Short curriculum vitae

Jean-Pierre Gattuso

(2023-11-21)

CNRS Senior Research Scientist (*Directeur de recherche CNRS de classe exceptionnelle*)
Laboratoire d'Océanographie de Villefranche
181 chemin du Lazaret F-06230 Villefranche-sur-mer, France
Phone: +33 (0)493763859
Email: jean-pierre.gattuso@imev-mer.fr - Web: https://jpgattuso.github.io

Born 14 December 1958 in Antibes, France. French citizen. Married, no children.

Educational background

- 1994: *Habilitation*, Biological Oceanography, University of Nice, France
- 1987: Ph. D., Biological Oceanography, University of Aix-Marseille II, France
- 1982: M. Sc. in Oceanography, University of Aix-Marseille II

Professional background

- 2015-present: Associate Scientist, Institute for Sustainable Development and International Relations, France
- 2005-present: Research Professor (*Directeur de recherche CNRS de classe exceptionnelle*), Laboratoire d'Océanographie de Villefranche, France
- 1998-2004: Group leader, Laboratoire d'Océanographie de Villefranche, France
- 1998-2004: Group leader, Monaco Scientific Center, Principality of Monaco
- 1990-1992: Research Scientist, CNRS and University of Perpignan, France
- 1988-1990: Postdoctoral Research Scientist, Australian Institute of Marine Science
- 1985-1987: Reader, University of Nice, France

Invited positions

- 2006-2011: Invited Professor, University of Shantou (China)
- 2005: National Center for Atmospheric Research (Boulder, Colorado)
- 2004: Visiting scientist, Rutgers University (New Jersey)

Awards

- 2023: Elected member, Chinese Academy of Sciences
- 2020: Ruth Patrick Award, Association for the Sciences of Limnology and Oceanography
- 2018: Elected member, Academia Europaea
- 2014: Member, European Academy of Sciences
- 2014: Blaise Pascal Medal in Earth and Environmental Sciences, European Academy of Sciences
- 2012: Vladimir Vernadsky Medal, European Geosciences Union
- 2005: Union Service Award, European Geosciences Union
- 2002: Outstanding reviewer, Limnology & Oceanography
- 2001: Oceanography medal of the *Société d'Océanographie de France*

Research interests

- Carbon and carbonate cycling in coastal ecosystems
- Response of marine organisms and ecosystems to global environmental changes, including ocean acidification
- Ocean-based solutions

Editorial activities

- 2021-present: Editor, *Cambridge Prisms: Coastal Futures*
- 2011: Editor of *Ocean acidification*, book published by Oxford University Press
- 2010-2022: Editor, *Biogeosciences*
- 2006-2010: Topic Editor, *The Encyclopedia of Earth*
- 2004-2009: Founding Editor-in-Chief, *Biogeosciences*
- 2002-2014: Biogeosciences Editor, *The Eggs*
- 2002-2004: Editor, *Surveys in Geophysics*
- 1997-2005: Editor, *Coral Reefs*

Current professional activities

- 2023-present: Co-chair, International Advisory Committee of the project Ocean Negative Carbon Emissions (ONCE and Global ONCE)
- 2023-present: Co-chair, Scientific conference associated with the 2025 United Nations Ocean Conference, Nice
- 2021-present: Member, Scientific Advisory Board, Research Mission of the German Marine Research Alliance (Marine carbon sinks in decarbonisation pathways; CDRmare)
- 2021-present: President, Ocean Acidification & other ocean Changes – Impacts and Solutions (OACIS), Prince Albert II of Monaco Foundation
- 2021-present: Member, Scientific Committee, Ocean Solutions program, CNRS and Ifremer
- 2021-present: Member, International Advisory Board of the Aqaba Marine Park, Jordan
- 2021-present: Member, Agence de sécurité sanitaire, environnementale et de gestion des risques, Métropole Nice Côte d'Azur
- 2016-present: Member, Scientific Committee, Earth and Environment of the European Academy of Sciences
- 2015-present: Regional expert group on climate in Provence Alpes-Côte d'Azur

Current grants

- Carbon Sequestration in BLUe EcoSystems ()C-BLUES), European Commission (2024-2027)
- Polar Ocean Mitigation Potential (POMP), European Commission (2024-2027)
- Guide to Best Practices for ocean alkalinity enhancement research, ClimateWorks Foundation (2022-2023)
- The future of Arctic coastal ecosystems - Identifying transitions in fjord systems and adjacent coastal areas (FACE-IT), European Commission H2020 (2020-2024)

Some key and recent papers—Complete list available here: https://bit.ly/3BMZH3j

- Google Scholar: 39500 citations; h-index: 95
- Web of Science: 215 items; 18,820 citations; h-index: 70
- Highly cited researcher in 2021 and 2022
- 10 highly cited papers[1] and one hot paper[2] in the fields of Environment and Ecology.

