

The Newsletter of the Italian Carbon Network - June 2022 Issue

CarboNetwork

All the news and opportunities from the Italian scientific community working on the Carbon Cycle

June 2022



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Dear All,

We are sorry for the delay in sending you the newsletter.

The workshop “Climate Change and Carbon Cycle: Global change from the Deep past to the Anthropocene” ended two weeks ago, and we wanted to thank all the people that attended and participated. The ambitious goal of the meeting was to discuss the carbon cycle dynamics and perturbations, and how the latter influenced or might influence climate, approaching these issues from different perspectives, representative of our different disciplines and backgrounds.

During the meeting, we traveled in time, from a mass extinction of 200 Ma to the consequences of the 2020 lockdown on river waters, from slow processes to abrupt impacts, but also in space. We have seen contributions from the Arctic to Antarctica, from the Critical Zone to the Mediterranean Sea and we tested our curiosity with no less than five different laboratories.

With the goal of a holistic approach in mind, the meeting represents one step of a long journey to constitute a broad scientific community – multidisciplinary and transdisciplinary – who, we hope, will keep participating in similar events, and who will be increasingly informed and open to create new synergies. With this aim, we hope to stimulate you for the growth of our community.

Also, do not forget to contribute to any of the sections of the next newsletter scheduled for October 15, 2022. You can submit your contributions using the online form at the address <https://forms.gle/fvEwWUYKrUQjhUicA>. Contributions arriving after the 1st of October will automatically go to the next newsletter.

Finally, we want to thank you for your support and the contributions we have received so far.

Best,
CNR GdL Ciclo del Carbonio

News

The ICOS Handbook 2022 has been published



The ICOS Handbook helps to understand how we operate; how is ICOS organised, what and how do we measure and what is the role of the Thematic Centres and National Networks. The Handbook also describes the technical specifications of stations and the process of becoming a Member. [Link for the website](#)

Online Master course in Sustainable Development and Climate Change of the University of Pisa, 2022-2023 edition



The Master is a problem-solving oriented, creative, innovative, learning-by-doing Programme whose aim is to support participants in the acquisition of knowledge and competencies on the management of sustainable development in dynamic environments. This course fully aligns with the Sustainable Development Goals of the 2030 Agenda of the United Nations. Fully online, weekend formula. Application deadline: Dec 16, 2022. Language: Italian. Duration: 1,500 h (352 h of frontal lessons), Jan-Dec 2023. Fee: € 2,500. Scholarships: 10. Access requires the possession of any 5-year Master's degree. Mandatory internship/stage activity/project work (375 hours). All lessons recorded. [Link for the website](#)

The European Commission has launched its new open access journal dedicated to the results of European projects - Open Access Europe



Open Research Europe is an open access publishing platform for the publication of research stemming from Horizon 2020 and Horizon Europe funding across all subject areas. The platform makes it easy for Horizon 2020 and Horizon Europe beneficiaries to comply with the open access terms of their funding and offers researchers a publishing venue to share their results and insights rapidly and facilitate open, constructive research discussion. It has a preprint server with post publication open peer review, with the APC covered by the European Commission and without an Impact Factor (as a choice) Open Research Europe is an innovative and interesting venue for European funded research. [Link for the website](#)

