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## Temporal variations of physical and chemical properties of seawater in Hengam coral patches, Persian Gulf

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This study was conducted in the eastern coral patches of Hengam Island which is a 20-40 ha area of rich coral growth in the northeastern Persian Gulf. Hengam coral patches are regularly flushed with water coming through the Strait of Hormuz from the Gulf of Oman; so they experience milder seasonal water temperature and salinity compared to reefs situated more inward in the Persian Gulf. In this study underwater temperature (T), dissolved oxygen, salinity, pH, total alkalinity (AT) and nutrient contents (nitrate, phosphate and silicate) of the coral community of Hengam Island in the Persian Gulf were measured during 2014 and 2015. Diurnal and seasonal variation of T, pH, salinity, dissolved oxygen, nutrients and  $A_T$  was measured. Other parameters of carbon dioxide system of seawater ( $pCO_2$ , total inorganic carbon, carbonate and bicarbonate concentrations and aragonite saturation state ( $\Omega_{Ar}$ )) were calculated. In addition, some biological characteristics (species richness, calcification rate and bleaching status) were evaluated which are not discussed in this presentation. Results obtained from thermo loggers showed that corals in the northeastern part of the Persian Gulf are washed by cold tidal flows mitigating underwater temperature during hot summers. Seawater of coral patches in Hengam Island were characterized with low concentration of nutrients ( $NO_3^- < 0.23 \mu M$ ,  $PO_4 < 0.25 \mu M$ ,  $SiO_2 < 3.66 \mu M$ ), salinity ranged from 36.7-37.7, pH ranged from 8.15-8.23 and underwater T ranged from 20.4-34.8 oC. Results obtained from carbonate chemistry calculations showed that aragonite saturation state varies between 3.34 to 4.87 in January and August, respectively. Regression analysis showed that T was responsible for 92% of seasonal variations in  $\Omega_{Ar}$ . 99% of seasonal variations of  $\Omega_{Ar}$  were explained by temperature and pH.

### Biography

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