PICES
North Pacific Marine Science Organization

S3

BIO Topic Session

Interactions between biogeochemical cycles and marine food webs in the North Pacific

Co-convenors:

Angelica Peña, Hiroaki Saito and Sinjae Yoo

Co-sponsored by

IMBER
Integrated Marine Biogeochemistry and Ecosystem Research

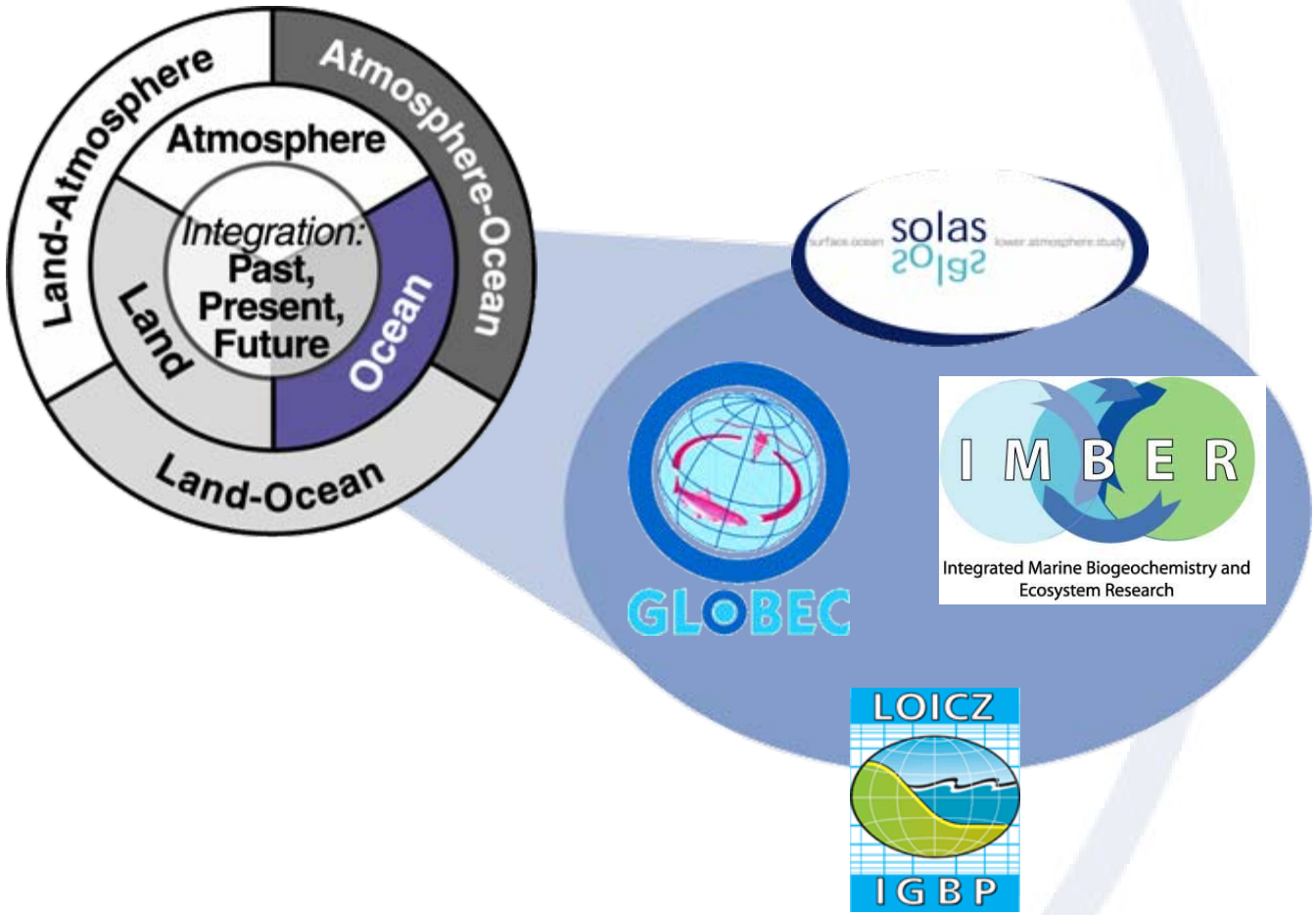
BIO Topic Session

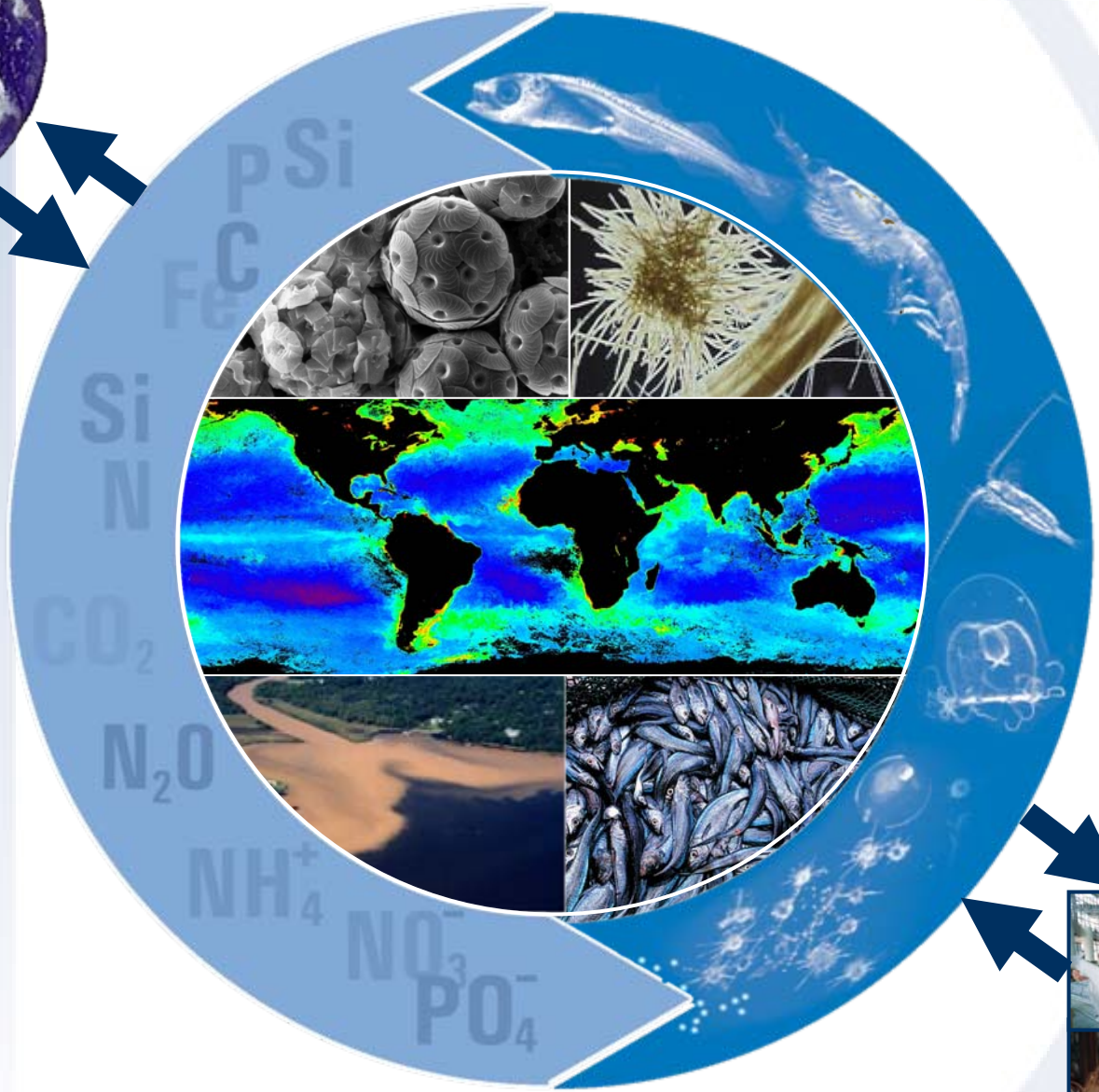
S3

Marine food webs and their components respond to, as well as influence, the abundance and distribution of biogenic elements in the ocean.