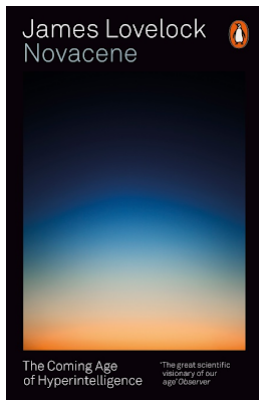
Newsorthy articles

- Müller et al., 2022. *Evolution of Earth's tectonic carbon conveyor belt*. A new just-published tectonic carbon conveyor belt model explains how plate tectonics has regulated climate and played a role in the formation of diamonds and ore deposits such as orogenic gold. Read the paper in [Nature](#)
- Casetta, F., Rizzo, A.L., Faccini, B., Ntaflos, T., Abart, R., Lanzafame, G., Faccincani, L., Mancini, L., Giacomoni, P.P., Coltorti, M., 2022. *CO₂ storage in the Antarctica Sub-Continental Lithospheric Mantle as revealed by intra- and inter-granular fluids*. [Lithos](#), 416-417. CO₂ storage in the Antarctica Sub-Continental Lithospheric Mantle as revealed by intra- and inter-granular fluids.
- Engels et al., 2022. *Synchronous vegetation response to the last glacial-interglacial transition in northwest Europe*. [Commun Earth Environ](#) 3, 130.
- Il Progetto LIFE CO₂ PES&PEF - Una proposta di policy sui crediti di carbonio. [Link to the website](#)
- Nicolini, G., Antoniella, G., Carotenuto, F. et al., 2022. *Direct observations of CO₂ emission reductions due to COVID-19 lockdown across European urban districts*, [STOTEN](#) 830, 154662. A recent international study which estimated by direct observations the CO₂ emission decrease in European cities during the COVID-19 lockdown. The study suggested that changes in human behaviour have a direct, immediate and significant effect on urban CO₂ emissions.
- Feng, L., Palmer, P.I., Zhu, S. et al., 2022. *Tropical methane emissions explain large fraction of recent changes in global atmospheric methane growth rate*, [Nat Commun](#) 13, 1378.

Hot off the press

- Alessandra De Marco et al., 2022. *Strategic roadmap to assess forest vulnerability under air pollution and climate change*. [Wiley online library](#).
- Zanchetta G., Baneschi I., Magny M., Sadori L., Termine R., Bini M., Vannier B., Desmet M., Natali S., Luppichini M., Pasquetti F., 2022. *Insight into summer drought in southern Italy: palaeohydrological evolution of Lake Pergusa (Sicily) in the last 6700 years*. [J. Quaternary Science](#).
- De Santis V., Cicala D., Baneschi I., Boschi C., Brignone S., Iaia M., Zaupa S., Volta P., 2022. *Non-native fish assemblages display potential competitive advantages in two protected small and shallow lakes of northern Italy*. [Global Ecology and Conservation](#) n. 35.
- Barry PH, De Moor JM, Chiodi A, Aguilera F, Hudak MR, Bekaert DV, Turner SJ, Curtice J, Seltzer AM, Jessen GL, Osses E, Blamey JM, Amenábar MJ, Selci M, Cascone M, Bastianoni A, Nakagawa M, Filipovich R, Bustos E, Schrenk MO, Buongiorno J, Ramírez CJ, Rogers TJ, Lloyd KG and Giovannelli D, 2022. *The Helium and Carbon Isotope Characteristics of the Andean Convergent Margin*. [Front. Earth Sci.](#), 13 June 2022 Sec. Volcanology.
- Bragagni A., Mastroianni F., Münker C., Conticelli S., and Avanzinelli R., 2022. *A carbon-rich lithospheric mantle as a source for the large CO₂ emissions of Etna volcano (Italy)*, [Geology](#) (2022) 50 (4): 486–490.
- Baldanza, A.; Bizzarri, R.; Boschi, C.; Famiani, F.; Frondini, F.; Lezzerini, M.; Rowland, S.; Sutton, P.A., 2022. *CO₂-Degassing Carbonate Conduits in Early Pleistocene Marine Clayey Deposits in Southwestern Umbria (Central Italy)*. [Minerals](#) 2022, 12(7), 819.

Our Book Suggestion



Novacene: The Coming Age of Hyperintelligence (James Lovelock with Bryan Appleyard)

[This book](#) is a journey, somewhat visionary and provocative, through a series of intuitions about the future of "Gaia", i.e. the Earth seen as a single planetary organism capable of self-regulating and defending itself from catastrophic events. According to Lovelock, the Anthropocene is now at the end and our world is projected towards the Novacene, a new era dominated by synthetic sentient organisms. The conclusion is that the role of human civilization as a force capable of modifying the Earth, is destined to run out in favor of a new type of life: the synthetic beings that we created and that will preserve life on the Earth in the future. Obviously we won't be there to check if Lovelock's hypothesis is correct!



W la CO2. Possiamo trasformare il piombo in oro? (Gianfranco Pacchioni)

[Questo libro](#) è stato un meraviglioso viaggio nel ciclo del carbonio in cui la molecola CO₂ interpreta il personaggio principale. L'autore sottolinea che se la CO₂ è il problema principale del clima di oggi, dovremmo sfruttare il suo comportamento redox unico per trasformare un problema in una risorsa. Così facendo, il libro torna all'inizio della Terra e si conclude con modi nuovi e puliti per produrre energia che coinvolgono CO₂, il tutto collegato da vivaci aneddoti storici. Nel libro, l'autore fornisce prove solide e accessibili che la risposta alla nostra emergenza climatica risiede nella natura in cui il carbonio cambia continuamente il suo stato redox. Non dobbiamo reinventare la ruota, basta replicare la natura. Nonostante il libro sia relativamente breve – poco più di 200 pagine – è ricco di informazioni utili. L'autore è stato in grado di coprire la natura multiforme del ciclo del carbonio e di trasformare la sua complessità in fatti chiari. Consiglio vivamente questo libro a coloro che sono interessati al ciclo del carbonio e ai futuri programmi energetici.

