

# WP5: PALEONTOLOGICAL RECORD OF SIZE SPECTRA IN HOLOCENE

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# Foraminifera

- A group of mainly marine Protists
- Characterized by granulated reticulopodia and presence of shell (test)
- 5,000 modern and 40,000 fossil species
- Well preserved in fossil record

Test:

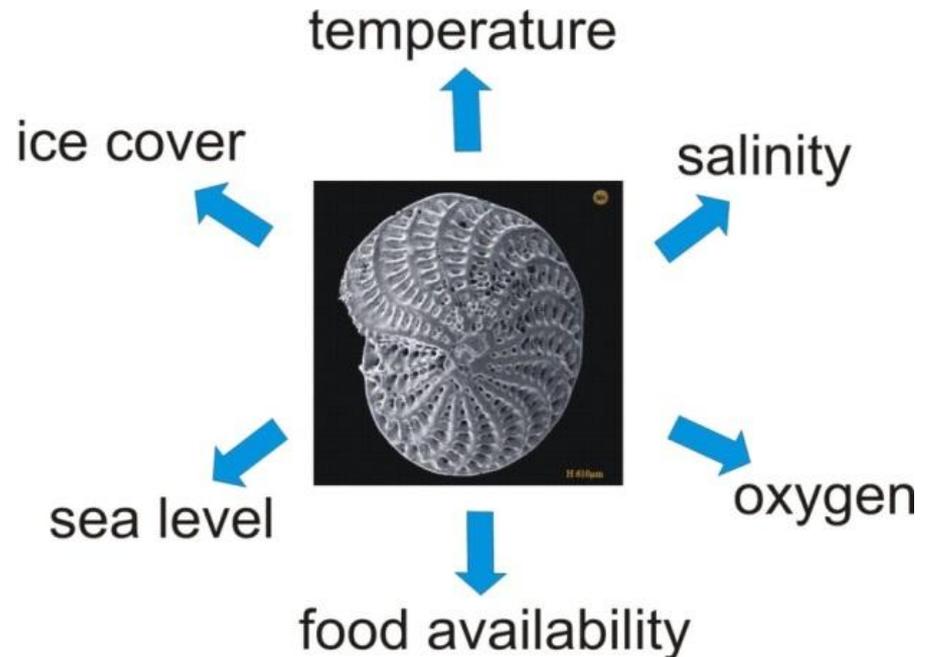
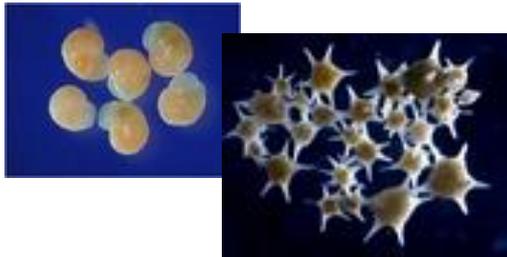
- organic



- agglutinated



- calcareous



# Global climatic forcing of deep-sea benthic foraminiferal test size during the past 120 m.y.

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## COOLING EPISODES

- Coniacian - Maastrichtian
- late Paleocene
- middle Eocene - early Oligocene
- middle Miocene
- late Pliocene - Holocene

## WARMING EPISODES

- late Albian
- late Cenomanian-early Turonian
- early Paleocene
- latest Paleocene-early Eocene
- late Oligocene-early Miocene
- early Pliocene

