

sDiv working group meeting summary

“sBIOMAPS – Exploring BIOgeographic and MAcroevoLutionary Patterns in organismal Stoichiometric diversity”

- focal areas of discussion + main results/conclusions + open questions

For this second meeting, which was hybrid, we decided to focus our discussion on the results of our first paper: the occurrence and shape of the relationship between environmental drivers and the stoichiometry of animals and plants. Those results were obtained by a subgroup of participants working on statistical analyses in between two main sBIOMAPS meetings. During the second meeting, we used a combined approach of break out groups with specific tasks followed by a full group discussion to distil the main results. Every day, we also organized wrap up summaries about progresses at the end and beginning of each day. At the end of each day, Angélica and Olivier, organized late summary meetings with busy-during-the-day (Erik Sperfeld) and very remote (George Perry: New Zealand and Julian Merder: California) participants. After spending a significant amount of time building and cleaning the database, it was a very first opportunity to talk about analyses and visualization of results. In this sense, we have achieved very important agreements regarding the main next steps to fine-tune the analyses (e.g., model structure, excluding taxa from analyses based on theoretical justifications, focus on N and P content, leaving C content for another paper) and to back-up our theoretical expectations (e.g., theoretical workflow, theoretical and empirical evidence in the literature). Compared to our first meeting where we discussed many ideas, and potential papers with the data at hand, we decided to make progresses instead on this first paper.

- content of presentations

One of sBIOMAPS participants, Mark Nessel (PhD student with Angélica González), presented on a relatively advanced manuscript related to sBIOMAPS: a global synthesis on the body size scaling of elemental content across aquatic and terrestrial animals. Mark's presentation was very well appreciated by the sBIOMAPS team and was followed by abundant comments and discussions on the different ways to improve the statistical analyses and to tackle the various hypotheses. Everyone acknowledged the strong theoretical emphasis of this paper. The next step will consist in producing a first full draft of the paper and to send it out to all co-authors (sBIOMAPS participants and others).

- which outputs were discussed and which steps were undertaken (e.g. journal article in Journal XYZ, presentation on conference XXZ, follow-up meeting ...)

Our discussions were focused on the results of a GAMM modelling approach seeking to evaluate the direction and magnitude of the relationships between elemental content (N, P, and N:P ratio) and main global environmental drivers (temperature, solar radiation on Earth surface, environmental N and P). The whole sBIOMAPS team agreed to target a high-profile journal, but has not decided on which one yet.

- balance between work on outputs, general brainstorming/ information exchange and participants presentations in %

Beside one presentation from Mark Nessel, the work balance between interpreting outputs and brainstorming ideas/exchanges of theoretical information was ~50%-50% for the two aspects, respectively. Regarding the wealth of result we produced we kept switching back and forth between result interpretations and theoretical expectations in order to better understand and synthesize the data. In addition, most of working hours were dedicated to large group discussions (80%) compared to information exchange in small groups (20%).

- inspiration for own work and/or further cooperation

The working group meeting was again a great scientific experience with a creative and collaborative atmosphere among such a diverse group of people. Brainstorming during the working group led to important decisions and progresses on our understanding of the global stoichiometry of organisms. We discussed potential ways (e.g. funding opportunities) to collectively advance projects and bridge knowledge gaps following ideas mentioned during those brainstorming.

- general working atmosphere and feedback on sDiv support

The general working atmosphere at iDiv was ideal for this hybrid meeting. As always, the sDiv team provided a great technical support (e.g., smooth videoconferencing connections, efficient computer speakers with microphone, whiteboard) allowing for a wonderful working experience for both in-person and remote participants. The productive and friendly atmosphere we had in this meeting, fostered valuable collaborations and the sharing of ideas among the sBIOMAPS participants.

- next steps

For the next steps, we anticipate several videoconference meetings, which aim to:

- finalize and submit the article focused on the environmental mechanisms underlying animal and plant stoichiometry
- finalize and submit the article on the body size scaling of animal stoichiometry
- initiate the writing of two companion papers and a data paper
- brainstorm ideas and potential funding opportunities