A better understanding of the fundamental interactions between biogeochemical cycles and food webs is necessary to advance our understanding of the response of marine ecosystems to natural and anthropogenic perturbations, such as changes in physical dynamics and carbon cycle chemistry, dust events, eutrophication and marine harvest. The North Pacific and adjacent seas include a wide range of ecosystems and some unique environmental conditions (e.g. high silicic acid concentration relative to nitrate, iron-limited HNLC region), providing the opportunity to investigate and compare the role of biological processes on biogeochemical cycles under varying environmental conditions. ***This session will review existing knowledge on the interaction between biogeochemical cycles and marine food webs in the North Pacific Ocean and identify gaps in current knowledge for eventual prediction of the effect of human activities and climate change on marine ecosystems.***

Ocean Projects in IGBP II




P
Si
C
Fe
Si
N
CO_2
N_2O
NH_4^+
NO_3^-
PO_4^-

IMBER

Integrated Marine Biogeochemistry and Ecosystem Research

Vision

"to provide a comprehensive understanding of and accurate predictive capacity for, ocean responses to accelerating global change and the consequent effects on the Earth System and human society"

Goal

"to investigate the sensitivity of marine biogeochemical cycles and ecosystems to global change, on time scales ranging from years to decades"

BIO Topic Session

S3

Posters

Kitajima, et al. Nitrogen fixation in the subtropical and tropical western North Pacific

Lee and Kim The cycling of organic carbon at the Ulleung Basin sediments, the East/Japan Sea

Nikonov Numerical analysis of chlorophyll-*a* modification in the south-east region of Sakhalin Island

Okunishi, et al. Impact of tidal mixing in the Kuril Stratis on the surface nitrate distribution in the Okhotsk Sea and North Pacific during summer

S3

BIO Topic Session

Liu et al. (Invited) Effects of photoaclimation of phytoplankton and benthic-pelagic coupling on primary production in the South China Sea: Recent observations and modeling

Tadokoro, et al. Trends and bidecadal oscillations in PO4 concentration in the Oyashio and Kuroshio-Oyashio mixed waters

Garcia, et al. Climatological annual cycle of inorganic nutrient content anomaly in the Pacific Basin

King and Barbeau Macro- and micronutrient limitation of phytoplankton standing stock in the southern California Current System

Yoo, et al. Productivity and structure of lower trophic level communities and carbon flux in the Ulleung Basin in the JES in the summer of 2005

Rho, et al. Variability of summer primary production in the Subarctic North Pacific and the southeastern Bering Sea shelf

Saito, et al.,Role of heterotrophic dinoflagellate *Gyrodinium* sp. in BGCcycles

Omori, et al. Two sources of primary production of sand bank ecosystems in Seto Inland Sea, Japan

Fujii, et al. Comparison of seasonal characteristics in biogeochemistry among the subarctic North Pacific stations described with a NEMURO-based marine ecosystem model

BIO Topic Session

S3

Jackson (Invited) Using coagulation theory to predict maximum particle concentrations and fluxes from the surface ocean

Kuwata Resting spore formation and sinking of bloom forming diatoms in the Oyashio region of the western subarctic Pacific Ocean

Kobari, et al., Active carbon transport by the ontogenetically migrating copepods in the western subarctic gyre

Yamaguchi, et al. Taxonomic and size composition of plankton community down to the greater depths in the western North Pacific Ocean (S3-2785)

Peña, et al. Modeling summer nutrient and phytoplankton dynamics off the entrance of Juan de Fuca Strait

Gao, et al. Nitrogen and silicon cycling in sediment and porewater of Dongtan tidal flat in the Changjiang (Yangtze River) estuary

Checkley, et al., Simultaneous assessment of particles, including plankton, in the North Pacific by use of the SOLOPC