

UNIVERSITÀ DEGLI STUDI DI MILANO

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Karen Gariboldi

CURRICULUM VITAE

INFORMAZIONI PERSONALI (NON INSERIRE INDIRIZZO PRIVATO E TELEFONO FISSO O CELLULARE)

COGNOME	GARIBOLDI
NOME	KAREN
DATA DI NASCITA	12 Aprile 1985

Research Focus: I am a diatom biostratigrapher and paleoecologist. I have used diatom biostratigraphy to date tropical and subtropical Cenozoic sediments (coastal Peru, Gulf of Bengal) and diatom palaeoecology to study laminated diatomaceous sediments (seasonal scale) and for paleoenvironmental reconstructions in Arctic and Antarctic areas. I took part to many oceanographic cruises (including IODP Exp. 353), during which I had the chance to sample both the sediment and the water column.

Spoken languages: Italian (mother tongue); English (proficient user); German (basic user), Spanish (basic user).

In 2018 I obtained the **Italian National Scientific Qualification to function as Associate Professor** for the fields of Stratigraphic Geology, Sedimentology and Paleontology.

Bibliometric Indexes on 14th July, 2020, based on Scopus

H-Index: 13

Total Publications: 20

Total Citations: 389

EDUCATION:

14th October, 2016 – PhD in Earth Sciences, Dep. of Earth Sciences, Pisa University, Italy; title: “Fossil diatom (Bacillariophyceae) associations from the Mio-Pliocene laminated sediments of the Pisco Formation (East Pisco Basin, Peru): relations with the preservations of marine vertebrates in the fossil record and investigations on the influence of volcanic activity on primary production”

30th March, 2012 – Master Degree in Geological Sciences and Geotechnologies (110/110 cum laude); Dep. of Geological Sciences and Geotechnologies, University of Milano-Bicocca.

18th April, 2008 – Bachelor Degree in Geological Sciences and Technologies (103/110); Dep. of Geological Sciences and Geotechnologies, University of Milano-Bicocca.

RESEARCH EXPERIENCE:

1st June 2020 – present, Earth Science Department, Pisa University: Postdoctoral Fellow.

I am currently working as Principal Investigator (PI) of the PNRA project (Italian National Programme for Antarctic Research), EDISTHO (“Edisto inlet DIatom laminations Sequences Through the Holocene”, PNRA18_00010). Besides coordinating the 4 Research Units, I am in charge of supervising the work flow on the sediment cores (description of cores, core logger analysis, subsampling, dating etc.), and of analysing the diatomaceous laminae.

Since February, 2017, I have been co-responsible of the Tabletop Scanning Electron Microscope TM3030 (Dep. of Earth Sciences, Pisa University).

1st June 2018 – 1st December, 2018, Earth Science Department, Pisa University, Scholar Fellow: I both worked on Antarctic diatom paleoecology and on subtropical diatom biostratigraphy (Eocene to Pliocene).

1st January – 31st December, 2017, Earth Sciences Department, Pisa University: Postdoctoral Fellow. Project Title: “Miocene to Holocene diatom biostratigraphy of the Gulf of Bengala, and study of the biosiliceous productivity due to the Indian Monsoon and to the fertilization of the Ocean surface by means of Volcanic ashes”

1st January - 31st December, 2016, University of Milano-Bicocca: collaboration contract within a PRIN (Italian Projects of Relevant National Interest) project (PRIN Project 2012YJSBMK).

I dated Cenozoic formations infilling the Pisco Basin (Peru) by means of diatom stratigraphic markers.

3rd April - 2nd August, 2012, University of Milano-Bicocca: collaboration contract within a PNRA project (“Rosslope”).

I prepared samples for quantitative analysis on diatom assemblages and operated diatom counts by mean of the transmitted light microscope.

FUNDED PROJECTS/PROJECT COORDINATION:

March 2020 - 2022: I am principal investigator (PI) of the the PNRA, EDISTHO (“Edisto inlet DIatom laminations Sequences Through the HOlocene”), which was recently funded by the Italian Ministry of Education, University and Research.

