

1 **Supplementary Information for**

2 *Comparison of ocean heat content from two eddy–resolving hindcast*
3 *simulations with OFES1 and OFES2*

4 Fanglou Liao, Xiao Hua Wang and Zhiqiang Liu

5 *Correspondence to:* Zhiqiang Liu (liuzq@sustech.edu.cn) or Xiao Hua Wang (x.h.wang@unsw.edu.au)

6 This document contains Figures S1–S9.

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

25

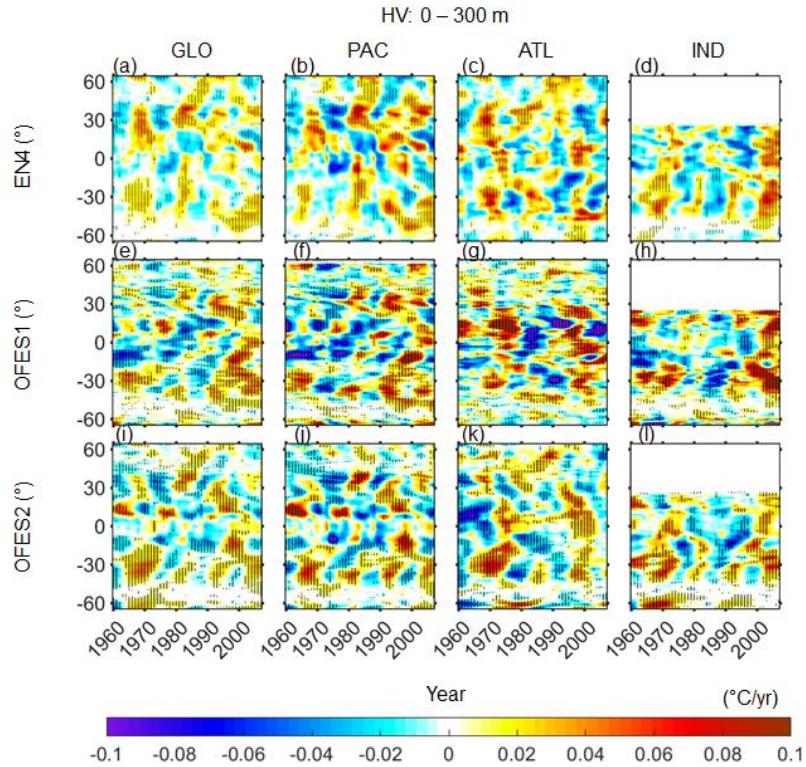
26

27

28

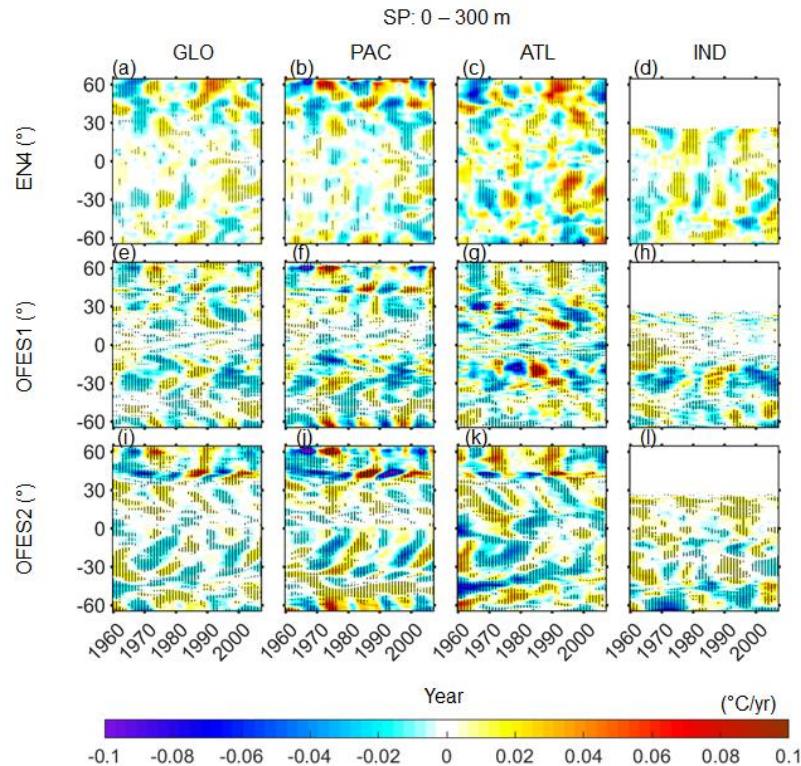
29

30



31
32
33
34
35
36
37

Figure S1. Temporal evolution of the 10-year rolling trend of the HV component of the zonal-averaged potential temperature change for the top ocean layer (0–300 m). **Left to right:** global, Pacific, Atlantic and Indian Oceans. **Top to bottom:** EN4, OFES1 and OFES2. Horizontal axis: year; vertical axis: latitude. Stippling indicates the 95% confidence level.



