

## Ding He (Ph.D)

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### Work and Educational experiences:

The Hong Kong University of Science and Technology

Assistant Professor 2021.9—present

Zhejiang University

Hundred Talent Professor, Doctoral Supervisor 2016.7—2021.8

Auburn University

Tenure Track Assistant Professor 2016.7

Tongji University

Visiting Scholar 2016.4—2016.7

University of Georgia

Department of Oceanography, Postdoctoral Fellow 2014.9—2016.4

Florida International University

Department of Chemistry and Biochemistry, Ph.D. of Marine Organic Geochemistry 2010.9—2014.7

### Publications (Till Aug. 2023)

#### ① **Published research articles (79 in total; \* corresponding author):**

##### **After Joining the HKUST (41 in total)**

2023

- (79) Liang, W., Liu, T., Wang, Y., Jiao, J.J., Gan, J., & **He, D.\*** (2023). Spatiotemporal-aware machine learning approaches for dissolved oxygen prediction in coastal waters. *Science of The Total Environment*, accepted.
- (78) Liang, W., Chen, X., Zhao, C., Li, L.\*, & **He, D.\*** (2023). Seasonal changes of dissolved organic matter chemistry and its linkage with greenhouse gas emissions in saltmarsh surface water and porewater interactions. *Water Research*, 120582. <https://www.sciencedirect.com/science/article/pii/S0043135423010229>
- (77) Zhao, C., Zhang, H., Li, P., Yi, Y., Zhou, Y., Wang, Y., ... & **He, D.\*** (2023). Dissolved organic matter cycling revealed from the molecular level in three coastal bays of China. *Science of The Total Environment*, 166843. <https://www.sciencedirect.com/science/article/pii/S0048969723054682>
- (76) Wang, H., Zhang, Q., Li, X., Yi, Y., Wang, Q., Gao, L., Wang, J., **He, D.\*** & Li, M.\* (2023). Surface microrelief induced by tillage management alters the pathway and composition of dissolved organic matter exports from soils to runoff during rainfall. *Water Research*, 120554. <https://www.sciencedirect.com/science/article/pii/S0043135423009946>

- (75). Yan, Z., Xin, Y.\* , Zhong, X., Yi, Y., Li, P., Wang, Y., Zhou, Y., Zhou, Y., He, C., Shi, Q., **He, D.\*** (2023). Dissolved organic nitrogen cycling revealed at the molecular level in the Bohai and Yellow Sea. *Water Research*, 120446. <https://www.sciencedirect.com/science/article/pii/S0043135423008862>.
- (74). Li, S.L.\* , Zhang, H., Yi, Y.B.\* , Zhang, Y.T., Qi, Y.L., Mostofa, K.M.G., Guo, L.D., **He, D.**, Fu, P.Q., & Liu, C.Q. (2023). The potential impacts of climate and anthropogenic-induced changes on DOM dynamics among the major Chinese Rivers. *Geography and Sustainability*. <https://doi.org/10.1016/j.geosus.2023.07.003>
- (73). Liu, Z., Wang, Y.\* , Liu, T.\* , Zhang, L., Li, W., Liao, J., **He, D.** (2023). Semantic-enhanced Contrastive Learning for Session-based Recommendation. *Knowledge-Based Systems*, accepted and in press.
- (72). He, C., Yi, Y., **He, D.**, Cai, R., Chen, C., & Shi, Q.\* (2023). Molecular composition of dissolved organic matter across diverse ecosystems: Preliminary implications for biogeochemical cycling. *Journal of Environmental Management*, 344, 118559.
- (71). Nai, H., Zhong, J.\* , Yi, Y., Lai, M., **He, D.**, Dittmar, T., Liu, C.Q., Li, S.L., & Xu, S.\*(2023). Anthropogenic Disturbance Stimulates the Export of Dissolved Organic Carbon to Rivers on the Tibetan Plateau. *Environmental Science & Technology*. <https://pubs.acs.org/doi/10.1021/acs.est.3c01593>
- (70). Wang, Y., Luo, T., Chen, J., Zhan, Z.W., Song, Z., Xing, L.,& **He, D.\*** (2023). Influence of salinity on hydrogen isotope fractionation of n-alkanes in mangrove leaves and surface sediments: A comparison across various geomorphological settings. *Chemical Geology*. <https://doi.org/10.1016/j.chemgeo.2023.121589>
- (69). Yan, Q., Zhao, Y., Ma, R., Wang, B., Zhu, Z., Li, T., **He, D.**, Hocart, C. H.; & Zhou, Y.\*(2023). Capping the hydroxyl groups (-OH) of  $\alpha$ -cellulose to reduce Hy-groscopicity for accurate  $^{18}\text{O}/^{16}\text{O}$  measurement by EA/Py/IRMS. *Talanta*, 262, 124698. <https://doi.org/10.1016/j.talanta.2023.124698>
- (68). Zhao, C., Zhou, Y., Wang, Y., Huang, W., He, C., Shi, Q., & **He, D.\*** (2023). Seasonal variations in dissolved organic matter chemistry in a eutrophic, semi-enclosed bay in Southeastern China: Implications for carbon cycling. *Journal of Hydrology*, 622, 129679. <https://doi.org/10.1016/j.jhydrol.2023.129697>
- (67). Zhao, C., Xu, X., Chen, H., Wang, F., Li, P., He, C., Shi, Q., Yi, Y., Li, X., Li, S., & **He, D.\*** (2023). Improved understanding of photochemical processing of dissolved organic matter by using machine learning approaches. *Environmental Science & Technology*. <https://doi.org/10.1021/acs.est.3c00199>.
- (66). Yi, Y., He, C., Klaproth, K., Merder, J., Li, P., Qi, Y., Fu, P., Li, S., Dittmar, T., Shi, Q.\* , **He, D.\*** (2023). Will various interpretation strategies of the same ultrahigh-resolution mass spectrometry data tell different biogeochemical stories? A first assessment based on natural aquatic dissolved organic matter. *Limnology and Oceanography: Methods*. doi: 10.1002/lom3.10548. <https://aslopubs.onlinelibrary.wiley.com/doi/full/10.1002/lom3.10548>
- (65). Yi, Y., Liu, T., Merder, J., He, C., Bao, H., Li, P., Li, S., Shi, Q. & **He, D.\*** (2023). Unraveling the Linkages between Molecular Abundance and Stable Carbon Isotope Ratio in Dissolved Organic Matter Using Machine Learning. *Environmental Science & Technology*.

