

Curriculum Vitae

MICHAEL DAVID DeGRANDPRE

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EDUCATION

- B.S. Chemical Engineering, June 1985, Montana State University.
- Ph.D. Analytical Chemistry, June 1990, University of Washington, Advisor: L. Burgess.
- Postdoctoral Scholar, Woods Hole Oceanographic Institution, Oct. 1990-April 1993, Advisor: F. Sayles.

PROFESSIONAL EXPERIENCE

- Professor of Chemistry, University of Montana, Missoula, MT, 2006-present.
- Associate Professor of Chemistry, University of Montana, Missoula, MT, 2000-2006.
- Assistant Professor of Chemistry, University of Montana, Missoula, MT, 1996-2000.
- Research Associate, Woods Hole Oceanographic Institution, 1993-1996.

PROFESSIONAL HONORS AND AWARDS

Provost's Distinguished Lecturer (2016), Ocean Health XPRIZE Awards for Affordable and Accurate Autonomous pH Sensors (2015); MEL Distinguished Visiting Fellowship 2014 (Xiamen, China); Fulbright Foreign Scholar Award 2010-2011 (Center for Oceanographic Research in the Eastern South Pacific, University of Concepcion, Chile); Visiting Fellow Scholarship, University of Kiel, Institute of Marine Sciences, 2002; University Merit Awards (1999, 2001, 2003, 2005, 2007, 2009, 2010, 2012, 2014, 2015, 2017, 2019, 2021).

PROFESSIONAL AFFILIATIONS: American Chemical Society, 1986-present; American Geophysical Union, 1992-present; Associated Sciences of Limnology and Oceanography, 1996-present.

RESEARCH INTERESTS: Development and application of chemical sensors for studying natural waters; carbon cycling in freshwater and marine ecosystems; Arctic Ocean biogeochemistry.

GRADUATE and POST-DOCTORAL ADVISEES (12 M.S., 9 Ph.D., 8 post-docs): Qipei Shangguan (Ph.D. in progress), Fischer Young (Ph.D. in progress), Alec Johnson (M.S. 2021), Brittany Peterson (M.S. 2019), Reba Van Beusekom (M.S. 2018), Reuben Darlington (M.S. 2017), Fakhru Islam (M.S. 2015), Katherine Harris (Ph.D. 2013), Sarah Cullison-Gray (Ph.D. 2010), Janet Lynch (M.S. 2007), Eric Paprocki (M.S. 2007), Matt Seidel (Ph.D. 2006), Shigui Yuan (Ph.D. 2006), Todd Martz (Ph.D. 2005), Steve Parker (Ph.D. 2005), Jason Reynolds (M.S. 2001), Jeff Carr (M.S. 2000), Matt Baehr (Ph.D. 2000), Craig French (M.S. 1999), Jay Seiter (M.S. 1997). **Post docs:** Chun-Ze Lai (2015-2019), Tommy Moore (2009-2011), Brian Keller (2004-2007), Todd Martz (2006), Reggie Spaulding (2005-2008), Stacy Smith (2005-2006), Shigui Yuan (2006-2008), Gerald Olbu (1997-2002).

SYNERGISTIC ACTIVITIES

- Associate Editor, *Limnology and Oceanography: Methods*, 2008-present.
- Research paper and proposal reviews: ~30 from 2019 - present.

- Invited workshops, panels and committees: Advisory Committee for the Office of Polar Programs (2017 - present), NSF Office of Polar Programs Arctic Natural Sciences review panel (virtual) (November 2019).
- University committees: Graduate Council (2019-present), Faculty Evaluation Committee (2019-present), Department Graduate Education Committee Chair (2013-present), Student Advisor for Environmental Chemistry Option (2006-present).
- Technology transfer: co-owner of Sunburst Sensors, a company to develop and commercialize autonomous chemical sensors for aquatic chemistry research (1999-present).

