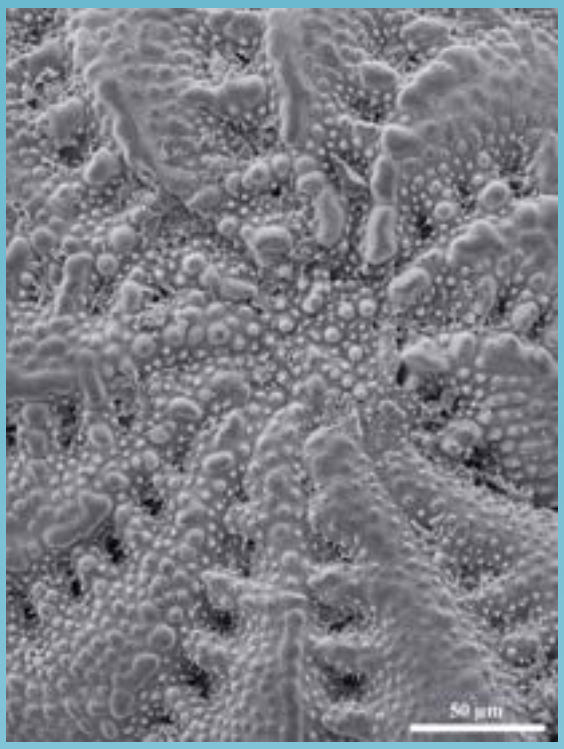
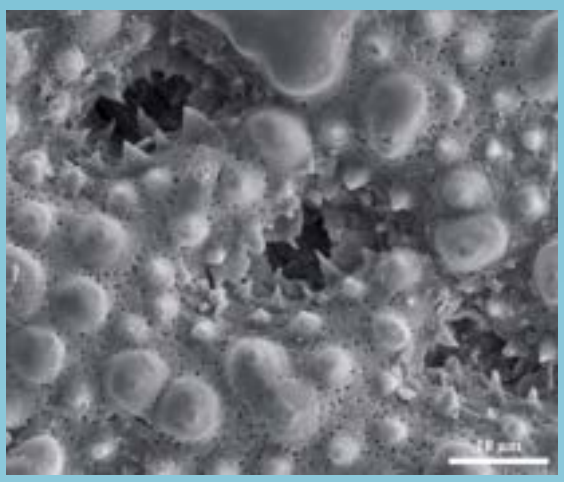
Foraminifera.eu Lab Newsletter 2022

sent to 857 subscribers





Surface details of an *Elphidium* found in beach sand on the island Amrum in the southern North Sea, Germany. Images: Michael Hesemann with the VEGA3 Tescan at Senckenberg am Meer, Wilhelmshaven, Germany

From project to lab

After twelve years of existence the Foraminifera.eu Project has turned from a temporary project into an ongoing activity. Aside from the enlargement of the database we are more and more involved in professional research projects and publications. From 2022 on we are now the Foraminifera.eu Lab (FEULAB).

The mission to foster the interest in foraminifera will remain unchanged. We will also continue to work strictly non-commercially which means that we do not charge for our diverse services and research. The foraminifera.eu webpage and the database (FEUDAT) remains open access and open for your contributions and showing off your images. As creator of foraminifera.eu I terminated my regular job as CFO in a midsized company and now work fulltime on foraminifera.

The activities of FEULAB are split into marine biodiversity studies in the recent Atlantic, studies on fossil foraminifera in glacial erratics from Northern Germany, the enlargement of the database (FEUDAT) and Outreach activities (local fossil club, workshops, presentation in conferences, social media).