<2018 Gattuso J.-P., Frankignoulle M. & Wollast R., 1998. Carbon and carbonate metabolism in coastal aquatic ecosystems. *Annual Review of Ecology and Systematics* 29:405-434.

Gattuso J.-P., Frankignoulle M. & Smith S. V., 1999. Measurement of community metabolism and significance of coral reefs in the CO_2 source-sink debate. *Proceedings of the National Academy of Science U.S.A.* 96:13017-13022.

Gattuso J.-P. & Buddemeier R. W., 2000. Ocean biogeochemistry: calcification and CO_2. *Nature* 407:311-312.

Gattuso J.-P. & Hansson L. (eds.), 2011. *Ocean acidification*, 326 p. Oxford: Oxford University Press.

Kroeker K., Kordas R., Crim R., Hendriks I., Ramajo L., Singh G., Duarte C. & Gattuso J.-P., 2013. Impacts of ocean acidification on marine organisms: quantifying sensitivities and interaction with warming. *Global Change Biology* 19:1884-1896.

Wong P. P., Losada I. J., Gattuso J.-P., Hinkel J., Khattabi A., McInnes K., Saito Y. & Sallenger A., 2014. Coastal systems and low-lying areas. In: Field C. B. et al. (Eds.), Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change, pp. 361-409. Cambridge, United Kingdom and New York, NY, USA: Cambridge University Press.

Gattuso J.-P., Hoegh-Guldberg O. & Pörtner H.-O., 2014. Coral reefs. In: Field C. B. et al. (Eds.), Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel

[1] Highly cited papers received enough citations to place them in the top 1% of their academic field based on a highly cited threshold for the field and publication year.

[2] Hot papers are papers published in the past two years that are in the top one-tenth of one percent (0.1%) for their field and publication period.

on Climate Change, pp. 97-100. Cambridge, United Kingdom and New York, NY, USA: Cambridge University Press.

Gattuso J.-P., Brewer P., Hoegh-Guldberg O., Kleypas J. A., Pörtner H.-O. & Schmidt D., 2014. Ocean acidification. In: Field C. B. etal. (Eds.), Climate Change 2014: Impacts, Adaptation, and Vulnerability. Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change, pp. 129-131. Cambridge, United Kingdom and New York, NY, USA: Cambridge University Press.

Gattuso J.-P., Kirkwood W., Barry J. P., Cox E., Gazeau F., Hansson L., Hendriks I. E., Kline D. I., Mahacek P., Marker M., Martin S., McElhany P., Peltzer E. T., Reeve J., Roberts D., Saderne V., Tait K., Widdicombe S. & Brewer P., 2014. Free-ocean CO_2 enrichment (FOCE) systems: present status and future developments. *Biogeosciences* 11:4057-4075.

Gattuso J.-P., Magnan A., Billé R., Cheung W. W. L., Howes E. L., Joos F., Allemand D., Bopp L., Cooley S., Eakin C. M., Hoegh-Guldberg O., Kelly R. P., Pörtner H., Rogers A. D., Baxter J. M., Laffoley D., Osborn D., Rankovic A., Rochette J., Sumaila U. R., Treyer S. & Turley C., 2015. Contrasting futures for ocean and society from different anthropogenic CO_2 emissions scenarios. *Science* 349:aac4722.

Orr J. C., Epitalon J.-M. & Gattuso J.-P., 2015. Comparison of ten packages that compute ocean carbonate chemistry. *Biogeosciences* 12:1483-1510.

Riebesell U. & Gattuso J.-P., 2015. Lessons learned from ocean acidification research. *Nature Climate Change* 5:12-14.

Magnan A. K., Colombier M., Billé R., Hoegh-Guldberg O., Joos F., Pörtner H.-O., Waisman H., Spencer T. & Gattuso J.-P., 2016. Implications of the Paris Agreement for the ocean. *Nature Climate Change* 6:732-735.

Moya A., Howes E. L., Lacoue-Labarthe T., Forêt S., Hanna B., Medina M., Munday P. L., Ong J.-S., Teyssié J.-L., Torda G., Watson S.-A., Miller D. J., Bijma J. & Gattuso J.-P., 2016. Near-future pH conditions severely impact calcification, metabolism and the nervous system in the pteropod *Heliconoides inflatus*. *Global Change Biology* 22:3888-3900.

