

# The Newsletter of the Italian Carbon Network - February 2022 Issue

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## **CarboNetwork**

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

**February 2022**



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

Dear All,

Welcome to the new issue of CarboNetwork, the newsletter of the Italian Carbon Network. We have exciting news and opportunities from the network, and we highlight a number of upcoming events reflecting the renewed enthusiasm of the research communities to meet and collaborate together.

Our primary effort to carry on this Newsletter is to build up big-team and grass-roots collaborative networks to tackle difficult questions in studies on carbon cycle . For this purpose, we remind you of the International Workshop C4 "Climate Change and Carbon Cycle"- June 22-24, 2022, CNR Research Area Pisa, Italy (<https://dta.cnr.it/climate-change-and-carbon-cycle/>). The registrations, grant applications, and abstract submissions are now open!

Understanding the global carbon cycle, its dynamics, as well as its past and future trajectories is key to our ability to model future Earth. Don't miss the opportunities listed below and help us distribute this newsletter to all your networks and to students, researchers, journalists, and stakeholders that might find it interesting or useful. If this is the first time

you receive the CarboNetwork newsletter, remember to subscribe (follow the instructions in the footer of the newsletter).

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

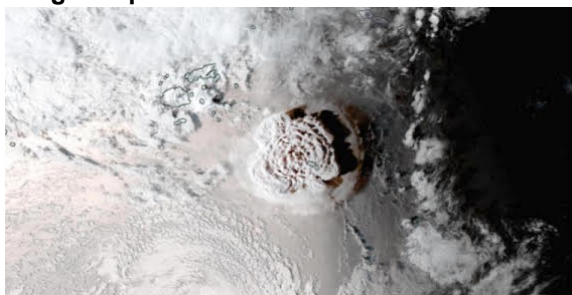
Finally, we want to thank you for your support and the contributions we have received so far.

Best,  
CNR GdL Ciclo del Carbonio

## News

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### Tonga eruption



The powerful volcanic eruption generated atmospheric shock waves, sonic booms, and tsunami waves that traveled the world, obliterating an uninhabited South Pacific island known as Hunga Tonga-Hunga Ha'apai. The umbrella cloud was about 500 kilometers in diameter at its maximum extent, and the material from the eruption rose to an altitude of 31 kilometers. The eruption was powerful enough to inject volcanic material into the stratosphere and about 0.4 teragrams of sulfur dioxide (the threshold for climate impacts is about 5 teragrams). But what is the impact on the marine ecosystem? Hard to say right now. More studies need to be done on the possible consequences of this marine volcanic eruption, due to the large amounts of CO<sub>2</sub> released, in addition to SO<sub>2</sub>. From: <https://go.nasa.gov/3Jynl0l>

### Depleted $\delta^{13}\text{C}$ on Mars!



Carbon isotopic analysis is among the most pervasive geochemical approaches because the fractionation of carbon isotopes produces a natural tracer of biological and geochemical processes. Rover-based carbon isotopic analyses of sedimentary rocks on Mars have the potential to reveal modes of Martian carbon cycling. A new PNAS paper reported a variable but mostly depleted  $\delta^{13}\text{C}$  - from -137 to +22 (PDB) of the Martian samples, indicating different origins for the carbon evolved from different samples. The authors suggested three routes by which highly fractionated carbon could be deposited on Mars, with each suggesting that Martian carbon cycling is quite distinct from that of the present Earth.

House C.H et al, 2022: Depleted carbon isotope compositions observed at Gale crater, Mars. PNAS, 119, <https://doi.org/10.1073/pnas.2115651119>

## The IPCC Sixth Assessment Report - Launch of the contribution Climate Change 2022: Impacts, Adaptation and Vulnerability



