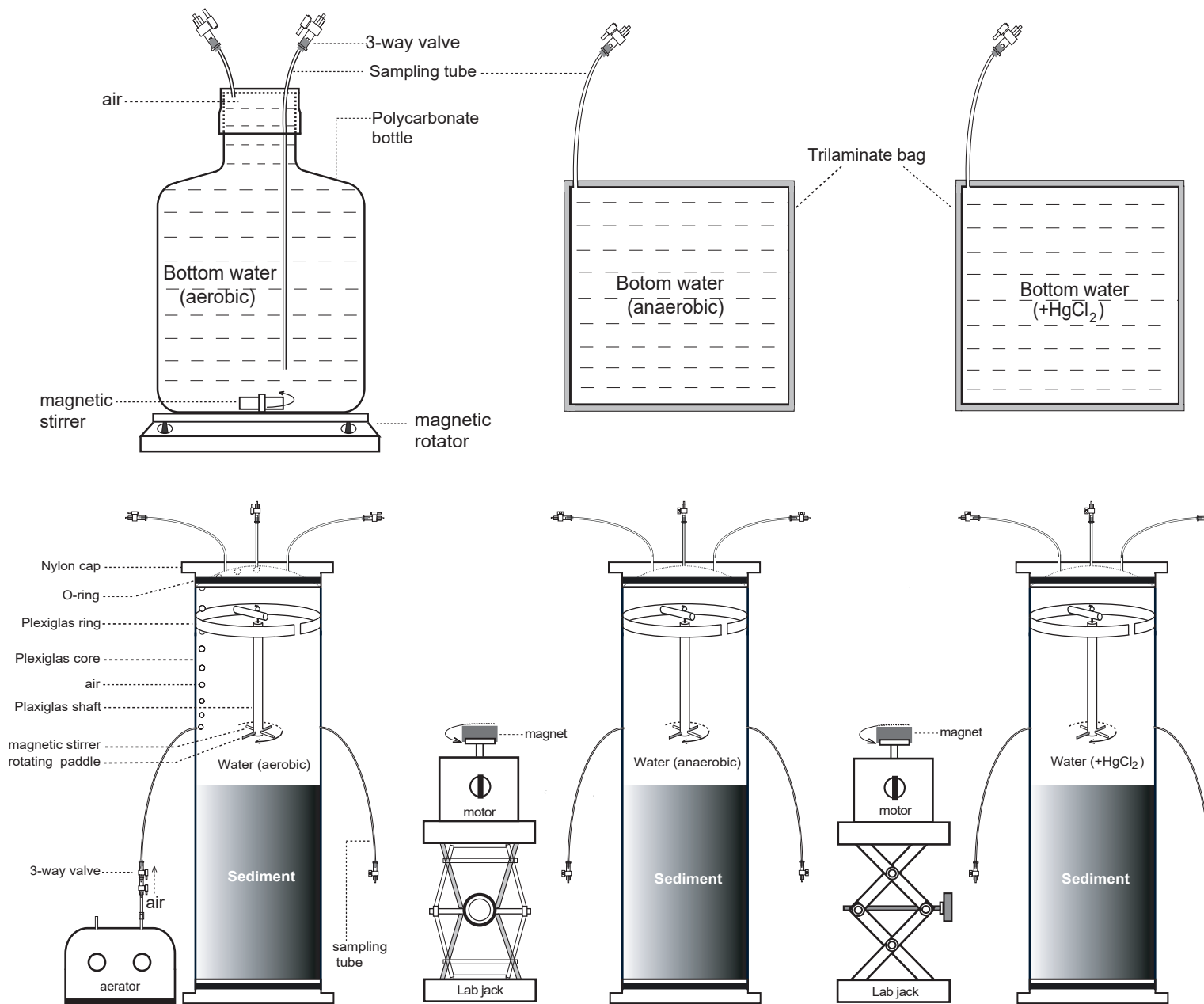


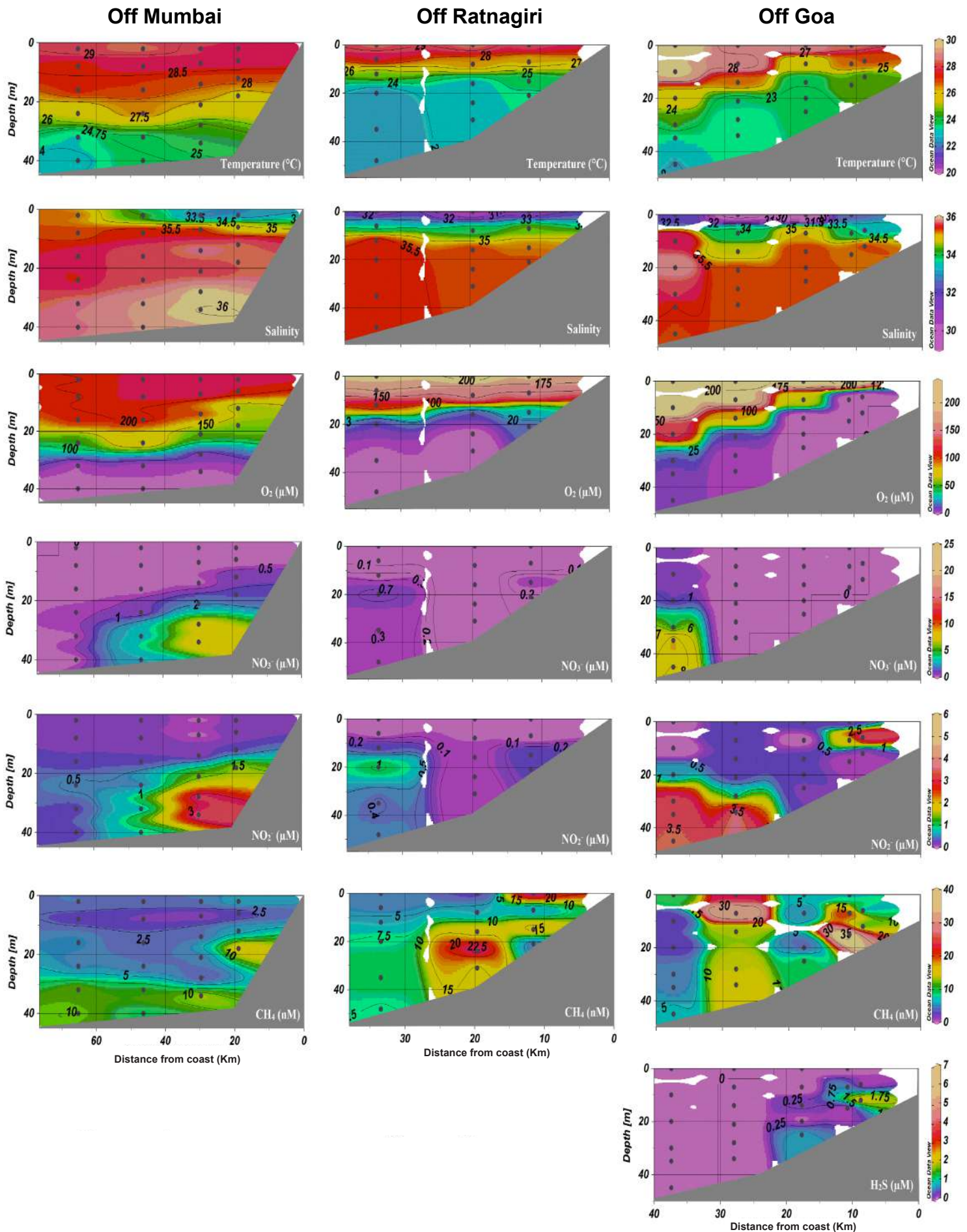
"Benthic methane fluxes and oxidation over the Western Indian Shelf: No evidence of pelagic methanotrophic denitrification"

