51:640, 066.551, -010.675, 1103.368
 25/11/2015, 21:45:51:960, 065.026, -010.919, 1104.527
 25/11/2015, 21:45:52:280, 064.904, -012.017, 1104.466
 25/11/2015, 21:45:52:600, 064.965, -012.932, 1106.479



Data we work with..

.. and different data stream we'd like to align in time of variable temporal sampling rates and durations



Data we preprocess

still

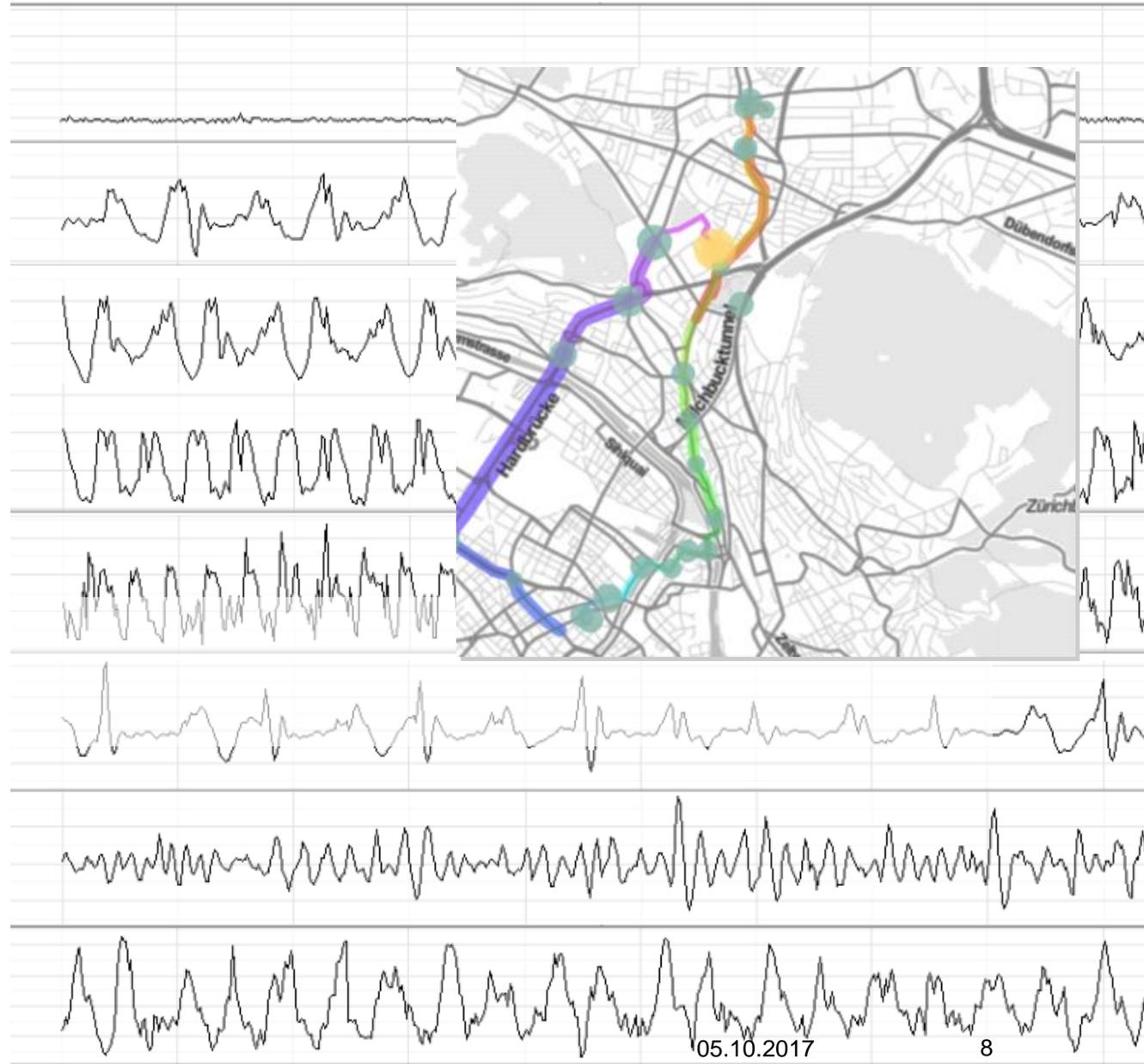
walking
(slow)

walking
(fast)

