



Narodowe Centrum  
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# Wykorzystanie modelu ekohydrodynamicznego wysokiej rozdzielczości (EcoPuckBay) do monitorowania stanu Zatoki Puckiej

**Dawid Dybowski**<sup>1</sup>, Maciej Janecki<sup>1</sup>,  
Lidia Dzierzbicka-Głowacka<sup>1</sup>

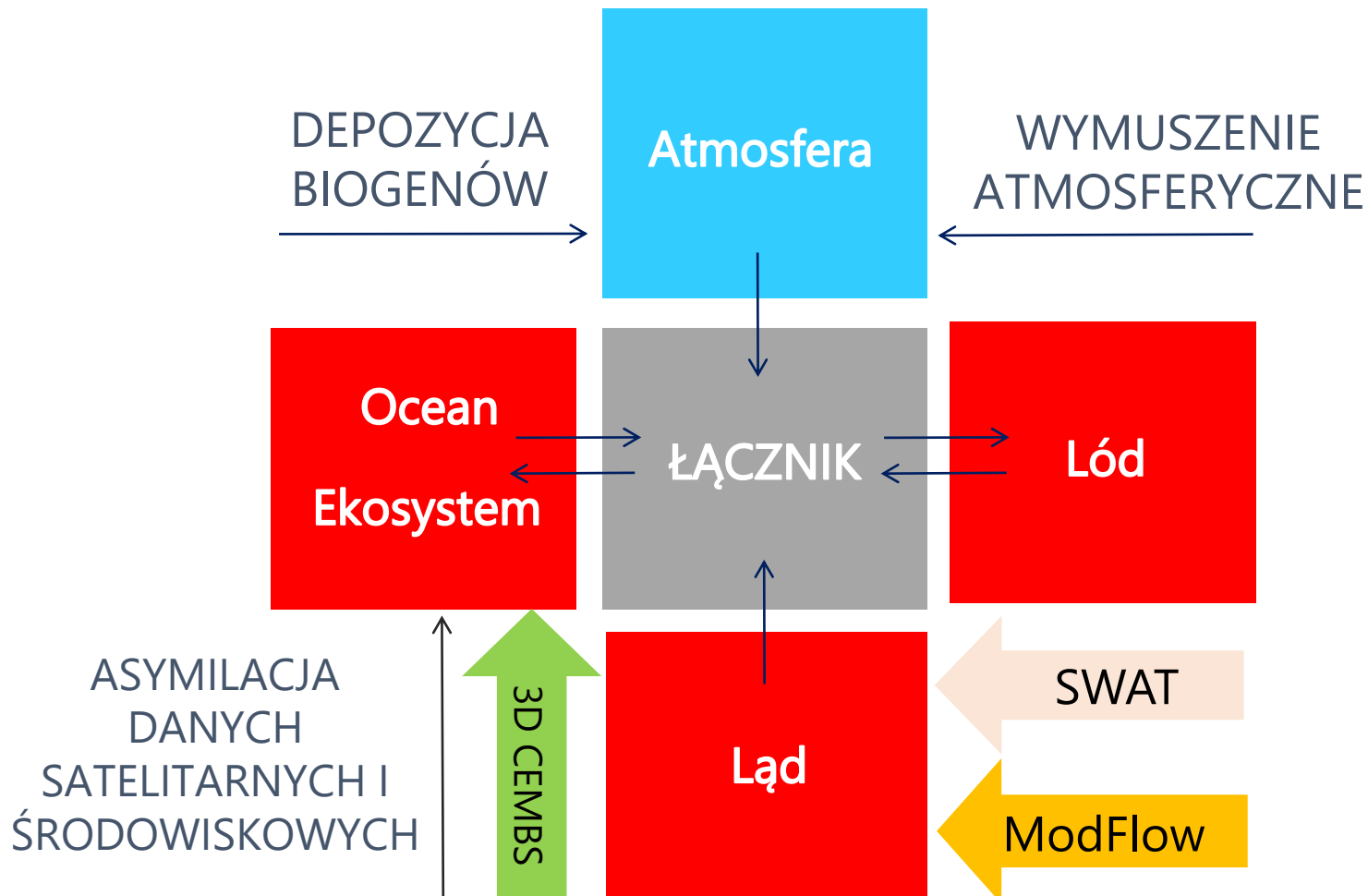
Gdynia, 7 czerwca 2022 r.