by A. Pratihary et al.

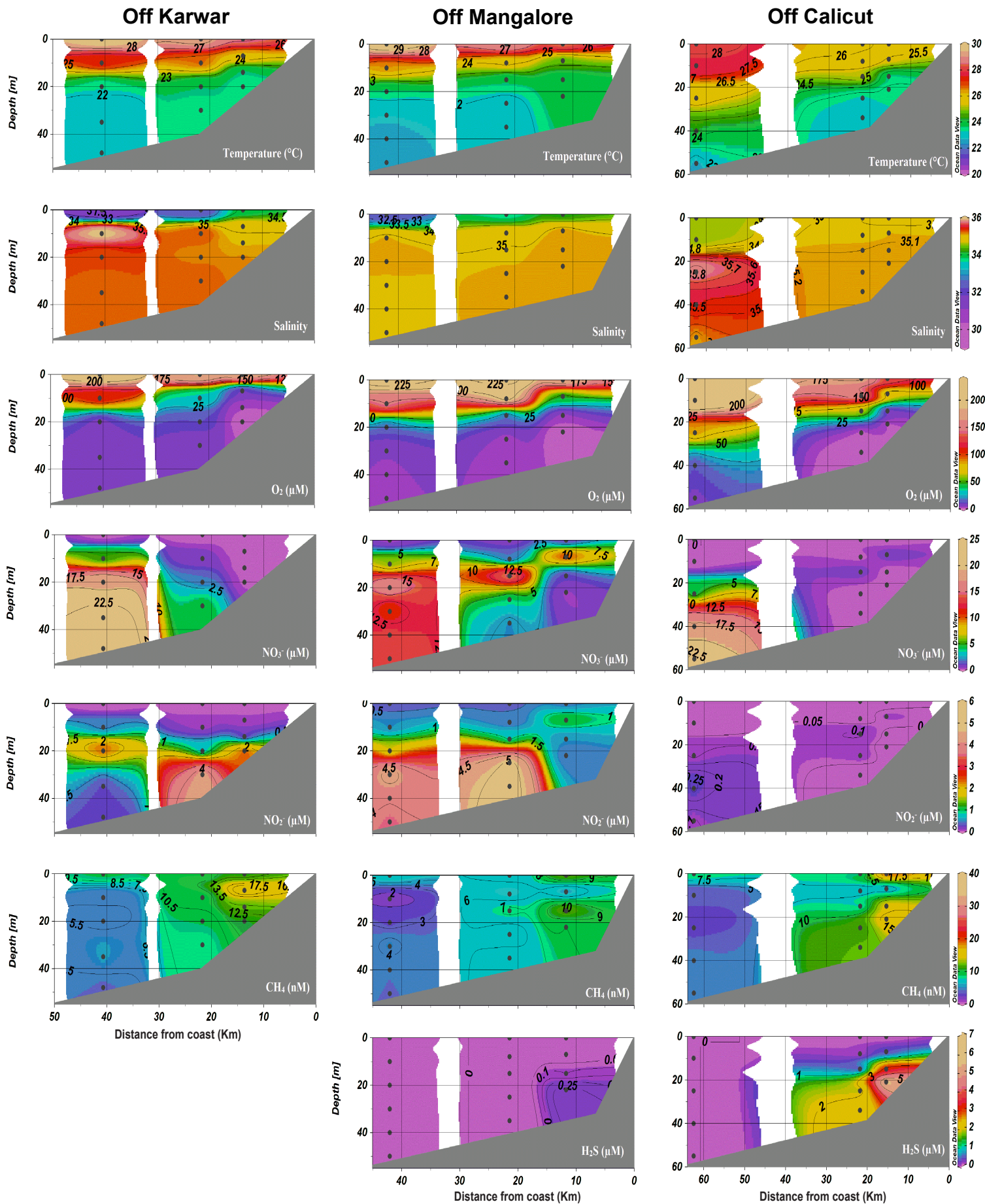
(2-column fitting image)