March 2020: I am one of the Project Leaders of “INtegrated QUaternary MARine REcords at Sensitive Latitudes (INQUA-MARE)” (project number: 2002P), a project funded by the INQUA (International Union for Quaternary Research) Executive Committee.

In the frame of this project, we will organise 4 workshops to involve early-career researchers and developing-country researchers studying Holocene sediments records from Arctic, Antarctica and Tropical regions in order to develop new scientific networks and collaborations with Senior Scientists, targeting the integration of data and knowledge on the recent evolution of the Earth’s climate.

ECORD RESEARCH GRANT 2015: award for outstanding graduate students to conduct innovative research related to the International Ocean Discovery Program.

I received this grant for the project called: “Role of Volcanic Ashes in Enhancing Primary Production: Evidences in the Deep Time”

PARTECIPATION IN RESEARCH PROJECTS:

2020 - 2022, PNRA, EDISTHO: “(“Edisto inlet DIatom laminations Sequences Through the Holocene”). PI: Karen Gariboldi, Earth Science Department (DST), Pisa University, Italy.

2016 - 2019, PNRA, ODYSSEA: “Paleoclimatic Reconstructions and ocean dynamics from the sediment drifts of the Ross Sea”. PI: Prof. Michele Rebesco, OGS Trieste, Italy.

I operate quantitative analysis on diatom assemblages and qualitative analysis on their preservation to provide a paleoecological reconstruction.

2015 – 2016: PRA (Athenaei Research Project), “Mineralization and geological evolution of the fossil sites in the Pisco Basin, Peru”. PI: Prof. Marco Pasero, DST, Pisa University, Italy.

I collaborated to the mineralogical and petrographic analysis of the dolomite nodules, gypsum veins and fossils remineralised by gypsum.

2014 – 2016: PNRA, HOLOFERNE: “Sub-millennial Holocene climatic fluctuations recorded in expanded sediment succession in the Ross Sea”). PI: Prof. Leonardo Langone, CNR-ISP, Bologna, Italy.

I was responsible for quantitative analysis on diatom assemblages on the laminated sediments of the Edisto Inlet, Cape Hallett, Western Ross Sea.

2014 – In Progress: IODP EXP. 353: “Indian Monsoon Rainfall”.

During the oceanographic cruise I dated the core sediments by means of diatom biostratigraphy. Successively, the 3 post-cruise projects that I submitted were approved by the IODP SAC (The Sample Allocation Committee) and are currently in progress. These concern: 1) diatom biostratigraphy in the Bay of Bengal (BOB); 2) the study of the “Late Miocene Carbon Isotope Shift Event” in the BOB sediments; 3) the study of the evidences of fertilization of the ocean surface by mean of volcanic ashes in the BOB sediments (see “Funded Projects/Project Coordination” paragraph).

2014 - 2015: “From diatoms to *Livyatan*: phytoplankton as a crucial factor for past marine mammal biodiversity and for fossil preservation: the case of the Mio-Pliocene Pisco Formation, Peru”. Founded by the National Geographic Society’s Committee for Research and Exploration, Grant n° 9410-13. PI: Prof. Giovanni Bianucci, DST, Pisa University, Italy.

I mapped fossil vertebrates within the Pisco Formation and made analysis of their abundance in relation with the temporal and spatial distribution of diatomitic sediments.

2012 - 2016: PRIN (Research Project of Italian National Interest) 2012, Project n° 2012YJSBMK. PI: Prof. Giovanni Bianucci, DST, Pisa University.

I collaborated to this project during my PhD; most of the work and the results of the analysis I made (field works, diatom biostratigraphy, analysis on diatom laminations, analysis on dolomite nodules etc.) are presented in my PhD thesis (see “Education” and “Field Works” paragraphs).

2011 – 2014: PNRA, ROSSLOPE: “Past and present sedimentary dynamic in the Ross Sea: a multidisciplinary approach to study the continental slope”. PI: Prof. Ester Colizza, University of Trieste, Italy. (see “Research Experience” paragraph).

