



The 3<sup>rd</sup> SO-JGOFS International Symposium "*climatic changes and the cycle of carbon*" was held in Brest (France) during 8-12 July 2000 under the umbrella of the Institut Universitaire Européen de la Mer (European Institute for Marine Studies) de l'Université de Bretagne Occidentale (University of Western Brittany) and the Institut Français pour la Recherche et la Technologie Polaires (French Polar Institute). This was an official manifestation of the international programme JGOFS (Joint Global Ocean Flux Studies), whose sponsorship included SCOR (Scientific Committee on Oceanic Research), SCAR (Scientific Committee on Antarctic Research), INSU-CNRS (Institut National des Sciences de l'Univers, Centre National de la Recherche Scientifique), the Ministère des Affaires Etrangères, as well as the local and regional authorities. The meeting was attended by more than 200 scientists from 19 nations taking part in 16 sessions and three round-table discussions. Full details, including the composition of the Scientific Committee, the list of contributions, the poster and all abstracts are available at the Internet site: <http://www.univ-brest.fr/IUEM/BIOFLUX/so-jgofs.htm>. Following the 1<sup>st</sup> Symposium held in 1990 (Tréguer and Quéguiner, 1991) and the 2<sup>nd</sup> held in 1995 (Le Févre and Tréguer, 1998), this 3<sup>rd</sup> SO-JGOFS Symposium was a landmark between the middle of the synthesis and modelling phase. The 3<sup>rd</sup> SO-JGOFS Symposium focused on updated answers to the 6 major questions the SO-JGOFS Group addressed 10 years ago.

P. Tréguer and P. Pondaven -- Climatic changes and the carbon cycle in the Southern Ocean: a step forward -- 1597-1600

Taro Takahashi et al. -- Global sea-air CO<sub>2</sub> flux based on climatological surface ocean pCO<sub>2</sub>, and seasonal biological and temperature effects -- 601-1622

Reiner Schlitzer -- Carbon export fluxes in the Southern Ocean: results from inverse modeling and comparison with satellite-based estimates -- 1623-1644

David M. Nelson et al. -- Vertical budgets for organic carbon and biogenic silica in the Pacific sector of the Southern Ocean, 1996-1998 -- 1645-1674

Mario Hoppema, Hein J.W. de Baar, Richard G.J. Bellerby, Eberhard Fahrbach and Karel Bakker -- Annual export production in the interior Weddell Gyre estimated from a chemical mass balance of nutrients -- 1675-1689

Masao Ishii, Hisayuki Y. Inoue and Hidekazu Matsueda -- Net community production in the marginal ice zone and its importance for the variability of the oceanic pCO<sub>2</sub> in the Southern Ocean south of Australia -- 1691-1706

Javier Arístegui, Michel Denis, Javier Almunia and María F. Montero -- Water-column remineralization in the Indian sector of the Southern Ocean during early spring -- 1707-1720

G. Fischer, R. Gersonde and G. Wefer -- Organic carbon, biogenic silica and diatom fluxes in the marginal winter sea-ice zone and in the Polar Front Region: interannual variations and differences in composition -- 1721-1745

Daniel E. Sigmon, David M. Nelson and Mark A. Brzezinski -- The Si cycle in the Pacific sector of the Southern Ocean: seasonal diatom production in the surface layer and export to the deep sea -- 1747-1763

B. Quéguiner and M.A. Brzezinski -- Biogenic silica production rates and particulate organic matter distribution in the Atlantic sector of the Southern Ocean during austral spring 1992 -- 1765-1786

Vincenzo Saggiomo, Giulio Catalano, Olga Mangoni, Giorgio Budillon and Gian Carlo Carrada -- Primary production processes in ice-free waters of the Ross Sea (Antarctica) during the austral summer 1996 -- 1787-1801

- Philip W. Boyd -- The role of iron in the biogeochemistry of the Southern Ocean and equatorial Pacific: a comparison of in situ iron enrichments -- 1803-1821
- Young-Hyang Park, Raymond T. Pollard, Jane F. Read and Viviane Leboucher -- A quasi-synoptic view of the frontal circulation in the Crozet Basin during the Antares-4 cruise -- 1823-1842
- Michael R. Landry et al. -- Seasonal dynamics of phytoplankton in the Antarctic Polar Front region at 170°W -- 1843-1865
- M. Fiala, M.-C. Machado and L. Oriol -- Phytoplankton distribution in the Indian sector of the Southern Ocean during spring -- 1867-1880
- E.A. Pakhomov, P.W. Froneman and R. Perissinotto -- Salp/krill interactions in the Southern Ocean: spatial segregation and implications for the carbon flux -- 1881-1907
- Robert F. Anderson, Zanna Chase, Martin Q. Fleisher and Julian Sachs -- The Southern Ocean's biological pump during the Last Glacial Maximum -- 1909-1938
- Xavier Crosta, Aldo Shemesh, Marie-Eve Salvignac, Hezi Gildor and Ruth Yam -- Late quaternary variations of elemental ratios (C/Si and N/Si) in diatom-bound organic matter from the Southern Ocean -- 1939-1952
- C. Rabouille, N. Tisnérat and D. Blamart --  $^{14}\text{C}$  of the organic matter in sediments from the Antarctic Polar Front: origin and dynamics of sedimentary organic carbon