



Stiftung Alfred-Wegener-Institut
für Polar- und Meeresforschung
in der Helmholtz-Gemeinschaft



International Polar Year 2007/2008 A Challenge

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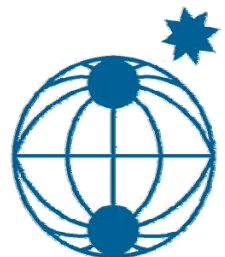
Agenda

- *What is the IPY (and its mission)*
- *What are its scientific challenges*

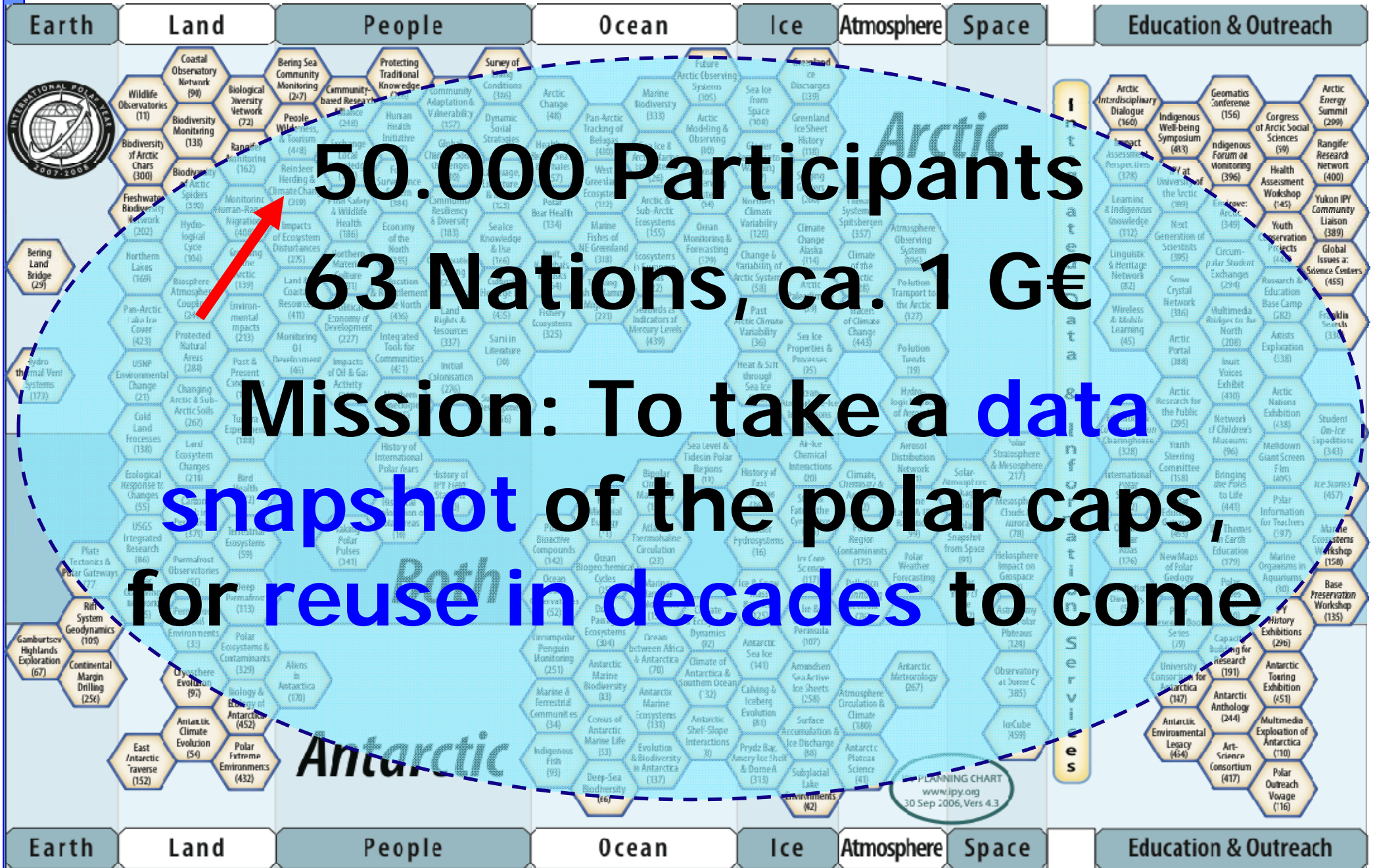
- *Official Data Policy of the IPY*
- *Real World limitations and obstacles*