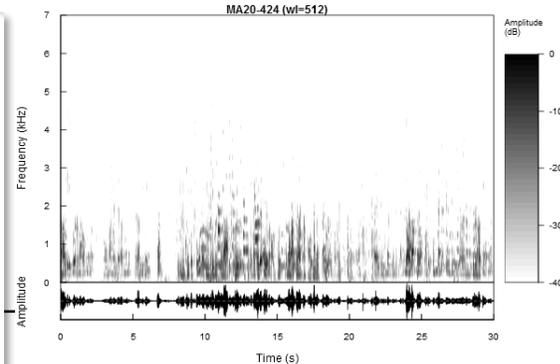
jogging

running

limping

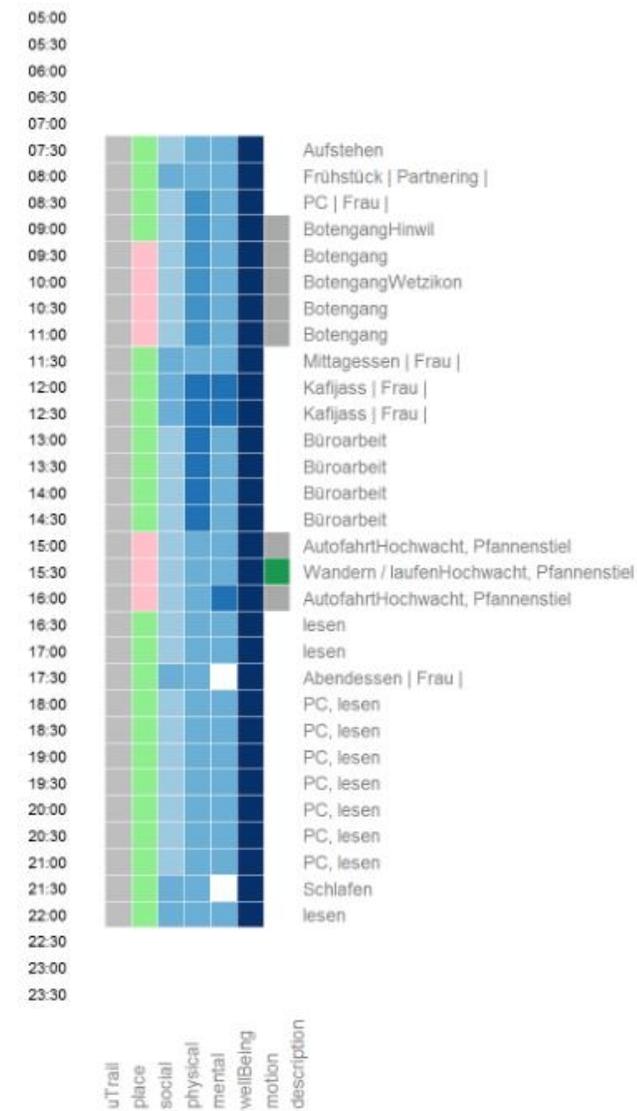
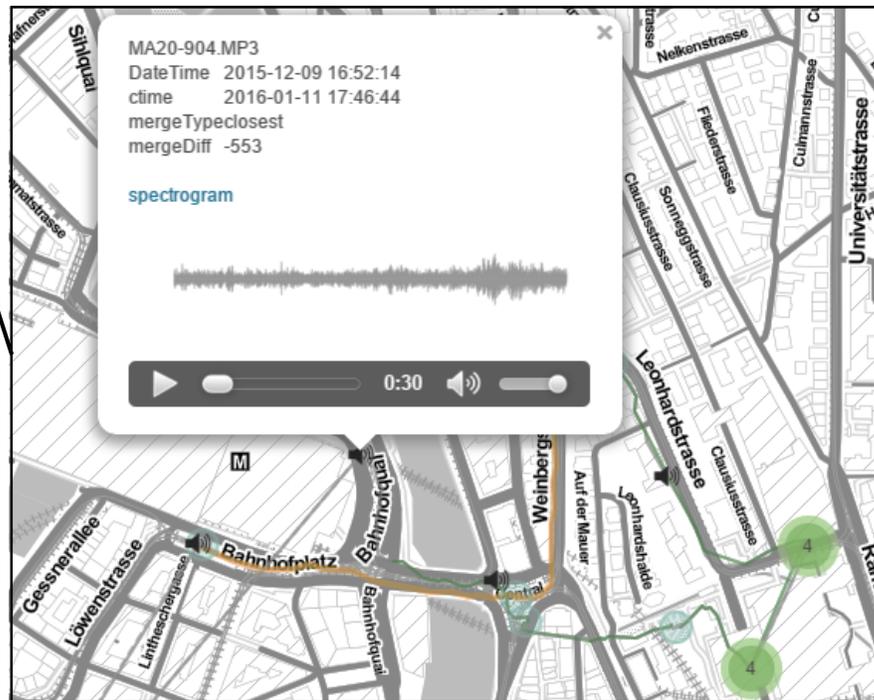