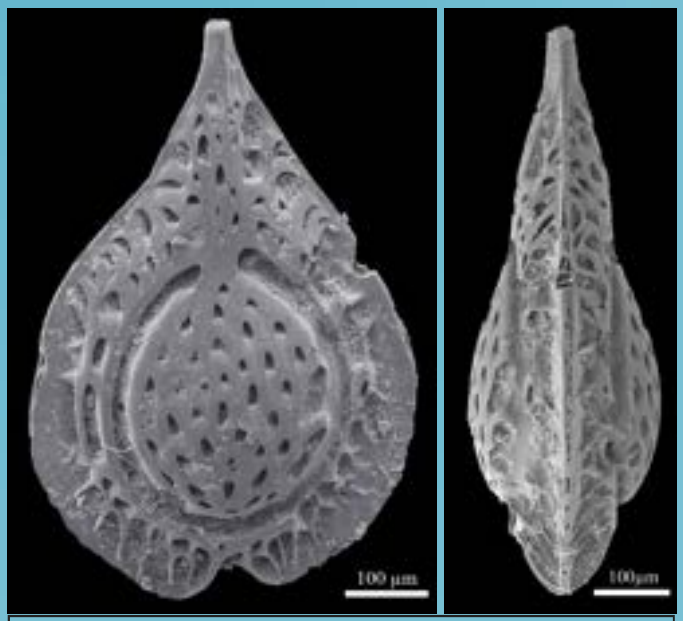
Please find more about our plans and activities in 2022 on the following pages.

Thank you all !

Michael Hesemann

2 Marine biodiversity studies

Many nations agreed in the UN on sustainable development goals (SDGs) in order to assure human life on Earth in the future. One issue to be addressed is the species extinction. SDG 14 deals with the marine realm. To properly follow SDG 14 and protect marine habitats it is essential to know what species are there and how they form a habitat. Accordingly many expeditions are undertaken these days to inventory the life they find and interpretate it. The many expeditions result in many samples and we analyze some of these as a minute contribution to this mutual effort.



Vasicostella squamosoalata (Brady, 1884) found at station 24 of IceAGE cruise MSM75 at 1160m depth. Images: Michael Hesemann with the VEGA3 Tescan at Senckenberg am Meer, Wilhelmshaven.

In 2021 we continued to pick, identify and photograph specimens found in samples from the Reykjanes Ridge, south of Iceland.We became a cooperation partner of the IceAGE project which aims to investigate the biodiversity around Iceland and further south.

The material is provided by the German Center for Marine Biodiversity Research, Hamburg and Wilhelmshaven. In 2022 we will work on new Multicorer samples from cruises of RV Sonne.

To date we have photographed and identified 138 species with 400 images. They are accessible at:

https://foraminifera.eu/locdebe.php?locality=Reykjanes+Ridge

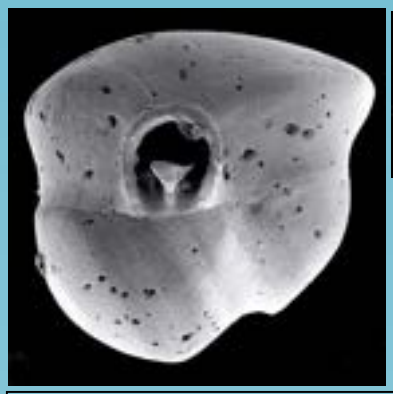
The work on foraminifera from the Mauritanian slope and shelf will be finished with a paper in 2022. In 2021 Leon Hoffman sat with me at the VEGA3 Tescan at Senckenberg am Meer, Wilhelmshaven and shot more than three hundred SEM images. In part they are online at: https://foraminifera.eu/locdebe.php?locality=Mauritanian+Slope
For 2022 it is planned to work on forams from similar habitats in the South Atlantic. According samples need to be found and selected from the repository.

From left to right: *Laticarinina pauperata*, *Lagena aspera* and *Pyrgo* sp.