Stefano Bertacchi

Piccoli geni

Alla scoperta dei microrganismi



MICROSCOPI
HOEPLI

Piccoli geni. Alla scoperta dei microrganismi (Stefano Bertacchi)

Questo libro è in grado di catapultarti nel microcosmo, un mondo in cui le cellule sono capaci di farsi la guerra, ma allo stesso tempo di collaborare anche con esseri viventi ben più grandi, come l'uomo. Dal fondo dell'oceano all'interno della bocca, tanti sono i luoghi abitati da esseri viventi invisibili ai nostri occhi e fondamentali per la vita sulla Terra: i microrganismi sono assoluti protagonisti del mondo che ci circonda, avendo colonizzato i posti più impensabili, dall'Antartide alle nuvole. Questo libro affronta la straordinaria biodiversità microbica presentando batteri, lieviti, muffe i cui nomi scientifici, a volte bizzarri e impronunciabili, nascondono incredibili caratteristiche. Dall'inferno dantesco alla macchina del caffè, questi piccoli geni stupiranno per le qualità che gli scienziati hanno osservato a lungo e applicato ai più disparati scopi, dai detersivi alle plastiche del domani.



La chimica nel monolocale (Stefano Cinti)

La chimica è la tavolozza della vita. Tutto ciò che siamo e che vediamo, ogni giorno, è chimica. Monolocali metropolitani e ville hollywoodiane hanno tante differenze, ma non possono differire per la scienza che le riempie. La chimica è sotto i nostri occhi, dentro il frigorifero, sul soffitto, nell'armadio... occorre solo esserne consapevoli! [link per acquistare il libro](#)

Upcoming Events



Genoa Science Festival - 20th October - 1th November 2022 - LANGUAGES. A great opportunity to meet researchers, science enthusiasts, schools, and families. The 2022 edition is devoted to the word: LANGUAGES. The ability to invent and use complex languages is one of the unique characteristics of our species. Mathematical language, technical, symbolic, programming, musical, and artistic languages the multiple languages are essential tools for development of scientific thought. [Link to the website](#)



National Conference “Obiettivo Carbon Neutrality: ruolo, stato e prospettive delle osservazioni ambientali”. Si apre la [Call for abstracts](#) dei contributi orali e poster per la seconda giornata della conferenza “Obiettivo Carbon Neutrality: ruolo, stato e prospettive delle osservazioni ambientali” organizzata da ICOS-Italy (Roma, 27 e il 28 settembre). Non è prevista alcuna quota di iscrizione o partecipazione. Le quattro aree tematiche di riferimento sono:

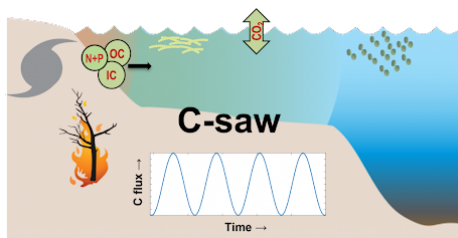
- 1) Sfide e opportunità per il monitoraggio a lungo termine dei gas serra
- 2) Integrazione tra osservazioni in-situ, remote sensing e modelli
- 3) Accounting, inventari e bilanci di gas serra
- 4) ICOS e le altre infrastrutture di ricerca



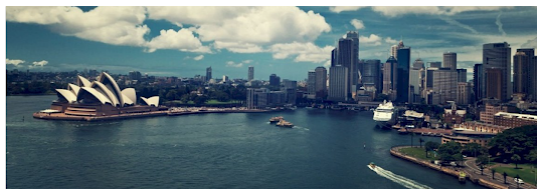
IUFRO2024 World Congress - session call. The call for session proposals for the 2024 IUFRO World Congress (Stockholm, Sweden, 23-29 June 2024) is expected to be launched on June 15th with submission deadline on October 13th, 2022. If you plan a forest-carbon session, [have a look at the Congress](#) in the due time.



