

meteorology, *in situ* hydrography, chemistry and biology (Anderson *et al.*, 1977; Tabata, 1979; Tabata, 1965).

In the framework of JGOFS, several time-series' stations have been developed or reinforced, the most famous being the Hawaii Ocean Time-Series (HOT) and the Bermuda Atlantic Time-Series Studies (BATS; Karl, 1992; Knap, 1992; Michaels, 1992). The U.S. time-series scientific programs benefits from the proximity of laboratory facilities on the Hawaii and Bermuda islands. However, the circumstances providing laboratories close enough to oceanic sites with offshore characteristics of interest for JGOFS objectives are relatively rare. In addition, though these stations are both located in two different oceans and biogeochemical provinces, they both characterize low latitude environmental conditions.

The program KERFIX proposes a time-series station at a fixed location 60 nautical miles southwest of the Kerguelen Islands (KERFIX: 50°40 S, 68°25 E, Figure 1). It started in 1990 and was the first regular multiyear acquisition of parameters in the remote Southern Ocean, known for its particularly cold and windy environment. Since 1991, another long-term research was developed in the Southern Ocean, but near the Antarctic continent, in the framework of the PALMER LTER program (Smith *et al.*, 1995). This last program is mostly focused on the spatial and temporal variability of the primary production in this area and their link with the annual advance and retreat of sea ice.

Apart from quantifying the temporal variations of the carbon flux, the program KERFIX proposes several more specific studies. One of the main motivation of KERFIX is to contribute to the understanding of the processes that control the primary production, which paradoxically is very weak in this nutrient-rich region. The majority of the parameters acquired as part of KERFIX will be discussed on the basis of simulations using a one-dimensional physical/biological/chemical coupled model (GEOTOP, extensively described in Ruiz-Pino *et al.*, 1995). This model has been developed simultaneously with the settling of KERFIX and was of a great help for establishing the sampling strategy. The physical characteristic of the area have been studied to define the seasonal and interannual variability of the thermal content and the steric height of the water column. Current meter data will allow the determination of the average current and its variability with time. Temporal series of dissolved and particulate lithogenic and biogenic Si and Ba data will help to improve our knowledge of their geochemical cycles and more particularly by which mechanisms they are (or not) coupled (Dehairs and Goeyens, 1989; Dehairs *et al.*, 1995; Jeandel *et al.*, in press; Stroobants *et al.*, 1991). Finally, a micropaleontological study aims to quantify the influence of the seasonal cycle on the $^{13}\text{C}/^{12}\text{C}$ content of