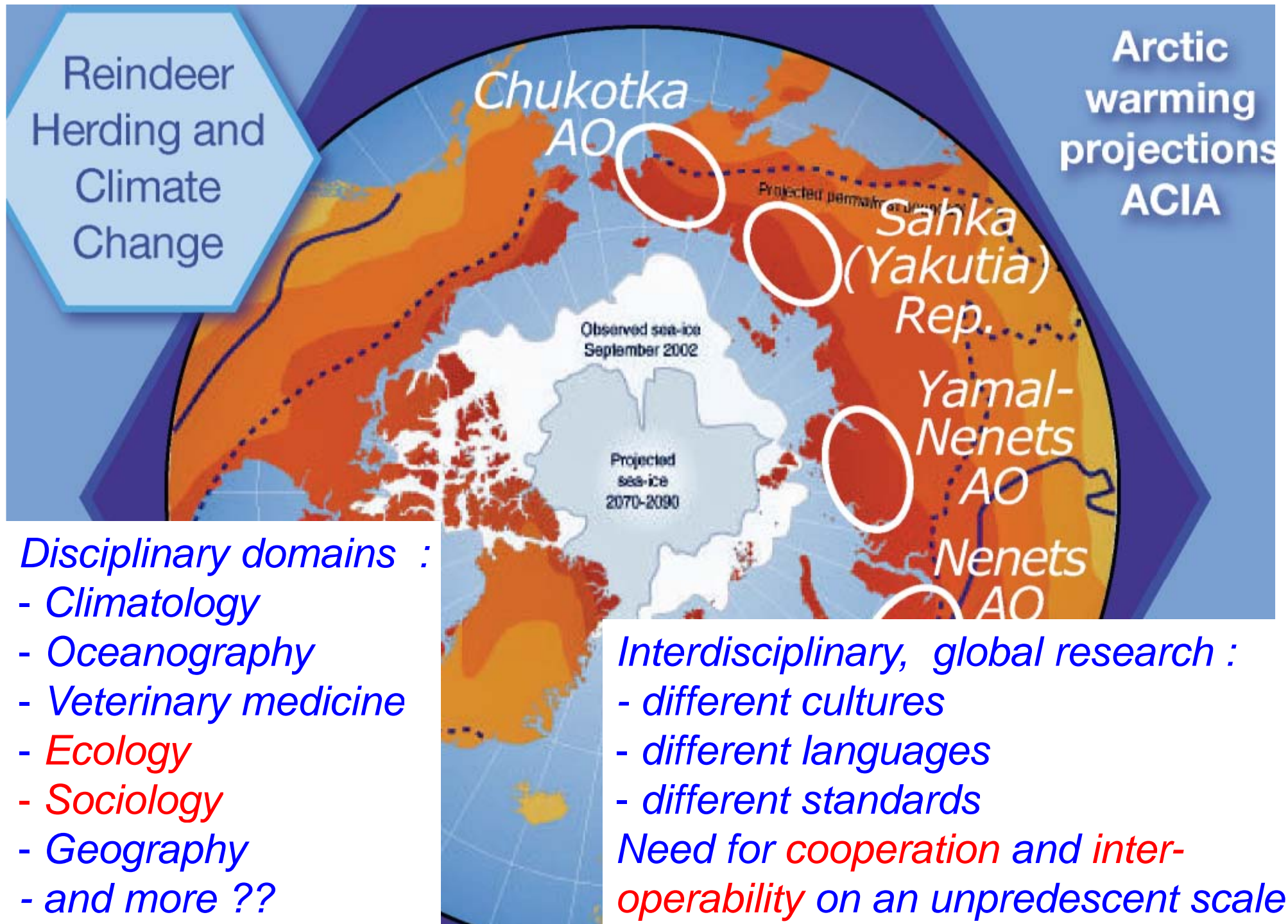
- *Current Earth Science data examples*

- *Technical implications and challenges*



International Polar Year 2007-2008





Reindeer
Herding and
Climate
Change

Arctic
warming
projections
ACIA

Disciplinary domains :

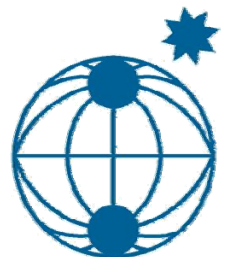
- Climatology
- Oceanography
- Veterinary medicine
- **Ecology**
- **Sociology**
- Geography
- and more ??