38

39 **Figure S2.** As for Fig. S1 but for the SP component.

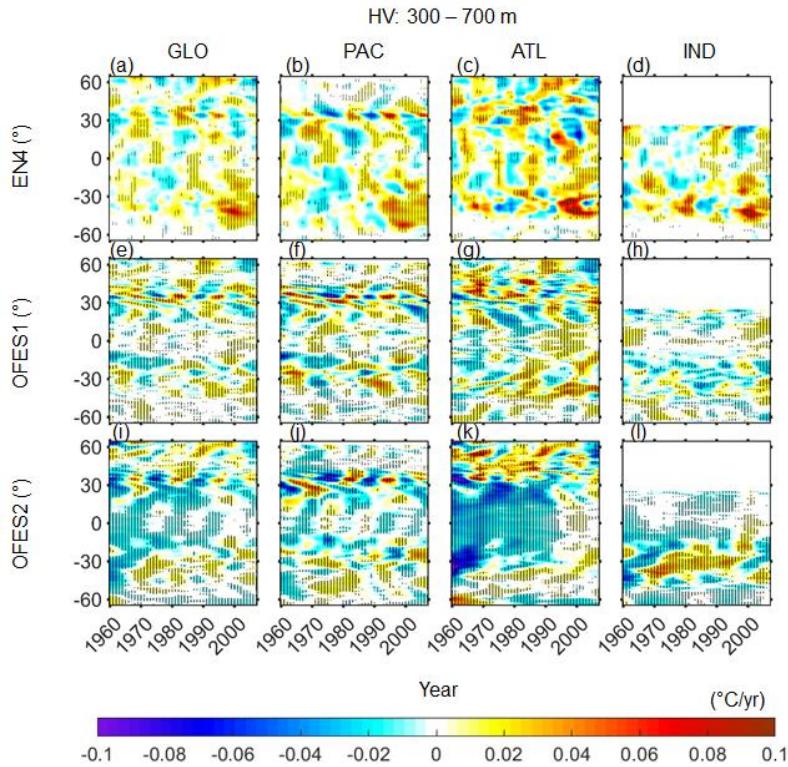
40

41

42

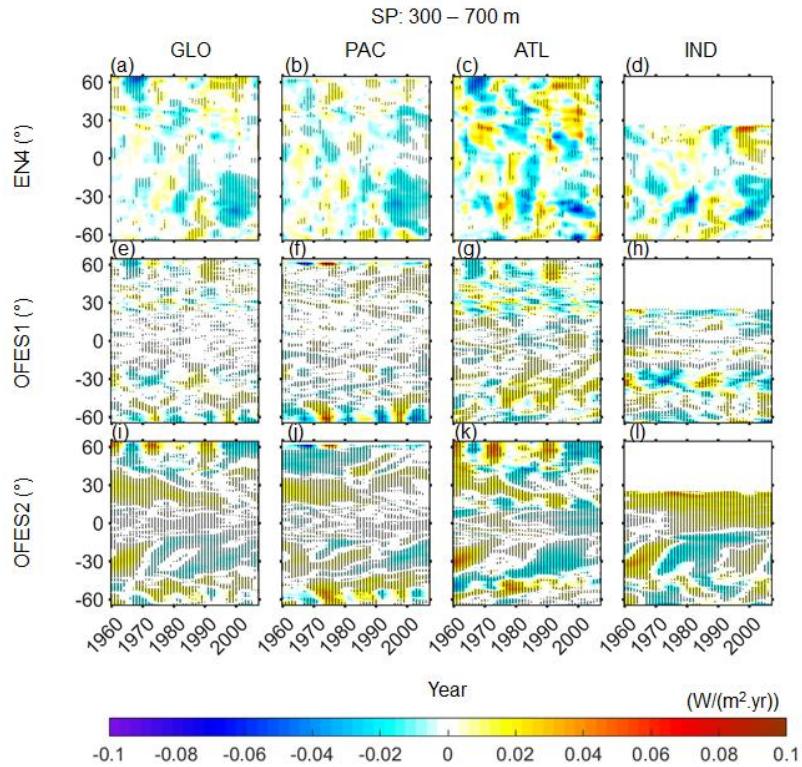
43

44



45
46
47
48
49
50
51

Figure S3. Temporal evolution of the 10-year rolling trend of the HV component of the zonal-averaged potential temperature change for the middle ocean layer (300–700 m). **Left to right:** global, Pacific, Atlantic and Indian Oceans. **Top to bottom:** EN4, OFES1 and OFES2. Horizontal axis: year; vertical axis: latitude. Stippling indicates the 95% confidence level.



