

Activités professionnelles

Depuis le 15 janvier 2019	Professeur des Universités en Sciences de la Terre et de l'Environnement, Université de la Nouvelle Calédonie (UNC)
01/10/2006 au 14/01/2019	Chargé de Recherche IRD (Affecté en Nouvelle Calédonie entre 2007 et 2012 ; affecté à Ho Chi Minh Ville, Vietnam, entre 2013 et 2017)
15/02/2005 au 14/07/2006	Enseignant-Chercheur contractuel (ATER) à l'UNC
01/09/2004 au 31/01/2005	Chercheur contractuel CNRS
01/02/2004 au 31/08/2004	Enseignant-Chercheur contractuel (ATER) à l'Univ. d'Orléans

Diplômes

2013	Habilitation à Diriger des Recherches de l'Université Pierre et Marie Curie, Paris : « <i>The mangrove : A Natural Biogeochemical Reactor</i> »
2000 - 2003	Thèse de Doctorat à l'Université d'Orléans : « Origine et devenir de la matière organique des sédiments de mangrove de Guyane / <i>Précurseurs, environnements de dépôt, processus de décomposition, et relation avec les métaux lourds</i> » sous la direction de : Elisabeth Lallier-Vergès et Frédéric Baltzer
1999 - 2000	DEA, Géologie, Géochimie, Géophysique Sédimentaires, Université Paris XI
1998 - 1999	Maîtrise Géologie fondamentale, Université Pierre et Marie Curie, Paris
1997 - 1998	Licence Géologie fondamentale, Université Pierre et Marie Curie, Paris

Publications

63 Publications et 44 Conférences > 4400 citations (Source Google scholar) / h-index 23 /

Gestion de programme

- 2014-2018** : « Carbon stocks and fluxes in a tropical mangrove, Can Gio, Vietnam », Financement Fondation Air Liquide et PEPS CNRS, Budget 80 000 Euros, Participants, IMPMC University of Sciences of HCMC, Nong Lam University HCMC. **Trophée 2018 Fondation Air Liquide.**
- 2014-2017** : « Elevated CO₂ greenhouses experiments on mangrove growth », Financement Vale, Province Sud, Mairie du Mont-Dore, KNS, Fondation Air Liquide, Budget 300 000 euros, Participants, IMPMC, UNC. **Lauréat Palme IFRECOR 2017**
- 2012-2016** : « Mangrove ability to act as a CO₂ sink, using eddy-covariance technique, (semi-arid mangrove, New Caledonia) », Financement Xstrata-Glencore NC, Budget 180 000 Euros, Participants: IMPMC, UNC
- 2010-2013** : « Dynamique et spéciation de certains éléments traces métalliques dans une mangrove située en aval du massif ultra-basique du Koniambo » Financement KNS, Budget 250 000 Euros dont une bourse Cifre ; Participants : IMPMC, LGE, CEREGE, UNC
- 2010-2011** : « Suivi de la mangrove en contexte minier », Financement CNRT, Budget 90 000 Euros ; Participants : IMPMC, UNC
- 2008-2012** : « Dynamique du carbone dans les mangroves de Nouvelle-Calédonie » Financement obtenu : Fonds Pacifique : 38 000 (en 2008), 40 000 Euros (en 2010), Thèse MESR, Fondation Air Liquide, 121 000 Euros, Budget total 320 000 Euros, Participants : IMPMC, UNC. **Lauréat du trophée des mécénats catégorie Outre-mer du Ministère de l'environnement**
- 2008-2011** : « Devenir des effluents de la crevetticulture au sein des mangroves de Nouvelle-Calédonie », financement ZoNéCo, Budget 150 000 Euros Participants : UNC, IFREMER, MNHN
- 2007-2008** : « Structuration écologique et bilan des processus biogéochimiques au sein d'une mangrove "atelier" (Baie de Terembâ, Nouvelle-Calédonie) - Impact potentiel des effluents de la Crevetticulture », financement M.O.M., Budget 20 000 Euros ; Participants : UNC, IFREMER
- 2006-2007** : « Typologies et biodiversité des mangroves de Nouvelle-Calédonie », financement ZoNéCo, Budget 40 000 Euros ; Participants : University of Queensland, Australia, SV consultant.

J'ai également participé à **trois projets** (APN, NAFOSTED, Mairie de HCMV) de recherche portés par des **partenaires vietnamiens** sur la dynamique du carbone, à un projet **EC2CO** sur la diversité fongique dans les sédiments de mangrove en lien avec leurs propriétés physico-chimiques, et à un projet **Fonds Pacifique** sur l'influence de la montée des océans sur les mangroves se développant sur une île basse (Ouvéa, Nouvelle Calédonie).

Encadrements

Co-directions thèses :

Nathalie Molnar, « Devenir des effluents de la crevetticulture au sein des mangroves de Nouvelle-Calédonie » Bourse ZoNéCo, Ecole doctorale MNHN, Co-directeur : Tarik Meziane, début : 01/11/2008; soutenue le 31 janvier 2012.

Audrey Leopold, « Dynamique du carbone au sein de la mangrove », Bourse MESR, Ecole doctorale du Pacifique (UNC), Co-directeur : Michel Allenbach. Soutenue le 16/12/2012.

Vincent Noel, "Spéciation des ETM au sein des sédiments d'une mangrove située en aval d'un massif ultra-basique". Bourse Cifre (KNS) Ecole doctorale Paris VI, Co-directeur : Guillaume Morin, Soutenue le 3 avril 2014.

Frank David, "Impact of anthropogenic activities on carbon dynamic at the Saigon river mouth (Can Gio)", Ecole doctorale MNHN, Co-directeur : Tarik Meziane, soutenue le 28 septembre 2017.

Adrien Jacotot, «Influence of elevated CO₂ concentrations on mangrove growth», Ecole doctorale de l'UNC, Co-directeur : Michel Allenbach, Soutenue le 11 décembre 2017.