Interdisciplinary, global research :

- different cultures
- different languages
- different standards
- Need for **cooperation** and **inter-operability** on an unprecedent scale

Data policy of the IPY 2007/2008

- „... the IPY Joint Committee requires that IPY data, including operational data delivered in real time, are **made available fully, freely, openly**, and on the shortest feasible timescale
- „... **to ensure the lasting legacy** of IPY, it is essential to ensure **long-term preservation and sustained access** to IPY data. All IPY data must be archived in their simplest, useful form and be accompanied by a complete metadata description.“
- „... it is the **responsibility of individual IPY projects** to make arrangements with long-term archives ...“





Data Description

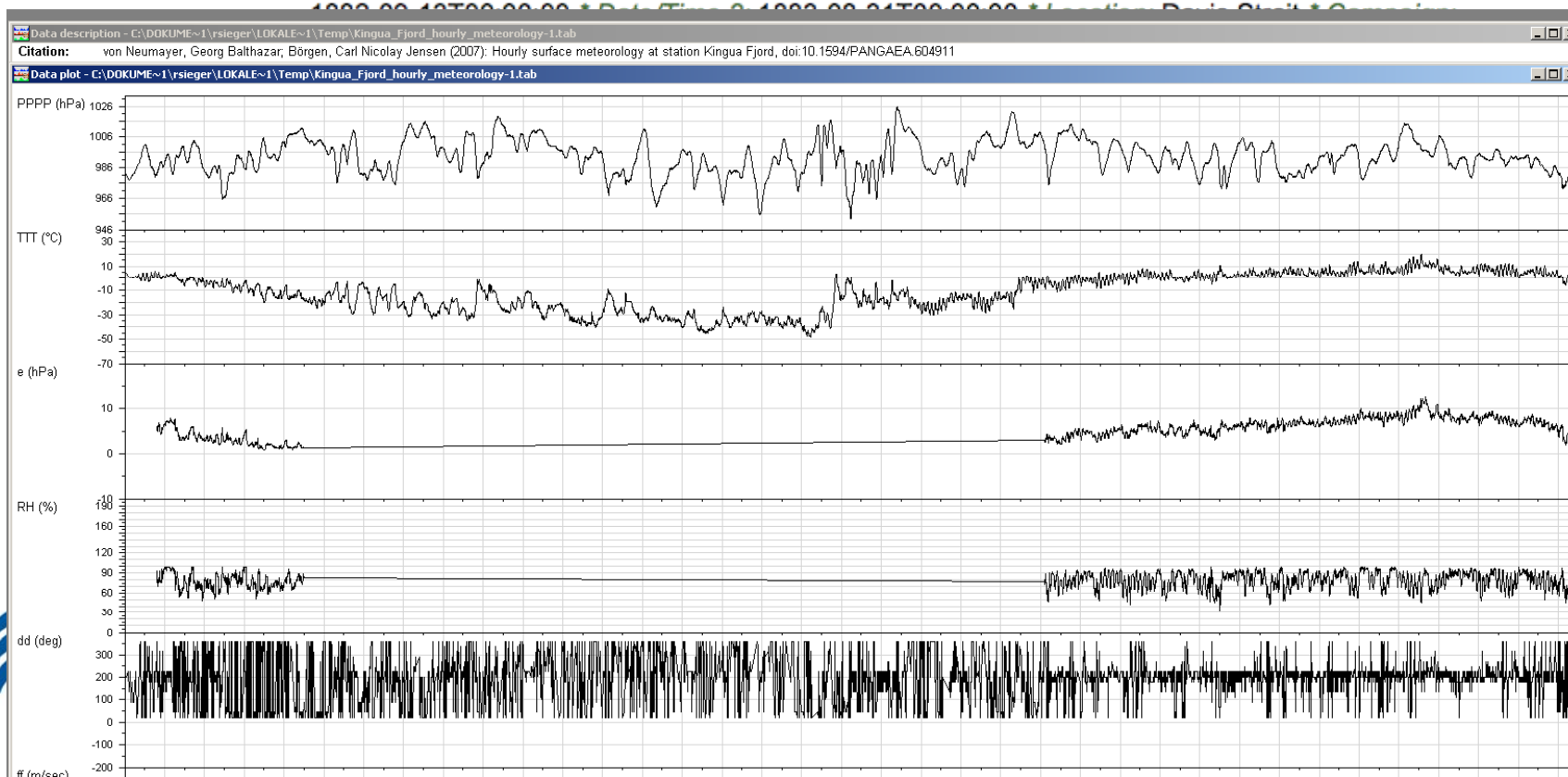
Citation: von Neumayer, Georg Balthazar; Børgen, Carl Nicolay Jensen (2007): Hourly surface meteorology at station Kingua Fjord, doi:10.1594/PANGAEA.604911

