



Decadal variations of thermohaline and biochemical properties of the Adriatic Sea and Eastern Mediterranean Transient (EMT)

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Thermohaline properties in the Adriatic Sea have varied prominently in the last two decades. We show that average temperature and salinity over the water column below the permanent thermocline in the center of the South Adriatic cyclonic gyre attained their minimum values in mid 1990'. At the same time, column averaged nitrate content reached its maximum that has never been recorded earlier. In early 1990's the important change of the Eastern Mediterranean circulation took place with the Aegean instead of the Adriatic becoming the most important source of the Eastern Mediterranean Dense Water (EMDW). Maximum Aegean water outflow took place in 1993. The change was named Eastern Mediterranean Transient (EMT). Earlier papers suggested possible links between the Adriatic oceanographic and biochemical properties changes in the last two decades and the EMT. Here we sought for a signal associated with EMT in the sea surface altimetric data in the period 1992 – 2007. Absolute sea surface height show the occurrence of a low in the 1992/93 yearly mean to the south-east of Crete. By 1996 the low extended to the east protruding to the north-east Ionian and presumably southern Adriatic. In late 1990's the sea level in front of the western Cretan Straits recover reaching positive values as those of the beginning of the study period, i.e. before the maximum Aegean outflow. At the same time the Pelops anti-cyclone became evident blocking the connection between the area south of Crete and

Ionian Sea. In 2006 the Pelops gyre became the most prominent feature in the area. From the noticed sea-level drop southwest of Crete, using the density stratification, we estimate the upward motion of interfaces and explain Adriatic thermohaline and biogeochemical properties variations in terms of the advected signal coming from the Aegean influence.