<sup>1</sup>Instytut Oceanologii Polskiej Akademii Nauk, Sopot



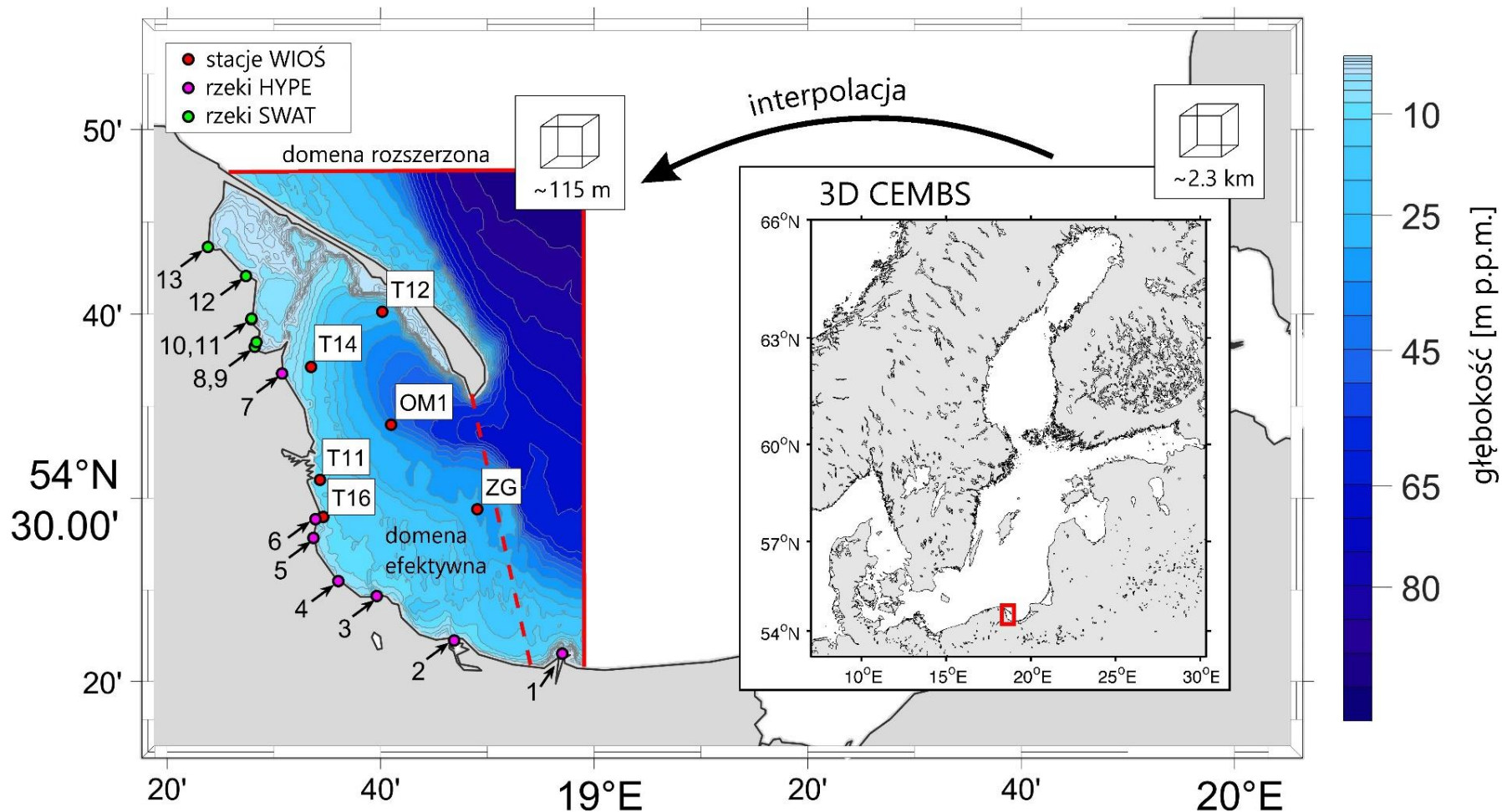


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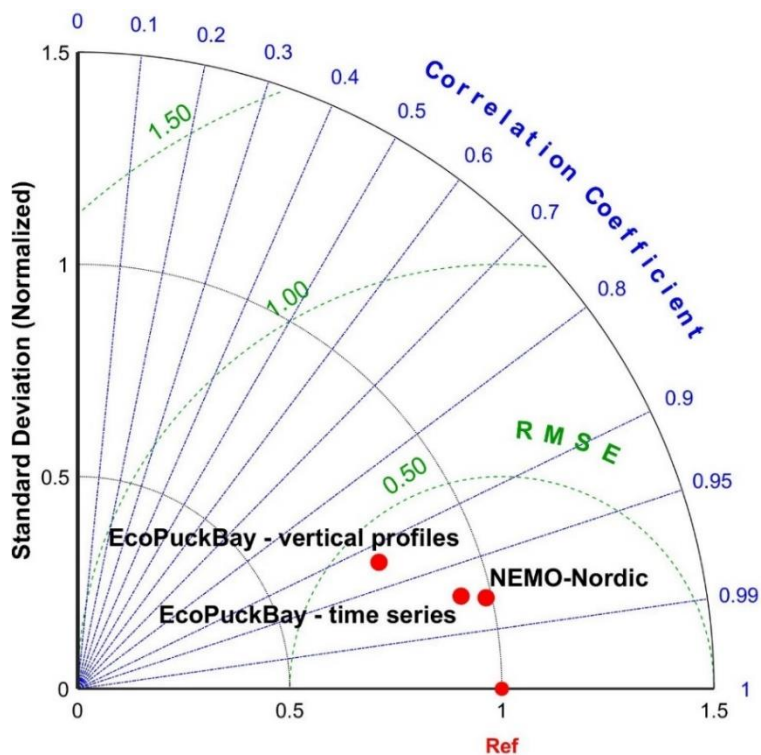


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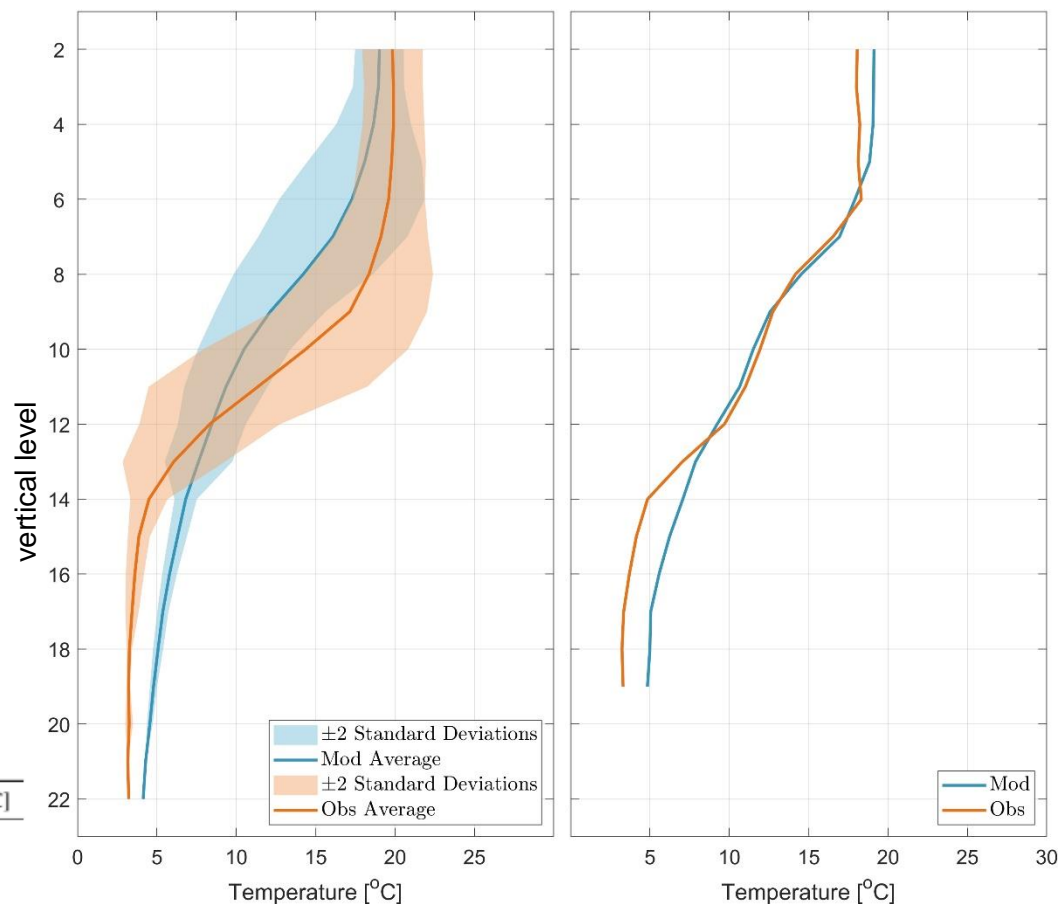