3 Marine biodiversity studies

All marine biodiversity studies start with inventories of life meaning of the species and their distribution in the investigated areas. We started our work once as collectors with the goal to pick, identify, photograph and show online all foraminiferal species found in a given sample. Now we know that our approach was not just about showing off our collections, but that we made the first step in marine diversity studies. There are quite a few collectors of foraminifera in the world and we are happy to bring their work online though the quality of images may not be at a professional level. In professional papers such of our images are used to prove the presence of species in certain realms, e.g. in Hayward et al., 2021: Molecular and morphological taxonomy of living *Ammonia* and related taxa and their biogeography. Please find below images from contributions by collectors.

Dieter Ketelsen
team member



Adrian Brokenshire
The Quekett Microscopical Club
continuously sends samples
from all over the world

In January 2022 Karen L. Johnson from Sitka, Alaska made contact and we plan to build a catalog of foraminifera from Alaska. She is on iNaturalist and got support from the professional foraminiferologist Daniel King. He is also on iNaturalist and will provide images of forams from New Zealand. Thanks Karen & Dan for contacting us!

Michael Dietrich
sandcollector
continuously sends images

In 2021 we made optical and SEM images of foraminifera from the **North Sea**, which we intend to use in 2022 to enlarge the catalog at:
www.foraminifera.eu/ns.html

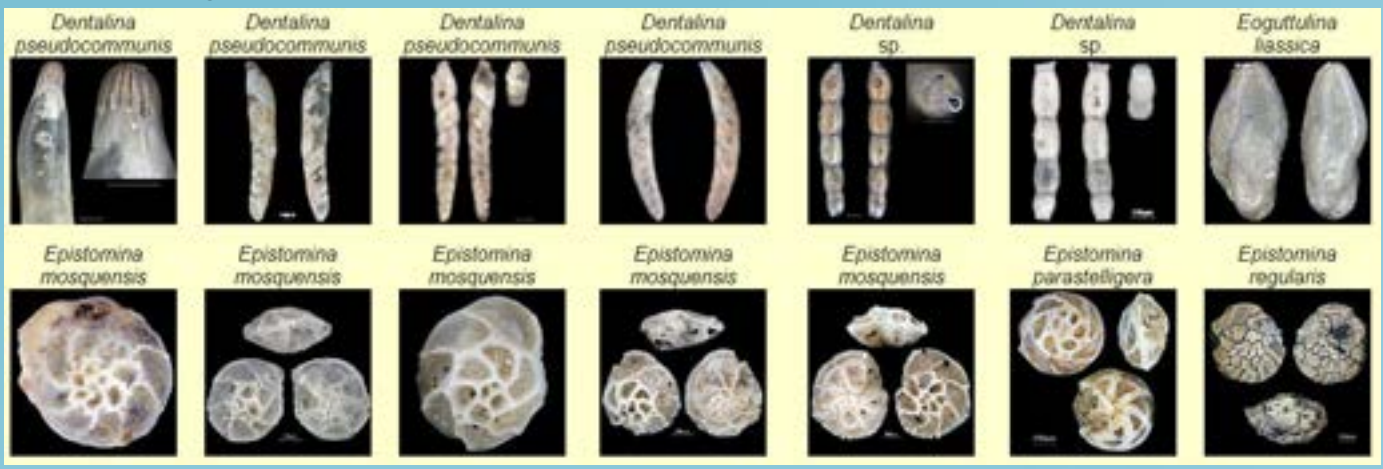
4 Foraminifera in glacial erratics

The foraminifera.eu lab is sitting on a 120 m thick layer of glacial erratics. The whole of Northern Germany and beyond is covered by what the glaciers of the last ice ages have brought us. Sedimentary rocks, rich in fossils of Cambrian to Pleistocene age, may be found in gravel pits, river and road cuts, on the Baltic coast or just lying on the topsoil. Supported by our colleagues from the Glacial Erratic Society we have collected quite a lot of glacial erratics containing foraminifera.

In 2020 I published a paper in Micropaleontology vol. 66(5) on forams in the Eocene Heiligenhafener Kieselgestein. At the moment we are discussing the identification of 301 foraminifera extracted from the Oligocene Sternberger Gestein seen to the left and below.