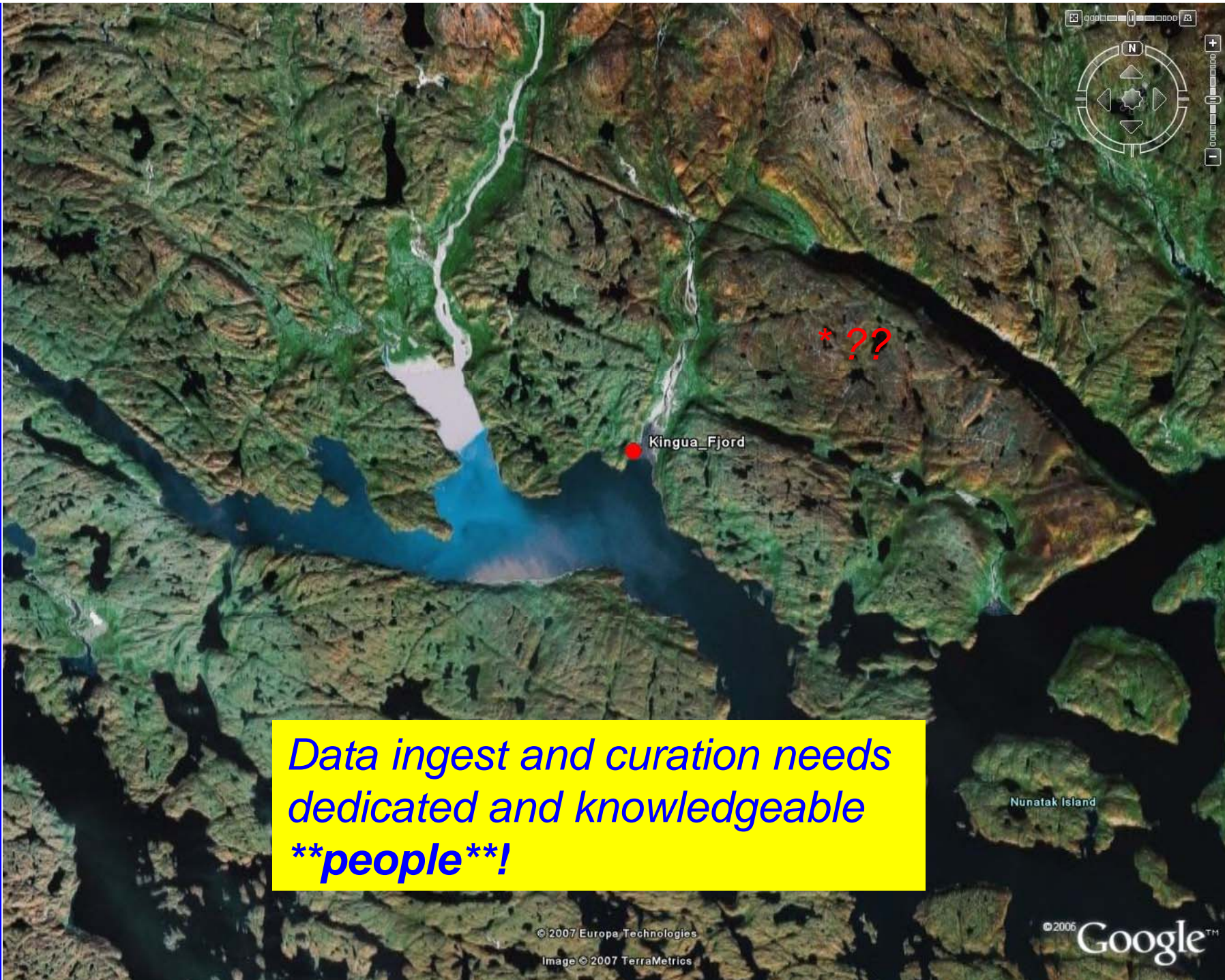
Reference(s): von Neumayer, Georg Balthazar; Børgen, Carl Nicolay Jensen (1886): Die Beobachtungsergebnisse der Deutschen Stationen, Kingua-Fjord, Berlin: Verlag von A. Asher & Co, 1, 736 pp

Coverage: West: -67.3450 * East: -67.3450 * South: 66.5948 * North: 66.5948

Date/Time Start: 1882-09-12T08:00:00 * Date/Time End: 1883-09-10T04:00:00

Event(s): Kingua Fjord * Latitude: 66.5948 * Longitude: -67.3450 * Elevation: 10.6 m * Date/Time:





*Data ingest and curation needs
dedicated and knowledgeable
****people**!***

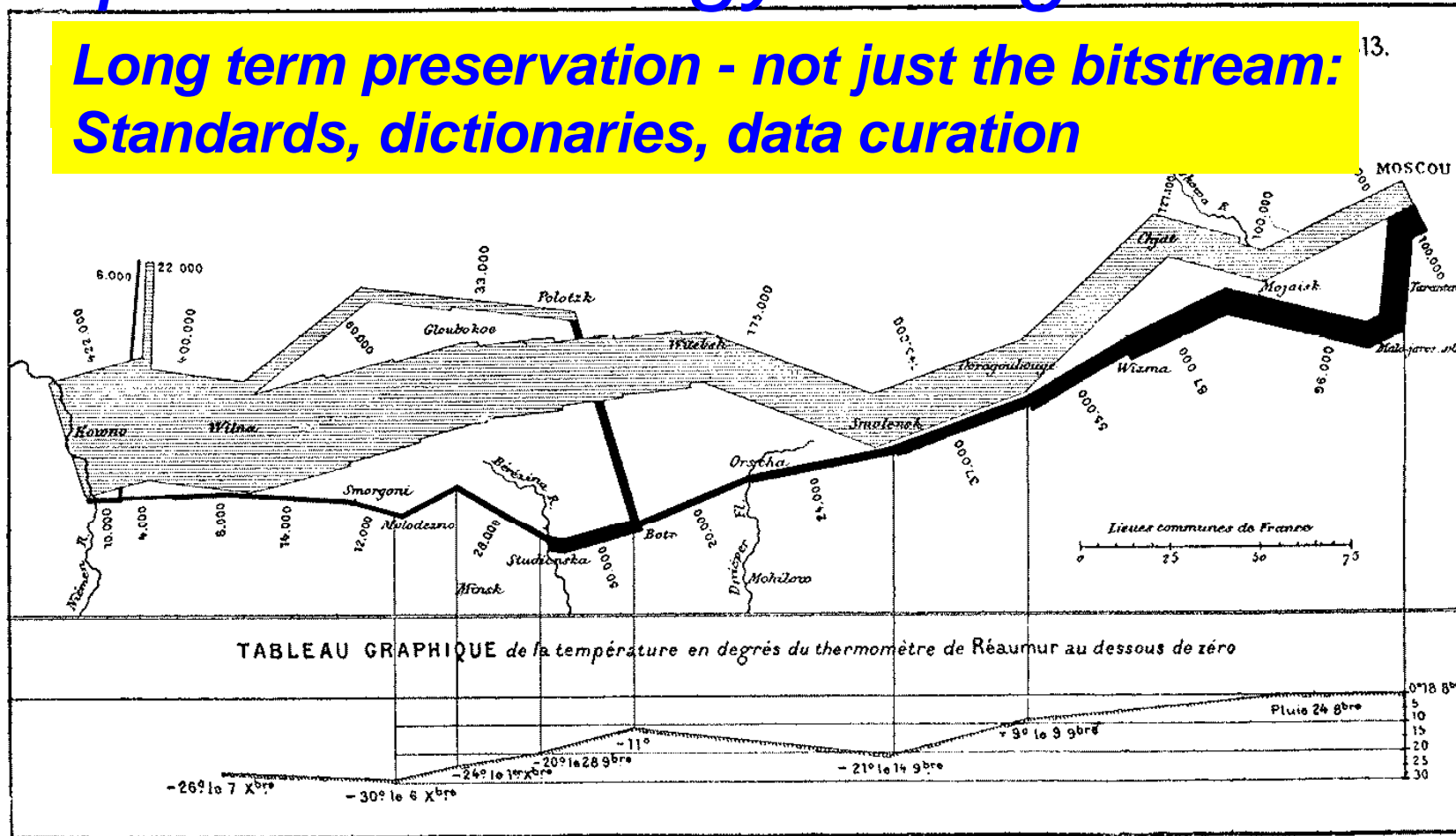
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Image ©2007 TerraMetrics

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Expect terminology change over time

Long term preservation - not just the bitstream:
Standards, dictionaries, data curation

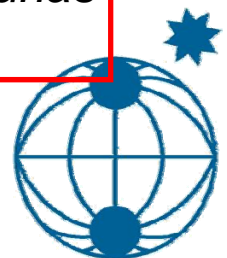


Xbre = December

9bre = November

8bre = October

- degree Reaumur = 0,8 x degree Celsius;
- 1 Lieue commune de France = 4.452,2 m
- Wilna = Vilnius; Kowno = Kaunas
- 9bre = Novembre !!