<https://doi.org/10.1021/acs.est.3c00221>

- (64). Pan, Q., Hu, W., **He, D.**, He, C., Zhang, L., & Shi, Q.\* (2023). Machine-learning assisted molecular formula assignment to high-resolution mass spectrometry data of dissolved organic matter. *Talanta*, 259, 124484.
- (63). Chen, Y., Sui, W., Wang, J., **He, D.**, Dong, L., Waniek, J. J., & Wang, F.\* (2023). Refractory humic-like dissolved organic matter fuels microbial communities in deep energy-limiting marine sediments. *Science China Earth Sciences*, 1-19.  
<https://link.springer.com/article/10.1007/s11430-022-1123-y>
- (62). Wang, K., Fang, H.\* , He, G., Huang, L., Cui, Z., Gao, Q., Xu, S., Wang, D., Wu, X. & **He, D.** (2023). Optical and molecular diversity of dissolved organic matter in sediments of the Daning and Shennong tributaries of the Three Gorges Reservoir. *Frontiers in Environmental Science*, doi 10.3389/fenvs.2022.1112407. <https://www.frontiersin.org/articles/10.3389/fenvs.2022.1112407/full>
- (61). Hu, T., Luo, M.\* , Qi, Y., **He, D.**, Chen, L., Xu, Y., & Chen, D.\* (2023). Molecular evidence for the production of labile, sulfur-bearing dissolved organic matter in the seep sediments of the South China Sea. *Water Research*, 233, 119732. <https://doi.org/10.1016/j.watres.2023.119732>
- (60) Wang, K., Pang, Y., Yi, Y., Yang, S., Wang, Y., He, C., Shi, Q., & **He, D.** \*(2023) Response of dissolved organic matter chemistry to flood control of a large river reservoir during an extreme storm event. *Water Research* 230, 119565.  
<https://www.sciencedirect.com/science/article/pii/S0043135423000015>
- (59). Liu, Z., Cai, R.\* , Chen, Y., Zhuo, X., He, C., Zheng, Q., **He, D.**, Shi, Q., Jiao, N.\* (2023). Direct production of bio-recalcitrant carboxyl-rich alicyclic molecules evidenced by a bacterium-induced steroid degradation experiment. *Microbiology Spectrum*, e04693-22.  
<https://journals.asm.org/doi/full/10.1128/spectrum.04693-22>.
- 2022
- (58). Lu, Y., Cao, J.\* , Fu, J., Liu, L., Wu, Q., Yang, X., Yang, S., Cheng, S., Qiu, X., **He, D.** (2022). Discovery of a Hadean xenocrystic zircon (4100 Ma) in the Cathaysia Block. *Science Bulletin*, 67(23), 2416-2419.
- (57). Wang, Y. P., Luo, T., Zhou, X., Zhan, Z. W., Song, Z.\* , & **He, D.** (2022). Inverse relationships between salinity and hydrogen isotope fractionation of *n*-alkanes in the *Aegiceras corniculatum* leaves and surface sediments from Zhanjiang mangrove estuary of China. *Chemical Geology*, 612, 121138. <https://www.sciencedirect.com/science/article/pii/S0009254122004326>
- (56). Qi, Y., Xie, Q., Wang, J. J., **He, D.**, Bao, H., Fu, Q. L., Su, S., Sheng, M., Li, S., Volmer, D., Wu, F., Jiang, G., Liu, C., & Fu, P.\* (2022). Deciphering dissolved organic matter by Fourier transform ion cyclotron resonance mass spectrometry (FT-ICR MS): from bulk to fractions and individuals. *Carbon Research*, 1(1), 1-22. <https://link.springer.com/article/10.1007/s44246-022-00002-8>
- (55). Cui, X.\* , Mucci, A., Bianchi, T. S., **He, D.**, Vaughn, D., Williams, E. K., Wang, C., Smeaton, C., Koziorowska-Makuch, K., Faust, J., Plante, A., & Rosenheim, B. E. (2022). Global fjords as transitory reservoirs of labile organic carbon modulated by organo-mineral interactions. *Science Advances*, 8(46), eadd0610. <https://www.science.org/doi/full/10.1126/sciadv.add0610>
- (54). Liu, J.\* , Zhao, J., **He, D.**, Huang, X., Jiang, C., Yan, H., Lin, G., & An, Z. (2022). Effects of plant

