

WP2, ERGOM

status of modelling activities

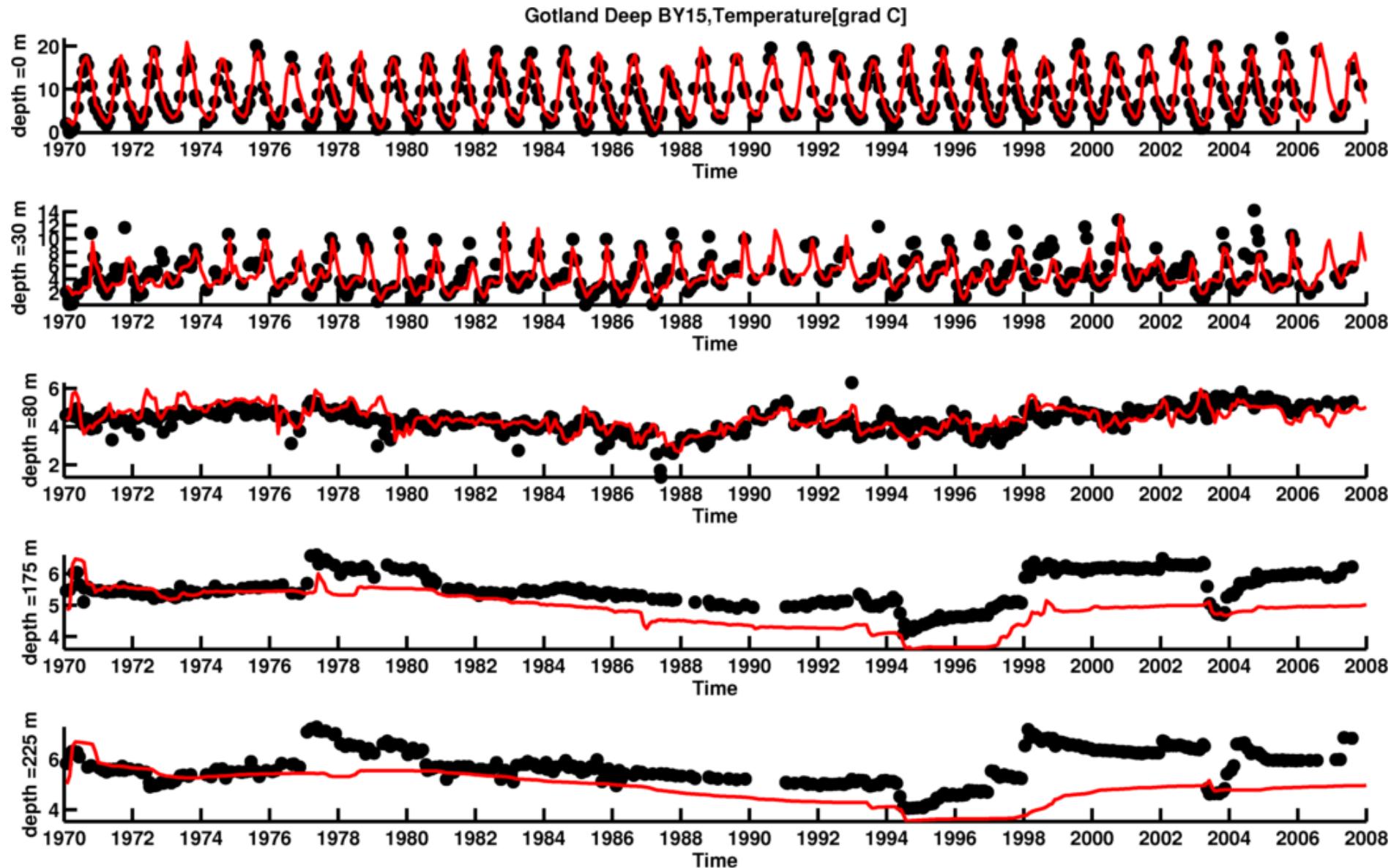
Department of Physical Oceanography and Instrumentation,
Leibniz Institute for Baltic Sea Research Warnemünde (IOW)

Ivan Kuznetsov, Thomas Neumann

Simulations:

