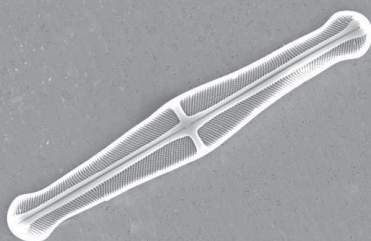


South African Diatom Collection

A future for historic data

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Introduction

Diatoms are an important group of micro algae occurring in marine, estuarine and freshwater habitats as phytoplankton and phytobenthos. The species composition at any given time and place is indicative of the prevailing environmental conditions in that habitat. This, in combination with the relative simplicity of sample collection, processing, analysis and curating, has led to a wealth of taxonomic and autecological information the world over.

South Africa has a long legacy of diatom research. Most of the work was conducted at the CSIR in Pretoria. Unfortunately this research diminished during the late 1980's. Fortunately the research materials (slides, samples, analysis sheets, literature etc) have all been saved. This collection is currently housed at CSIR in Durban. A large part of the collection is properly catalogued, albeit in paper form. A first step to start utilising this potential resource of historic environmental data, is to transfer the catalogue into an electronic database and make this available to interested parties.

Facts ...

- The collection contains research materials mainly collected and analysed by B.J. Cholnoky, R.E.M. Archibald, F.R. Schoeman, M.H. Giffen and co-workers
- Materials date from 1950's to mid 1980's, mainly from fresh waters in southern Africa, but with some estuarine samples
- Collection also houses material donated from overseas institutions (e.g. van Heurck, Tempère, van Dam)
- The collection contains an estimated 26000 microscopy slides of diatom samples (~ 13000 of the slides are catalogued in hard copy index files)
- There are also an estimated 8000 bottles of diatom samples, some of which have never been made to microscope slide and are still to be studied
- A collection of photographs (light microscope, scanning and transmission electron microscope) and drawings of type specimens were used to describe new species and as reference material when identifying and counting diatom samples. Reference data to these works have been captured electronically.
- There are an estimated 2240 diatom species diversity records (analysis sheets of species counts plus drawings of type specimens)
- About 15000 reprints of scientific publications on diatom taxonomy, distribution and ecology from all over the world and approximately 350 reference text books of various descriptions are available and electronically catalogued
- The collection is world renowned and is possibly still the largest in Africa
- CSIR is committed to putting the collection back on the map in collaboration with stakeholders



SANBI/SABIF ...

CSIR was recently awarded SABIF funding to make a start with the digitisation of the data in the diatom collection. This work is due to start in January 2008.

The project aims to:

- Construct and design an appropriate database
- Electronically capture the slide collection catalogue into the database (~ 13000 entries)
- Check and verify the presence and information on the slides
- Electronically capture information regarding an additional 13000 slides that are not in the catalogue
- Electronically capture the bottle collection catalogue into the database and add the available geo-referenced information (~ 8000 entries)
- Check and verify the presence and information on the bottles (8000 bottles)
- Electronically scan the diatom species diversity records (analysis sheets and iconographs)
- Transfer the literature and taxonomic reference file databases to the new database.

Future ...

The electronic database will become available through the SANBI portal. It is the intention of the CSIR to host the database to keep the information up to date. Future plans are to link the samples to the taxa that have been identified, following a suitable international standard for nomenclature.

An actively curated diatom collection will help drive the initiatives to develop water quality monitoring tools based on diatoms. Also training and skills development in diatom identification could be facilitated. The CSIR will further focus on diatom research aimed at coastal areas, estuaries, aqua culture and climate change. Collaboration and student participation is encouraged.



Background & Acknowledgements...

SABIF is the South African node of the Global Biodiversity Information Facility. It intends to create a platform for end users to discover and put to use vast quantities of global biodiversity data (www.sabif.ac.za). South African Biodiversity Institute (www.sanbi.org)

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