Pierre Taillardat, « Nitrogen and Phosphate Cycles in Estuarine Mangrove and their Relationships with the Carbon Dynamic, Can Gio, Vietnam », National University of Singapour, Co-directeurs de thèse : Alan Ziegler, Daniel Friess, et David Witory, soutenue le 20 avril 2018.

Nguyen Than Nho, « Export of trace metal from mangrove soils to tidal creek (Can Gio, Vietnam », University of Sciences of HCMC and University of New Caledonia, Co-directeur : Tran Thi Nhu Trang. Bourse BEST IRD. Soutenance le 23 juillet 2018.

Truong van Vinh, «Ability of Can Gio mangroves to fix atmospheric greenhouse gaz », University of New Caledonia, Co-directeur : Michel Allenbach. Bourse IRD ARTS. Soutenance le 24 juillet 2018.

Ha Thi Hien, «Carbon stock and fluxes in Xuan Thuy mangrove (Northern Vietnam)», Thuy loi University (Hanoi), Co-directeur : Nguyen Cuc, soutenue le 22 janvier 2019.

Alexia Dubuc, "Influence of mangrove water quality of fish assemblages (Australia and New Caledonia)", James Cook University, Co-directeur: Marcus Sheaves, Soutenance en aout 2019

Ujwal Bastakoti. Trace metal dynamics in mangrove sediments within temperate estuaries. Auckland University of Technology. Co-directeur Andrea Alfaro, soutenance en octobre 2019.

Carine Bourgeois, « Comparative study of temperate and tropical mangrove ecosystems », Auckland University of Technology, Co-directeur: Andrea Alfaro, soutenance en décembre 2019.

Participation à l'encadrement de thèse :

Yonathan Arfi, « Application des techniques de séquençage 'nouvelles générations' à l'exploration de la diversité fongique en mangrove et à l'étude des mécanismes d'interaction entre champignons », Université Aix Marseille 2. Directeur de thèse : Eric Record, soutenue en 2012.

Encadrements et co-encadrements de 16 stages de Master

Activités de rapports scientifiques pour des revues internationales

Plos one, Frontiers, Estuarine Coastal and Shelf Sciences, Estuaries and Coast, Continental Shelf Research, Limnology and Oceanography, Applied Geochemistry, Organic Geochemistry, Geochimica et Cosmochimica Acta, Deep Sea Research part II, Chemical Geology, Marine Geology, Geoderma, Marine Pollution Bulletin, Soil Science Society of America Journal, Chemistry and Ecology, Journal of Geochemical Exploration, Journal of Oceanography, Wetlands Ecology and Management, Journal of Marine System, Science of the Total Environment, Nature Scientific Report, Rapid Communication in Mass Spectrometry, Journal of Soils and Sediments, International Journal of Environment and Waste Management, Environmental Pollution, Water, Air, & Soil Pollution, etc.

Enseignements

Les enseignements sont effectués sous la forme de cours, travaux dirigés (TD), travaux pratiques (TP) et camps de terrain.

i) **Les cours :**

- Géologie générale ;
- Sédimentologie ;
- Géologie du Génie Civile Côtier ;
- Hydrogéologie ;
- Pédologie ;
- Minéralogie.

ii) **Les travaux dirigés :**

- Pédologie;
- Sédimentologie ;
- Minéralogie;
- Pétrographie sédimentaire;
- Géodynamique externe.

iii) **Les travaux pratiques :**

- Sédimentologie ;
- Pédologie;
- Géodynamique externe;
- Minéralogie;
- Pétrographie sédimentaire;
- Micropaléontologie;
- Stratigraphie séquentielle;
- Cartographie.

iv) **Les camps de terrain :**

- Cartographie en domaine sédimentaire plissé (le Mas d'Azil);
- Cartographie en domaine ultra-basique (la Nouvelle Calédonie).

Conférences « grand public » et interventions dans les médias

- 5 – « Mangrove : un écosystème d'avenir pour la ville de Nouméa ?, Nouméa le 7 juin 2018
- 4 - « Les changements climatiques pour les nuls », Mont-Dore (NC) 2016
- 3 – « Observatoire international des mangroves », NC en 2014, siège Air liquide 2014
- 2 – « Entre terre et mer, la mangrove » reportage J.-M. Boré (Canal IRD), NC en 2012
- 1 – « La mangrove, un écosystème remarquable! » Nouméa, Mont-Dore, La Foa, Touho, Voh et Wallis entre 2009 et 2011.

Par ailleurs depuis 2007, nous avons fait plus de 30 apparitions dans les médias (TV, journaux papiers, et Radios, NC et France : Journal F2, Thalassa, Le Parisien, etc). J'ai également participé à la rédaction de plusieurs ouvrages de vulgarisation sur les mangroves.

Liste des publications

Publications (*: étudiants)