Kapsenberg L., Alliouane S., Gazeau F., Mousseau L. & Gattuso J.-P., 2017. Coastal ocean acidification and increasing total alkalinity in the northwestern Mediterranean Sea. *Ocean Science* 13:411-426.

2018 Bittig H. C., Steinhoff T., Claustre H., Fiedler B., Williams N. L., Sauzède R., Körtzinger A. & Gattuso J.-P., 2018. An alternative to static climatologies: robust estimation of open ocean CO2 variables and nutrient concentrations from T, S, and O_2 data using Bayesian neural networks. *Frontiers in Marine Science* 5:328.

Boyd P. W., Collins S., Dupont S., Fabricius K., Gattuso J. P., Havenhand J., Hutchins D. A., Riebesell U., Rintoul M. S., Vichi M., Biswas H., Ciotti A., Gao K., Gehlen M., Hurd C. L., Kurihara H., McGraw C. M., Navarro J. M., Nilsson G. E., Passow U. & Pörtner H.-O., 2018. Experimental strategies to assess the biological ramifications of multiple drivers of global ocean change - a review. *Global Change Biology* 24:2239-2261.

Cramer W., Guiot J., Fader M., Garrabou J., Gattuso J.-P., Iglesias A., Lange M. A., Lionello P., Llasat M. C., Paz S., Peñuelas J., Snoussi M., Toreti A., Tsimplis M. N. & Xoplaki E., 2018. Climate change and interconnected risks to sustainable development in the Mediterranean. *Nature Climate Change* 8:972-980.

Gattuso J.-P., Magnan A. K., Bopp L., Cheung W. W. L., Duarte C. M., Hinkel J., Mcleod E., Micheli F., Oschlies A., Williamson P., Billé R., Chalastani V. I., Gates R. D., Irisson J.-O., Middelburg J. J., Pörtner H.-O. & Rau G. H., 2018. Ocean solutions to address climate change and its effects on marine ecosystems. *Frontiers in Marine Science* 5:337.

Kapsenberg L., Miglioli A., Bitter M. C., Tambutté E., Dumollard R. & Gattuso J.-P., 2018. Ocean pH fluctuations affect mussel larvae at key developmental transitions. *Proceedings of the Royal Society of London. Series B: Biological Sciences* 285:20182381.

Orr J. C., Epitalon J.-M., Dickson A. G. & Gattuso J.-P., 2018. Routine uncertainty propagation for the marine carbon dioxide system. *Marine Chemistry* 207:84-107.

2019 Abram N., Gattuso J.-P., Prakash A., Chen L., Chidichimo M. P., Crate S., Enomoto H., Garschagen M., Gruber N., Harper S., Holland E., Kudela R. M., Rice J. D., Steffen K. & von Schukmann K., 2019. Framing and context of the report. In: Pörtner H.-O., Roberts D., Masson-Delmotte V. & Zhai P. (Eds.), *Special Report on Ocean and Cryosphere in a Changing Climate*, pp. 73-129. Geneva: Intergovernmental Panel on Climate Change.

Bitter M. C., Kapsenberg L., Gattuso J.-P. & Pfister C. A., 2019. Standing genetic variation fuels rapid adaptation to ocean acidification. *Nature Communications* 10:5821.

IPCC, 2019. Summary for Policymakers. In: Pörtner H.-O., Roberts D. C., Masson-Delmotte V., Zhai P., M T., Poloczanska E., Mintenbeck K., Nicolai M., Okem A. & Petzold J. (Eds.), *IPCC Special Report on the Ocean and Cryosphere in a Changing Climate*, pp. 3-35. Geneva: Intergovernmental Panel on Climate Change.

Magnan A. K., Garschagen M., Gattuso J.-P., Hay J. E., Hilmi N., Holland E., Isla F., Kofinas G., Losada I. J., Petzold J., Ratter B., Schuur T., Tabe T. & van de Wal R., 2019. Integrative cross-chapter box on low-lying islands and coasts. In: Pörtner H.-O., Roberts D., Masson-Delmotte V. & Zhai P. (Eds.), *Special Report on Ocean and Cryosphere in a Changing Climate*, pp. 657-674. Geneva: Intergovernmental Panel on Climate Change.