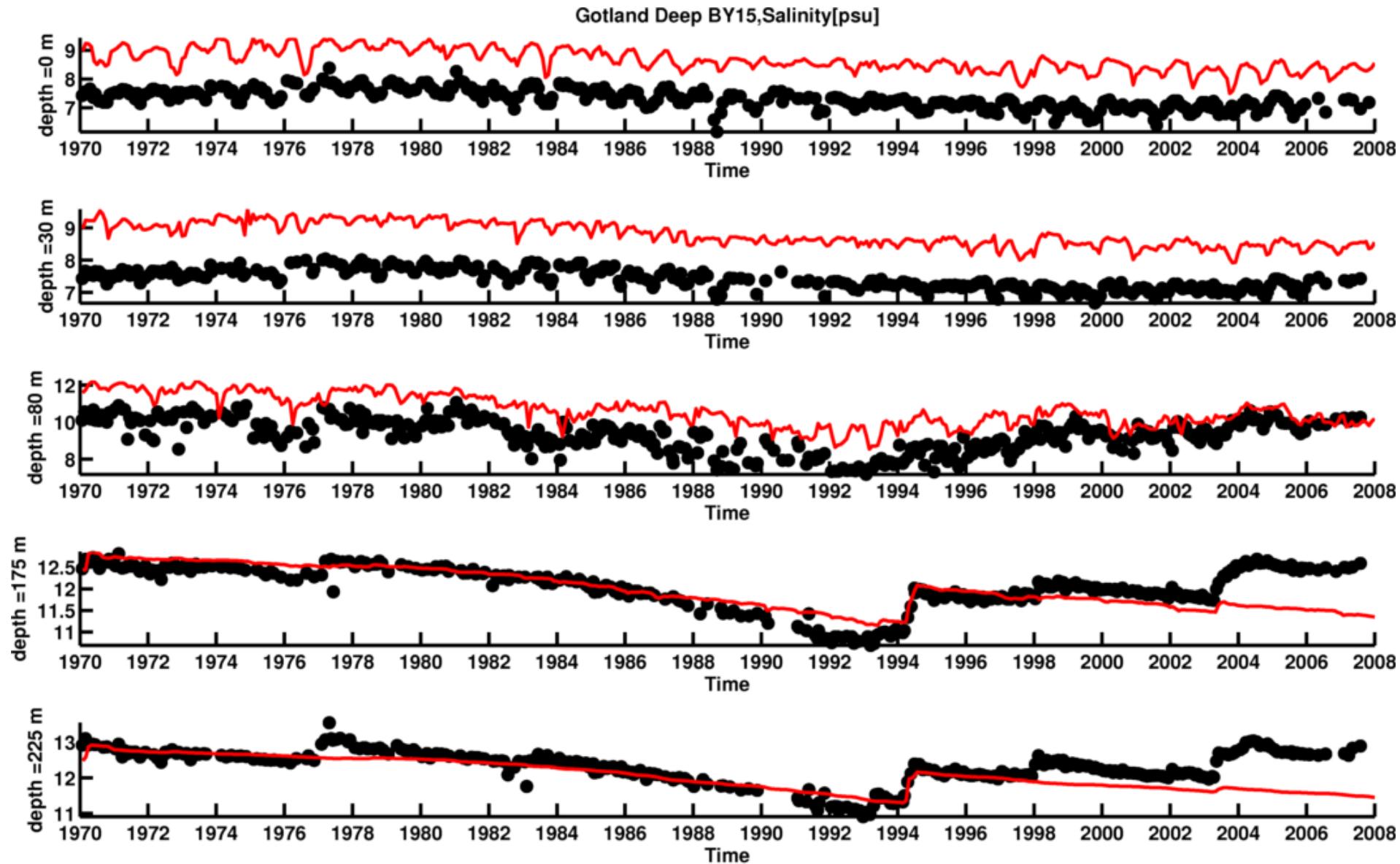
	Years	Forcing	River runoff	Loads
Done	1961 – 2007	ERA40	IOW	IOW
	1961 – 2007	ERA40	IOW	NEST
	1961 – 2007	HadCM3ref A1B	IOW ?	IOW
	1961 – 2100	ECHAM5 A1B 3	ECHAM5 A1B 3	IOW ?
No forcing	1961 – 2100	ECHAM5 A1B 1	ECHAM5 A1B 1	IOW
	1961 – 2100	ECHAM5 A2	ECHAM5 A2	IOW
	1961 – 2100	HadCM3ref A1B	HadCM3ref A1B	IOW

ERA40, hindcast reference run, BY15 station



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ERA40, hindcast reference run, BY15 station



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Hindcast:

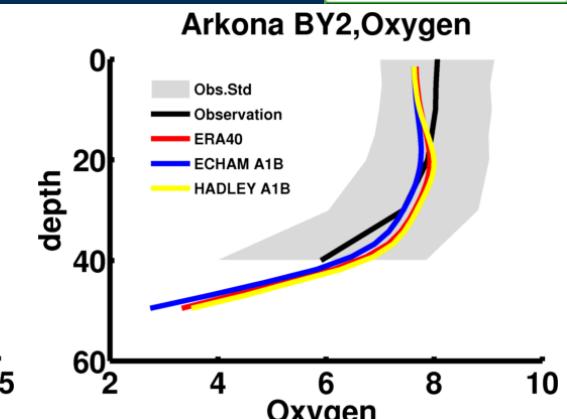
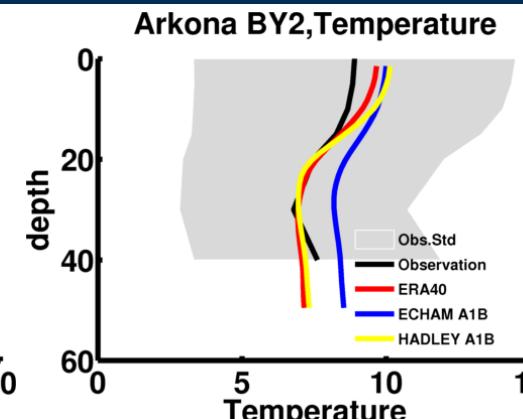
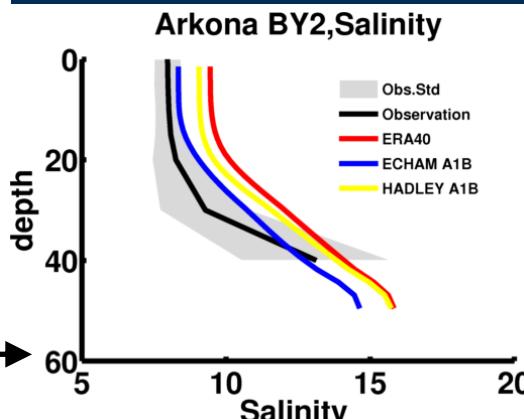
Observation

ERA40

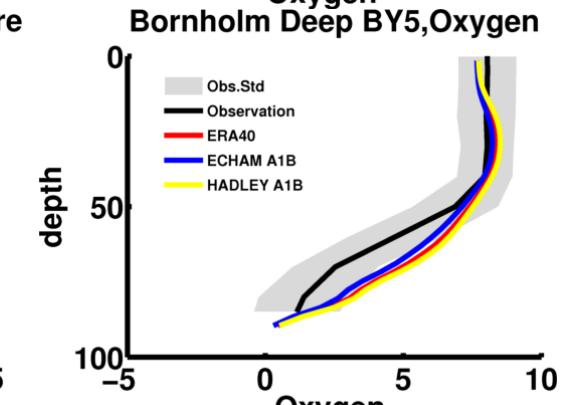
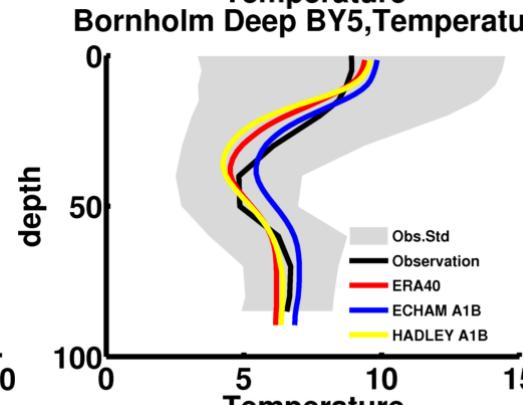
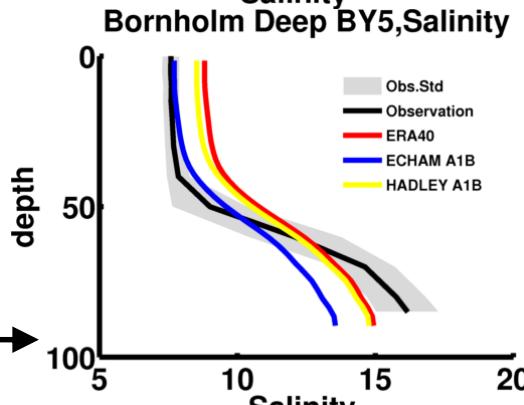
ECHAM A1B3

