

Figure 1: Main geological units of Grand Nancy and location of sampling sites for sewage (square), groundwater, (circle) and drinking water (black star) Detailed information on sampling sites can be found in Houhou et al. (2009) and in Table 1 (piezometers). WWTP (black diamond), LEM, and EMS, indicate the location of the sewage treatment plant, LEM laboratory where rainwater was collected, and Essey-lès-Nancy weather station, respectively.

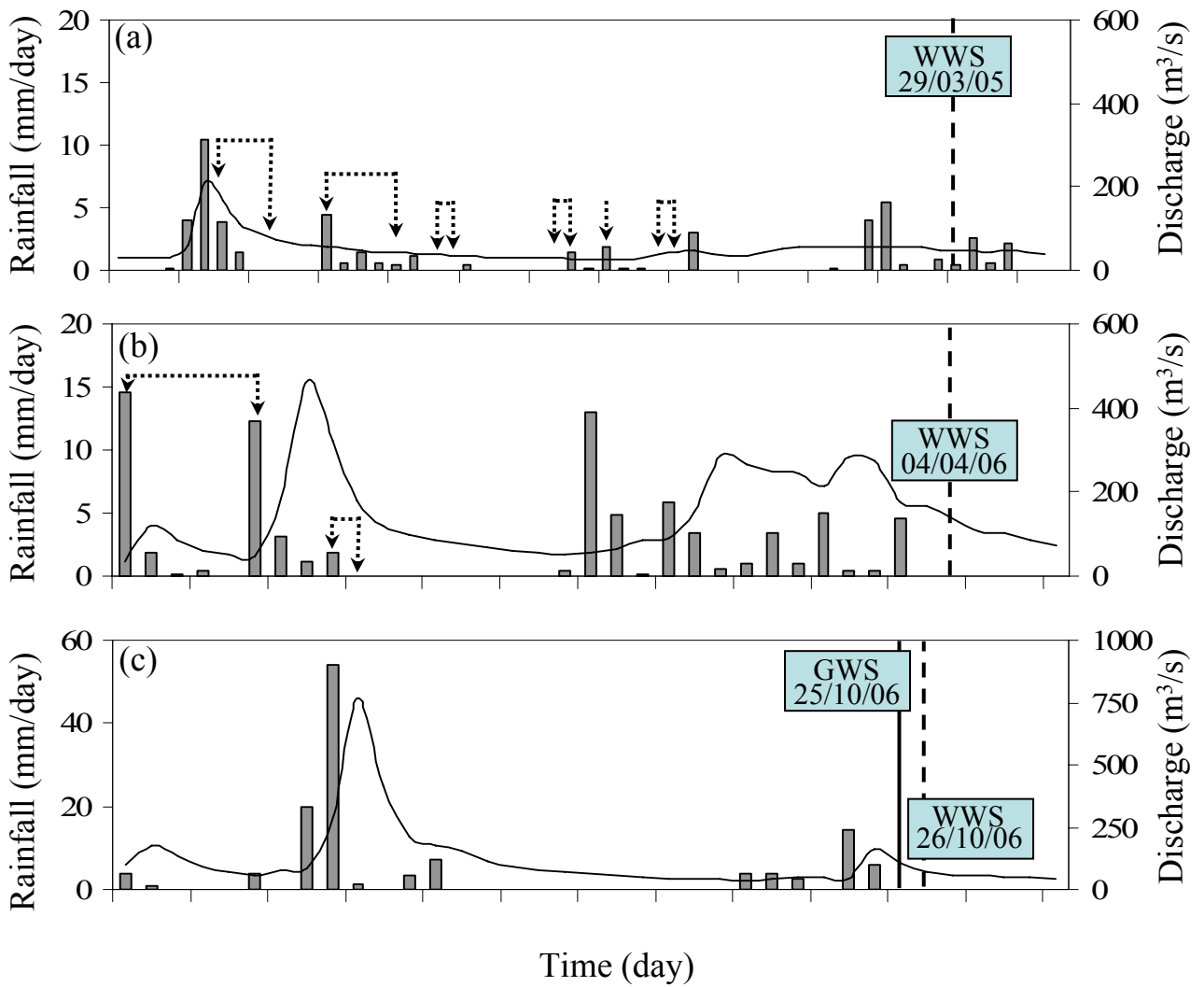