- types on terrestrial leaf wax long-chain *n*-alkane biomarkers: Implications and paleoapplications. *Earth-Science Reviews*, 104248.  
<https://www.sciencedirect.com/science/article/pii/S0012825222003324>
- (53). Yi, Y., Li, S. L. \*, Zhong, J., Wang, W., Chen, S., Bao, H., & **He, D.** (2022). The influence of the deep subtropical reservoir on the karstic riverine carbon cycle and its regulatory factors: Insights from the seasonal and hydrological changes. *Water Research*, 226, 119267.  
<https://www.sciencedirect.com/science/article/pii/S004313542201212X>
- (52). Wen, Z., Shang, Y., Song, K. \*, Liu, G., Hou, J., Lyu, L., Tao, H., Li, S., He, C., Shi, Q., & **He, D.** (2022). Composition of dissolved organic matter (DOM) in lakes responds to the trophic state and phytoplankton community succession. *Water Research*, 224, 119073.  
<https://www.sciencedirect.com/science/article/pii/S0043135422010193>
- (51). He, C., **He, D.**, Chen, C., & Shi, Q. \* (2022). Application of Fourier transform ion cyclotron resonance mass spectrometry in molecular characterization of dissolved organic matter. *Science China Earth Sciences*, 1-18. <https://link.springer.com/article/10.1007/s11430-021-9954-0>
- (50). Jiang, X., Liu, D. \*, Li, Q., Tian, P., Wu, Y., Li, S., ... & **He, D.** (2022). Connecting the Light Absorption of Atmospheric Organic Aerosols with Oxidation State and Polarity. *Environmental Science & Technology*, 56(18), 12873-12885.  
<https://pubs.acs.org/doi/full/10.1021/acs.est.2c02202>
- (49). Shang, Y., Wen, Z., Song, K. \*, Liu, G., Lai, F., Lyu, L., Li, S., Tao, H., Hou, J., Fang, C., He, C., Shi, Q., & **He, D. \*** (2022). Natural versus anthropogenic controls on the dissolved organic matter chemistry in lakes across China: Insights from optical and molecular level analyses. *Water Research*, 221, 118779. <https://www.sciencedirect.com/science/article/pii/S0043135422007321>
- (48). Sun, X., Li, P. \*, Zhou, Y., He, C., Cao, F., Wang, Y., Shi, Q., & **He, D. \*** (2022). Linkages Between Optical and Molecular Signatures of Dissolved Organic Matter Along the Yangtze River Estuary-to-East China Sea Continuum. *Frontiers in Marine Science*, 9, 933561.  
<https://www.frontiersin.org/articles/10.3389/fmars.2022.933561/full>
- (47). Zhou, Y., Zhao, C., He, C., Li, P., Wang, Y., Pang, Y., Shi, Q., & **He, D. \*** (2022). Characterization of dissolved organic matter processing between surface sediment porewater and overlying bottom water in the Yangtze River Estuary. *Water Research*, 215, 118260.  
<https://www.sciencedirect.com/science/article/pii/S0043135422002238>
- (46). **He, D. \***, Ladd, S. N., Park, J., Sachs, J. P., Simoneit, B. R., Smoak, J. M., & Jaffé, R. (2022). Carbon and hydrogen isotopes of taraxerol in mangrove leaves and sediment cores: Implications for paleo-reconstructions. *Geochimica et Cosmochimica Acta*, 324, 262-279.  
<https://www.sciencedirect.com/science/article/pii/S0016703722000916>
- (45). **He, D. \***, Li, P., He, C., Wang, Y., & Shi, Q. (2022). Eutrophication and watershed characteristics shape changes in dissolved organic matter chemistry along two river-estuarine transects. *Water Research*, 214, 118196. <https://www.sciencedirect.com/science/article/pii/S0043135422001592>
- (44). Zhang, S., Li, X., **He, D.**, Zhang, D., Zhao, Z., Si, H., & Wang, F. \* (2022). Per-and poly-fluoroalkyl substances in sediments from the water-level-fluctuation zone of the Three Gorges Reservoir, China: Contamination characteristics, source apportionment, and mass inventory and loadings. *Environmental Pollution*, 299, 118895.

<https://www.sciencedirect.com/science/article/pii/S0269749122001099>

- (43). Wang, Y.\*, Chen, H. H., Tang, R., **He, D.**, Lee, Z., Xue, H., Wells, M., Boss, E., & Chai, F. (2022). Australian fire nourishes ocean phytoplankton bloom. *Science of The Total Environment*, 807, 150775. <https://www.sciencedirect.com/science/article/pii/S0048969721058538>
- (42). Dai, J., Zhang, Q., Liu, J., Wen, S., Zhang, Y., **He, D.**, & Du, Y.\* (2022). Coprecipitation of organic matter, phosphate with iron: Implications for internal loadings of phosphorus in algae-dominated and macrophyte-dominated lakes. *Frontiers in Environmental Science*, 1062. [https://www.frontiersin.org/articles/10.3389/fenvs.2022.953509/full?utm\\_source=dlvr.it&utm\\_medium=twitter](https://www.frontiersin.org/articles/10.3389/fenvs.2022.953509/full?utm_source=dlvr.it&utm_medium=twitter)
- (41). Wang, K., Xiao, S., Liu, J., Li, P., He, C., Shi, Q., & **He, D.\*** (2022). Spatial dynamics of dissolved organic matter among different segments of a large-scale reservoir in the water-level declining period. *Frontiers in Environmental Science*, 1187. [https://www.frontiersin.org/articles/10.3389/fenvs.2022.962706/full?utm\\_source=dlvr.it&utm\\_medium=twitter](https://www.frontiersin.org/articles/10.3389/fenvs.2022.962706/full?utm_source=dlvr.it&utm_medium=twitter)

