



# Stable isotopes in fossil teeth and bones for palaeoanthropology

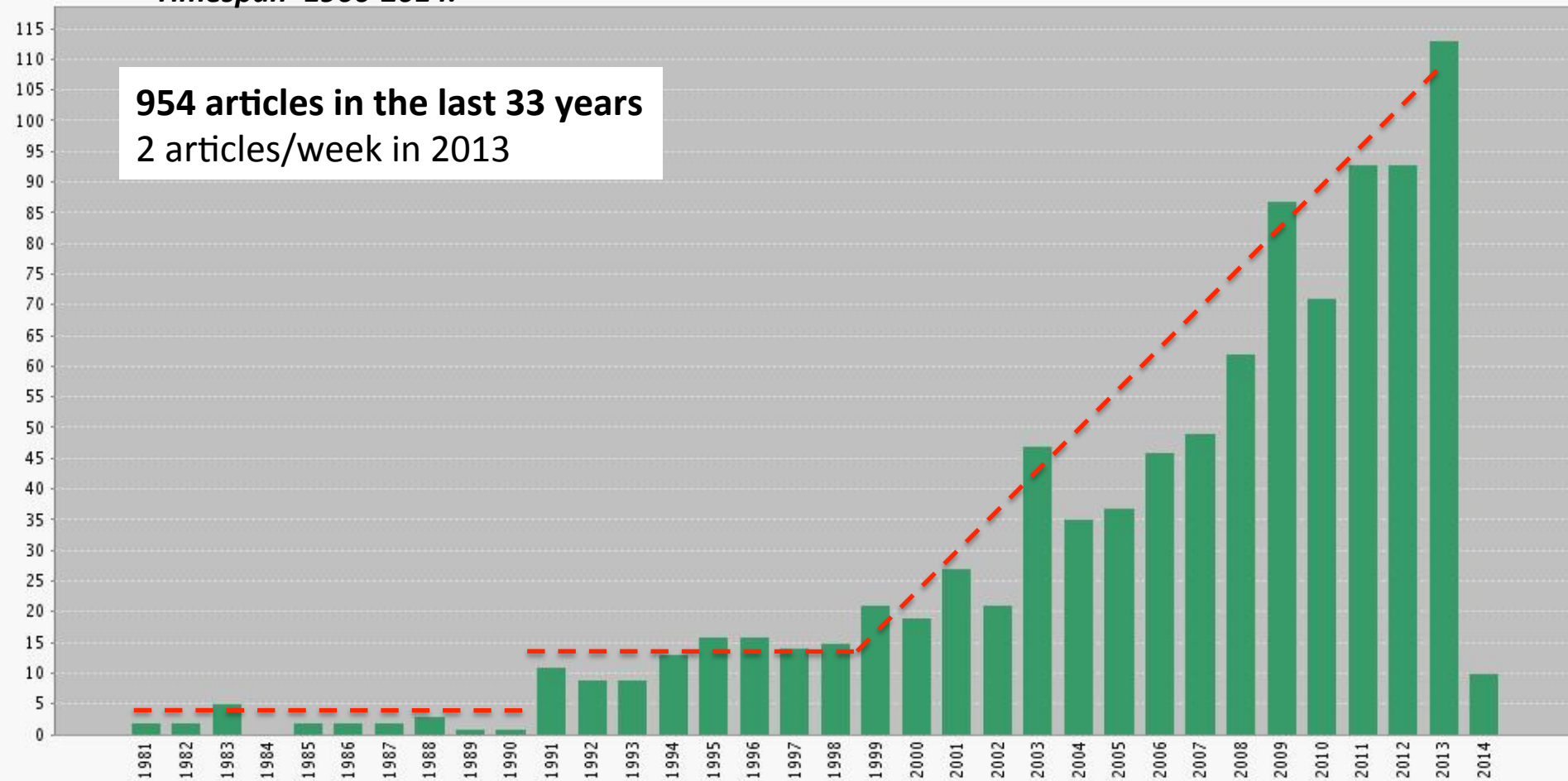
Prof. Dr. Hervé Bocherens

# Stable isotopes in fossil teeth and bones for palaeoanthropology

- What? Tracking diet, environmental conditions, mobility, using stable isotopes (C,N,O,S,Sr,...) in ancient bones and teeth
- When? From modern to very old (>10 million years)
- Where? Samples from archaeological and palaeontological sites