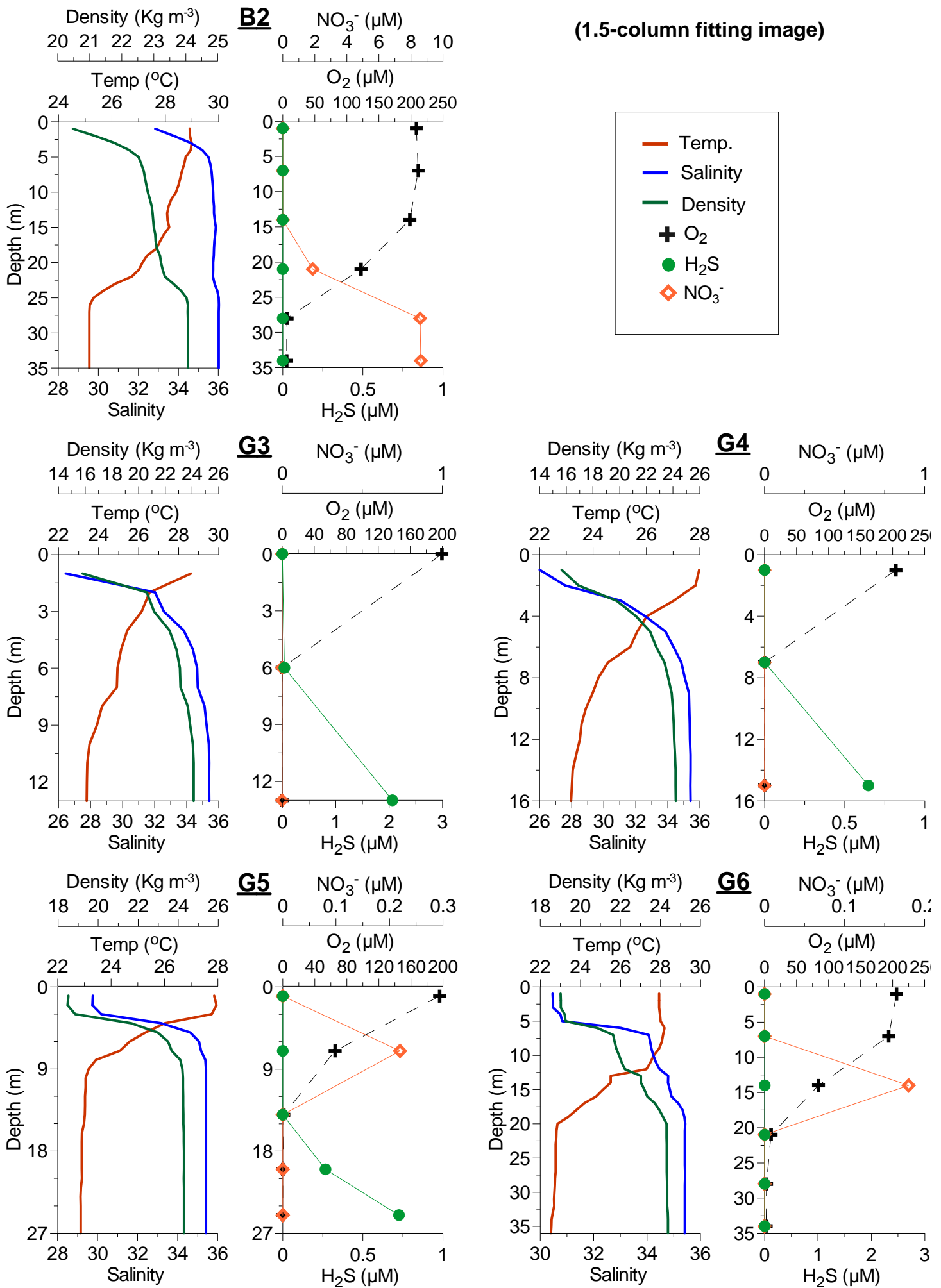
Suppl. Fig. 1. Experimental design of the Intact-core incubation adapted from Pratihary et al. (2021).



**Suppl. Fig. 2.** Cross-shelf variation of the physical and biogeochemical parameters of the WICS waters along the transect off Mumbai, Ratnagiri and Goa during September-October 2011. Except CH<sub>4</sub>, all data over Mumbai and Goa transect have been taken from Bardhan and Naqvi (2020) and Pratihary et al. (2023).