Optical images: D. Ketelsen / M. Hesemann. SEM: M. Hesemann with VEGA3 Tescan (Senckenberg am Meer)

In 2021 we picked and photographed roughly 300 more foraminifera from glacial erratics such as those from the Callovian (Jurassic) seen below. Find all foraminifera extracted from glacial erratics at https://foraminifera.eu/querydb.php?misc2=Glacial+erratic&aktion=suche



In 2021, with my colleague Stefan Polkowski - a renowned expert on descapods in glacial erratics - I collected Paleocene glacial erratics of marine origin at different localities on the Baltic coast. At first glance the foraminiferal content is rich. It seems to match with faunas from outcrops in Denmark and Sweden and will be studied in more detail in 2023.

Image: M. Hesemann, Steinkern of *Guttulina*

5 Bits and pieces

Foraminifera from the Upper Cretaceous

Wieger Krul
fossil hunter

contributes images of forams from the Lägerdorf quarry. After discussing the identifications we will soon add several images made by Wieger.

Some impressions from work in the field, lab and collection in 2021

Bruce Hayward gave permission to show living *Ammonia* and related taxa and some of our Ammonia finds were mentioned in his paper, see https://foraminifera.eu/singleca.php?no=1019570&aktion=suche

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The foraminifera.eu database runs with HTML, CSS, PHP and SQL. In 2021 a major update had to be done and most of the code needed to be adjusted to new code requirements. The number of webpages has been reduced and most flexibly load data from the database. The website offers to a limited extent responsive webdesign, uses flex-boxes, google maps and https for safety reasons. All is done by ourselves in order to reduce IT-costs. We use the free Visual Studio Code as the development environment.

In November 2021 Senckenberg am Meer trained me on their Scanning Electron Microscope and I now have permission to use it.