PUBLICATIONS

Fennel, K., Cyronak, T., DeGrandpre, M., Ho, D.T., Laruelle, G.G., Maher, D. and J. Moriarty **(2021)**. Carbon, Coast, and the Climate, *Oxford Research Encyclopedia of Climate Science*, submitted.

DeGrandpre, E. L., DeGrandpre, M. D., Colman, B. P. and H. M. Valett **(2021)**. Observations of river solute concentrations during ice formation, *Env. Sci. Technol. Water*, <https://doi.org/10.1021/acsestwater.1c00064>.

Takeshita, Y., Warren, J.K., Xuewu, L., Spaulding, R.S., Byrne, R.H., Carter, B.R., DeGrandpre, M.D., Murata, A., and S. Watanabe **(2021)**. Consistency and stability of purified meta-cresol purple for spectrophotometric pH measurements in seawater, *Mar. Chem.*, 236, 104018, <https://doi.org/10.1016/j.marchem.2021.104018>.

Iriarte, J. L. Jurleys, P. V., Saldías, G.S., Allen, S.E., Torres, R. Vergara, M., Sobarzo, M. and M.D. DeGrandpre **(2021)**. Seasonal variability of the carbonate system in a marine- terminating glacier-fjord system, Straits of Magellan (53°S), submitted to *Frontiers in Marine Science*.

Pezner A. K., Courtney T. A., Page H.N., Beatty C.M., Giddings S.N., DeGrandpre M.D. and A. J. Andersson **(2021)**. Lateral, vertical, and temporal variability of seawater carbonate chemistry at Hog Reef, Bermuda, *Frontiers in Marine Science*, 8, 562267, doi: 10.3389/fmars.2021.562267.

Shangguan, Q., Lai, C., Beatty, C.M., Young, F.L., Spaulding, R.S., and M.D. DeGrandpre **(2021)**. Autonomous in situ measurements of freshwater alkalinity, *Limnol. Oceanog. Methods*, 19, 51-66, <https://doi.org/10.1002/lom3.10404>.

Bakker, D. C. E. et al **(2020)**. Surface Ocean CO₂ Atlas Database Version 2020 (SOCATv2020) (NCEI Accession 0210711), NOAA National Centers for Environmental Information, <https://doi.org/10.25921/4xkx-ss49>.

DeGrandpre, M., Evans, W., Timmermans, M.-L., Krishfield, R., Williams, B., and M. Steele **(2020)**. Changes in the Arctic Ocean carbon cycle with diminishing ice cover. *Geophys. Res. Letters*, 47, <http://dx.doi.org/10.1029/2020GL088051>.

Ouyang, Z., Qi, D., Chen L., Zhong, W., Takahashi, T., DeGrandpre, M.D., Chen, B., Gao, Z., Nishino, S., Murata, A., Sun, H., Robbins, L.L., Jin, M., and W.-J. Cai **(2020)**. Sea-ice loss amplifies summer-time decadal CO₂ increase in the western Arctic Ocean, *Nature Climate Change*, 10, 678–684, <https://doi.org/10.1038/s41558-020-0784-2>.