Stark J. S., Peltzer E. T., Kline D. I., Queirós A. M., Erin Cox T., Headley K., Barry J., Gazeau F., Runcie J. W., Widdicombe S., Milnes M., Roden N. P., Black J., Whiteside S., Johnstone G., Ingels J., Shaw E., Bodrossy L., Diego Gaitan-Espitia J., Kirkwood W. & Gattuso J. P., 2019. Free Ocean CO_2 Enrichment (FOCE) experiments: scientific and technical recommendations for future in situ ocean acidification projects. *Progress in Oceanography* 172:89-107.

von Schuckmann K., Le Traon P.-Y., Smith N., Pascual A., Djavidnia S., Gattuso J.-P., Grégoire M. & Nolan G., 2019. Copernicus Marine Service Ocean State Report. *Journal of Operational Oceanography* 12:S1-S123.

2020 Coppola L., Boutin J., Gattuso J.-P., Lefèvre D. & Metzl N., 2020. The carbonate system in the Ligurian Sea. In: Migon C., Nival P. & Sciandra A. (Eds.), The Mediterranean Sea in the era of global change (volume 1) - Evidence from 30 years of multidisciplinary study of the Ligurian sea, pp. 79-104. London: ISTE Science Publishing LTD.

Duarte C. M., Agustí S., Barbier E., Britten G. L., Castilla J. C., Gattuso J.-P., Fulweiler R. W., Hughes T. P., Knowlton N., Lovelock C. E., Lotze H. K., Predragovic M., Poloczanska E., Roberts C. & Worm B., 2020. Rebuilding marine life. *Nature* 580:39-51.

Fourrier M., Coppola L., Claustre H., d'Ortenzio F., Sauzčde R. & Gattuso J. P., 2020. A regional neural network approach to estimate water-column nutrient concentrations and carbonate system variables in the Mediterranean Sea: CANYON-MED. *Frontiers in Marine Science* 7:620.

Gattuso J.-P., Gentili B., Antoine D. & Doxaran D., 2020. Global distribution of photosynthetically available radiation on the seafloor. *Earth System Science Data* 12:1697-1709.

Teixidó N., Caroselli E., Alliouane S., Ceccarelli C., Comeau S., Gattuso J.-P., Fici P., Micheli F., Mirasole A., Monismith S. G., Munari M., Palumbi S. R., Sheets E., Urbini L., De Vittor C., Goffredo S. & Gambi M. C., 2020. Ocean acidification causes variable trait shifts in a coral species. *Global Change Biology* 26:6813-6830.

2021 Bitter M. C., Kapsenberg L., Silliman K., Gattuso J.-P. & Pfister C. A., 2021. Magnitude and predictability of pH fluctuations shape plastic responses to ocean acidification. *The American Naturalist* 197:486-501.

Carbonne C., Teixidó N., Moore B., Mirasole A., Guttierez T., Gattuso J.-P. & Comeau S., 2021. Two temperate corals are tolerant to low pH regardless of previous exposure to natural CO_2 vents. *Limnology and Oceanography* 66:4046-4061.

Gattuso J.-P., Epitalon J.-M., Lavigne H. & Orr J., 2021. seacarb: seawater carbonate chemistry. R package version 3.2.16. https://CRAN.R-project.org/package=seacarb

Gattuso J.-P., Williamson P., Duarte C. & Magnan A. K., 2021. The potential for ocean-based climate action: negative emissions technologies and beyond. *Frontiers in Climate* 2:575716.

Kleypas J., Allemand D., Anthony K., Baker A. C., Beck M., Hale L. Z., Hilmi N., Hoegh-Guldberg O., Hughes T., Kaufman L., Kayanne H., Magnan A., Mcleod E., Mumby P., Palumbi S., Richmond R., Rinkevich B., Steneck R. S., Voolstra C. R., Wachenfeld D. & Gattuso J.-P., 2021. Designing a blueprint for coral reef survival. *Biological Conservation* 257:109107.

Magnan A. K., Pörtner H.-O., Duvat V. K. E., Garschagen M., Guinder V. A., Hoegh-Guldberg O., Zommers Z. & Gattuso J.-P., 2021. Estimating the global aggregated risk of anthropogenic climate change. *Nature Climate Change* 11:879-885.

von Schuckmann K., Le Traon P.-Y., Smith N., Pascual A., Djavidnia S., Gattuso J.-P. (eds), 2021. Copernicus Marine Service Ocean State Report, Issue 5. *Journal of Operational Oceanography* 14:1-185.

Williamson P., Pörtner H.-O., Widdicombe C. E. & Gattuso J.-P., 2021. Ideas and Perspectives:

When ocean acidification experiments are not the same, repeatability is not tested. *Biogeosciences* 18:1787-1792.