2019

- 63 – Bastakoti, U.*, Bourgeois, C. *, **Marchand, C.**, Alfaro, A.C., In press. Urban-rural gradients in the distribution of trace metals in sediments within temperate mangroves (New Zealand). *Marine Pollution Bulletin*, IF: 3.146.
- 62 - Dubuc, A. *, Baker, R., **Marchand, C.**, Waltham, N., Sheaves M. In Press. Hypoxia in mangroves: occurrence and impact on valuable tropical fishes. *Biogeosciences* IF: 3.851
- 61 –Bastakoti, U.*, Robertson, J., **Marchand, C.**, Alfaro, A.C., 2019. Mangrove removal: Effects on trace metal concentrations in temperate estuarine sediments. *Marine Chemistry* 216. IF : 3.337
- 60 – Taillardat P.*, Ziegler, A.D., Friess, D., Widory, D., David*, F., Ohte N., Nakamura T., Evaristo J., Nguyen Thanh Nho*, Vinh*, T.V., **Marchand, C.** 2019. Nutrient dynamics in mangrove porewater and adjacent tidal creek using nitrate dual-stable isotopes: a new approach to challenge the Outwelling Hypothesis? *Marine Chemistry* IF : 3.337
- 59 - Baptiste, V. *, Frank, D. *, **Marchand, C.**, Thanh-Nho Nguyen*, Meziane, T. 2019. Laboratory study on degradation of fatty acids from shrimp pond effluents in mangrove water. *Marine Environmental Research*. IF: 3.445
- 58 - Jacotot, A.*, **Marchand, C.**, Allenbach, M. 2019. Increase in growth and alteration of C:N ratios of *Avicennia marina* and *Rhizophora stylosa* subject to elevated CO₂ concentrations and longer tidal flooding duration. *Frontiers in Ecology and Evolution-Conservation*.
- 57 - Dubuc, A.*, Waltham, N., Baker, R., **Marchand, C.**, Sheaves M. 2019. Patterns of fish utilisation in a tropical Indo-Pacific mangrove-coral seascape, New Caledonia. *Plos one*. IF : 2.766
- 56 - Nho, N.*, **Marchand, C.**, Strady E., Nguyen Huu-Phat, Tran-Thi Nhu-Trang. 2019. Bioaccumulation of some trace elements in tropical mangrove plants and snails (Can Gio, Vietnam). *Environmental Pollution*. IF: 4.358
- 55 – David, F.*, **Marchand, C.**, Thiney, N., Tran-Thi Nhu-Trang, Meziane, T. 2019. Short-term changes in the quality of suspended particulate matter in a human impacted and mangrove dominated tropical estuary (Can Gio, Vietnam). *Continental Shelf Research*. IF : 1.942
- 54 - Luis P., Saint-Genis G., Vallon L., Bourgeois C., **Marchand C.**, Record E., Hugoni M. 2019. Contrasted ecological niches shape microbial community structure in mangroves sediments. *Environmental Microbiology*. IF: 5.395
- 53 - David, F.*, **Marchand, C.**, Nguyen Thanh Nho, Taillardat P., Meziane, T. 2019. Trophic relationships and basal resources utilization in the Can Gio Mangrove Biosphere Reserve (Southern Vietnam). *Journal of Sea Research*. IF: 1.888
- 52 - Vinh, T.V.*, Allenbach, M., Aimée, J., **Marchand C.** 2019. Seasonal variability of CO₂ fluxes at different interfaces and vertical CO₂ concentrations profiles in a *Rhizophora* mangrove stand (Can Gio, Viet Nam). *Atmospheric Environment*. IF: 3.708
- 51 - Bourgeois, C.*, Alfaro, A.C., Leopold, A., Andreoli, R., Bisson, E., Desnues, A., Duprey, J.-L. **Marchand, C.** 2019. Sedimentary and elemental dynamics as a function of the elevation profile in a semi-arid mangrove toposequence. *Catena* 173, 289–301. IF: 3.191
- 50 - Vinh, T.V. *, **Marchand C.**, Linh, T.V.K., Vinh, D.D., Allenbach, M. 2019. Allometric models to estimate above-ground biomass and carbon stocks in a *Rhizophora apiculata* tropical mangrove forest (Southern Vietnam). *Forest Ecology and Management*, IF: 3.064

- 49 - Nho, N.*, Tran-Thi Nhu-Trang, Strady E., Vinh, T.V., **Marchand, C.** 2019. Trace metals geochemistry and ecological risks in a tropical mangrove (Can Gio, Vietnam). *Chemosphere*. IF: 4.2
- 48 - Bourgeois, C.*, Alfaro, A.C., Amrit Dencer-Brown, Shaneel Sharma, Jean Louis Duprey, Anne Desnues, **Marchand C.** 2019. Stocks and cycling of macro-nutrients and trace metals in temperate New Zealand estuarine mangroves. *Plant and Soil*. IF: 2.969
- 47 - Jacotot, A.*, **Marchand, C.**, Allenbach, M. 2019. Biofilm and temperature controls on greenhouse gas (CO₂ and CH₄) emissions from a mangrove soil (New Caledonia). *Science of the Total Environment*. IF: 4.9
- 2018**
- 46 - Ha*, T.H., **Marchand, C.**, Aimé*, J, Thi Kim Cuc, N., 2018 Seasonal variability of CO₂ emissions from mature planted mangroves (Northern Viet Nam), *Estuarine Coastal and Shelf Sciences* 213, 28-39. IF: 2.176
- 45 - Jacotot, A.*, **Marchand, C.**, Rosenheim, B. E., Domack E., Allenbach, M. 2018. Mangrove soil carbon stocks along an elevation gradient: influence of the late Holocene marine regression (New Caledonia)". *Marine Geology* 404, 60670. IF: 3.572
- 44 - Jacotot, A.*, **Marchand, C.**, Gensous, S., Allenbach, M. 2018. Effects of elevated atmospheric CO₂ and increased tidal flooding on leaf gas-exchange parameters of two common mangrove species: *Avicennia marina* and *Rhizophora stylosa*. *Photosynthesis Research*. IF: 3.864. <https://doi.org/10.1007/s11120-018-0570-4>
- 43 - Thi Phuong Quynh Le, **Marchand, C.**, Cuong Tu Ho, Thi Thuy Duong, Huong Thi Mai Nguyen, Lu XiXi, Duy An Vu, Phuong Kieu Doan, Nhu Da Le. 2018. CO₂ partial pressure and CO₂ emissions from the lower Red River (Vietnam). *Biogeosciences* 15, 4799-4814. IF: 3.851
- 42 - Thi Phuong Quynh Le, Nhu Da Le, Viet Nga Dao, Rochelle-Newall, E., Thi Mai Huong Nguyen, **Marchand, C.**, Thi Thuy Duong. 2018. Change in carbon flux (1960 - 2015) of the Red River (Vietnam). *Environmental Earth Sciences* 77:658, IF: 1.569.
- 41 - Taillardat P.*, Ziegler, A.D., Friess, D., Widory, D., Truong*, V.V., David*, F., Nguyen Thanh Nho*, **Marchand, C.** 2018. Surface and porewater export from a mangrove forest during contrasting tidal cycles and seasons: implications for tidal creek carbon dynamics. *Geochimica et Cosmochimica Acta* 237, 32-48. IF: 4.609
- 40 - Taillardat P.*, Pim, W., **Marchand, C.**, Friess, D., Widory, D., Baudron, P., Truong*, V.V., David*, F., Nguyen Thanh Nho*, Ziegler, A.D. 2018. Porewater Discharge and Carbon Fluxes in a Mangrove Tidal Creek: the Importance of In Situ Processes over Tidal Export. *Journal of Hydrology* 563, 303-318. IF: 3.483
- 39 - David, F.*, Meziane, T., Nhu-Trang T.T., Truong*, V.V., Nho*, N.T., Taillardat P., **Marchand, C.** 2018. Carbon biogeochemistry and CO₂ emissions in a human impacted and mangrove dominated tropical estuary (Can Gio, Vietnam). *Biogeochemistry*. IF: 3.428. <https://doi.org/10.1007/s10533-018-0444-z>
- 38 - Jacotot, A. *, **Marchand, C.**, Allenbach, M. 2018. Tidal variability of CO₂ and CH₄ emissions from the water column within a *Rhizophora* mangrove forest (New Caledonia). *Science of the Total Environment* 631-632, 334-340. IF: 4.9
- 37 - Aimé, J.*, Allenbach, M., Bourgeois*, C., Léopold, A., Jacotot*, A., Truong*, V.V., Nho*, N.T., Della Patrona, L., **Marchand, C.** 2018. Variability of CO₂ emissions during the rearing cycle of a semi-intensive shrimp farm in a mangrove coastal zone (New Caledonia). *Marine Pollution Bulletin* 129, 194-206, IF: 3.146.