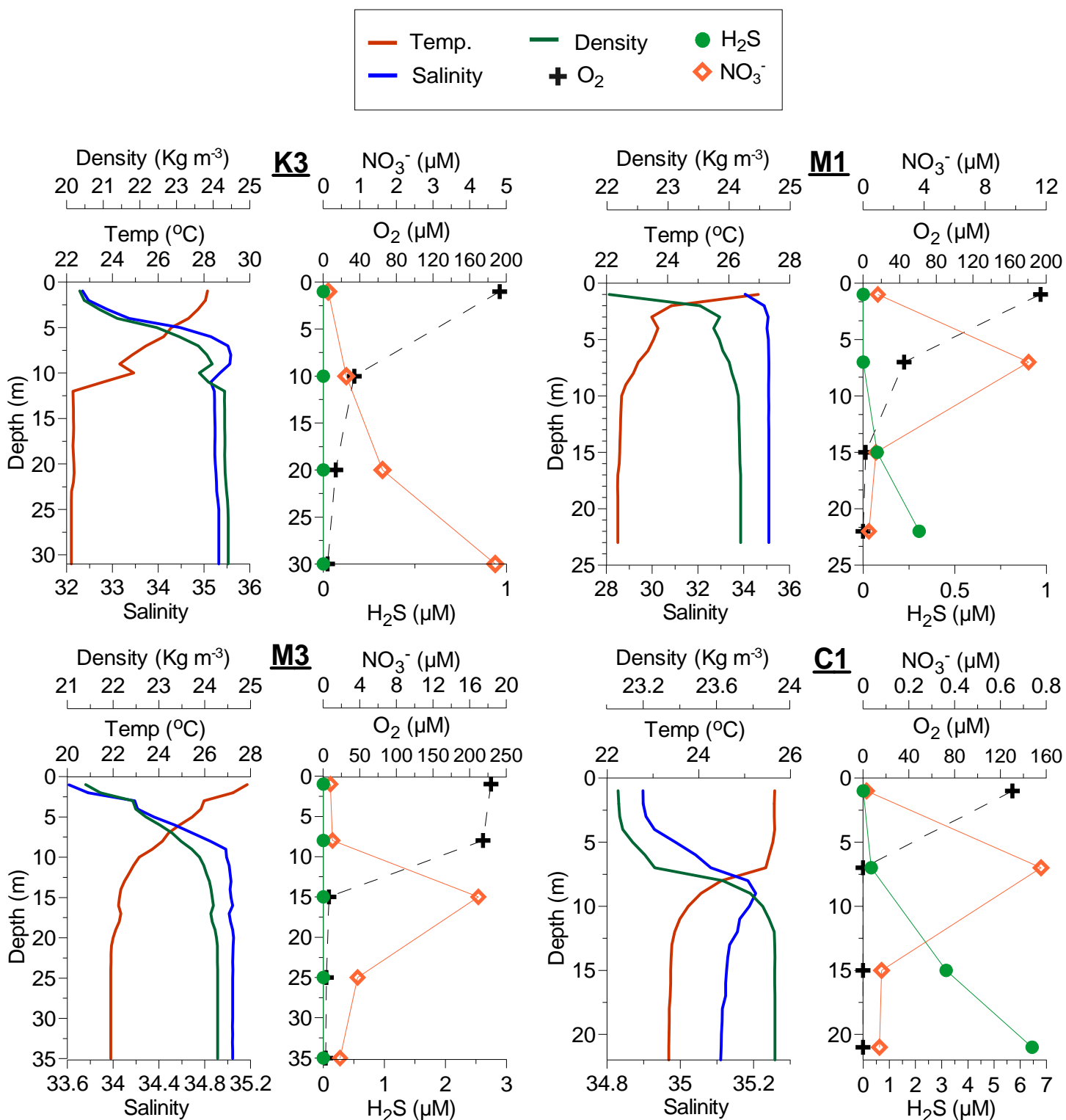


**Suppl. Fig. 3.** Cross-shelf variation of the physical and biogeochemical parameters of the WICS waters along the transect off Karwar, Mangalore and Calicut during September-October 2011. Except CH<sub>4</sub>, all other data have been taken from Bardhan and Naqvi (2020) and Pratihary et al. (2023).



**Suppl. Fig. 4.** Vertical profiles of physico-chemical parameters in the WICS waters during September-October 2011. Data are taken from Pratihary et al. (2023).

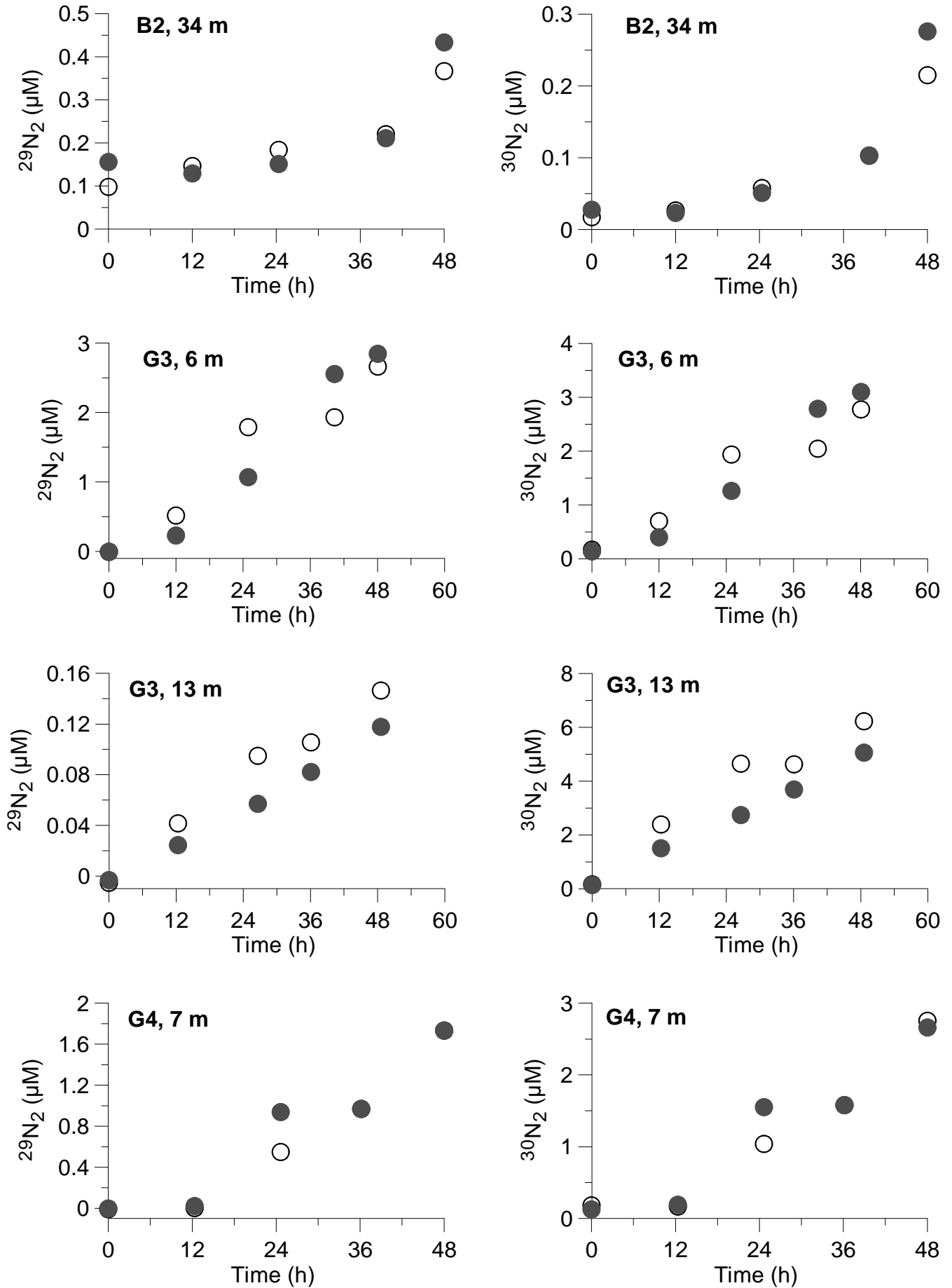
(1.5-column fitting image)



**Suppl. Fig. 5.** Vertical profiles of physico-chemical parameters in the WICS waters during September-October 2011. Data are taken from Pratihary et al. (2023).