Figure 2: Rainfall hyetographs and Moselle river hydrographs during the month preceding a given sampling campaign. (a) JB diurnal campaign on March 29-30, 2005; (b) PVP diurnal campaign on April 04-05, 2006; (c) Spatial sampling at the urban catchment scale on October 25-26, 2006. Dashed arrows indicate a snow event.

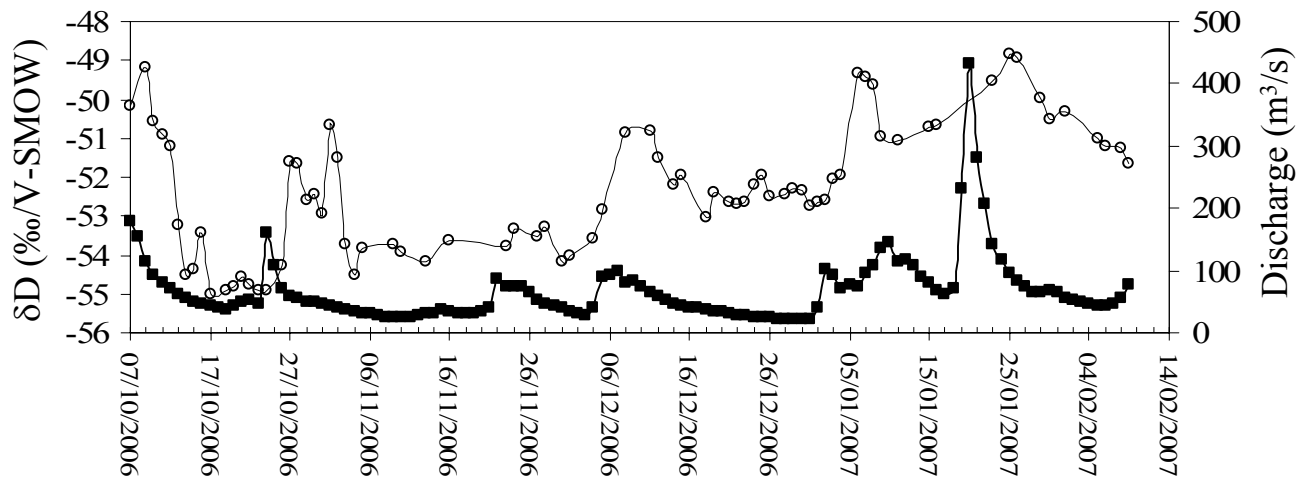


Figure 3: Temporal evolution of both drinking water δD and Moselle river discharge during the period October 07, 2006 to February 09, 2007.

