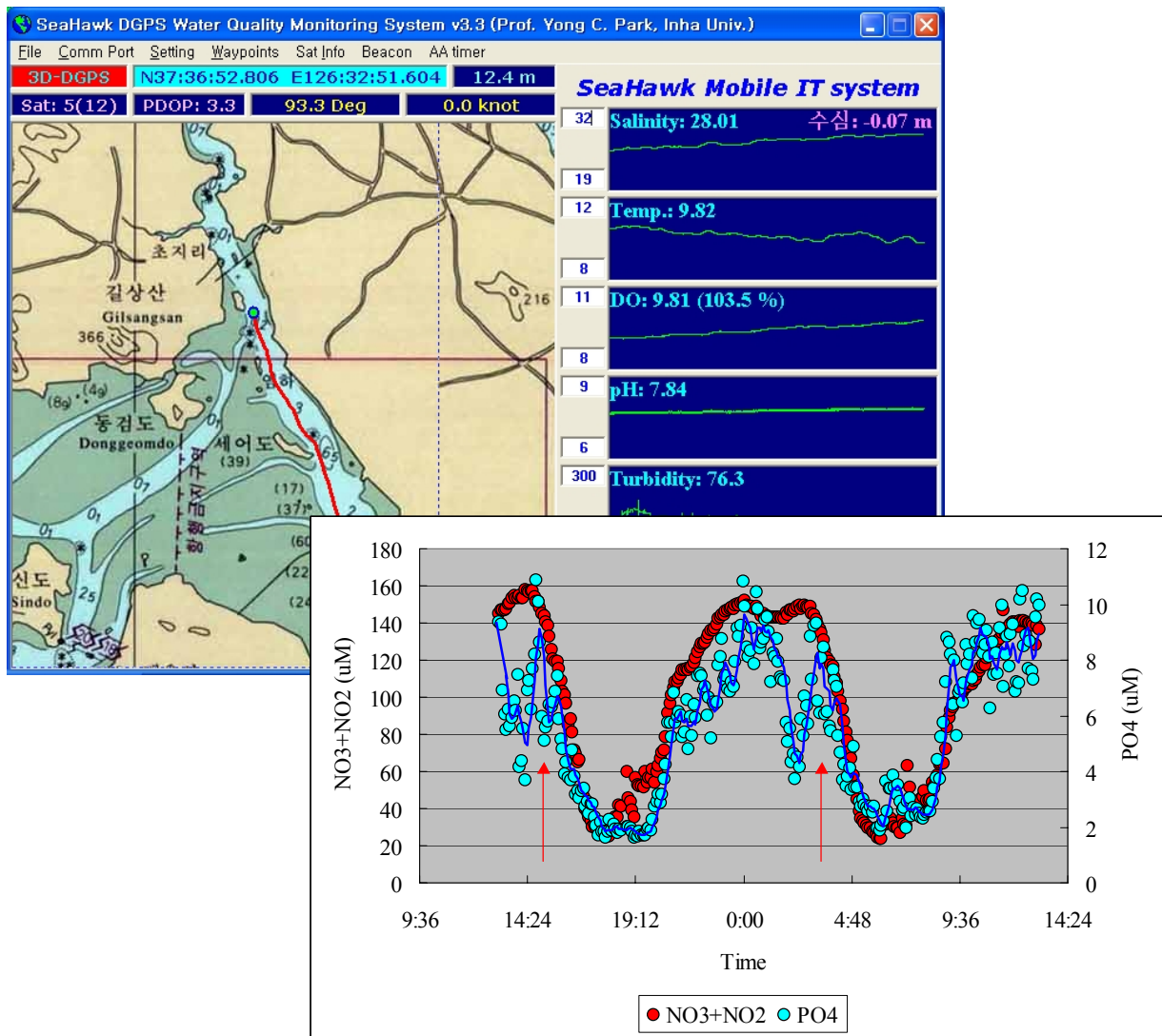


Real time data collection of water quality monitoring sensors, nutrients auto-analyzer and sonar depth based on DGPS and wireless data communication has been done from 2001-2003, in the coastal waters of Incheon, Korea. Synchronized signals from the multi-parameter sensor unit (salinity, temperature, depth, pH, DO, turbidity and chlorophyll), auto-analyzer (nitrate and phosphate), and DGPS were obtained at one-second interval and delivered to remote control server through mobile CDMA 2000-1X wireless network (download speed at 144Kbps). Using specially designed flow-through type chamber to reduce air bubble formation, system enabled continuous *in situ* real time monitoring of surface seawater quality even at cruising speed of 13 knots. System incorporates technologies of mobile TCP/IP server-clients and winsock application covering multiple research vessels and mooring stations, simultaneously. With this high speed and on-line real time data accessibility, water quality modeling and decision-making against coastal water pollution will be more accurate and much easier than ever, reducing time-consuming marine monitoring efforts and costs. Results of high-resolution data showed that nutrients and DO were quite non-conservative along the salinity gradient, implying complex biogeochemical processes during estuarine mixing in the macro tidal area. Application of high-resolution real time monitoring results, based on DGPS and wireless mobile IT solution, regarding on the biogeochemical dynamics of nutrients removal and sourcing will be presented.



Nitrification Process: N Removal & Source