The International GEOTRACES Summer School: Introducing Polar Parameters will take place from 10th to 15th July 2022 at the Helmholtz-Centre Alfred Wegener Institute for Polar and Marine Research in Bremerhaven, Germany. It will offer training possibilities for ~50 students, with a combination of lectures and hands-on training in marine geochemistry of trace elements and their isotopes. [Link to the website](#)



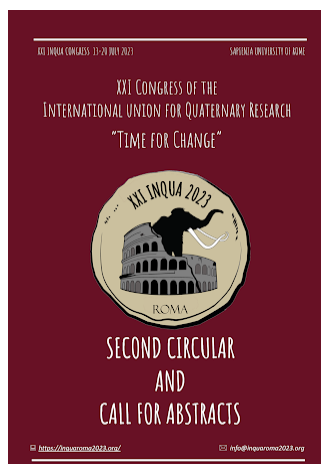
C-saw Time domain controls on carbon storage, release, and transformation in coastal and estuarine waters following extreme events. An OCB Scoping Workshop. The aim of this workshop is to push forward our knowledge of extreme weather and fire effects on coastal carbon cycling. The workshop will bring together a diverse group of scientists to build a community of monitors/observers, experimentalists, and modelers to address these challenging knowledge gaps across these spatial and temporal domains. [Link to the website](#)



COBDOE 2023: 17. International Conference on Ocean Biogeochemistry and Deep Ocean Environments March 29-30, 2023 in Sydney, Australia. The International Research Conference is a federated organization dedicated to bringing together a significant number of diverse scholarly events for presentation within the conference program. It aims to bring together leading academic scientists, researchers and research scholars to exchange and share their experiences and research results on all aspects of Ocean Biogeochemistry and Deep Ocean Environments. It also provides a premier interdisciplinary platform for researchers, practitioners and educators to present and discuss the most recent innovations, trends, and concerns as well as practical challenges encountered and solutions adopted in the fields of Ocean Biogeochemistry and Deep Ocean Environments. [Link to the website](#)



Marine Carbon Dioxide Removal: Essential Science and Problem Solving for Measurement, Reporting, and Verification Workshop September 27-30, 2022 (The University of Rhode Island). The central goal of this workshop is to build the OCB community's capacity to conduct research to support the Measurement, Reporting and Verification (MRV) of marine CDR by identifying priorities, pathways and best practices in this relatively new area. [Link to the website](#)



Call for abstract open - XXI Inqua Congress "A Mediterranean perspective on Quaternary Sciences", 13-20 July 2023, Sapienza University of Rome (Italy). The "Second circular and call for abstracts" of the XXI Congress of the International Union for Quaternary Sciences (Rome, 13-20 July 2023) has been released on the [congress website](#). Abstract submission deadline: 1 November 2022. Contacts: info@inquaroma2023.org. For detailed information on scientific sessions, please click [here](#).



Understanding Oxygen fugacity in Geoscience - International School - 5 - 9 September 2022 Trieste, Italy. A school to highlight the state of the art, major debates and some case studies about redox processes and oxygen fugacity from the Earth's interior to the surface. It will bring together experts from various disciplines and it is directed to students and scientists with background on chemistry and physics of the Earth and planetary interiors. [Link to the website](#)

Funding Opportunities

New IODP-Italy funding scheme



IODP-Italy recently re-shaped its funding scheme, to provide Italian scientists with additional financial support to develop their post-cruise research. The application process guidelines and forms for shipboard and shore-based scientists, as well as for eligible post-moratorium researchers, are available on the [webpage](#). The number of funding recipients will be subject to the annual financial resources.

Employment Opportunities

Hiring a one year (renewable) computer scientist in the Giovannelli Lab at the University of Naples Federico II.

We are looking for a talented and motivated Computer Scientist/Bioinformatician to join our group at the Department of Biology, University of Naples Federico II. We are looking for someone with a MSc or a PhD in Computer Science, Informatics Engineering or Bioinformatic with experience working in Python, R and database (MySQL or PostgreSQL). Experience working with API, writing in PHP will be considered a plus. Previous experience with big data techniques and machine learning approach would be fantastic. The job will be to support the growing infrastructure of the the [Giovannelli Lab](#) and help to develop bioinformatic software / web apps for the analysis of coupled biological and geochemical data. Please contact Donato Giovannelli at donato.giovannelli@unina.it for information.