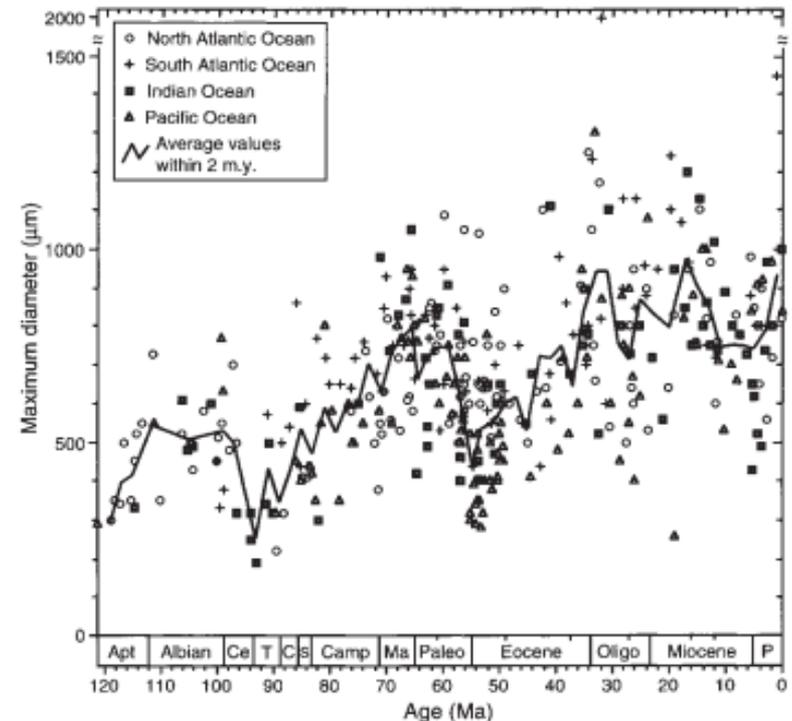


Figure 2. Stratigraphic distribution of maximum diameter of largest specimens among deep-sea calcareous trochospiral benthic foraminifera in each sample during past 120 m.y. Largest specimens in each sample belong to 16 genera such as *Cibicidoides*, *Oridorsalis*, *Gyroidinoides*, *Gavelinella*, *Linaresia*, *Nuttallides*, *Nuttallinella*, *Stensioeina*, and *Hanzaia*. Apt—Aptian, Ce—Cenomanian, T—Turonian, C—Coniacian, S—Santonian, Camp—Campanian, Ma—Maastrichtian, Paleo—Paleocene, Oligo—Oligocene, P—Pliocene.

# Research questions

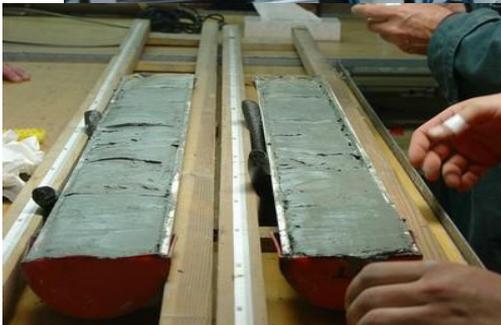
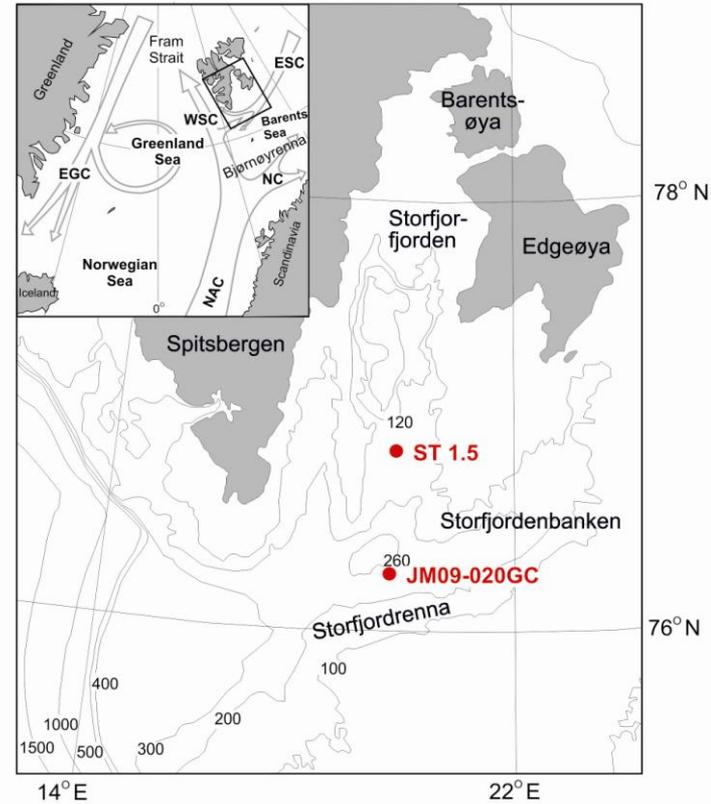
- How does foraminiferal community size structure change along the thermal gradient observed off Norwegian coast?
- How the size structure of benthic foraminifera community off west Spitsbergen responded to climatic and hydrological changes during the Holocene?
- **Can the size structure of Foraminifera assemblages be used as paleoenvironmental proxy in shorter time/higher temporal resolution scale studies (as Holocene studies)?**

