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State of ecosystem in the Northern Persian Gulf and Gulf of Oman: new finding through expeditions.

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A comprehensive research cruise entitled Persian Gulf and Gulf of Oman Oceanographic Studies (PG-GOOS) has been conducted in 2012 and 2013. A total of 30 legs with 120 stations were selected for measurement and sampling. Water samples have been collected by Rossetti from near surface down to maximum depth of 750m in the Gulf of Oman. Surface sediments retrieved by grab sampler and sub-surface by gravity corer with maximum core length of 2m. Plankton has been sampled by bongo net. In situ phisico-chemical properties of seawater have been measured by conuctivity-tempreture- depth (CTD) profiler. Based on the type of samples, some of them fixed and preserved and some others preprocessed and preserved on the vessel for further analysis. Here is presented the first result of CTD data, nutrient, surface sediments, planktons and benthos distribution. Chemical analysis on the water and sediment samples for pollutants and analysis on the cores takes more time to be retrieved. Fixed point and moored measurements are not covered here.
Analysis of CTD data show that inflow of the Gulf of Oman surface fresher water (lower salinity in comparison to the Persian Gulf) into the Persian Gulf occurs all the year but it more expands in summer. However, in winter time difference between densities of water masses is more visible while it invigorates with temperature and salinity in summer.
Surface total alkalinity (TA) increased from the Gulf of Oman to the north-western parts of the Persian Gulf (ΔTA=140 μmol/kg). In the Persian Gulf TA increased with depth due to significantly higher salinity of deep seawater. Surface pH in the Gulf of Oman and Strait of Hormuz were significantly higher than those in the Persian Gulf and decreased with depth in the whole area. Surface dissolved oxygen concentration was almost homogeneous in the whole studied area.
Surface sediments distribution is largely lie on silt category in northern Persian Gulf and Gulf of Oman. But their composition reflects the two environmental setting, more carbonate in shallow subtropical shelf of the Persian Gulf to more detrital in monsoon dominated Gulf of Oman.
Quantitative analysis demonstrated that dominant groups among phytoplankton, zooplankton, zooneuston, macrobenthos and meiobenthos were dinoflagellates, copepods, gastropods and foraminifers, respectively. Higher abundance of zooplankton and macrobenthos are recorded during autumn cruise, whereas higher abundance of phytoplankton and zooneuston are reported from summer cruise. Several taxa are been reported for the first time from these areas; these include: Desmocolex sp. (meiobenthos), Endeis sp. (macrobenthos), Cardiopoda sp.(zooplankton), and Halobates sp.(zooneuston).
The first result of the PG-GOOS supports general trends that achieved through previous expeditions, however new details have unraveled in transition between Persian Gulf and Gulf of Oman as well as in deep waters.