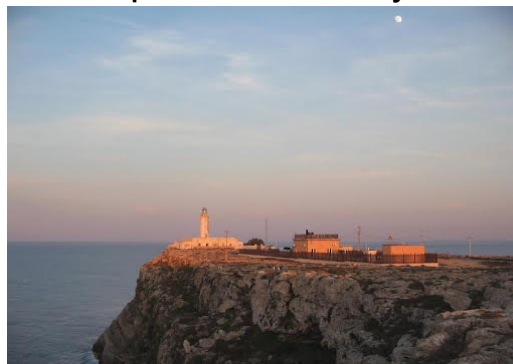
The Intergovernmental Panel on Climate Change (IPCC) is going to release the report "Climate Change 2022: Impacts, Adaptation and Vulnerability": the contribution of the Working Group to the Sixth IPCC Assessment Report will be presented during a virtual press conference on 28 February 2022. The contribution of the Working Group I - The Physical Science Basis was released on 9 August 2021, whilst the report of the Working Group III - Mitigation of climate change is scheduled for April 2022. Finally, the Synthesis Report of the Sixth Assessment Report (AR6), providing an overview of the state of knowledge on the science of climate change, is expected to be finalized by September 2022. <https://www.ipcc.ch/assessment-report/ar6/>

### ICOS Cities Talks



In the framework of the ICOS Cities (PAUL – Pilot Applications in Urban Landscapes, <https://www.icos-cp.eu/projects/icos-cities-project>) Horizon 2020 project, a series of 30 minutes online presentations and discussions around topics related to greenhouse gas measurement and climate change in urban landscapes is available. The living agenda with link for registration is available at: <https://www.icos-cp.eu/projects/icos-cities-project/icos-cities-talks>

### ICOS Lampedusa Station in Italy becomes an integrated atmospheric-oceanic observatory



The Lampedusa atmospheric station (IT-Lmp), part of the ICOS Italy network (<https://www.icos-italy.it/>), recently completed the installation of marine instrumentation for measuring air-sea exchanges. The installation was carried out within the PRO-ICOS-MED project, coordinated by CNR in collaboration with ENEA and CREA. Lampedusa is the only example of an integrated observatory between the atmospheric and marine components among the whole ICOS-RI (Integrated Carbon Observation System). Besides atmospheric CO<sub>2</sub>-CH<sub>4</sub>-CO observations, the site is now equipped with instrumentation for partial pressure of CO<sub>2</sub> in water, a pH sensor, a multiparameter probe for temperature, pressure, conductivity, dissolved oxygen, a backscatter and CDOM sensor, and a photosynthetic radiation sensor.

## A new urban park to study (also) carbon sequestration by trees

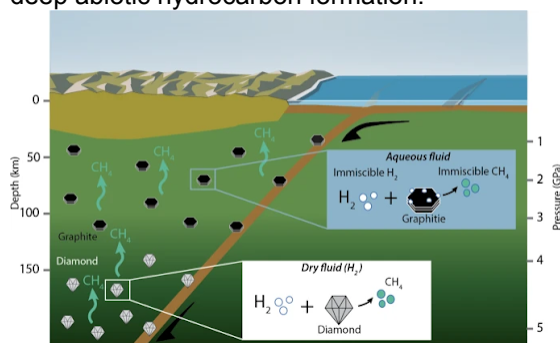


The aim of the LIFE project AIRFRESH is to measure experimental data on the role of urban forests for improving air quality (pollution by ozone, particulate, nitrogen oxides and CO<sub>2</sub>, thermal comfort). An area has just been forested in a park in Florence, and is available for related studies, e.g. on animal and plant biodiversity. <https://www.iret.cnr.it/it/news/600-airfresh-piantati-nuovi-alberi-contro-l-inquinamento-dell-aria>