# Material

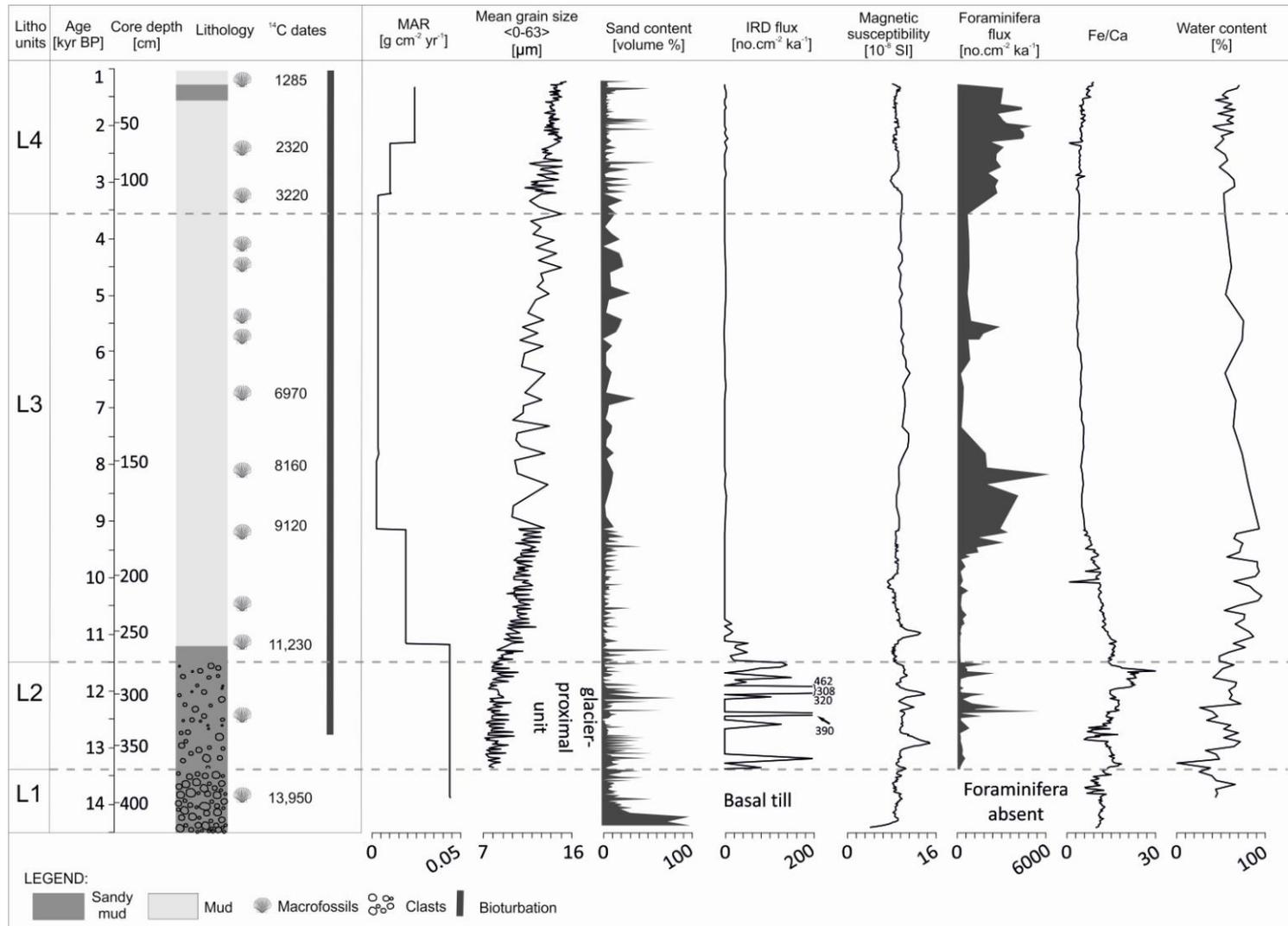
One sediment core spanning the Holocene (~ 12 kyr BP) : variability in foraminiferal test size during the Holocene