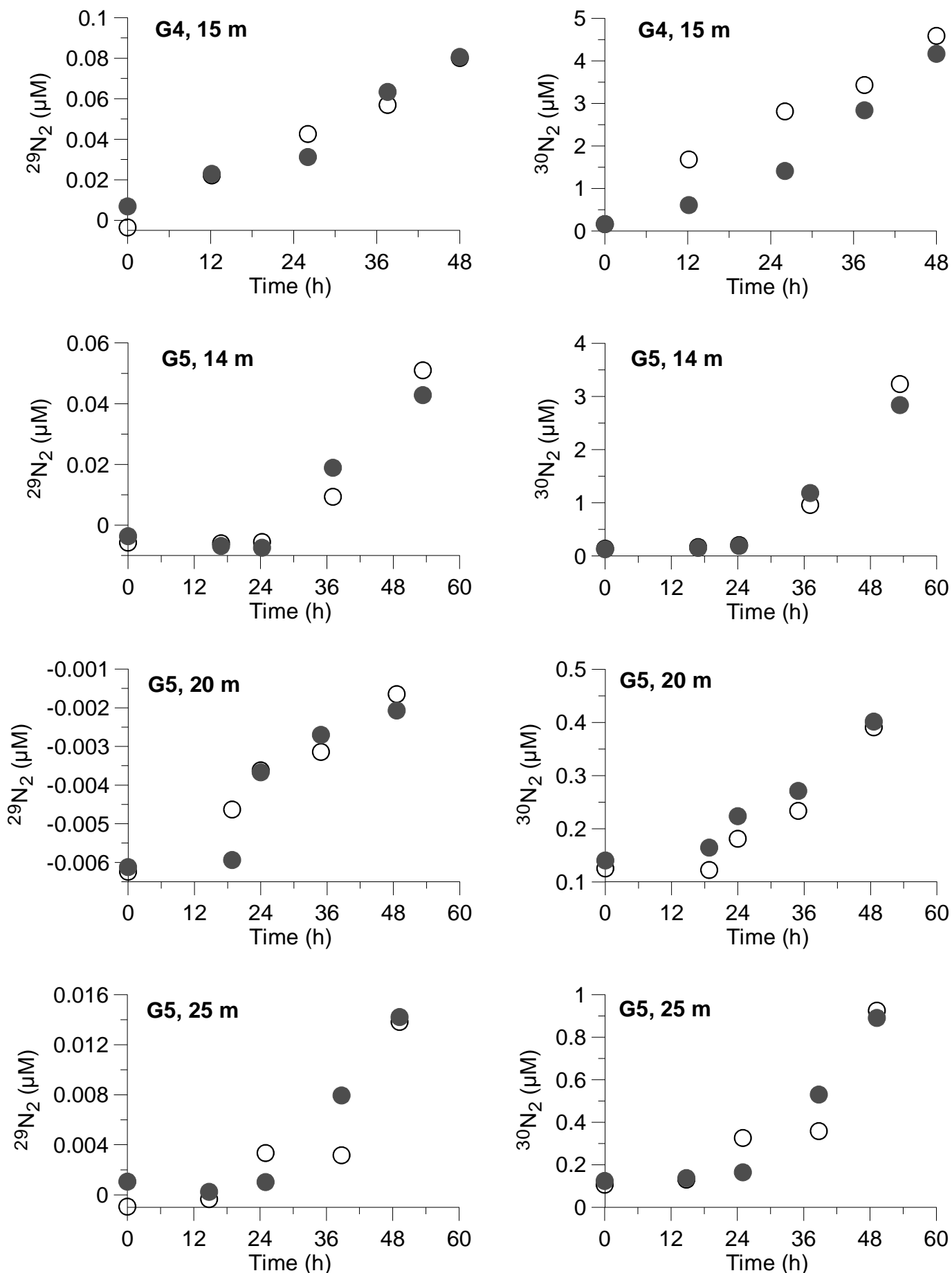
(1.5-column fitting image)

○ with  $^{15}\text{NO}_2^-$       ● with  $^{15}\text{NO}_2^- + \text{CH}_4$



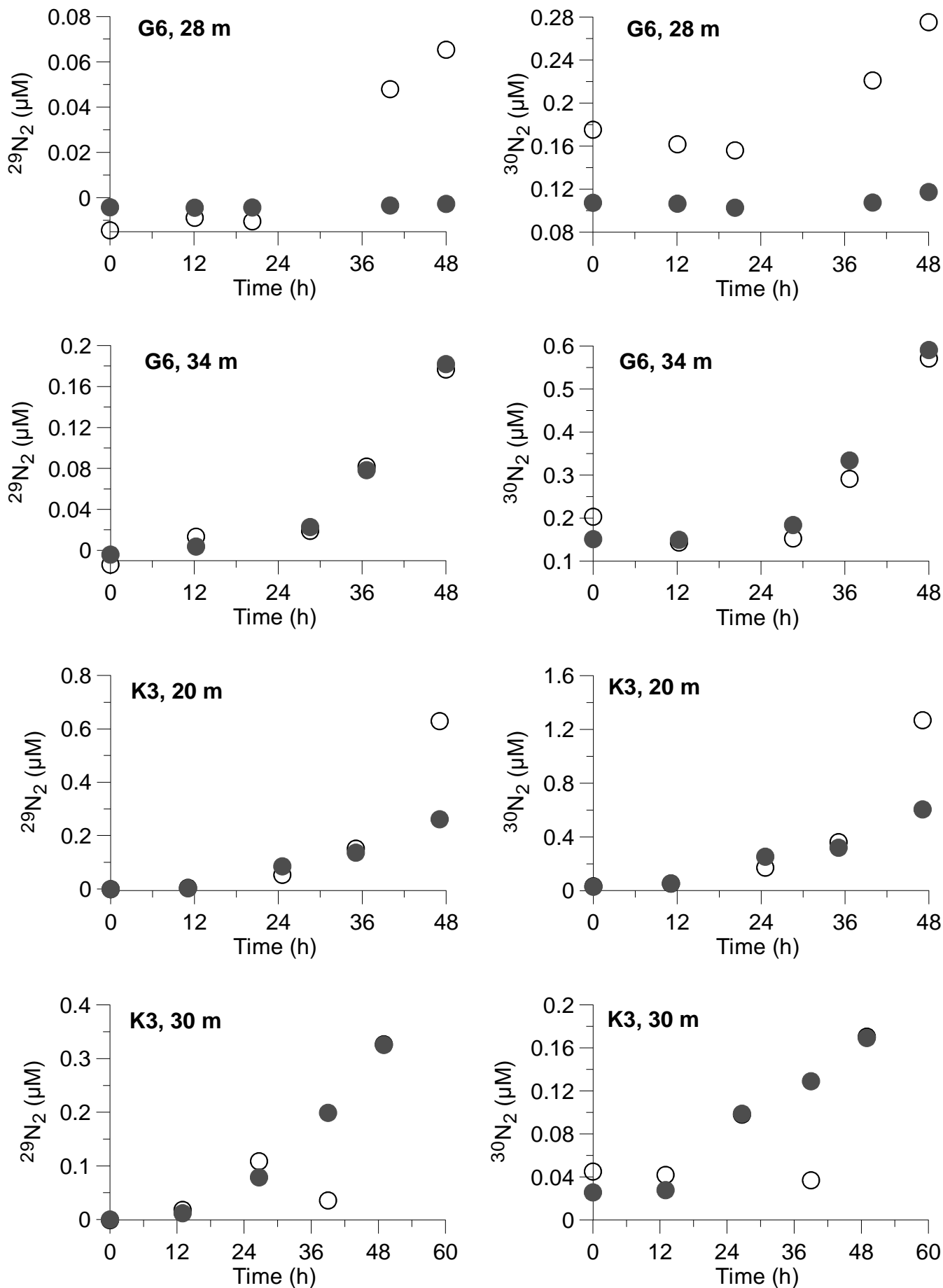
**Suppl. Fig.6.** Production of  $^{29}\text{N}_2$  ( $^{14}\text{N}^{15}\text{N}$ ) and  $^{30}\text{N}_2$  ( $^{15}\text{N}^{15}\text{N}$ ) from the  $^{15}\text{NO}_2^-$  and  $^{15}\text{NO}_2^- + \text{CH}_4$  amended incubations at stations (a) B2, 34m, (b) G3, 6m, (c) G3, 13m, and (d) G4, 7m.  $^{29}\text{N}_2$  and  $^{30}\text{N}_2$  data of  $^{15}\text{NO}_2^-$ -amended incubations are taken from Pratihary et al. (2023).