2021

- (40). Wen, Z., Shang, Y., Lyu, L., Liu, G., Hou, J., He, C., Shi, Q., **He, D.\***, & Song, K. (2021). Sources and composition of riverine dissolved organic matter to marginal seas from mainland China. *Journal of Hydrology*, 603, 127152. <https://www.sciencedirect.com/science/article/pii/S0022169421012026>
- (39). Wang, K., Li, P., He, C., Shi, Q., & **He, D.\*** (2021). Density currents affect the vertical evolution of dissolved organic matter chemistry in a large tributary of the Three Gorges Reservoir during the water-level rising period. *Water Research*, 204, 117609. <https://www.sciencedirect.com/science/article/pii/S0043135421008046>

## Before Joining HKUST (38 in total)

2021

- (38). Hu, T., Luo, M.\*, Wünsch, U. J., **He, D.**, Gieskes, J., Xu, Y., Fang, J., & Chen, D.\* (2021). Probing sedimentary DOM in the deepest sector of Earth's surface. *Marine Chemistry*, 237, 104033. <https://www.sciencedirect.com/science/article/pii/S0304420321001183>
- (37). Tao, K., Xu, Y., Wang, Y., Wang, Y., & **He, D.\*** (2021). Source, sink and preservation of organic matter from a machine learning approach of polar lipid tracers in sediments and soils from the Yellow River and Bohai Sea, eastern China. *Chemical Geology*, 582, 120441. <https://www.sciencedirect.com/science/article/pii/S0009254121003843>
- (36). Wang, K., Pang, Y., He, C., Li, P., Xiao, S., Shi, Q., & **He, D.\*** (2021). Three Gorges Reservoir construction induced dissolved organic matter chemistry variation between the reservoir and non-reservoir areas along the Xiangxi tributary. *Science of The Total Environment*, 784, 147095. <https://www.sciencedirect.com/science/article/pii/S0048969721021653>
- (35). Wang, K., Li, P., He, C., Shi, Q., & **He, D.\*** (2021). Hydrologic heterogeneity induced variability of dissolved organic matter chemistry among tributaries of the Three Gorges Reservoir. *Water*

- Research*, 201, 117358. <https://www.sciencedirect.com/science/article/pii/S004313542100556X>
- (34). Li, P., Zhao, C., Liu, K., Xiao, X., Wang, Y., Wang, Y., & **He, D.\*** (2021). Anthropogenic Influences on Dissolved Organic Matter in Three Coastal Bays, North China. *Frontiers in Earth Science*, 9, 575. <https://www.frontiersin.org/articles/10.3389/feart.2021.697758/full>
- (33). Wang, K., Pang, Y., Gao, C., Chen, L., Jiang, X., Li, P., He, C., Shi, Q., & **He, D.\*** (2021). Hydrological management affected dissolved organic matter chemistry and organic carbon burial in the Three Gorges Reservoir. *Water Research*, 199, 117195. <https://www.sciencedirect.com/science/article/pii/S0043135421003936>
- (32). Zhao, C., Zhou, Y., Pang, Y., Zhang, Y., Huang, W., Wang, Y., & **He, D.\*** (2021). The optical and molecular signatures of DOM under the eutrophication status in a shallow, semi-enclosed coastal bay in southeast China. *Science China Earth Sciences*, 64(7), 1090-1104. <https://link.springer.com/article/10.1007/s11430-020-9728-4>
- (31). Wang, K., Pang, Y., Li, Y., He, C., Shi, Q., Wang, Y., & **He, D.\*** (2021). Characterizing Dissolved Organic Matter Across a Riparian Soil–Water Interface: Preliminary Insights from a Molecular Level Perspective. *ACS Earth and Space Chemistry*, 5(5), 1102-1113. <https://pubs.acs.org/doi/full/10.1021/acsearthspacechem.1c00029>
- (30). Pang, Y., Wang, K., Sun, Y., Zhou, Y., Yang, S., Li, Y., He, C., Shi, Q., & **He, D.\*** (2021). Linking the unique molecular complexity of dissolved organic matter to flood period in the Yangtze River mainstream. *Science of The Total Environment*, 764, 142803. <https://www.sciencedirect.com/science/article/pii/S0048969720363324>
- (29). Zhou, Y., **He, D.\***, He, C., Li, P., Fan, D., Wang, A., Zhang, K., Chen, B., Zhao, C., Wang, Y., Shi, Q., & Sun, Y. (2021). Spatial changes in molecular composition of dissolved organic matter in the Yangtze River Estuary: Implications for the seaward transport of estuarine DOM. *Science of The Total Environment*, 759, 143531. <https://www.sciencedirect.com/science/article/pii/S0048969720370625>
- (28). Wang, A., Zhang, K., **He, D.**, Fan, D., Sun, Y.\* (2021). Spatial distribution and controlling factors of dissolved organic matter composition in the Yangtze Estuary in summer. *Geochimica*, 50(03): 317-318. .doi:10.19700/j.0379-1726.2021.03.009 <http://www.geochimica.cn/#/digest?ArticleID=2845>
- (27). **He, D.**, Rivera-Monroy, V. H.\*, Jaffé, R., & Zhao, X. (2021). Mangrove leaf species-specific isotopic signatures along a salinity and phosphorus soil fertility gradients in a subtropical estuary. *Estuarine, Coastal and Shelf Science*, 248, 106768. <https://www.sciencedirect.com/science/article/pii/S0272771419311151>
- (26). Zhang, Y., Sun, Y., Liu, B., Wang, Y., Xie, W., Wang, P., Zhang, C., & **He, D.\*** (2021). Spatiotemporal distribution and source variations of hydrocarbons in surface sediments from the Pearl River Estuary, Southern China. *Journal of Soils and Sediments*, 21(1), 499-511. <https://link.springer.com/article/10.1007/s11368-020-02783-0>
- 2020
- (25). **He, D.**, Wang, K., Pang, Y., He, C., Li, P., Li, Y., Xiao, S., Shi, Q., & Sun, Y.\* (2020). Hydrological management constraints on the chemistry of dissolved organic matter in the Three Gorges