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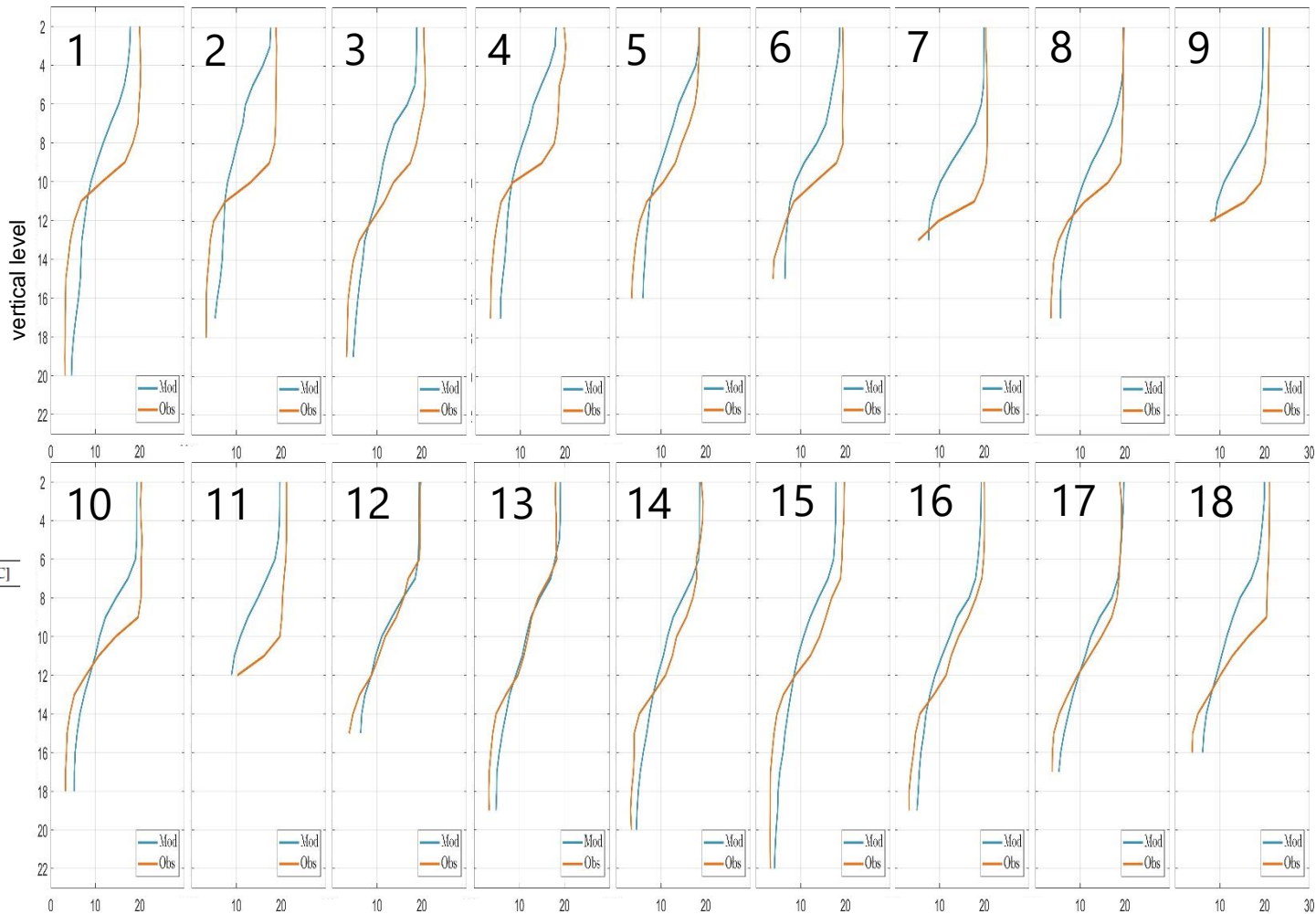
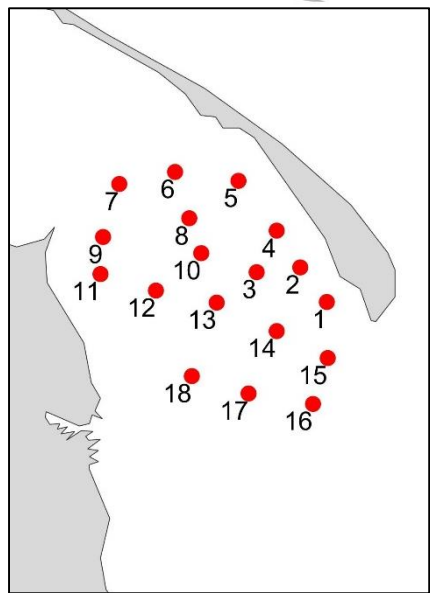


Reference data	Pearson's $r$	RMSE [°C]	STD [°C]	Bias [°C]
Time series (VIEP)	0.97	1.45	5.67	-0.83
Time series (NEMO-Nordic)	0.98	1.33	6.01	-0.31
Vertical profiles (s/y Oceania)	0.92	2.85	5.29	-1.16



