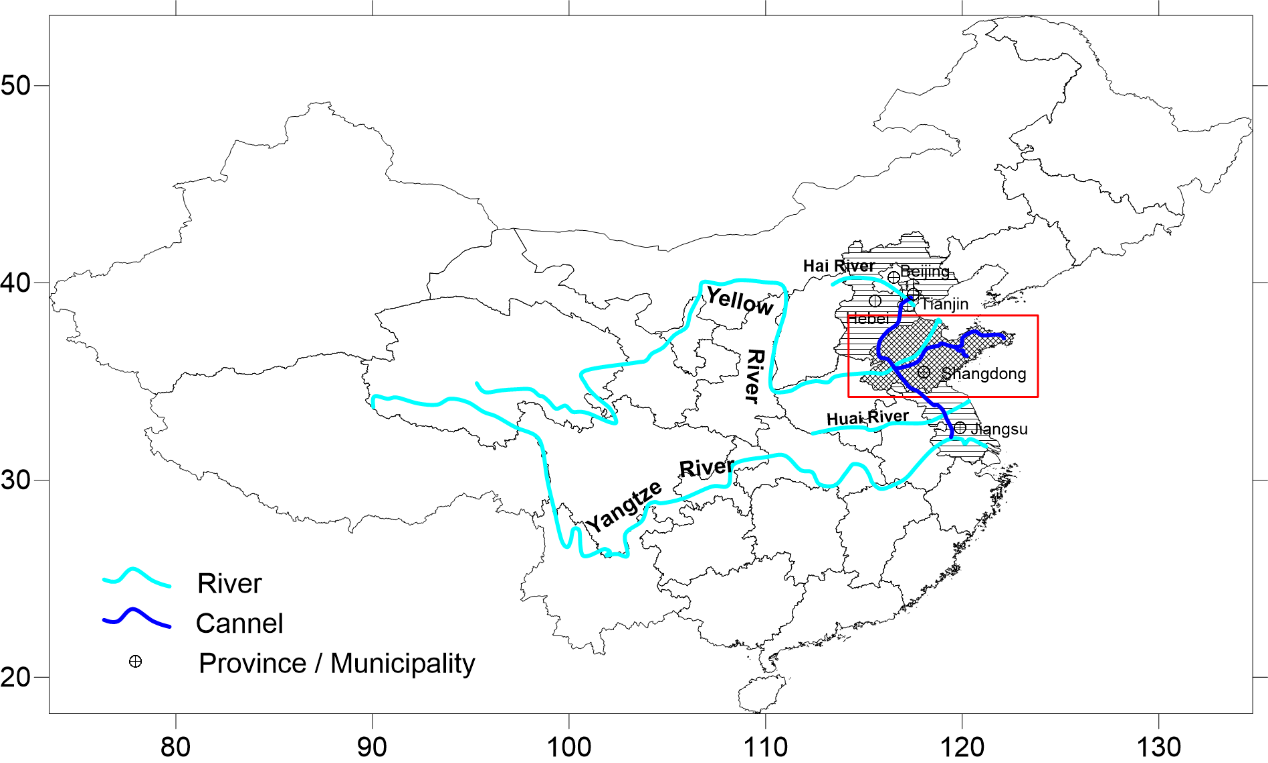
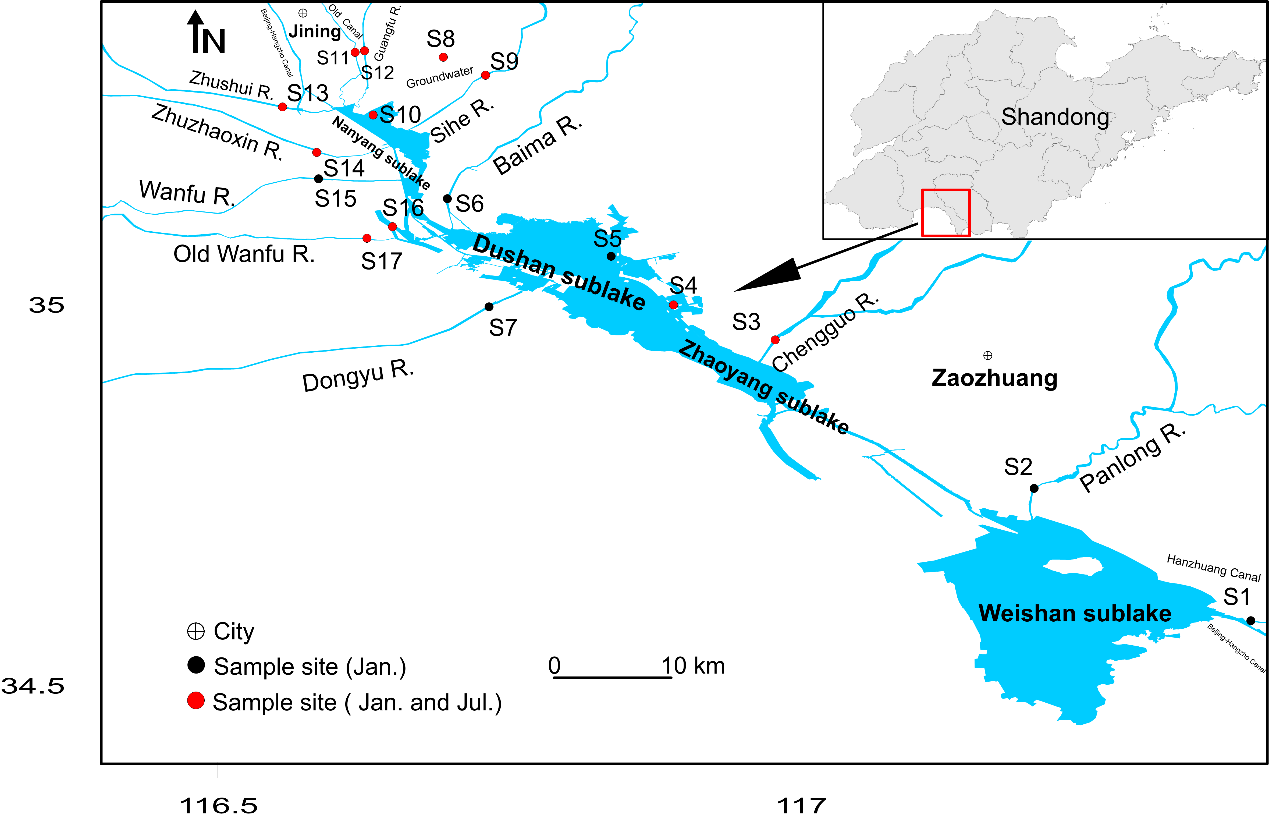
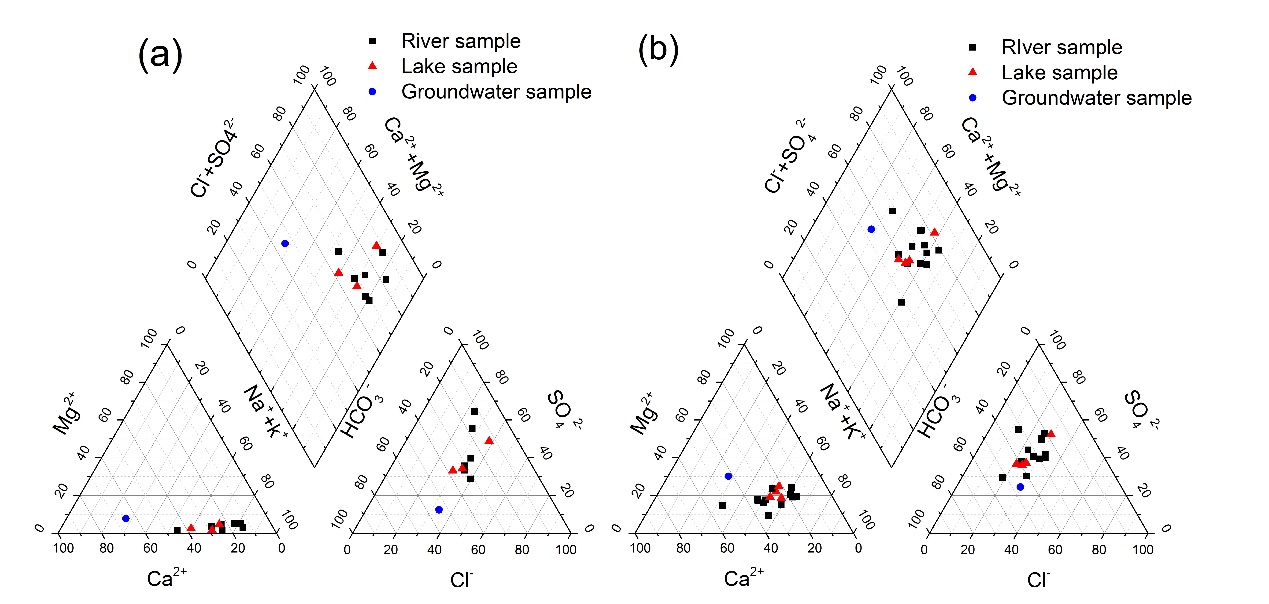
Figures



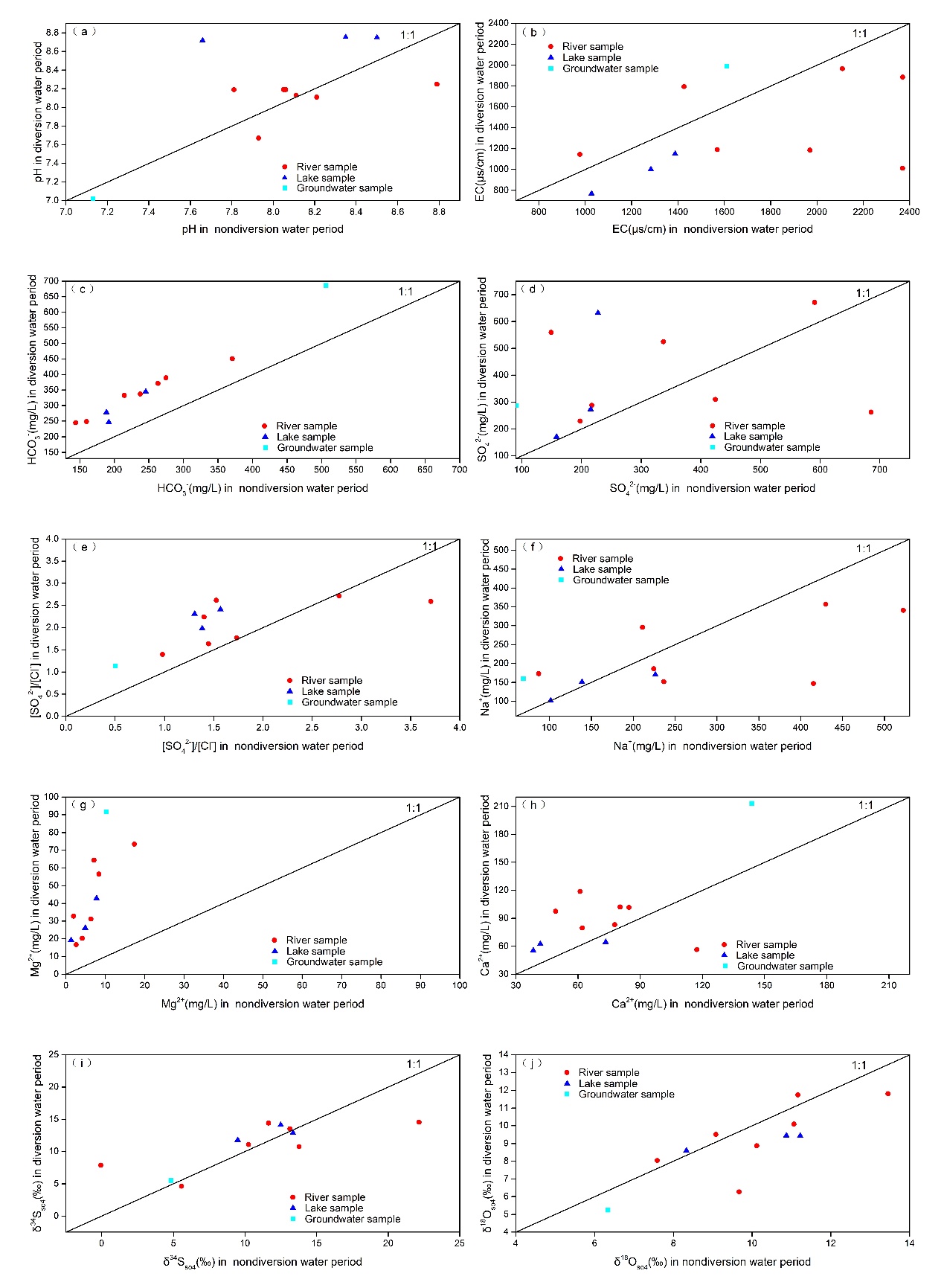
**Fig.1** The map of the East Route of the South-to-North Water Diversion Project (SNWD-ERP)



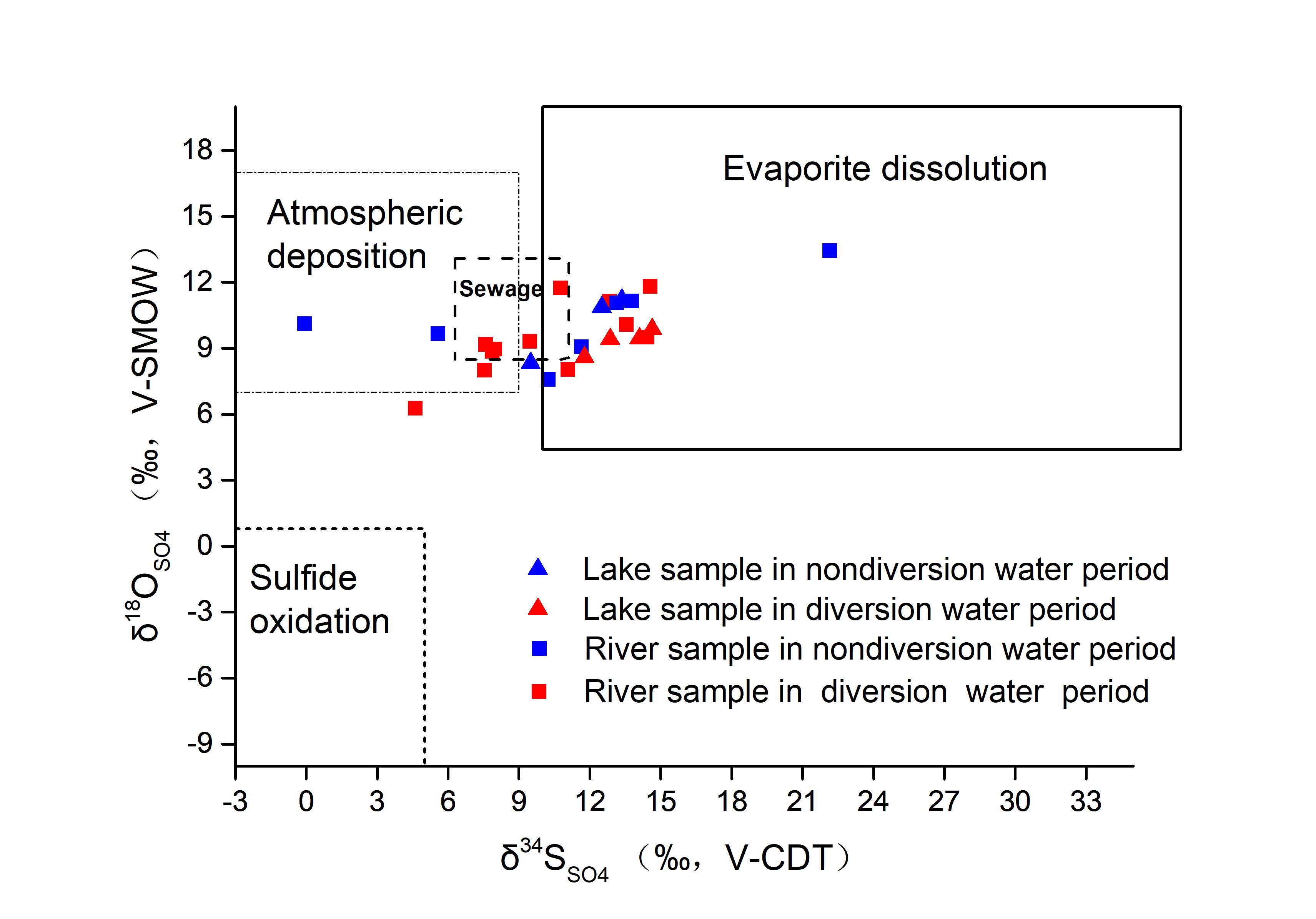