2022 Carbonne C., Comeau S., Chan P. T. W., Plichon K., Gattuso J.-P. & Teixidó N., 2022. Early life stages of a Mediterranean coral are vulnerable to ocean warming and acidification. *Biogeosciences* 19:4767-4777.

Duarte C. M., Gattuso J.-P., Hancke K., Gundersen H., Filbee-Dexter K., Pedersen M. F., Middelburg J. J., Burrows M. T., Krumhansl K. A., Wernberg T., Moore P., Pessarrodona A., Bachmann Ørberg S., Pinto I. S., Assis J., Queirós A. M., Smale D. A., Bekkby T., Serrão E. A. & Krause-Jensen D., 2022. Global estimates of the extent and production of macroalgal forests. *Global Ecology and Biogeography* 31:1422-1439.

Fourrier M., Coppola L., d'Ortenzio F., Migon C. & Gattuso J.-P., 2022. Impact of intermittent convection in the northwestern Mediterranean Sea on oxygen content, nutrients and the carbonate system. *Journal of Geophysical Research- Oceans* 127:e2022JC018615.

Gattuso J.-P., Jiao N., Chen F., Jouzel J., Le Quéré C., Lu Y., Tréguer P., von Schuckmann K., Wang Z. L. & Zang J., 2022. *Ocean-based climate action*. 12 p. Beijing and Brussels: Chinese Academy of Sciences and European Academy of Sciences.

Williamson P. & Gattuso J.-P., 2022. Carbon removal using coastal blue carbon ecosystems is uncertain and unreliable, with questionable climatic cost-effectiveness. *Frontiers in Climate* 4.

Fourrier M., Coppola L., d'Ortenzio F., Migon C. & Gattuso J.-P., 2022. Impact of intermittent convection in the northwestern Mediterranean Sea on oxygen content, nutrients and the carbonate system. *Journal of Geophysical Research- Oceans* 127:e2022JC018615.

Lebrun A., Comeau S., Gazeau F. & Gattuso J.-P., 2022. Impact of climate change on coastal Arctic benthic communities. *Global and Planetary Change* 219:103980.

2023 Boyd P. W., Claustre H., Legendre L., Gattuso J.-P. & Le Traon P.-Y., in press. Operational monitoring of open-ocean carbon dioxide removal deployments: detection, attribution, and determination of side-effects. *Oceanography* 36.

Gattuso J.-P., Alliouane S. & Fischer P., 2023. High-frequency, year-round time series of the carbonate chemistry in a high-Arctic fjord (Svalbard). *Earth System Science Data* 15:2809-2825.

Hurd C. L., Gattuso J.-P. & Boyd P. W., 2023. Air-sea carbon dioxide equilibrium: Will it be possible to use seaweeds for carbon removal offsets? *Journal of Phycology*

Oschlies A., Bach L., Rickaby R., Satterfield T., Webb R. M. & Gattuso J.-P., 2023. Climate targets, carbon dioxide removal and the potential role of ocean alkalinity enhancement. In: Oschlies A., Stevenson A., Bach L., Fennel K., Rickaby R., Satterfield T., Webb R. M. & Gattuso J.-P. (Eds.), *Guide to best practices in ocean alkalinity enhancement research*,

Jiang L.-Q., Dunne J., Carter B. R., Tjiputra J. F., Terhaar J., Sharp J. D., Olsen A., Alin S., Bakker D. C. E., Feely R. A., Gattuso J.-P., Hogan P., Ilyina T., Lange N., Lauvset S. K., Lewis E. R., Lovato T., Palmieri J., Santana-Falcón Y., Schwinger J., Séférian R., Strand G., Swart N., Tanhua T., Tsujino H., Wanninkhof R., Watanabe M., Yamamoto A. & Ziehn T., 2023. Global surface ocean acidification indicators from 1750 to 2100. *Journal of Advances in Modeling Earth Systems* 15:e2022MS003563.

Schlegel R. & Gattuso J.-P., 2023. A dataset for investigating socio-ecological changes in Arctic fjords. *Earth System Science Data Discussions*

Schlegel R., Bartsch I., Bischof K., Bjørst L., Dannevig H., Diehl N., Duarte P., Hovelsrud G., Juul-Pedersen T., Lebrun A., Merillet L., Miller C., Ren C., Sjer M., Søreide J. & Gattuso J.-P., 2023. Drivers of change in Arctic fjord socio-ecological systems: examples from the European Arctic. *Cambridge Prisms: Coastal Futures* 1:E13.