

# IOCCG Announcement

## Journal Special Issue - Aquatic Carbon Stocks and Fluxes: The Big Picture from Remote Sensing

We would like to invite contributions to a special edition - *Aquatic carbon stocks and fluxes: The big picture from remote sensing* – to be published in [Earth-Science Reviews](#).

Aquatic landscapes contribute 99% of the habitable space on Earth. In these watery realms, microscopic and macroscopic organisms conduct half of the biosphere's photosynthesis, physical and -chemical processes remove billions of tons of carbon dioxide from the atmosphere, and complex food webs both produce and consume climate-sensitive compounds, some of which are transported into deep reaches of the ocean while others can enter the atmosphere to influence a variety of processes. In recent decades, our understanding of carbon cycling, biogeochemistry, ecology, and interactions of global aquatic systems with the atmosphere has greatly improved through observations using airborne and satellite remote sensing systems. With these observations, we have realized a revolution in our quantitative assessment of carbon stocks and fluxes in aquatic systems. While a rich scientific literature exists detailing these advances, we lack a compiled synthesis of developments, findings, and future directions that is accessible both to researchers in aquatic sciences and the broader scientific community. To address this shortcoming and to broadly raise awareness on the critical role aquatic systems play in the functioning of the Earth system, **we are calling for contributions of manuscripts that synthesize our current understanding of carbon stocks and fluxes in aquatic systems, as well as on directions for future advancements, with a particular focus on globally relevant topics that rely on the use of remote sensing data, including integration with in-situ measurements and models.** The outcome of this effort will be a collection of invited and contributed papers that summarize the current state-of-the-science and establish a roadmap for future developments.

This special issue will include both invited and contributed papers with topics covering carbon stocks and fluxes within a diversity of realms, including but not limited to, inland systems (lakes/rivers), tidal wetlands (marshes/mangroves), coastal and open oceans, polar regions, key interfaces (ocean/land/cryosphere/atmosphere), and from regional to global scales. We invite **review articles** on what we've learned through remote sensing systems, which may also include in situ and/or modeling elements. A list of possible topics of interest is included below:

### List of Specific Topics of Interest

1. Carbon sequestration/export
2. Carbon exchange across land/water interface
3. CO<sub>2</sub> exchange across the air-water interface – the dissolved inorganic carbon budget
4. Dissolved organic carbon budget
5. Particulate carbon budget
  - a. Particulate organic carbon
  - b. Particulate inorganic carbon
6. In water volatile organic carbon budget and rates
7. Aquatic ecosystem to aerosol flux

8. Gross and net primary production
9. Aquatic respiration
10. Primary to secondary carbon transfer
11. Blue carbon
12. Anthropogenic elements of aquatic carbon
13. Future observational and modeling requirements
14. Disturbance/extreme events to the C cycle as seen from space (incl parameters across the board - e.g. DOC/POC, etc, and also in different systems).

Interested authors should submit a maximum 1-page letter of intent (LOI) of a proposed review article to the editorial board, which will then be evaluated by the board regarding scope and appropriateness for the special review issue. The LOI should include a title, an abstract, and potential authors, and should be sent to Chuanmin Hu ([huc@usf.edu](mailto:huc@usf.edu)) and Laura Lorenzoni ([laura.lorenzoni@nasa.gov](mailto:laura.lorenzoni@nasa.gov)) by August 1, 2021.

Once manuscripts are ready for submissions, authors should go to the submission website for this journal and select the name of the special issue when uploading the manuscripts: VSI:LorenzoniAquatic. This is important to ensure that all manuscripts are correctly identified for inclusion into the special issue. Cover letters must also state this special issue.

Submission for all manuscripts is anticipated by March 2022, with all final acceptances done by December 2022. Papers will be published as and when accepted in regular issues, with the issue title and guest editors listed. Once the last paper is accepted, the articles will be collected into the Virtual Special Issue.

We look forward to receiving your contributions.

Chuanmin Hu, University of South Florida, USA

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