Date: 2015-12-03 15:19:52
 Type: closest
 Difference: 1944 secs
[spectrogram](#)

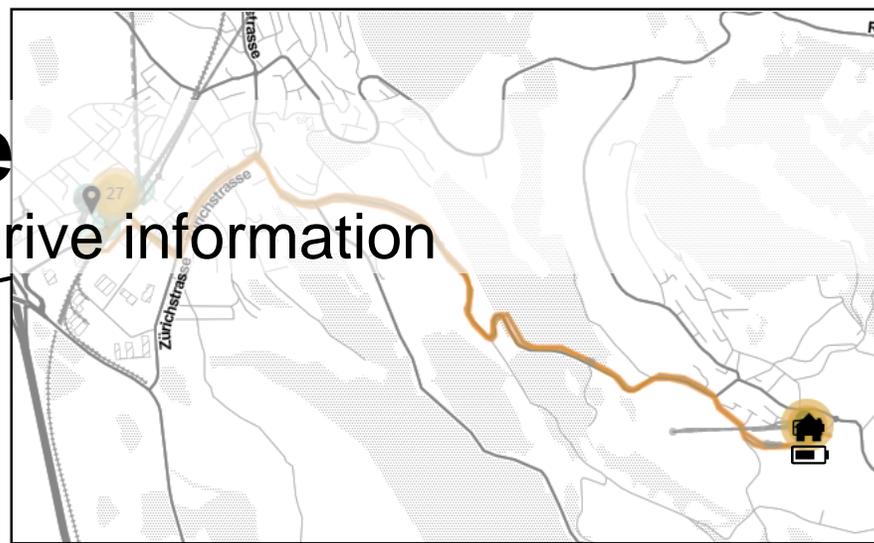
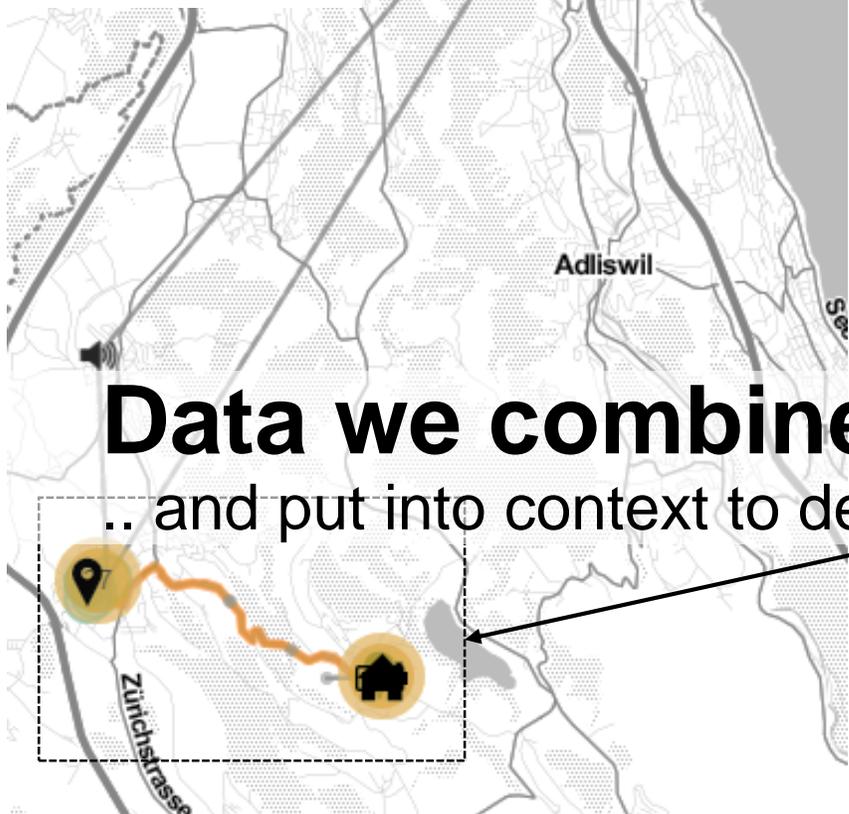


