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# Editorial: Women in biogeochemical dynamics research: 2022

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## Editorial on the Research Topic

### Women in biogeochemical dynamics research: 2022

At present, less than 30% of researchers worldwide are women. Long-standing biases and gender stereotypes are discouraging girls and women away from science-related fields, and STEM research in particular. Science and gender equality are, however, essential to ensure sustainable development as highlighted by UNESCO. In order to change traditional mindsets, gender equality must be promoted, stereotypes defeated, and girls and women should be encouraged to pursue STEM careers.

Therefore, we are proud to offer this platform in *Frontiers in Environmental Science* to promote the work of women scientists. To be considered for this Research Topic, the first, last, or corresponding author should be a researcher who identifies as a woman. The papers presented here highlight the diversity of research performed across the entire breadth of Biogeochemical Dynamics research and the advances in theory, experiment, and methodology with applications to compelling problems. Contributions to this journal showcase the breadth and depth of investigations aimed at understanding and mitigating human impacts on our planet.

One significant study by [Chua and Fulweiler](#) highlights the importance of high-temporal-resolution gas concentration measurements in capturing the rapid response of sediments to low-oxygen conditions. This research sheds light on the dynamic nature of sedimentary processes and underscores the necessity of precise monitoring techniques in studying environmental phenomena.

In another investigation, [Forsyth et al.](#) delve into the bioconcentration and translocation of rare earth elements in plants from legacy mine sites in Portugal. Their findings not only contribute to our understanding of plant-metal interactions but also have implications for environmental management strategies in areas affected by mining activities.

Meanwhile, [Ismail and Al-Shehhi](#) offer a comprehensive review of biogeochemical models' applications in various marine environments. By synthesizing existing knowledge, the authors provide valuable insights into the role of these models in elucidating complex biogeochemical processes and guiding sustainable marine resource management practices.

[Lavergne et al.](#) draw attention to the importance of conserving microorganisms in terrestrial ecosystems, focusing on soil microbial diversity in Chile and the Antarctic Peninsula. Their work underscores the need for heightened awareness and proactive conservation efforts to safeguard these essential components of ecosystem functioning.

In a study with implications for land management practices, [Rissanen et al.](#) investigate the vegetation impacts on methane emissions from boreal forestry-drained peatlands. Their findings highlight the role of moss cover in modulating emissions and emphasize the importance of considering vegetation dynamics in peatland management strategies.

Addressing the pervasive Research Topic of plastic pollution in marine environments, [Romera-Castillo et al.](#) quantify the leaching of dissolved organic matter from aged plastic and its impact on microbial activity. This research underscores the urgent need to mitigate plastic pollution and its cascading effects on marine ecosystems.

Furthermore, [Santos et al.](#) employ leaf wax biomarkers to reconstruct environmental conditions in a high-mountain lake area in western Iberia. Their work illustrates the utility of biomarker analysis in paleoenvironmental reconstructions and contributes to our understanding of past environmental changes.

[Sun et al.](#) investigate the release of inorganic Mercury and subsequent methylmercury production in boreal peatlands due to ground warming. Their findings underscore the complex interactions between climate change and Mercury cycling in peatland ecosystems, highlighting the need for integrated approaches to mitigate Mercury pollution.

Lastly, [Vila-Costa et al.](#) data represent a significant step forward in unraveling the intricate interactions between pelagic marine bacteria and organic pollutants. By conducting comprehensive field studies in the tropical Pacific and subtropical Atlantic Oceans, the researchers provide invaluable insights into the responses of these bacteria to various pollutants.

Collectively, these studies exemplify the diverse and interdisciplinary nature of research featured by women in Environmental Science. By advancing our understanding of environmental processes and informing evidence-based management strategies, these contributions play a crucial role in addressing the myriad challenges facing our planet. As we navigate the complexities of the Anthropocene, women scientists are at the forefront of fostering dialogue and innovation to promote environmental sustainability and stewardship. In the realm of biogeochemical dynamics research, women scientists have long been making significant contributions, yet their achievements and perspectives are sometimes overlooked or underrepresented. As we strive for inclusivity and diversity in the scientific community, it's imperative to shine a spotlight on the invaluable work of women researchers in this field. It's essential to amplify their voices,

recognize their contributions, and support their career advancement. By fostering an inclusive and supportive environment that values diversity, we can harness the full potential of women scientists and unlock new insights into the complex dynamics of our planet's biogeochemical cycles. In conclusion, women scientists are driving innovation, discovery, and progress in biogeochemical dynamics research. Their expertise, leadership, and dedication are indispensable assets in tackling the environmental challenges of the 21st century. Let us continue to celebrate and uplift the contributions of women in science, paving the way for a more equitable and sustainable future.

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