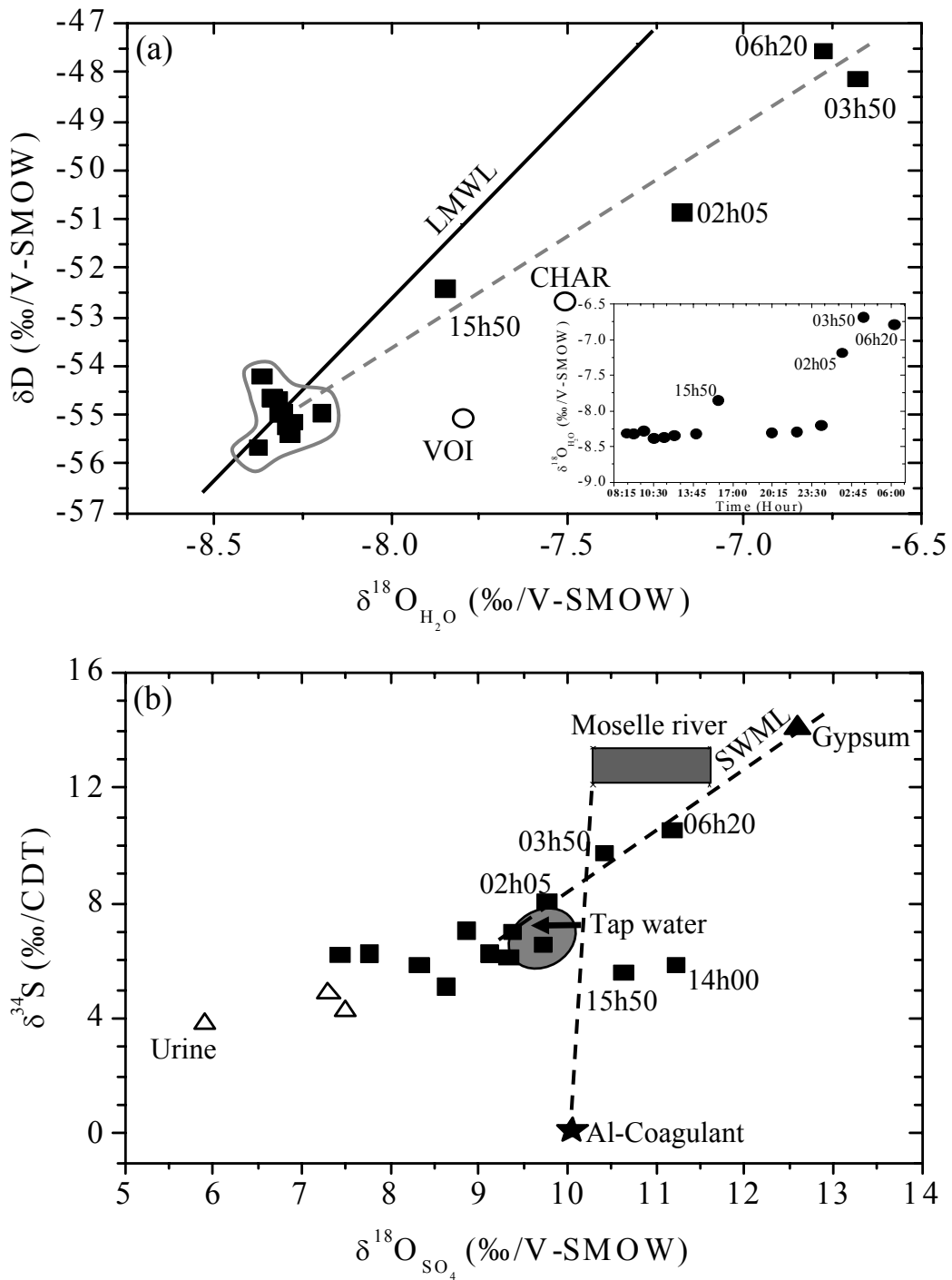


Figure 4: (a) δD - $\delta^{18}O_{H_2O}$ plot of sewage samples collected at JB sampling site on March 29-30, 2005. LMWL refers to the Local Meteoric Water Line (solid line); the dashed line represents the mixing line between the domestic sewage and the stormwater released from the retention basin. VOI and CHAR represent groundwaters collected at nearby piezometers. The inset indicates the variation of $\delta^{18}O_{H_2O}$ during the diurnal investigation.

(b) $\delta^{34}S$ - $\delta^{18}O_{SO_4}$ plot of dissolved sulfate contained in the previous sewage samples (■), the aluminum coagulant used at the drinking water treatment plant (★), urine from three healthy people (△) and gypsum (▲); the gray rectangle and the gray circle represent the range of $\delta^{34}S$ and $\delta^{18}O_{SO_4}$ values for Moselle river water (Brenot et al. 2007) and drinking water, respectively.