Exceptions+Extensions

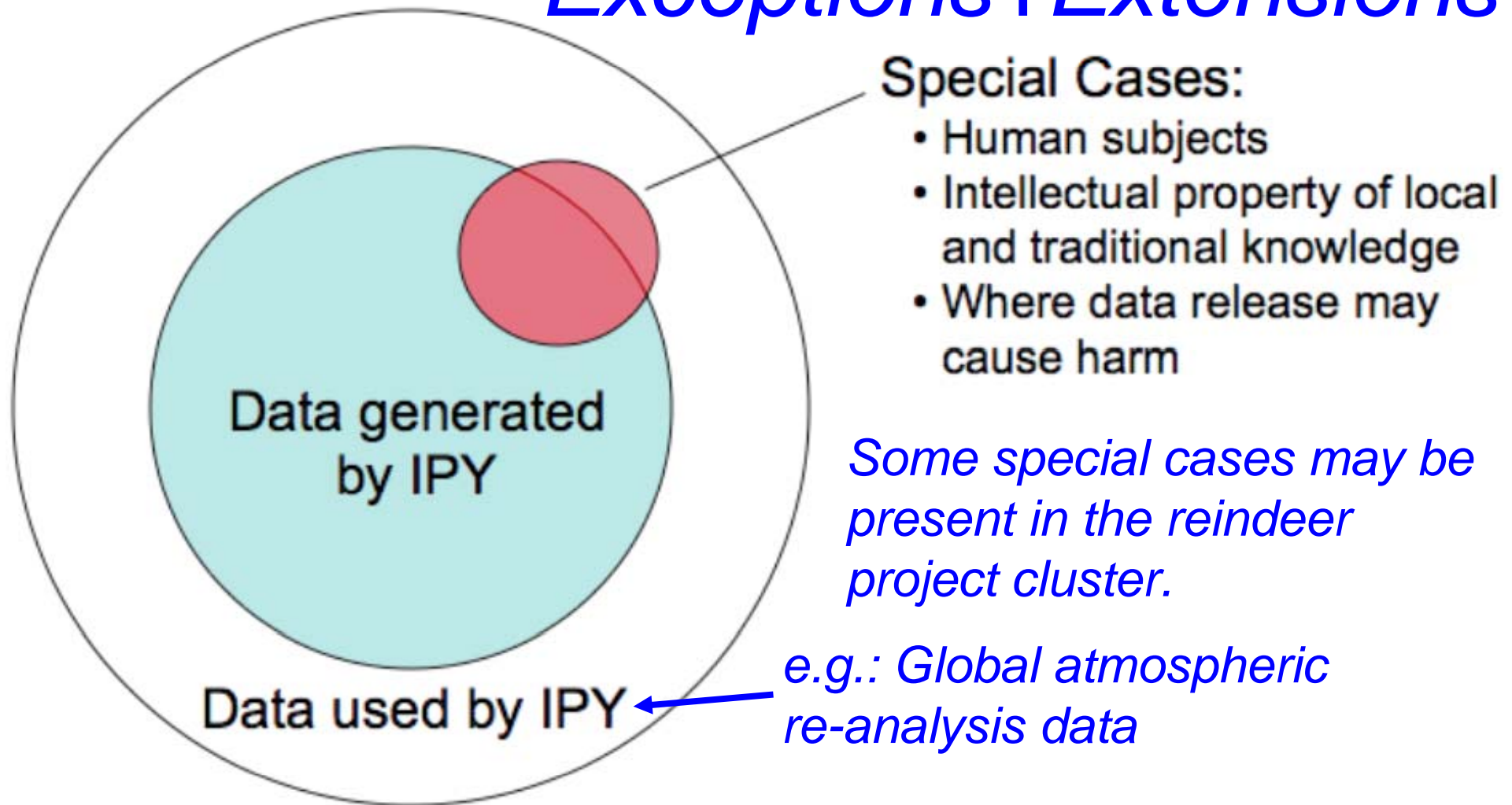


Figure 1. Graphical definition of “IPY data” (inner blue circle), “IPY-related data” (outer circle), and special cases.