## Newsorthy articles

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- Pierre Friedlingstein et al., 2022. *Global Carbon Budget 2021*., Preprint. Accurate assessment of anthropogenic carbon dioxide (CO<sub>2</sub>) emissions and their redistribution among the atmosphere, ocean, and terrestrial biosphere in a changing climate is critical to better understand the global carbon cycle, support the development of climate policies, and project future climate change, <https://essd.copernicus.org/preprints/essd-2021-386/>.
- Magnani, M., Baneschi, I., Giamberini, M. et al. *Microscale drivers of summer CO<sub>2</sub> fluxes in the Svalbard High Arctic tundra*. Sci Rep 12, 763 (2022). A new study on the terrestrial carbon dioxide exchanges and on Critical Zone processes in the Arctic tundra. DOI: [10.1038/s41598-021-04728-0](https://doi.org/10.1038/s41598-021-04728-0).
- Simon P. K. Bowring, Matthew W. Jones, Philippe Ciais, Bertrand Guenet & Samuel Abiven, 2022. *Pyrogenic carbon decomposition critical to resolving fire's role in the Earth system*. Nature Geoscience, 15, 135–142. DOI: [10.1038/s41561-021-00892-0](https://doi.org/10.1038/s41561-021-00892-0). The paper deals with pyrogenic carbon mineralization rates, particularly over grassland-savannas, with the aim of a fuller understanding of fire's role in the Earth system and inform attendant land use and conservation policy.
- Peña-Alvarez, M., Brovarone, A.V., Donnelly, ME. et al., 2021. *In-situ abiogenic methane synthesis from diamond and graphite under geologically relevant conditions*. Nat Commun 12, 6387. DOI: [10.1038/s41467-021-26664-3](https://doi.org/10.1038/s41467-021-26664-3). Diamond and graphite are fundamental sources of carbon in the upper mantle, and their reactivity with H<sub>2</sub>-rich fluids present at these depths may represent the key to unravelling deep abiogenic hydrocarbon formation.



## Hot off the press

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- Heiskanen, J., Brümmer, C., Buchmann, N., Calfapietra, C., Chen, H., Gielen, B., Gkritzalis, T., Hammer, S., Hartman, S., Herbst, M., Janssens, I. A., Jordan, A., Juurola, E., Karstens, U., Kasurinen, V., Kruijt, B., Lankreijer, H., Levin, I., Linderson, M., Loustau, D., Merbold, L., Myhre, C. L., Papale, D., Pavelka, M., Pilegaard, K., Ramonet, M., Rebmann, C., Rinne, J., Rivier, L., Saltikoff, E., Sanders, R., Steinbacher, M.,

- Steinhoff, T., Watson, A., Vermeulen, A. T., Vesala, T., Vítková, G., & Kutsch, W., 2021. *The Integrated Carbon Observation System in Europe*, Bulletin of the American Meteorological Society Jan 14, 2022, from <https://journals.ametsoc.org/view/journals/bams/aop/BAMS-D-19-0364.1/BAMS-D-19-0364.1.xml>
- E. Dotsika, P. Dalampakis, E. Spyridonos, G. Diamantopoulos, P. Karalis, M. Tassi, B. Raco, A. Arvanitis, N. Kolios & J. L. Michelot, 2021. *Chemical and isotopic characterization of the thermal fluids emerging along the North–Northeastern Greece*. Scientific Reports, 11, 16291. DOI:10.1038/s41598-021-95656-6
  - Capriolo, M., Mills, B.J.W., Newton, R.J., Dal Corso, J., Dunhill, A., Wignall, P.B., Marzoli, A., 2022. *Anthropogenic-scale CO2 degassing from the Central Atlantic Magmatic Province as a driver of the end-Triassic mass extinction*. Global and Planetary Change, 209, DOI 10.1016/j.gloplacha.2021.103731
  - Tiraboschi, C., Miozzi, F., Tumati, S., 2022. *Carbon-saturated COH fluids in the upper mantle: a review of high-pressure and high-temperature ex situ experiments*. European Journal of mineralogy, 34, 59-75. DOI.10.5194/ejm-34-59-2022.

## Our Book Suggestion

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### Serendipità. L'inatteso nella Scienza

The English writer Horace Walpole in 1754 coined the word 'serendipity' from Serendip, the ancient name of the island of Sri Lanka, in reference to the Persian fable "The Three Princes of Serendippo" who left the island to explore the world. This word over time has been used by writers and filmmakers. This time it has been borrowed by Telmo Pievani, philosopher of science and writer of many books (in Italian). We really like Pievani's book "Serendipity, The Unexpected in Science".