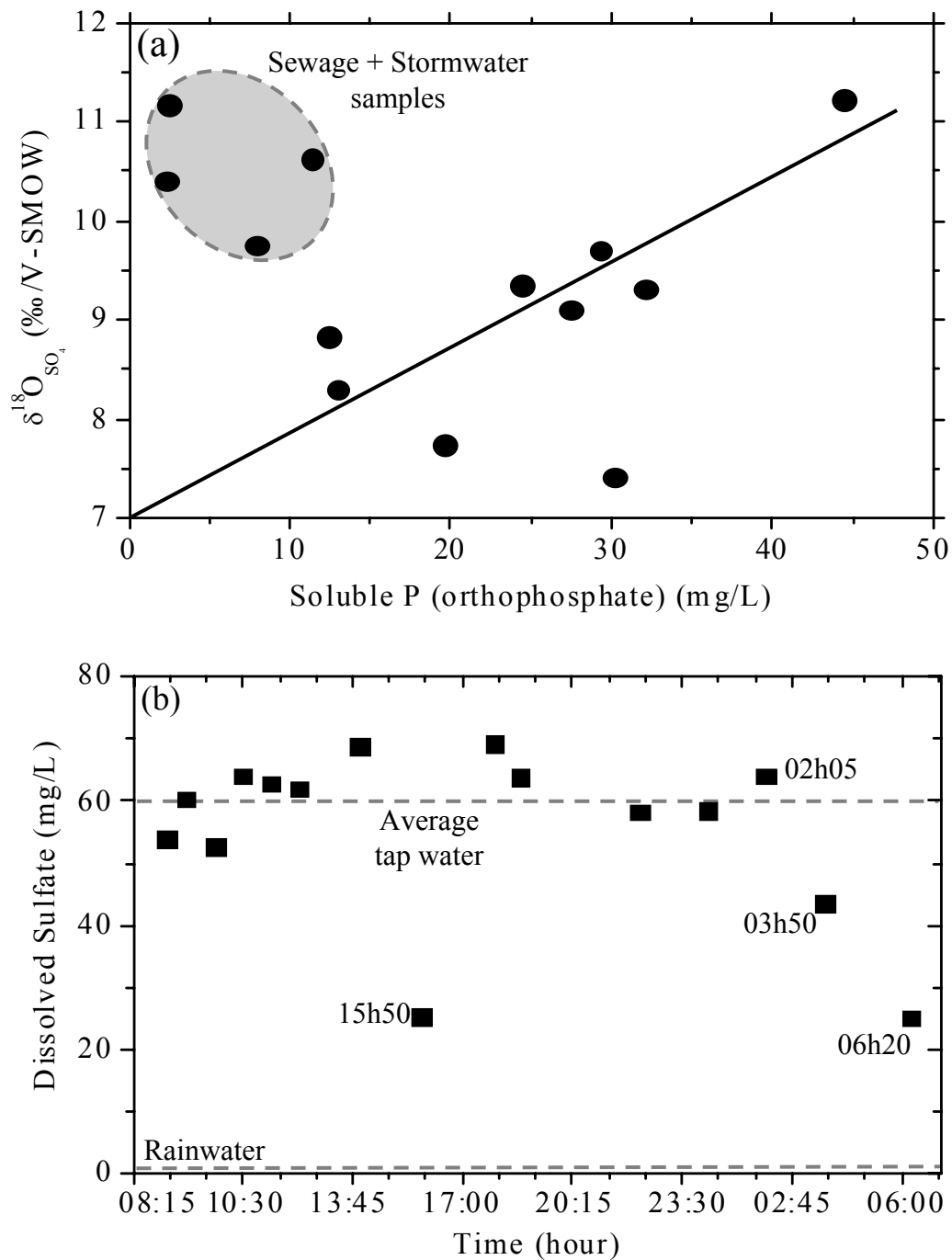


Figure 5: (a) Relationship between $\delta^{18}\text{O}_{\text{SO}_4}$ and soluble orthophosphate for sewage collected at JB sampling site; the circle data points correspond to the mixing of sewage and stormwater released from a nearby retention basin (INIST).