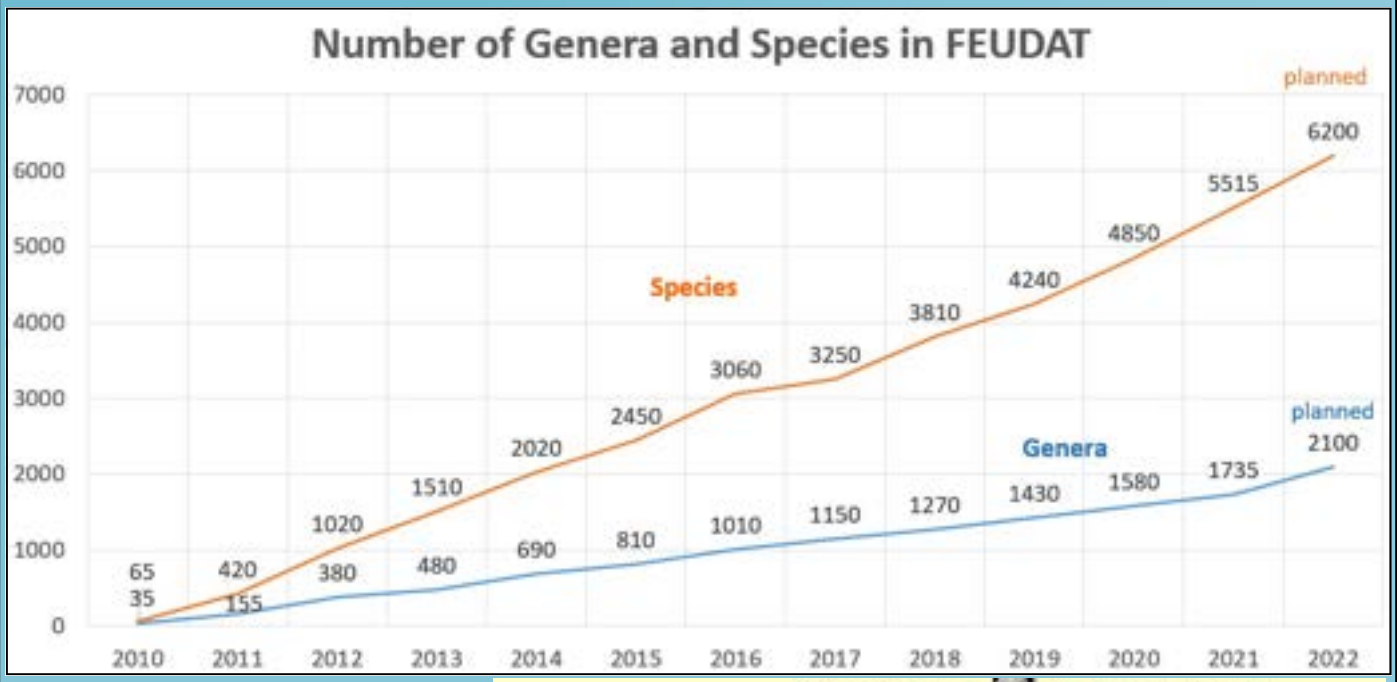
6 Enlargement of the database

The enlargement of the database has always been a side effect of our studies in foraminifera and the presentation of collections. To mutually discuss the identification of our finds we photograph them from 2-3 views, upload the images and add those from relevant professional papers if copyright is given. As a result we have a prefect tool for the team to do our beloved video identification sessions with all the books and papers around us or on second screens. Though not a focus of our efforts, the coverage on genera has risen to a level of 46%, while that of species is still low and below 12%.

Statistics on Coverage and Entries as of 2022-01-27

Group	Time	valid(all)	in FEUDB	Coverage	Data for valid(all) in:
Genera	all times	3.800	1.761	46.3 %	Loeblich and Tappan, 1987
Species	all times	48.699	5.669	11.6 %	World Foraminifera Database
Planktic Species	all times	2.100	532	25.3 %	Microtax
Benthic Species	all times	46.599	5.137	11.0 %	WFD and Microtax

Our new team member Smaine helps a lot with the enlargement of the database and we plan to rise the number of incorporated genera to 2.100.



Despite many other resources on foraminifera on the web it is astounding that the foraminifera.eu webpage still has on average daily 180+ users and downloads of 570 MB of data. A survey amongst users revealed that the quality of images and user-friendly interface are reasons to visit our website and database. Find the locality interfaces at:
https://foraminifera.eu/locality.php

We are happy to have a new white flag on the upper left in Alaska. Some work is needed though in 2022 to photograph and add as many as possible of the forams which live there.

7 Outreach

The foraminifera.eu webpage is the main tool to reach out. In 2021 66.000+ visitors from 6900+ places in 184 countries downloaded 210+ GB of data. To date 857+ people subscribe to our annual newsletter. We have only a little time for social media and post once a month a photo with a couple of lines. On facebook we have 2900+ followers, my twitter feed has 690+ and my instagram presence 260+ followers. Even the poorly made youtube videos were watched by hundreds of people. Emails reach us every day and we try to assist, answer the questions and help with the identification of specimens.

Meetings, Talks, Workshops, Fieldwork and Stands in 2021

There are several activities where we train and share our expertise or present certain topics. A monthly meeting of micropaleontologists is held in Hamburg every third Monday from 6.00 to 8.30 p.m. in German via zoom or teams. In 2021 we added 5 physical meetings. Several additional zoom meetings were held to discuss the identifications of specimens imaged. A fieldtrip was made to the Upper Cretaceous Lägerdorf quarry. We took samples for stratigraphical analyses. We visited a few gravel pits and the Baltic coast searching for sedimentary glacial erratics of marine origin. In September our workshop at the Uhrzeithof was cancelled and later the Mineral fair including our booth.