Legend

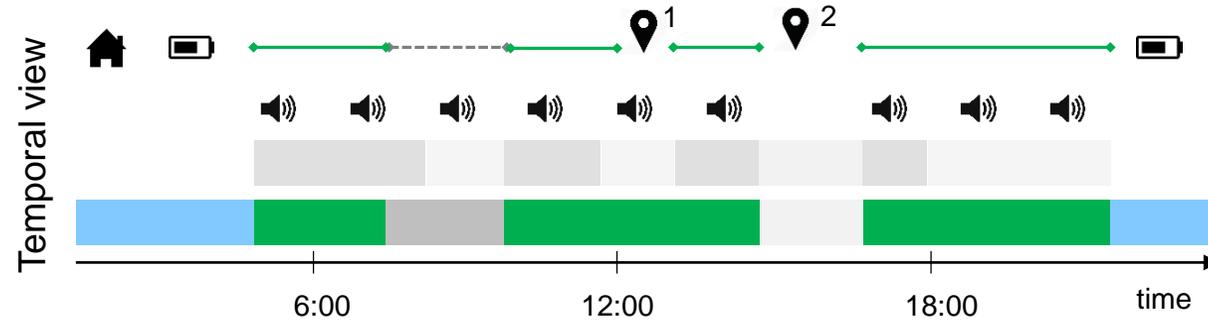
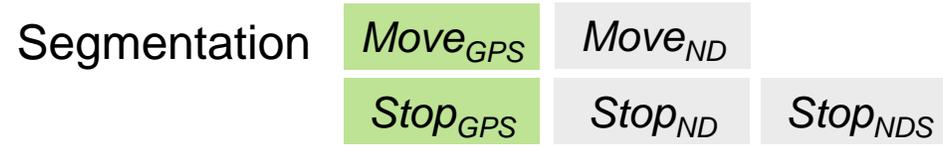
- Segment – Transport
- Segment – Walk
- Segment – no GPS
-  Stop over-night
-  Stop charging
-  Stop cluster
-  Audio sample
- 5 Audio cluster