(b) Temporal evolution of dissolved sulfate content in sewage collected at JB sampling site during March 29-30, 2005 diurnal campaign; the dashed lines represent the average concentration in dissolved sulfate in drinking water and rainwater, respectively.

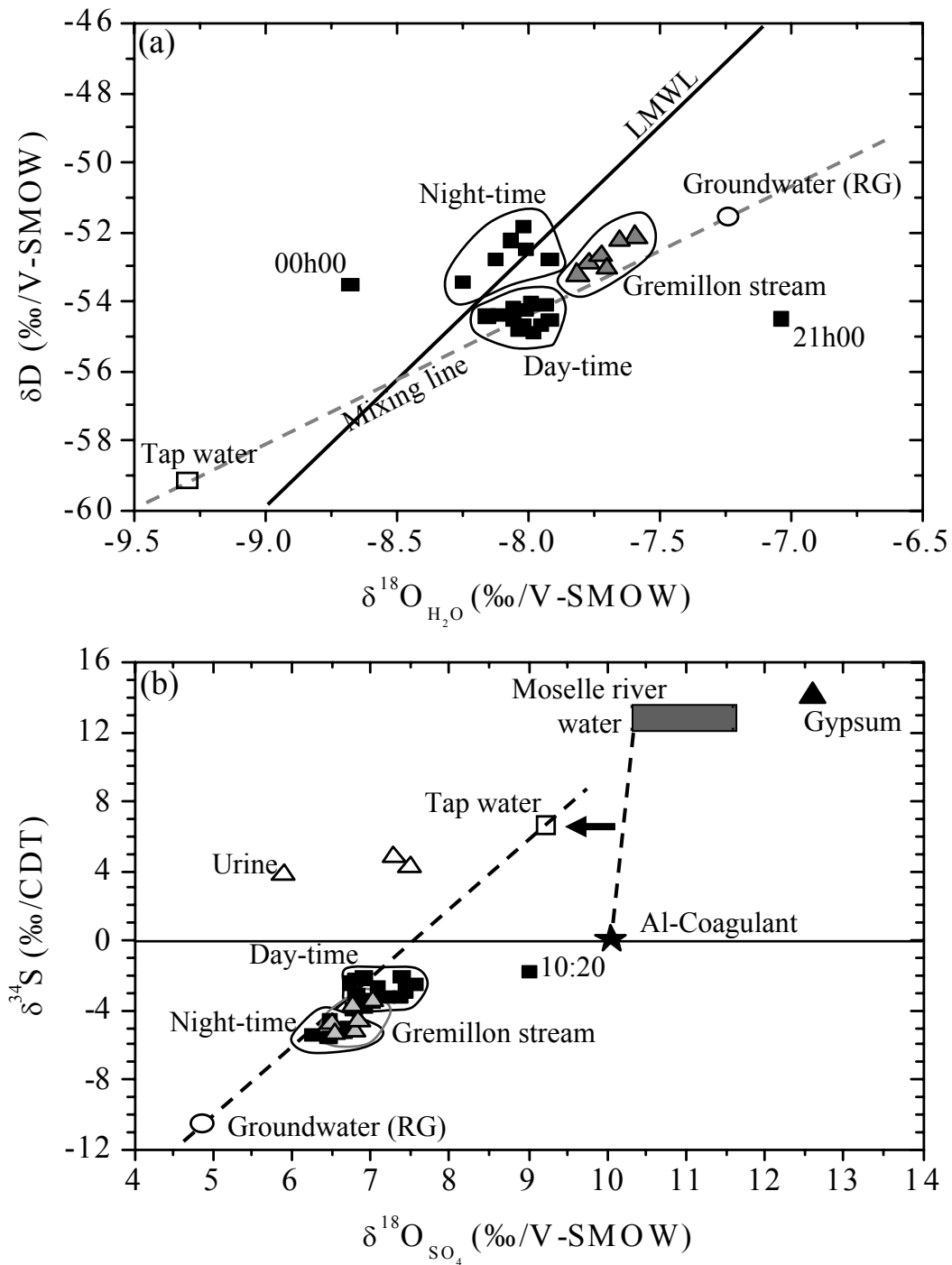


Figure 6: (a) δD - $\delta^{18}O_{H_2O}$ plot of sewage samples collected at PVP sampling site on April 04-05, 2006 (■), water samples collected from Gremillon urban stream (▲), RG groundwater (○), and drinking water (□). LMWL refers to the Local Meteoric Water Line (solid line); the dashed line represents the mixing line between drinking water and RG groundwater.