TRAVEL GRANTS:

July 2013: ESF (European Science Foundation) Short Visit Grant within the ESF activity entitled 'EARTHTIME - The European Contribution' to take part to the Ecord Summer School “Deep-Sea Sediments: From Stratigraphy to Age Models.

August 2012: ESF grant to take part to the COCARDE Workshop: "Fluid flow-related carbonate build-ups: from lacustrine to (early) marine environments – The Ries Impact Crater as a Natural Laboratory”

REVIEWER ACTIVITY

July 2020 – present: Review Editor on the Editorial Board of Paleontology (specialty section of *Frontiers in Earth Science*, Impact Factor 2.689, and *Frontiers in Ecology and Evolution*, Impact Factor 2.416);

2017-2020: Reviewer for: *Sedimentology* (Impact Factor: 3.244) *Quaternary Research* (Impact Factor: 2.133), for a special issue of *Marine and Petroleum Geology* (Impact Factor: 2.888) and for *the Brazilian Journal of Botany* (Impact Factor: 0.797).

2019: Reviewer for the EUROFLEETS+ project.

TEACHING EXPERIENCE:

27th May 2019 – 28th July 2019 / 29th May 2018 – 30th July 2018: Earth Sciences Department, University of Pisa: Contract for Occasional Work.

I worked for the Italian National PLS Programme (Programme for the Scientific Degrees – Reduction of the abandonment rate). I organised field trips for the students of the 1st year of the Bachelor Degree in Geological Sciences and held seminars on marine geology.

2012 – 2020: 12 seminars for PhD, Master and Bachelor students at the University of Pisa, Florence, Camerino and Milano Bicocca (Italy).

I held laboratory and microscopy activities associated to most of these seminars. Contact persons of the courses, within which I held the seminars, are: Prof. G. Bianucci, Prof. C. Morigi, Prof. G. Bagnoli (University of Pisa), Prof. S. Monechi (University of Florence), Prof. C. Di Celma (University of Camerino), Prof. Elisa Malinverno (University of Milano Bicocca).

2012 – 2020: I have co-supervised 3 Master students, 4 Bachelor students and reviewed 2 Master Thesis. I am co-supervising 1 PhD student.

CONVENER ACTIVITY

General Chair of PalaeoArc 2021, 2nd International Conference on “Processes and Palaeo-environmental changes in the Arctic: from past to present”. Pisa, Italy, 24th - 28th May, 2021.

Co-convener of the session “Elements at the edge of life: minerals and mineralization processes in present and past organisms” held during the SIMP/SGI/AIV/SoGeI congress “Geosciences: a tool in a changing world”, Pisa, Italy, 4th-6th September, 2017.

PARTECIPATION TO CONGRESSES/WORKSHOPS

From 2012 to 2019 I took part to 6 national congresses/workshops and 5 international congresses/workshops.

Among these, the CLIVASH2k workshop (“Climate variability in Antarctica and the Southern Hemisphere over the past 2000 years”, 4th-5th September, 2018. British Antarctic Survey, Cambridge, UK; oral and poster presentation), EGU 2017 (European Geosciences Union; poster presentation) and STRATI (2nd International Congress on Stratigraphy, oral presentation) stand out.

OCEANOGRAPHIC CRUISES

11th September – 1st October 2017: “Northeastern Greenland Expedition”, Greenland Sea, Denmark (RV Dana).

During this expedition I was responsible for the box corer samplings.

29th November 2014 - 29th January 2015:

Diatom Biostratigrapher on board of the RV JOIDES Resolution (IODP exp. 353 “Indian Monsoon Rianfall”, Bay Of Bengal).

Between June, 2009, and April, 2010, I took part to 4 oceanographic cruises in the Mediterranean Sea on board of the RV *Universitatis*.