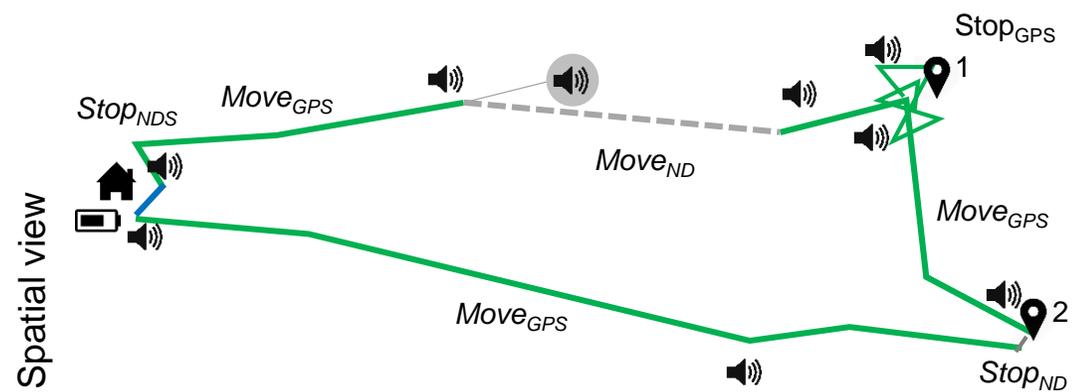
Data we combine
.. and put into context to derive information



Leaflet | Map tiles by Stamen Design, CC BY 3.0 – Map data OpenStreetMap



Segmentation
EAR audio sample
Activity
GPS reception



- Sensor states**
- █ Charging
 - █ GPS
 - █ no GPS
 - █ High activity
 - █ Low activity
 - █ Missing data
 - Audio sample
 - Stop over-night

To build models and apply them

..

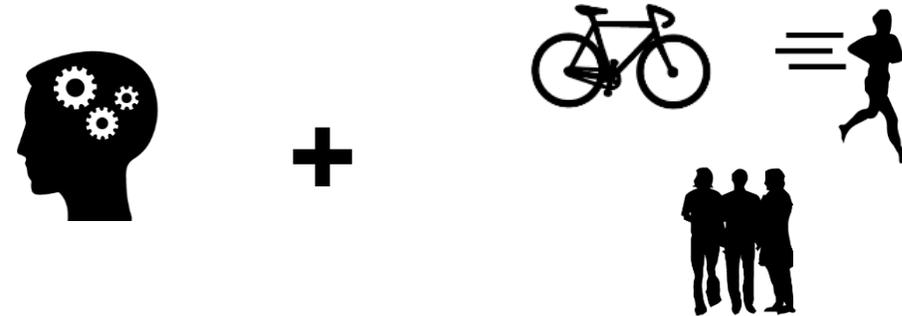
.. To find answers

.. in GIS and interdisciplinary fields

Such as for instance,

How we maintain and cope with our health in older age, in every day life?

By investigating how daily mobility, activity and social interaction relate to psychological functions and well being