Reservoir. *Water Research*, 187, 116413.

<https://www.sciencedirect.com/science/article/pii/S0043135420309489>

- (24). Lu, Q., **He, D.**, Pang, Y., Zhang, Y., He, C., Wang, Y., Zhang, H., Shi, Q., & Sun, Y.\* (2020). Processing of dissolved organic matter from surface waters to sediment pore waters in a temperate coastal wetland. *Science of The Total Environment*, 742, 140491.  
<https://www.sciencedirect.com/science/article/pii/S0048969720340134>
- (23). **He, D.**\*, Ladd, S. N., Saunders, C. J., Mead, R. N., & Jaffé, R. (2020). Distribution of n-alkanes and their  $\delta^2\text{H}$  and  $\delta^{13}\text{C}$  values in typical plants along a terrestrial-coastal-oceanic gradient. *Geochimica et Cosmochimica Acta*, 281, 31-52.
- (22) Pang, J., Xu, Y., He, Y.\* , Shi, Q., **He, D.**, Sun, Y. (2020). Molecular characteristics of surface dissolved organic matter in Meiliang Bay of Lake Taihu over the algal blooming-disappearance cycle. *Journal of Lake Science*, 32(6):1599-1609. DOI:10.18307/2020.0603  
[http://www.jlakes.org/ch/reader/view\\_abstract.aspx?file\\_no=20200603](http://www.jlakes.org/ch/reader/view_abstract.aspx?file_no=20200603)
- (21). Liu, B., He, Y., Zhang, Y., Sun, Y., Wang, Y., & **He, D.**\* (2020). Natural and anthropogenic organic matter cycling between coastal wetlands and rivers: a case study from Liao River Delta. *Estuarine, Coastal and Shelf Science*, 236, 106610.  
<https://www.sciencedirect.com/science/article/pii/S0272771419306183>

2019

- (20). Zhang, K., **He, D.**\*, Cui, X., Fan, D., Xiao, S., & Sun, Y. (2019). Impact of anthropogenic organic matter on the distribution patterns of sediment microbial community from the Yangtze River, China. *Geomicrobiology Journal*, 36(10), 881-893.  
<https://www.tandfonline.com/doi/abs/10.1080/01490451.2019.1641772>
- (19). He, C., Pan, Q., Li, P., Xie, W., **He, D.**, Zhang, C., & Shi, Q.\* (2019). Molecular composition and spatial distribution of dissolved organic matter (DOM) in the Pearl River Estuary, China. *Environmental Chemistry*, 17(3), 240-251. <https://www.publish.csiro.au/en/EN19051>
- (18). **He, D.**\*, He, C., Li, P., Zhang, X., Shi, Q., & Sun, Y. (2019). Optical and molecular signatures of dissolved organic matter reflect anthropogenic influence in a coastal river, Northeast China. *Journal of Environmental Quality*, 48(3), 603-613.  
<https://access.onlinelibrary.wiley.com/doi/abs/10.2134/jeq2018.09.0330>
- (17). Wang, K., Pang, Y., He, C., Li, P., Xiao, S., Sun, Y., Pan, Q., Zhang, Y., Shi, Q., & **He, D.**\* (2019). Optical and molecular signatures of dissolved organic matter in Xiangxi Bay and mainstream of Three Gorges Reservoir, China: Spatial variations and environmental implications. *Science of The Total Environment*, 657, 1274-1284.  
<https://www.sciencedirect.com/science/article/pii/S0048969718349623>

2018

- (16). **He, D.**\*, Zhang, K., Cui, X., Tang, J., & Sun, Y. (2018). Spatiotemporal variability of hydrocarbons in surface sediments from an intensively human-impacted Xiaoqing River-Laizhou Bay system in the eastern China: occurrence, compositional profile and source apportionment. *Science of The*

*Total Environment*, 645, 1172-1182.