- 36 – Nho, N.*, Strady E., Tran-Thi Nhu-Trang, David*, F., **Marchand, C.** 2018. Trace metals partitioning between particulate and dissolved phases along a tropical mangrove estuary (Can Gio, Vietnam). *Chemosphere* 196, 311-322. IF: 4.2
- 35 – David, F.*, **Marchand, C.**, Taillardat*, P., Nguyen Thanh Nho*, Meziane, T. 2018. Nutritional composition of suspended particulate matter in a tropical mangrove creek during a tidal cycle (Can Gio, Vietnam). *Estuarine Coastal and Shelf Sciences* 200, 126-130. IF: 2.176
- 34 – Ha*, T.H., **Marchand, C.**, Aimé*, J, Hoai Nhon, D., Nguyen Hong, P., Xuan Tung, N., Thi Kim Cuc, N., 2018. Belowground carbon sequestration in a mature planted mangroves (Northern Viet Nam), *Forest Ecology and Management* 407, 191-199. IF: 3.064

2017

- 33 - Kristensen, E, Connolly, R., Ferreira, T.O., **Marchand, C.**, Otero, X.L., Rivera-Monroy, V.H. 2017. Biogeochemical cycles; global approaches and perspectives. In *Mangrove Ecosystems: A Global Biogeographic Perspective Structure, Function and Services*. Springer ed.
- 32 - Noël*, V., Juillot, F., Morin, G, **Marchand, C.**, et al. 2017. Oxidation of Ni-rich mangrove sediments after isolation from the sea (Dumbea Bay, New Caledonia): Fe and Ni behavior and environmental implications. *ACS Earth and Space Chemistry*
- 31 - Grellier, S., Janeau, J-L., Nhon Dang Hoai, Cuc Nguyen Thi Kim, Quynh Le Thi Phuong, Thao Pham Thi Thu, Nhu-Trang Tran-Thi, **Marchand, C.**, 2017. Changes in soil characteristics and C dynamics after mangrove clearing (Vietnam), *Science of The Total Environment*, 593–594, 654-663. IF: 4.9.
- 30 - **Marchand, C.** 2017. Soil carbon stocks and burial rates along a mangrove forest chronosequence (French Guiana). *Forest Ecology and Management*, 384, 92–99. IF: 3.064
- 29 - Leopold*, A.; **Marchand, C.**, Deborde, J., Allenbach, M., 2017. Biogeochemistry of an estuary surrounded by mangroves under semi-arid climate (New Caledonia). *Estuaries and Coasts* 40, 3, 773-791. IF: 2.951

2016

- 28 - Leopold*, A, **Marchand, C.**, Renchon*, A, Deborde, J., Quiniou, T, Allenbach, M. 2016. Net ecosystem CO₂ exchange of “Le Coeur de Voh” mangrove: evidences of water stress controls on mangrove productivity under semi-arid climate (New Caledonia). *Agricultural Forest Meteorology* 223, 217-232. IF: 3.887
- 27 - Della Patrona L, **Marchand C.**, Hubas, C, Molnar*, N, Deborde J, and Meziane T. 2016. Meiofauna as an indicator for assessing the impact of shrimp farming effluents in a mangrove forest (New Caledonia). *Marine Environmental Research* 119, 100-113. IF: 3.101
- 26 - **Marchand, C.**, Fernandez, J.-M., Moreton, B., 2016. Trace metals geochemistry in mangrove sediments and their transfer to mangrove plants (New Caledonia). *Science of Total Environment*, 562, 216-227. IF: 4.9

2015

- 25 - Deborde, J., **Marchand, C.**, Molnar*, N., Della Patrona, L., Meziane, T., 2015. Concentrations and fractionation of C, N, P, Fe, and S in mangrove sediments along an intertidal gradient (New Caledonia). *The Journal of Marine Science and Engineering* 3, 52-7. IF: 1.2. Top 10 most cited paper for this journal.
- 24 - Leopold*, A.; **Marchand, C.**, Deborde, J., Allenbach, M., 2015. Temporal variability of CO₂ fluxes at the sediment-air interface in mangroves (New Caledonia). *Science of Total Environment*, 502 617–626. IF: 4.9
- 23 - Noël*, V., Morin, G, Juillot, F., **Marchand, C.**, et al. 2015. Ni cycling in mangroves sediments of New Caledonia. *Geochimica et Cosmochimica Acta* 169, 82-98. IF: 4.609