MOASIS – Mobility, Activity and Social Interaction Study

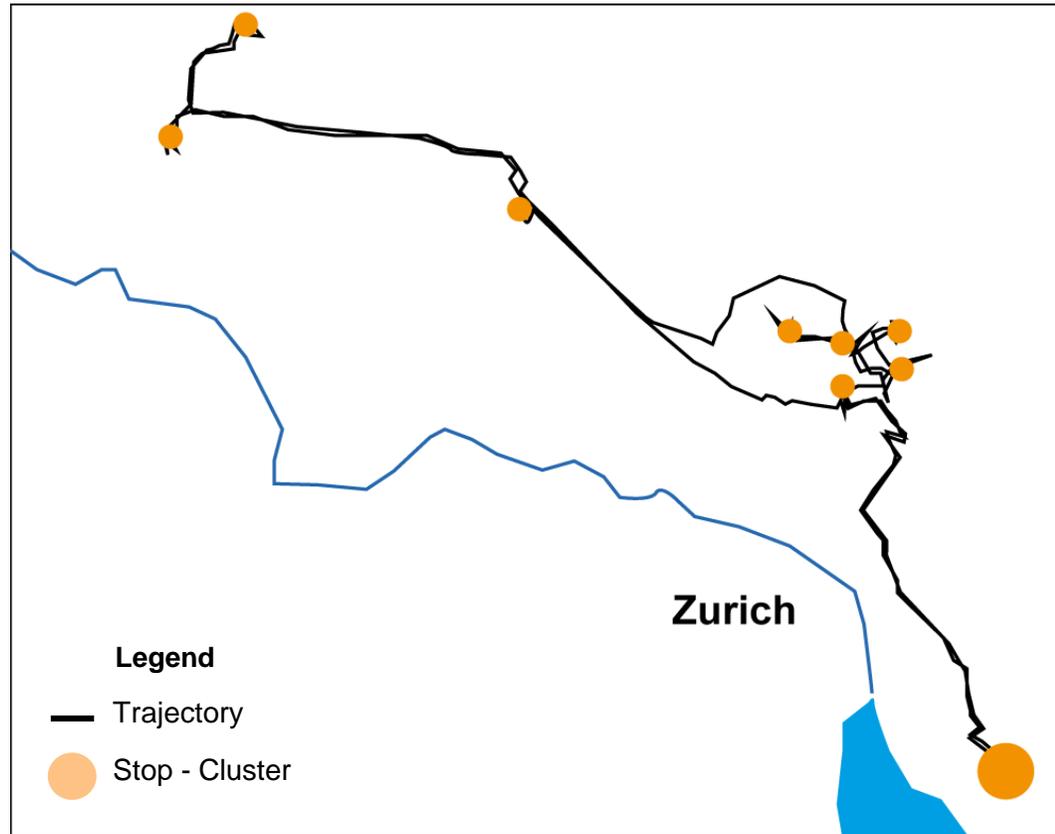


**University of
Zurich**^{UZH}

URPP

Dynamics of Healthy Aging





Participant evening diary - 6. December 2015

06.00 Sleep
 ..
 08.00 Breakfast
 ..
 10.00 Reading newspaper
 11.00 PC
 ..
 ..
 13.00 **Santa Claus chauffeuring**
 ..
 ..
 ..
 ..
 ..
 ..
 ..

