Summary of the Chinese BioGeoSCAPES planning workshop for the International BioGeoSCAPES community

Introduction: The Chinese BioGeoSCAPES Planning workshop was convened in Xiamen (October 20-21, 2019) by Dalin Shi (Xiamen University). In total, 27 scientists from 11 research institutes in China with expertise in physical, chemical, biological, and paleo oceanography, biogeochemistry, ecophysiology, microbial ecology, bioinformatics, and numerical modelling, assembled together to develop a shared perspective at Xiamen University. The workshop aimed to introduce the preliminary objectives and missions of the proposed global program BioGeoSCAPES, solicit feedbacks and suggestions, brainstorm and gather ideas of China's possible contributions on BioGeoSCAPES. The workshop was organized around some questions suggested by participants in the Woods Hole meeting.

1. The preliminary BioGeoSCAPES Mission Statement is "To improve our understanding of the functioning and regulation of ocean metabolism and its interaction with nutrient cycling within the context of a hierarchical seascape perspective". Your thoughts on this? How could this be improved?

Overall, the statement sounds good, except that some words seemed a bit too restrictive (e.g., metabolism) to reflect the large scale of global ocean. In addition, "metabolism" may be too vague to reflect what to study exactly. One suggestion on revised BioGeoSCAPES Mission statement was that it could be drafted with three major themes: a) global change, b) ecosystem diversity, and c) sustainable development.

2. How would China best contribute to BioGeoSCAPES efforts - e.g. fieldwork, laboratory work, modelling, intercalibration efforts, project coordination, data management, bioinformatics?

China can actively contribute across all these dimensions, with notable emphasis on the following:

a) Fieldwork: We are currently orchestrating several research expeditions set to explore the China seas, including the South China Sea, the East China Sea, the Taiwan Strait, as well as coastal regions. In addition, we are planning for cruises in

the western North Pacific, spanning regions such as the Kuroshio Current, the Kuroshio Extension, NPSG, and the subarctic NP, over the next few years. We can provide berths for the international community to join us on the cruises to the NP, fostering collaboration and knowledge exchange.

b) Laboratory Research: A significant contingent of Chinese scientists is engaged in laboratory investigations aligned with the research focus of BioGeoSCAPES.

c) Project coordination: We are strongly interested in hosting international workshops, conferences, and summer schools, among other events. Furthermore, we are keen on exploring the possibility of serving as the host for the BioGeoSCAPES IPO.

3. What science questions are most important to Chinese within the broad scope of BioGeoSCAPES on a 10-year timeframe?

a) Unraveling the Spatio-Temporal Dynamics: Investigating the spatio-temporal patterns of the composition and functioning of microbial communities in the global ocean.

b) Microbial-Chemical Interactions: Delving into the intricate interactions between microorganisms and the chemical milieu, with particular attention to trace elements, within the oceanic ecosystem.

c) Environmental Impact Assessment: Assessing the profound effects of environmental shifts on microbial biogeography and biogeochemical functionality, while also exploring their feedback mechanisms in the context of climate dynamics

4. Are there any impediments that the international program could seek to mitigate via training or collaboration?

No at the moment.