(1.5-column fitting image)



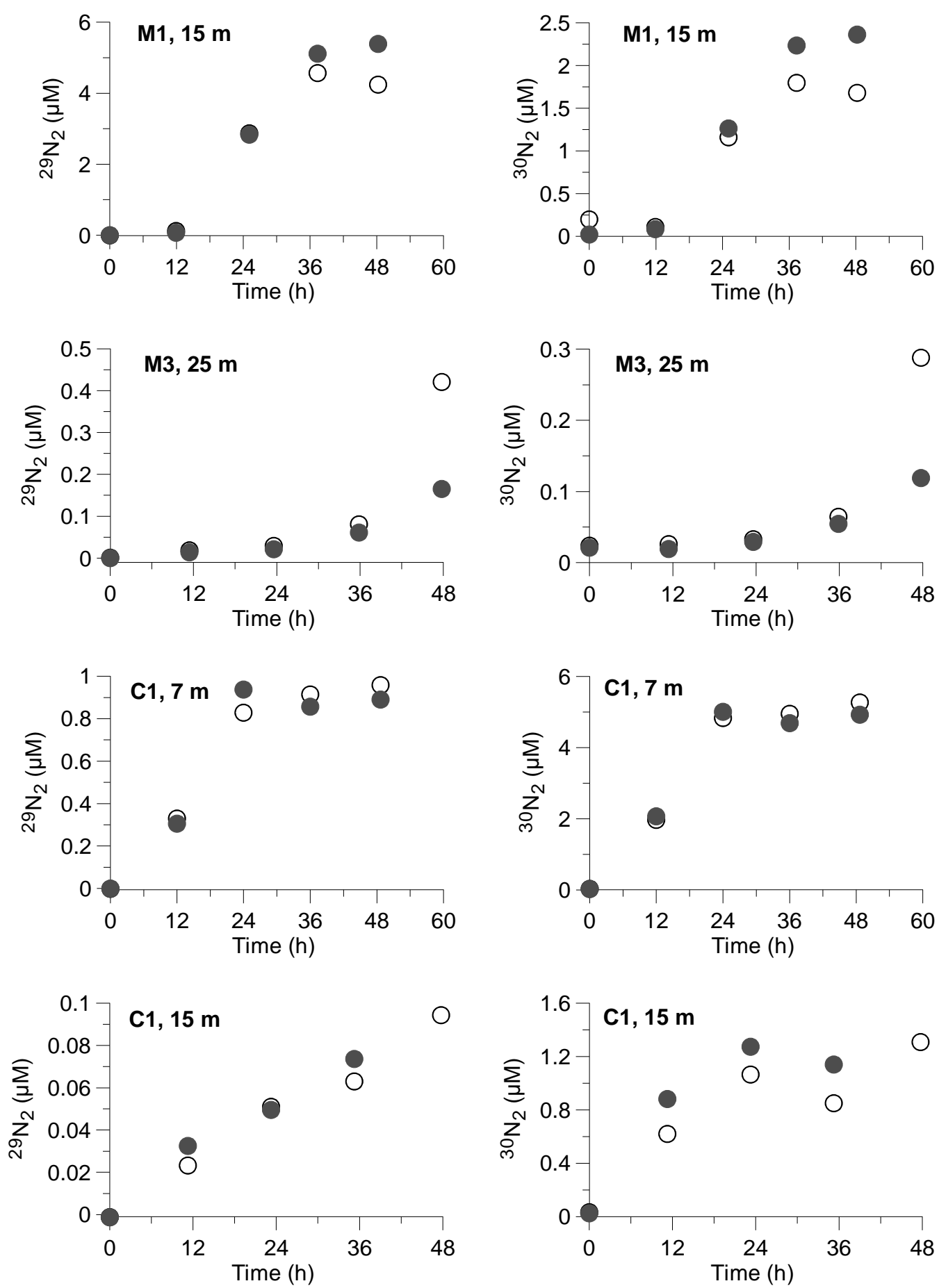
**Suppl. Fig.7.** Production of  $^{29}\text{N}_2$  ( $^{14}\text{N}^{15}\text{N}$ ) and  $^{30}\text{N}_2$  ( $^{15}\text{N}^{15}\text{N}$ ) from the  $^{15}\text{NO}_2^-$  and  $^{15}\text{NO}_2^- + \text{CH}_4$  amended incubations at stations (a) G4, 15m, (b) G5, 14m, (c) G5, 20m, and (d) G5, 25m.  $^{29}\text{N}_2$  and  $^{30}\text{N}_2$  data of  $^{15}\text{NO}_2^-$ -amended incubations are taken from Pratihary et al. (2023).