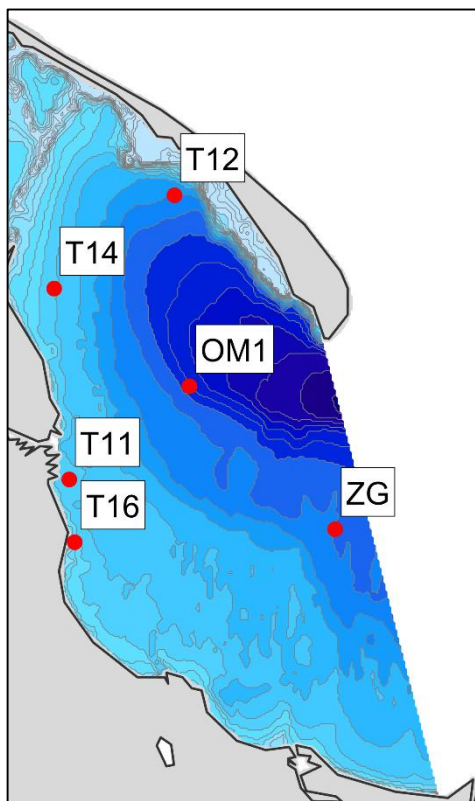


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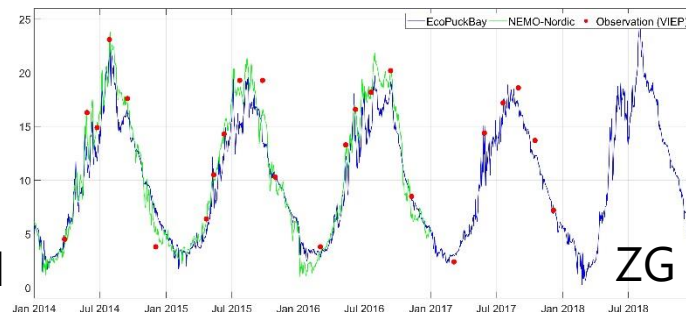
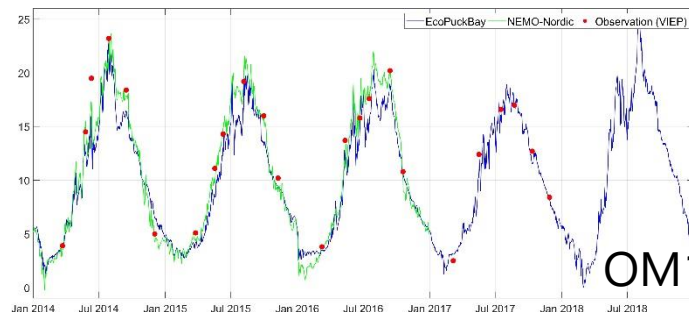
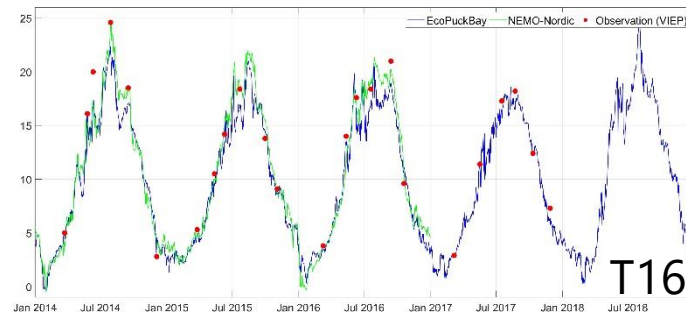
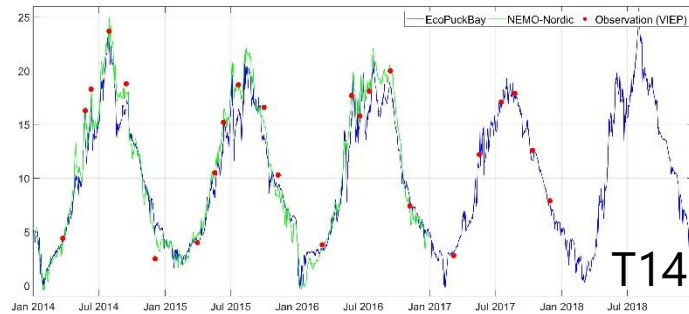
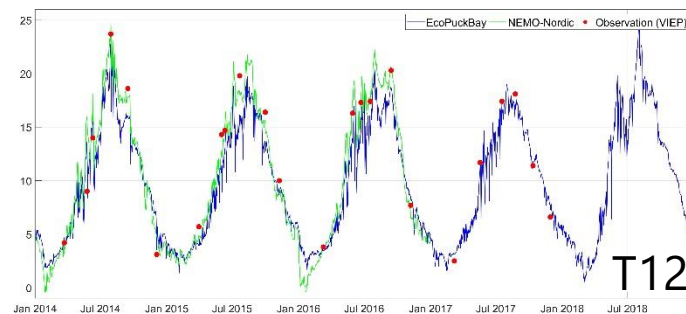
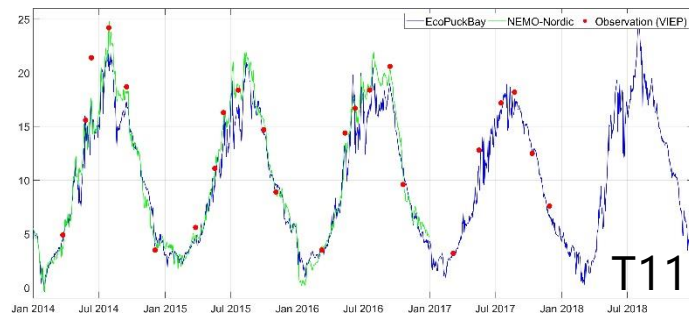




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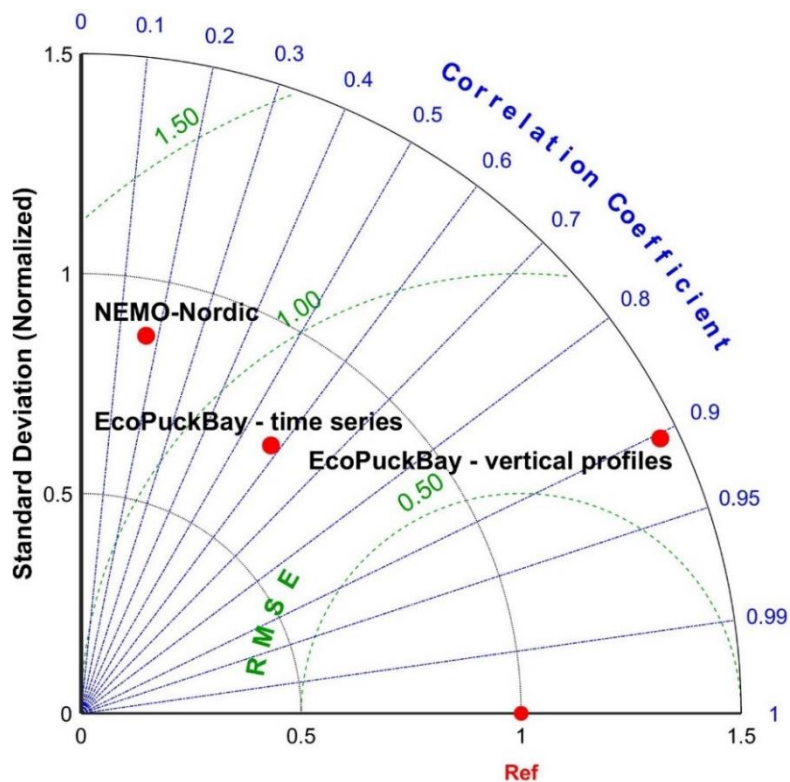


Station	Pearson's $r$	RMSE [°C]	STD [°C]	Bias [°C]
T11	0.99	1.24	5.48	-0.99
T12	0.94	2.08	5.37	-1.12
T14	0.98	1.41	5.45	-1.24
OM1	0.98	1.16	5.30	-1.32
T16	0.99	1.17	5.47	-0.66
ZG	0.95	1.98	4.87	-1.71