- 22 - Debenay J-P, **Marchand C.**, Molnar* N., Aschenbroich* A., Meziane T. 2015. Foraminiferal assemblages as bioindicators to assess potential pollution of mangroves acting as a natural biofilter for shrimp farm effluents (New Caledonia). *Marine Pollution Bulletin* 93, 103-120. IF: 3.146.
- 21 - Aschenbroich*, A., **Marchand, C.**, Molnar*, N., Deborde, J., Hubas, C., Rybarczyk, H, Meziane, T. 2015. Spatio-temporal variations of the composition of organic matter at surface sediments in a mangrove receiving shrimp farm effluents (Saint Vincent Bay, New Caledonia). *Science of the Total Environment* 512-513, 296-307. IF: 4.9
- 2014**
- 20 - Molnar*, N., **Marchand, C.**, Deborde, J., Della Patrona, L., Meziane, T., 2014. Seasonal pattern of the biogeochemical properties of mangrove sediments receiving shrimp farm effluents (New Caledonia). *Journal of Aquaculture and Research Development* 5-5, IF: 1.47
- 19 - Noël*, V., **Marchand, C.**, Juillot, F., Ona-Nguema, G., Viollier, E., Marakovic, G., Olivi, L., Delbes, L., Gelebart, F., Morin, G. 2014. EXAFS analysis of iron cycling in mangrove sediments downstream a lateritized ultramafic watershed (Vavouto Bay, New Caledonia). *Geochimica et Cosmochimica Acta*, 136, 211-228 IF: 4.609
- 18 - Lee, S.Y., Primavera, J.H., Dahdouh-Guebas, F., McKee, K., Bosire, J.O., Cannicci, S., Diele, K., Fromard, F., Koedam, N., **Marchand, C.**, Mendelsohn, I., Mukherjee, N., Record, S. 2014. Redefining the ecological role and services of tropical mangrove ecosystems. *Journal of Global Ecology and Biogeography*, Volume 23, Issue 7, pages 726–743, IF: 6.045
- 2013**
- 17 - Leopold*, A.; **Marchand, C.**, Deborde*, J.; Chaduteau C., Allenbach, M., 2013. Influence of mangrove zonation on CO₂ fluxes at sediment-air interface (New-Caledonia). *Geoderma* 202-203, 62-70, IF: 4.036.
- 16 - Molnar*, N, Welsh, D.T., **Marchand, C.**, Deborde*, J., Meziane, T. 2013. Impacts of shrimp farm effluents on water quality, benthic metabolism and N-dynamics in a mangrove forest (New Caledonia). *Estuarine Coastal and Shelf Sciences* 117, 12-21, IF: 2.176
- 2012**
- 15 - **Marchand, C.**, Fernandez, J.-M., Moreton, B., Landi*, L., Lallier-Vergès, E., Baltzer, F. 2012. The partitioning of transitional metals (Fe, Mn, Ni, Cr) in mangrove sediments downstream of a ferralitized ultramafic watershed. *Chemical Geology*, 300-301: 70–80. IF: 3.347
- 14 - Arfi*, Y., **Marchand, C.**, Wartel, M., Record, E. 2012. Fungal diversity in anoxic-sulfidic sediments in a mangrove soil. *Fungal Ecology*, Volume 5, Issue 2: 282–285. IF: 3.219
- 13 - Arfi*, Y., Buée, M., **Marchand C.**, Levasseur, A., Record, E. 2012. Multiple markers pyrosequencing reveals highly diverse and host-specific fungal communities on the mangrove trees *Avicennia marina* and *Rhizophora stylosa*. *FEMS Microbiol Ecol*, 79, 2: 433–444. IF: 3.72
- 2011**
- 12 - **Marchand, C.**, Lallier-Vergès, E., Allenbach, M., 2011. Redox conditions and heavy metals distribution in mangrove forests receiving effluents from shrimp farms (Teremba Bay, New Caledonia). *Journal of Soils and Sediments* 11: 529–541. IF: 2.522
- 11 - **Marchand, C.**, Allenbach, M., Lallier-Vergès, E., 2011. Relationships between heavy metals distribution and organic matter cycling in mangrove sediments of Conception Bay, New-Caledonia. *Geoderma* 160 (2011) 444–456. IF: 4.036
- 2008**
- 10 - Bouillon, S., Borges, A. V., Castañeda-Moya, E., Diele, K., Dittmar, T., Duke, N. C., Kristensen, E., Lee, S. Y., **Marchand, C.**, Middelburg, J. J., Rivera-Monroy, V. H., Smith III, T.J., and

Dr. Cyril Marchand (Professeur des Universités, Section 36)
Géochimie sédimentaire des écosystèmes côtiers tropicaux