2022 virtual and physical meetings

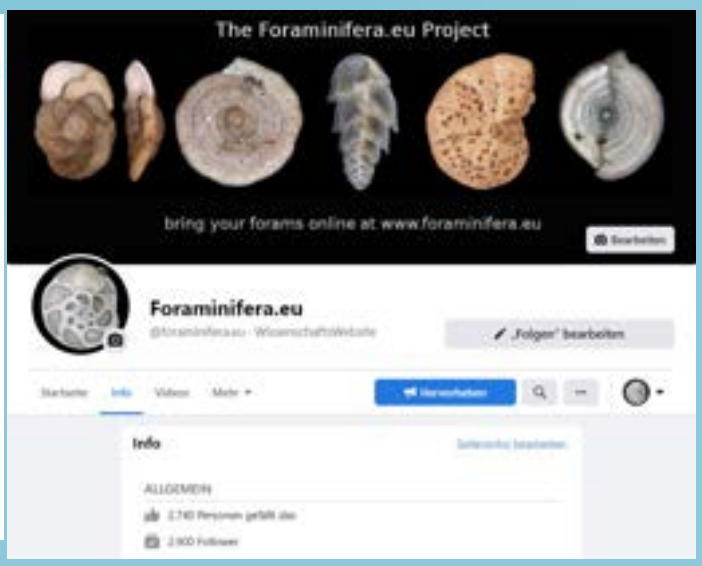
Our local group has already planned a rich program for the upcoming months. The Zoom meetings and discussions on identifications are in German though only. Please find more details at https://www.facebook.com/AGMIPA

Follow us on Twitter, Facebook or ResearchGate

twitter.com/ForamsEU

www.facebook.com/foraminifera.eu

researchgate.net/profile/Michael_Hesemann2



Get involved in our projects or start a new one.

8 List of contributors and team members

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Akira Tsujimoto
AMNH
Anna Waskowska
Arnold Mueller
Axel Cordes and Dirk Dettmers
Axel Goes
Bernard Remaud
Björn Berning
Brent Wilson
Brett Metcalfe
Brian Ottway
Britta
Bruce Hayward
Cai-Uso Wohler
Calvert Marine Museum
Carla Lagendijk
Cesare Brizio
Christiane Schmidt
Cidalina Lopes
Coloma et alt.
Cushman FFR
Daniel King
David Fenwick
David P. Cilia
Dieter Ketelsen
Dieter Schmidt
Dirk Fehse
Dirk Gille
DZMB
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Els Ufkes
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Erich Wiesner
Eugen Muesch
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Helmut Krock
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Michael A. Kaminski
Michael Dietrich
Michael Hesemann
Michel Cougnon
Micropress Europe
Miroslav Bubik
Mjatliuk
Mohammed Al-Wosabi
Morteza
Museum Helgoland
Natural History Museum London
Notebooks on Geology
Onno Gross
Paolo Petracci
Paul Buchner
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Werner Baubkus
Wieger Krul
Yaroslav Ovsepyan

9 Mission

The Foraminifera.eu Lab wants to foster the interest in foraminifera. We love to work on raw material and build working groups and project teams in which avocational and professsional scientists work together in well defined and scheduled projects.

An outcome is our freely accessible, illustrated catalogue of foraminifera based on a well structured database and easy-to-use interfaces. Avocational and professional scientists get a free platform where they find valuable information and may show their results.

The Foraminifera.eu Lab is non-commercial. Our team and our contributors do not get a financial compensation as our work is based on naturalist enthusiasm. We will use donations of money or equipment only to cover costs. Find more on the team and details at www.foraminifera.eu/about.html .

Our Services

We love to work on interesting samples and have built up expertise in the processing of raw material containing microfossils. We offer our services for free, but we only engage in work that is of interest to us. Please contact us first and explain what you want.

Example: Optical imaging of foraminifera

Bolivina alata, recent, off Panama, image: Michael Hesemann

Practical work on samples

Fieldwork

Sample processing

Picking of microfossils

Identification of foraminifera

Optical Imaging

Assessment of species distribution(s)

Stratigraphical analysis of profiles

Support of any kind

Talks and workshops