(1.5-column fitting image)

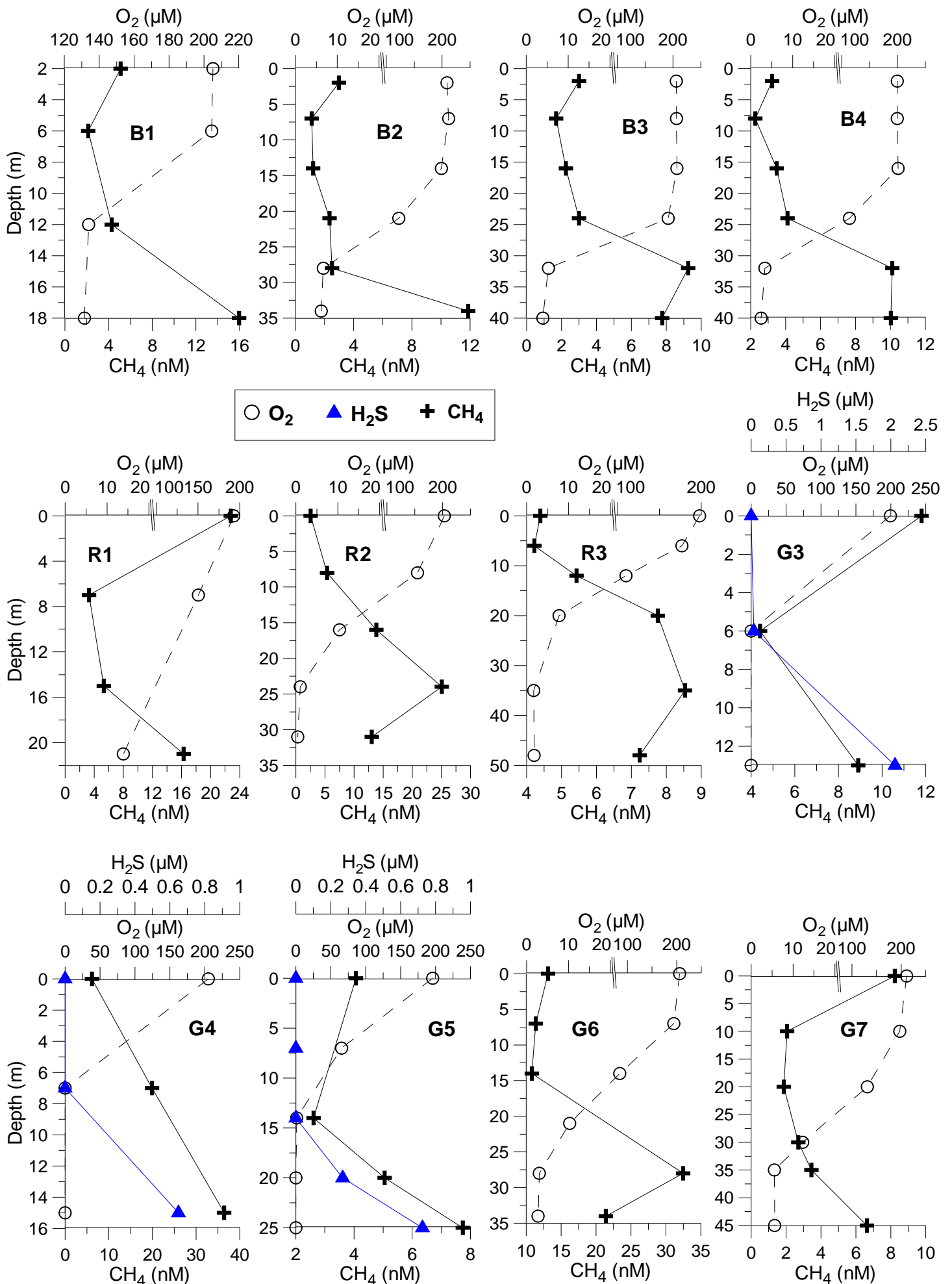


**Suppl. Fig.8.** Production of  $^{29}\text{N}_2$  ( $^{14}\text{N}^{15}\text{N}$ ) and  $^{30}\text{N}_2$  ( $^{15}\text{N}^{15}\text{N}$ ) from the  $^{15}\text{NO}_2^-$  and  $^{15}\text{NO}_2^- + \text{CH}_4$  amended incubations at stations (a) G6, 28m, (b) G6, 34m, (c) K3, 20m, and (d) K3, 30m.  $^{29}\text{N}_2$  and  $^{30}\text{N}_2$  data of  $^{15}\text{NO}_2^-$ -amended incubations are taken from Pratihary et al. (2023).