<https://www.sciencedirect.com/science/article/pii/S0048969718326846>

- (15). **He, D.\***, Simoneit, B. R., Cloutier, J. B., & Jaffé, R. (2018). Early diagenesis of triterpenoids derived from mangroves in a subtropical estuary. *Organic Geochemistry*, 125, 196-211.  
<https://www.sciencedirect.com/science/article/pii/S0146638018302080>
- (14). Regier, P., **He, D.**, Saunders, C. J., Jara, B., Hansen, C., Newman, S., ... & Jaffé, R.\* (2018). Sheet flow effects on sediment transport in a degraded ridge-and-slough wetland: Insights using molecular markers. *Journal of Geophysical Research: Biogeosciences*, 123(10), 3124-3139.  
<https://agupubs.onlinelibrary.wiley.com/doi/full/10.1029/2018JG004648>
- (13). **He, D.\***, Zhang, K., Tang, J., Cui, X., & Sun, Y. (2018). Using fecal sterols to assess dynamics of sewage input in sediments along a human-impacted river-estuary system in eastern China. *Science of the Total Environment*, 636, 787-797.  
<https://www.sciencedirect.com/science/article/pii/S0048969718314931>
- (12). **He, D.\***, Simoneit, B.R., & Jaffé, R. (2018). Environmental factors controlling the distributions of *Botryococcus braunii* (A, B and L) biomarkers in a subtropical freshwater wetland. *Scientific Reports*, 8(1), 1-9. <https://www.nature.com/articles/s41598-018-26900-9>

2017

- (11). **He, D.**, Zhu, C., Zhang, K., Xiao, S., Cui, X., & Sun, Y.\* (2017). Source and composition of sedimentary organic matter in the head of Three Gorges Reservoir: a multiproxy approach using  $\delta^{13}\text{C}$ , lignin phenols, and lipid biomarker analyses. *Acta Geochimica*, 36(3), 452-455.  
<https://link.springer.com/article/10.1007/s11631-017-0189-8>
- (10). **He, D.\***, Ladd, S. N., Sachs, J. P., & Jaffé, R. (2017). Inverse relationship between salinity and  $^2\text{H}/^1\text{H}$  fractionation in leaf wax *n*-alkanes from Florida mangroves. *Organic Geochemistry*, 110, 1-12. <https://www.sciencedirect.com/science/article/pii/S0146638016302881>

2016

- (9). **He, D.**, Anderson, W.T., & Jaffé, R.\* (2016). Compound specific  $\delta\text{D}$  and  $\delta^{13}\text{C}$  analyses as a tool for the assessment of hydrological change in a subtropical wetland. *Aquatic Sciences*, 78(4), 809-822.  
<https://link.springer.com/article/10.1007/s00027-016-0473-4>
- (8). Rushdi, A. I., Oros, D. R., Al-Mutlaq, K. F., **He, D.**, Medeiros, P.M.\*, & Simoneit, B. R. (2016). Lipid, sterol and saccharide sources and dynamics in surface soils during an annual cycle in a temperate climate region. *Applied Geochemistry*, 66, 1-13.  
<https://www.sciencedirect.com/science/article/pii/S0883292715300731>
- (7). **He, D.\***, Simoneit, B. R., Xu, Y., & Jaffé, R. (2016). Occurrence of unsaturated  $\text{C}_{25}$  highly branched isoprenoids (HBIs) in a freshwater wetland. *Organic Geochemistry*, 93, 59-67.  
<https://www.sciencedirect.com/science/article/pii/S0146638016000073>

2015

- (6). **He, D.\***, Simoneit, B.R., Jara, B., & Jaffé, R. (2015). Compositions and isotopic differences of iso-and anteiso-alkanes in black mangroves (*Avicennia germinans*) across a salinity gradient in a



subtropical estuary. *Environmental Chemistry*, 13(4), 623-630.

<https://www.publish.csiro.au/en/en15128>

- (5). **He, D.**, Simoneit, B. R., Jara, B., & Jaffé, R.\* (2015). Gas chromatography mass spectrometry-based profiling of alkyl coumarates and ferulates in two species of cattail (*Typha domingensis* P., and *Typha latifolia* L.). *Phytochemistry Letters*, 13, 91-98.  
<https://www.sciencedirect.com/science/article/pii/S187439001500107X>
- (4). **He, D.**\*, Simoneit, B. R., Jara, B., & Jaffé, R. (2015). Occurrence and distribution of monomethylalkanes in the freshwater wetland ecosystem of the Florida Everglades. *Chemosphere*, 119, 258-266. <https://www.sciencedirect.com/science/article/pii/S0045653514007905>

2014

- (3). Sanchez-Hernandez, Y., Florentin, J. M. M.\* , Melinte-Dobrinescu, M. C., **He, D.**, & Butler, S. K. (2014). Assessing the factors controlling high sedimentation rates from the latest Barremian–earliest Aptian in the hemipelagic setting of the restricted Organyà Basin, NE Spain. *Cretaceous Research*, 51, 1-21.  
<https://www.sciencedirect.com/science/article/pii/S0195667114001025>
- (2). **He, D.**, Mead, R. N., Belicka, L., Pisani, O., & Jaffé, R.\* (2014). Assessing source contributions to particulate organic matter in a subtropical estuary: a biomarker approach. *Organic Geochemistry*, 75, 129-139. <https://www.sciencedirect.com/science/article/pii/S0146638014001740>

2010

- (1). Xiang, L.X., **He, D.** (co-first author), Dong, W. R., Zhang, Y.W. §, Shao, J.Z.\* (2010). Deep sequencing-based transcriptome profiling analysis of bacteria-challenged *Lateolabrax japonicus* reveals insight into the immune-relevant genes in marine fish. *BMC Genomics*, 11(1), 1-21.  
<https://link.springer.com/article/10.1186/1471-2164-11-472>

## ② Government report:

(1). Rudolf Jaffé, **Ding He**, Peter Regier, Sheetflow Effects and Canal Backfilling on Sediment Source and Transport in the DECOMP Physical Model: Analysis of Molecular Organic Biomarkers, 2014, Government report submitted to South Florida Water Management District, West Palm Beach, USA.

