**Title:** Net community production, nutrients, and hydrographic parameters in the South China Sea in October 2014 and June 2015

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**Description:** Net community production (NCP) corresponds to the difference between photosynthesis and respiration, and can be estimated based on the dissolved oxygen to argon ratio (O2/Ar) in the mixed layer. NCP is also an important proxy for the biological pump in the ocean. In order to figure out the influencing factors on NCP in the northern slope region of the South China Sea (SCS), we conducted high-resolution underway measurements of O2/Ar and hydrographic parameters using membrane inlet mass spectrometry (MIMS) and multi-parameter water quality logger (RBR Maestro) in the northern slope region of the SCS in October 2014 and June 2015, assisted by nutrients measurements. NCP in the mixed layer was estimated using the biological supersaturation of O2/Ar, Δ (O2/Ar), and gas transfer velocity (k). All the underway data were compiled into the 5-min interval. Surface water samples for the nutrients analysis were collected from Niskin bottles mounted on the conductivity–temperature–depth (CTD) rosette at sampling stations, the nutrients were then photometrically determined by an auto-analyzer. The mixed layer depth (MLD) and the euphotic depth (Zeu) were calculated at stations where CTD casts were made based on potential density and chlorophyll fluorescence profile, respectively.