Yes, we like it, because it talks about us and how the wonderful world of research works. How many times has it happened to us to look for something and find something else? Planning analysis, experiments, a study and discovering the unexpected, which usually turns out to be very important. In the history of science, the greatest discoveries have occurred in this way. It's not just luck: serendipity comes from a combination of cleverness and curiosity, shrewdness and chance. Serendipity, above all, reveals to us that we didn't know we didn't know! We recommend this book, which is an invitation to free thinking and the search for new questions for an ever greater understanding of the world around us. But be warned: you could be addicted to serendipity!

## Upcoming Events

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The first ICOS-Italy National Conference will be held in Rome on **27-28 April 2020**. The conference will be open also to contributions not strictly related with ICOS community. More information and practicalities will be available soon at <https://www.icos-italy.it/>.

The next incoming ICOS Science Conference 2022 will host a session dedicated to the "**Carbon cycle in the Mediterranean region: from the local to the regional scale**". This session welcomes contributions from different approaches (ground/sea-based and satellite observations, models) and different domains (atmosphere, ecosystems, oceans, solid earth) to provide insights into carbon fluxes, including the impact of extreme events, climate variability and anthropogenic activities on the regional carbon fluxes and budget. Abstract submission is open: deadline is Monday 11th April, 2022 at 11.00am CET.

<https://www.icos-cp.eu/news-and-events/science-conference/icos2022sc/call-for-abstracts>



**EGU General Assembly, 23–27 May 2022, hybrid mode.** Geoscientists from all over the world for one meeting covering all disciplines of the Earth, planetary, and space sciences. For more information: <https://www.egu22.eu>



**The International Workshop C4 “Climate Change and Carbon Cycle” (June 22-24, 2022, CNR Research Area Pisa, Italy)** is approaching: registrations, grant applications, and abstract submission are now open to enrich the three scientific sessions Processes, Impact & Frontiers on the cross-disciplinary topics of Global Changes, Climate System and Carbon Cycle through time. The scientific agora will also envisage three interactive laboratories: Observation and Prediction, Discovering the Deep, Walking through the Earth System. Visit the event webpage <https://dta.cnr.it/climate-change-and-carbon-cycle/>. Social sharing: #wsC4\_Italy2022. Deadlines and milestones: March, 31st: early payment registration and grant application; April, 30th: abstract submission; May, 20th: late payment registration



**12th Geochemistry of the Earth's Surface symposium (GES12).** July 24 – 29 - ETH Zurich. GES conference aims to strengthen connections between research disciplines and to establish new networks. Abstract submission, as well as the registration, is now open. For more information: <https://ges12.com>.



**Goldschmidt2022 - 10-15 luglio 2022 Call for Papers.** Please read the information about the planned conference hybrid format ([https://2022.goldschmidt.info/goldschmidt/2022/meetingapp.cgi/ModuleMeetingInfo/Hybrid\\_Program](https://2022.goldschmidt.info/goldschmidt/2022/meetingapp.cgi/ModuleMeetingInfo/Hybrid_Program)) before starting the submission process. The abstract submission deadline is 1 March (23:59 CET). For more information visit: <https://2022.goldschmidt.info/goldschmidt/2022/cfp.cgi>



**3MUGIS summer school:** a field experience examining anthropogenic impacts on soils from Sub-arctic to Subtropical climates. 3 MUGIS will be held in Russia from **18 July to 7 of August 2022**. For more information visit <http://3mugis.org/>

**SPATIAL 2022: ISOTOPES IN SPATIAL ECOLOGY AND BIOGEOCHEMISTRY**

**AUG 1-12, 2022**  
**UNIVERSITY OF UTAH CAMPUS, SALT LAKE CITY, UT**  
 Apply before February 15<sup>th</sup> at: <https://spce.utah.edu/spatial.html>

**Summer Short Course**  
 SPATIAL is a two-week, intensive course for students who want to expand their isotope know-how and develop skills for large-scale, data-intensive research in a wide variety of fields.