**Fig.2** Location of sampling sites in Nansi Lake



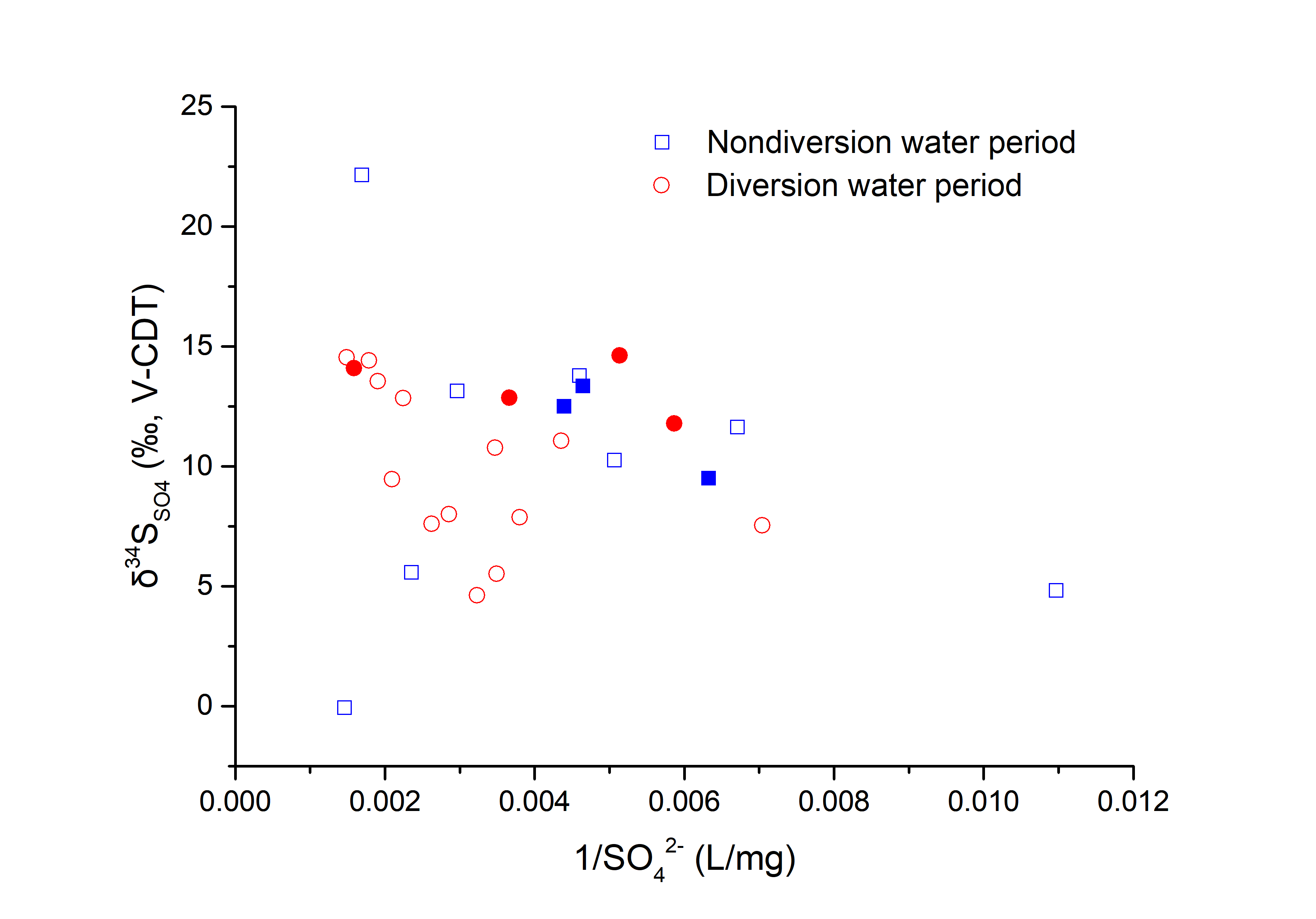
**Fig.3** Piperternary diagram of sampling in different period. (a) nondiversion water period; (b) diversion water period



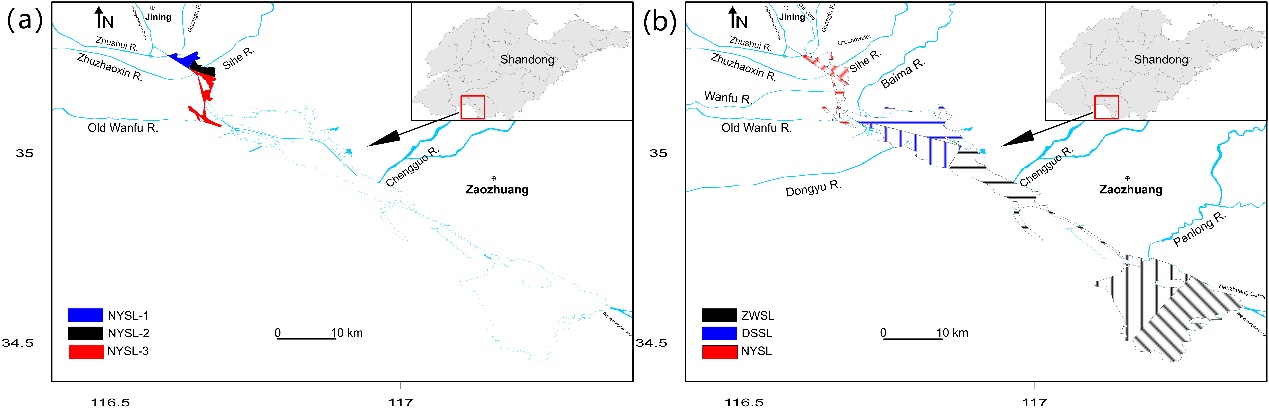
**Fig.4** Comparisons of temporal variations in (a)pH, (b) EC, (c) HCO3-,(d) SO42-, (e) [SO42-] / [Cl-], (f) Na+. (g) Mg2+, (h) Ca2+, (i) δ34SSO4, (j) δ18OSO4 compositions in nondiversion and diversion water period



**Fig.5** δ34SSO4 value vs. δ18OSO4 value diagram for water samples in NSL and surrounding area in nondiversion and diversion water period. a)atmospheric deposition with the value of δ34SSO4 and δ18OSO4 ranged from -3‰ to 9‰ and from 7‰ to 17‰, respectively(Krouse and Mayer 2000);b) evaporate dissolution, with the value of δ34SSO4 and δ18OSO4 ranged from 8‰ to 35‰ and from 6‰ to 20‰, respectively (Krouse and Mayer, 2000); c) sulfide oxidation, with the value of δ34SSO4 and δ18OSO4 ranged from -35‰ to 5‰ and from -5‰ to 4‰, respectively (Krouse and Mayer, 2000); d) sewage, Zhang et al. (2015) summarize the value of δ34SSO4 and δ18OSO4 in sewage in various regions, and the average value of δ34SSO4 and δ18OSO4 range from 6.3‰ to 11.1‰ and from 8.5‰ to 13.1‰, respectively



**Fig.6** Sulfur isotope composition of sulfate (δ34SSO4) vs. reciprocal of sulfate concentration (1/SO42-) diagram for water sample in un- and diversion water period. Solid circles (red) and blocks (blue) represent lake samples



**Fig.7.** The dividing area: (a) nondiversion water period, (b) diversion water period