- Twilley, R. R. 2008. Mangrove production and carbon sinks: a revision of global budget estimates. *Global Biogeochemical Cycling* 22, GB 2013. IF: 5.79
- 9 - Kristensen E., Bouillon, S., Dittmar, T., **Marchand, C.** 2008. Organic carbon dynamics in mangrove ecosystem, a review. *Aquatic Botany* 89, 201-219. (All authors have contributed equally to this publication). IF: 1.714
- 8 - **Marchand, C.**, Lallier-Vergès, E., Disnar, J.-R., Kéravis, D., 2008. Organic carbon sources and transformations in mangrove sediments: a Rock-Eval pyrolysis approach. *Organic Geochemistry* 39, 408-421. IF: 3.081
- 7 - Lallier-Vergès, E., **Marchand, C.**, Disnar, J.-R., Lottier, N. 2008. Origin and diagenesis of lignin and carbohydrates in mangrove sediments of Guadeloupe (French West Indies): evidence for a two-step evolution of organic deposits. *Chemical Geology* 255, 388-398. IF: 3.347
- 2007**
- 6 - Duke, N. C., Meynecke, J.-O., Dittmann, S., M. Ellison, A., Anger, K., Berger U., Cannicci, S., Diele, K., Ewel, K. C., Field, C. D., Koedam, N., Lee, S. Y., **Marchand C.**, Nordhaus, I., Smith III, T. J., Dahdouh-Guebas, F. 2007. A world without mangroves? *Science* 317, 41-42. IF: 37.20
- 2006**
- 5 - **Marchand, C.**, Lallier-Vergès, E., Baltzer, F., Alberic, P., Cossa, D., Baillif, P. 2006. Heavy metals distribution in mangrove sediments (French Guiana). *Marine chemistry* 98, 1-17. **Top 10 most requested paper Marine Chemistry 2006.** IF: 2.457
- 4 - **Marchand, C.**, Albéric, P., Lallier-Vergès, E., Baltzer, F. 2006. Distribution and characteristics of dissolved organic matter in mangrove sediments pore waters along the coastline of French Guiana. *Biogeochemistry* 81, 59-75. IF: 3.428
- 2005**
- 3- **Marchand, C.**, Disnar, J.-R., Lallier-Vergès, E., Lottier, N. 2005. Early diagenesis of carbohydrates and lignin in mangrove sediments submitted to variable redox conditions (French Guiana). *Geochimica et Cosmochimica Acta* 69, 131-142. IF: 4.609
- 2004**
- 2- **Marchand, C.**, Baltzer, F., Lallier-Vergès, E., Albéric, P., 2004. Pore-water chemistry in mangrove sediments: relationship with species composition and developmental stages. (French Guiana) *Marine Geology* 208, 361-381. **Top 25 most requested MG 2004.** IF: 3.572
- 2003**
- 1- **Marchand, C.**, Lallier-Vergès E. and Baltzer F. 2003. The composition of bulk sedimentary organic matter in relation to the dynamic features of a mangrove-fringed coast in French Guiana. *Estuarine Coastal and Shelf Sciences* 56, 119-130. IF: 2.176

Conférences (* communications orales):

- 44 – Guntenspergen, G. et al., 2019*. Modeling Mangrove Response to Changing Sea Level. Meeting on Mangrove ecology, functioning and Management (MMM5), July 2019, Singapore.
- 43 - **Marchand, C.**, et al. 2019*. Trace Metals Dynamics in a Mangrove Developing Downstream a Densely Populated Mega-city (Can Gio, Ho Chi Minh City, Vietnam). Meeting on Mangrove ecology, functioning and Management (MMM5), July 2019, Singapore.
- 42 - Dubuc, A., Sheaves, M., Waltham, N., Baker, R., **Marchand, C.**, 2018*. Hypoxia in mangroves: occurrence and impact on nursery fish habitats. Ocean Deoxygenation Conference. September 2018, Kiel, Germany.
- 41 - **Marchand, C.**, Jacotot, A., Allenbach, M., 2018*. Variability of CO₂ and CH₄ emissions from the

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- soil and the water column of a *Rhizophora* mangrove forest (New Caledonia). Mangrove and Saltmarsh Society Conference (AMSN), April 2018, Sydney, Australia.
- 40 – Jacotot, A., Allenbach, M., **Marchand, C.**, 2017*. Evolution of photosynthetic activity under elevated atmospheric CO₂ and longer immersion time of two mangrove species. Australian Mangrove and Saltmarsh Society Conference (AMSN), March 2017, Hobart, Australia.
- 39 - Dubuc, A., Sheaves, M., Waltham, N., **Marchand, C.**, 2017*. Are mangroves in the Indo-Pacific really attractive to fish? Australian Mangrove and Saltmarsh Society Conference (AMSN), March 2017, Hobart, Australia.
- 38 - Nguyen Thanh Nho, **Marchand C.**, Strady, E., David, F., Tran Thi Nhu Trang. 2017*. Spatial and seasonal variability of trace metals in tropical mangrove estuary (Can Gio, Viet Nam), The 5th International Symposium on Environmental Analytical Chemistry (ISEAC 5 – ASIA), HCMC VietNam.
- 37 - **Marchand, C.**, and Kristensen, E. 2016*. Main factors driving GHG emissions from mangrove sediments. Meeting on Mangrove ecology, functioning and Management (MMM4), July 2016, Florida (USA).
- 36 - Leopold, A., **Marchand, C.**, Allenbach, M. 2016*. Net ecosystem CO₂ exchanges between a dwarf *Avicennia marina* var. *australasica* mangrove and the atmosphere: application of the eddy-covariance flux tower to “Le Coeur de Voh” mangrove (New Caledonia). Meeting on Mangrove ecology, functioning and Management (MMM4), July 2016, Florida (USA).
- 35 - Taillardat P., Ziegler A.D., Friess D., Widory D., **Marchand, C.** 2016*. Lateral carbon and nutrients exchanges in a low latitude mangrove tidal creek: a multi stable isotopes approach. Meeting on Mangrove ecology, functioning and Management (MMM4), July 2016, Florida (USA).
- 34 - Jacotot, A., **Marchand, C.**, Allenbach, M. 2016. Influence of increased CO₂ concentrations and sea level rise on leaf gas exchange parameters – greenhouses experiments. Meeting on Mangrove ecology, functioning and Management (MMM4), July 2016, Florida (USA).
- 33 – Bourgeois, C., **Marchand, C.**, Alfaro, A., Leopold, A. 2016. Relative and synergetic impacts of climate and direct anthropogenic pressure on the performance of *Avicennia marina*: an *in situ* latitudinal approach. Meeting on Mangrove ecology, functioning and Management (MMM4), July 2016, Florida (USA).
- 32 – Juillot et al. 2016. From garnierite toward pyrite: A journey at the molecular level that depicts the crystal-chemistry of nickel in New Caledonia. Goldschmidt Conference June 2016, Japan.
- 31 – Taillardat P, Ziegler AD, Friess D, **Marchand C**, Ohte N, Widory; D. 2016 Lateral Carbon and Nutrients Exchanges in a Mangrove Tidal Creek: A Multi-Stable Isotope Approach. Goldschmidt Conference June 2016, Japan.
- 30 - Dubuc, A., Sheaves, M., Waltham, N., **Marchand, C.**, Baker, R. 2016*. Dissolved oxygen in mangroves and impacts on habitat value. Australian Mangrove and Saltmarsh Society Conference (AMSN), May 2016, Darwin, Australia.
- 29 - David, F., Taillardat, P., **Marchand, C.**, Molnar, N., Meziane, T. 2016. How is shrimp farming impacting mangrove ecosystems in the Indo-Pacific? World Aquaculture Society. February 2016, Nevada, USA.
- 28 - **Marchand, C.**, Meziane, T., Allenbach, M., Leopold, A., Tran Thi, N.T., Alfaro, A. 2015*. Influence of climate changes on mangrove ability to fix and store CO₂. Our Common Future Under Climate Change (CFCC), July 2015, Paris.
- 27 - **Marchand, C.**, Leopold, A., Jacotot, A., Allenbach, M. 2015*. Carbon stocks and fluxes in the mangroves of New Caledonia. AMSN Australian Mangrove and Saltmarsh Society Conference 2015: Working with Mangrove and Saltmarsh for Sustainable Outcomes, February 2015,

