

Young Diatomists Workshops Berlin IDS 2018

30th June (Saturday, 9-17h)

3 hours reserved for the workshops

DNA and taxonomy (9-12 h): Edward Theriot & David Mann

1. **Lectures:**

- Taxon selection, alignment, phylogenetic analysis and hypothesis testing – theoretical, conceptual part (1h) + Case studies (Edward)
- Validation and vouchering (metadata) of sequences, and the limitations of GenBank (1h) + Case studies (David)

2. **Open discussion and questions** (1h)

Based on student's expectations, we would like to have open discussions about opportunities and challenges of DNA and Taxonomy on diatom studies. We are thinking in asking attendants to present themselves in a couple of sentences to get an essence of their research. Also, they can think in 1-2 questions in advance for being discussed during the workshop.

Ecology and Bioindication (14-17h): Maria Kahlert & Rosa Trobajo

1. **Presentations** (max 30')

- Maria and Rosa: Brief presentation of their topic (max 10')
- Students presentation (max 20'): my suggestion is to ask the attendants to be prepared to give a very brief presentation of a couple of sentences (such us where are they working and their research topic or interest).

2. **Lectures** (max 1h15')

2a. **Present and future** (Maria & Rosa):

- **Classical biomonitoring:** brief introduction, freshwater vs brackish habitats, gaps in understanding (eg. species ecology is not always certain; taxonomists and ecologists often seen each other as adversaries; species

identification often shoe-horned by the few floristic books available; species biogeography poorly tested; ecological traits, etc).

- **Metabarcoding**: Brief introduction; brief presentation of the main developments; challenges and opportunities.

2b. **Past and present** (Xavier):

- Time as a continuum in ecological indication
- Qualitative and quantitative approaches

3. **Open discussion** (circa 45')

How to publish and review a paper (9-12 h): Eileen Cox

1. **Introduction** (30 min): History of the Diatom Research journal

2. **Lecture**:

1. Writing a paper and making it publishable (1h)
2. Review a paper (1h)

3. **Round table discussion and participants experiences** (30 min)

Based on student's expectations, the main focus should be on how to review a paper, main length characteristics for articles and amount of information needed per paper.

Palaeoecology + statistics (14-17h): Suzanne McGowan

Content

This workshop will discuss how diatoms in lake sediment cores can be used for the reconstruction of past environments. The focus will be on freshwater environments, but we will also consider how changes in marine and terrestrial environments can be inferred using diatom assemblages. We will explore how lake sediments are deposited, considering processes of taphonomy and chronological control to provide a critical overview of the interpretation of sedimentary records. The workshop will highlight key palaeolimnological literature, which has been pivotal in the development of the research area. There will be an introduction to the different approaches for interpreting environmental change using diatom records, including multivariate analyses, transfer functions, multi-proxy studies, benthic:

pelagic comparisons, functional attributes/ traits and sedDNA. Availability of data sources to access diatom ecological information will be discussed. The focus of the workshop will be on problem solving for participants, who will be invited to discuss their research challenges, ending with a round table discussion.

Programme

1. Lectures:

1. **The principles of palaeoecology** (30 minutes)
 - Including taphonomy, chronology
2. **Diatoms in environmental reconstruction** (30 minutes)
 - Case studies from freshwater, marine and terrestrial environments

2. Contributions from participants: flash presentations (15 minutes)

3. **Approaches to environmental reconstruction** (45 minutes)
 - Multivariate analysis, transfer functions, multi-proxy studies, benthic: pelagic comparisons, functional attributes/ traits and sedDNA

3. Contributions from participants: flash presentations (30 minutes)

4. Round table discussion (30 minutes)