(2). Rudolf Jaffé. **Ding He**, Sheetflow Effects and Canal Backfilling on Sediment Source and Transport in the DECOMP Physical Model: Analysis of Molecular Organic Biomarkers, 2013, Government report submitted to South Florida Water Management District, West Palm Beach, USA.

(3). Rudolf Jaffé, Bernd. R.T. Simoneit, **Ding He**, Blanca Jara, Identification of solanesol and a series of long-chain alkyl hydroxycinnamates from two species of cattail (*Typha domingensis* P. and *Typha latifolia* L.), 2013, Government report submitted to South Florida Water Management District, West Palm Beach, USA.

## Research funding –

### Funded (20 in total)

#### a) Funded as the leading PI (16 in total):

1. **RGC—Early Career Scheme (ECS)**, “Priming of terrestrially derived organic matter in estuarine and coastal environments” (26300822), (07/2022-06/2025).
2. **RGC—General Research Fund (GRF)**, “Investigation of phytoplankton-derived humic-like dissolved organic matter in estuaries and coastal oceans” (16306623), (01/2024-12/2026).
3. **National Science Foundation of China—Excellent Young Scientist (Hong Kong and Macau) Scheme**, “Organic Geochemistry of Estuaries and Coasts” (42222061), (01/2023-12/2025).
4. Open funding for the Center of Marine Carbon Sink and Biogeochemical Processes, **National Natural Science Foundation of China— Basic Science Center Program**, (07/2022-06/2025).
5. **Marine Ecology Enhancement Fund**, “Assessing the ecological impacts of anthropogenic activities on the coastal wetlands in Hong Kong from the optical properties of sedimentary dissolved organic matter” (MEEF2023008), (07/2023-06/2024).
6. **Marine Conservation Enhancement Fund**, “Exploring fluorescence spectroscopic characterisation of algal organic matter and its implication on early warning of harmful algal blooms in the fish culture zones of Hong Kong” (MCEF22005), (07/2023-06/2025).
7. **Funding from Center For Ocean Research Hong Kong - Macau**, “Evaluating historical evolution of bottom water oxygen concentration in the Pearl River Estuary: insights from organic and inorganic geochemistry”, (03/2022-03/2023).
8. **SKLMP Seed Collaborative Research Fund**, “Exploring microplastic-derived dissolved organic matter on both optical and molecular levels and its implication on the carbon cycling in the coastal water of Hong Kong”, (05/2023-4/2024).
9. **Funding from Hong Kong branch of Southern Marine Science and Engineering Guangdong Laboratory**, “Changes in organic matter composition and behaviors in a eutrophic bay during red tide generation and elimination, implications for the carbon cycling”, (SMSEGL20SC01-22A), (01/2022-12/2022).
10. **Open funding of State Key Laboratory of Geomechanics and Geotechnical Engineering**, “Occurrence and contribution of microplastics to the carbon storage of coastal wetlands in China”, (SKLGME022008), (07/2023-06/2025).
11. **Funding from Center For Ocean Research Hong Kong - Macau**, “Assessing microplastic-derived dissolved organic matter chemistry and its effect on coastal carbon cycling of Hong Kong”, (07/2023-06/2024).
12. **National Science Foundation of China—General Program Scheme**, “Sources, transformation processes, and impacts of organic matter in tidal river water on estuarine carbon cycling” (41973070), (01/2020-12/2023). ”
13. **National Science Foundation of China—General Program Scheme**, “The organic matter source, transformation and deposition mechanism in the Three Gorges Reservoir”
14. **Central funding from ministry of education of China**, Coupling study on microbial community and degradation of sedimentary organic matter under environmental change gradient in the Yangtze Estuary Hangzhou Bay

15. **Qianjiang Talent program from Zhejiang Province**, Biogeochemistry of estuaries and coasts
16. **Outreach funding from Tongji University**, Biomarkers and paleoenvironment reconstruction in the South China Sea, China

**b) Funded as the Co-PI (3 in total)**

17. **RGC - Collaborative Research Fund**, “A collision-cell equipped multi-collector inductively coupled plasma mass spectrometer (CC-MC-ICP-MS) for elucidating isotope fractionations in biological and chemical processes in the ocean” (C6006-22EF), (01/2023-12/2025).
18. **General Funding from Department of Science and Technology of Guangdong Province**, “The impact of changing environment on the structure and function of the Pearl River estuarine food webs” (GDST22SC05), (06/2022-05/2024).
19. **Shanghai Annual Action Plan for Technological Innovation: Hong Kong, Macau, and Taiwan Science and Technology Cooperation Project**, “Temporal and Spatial Variations in Organic Carbon Transformation and Burial in the Yangtze River Estuary-East China Sea”, (06/2023-05/2026).

**c) Funded as the Co-I (1 in total)**

20. **RGC – Areas of Excellence Scheme**, “Study of the regional earth system for sustainable development under climate change in the Greater Bay Area” (AoE/P-601/23-N), (01/2024-12/2027).