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Wollongong, Australia

- 26 - **Marchand, C.**, Allenbach, M., Leopold, A., Jacotot, A., 2014*. Reciprocal interactions between mangrove plants and substrate Consequences on mangrove restoration. 2nd conference of the Society for Ecological Restoration Australasia (SERA). November 2014, Noumea, New Caledonia
- 25 - Andreoli, R., **Marchand, C.**, Leopold, A., Tinel, C., Fontanaz, D. 2014. Mangroves monitoring using VHR Pléiades data under mining constraints. Pléiades Days 2014, 1-3 April 2014. Toulouse, France.
- 24 - **Marchand, C.**, Leopold, A., Deborde, J., Allenbach, M. 2013*. Spatio-temporal evolution of CO₂ fluxes from mangrove sediments and mangrove tidal creeks. ECSA 53: Estuaries and coastal areas in times of intense change, 13 – 17 October 2013, Shanghai, China.
- 23 - Noël, V., **Marchand, C.**, Juillot, F, Ona-Nguema, G, Marakovic, G, Morin, G. 2013. XAS Crystal-Chemistry of Fe in Mangrove Sediments from New Caledonia. Implication for Iron Biogeochemical Cycling. *Mineralogical Magazine*, 77(5) 1858. *Goldschmidt conference* 2013.
- 22 – Andreoli, R., **Marchand, C.**, Folcher-Selmaoui, N., Yesou, H., Tinel, C., Fontannaz, D. 2013*. Monitoring of Pacific islands environment from the mountain to the coral reefs under mining constraints: case study of the Great South of New Caledonia with Pleiades VHR data. International Geoscience and remote sensing symposium. July 2013, Melbourne, Australia.
- 21 - **Marchand, C.**, M. Allenbach, J.-M. Fernandez & E. Lallier-Vergès. 2012. How mangroves act as a filter toward trace metals between open-cast mining and lagoon. Meeting on Mangrove ecology, functioning and Management. Sri Lanka.
- 20 - Léopold, A., **C. Marchand**, J. Deborde, M. Allenbach. 2012. One year survey of CO₂ fluxes from sediments and water column in mangrove ecosystem (New Caledonia). Meeting on Mangrove ecology, functioning and Management. Sri Lanka.
- 19 - Molnar, N., Welsh, D., Meziane, T., Deborde, J., **Marchand, C.** 2011. Benthic metabolism and N-dynamics in mangrove sediments subject to shrimp farm effluents (New Caledonia). 14th South African Marine Science Symposium (SAMSS), 4 – 7 April 2011, Rhodes University, South Africa.
- 18 - Molnar, N., Welsh D., Meziane T., Deborde J., **Marchand C.** 2010. Métabolisme benthique et dynamique de l'azote dans une mangrove soumise aux rejets d'une ferme crevetteicole (Nouvelle-Calédonie). 26^{èmes} Forum des Jeunes Océanographes, Wimereux, 30 septembre et 1er octobre 2010.
- 17 – **Marchand, C.** 2009*. Do mangroves act as a filter towards heavy metals along tropical coastline? 11th Pacific Science Inter-Congress. Tahiti 2-6/03/2009.
- 16 - Lallier-Vergès, E., **Marchand, C.**, Albéric, P. 2007. Impact of organic matter decomposition on heavy metal distribution in mangrove sediments (French Guiana). EGU 2007 Vienna, Austria, 15 – 20 April
- 15- Lallier-Vergès, E., **Marchand, C.**, Albéric, P., Cossa, D., 2007. Impact des conditions de dégradation de la matière organique sur la distribution des métaux lourds dans les sédiments de mangrove – le cas de la Guyane Française. Association des Sédimentologues Français (ASF), Rouen, France 23-25/10/2007.
- 14 - **Marchand, C.**, M. Allenbach, P. Baillif, T. Hoibian, P. Albéric, E. Lallier-Vergès; 2006*. The fate of organic matter and heavy metals in an urban mangrove swamp, Nouméa, New Caledonia. Society of Wetland Scientists (SWS), Cairns, Australia, 10-15/07/2006.
- 13 - **Marchand, C.**, E. Lallier-Vergès, F. Baltzer, J.-R; Disnar 2006*. Organic matter dynamics in an *Avicennia germinans* mangrove swamp (French Guiana). Meeting on Mangrove Macrobenthos 2 (MMM2), Gold Coast, Australia, 26-30/06/2006.