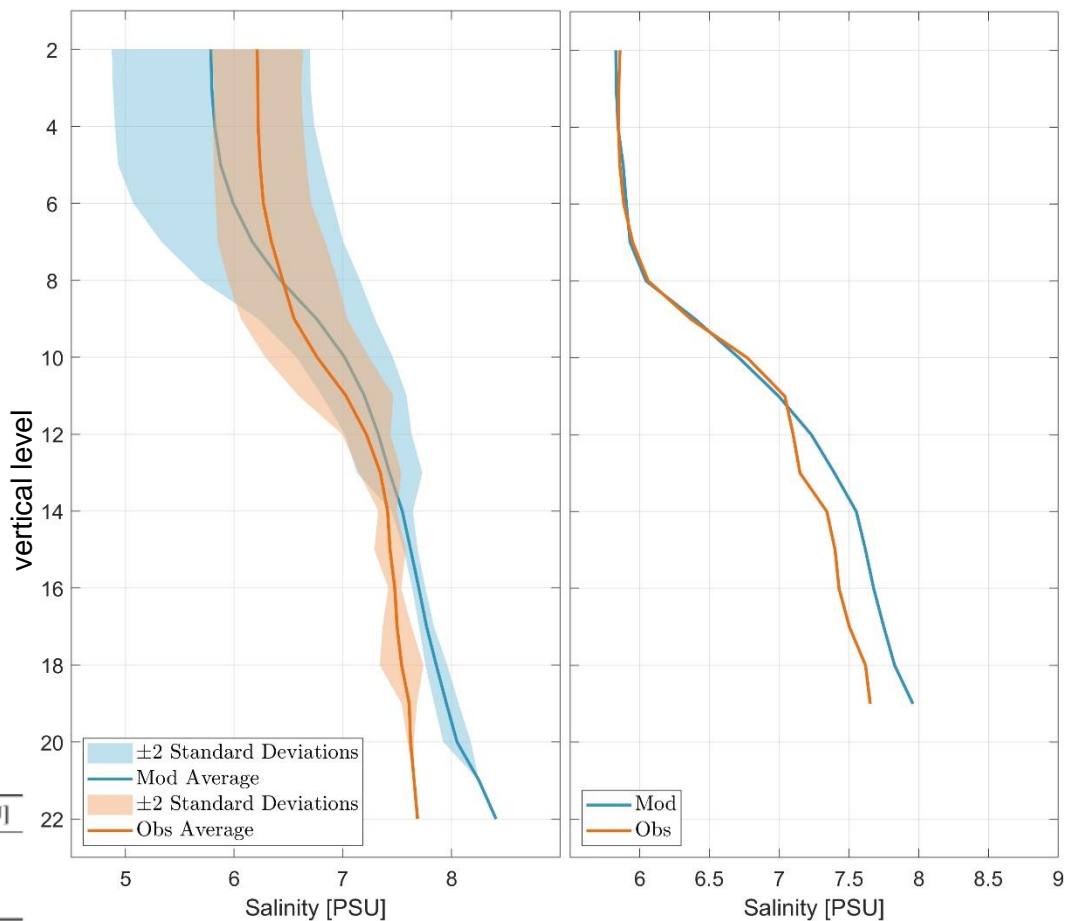




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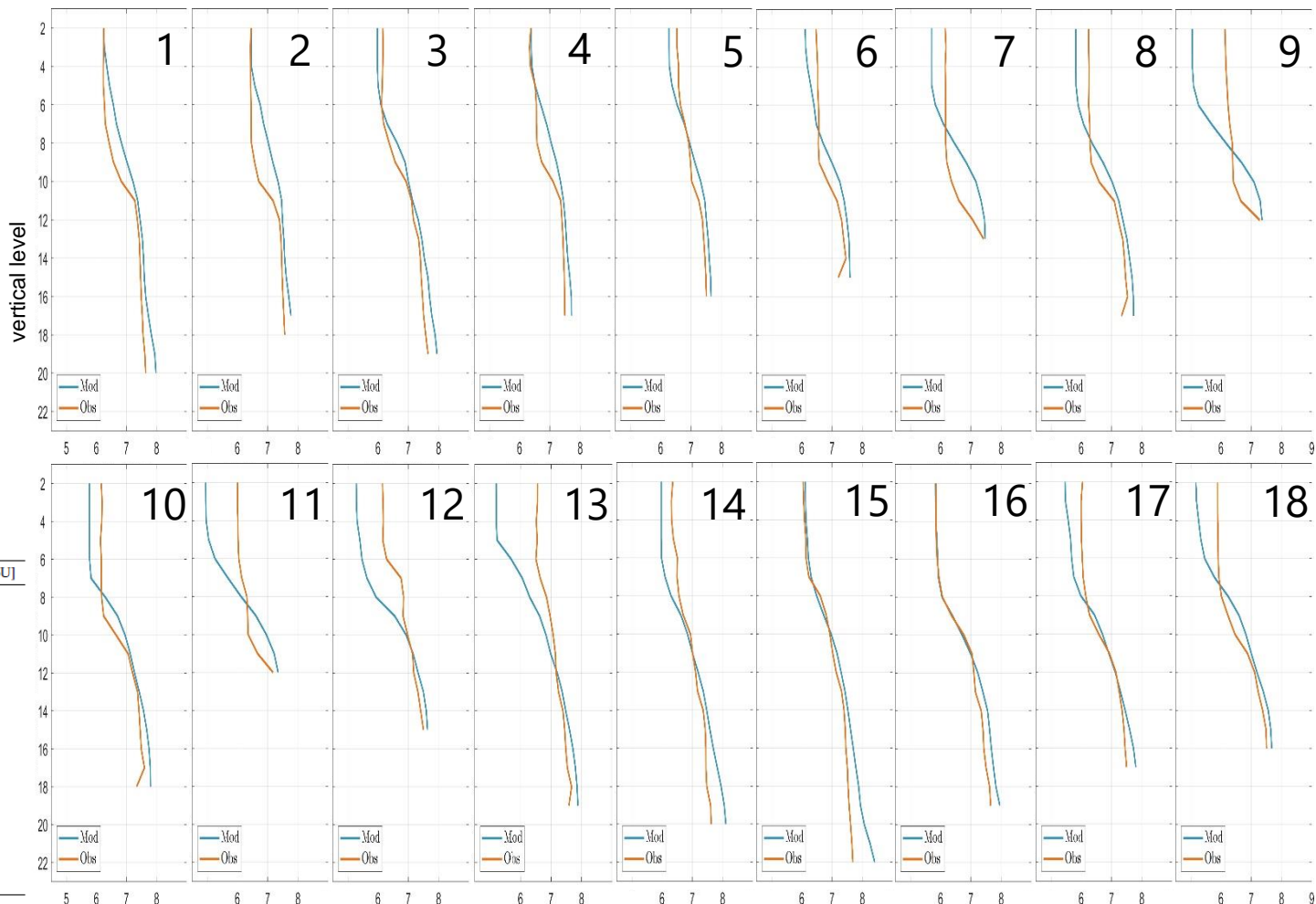
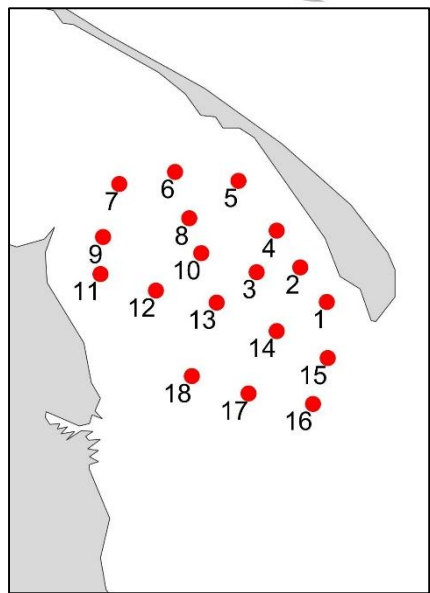


Reference data	Pearson's $r$	RMSE [PSU]	STD [PSU]	Bias [PSU]
time series (VIEP)	0.58	0.67	0.60	0.16
time series (NEMO-Nordic)	0.17	0.97	0.70	-0.24
vertical profiles (s/y Oceania)	0.90	0.40	0.84	-0.03





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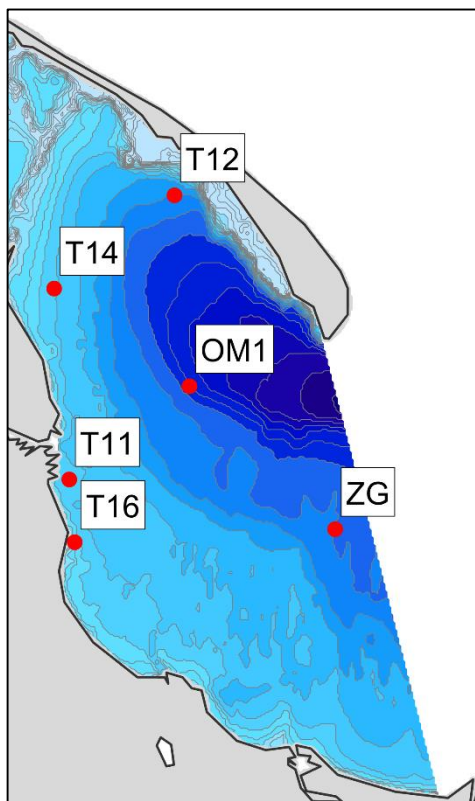
Station	Pearson's <i>r</i>	RMSE [PSU]	STD [PSU]	Bias [PSU]
1	0.97	0.14	0.58	0.21
2	0.91	0.20	0.47	0.24
3	0.99	0.17	0.72	0.10
4	0.96	0.14	0.49	0.18
5	0.98	0.19	0.53	0.01
6	0.92	0.28	0.58	0.04
7	0.78	0.48	0.72	0.06
8	0.95	0.32	0.77	0.00
9	0.80	0.69	0.92	-0.41
10	0.96	0.31	0.82	0.00
11	0.88	0.64	0.92	-0.36
12	0.96	0.49	0.93	-0.42
13	0.98	0.60	0.99	-0.37
14	0.99	0.32	0.79	-0.01
15	0.98	0.21	0.76	0.19
16	1.00	0.12	0.81	0.10
17	0.98	0.28	0.86	-0.10
18	0.95	0.39	0.95	-0.09