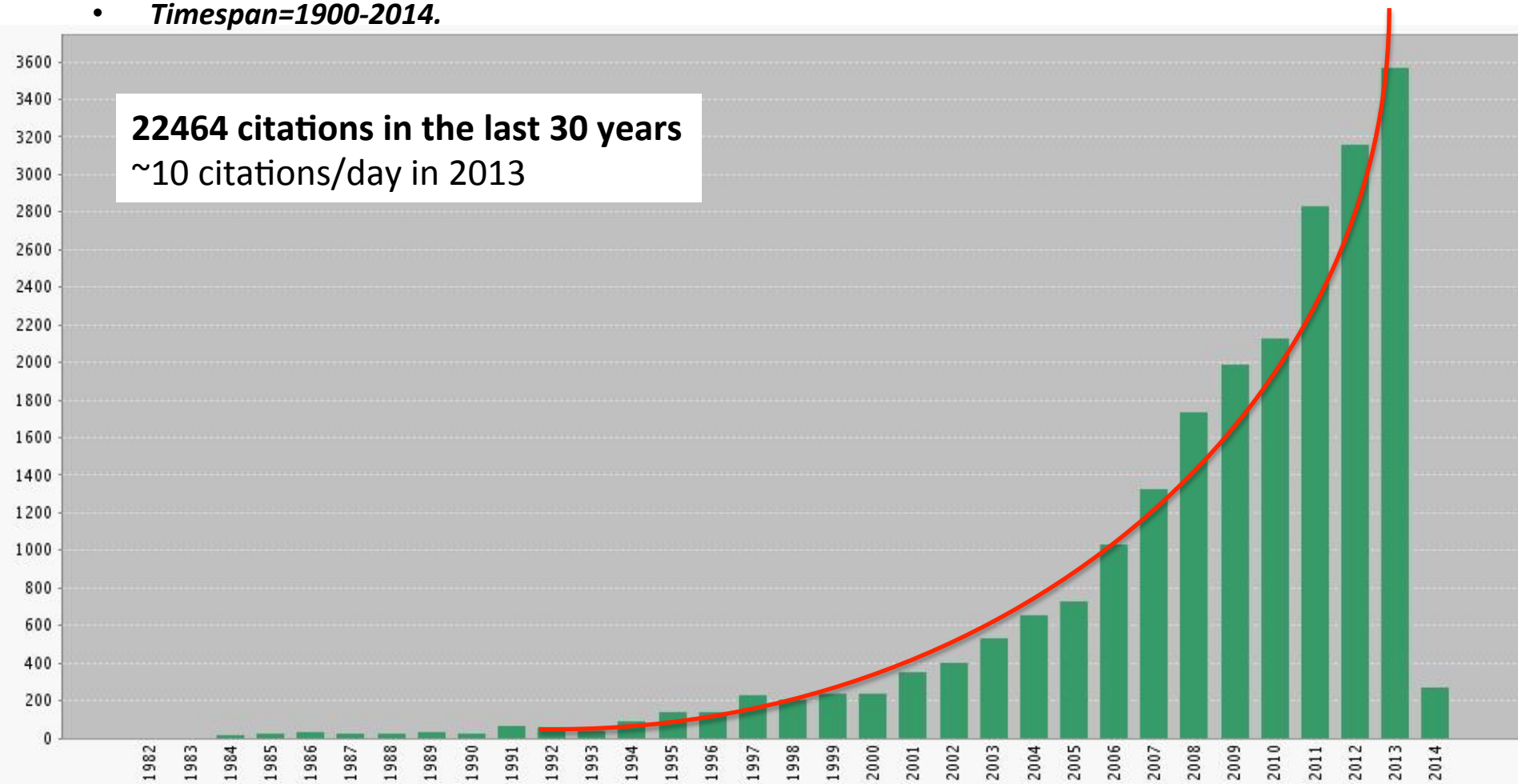
# Impact and development: Articles

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# Impact and development: Citations