- Vergara Jara, M. J., DeGrandpre, M. D., Torres, R., Beatty, C. M., Cuevas, L. A., Alarcón, E. and J. L. Iriarte **(2019)**. Seasonal changes in carbonate saturation state and air-sea CO₂ fluxes during an annual cycle in a stratified-temperate fjord (Reloncaví Fjord, Chilean Patagonia), *J. Geophys. Res. – Biogeosciences*, 124, <https://doi.org/10.1029/2019JG005028>.
- DeGrandpre, M. D., Lai, C.-Z., Timmermans, M.-L., Krishfield, R. A., Proshutinsky, A., and Torres, D. **(2019)**. Inorganic carbon and pCO₂ variability during ice formation in the Beaufort Gyre of the Canada Basin. *J. Geophys. Res. – Oceans*, 124, 4017–4028, <https://doi.org/10.1029/2019JC015109>.
- Tilbrook, B., Jewett, E.B., DeGrandpre, M.D., Hernandez-Ayon, J.M., Feely, R.A., Gledhill, D.K., Hansson, L., Isensee, K., Kurz, M.L., Newton, J.A., Siedlecki, S.A., Chai, F., Dupont, S., Graco, M.I., Calvo, E., Greeley, D., Kapsenberg, L., Lebrech, M., Pelejero, C., Schoo, K. and T. Maciej **(2019)**. An Enhanced Ocean Acidification Observing Network: From People to Technology to Data Synthesis and Information Exchange, *Front. Mar. Sci.*, 6, 337, doi: 10.3389/fmars.2019.00337.
- Benway, H.M., Lorenzoni, L., White, A.E., Fiedler, B., Levine, N., Nicholson, D.P., DeGrandpre, M.D., Sosik, H.M., Church, M.J., O'Brien, T.D., Leinen, M., Weller, R.A., Karl, D.M., Henson, S., and R.M. Letelier **(2019)**. Ocean Time Series Observations of Changing Marine Ecosystems: An Era of Integration, Synthesis, and Societal Applications, *Front. Mar. Sci.*, 6, 393, doi: 10.3389/fmars.2019.00393.
- Lai, C.-Z., DeGrandpre, M., and R. Darlington **(2018)**. Autonomous optofluidic chemical analyzers for marine applications: Insights from the Submersible Autonomous Moored Instruments (SAMI) for pH and pCO₂, *Front. Mar. Sci.*, 4, 438, doi:10.3389/fmars.2017.00438. **invited manuscript**
- Neuer, S., Benway, H., Bates, N., Carlson, C., Church, M., DeGrandpre, M., Dunne, J., Letelier, R., Lomas, M., Lorenzoni, L., Muller-Karger, F., Perry, M.-J., and P. Quay **(2017)**. Monitoring ocean change in the 21st Century, *Eos*, 98, <https://doi.org/10.1029/2017EO080045>.
- Stets, E.G., Butman, D., McDonald, C.P., Stackpoole, S., DeGrandpre, M.D. and R.G. Striegl **(2017)**. Carbonate buffering and metabolic controls on carbon dioxide in rivers, *Global Biogeochemical Cycles*, 31, 663–677, doi:10.1002/2016GB005578. **Highlighted on the cover issue**, <http://onlinelibrary.wiley.com/doi/10.1002/gbc.20452/epdf> and the AGU newsletter *EOS* - https://eos.org/research-spotlights/why-is-there-so-much-carbon-dioxide-in-rivers?utm_source=rss&utm_medium=rss&utm_content=why-is-there-so-much-carbon-dioxide-in-rivers.
- Islam, F., DeGrandpre, M., Beatty, C., Timmermans, M.-L., Krishfield, R., Toole, J. and S. Laney **(2017)**. Sea surface pCO₂ and O₂ dynamics in the partially ice-covered Arctic Ocean, *J. Geophys. Res. – Oceans*, 122, doi:10.1002/2016JC012162. **Highlighted in the AGU newsletter EOS** - <https://eos.org/research-spotlights/how-arctic-ice-affects-gas-exchange-between-air-and-sea>.
- Bakker, D. et al. (85 authors) **(2016)**. Surface Ocean CO₂ Atlas (SOCAT) V4. doi:10.1594/PANGAEA.866856.
- Lai, C.-Z., DeGrandpre, M.D., Wasser, B., Brandon, T., Clucas, D., Jaqueth, E.J., Benson, Z., Beatty, C. M. and R.S. Spaulding **(2016)**. Spectrophotometric measurement of freshwater pH with purified meta-cresol purple and phenol red, *Limnol. Oceanogr. Methods*, 14, 864–873, doi: 10.1002/lom3.10137.

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