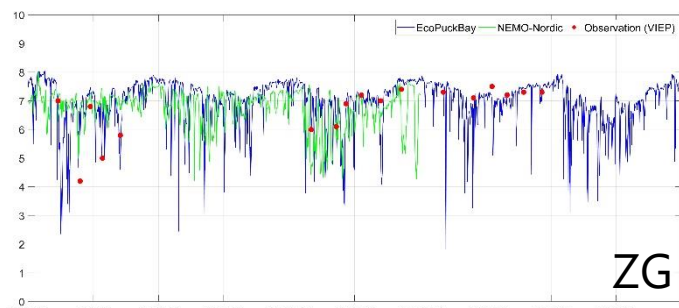
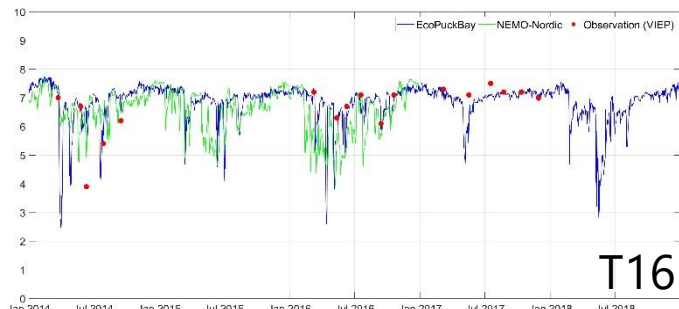
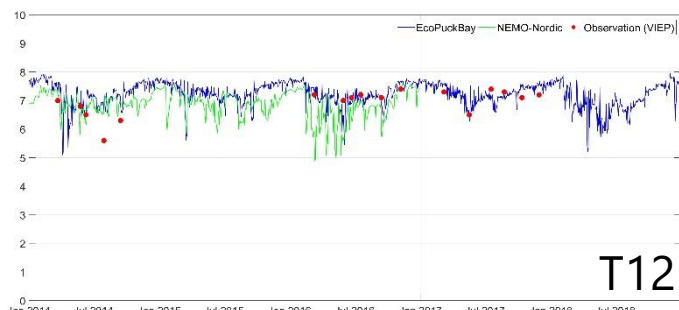
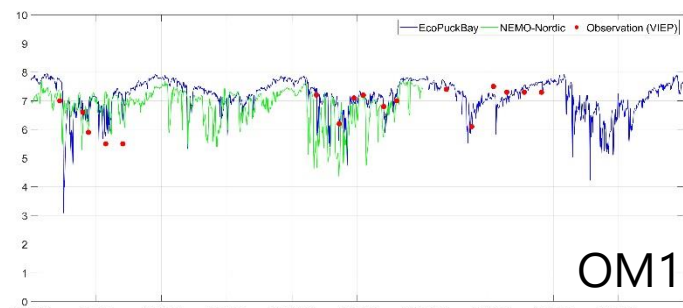
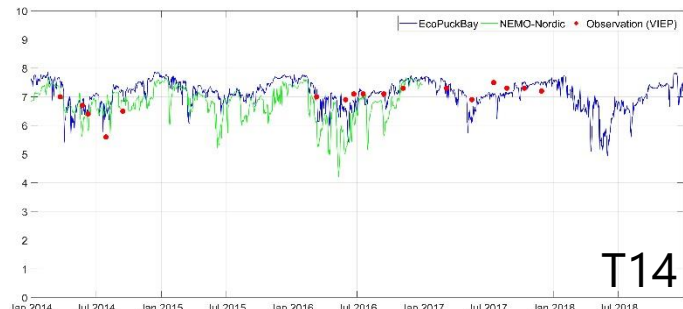
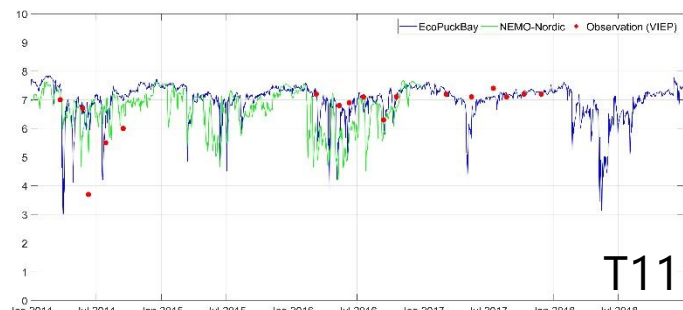




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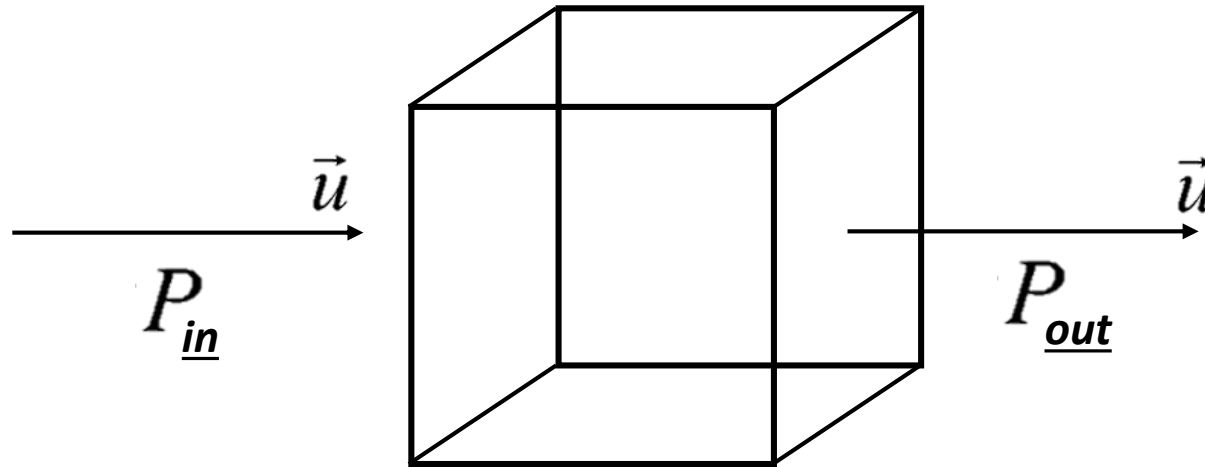