**Invited talks (2021 to present)**

1. September 1<sup>st</sup>-2<sup>nd</sup>, 2023, NSFC Ocean Forum, Hong Kong, Invited talk (online)
2. May 10<sup>th</sup>-13<sup>th</sup>, 2023, Geomicrobiological Conference and Symposium on High Resolution Mass Spectrometry of Dissolved Organic Matter, Beijing, Invited talk (online)
3. June 21<sup>st</sup>, 2023, Marine Geoscience Forum, Shanghai, Invited talk (online)
4. May 29<sup>th</sup>, 2023, Series of Lectures on Modern Earth Biology, Shenzhen, Invited talk (online)
5. January 9<sup>th</sup>-12<sup>th</sup>, 2023, Xiamen Symposium on Marine Environmental Sciences (XMAS), Invited Talk (online)
6. January 3<sup>rd</sup>-7<sup>th</sup>, 2022, The 2nd International Conference on Biodiversity, Ecology and Conservation of Marine Ecosystems (BECOME-2022), Hong Kong, Invited talk (online)
7. December 2<sup>nd</sup>-4<sup>th</sup>, 2021, The 3rd Symposium on Marine Environmental Pollution and Sustainable Development, Hong Kong, Invited talk (online)

**Other invited talks (before 2021):** including invited presentation at University of Georgia, Xiamen University, Ocean University of China, Southern University of Science and Technology, Shanghai Ocean University, Auburn University, China Petroleum University, Tongji University, Fudan University

### Oral Presentation

1. **Ding He**, Chen He, Penghui Li, Quan Shi, Yongge Sun, Molecular composition of dissolved organic matter in a temperate urbanized estuary and its biogeochemical implications, ASLO-Ocean Science Meeting, Portland, USA, 2018.
2. **Ding He**, William M. Berelson, Patricia M. Medeiros, Multi-biomarker Characterization of Particulate and Sedimentary Organic Carbon Influenced by the Amazon River Plume, ASLO-Ocean Science Meeting, 2016, New Orleans, USA.
3. **Ding He**, William T. Anderson, Rudolf Jaffé, Vegetation change and hydrology period revealed using biomarkers and compound specific  $\delta D$  and  $\delta^{13}C$  analyses in a subtropical wetland, Goldschmidt, 2014, Sacramento, USA.
4. **Ding He**, William T. Anderson, Rudolf Jaffé, Assessment of vegetation shift and hydrological change through biomarkers and compound specific  $\delta D$  and  $\delta^{13}C$  analyses in a subtropical wetland, ACS-FAME, 2014, Tampa, USA.

### Service

1) At the **Department** level, I served in the following committees: Lab, Space and Equipment Management Committee; UG Committee

Graduate student dissertation committee: Yingdong LI (PhD, OCES, HKUST), Haofu LI (Mphil, OCES, HKUST), Yuxuan LIN (Mphil, OCES, HKUST)

Co-advisor for: Mr. Yiting CHEN (major advisor: Prof. Peiyuan QIAN).

2) At the **School** level, I served in the following committees: JUPAS interview; mainland JEE interview.

Graduate student dissertation committee: Shumin LIANG (Mphil, Department of Chemistry, HKUST).

3) At the **HKUST level**: NSFC-EYS experience sharing for colleagues in HKUST; Evaluation Panel members for Sustainable Smart Campus (SSC) online pitch day.

4) At **Provincial and National levels**:

Scientific committee member of the Marine Chemistry Branch of the Chinese Society for Oceanology and Limnology, CHINA

Peer review expert of doctoral and master's degree theses for the Degree Center of the Ministry of Education, CHINA

Peer review expert for the Shanghai Science and Technology Commission, Shanghai City.

Peer review expert for the Guangdong Natural Science Foundation, Guangdong Province.

Member of the Special Program Committee for the 6th National Conference on Marine Optical Technology, CHINA

Convenor of the Special Session for the Wuhan Youth Geoscience Forum, CHINA.

Peer review expert for the NSFC (>60 proposals).

UN decade project (HKUST as one of four Principal institutes; >20 institutes are involved)

Dissertation committee:

Yuanbi YI (PhD, Tianjin University)

Beichn WANG, Mingxian HAN (PhD, China University of Geoscience, Wuhan)

Yasong WANG (PhD, Shanghai Ocean University)

Yunru CHEN (PhD, Shanghai Jiaotong University)

Liyin QU (PhD, Xiamen University)

5) At the **Broad professional community level:**

Editorial board member for 2 SCI journals (Frontiers in Marine Science; Frontiers in Microbiology); Reviewers for 33 journals (>70 times), including: *Environmental Science & Technology*, *Geochimica et Cosmochimica Acta*, *Journal of Hydrology*, *Organic Geochemistry*, *Chemical Geology*, *Limnology & Oceanography*, *Global Biogeochemical Cycle*, *Science of Total Environment*, *Estuaries and Coasts*, *Frontiers in Marine Science*, *Frontiers in Earth Science*, *Marine Chemistry*, *Continental Shelf Research*, *Biogeoscience*, *Environmental Pollution*, *ACS Earth and Space Chemistry*, *Progress in Oceanography*, *Frontiers in Microbiology*, *Geomicrobiology Journal*, *Hydrobiologia*, *Applied Geochemistry*, *Estuarine, Coastal and Shelf Science*, *Science China Earth Sciences*, *Journal of Geophysical Research-Atmosphere*, *Journal of Geophysical Research-Biogeosciences*, *Chemosphere*, *P<sub>cub</sub>*, *Quaternary Science Reviews*, *Pedosphere*, *Environmental Research*, *Journal of Marine System*, *Deep Sea Research*, *Water Research*

Organizing committee and session chairs for multiple national and international conferences.