**Morning lectures:** focus on the theory linking spatiotemporal patterns and process in a range of isotopic systems.

**Project-based lab:** introduce tools & techniques for working with spatially explicit environmental datasets.

- Connectivity
- Fluid transport
- Scaling
- Geospatial forensics
- Movement & migration
- Isoscapes
- Flux partitioning

**SPATIAL short course August 1-12, 2022, University of Utah**, is open to all graduate students and postdocs for training and network-building in large-scale, data-intensive, geochemically-oriented research. For more information: <https://itce.utah.edu/spatial.html>



**GEOANALYSIS 2022 Freiberg (Germany), 6 - 12 August 2022.** An international gathering focused on the analysis of geological and environmental materials. For more information: <https://geoanalysis2021.de/en/>



**SUITMA 11th Conference on Soil of Urban, Industrial, Traffic and Mining Areas, 05-09 September 2022 Berlin, Germany.** Deadline for abstract submission is 8.02.2022. for more information visit <https://suitma11.org/>



**Geosciences for a sustainable future- 2022 SGI-SIMP Meeting.** (Torino, 19-21 September 2022). The Congress consists of three days, with Scientific sessions that focus on the main Geosciences themes: For more information: <https://www.geoscienze.org/torino2022/index.php/en/>



**The UARctic Congress 2022** will take place in **October 4–7, 2022** in Moscow, Russian Federation hosted by Lomonosov Moscow State University. For more information visit <https://uarctic2022.msu.ru/>

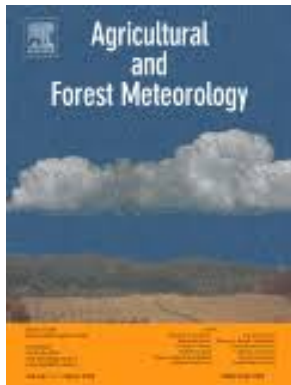


**JESIUM 10–14 October 2022, Kuopio, Finland.** The purpose of the meeting is to bring together a broad range of stable isotope scientists from all over the world, to encourage communication across disciplines and country boundaries. For more information: <https://www.jesium2022-kuopio.org>





**XXI Inqua Congress - “a Mediterranean perspective on Quaternary Sciences” - 13 Jul 2023 - 20 Jul 2023- Università La Sapienza (Italy).** The Mediterranean region, so geologically young and active, is the ideal place to discuss the processes and events that shaped the landscape, the environment and the ecosystems in the last 2.58 million years. For more information: <https://www.inqua.org/meetings/list/37?type=1>



**Forest carbon - Call for Papers.** This Collection aims to showcase the latest advances on Earth system models, terrestrial biosphere models, forest carbon monitoring, biomass carbon stocks and turnover, forest demography, and carbon allocation. Deadline submission: June 2022. For more information: <https://go.nature.com/3rVtrr9>



**Open access online Earth courses.** Imperative MOOCs is the new platform for MOOCs and online learning projects produced by Imperative Space. For more information: <https://www.imperativemoocs.com>

## Funding Opportunities

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### Incoming H2020 call



The objective of the call is to provide a framework to rapidly respond to new innovative ideas. For more information: <https://bit.ly/34GeVuR>

### Young Graduate Trainees at ESA



Have you recently, or are you about to graduate? Are you keen to gain experience in a stimulating international environment? If so, browse the ESA list of opportunities (<https://career2.successfactors.eu/career?company=esa>) and select the one that best matches your interests and profile. For more information: <https://bit.ly/3rU5Y9J>

### New Italian Projects PRIN 2022: Open calls



The call for proposals has been published on the ministry's website, allocating approximately 749 million euros, partly with investments from the National Recovery and Resilience Plan, to finance Projects of significant national interest (PRIN) for 2022. Of the 749 million, approximately 223 millions - 30% of the total - are destined for projects presented by professors or researchers under the age of 40. For more information: <https://bit.ly/3sMvNrx>

