



## **Intrusions of the Mediterranean Northern Current on the eastern side of the Gulf of Lion's continental shelf, NW Mediterranean Sea**

J. Gatti (1), A. Petrenko (1), J.L. Devenon (1) and Y. Leredde (2)

(1) Laboratoire d'Océanographie et de Biogéochimie, Centre d'Océanologie de Marseille, Marseille, France, (2) Laboratoire Dynamique de la Lithosphère, Institut des Sciences de la Terre, de l'Environnement et de l'Espace de Montpellier, Montpellier, France  
(gatti@com.univ-mrs.fr / Fax: +33 491821991 / Phone: +33 491829061)

The Mediterranean Northern Current (NC) flows southwestward along the Gulf of Lion's (GoL) continental slope from the Ligurian Sea to the Catalan Sea in the north-western Mediterranean Sea. When the NC reaches the shelf break of the GoL, it can either continue its route along the continental slope or split into two branches, the main one following the continental slope and the other one intruding on the continental shelf. This second branch entering the gulf on its eastern side is considered an intrusion when it flows across the 200m-deep isobath. These intrusions are shelf-edge processes that are studied in the Golts project. In 2002-2004, the Golts project has included more than 10 cruises in this region. These cruises provide continuous currents (hull-mounted ADCP) and hydrological (thermosalinograph) data, as well as CTD and XBT profiles at chosen stations. These data exhibit 13 circulation patterns (similar or not), which include 10 intrusions. The intrusion flux varies in a range of 0.03-0.46 Sv ( $10^6 \text{m}^3 \cdot \text{s}^{-1}$ ) with its maximum in November 2002. More than 50% of these intrusions occur after strong northwesterly winds (Mistral). Indeed, when the Mistral stops, the upper part of the NC flows onto the continental shelf. Actually the situation is more complex : some intrusions also occur after other wind events such as easterly winds. In fact, besides the wind forcing, the bathymetry, the stratification and the NC instabilities also influence these shelf-edge processes. Modelling studies with the 3D circulation model Symphonie help to better understand and to find out which process plays a dominant role in the generation of the intrusions.