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Supplement of

Oxycline oscillations induced by internal waves in deep Lake Iseo

Giulia Valerio et al.

Correspondence to: Giulia Valerio (giulia.valerio@unibs.it)

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1 **Table S1.** Maximum vertical displacement ξ of the layer interfaces with respect to their equilibrium
2 level for the first three vertical modes in Lake Iseo at four different locations. These locations, whose
3 depth is z , are shown in Fig.1. The interfaces displacements were simulated with AEM3D by forcing
4 with a spatially uniform sinusoidal wind, with a maximum speed of 5 m/s and a period equal to the
5 natural one predicted by the modal model (see grey shading in Table 2). ξ_i indicates the upper interface
6 of each i^{th} layer, whose depth is reported in Tab. 2.

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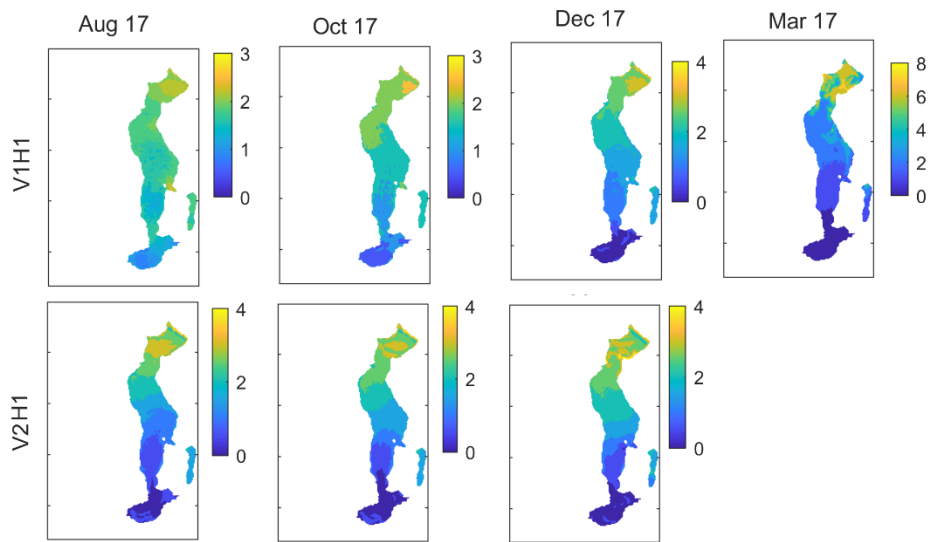
V1H1												
Time	LS-N, $z = 220$ m			LS-S, $z = 105$ m			EB, $z = 100$ m			NB, $z = 105$ m		
	ξ_2	ξ_3	ξ_4	ξ_2	ξ_3	ξ_4	ξ_2	ξ_3	ξ_4	ξ_2	ξ_3	ξ_4
	(m)			(m)			(m)			(m)		
Aug-17	2.7	2.4	2.9	-2.2	-4.5	-5.1	-1.1	-1.1	-0.6	2.6	4.1	5.3
Oct-17	3.1	3.1	4.1	-3.0	-4.5	-6.0	-1.6	-1.2	-0.6	3.1	4.5	5.3
Dec-17	6.1	-	7.2	-7.7	-	-9.2	-2.9	-	-1.0	7.5	-	10.9
Mar-18	-	-	10.7	-	-	-16.1	-	-	-4.4	-	-	12.7

V2H1												
Time	LS-N, $z = 220$ m			LS-S, $z = 105$ m			EB, $z = 100$ m			NB, $z = 105$ m		
	ξ_2	ξ_3	ξ_4	ξ_2	ξ_3	ξ_4	ξ_2	ξ_3	ξ_4	ξ_2	ξ_3	ξ_4
	(m)			(m)			(m)			(m)		
Aug-17	1.8	-3.3	-6.2	-1.6	3.8	9.1	-1.2	1.6	1.4	2.0	-5.0	-6.0
Oct-17	2.3	-2.8	-5.9	-2.3	3.8	9.3	-1.8	1.6	2.2	2.4	-4.2	-6.7
Dec-17	4.0	-	-7.3	-4.8	-	11.2	-2.5	-	1.4	5.2	-	-8.8
Mar-18	-	-	-	-	-	-	-	-	-	-	-	-

V3H1												
Time	LS-N, $z = 220$ m			LS-S, $z = 105$ m			EB, $z = 100$ m			NB, $z = 105$ m		
	ξ_2	ξ_3	ξ_4	ξ_2	ξ_3	ξ_4	ξ_2	ξ_3	ξ_4	ξ_2	ξ_3	ξ_4
	(m)			(m)			(m)			(m)		
Aug-17	2.2	-3.0	4.4	-1.8	3.4	-6.1	-1.4	1.9	-1.3	2.5	-4.2	6.3
Oct-17	2.8	-3.5	5.1	-2.4	3.8	-5.4	-2.2	2.3	-2.2	3.0	-4.2	8.1
Dec-17	-	-	-	-	-	-	-	-	-	-	-	-
Mar-18	-	-	-	-	-	-	-	-	-	-	-	-

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4 **Figure S1.** Contour of the oxygen distribution (mg L^{-1}) at 95 m of depth simulated with AEM3D in
5 correspondence the maximum tilt of the oxycline. The panels refer to different vertical modes and
6 different layered structures.

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