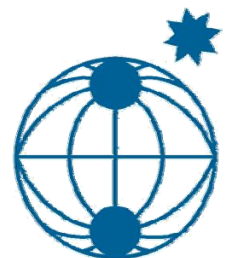
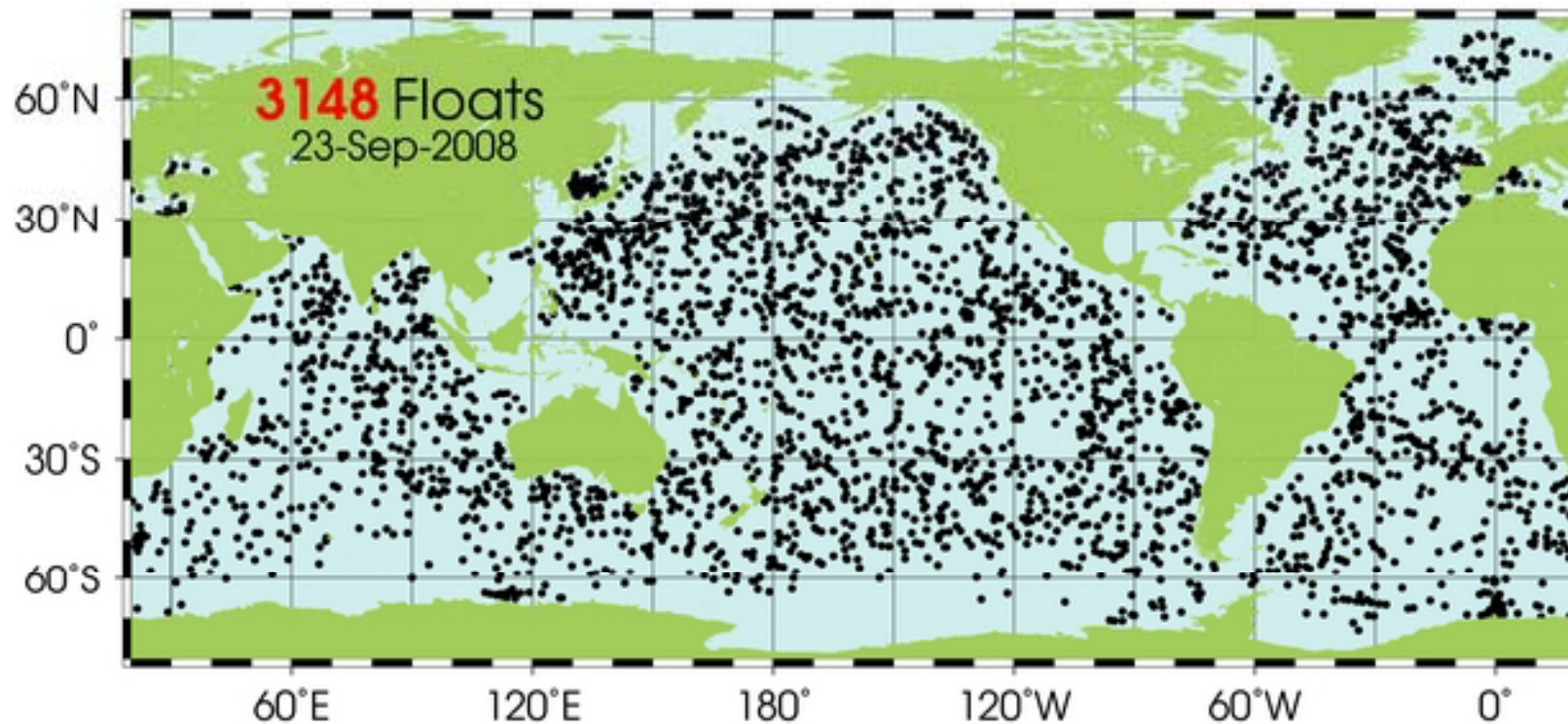
Deal with exeptions

- Data „owners“ need **trustworthy assertions**, e.g.:
 - „I am doing non-commercial research“ (ECMWF reanalysis)
 - „(S)he is a member of a trustworthy group“ (nesting sites)
 - „(S)he needs to know“ (sociological details)
- Repositories need to implement owners „policy“
 - **Fine grained access rights** („policy“ decision/enforcement)
 - YES/NO or „**selective availability**“ (taylored precision)
- Who are the authorities? **Mind the long term !!**
 - The user-individual himself (**license** agreement)
 - The owner-individual/organisation herself/itself
 - A group (a project PI, a peer group, a **learned society**)



Existing repositories - meet the largest experiment on Earth

- *Hint: It is not CERN's LHC!*



6900499

NORWAY (Argo NORWAY)

Deployment
Latest Location
Web Products

880 Days
95 profiles at GDACs (origin Coriolis) including 0 DM profiles
Date: 13/04/2006 Lat : 64.6500 Lon: -.0216
Date: 09/09/2008 Lat: 67.0903 Lon: -9.0152
[AIC Coriolis JMA](#)
[CSIRO MEDS](#)