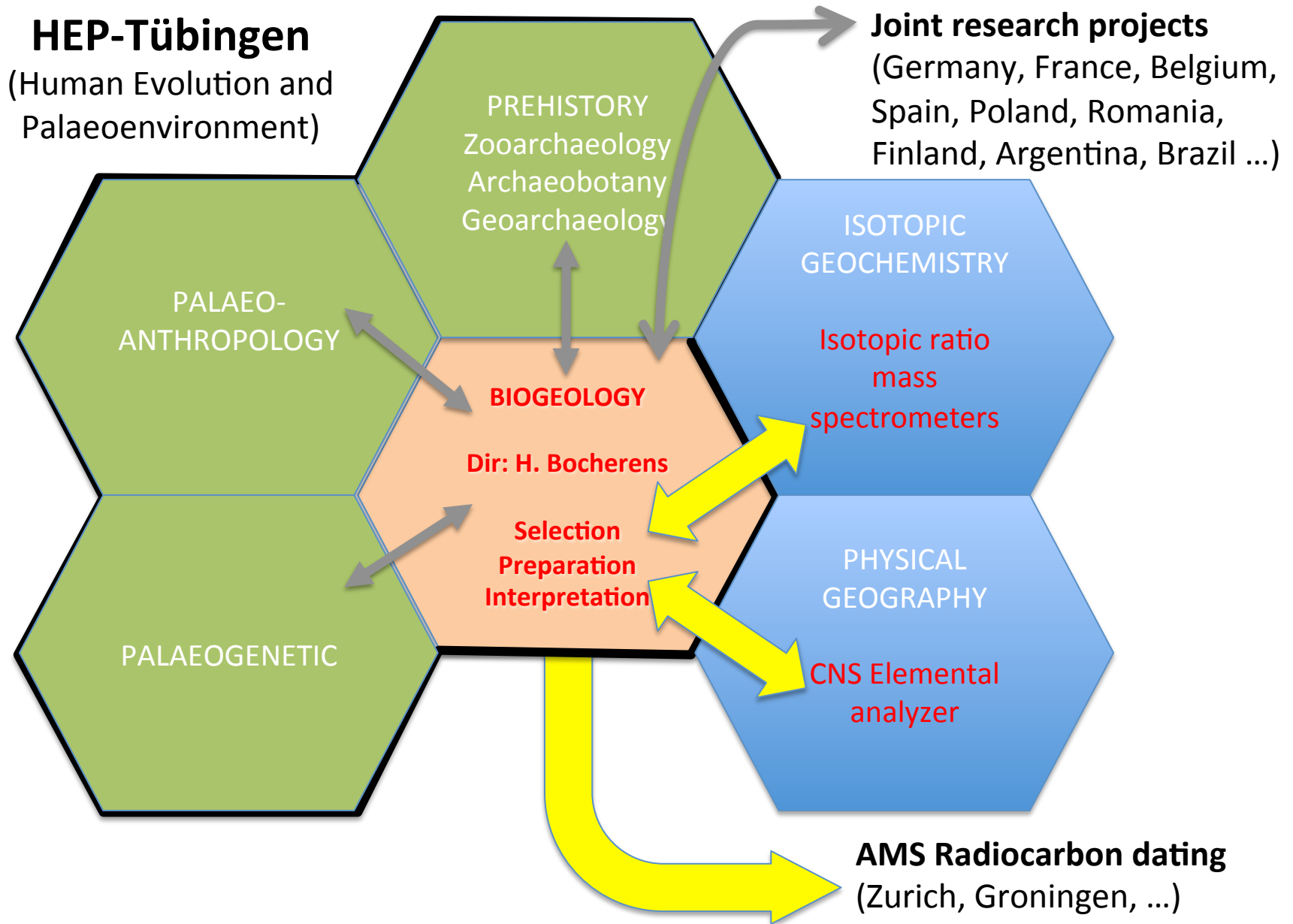
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# Research Infrastructure

- Research →
  - Developing new methodologies
  - Constant improvements of:
    - reference datasets
    - quality controls
    - use of new tracers
- Infrastructure →
  - “moderately” large equipments (~300 k€ per item)
  - Skilled collaborators (post-doc level)
  - Using “routine” methodologies within international joint research projects
  - Involved in teaching at BSc, MSc and PhD levels

# RI “Isotopes in fossil bones” in Tübingen



# Needs

- Covered by **own resources** (technical and personal), **internal** (Univ. Tübingen, HEP) and **external collaborations** (Research grants)
- **Advantages:** each collaborator is top in his field and can be chosen independently, logistical constraints managed by specialists
- **Limitations:** less autonomy, sometimes long waiting lists, needs good coordination with other teams where equipments are located

# Alternative solutions

- **Centralized RIs** that should be used by researchers according to geography, politics, ... → “service facilities”
- **Advantage:** centralized maintenance, more modern equipments
- **Possible risks:** less stimulation for improvements, “routine” work, lack of competition, less flexibility and personalization of analyses, lacks connection with teaching



# Future directions

- Still **improvements** needed to expand the field:
  - Better reference datasets
  - Better quality controls
  - New isotopic tracers
- More **joint work** with palaeogenetics, radiocarbon dating (on same samples), palaeopathology, physical anthropology, ...
- **Risk:** “democratization” of equipments could lead to atomization of research in too small structures lacking adequate qualifications and connections to produce valid scientific studies

# THANK YOU FOR YOUR ATTENTION