(b) $\delta^{34}S$ - $\delta^{18}O_{SO_4}$ plot of dissolved sulfate contained in the previous sewage samples (■), water samples collected from Gremillon urban stream (▲), RG groundwater (○), drinking water (□), the aluminum coagulant used at the drinking water treatment plant (★), urine from three healthy people (△) and gypsum (▲); the gray rectangle represents the range of $\delta^{34}S$ and $\delta^{18}O_{SO_4}$ values for Moselle river water (Brenot et al. 2007); the dashed line represents the mixing line between drinking water and RG groundwater.

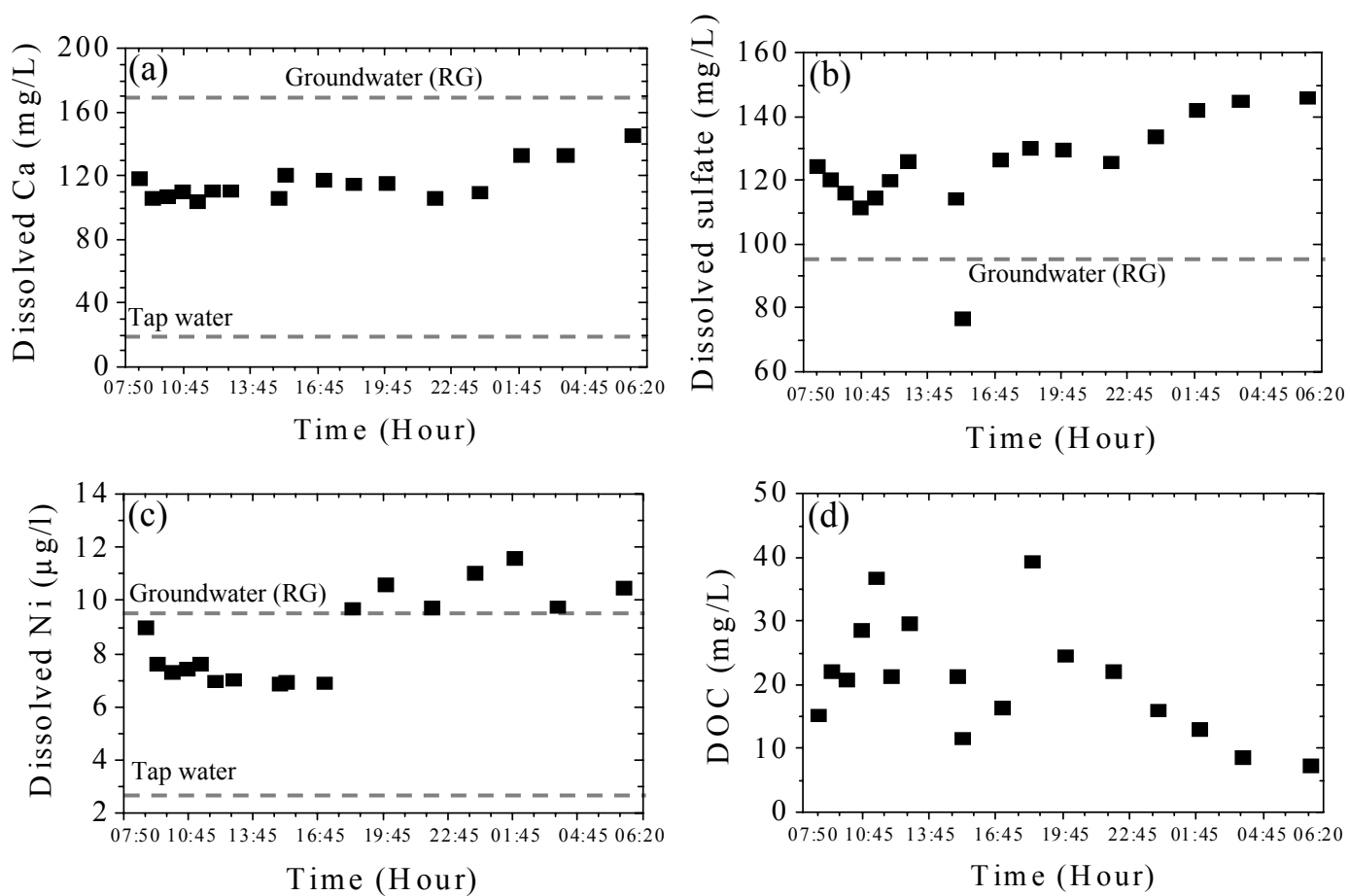


Figure 7: Temporal evolution of dissolved calcium (a), dissolved sulfate (b), dissolved Ni (c), and dissolved organic carbon DOC (d), at PVP sampling site on April 04-05, 2006.