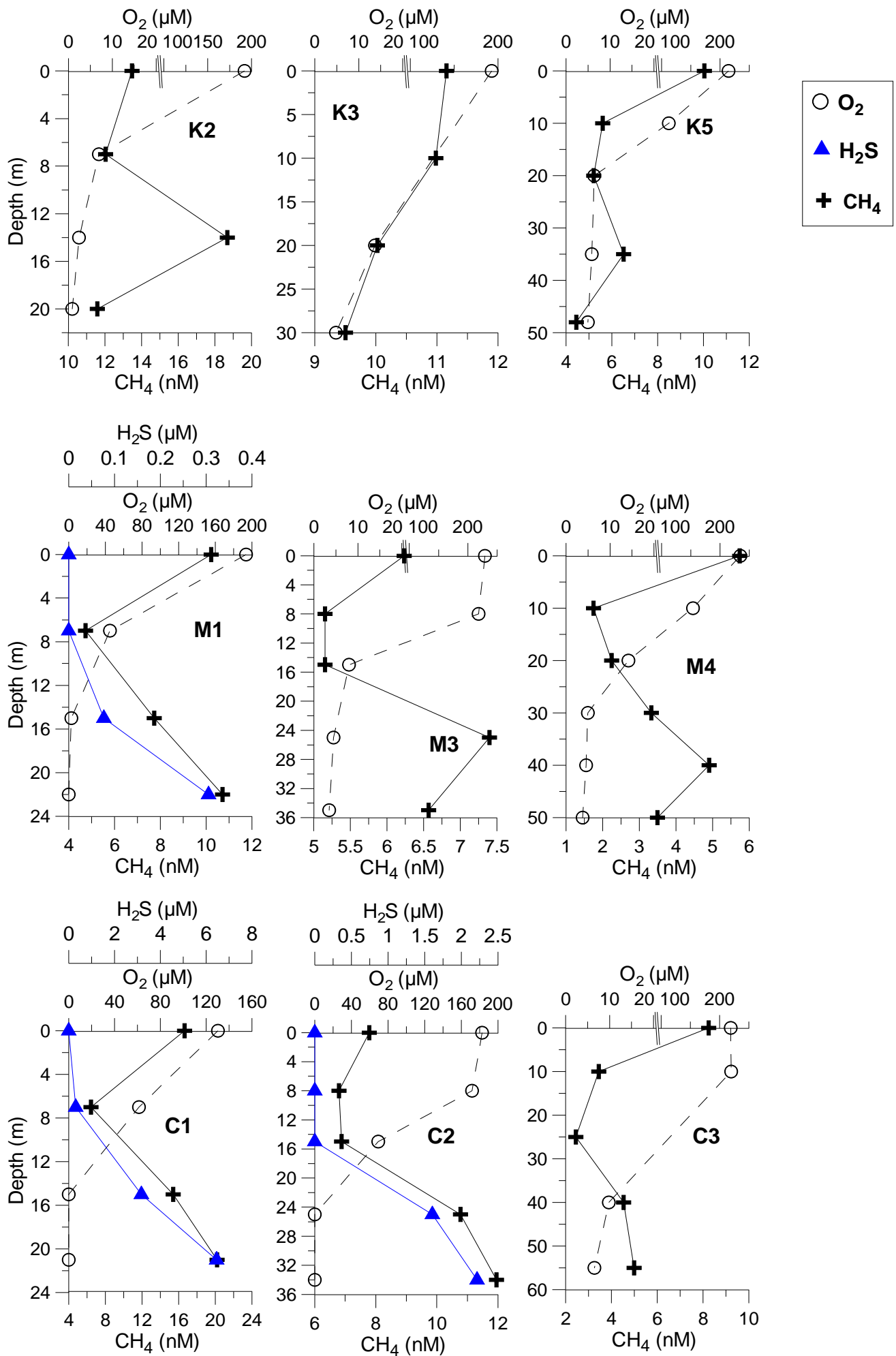
1.5-column fitting image)



**Suppl. Fig.9.** Production of  $^{29}\text{N}_2$  ( $^{14}\text{N}^{15}\text{N}$ ) and  $^{30}\text{N}_2$  ( $^{15}\text{N}^{15}\text{N}$ ) from the  $^{15}\text{NO}_2^-$  and  $^{15}\text{NO}_2^- + \text{CH}_4$  amended incubations at stations (a) M1, 15m, (b) M1, 25m, (c) C1, 7m, and (d) C1, 15m.  $^{29}\text{N}_2$  and  $^{30}\text{N}_2$  data of  $^{15}\text{NO}_2^-$ -amended incubations are taken from Pratihary et al. (2023).

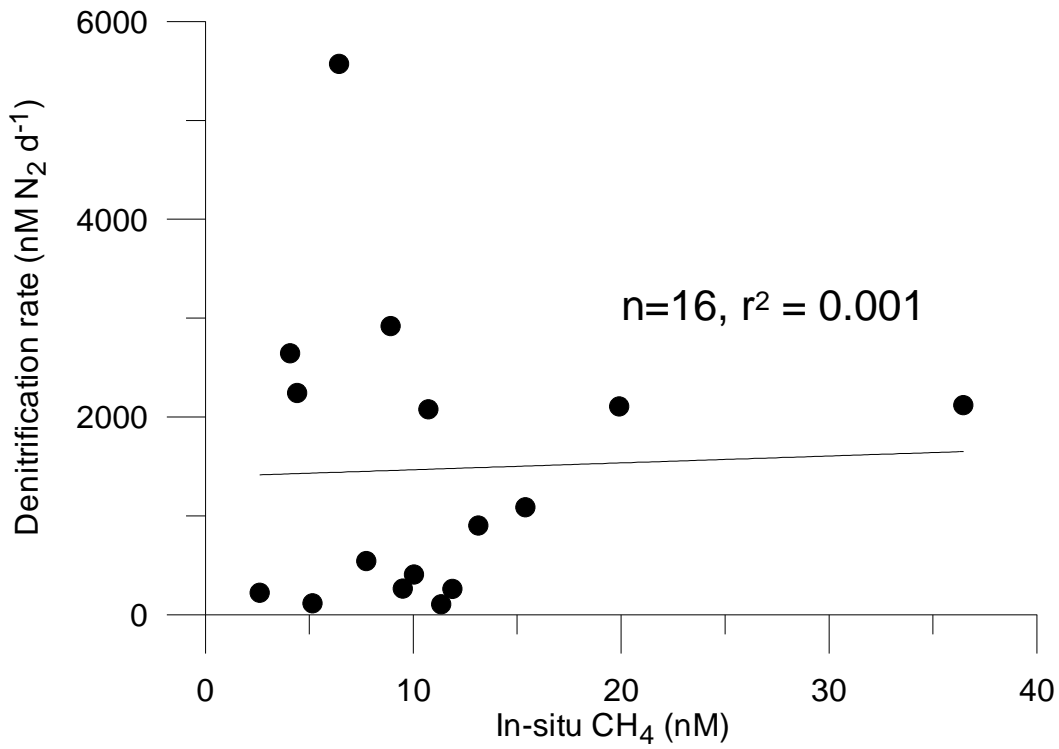


**Suppl. Fig. 10.** Depth profiles of O<sub>2</sub>, H<sub>2</sub>S and CH<sub>4</sub> at stations along Mumbai, Ratnagiri and Goa transect during September-October 2011.



**Suppl. Fig. 11.** Depth profiles of O<sub>2</sub>, H<sub>2</sub>S and CH<sub>4</sub> at stations along Karwar, Mangalore and Calicut transect during September-October 2011.

(single-column fitting image)



**Suppl. Fig. 12.** Correlation between in situ CH<sub>4</sub> concentration and denitrification rate in the WICS waters.