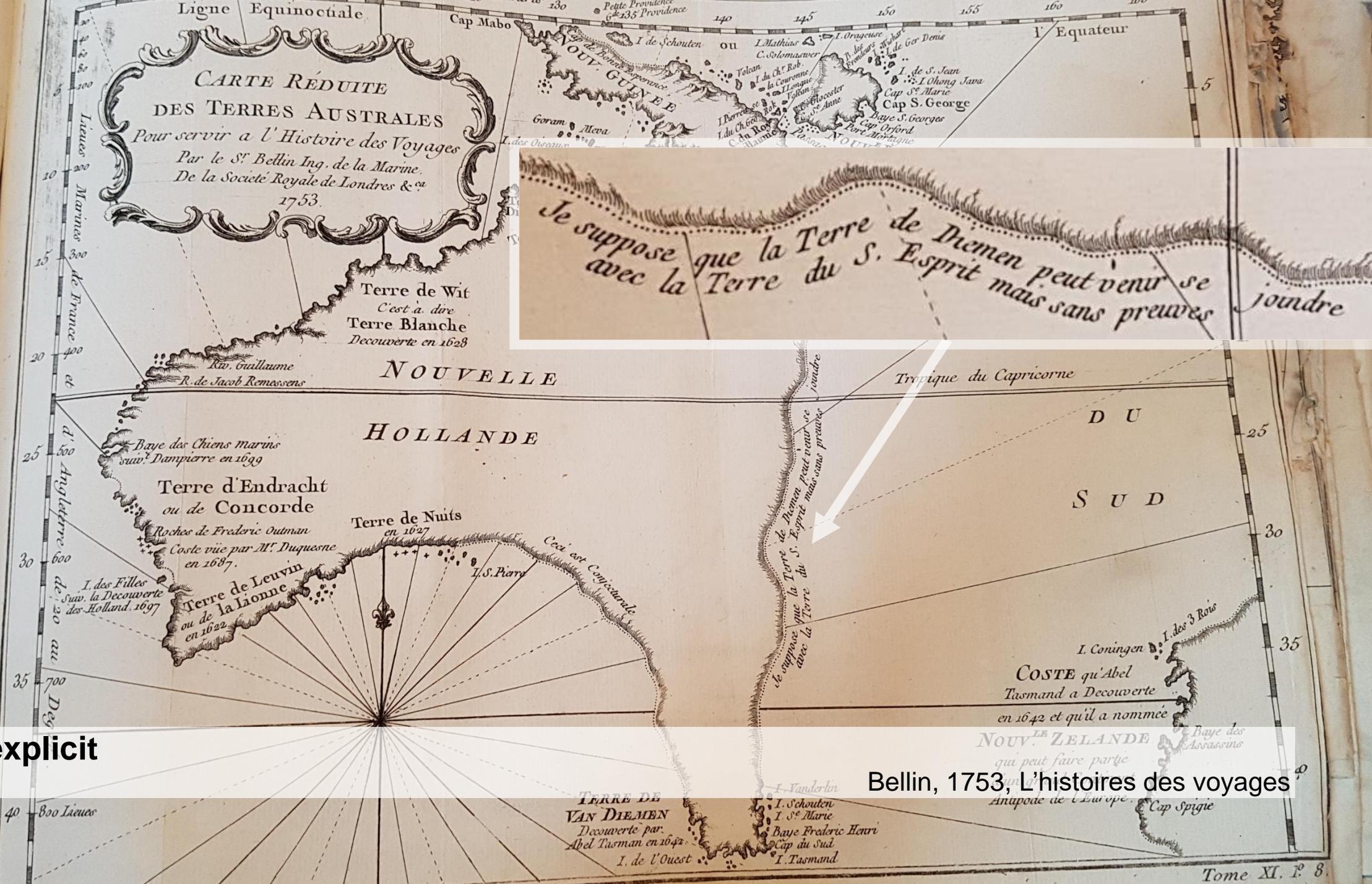
.. we can't always quantify

Some information we only get with further context and domain knowledge of the 'subject' we study

.. We should constantly reflect, the questions we want to answer, how we model, take into account whom we model for, and think about our inherent (confirmation) biases.

.. to make our work processes explicit and create reproducible workflows

**CARTE RÉDUITE
DES TERRES AUSTRALES**
Pour servir à l'Histoire des Voyages
 Par le Sr. Bellin Ing. de la Marine.
 De la Société Royale de Londres &c.
 1753.



Je suppose que la Terre de Diemen peut venir se joindre avec la Terre du S. Esprit mais sans preuves

Be explicit

Bellin, 1753, L'histoire des voyages

**CARTE REDUITE DES PARTIES
SEPTENTRIONALES DU GLOBE,
Situées
ENTRE L'ASIE ET L'AMERIQUE**
Pour servir à l'Histoire Generale des Voyages
Par M. Bellin Ing^s de la Marine 1753

*On ignore si dans toute cette Partie
il y a des Terres ou des Mers*

Cercle Polaire Arctique

*C'est dans cette Partie que quelques
Geographes ont placé les prétendues
Decouvertes de l'Amiral Buente mais
j'en ai trouvé la relation trop suspecte
et trop peu exacte pour l'employer.*

