

# Observation Networks

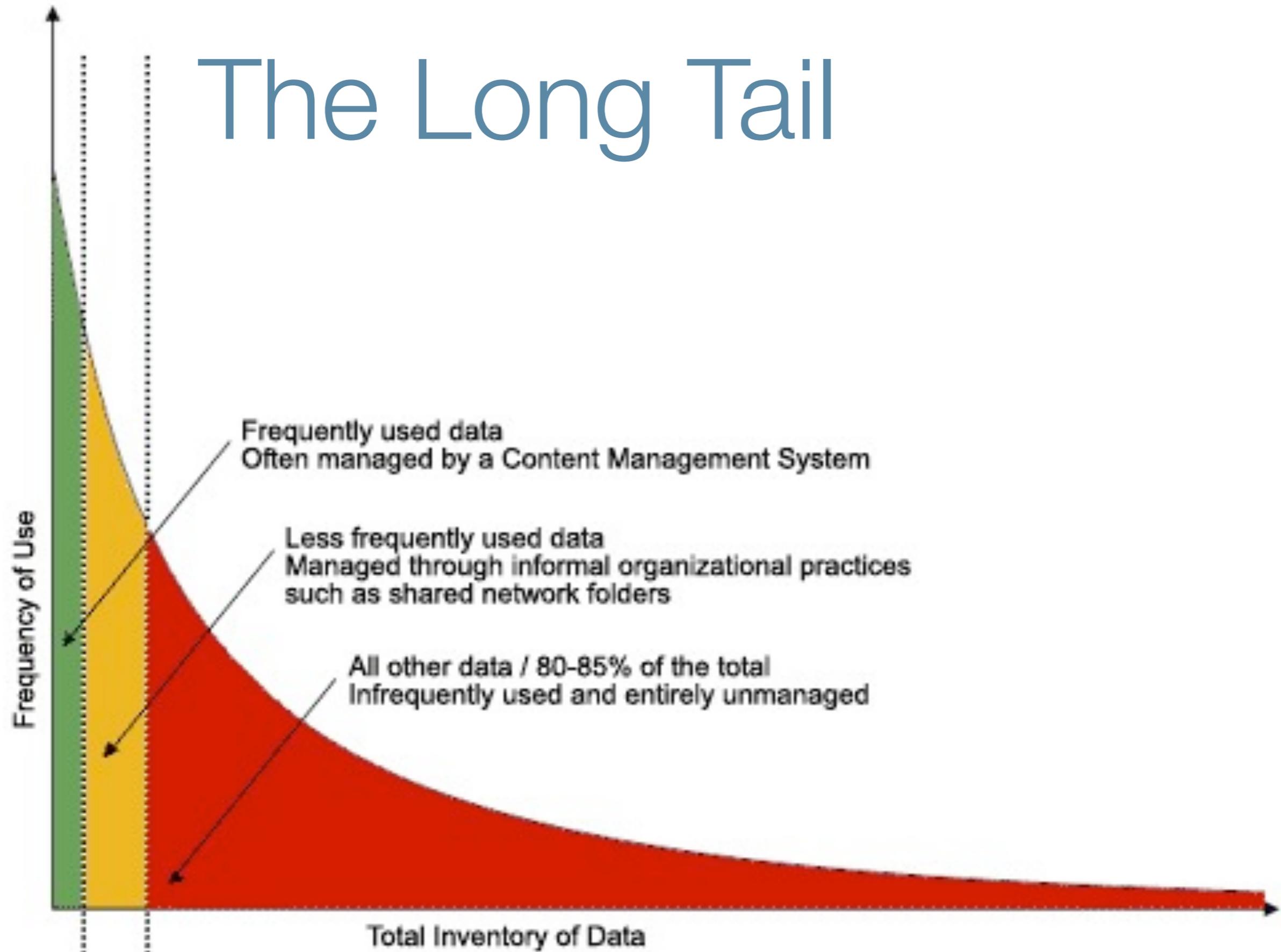
The handshake between observations and models

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## Harnessing the 'long tail' of ecosystem carbon cycle observations

Approaches and challenges in synthesizing and assimilating non-automated and experimental data

# The Long Tail



# Carbon's long tail

- \* Experimental manipulations
- \* Vegetation plots (esp. historical)
- \* Belowground carbon
- \* Sap flux
- \* Gas exchange (leaf, root, etc.)
- \* Soil respiration
- \* CH<sub>4</sub>, VOC, DOC

# Successes of synthesis

- \* Big Data
- \* FLUXNET
- \* Remote sensing
- \* GLOPNET
- \* TRY
- \* Advances in theory
- \* Model inter-comparisons
- \* Model-data fusion

**INCREASING DEMAND BY FUNDING AGENCIES, JOURNALS, COMMUNITY**

How can we make  
this happen?

Can we develop a  
“community” approach  
to model-data  
synthesis?

What would it look like?

# Agenda

- \* Kuperberg “ModEx”
- \* Papale/Agarwal “FLUXNET uncertainty & BADM”
- \* Cook “Data One”
- \* Keenan/Ricciuto “Multiple data integration”
- \* Dietze “Tools for model-data synthesis”
- \* Split Group Discussions
- \* Large group synthesis

# Questions 1

- \* What are the **key challenges** to using experimental and observational data in data assimilation?
- \* What **priorities** are there for data or biomes the community should focus on?
- \* Is there a need to develop **guidelines** for community model-data assimilation to prevent misuse or assimilation of biased data?

# Questions 2

- \* How can new tools make model-data synthesis more **accessible**, community-oriented, and with faster forecast turnaround times?
- \* Can this approach increase **credibility** of models for addressing policy and management questions?
- \* How can we better **archive** and document older data sets that are at risk of falling through the cracks?