52

53 **Figure S4.** As for Fig. S3 but for the SP component.

54

55

56

57

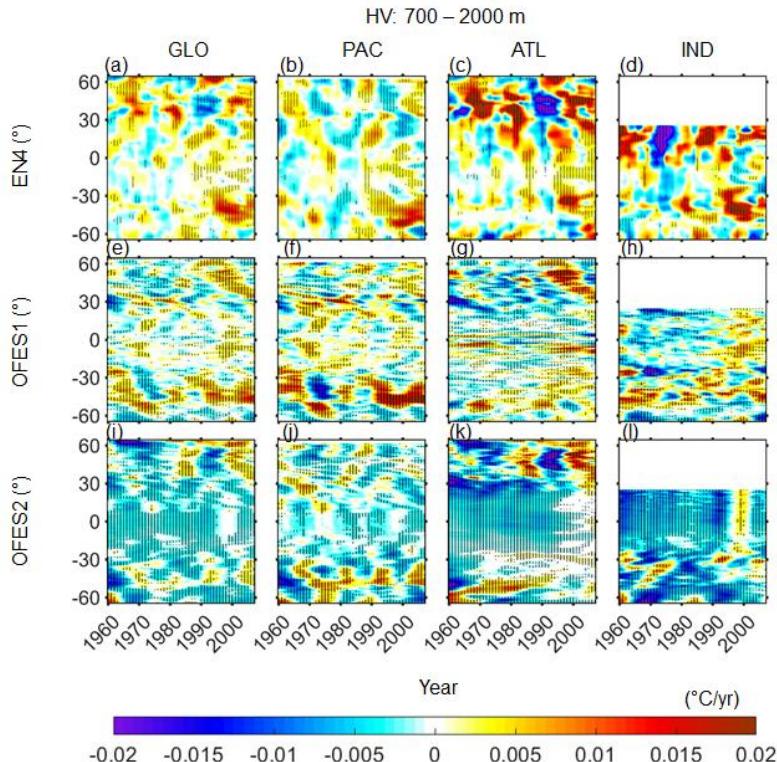


Figure S5. Temporal evolution of the 10-year rolling trend of the HV component of the zonal-averaged potential temperature change for the bottom ocean layer (700–2000 m). **Left to right:** global, Pacific, Atlantic and Indian Oceans. **Top to bottom:** EN4, OFES1 and OFES2. Horizontal axis: year; vertical axis: latitude. Stippling indicates the 95% confidence level.