- 12 - Lallier-Verges, E., **Marchand, C.**, Albéric, P. and Disnar, J.-R., 2005. The fate of organic matter in mangrove sediments under variable redox conditions (French Guiana). 22^{ème} International Meeting of Organic Geochemistry (IMOG), Séville, Espagne, 12-16/09/05.
- 11 - **Marchand, C.**, Baltzer, F., Lallier-Verges, E., Albéric, P. and Cossa, D., 2004*. Distribution des métaux lourds dans les sédiments de mangrove de Guyane française – Influence de la dynamique sédimentaire – Influence de la matière organique -. Ecosystème côtier amazonien (ECOLAB), Cayenne, Guyane française, 30/11-05/12/2004.
- 10 - **Marchand, C.**, Lallier-Vergès, E., Baltzer F. and Albéric, P., 2004. Variabilités spatiales et saisonnières des paramètres physico-chimiques des sédiments de mangrove de Guyane française – Influence du développement de la végétation. Ecosystème côtier amazonien (ECOLAB), Cayenne, Guyane française, 30/11-05/12/2004.
- 9 - Debenay, J.P., Jouanneau, J.M., Sylvestre, F., **Marchand, C.**, Lallier-Vergès, E. and Guiral, D., 2004. Microbenthos, its interrelation with sediments and organic matter. Ecosystème côtier amazonien (ECOLAB), Cayenne, Guyane française, 30/11-05/12/2004.
- 8 - **Marchand, C.**, Albéric, P., Baltzer, F. and Lallier-Vergès, E., 2003*. Processes of organic accumulation in sediment and pore-water along the mangrove fringed coast of French Guiana. Society of Wetland Scientists (SWS), New-Orleans, LA, USA, 8-13/06/2003.
- 7 - Lallier-Vergès, E., **Marchand, C.**, Baltzer, F. and Albéric, P., 2003*. Reciprocal effect between mangrove species and sediment biogeochemistry in French Guiana. Society of Wetland Scientists (SWS), New-Orleans, LA, USA, 8-13/06/2003.
- 6 - **Marchand, C.**, Baltzer, F., Lallier-Vergès, E. et Albéric, P., 2003. Influences réciproques entre la végétation de mangrove et la géochimie des sédiments sus-jacents (Guyane française). Association des Sédimentologues Français (ASF), Bordeaux, France 12-14/10/2003.
- 5 - Albéric, P., **Marchand, C.**, Baltzer, F. et Lallier-Vergès, E., 2003. Dynamique de la matière organique dissoute en fonction des gradients physico-chimiques dans les sédiments de la mangrove de Sinnamary (Guyane française). Association des Sédimentologues Français (ASF), Bordeaux, France 12-14/10/2003.
- 4 - **Marchand, C.**, Lallier-Vergès, E., Baltzer F and Albéric, P., 2002*. Dynamique de la matière organique lors de l'évolution d'une mangrove à palétuviers gris (*A. germinans*), Guyane française. Un exemple de processus suboxiques en milieu hydromorphe. Journées Nationales d'Etudes des Sols (JNES), Orléans, France 22-24/10/2002.
- 3 - **Marchand, C.**, Baltzer, F. and Lallier-Verges, E., 2001*. Organic composition and environmental conditions in mangrove sediments : a key for reconstructing the evolution of the French Guiana coast. Association des Sédimentologues Français (ASF), Orléans, France 12-14/11/2001.
- 2 - **Marchand, C.**, Baltzer, F. and Lallier-Verges, E., 2001*. Biogeochemistry of mangrove sediment as witness of the evolution of a highly dynamic mangrove-fringed coast in French Guiana. 2001. Geochemistry in the Tropics (GEOTROP), Townsville, Australia 7-11/05/2001.
- 1 - **Marchand, C.**, Lallier-Vergès, E. and Baltzer F., 2001. Organic markers as witnesses of the dynamic features of the mangrove coast in French Guyana. 2001. European Union of Geosciences (EUG), Strasbourg, France 8-12/04/2001.

Divers

Séminaires invités:

- **Marchand, C.**, 2015. The Mangrove: A Natural Biogeochemical Reactor. USGS National Wetlands Research Center, Louisiana, USA. 20 mai 2015.
- **Marchand, C.**, 2015. The Mangrove: A Natural Biogeochemical Reactor. College of Marine Science, University of South Florida, USA. 30 avril 2015.
- **Marchand, C.**, 2014. The Blue Carbon Theory: vegetated coastal habitats acting as climate change buffers? National University of Singapore, Singapore, 7 Novembre 2014.
- **Marchand, C.**, 2013. Biogeochemistry of mangrove coasts, Symposium Marine Science dans le cadre de l'année de la France en Belgique. Université KU Leuven, Louvain, Belgique, 28 mai 2013.
- **Marchand, C.**, 2012. Heavy metal and carbon dynamics in mangrove ecosystems. Institute for Applied Ecology, Auckland University of Technology, Auckland, Nouvelle Zélande. 2 août 2012.
- **Marchand, C.**, 2009. La mangrove un écosystème fragile. Observatoires des mines en milieux fragiles dans un contexte de changement global. Aix en Provence, 23/24 mars 2009.
- **Marchand, C.**, 2008. La mangrove agit-elle comme un filtre vis-à-vis des métaux lourds le long des littoraux tropicaux? Séminaire de l'Institut Océanographique de Paris, 22/02/2008.

Chapitres d'ouvrage :

- **Marchand, C.**, 2018. Mangrove de Nouvelle Calédonie sous surveillance. Dans : Mangrove, une forêt dans la mer. Un ouvrage collectif illustré sous la direction de François Fromard, Emma Michaud, Martine Hossaert-McKey. 168 pp. Edition Le cherche midi.
- **Marchand, C.**, 2017. Mangroves, à la rencontre des eaux douces et marines / La mangrove, ligne de défense naturelle des littoraux tropicaux / Les mangroves : entre croissance et régression. Dans Les écosystèmes marins dans la régulation du climat, 84pp, Fonds français pour l'environnement mondial.
- **Marchand, C.**, 2012. Les sols de mangrove. Dans Guyane Océane. Ouvrage réalisé sous la direction de Daniel Guiral et Roger Le Guen. 474 pp. IRD éditions/ Le Guen édition.

Organisation de séminaire :

- **Regional Networking Concerning the Evolution of Mangroves with Climate Change and Demographic Increase.** 2013. Ho Chi Minh City, Vietnam. 3 au 6 Octobre 2013. 40 participants.
- **Mangroves of Tomorrow.** 2012. Nouméa, Nouvelle Calédonie. 9 au 14 décembre 2012. 10 participants.
- **Mangroves de Nouvelle-Calédonie : Etat des connaissances et prospectives.** 2008. Nouméa, Nouvelle Calédonie, 25 avril 2008. 20 participants.