Station	Pearson's $r$	RMSE [PSU]	STD [PSU]	Bias [PSU]
T11	0.28	0.99	0.54	0.21
T12	0.53	0.43	0.37	0.12
T14	0.64	0.35	0.34	0.19
OM1	0.86	0.32	0.51	0.27
T16	0.51	0.81	0.61	0.04
ZG	0.62	0.78	0.81	0.14





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$$\frac{\partial P}{\partial t} + \underline{\vec{u} \cdot \nabla P} - \underline{k \nabla^2 P} = \underline{RHS}$$

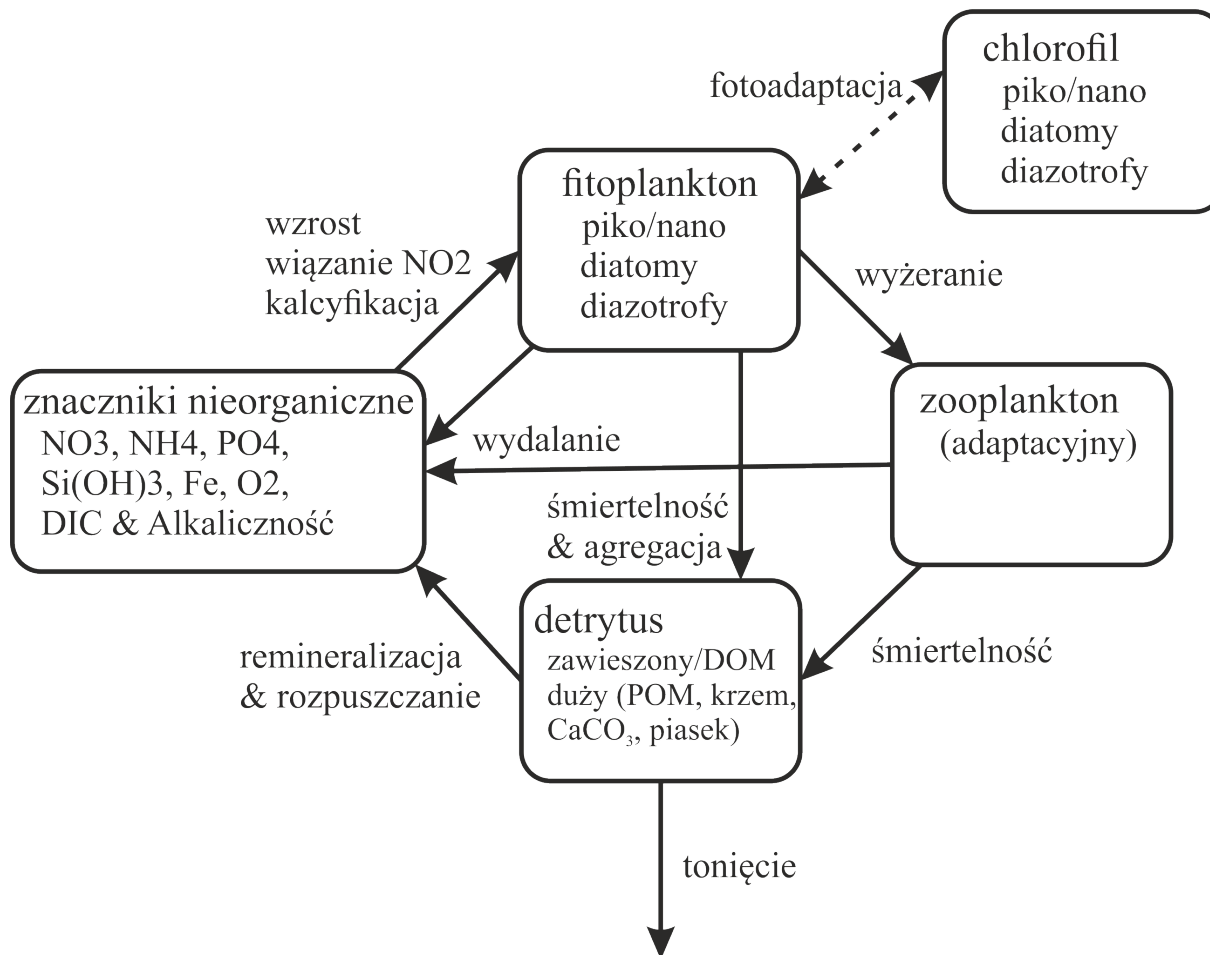
adwekcja

dyfuzja

biologiczne funkcje

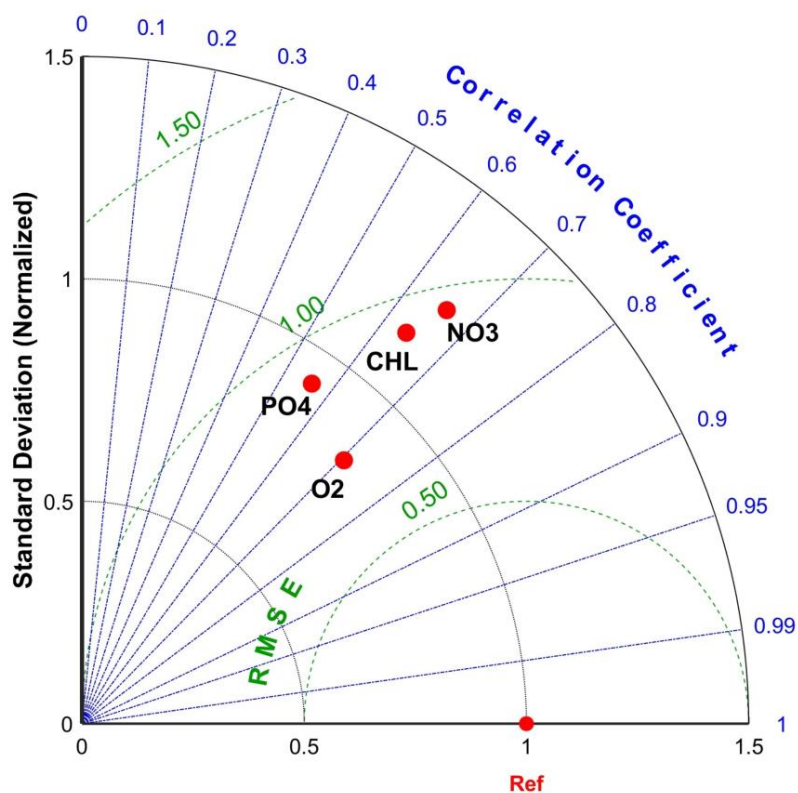
źródła/odpływu



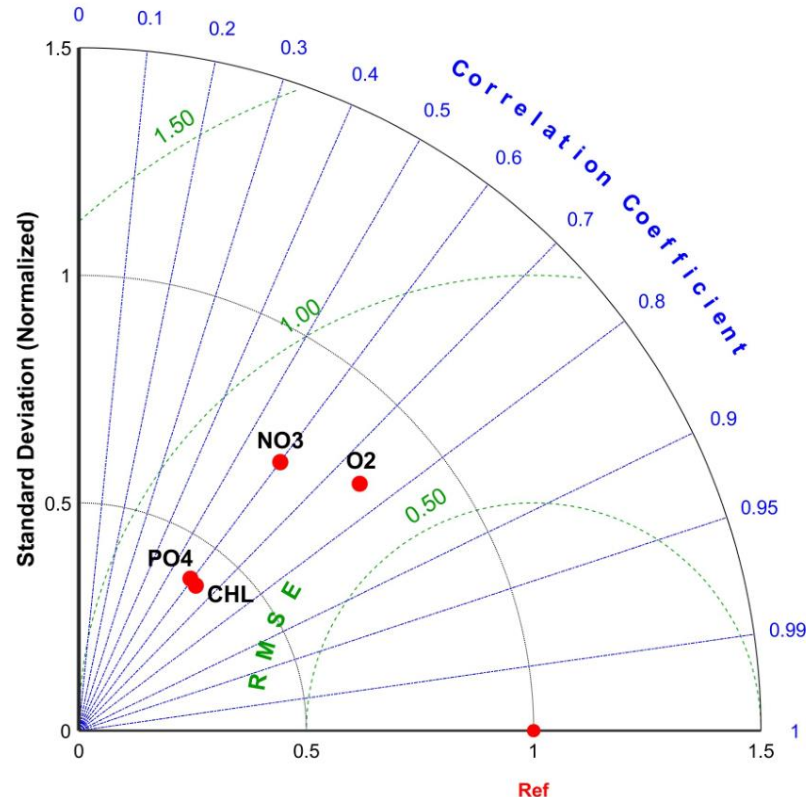




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	VIEP Mean	VIEP STD	EPB Mean	EPB STD	RMSE	<i>r</i>
O <sub>2</sub> [mmol m <sup>-3</sup> ]	315.30	43.06	337.50	35.97	31.03	0.71
NO <sub>3</sub> [mmol m <sup>-3</sup> ]	1.74	2.31	2.48	2.87	2.19	0.66
PO <sub>4</sub> [mmol m <sup>-3</sup> ]	0.35	0.23	0.32	0.21	0.21	0.56
CHL [mg m <sup>-3</sup> ]	4.44	3.14	4.40	3.59	2.89	0.64

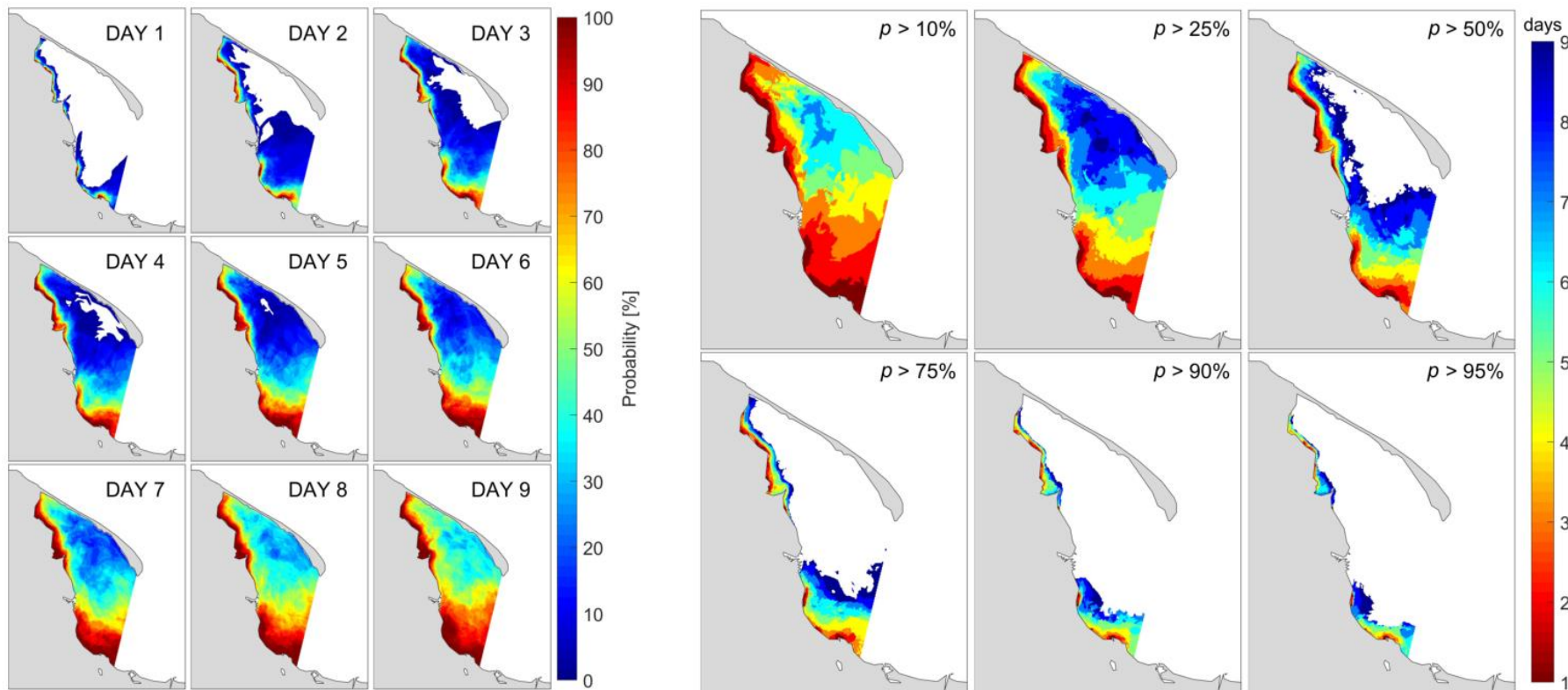


	NEMO Mean	NEMO STD	EPB Mean	EPB STD	RMSE	<i>r</i>