58
59
60
61
62
63

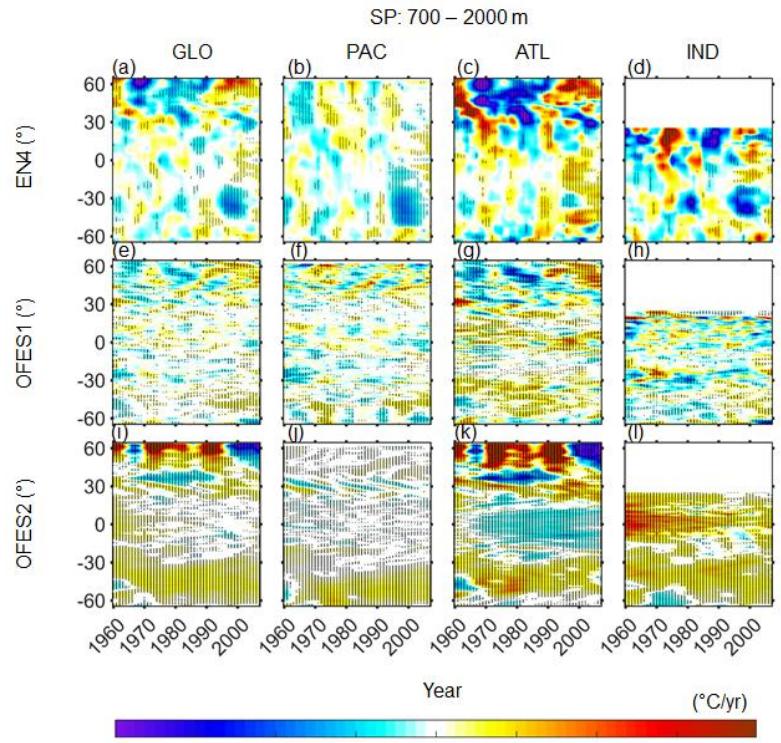
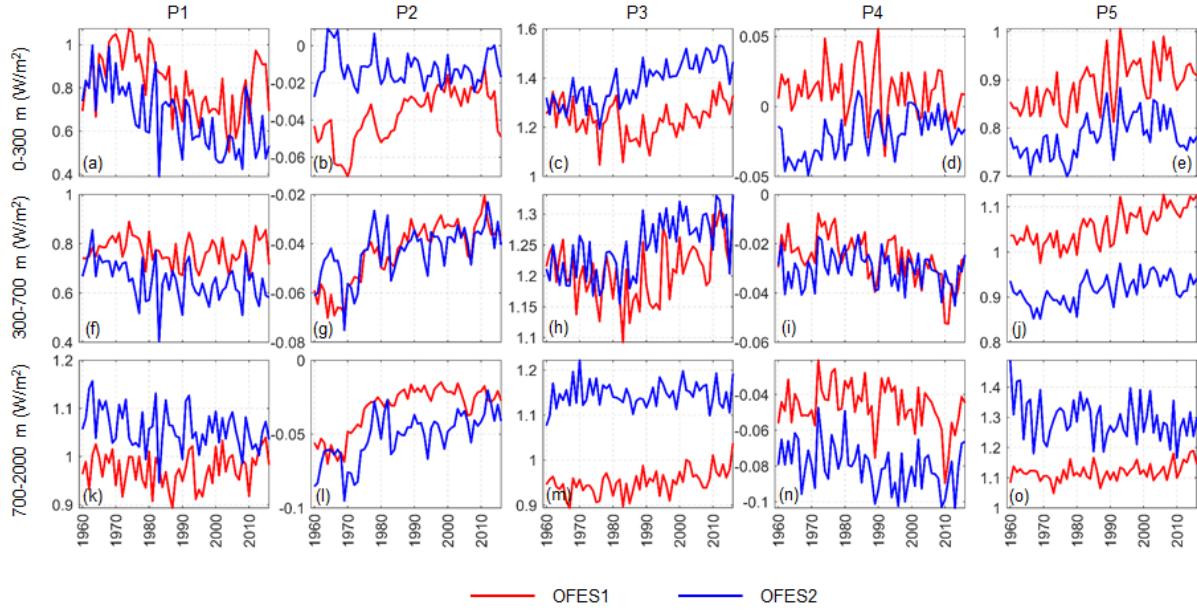


Figure S6. As for Fig. S5 but for the SP component.

64
65
66
67
68
69
70
71
72
73
74



75

76 **Figure S7.** Time series of heat advection through the P1–P5 from left to right. **Top to down:** 0–300 m, 300–700 m and 700–2000
 77 m. The red line is for the OFES1 and blue for the OFES2. The heat advection was converted to an equivalent heat flux applied over
 78 the entire surface of the Earth. Note different vertical axis scale was used for a better visualization.