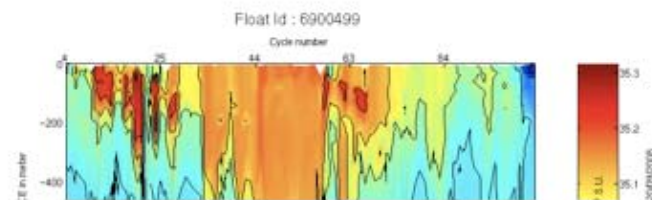
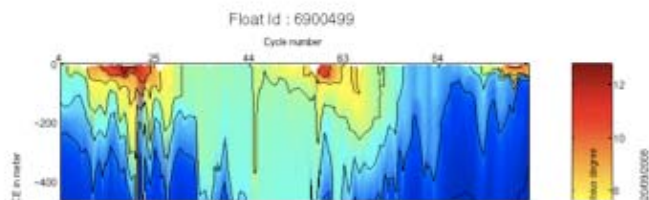
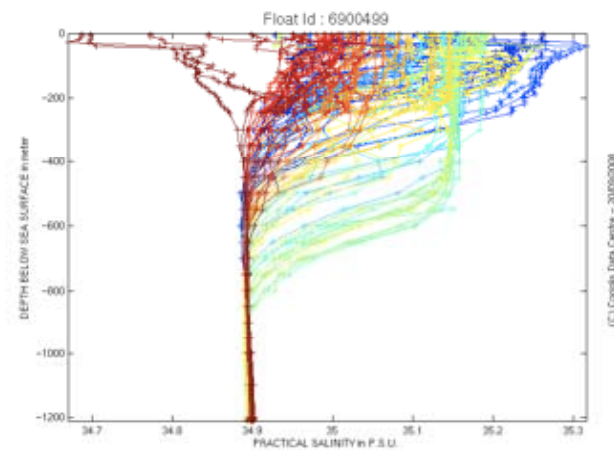
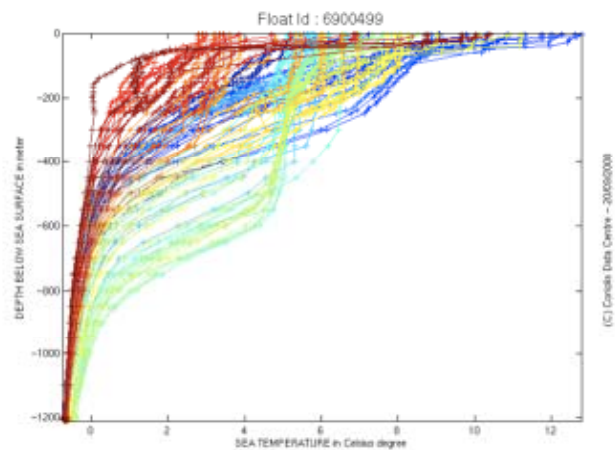
Data (netCDF)

[Profiles](#) [Metadata](#) [Trajectory](#) [Technical](#)

QC

[Altimetry QC](#)

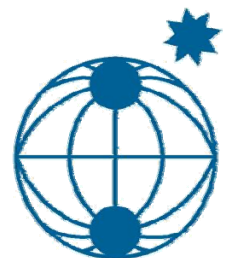
Subsurface Temperature - Subsurface Salinity (source [IFREMER/Coriolis](#))



IPY poses technical challenges :

- IPY data need to be identified and ingest into proper archives *within a few years* (capacities!)
- For many disciplines and in many countries, *no commonly accepted practises and no certifiable repositories do exist **today***
- There are **some** standards for discipline-spanning interoperability at the technical level, e.g.:
 - **ISO 19115** (=> INSPIRE) metadata,
 - OAI harvesting, **Open Geospatial Consortium** access
- *No trusted, scalable, long term system yet to deal with restrictions / rights on a global level (50.000 people, 63 nations, n*100 projects/VOs?)*

*Need to use
what we have
(People!)*



Conclusion

- *The IPY data challenge is also an opportunity*
 - a „deluge“ of contexts, and data
 - but it must be solved : Much is to be gained (or lost...)
- *We must work on IPY data **pragmatically***
 - addressing scientists / disciplines need & concerns
 - build on capacities (=people) and infrastructure we have
- *IPY data will be a data treasure for future generations*
- *IPY data challenge **could be a proving ground** for (all?) repository / data infrastructure concepts*