One core from inner fjord (~ 5000 yr BP): high resolution sedimentological record of changes during Neoglacial

Surface samples from five fjords along temperature gradient

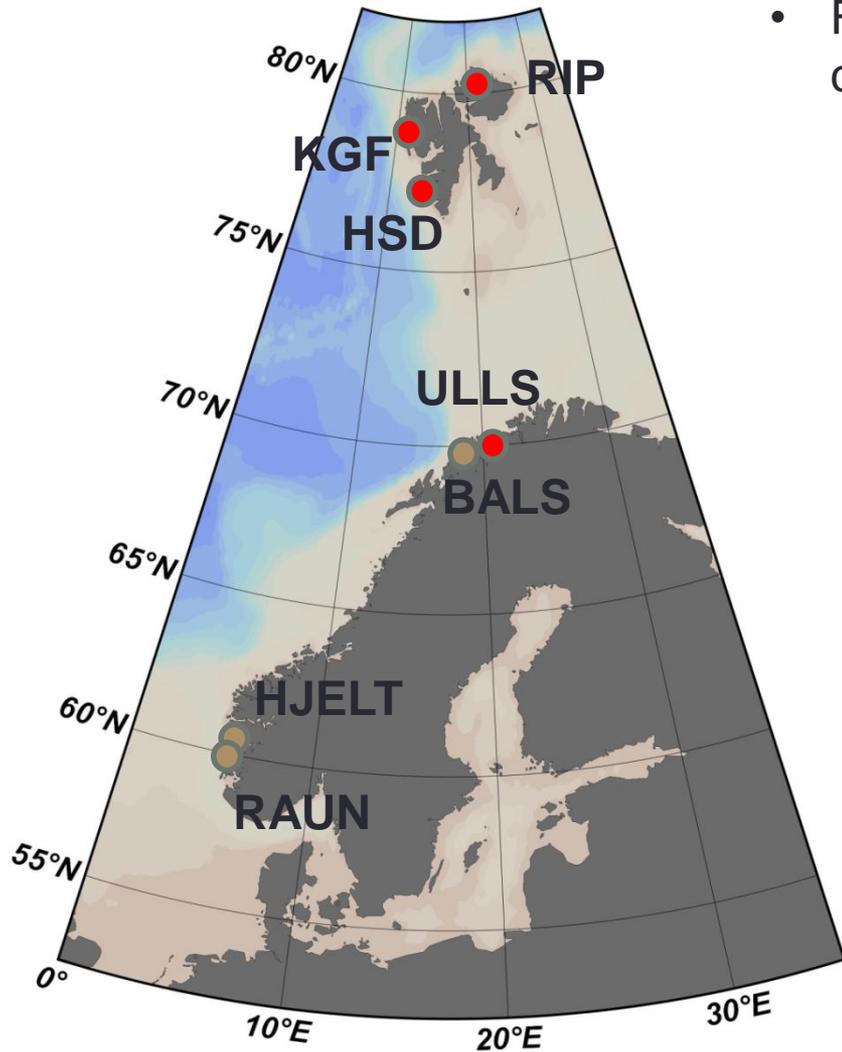