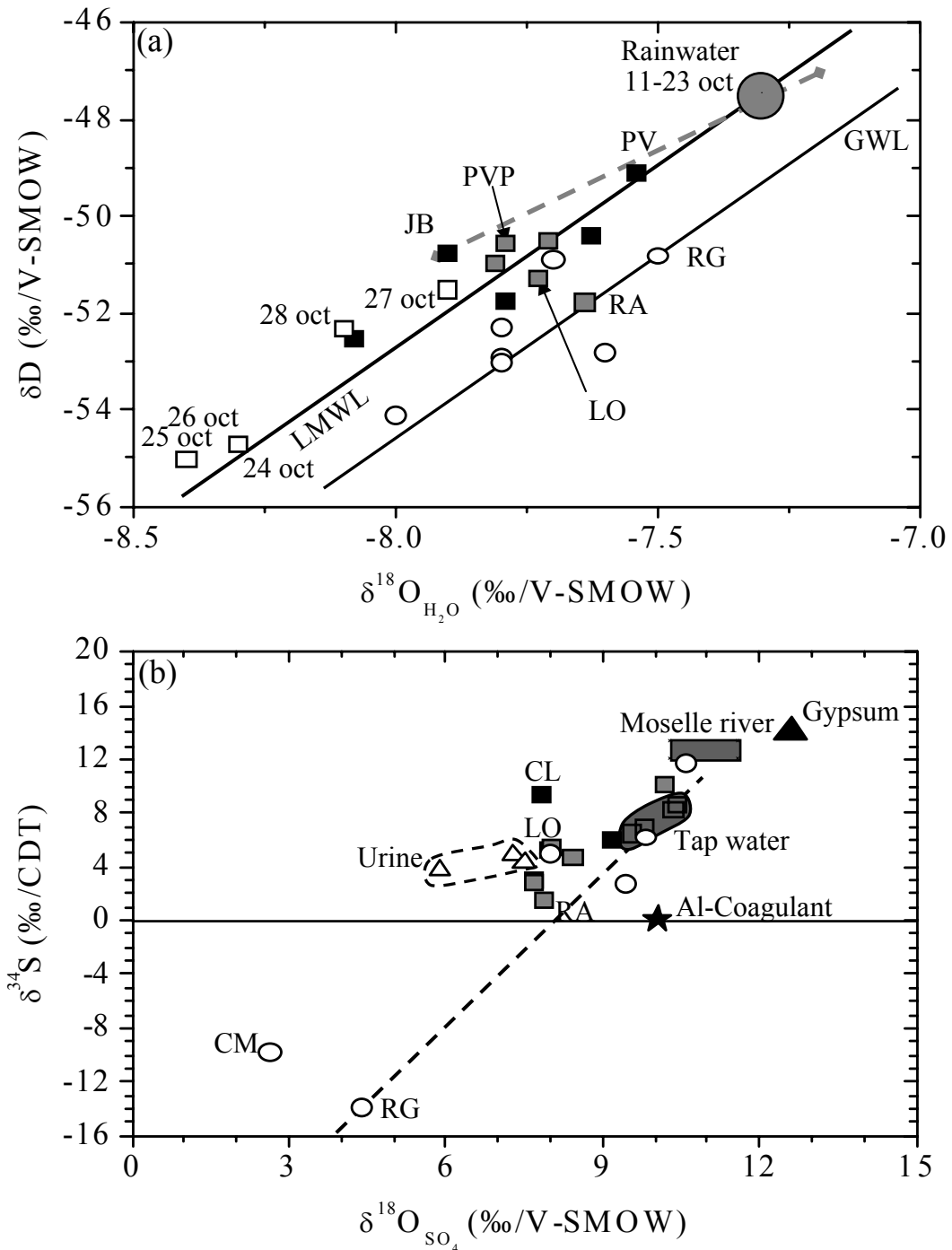


Figure 8: (a) δD - $\delta^{18}O_{H_2O}$ plot of samples collected during the October 2006 campaign over Grand Nancy catchment area: (■) sewage, (○) groundwater, (□) drinking water, and (●) integrated sample of rainwater. LMWL and GWL refer to the Local Meteoric Water Line and local groundwater line (solid lines); the dashed line represents the mixing line between sewage taken at JB sampling site and the integrated rainwater sample.

(b) $\delta^{34}S$ - $\delta^{18}O_{SO_4}$ plot of dissolved sulfate contained in the previous samples, aluminum coagulant