Skills acquired during the oceanographic cruises: processing of biostratigraphic data during drilling operations (IODP), supervision the workflow of samples collected by means of box-corer, grabs, rumhor corer, Niskin bottles, benthic landers, dredges and gravity corers, acquisition of geophysical data (mainly by means of Chirp and Multibeam but also by means of Side Scan Sonar, Minigun and Sparker).

Software used: navigation and data acquisition: PDS2000, Delphwin V2.511; DESClogic (IODP). Countouring, gridding and surface mapping: Surfer, Global Mapper.

FIELD WORK

11th – 24th June, 2018; 13th - 28th September, 2015; 30th April 2014 - 23rd May, 2014; 3rd - 17th July, 2013; 1st - 23rd July, 2010. East Pisco Basin, Ica Desert, south of Ica, Peru.

I described, mapped and sampled diatomaceous outcrops for biostratigraphy. Besides, I described and sampled fossil marine vertebrates and dolomitic concretions for studies on early dolomitisation processes.

19th-23rd October 2015. IODP Exp. 353 Sampling Party, Kochi Core Centre, Kochi, Japan: subsampling of cores collected during IODP Exp. 353 “Indian Monsoon Rainfall”.

6th – 18th September 2009. Field work on the Pleistocene terraces of the Croton Peninsula.

I mapped the Pleistocene terraces, and the main tectonic structures; I described and measured stratigraphic logs, and sampled the terraces for paleontological analysis.

TRAINING:

7th February 2017 - DST, Pisa University, Italy: training course to use the instrument Tabletop Scanning Electron Microscope TM3030 held by Dr. Massimo Tagliaferro (Nanovision s.r.l., Brugherio -MB-, Italy).

8th September - 10th October, 2014: 5 weeks stay at the School of Earth and Ocean Sciences, Cardiff University under the supervision of Dr. Jennifer Pike.

During this stay I learned how to analyse diatom laminations.

9th - 20th September, 2013, MARUM, Bremen, Germany: Ecord Summer School “Deep-Sea Sediments: From Stratigraphy to Age Models”.

11th - 15th June 2012, Plymouth Marine Laboratory, UK. Primer-e course.

Primer-e is a software for statistical multivariate analyses, and it is now considered a standard for statistical study of marine communities and biodiversity research.

OUTREACH EXPERIENCE:

I have published on *Quaternary Perspectives* (the INQUA newsletter; Issue 28, June 2020) a short piece on the INQUA-MARE Project (funded in March 2020) to highlight the upcoming activities related to INQUA-MARE.

27th September 2019: I took part to the “Bright Night – Night of Researchers in Tuscany” at the DST, Pisa University.

The DST was open to the public in order to show people how we make research. In particular the Micropaleontology Group has helped people to use transmitted light microscopes and stereomicroscopes to make them look at marine sediments and microfossils: we have explained them how we can gain biostratigraphic and paleoclimatic/paleoenvironmental information through the analysis of microfossils.

2017- now: I administrate the Facebook page “Micropalaeo Group – DST Pisa”.

Through this page which the DST Micropaleontology group publicises its research and public activities.

2013- 2017: I held 3 outreach seminars at primary and secondary schools; one of these was held in the frame of the STEM (Sciences, Technology, Engineering and Mathematics) Programme.

8th - 15th August, 2009; 5th - 12th July, 2008, Stromboli Island, Aeolian Archipelago, Messina, Italy: scientific divulgation activities at the INGV (Istituto Nazionale di Geofisica e Vulcanologia, via di Vigna Murata 605, 00143 Roma, Italy).

My task was to give the tourists information concerning the volcanic nature of the Island and volcanic risk.

SOCIETY MEMBERSHIP:

I am currently member of AIQUA (Associazione Italiana per lo Studio del Quaternario/Italian Association for Quaternary Research).

OTHER INFORMATION:

In June, 2020 I obtained the 24 University Education Credits (24 CFU) in the anthropo-psycho-pedagogical and in the teaching methodologies and technologies disciplines necessary for teaching in primary and secondary schools.

Data

14 Luglio 2020

Luogo

Pisa