79

80

81

82

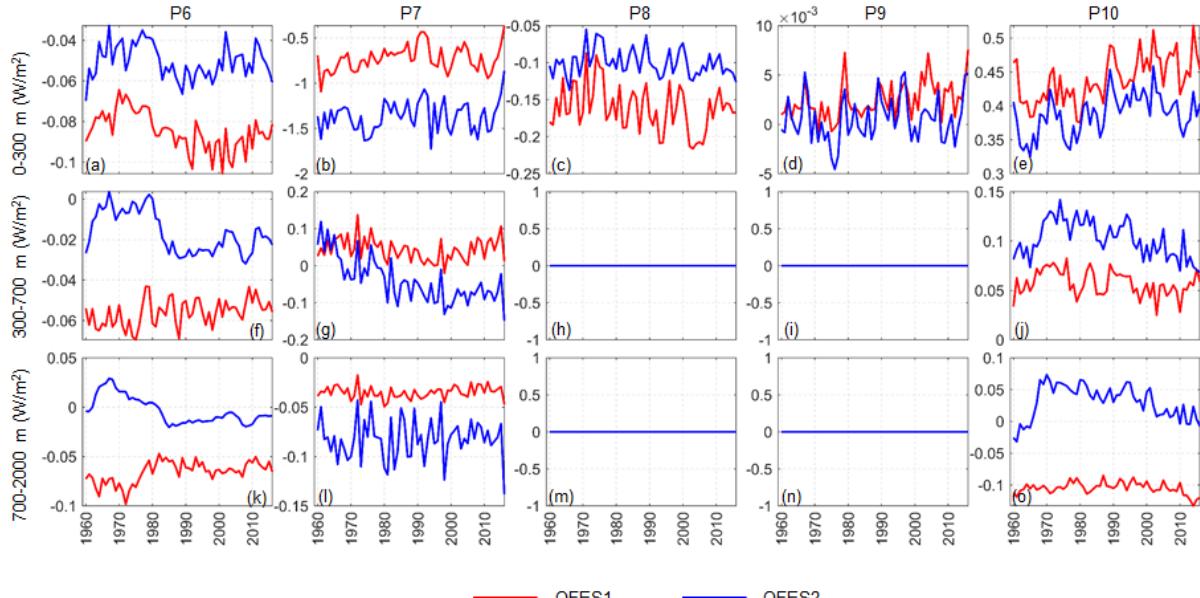
83

84

85

86

87



88

89 **Figure S8.** As for Fig. S7 but for the P6–P10. Note that there was no heat advection through the P8 and P9 below 300 m.

90

91

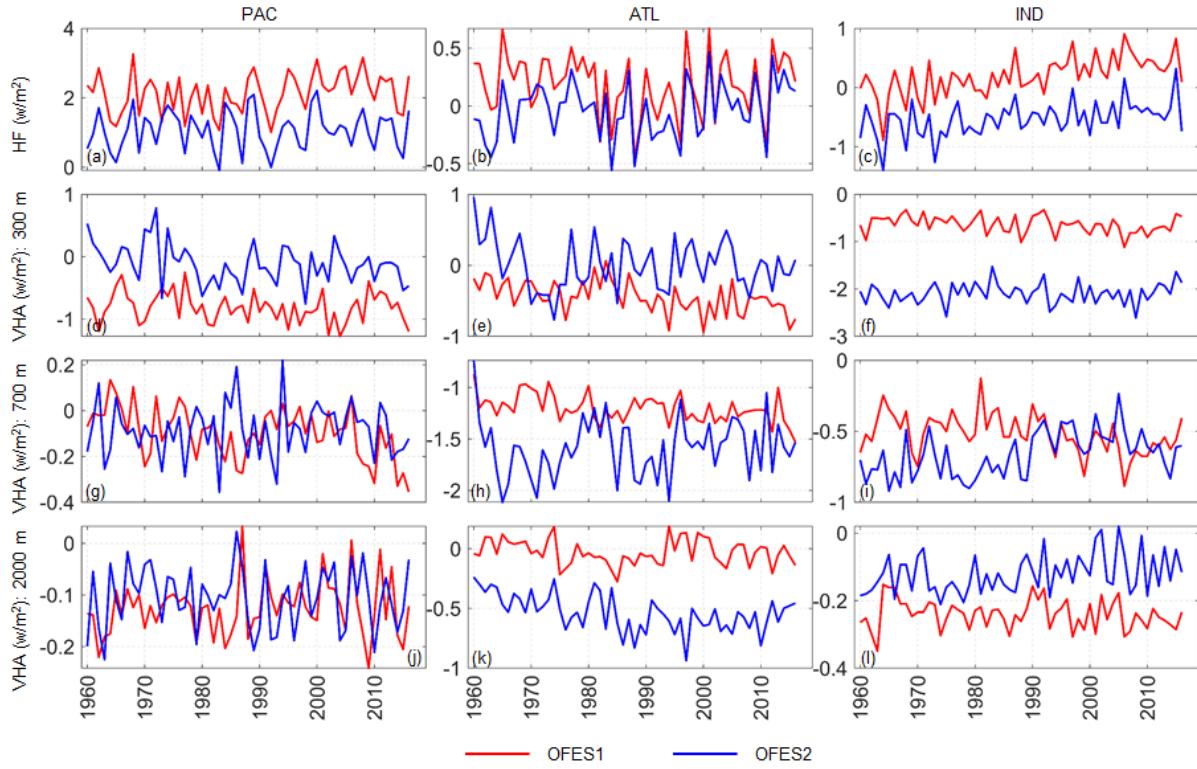
92

93

94

95

96



97

98 **Figure S9.** Time series of net basin–integrated surface heat flux (HF) and vertical heat advection (VHA). **Left to right:** the Pacific,
99 Atlantic and Indian Oceans. **Top to down:** HF, VHA at 300 m, VHA at 700 m and VHA at 2000 m. The red line is for the OFES1
100 and blue for the OFES2. Note different vertical axis scale was used for a better visualization.

101

102

103