# Material



# Fieldwork plans for 2015

- Foraminifera size distribution in different climatic zones

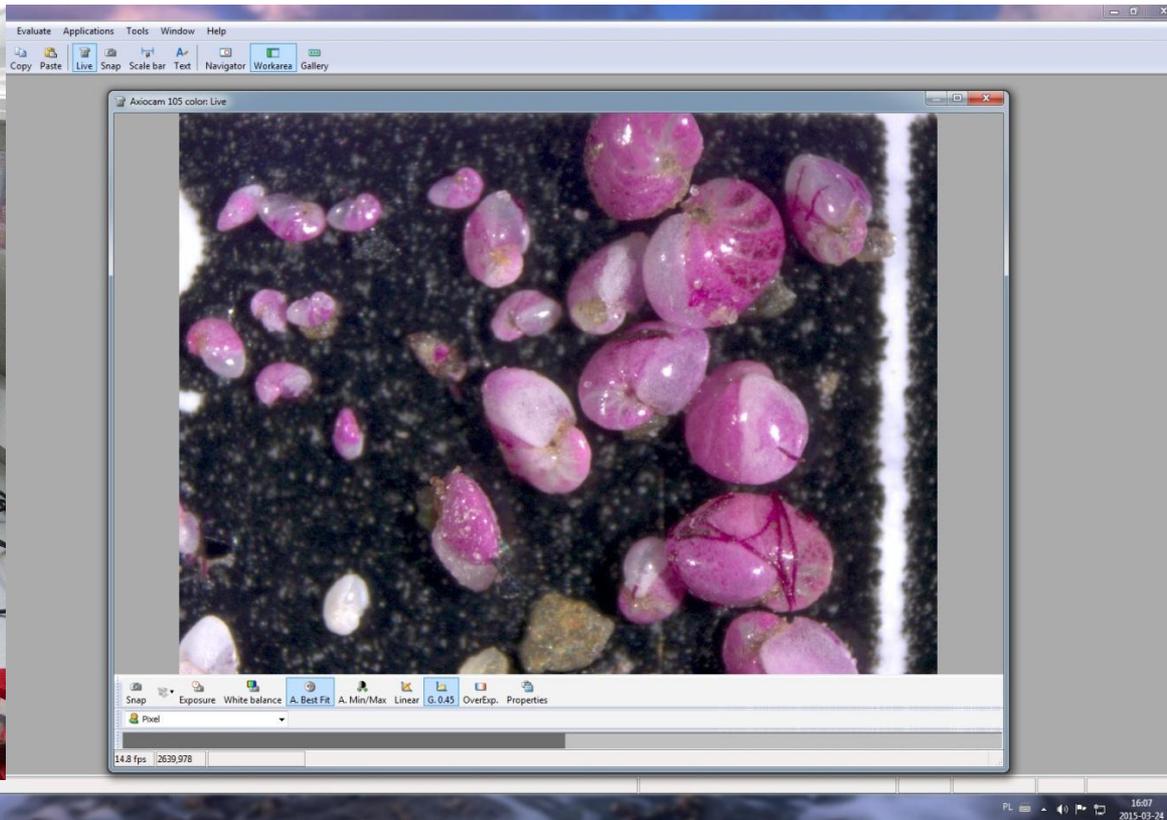
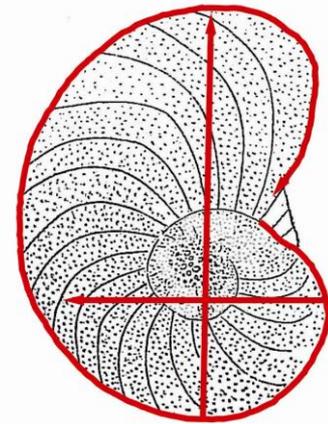