used at the drinking water treatment plant (★), urine from three healthy people (△) and gypsum (▲); the gray rectangle represents the range of $\delta^{34}S$ and $\delta^{18}O_{SO_4}$ values for Moselle river water (Brenot et al. 2007); the dashed line represents the mixing line between drinking water and RG groundwater.

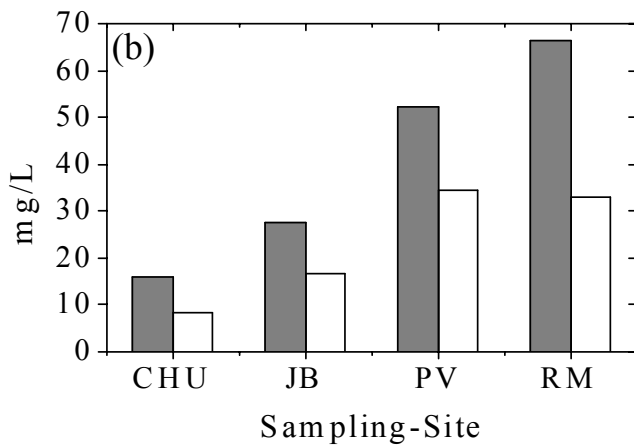
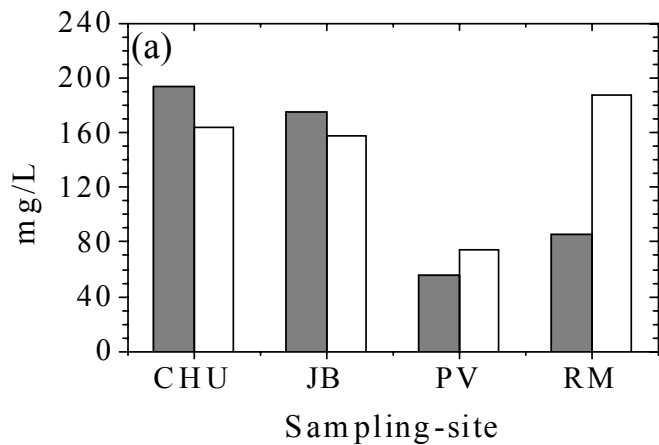


Figure 9: Variation of (a) Na and Cl concentrations (gray and white columns, respectively) and (b) Ca and Ba concentrations (gray and white columns, respectively) along CHU sewer section.