ERC funded Postdoctoral Fellow positions to work on the physiological effects of trace element availability. As part of our recent [ERC funded Starting Grant CoEvolve](#), we are looking for a microbiologist with experience in the culturing and physiology of microorganisms to join our lab to study the metabolic effects of trace element availability. The project is very exciting and we have a number of very cool experiment that we can discuss together, combining growth experiments of aerobic and anaerobic microorganisms with molecular (qRT-PCR, proteomics) and computational tools and geochemical measurements. If you like the challenge of growing fastidious microbes in the lab, and you fancy the idea to use the results to explain the coevolution of Life with our Planet get in touch asap!

PRIN funded Postdoctoral Fellow positions to work on the environmental distribution of Antimicrobial Resistance Genes using metagenomic approaches. This is a new project starting on the environmental distribution of Antimicrobial Resistance Genes and the role of horizontal gene transfer in collaboration with Angela Cordone of the University of Naples Federico II, Ester Eckert at the CNR-IRSA of Verbania and Elena Crotti at the University of Milano La Statale. We are looking for a microbiologist with previous experience in analyzing metagenomic data, possibly using genome-resolved metagenomic approaches and willing to work in a highly interdisciplinary group combining sequencing data with environmental data and wetbench experiments. Contact [us](#) for more information!

Bioinformatic Postdoctoral Fellow position in the Giovannelli Lab at the University of Naples Federico II. We are looking for a postdoctoral fellow with a strong interest in the microbiology of extreme environments and a background in bioinformatic or computer science to join our group. Experience working and programming with R and python is required. Experience with MySQL databases, PhP and georeferenced data is a plus. If you are looking to combine your informatics experience with exciting global data coming from diverse extreme environments we have a number of very exciting project integrating fieldwork, wetbench, sequences and computational simulations that would benefit from you skills! Get in touch with [us](#) if interested!

2-yr post-doctoral position in biogeochemistry at the University of Idaho. For more information: visit the [kaylerlab website](#).

3 year PhD project available at Curtin University, Perth, WA, Australia. This project aims to unlock an untapped record of our planet's past, insect-derived geolipids, by analysing key reference lipids and biopolymers from a range of modern insects. For more information: Prof. Kliti Grice (k.grice@curtin.edu.au).

Head of Analytical Biogeochemistry Laboratory, Center for Tropical Paleoecology and Archaeology. For more information, see the job listing at [STRI's website](#).

Postdoc position at Oxford: Stable-isotope based palaeoenvironmental reconstruction. For more information click [here](#).

Contract Staff position on "Tracking land use carbon fluxes at EU and global level" at the European Commission's Joint Research Centre, JRC (Ispra, Italy). For more information click [here](#).

Postdoctoral researcher - Carbonation of mine tailings and brines, University of Alberta in Edmonton, Canada. For more information go to the [website](#).

Useful links

- The Earth Science Women's Network (ESWN) <https://eswnonline.org>
- TED Animation Talk -The carbon cycle - Nathaniel Manning <https://ed.ted.com/lessons/the-carbon-cycle-nathaniel-manning>
- ICOS <https://www.icos-cp.eu/r>
- DCO <https://deepcarbon.net/>
- IPCC <https://www.ipcc.ch>
- IODP <http://www.iodp.org>
- SOLAS <http://www.solas-int.org>
- Critical Zone Observatory NSF <https://www.czen.org>
- La!DOM, a research group at the CNR-IBF studying marine carbon cycle <https://www.ladom.it/>
- Calculate your CO2 emissions! <https://www.carbonfootprint.com/calculator.aspx>

Visit the webpage <https://dta.cnr.it/ciclo-del-carbonio>. You'll find all previous issues of the CarboNetwork newsletter.

For comments and suggestions, or simply to get in touch write to carbonnetwork@cnr.it

Contribute to the NEWSLETTER CarboNetwork

The NEWSLETTER CarboNetwork is released every four months, on February 15th, June 15th, and October 15th. Please send your contribution to the next newsletter anytime before the release by uploading your contribution on the online form at the address <https://forms.gle/fvEwWUYKrUQjhUicA>. Contributions arriving after the 1st day of the release month will automatically go to the next newsletter.

Our Goodbye

"Education is the foundation upon which we build our future." Christine Gregoire



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The newsletter editorial core group (Chiara Boschi, Annalisa iadanza, Donato Giovannelli) is deeply indebted to Martina Cascone (Univ. Napoli Federico II) for her collaboration.



Group photo of C4 workshop participants “Climate Change and Carbon Cycle: Global change from the Deep past to the Anthropocene” (credits: P. Gentili, F. Gianetti, G M. Scanu)