O <sub>2</sub> [mmol m <sup>-3</sup> ]	360.63	43.74	358.90	35.95	29.02	0.75
NO <sub>3</sub> [mmol m <sup>-3</sup> ]	4.68	5.18	5.70	3.82	4.20	0.60
PO <sub>4</sub> [mmol m <sup>-3</sup> ]	0.68	0.36	0.21	0.15	0.29	0.59
CHL [mg m <sup>-3</sup> ]	6.37	5.87	3.51	2.40	4.74	0.63





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Article

## High-Resolution Ecosystem Model of the Puck Bay (Southern Baltic Sea)—Hydrodynamic Component Evaluation

Dawid Dybowski <sup>1,\*</sup>, Jaromir Jakacki <sup>2</sup>, Maciej Janecki <sup>1</sup>, Artur Nowicki <sup>1</sup>, Daniel Rak <sup>3</sup> and Lidia Dzierzbicka-Glowacka <sup>1,\*</sup>



Article

## Assessing the Impact of Chemical Loads from Agriculture Holdings on the Puck Bay Environment with the High-Resolution Ecosystem Model of the Puck Bay, Southern Baltic Sea

Dawid Dybowski <sup>\*</sup>, Maciej Janecki <sup>1</sup>, Artur Nowicki <sup>1</sup> and Lidia Anita Dzierzbicka-Glowacka <sup>\*</sup>

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