## Employment Opportunities

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**Post-doc position at CNR-ISAC (Bologna).** A post-doc (Assegno di Ricerca) 1-year position is opened at the CNR-ISAC (Bologna) on "Numerical experiments and analyses to evaluate the impact in climate predictions (from the decadal to the seasonal scale) of improved vegetation and soil use representation". Contract duration: 1 year. Deadline Incoming H2020 call for application: 07/03/2022. For more information: [http://bandi.urp.cnr.it/doc-assegni/documentazione/12205\\_DOC\\_IT.pdf](http://bandi.urp.cnr.it/doc-assegni/documentazione/12205_DOC_IT.pdf)

**Postdoctoral position (Assegno di Ricerca).** A postdoctoral position available in CNR IRET (Porano, TR). Successful candidates with a degree in Chemistry, Physics, Biology, Environmental Sciences, Engineering, Geological

Sciences, Agricultural Sciences, Forest Sciences or equivalent will deal with upgrade of Stable Isotope laboratory with new facilities. Position is for 1 year expandable up to 3 years. Deadline for application is **11 March 2022**, for more information visit <https://bandi.urp.cnr.it/> (IRET-002-2022-TR-Prot 0013083)

**1 year computer scientist (renewable).** 1-year position is opened for a talented and motivated Computer Scientist/Bioinformatician at the Department of Biology, University of Naples Federico II. MSc or a PhD in Computer Science, Informatics Engineering or Bioinformatic with experience working in Python, R and database (MySQL or PostgreSQL) is required. Experience working with API, writing in PHP will be considered a plus. Previous experience with big data techniques and machine learning approaches would be fantastic. The job will be to support the growing infrastructure of 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](mailto:donato.giovannelli@unina.it) and visit <https://www.donatogiovannelli.com/> for further information

**PhD position in permafrost CH<sub>4</sub> isotope geochemistry at Geological Survey of Canada, Québec City and McGill University, Montréal, Canada.** For more information: Dr. Josué Jautzy ([josue.jautzy@nrcan-rncan.gc.ca](mailto:josue.jautzy@nrcan-rncan.gc.ca)) and Dr. Peter Douglas ([peter.douglas@mcgill.ca](mailto:peter.douglas@mcgill.ca)). Deadline: **28th of February 2022**

**PhD on Early Holocene Arctic warming and hydrological intensification in Bergen (Norway).** The application deadline closes on **March 2**. For more information: <https://www.jobbnorge.no/en/available-jobs/job/217582/phd-position-in-quaternary-geology-and-paleoclimate>

**Lecturer / Senior Lecturer - Biological Earth & Environmental Sciences.** Sydney, For more information: <https://external-careers.jobs.unsw.edu.au/cw/en/job/507031/lecturer-senior-lecturer-biological-earth-environmental-sciences>

**Research Engineer to Oulanka Ecosystem station, Oulu, Finland (permanent).** For more information: <https://duunitori.fi/tyopaikat/tyo/research-engineer-stse-14440730>

**Post-doc researcher in eddy-covariance of urban GHG emissions, Uni Freiburg, Germany.** For more information: <https://weather.uni-freiburg.de/admin/PostDoc-Position-ICOS-Cities.pdf>

**1 Post-doctoral fellow in carbon cycle modelling to ICOS Carbon Portal, Lund, Sweden and 1 Software developer to ICOS Carbon Portal, Lund, Sweden.** For more information: <https://www.icos-cp.eu/index.php/event/1108>

**Post-doc in GHG and NH<sub>3</sub> fluxes in INRAE, France.** For more information: <https://www.icos-cp.eu/about/opportunities/careers>

**System Developer and Data Manager at NILU, Norway.** For more information: <https://www.nilu.no/om-nilu/jobb-i-nilu/>

**Project Manager, ATMO-ACCESS project, France.** For more information: <https://www.icos-cp.eu/about/opportunities/careers>

### ***Useful links***

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- 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](mailto:carbonnetwork@cnr.it)

### **Contribute to the NEWSLETTER CarboNetwork**

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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**

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“As always in life, people want a simple answer . . . and it’s always wrong.” Susan Greenfield

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