*Tout ceci
est inconnu*

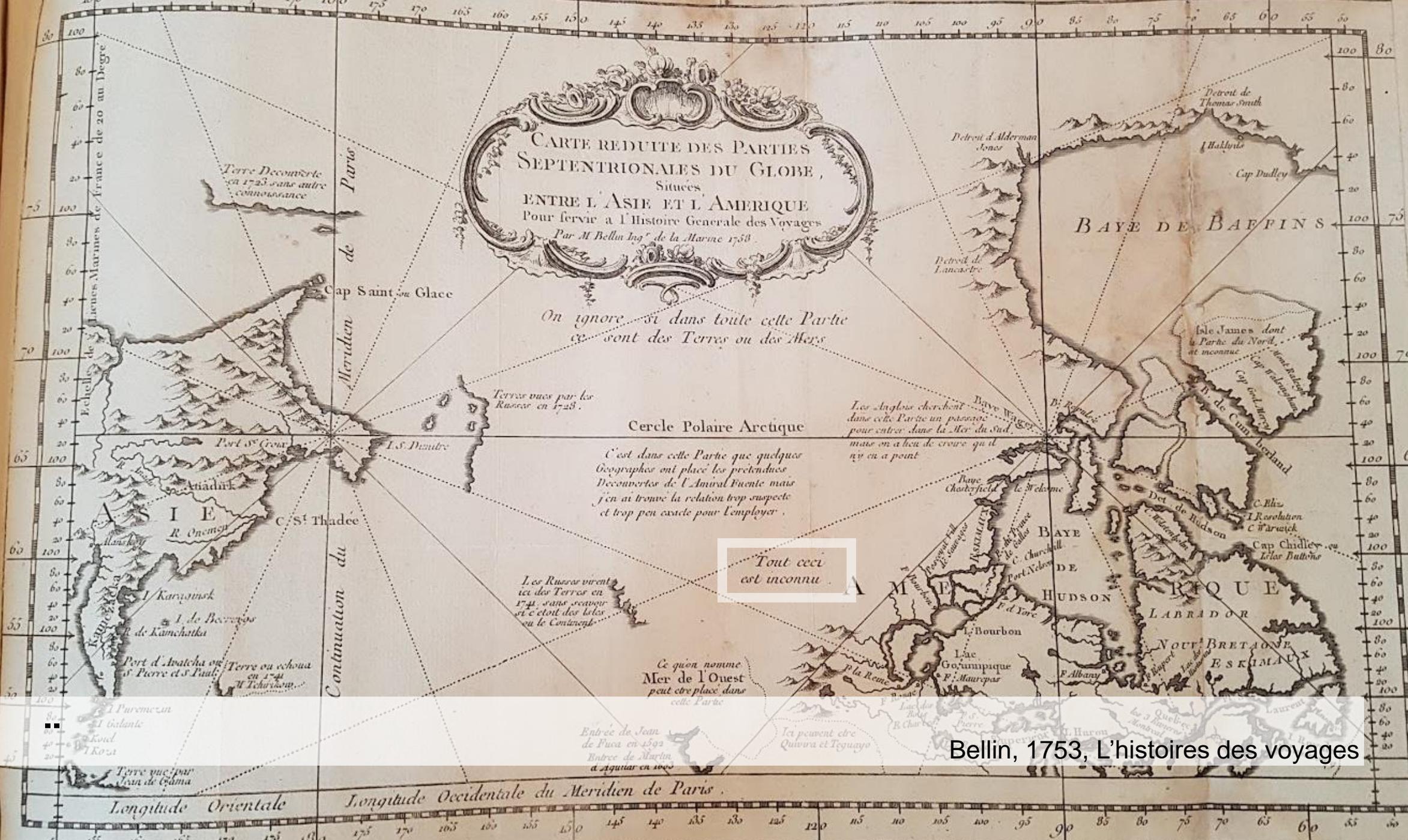
*Les Russes virent
ici des Terres en
1741, sans savoir
si c'étoit des Isles
ou le Continent.*

*Ce qu'on nomme
Mer de l'Ouest
peut être placé dans
cette Partie*

*Entrée de Jean
de Fuca en 1792
Entrée de Martin
d'Aguilar en 1791*

*Ils peuvent être
Quivira et Teguyayo*

Bellin, 1753, L'histoires des voyages





Thank you for your attention 😊

Enjoy exchange, discussions and obviously the beer





.. X GeoBeer later ;-)