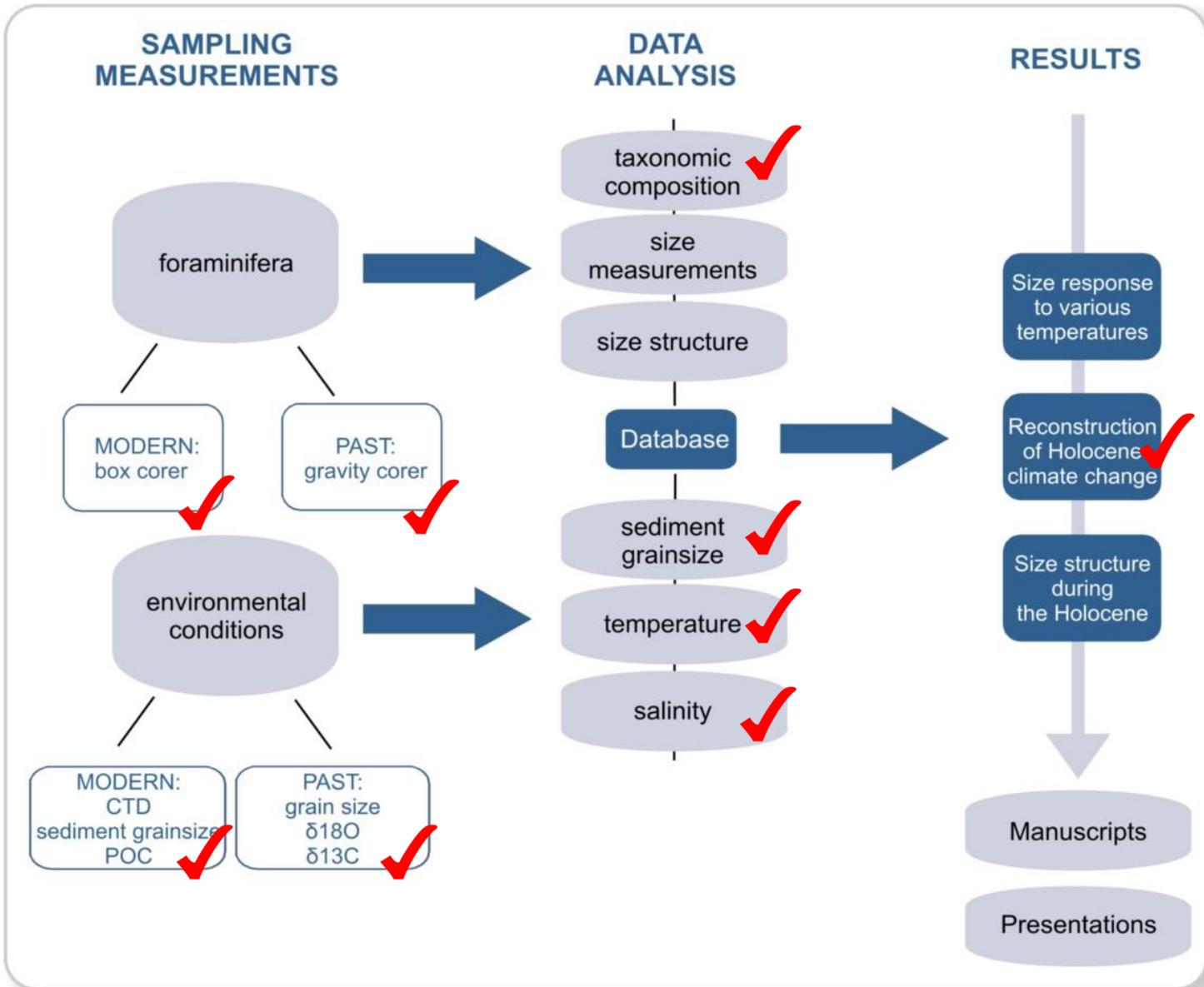
# Morphometrics

*From elements to macroevolution: Modelling tools and applications in biogeosystem*

April 9 -11, 2014

ING PAN - Research Centre in Kraków





# Milestones



DWARF FEB. 2014-JAN. 2017