HADLEY A1B

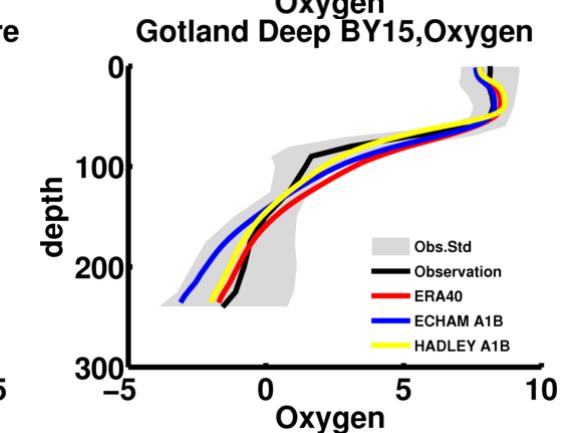
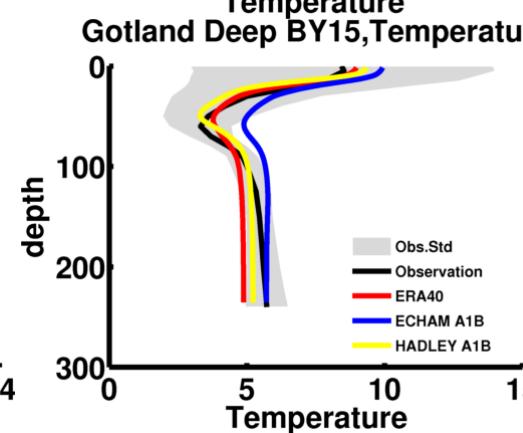
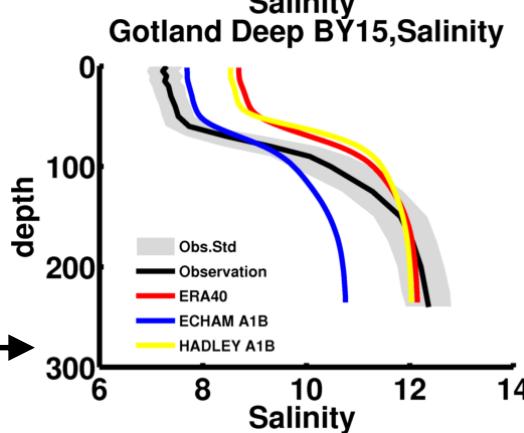
Arkona BY2 →



Bornholm BY5 →

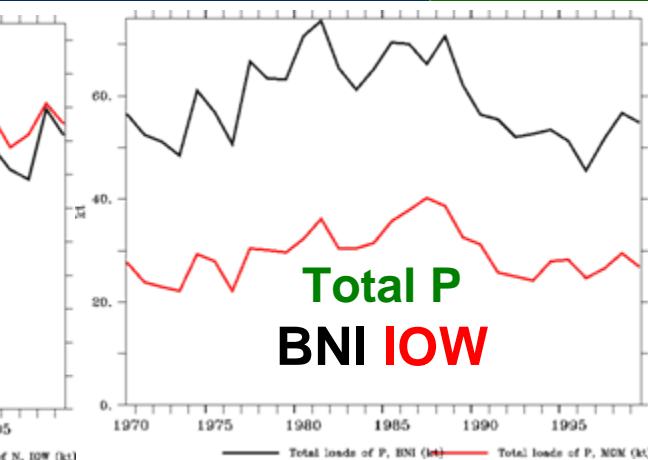
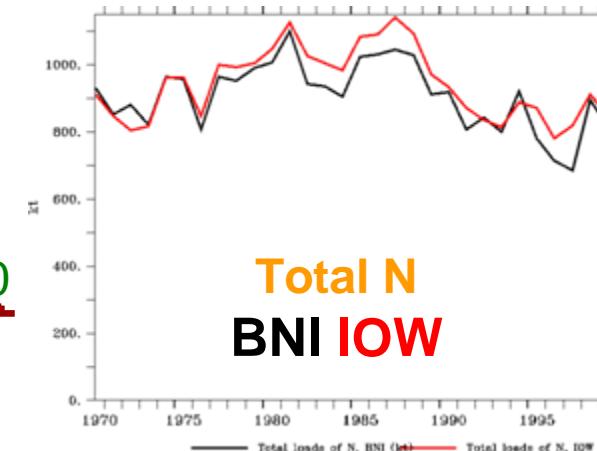
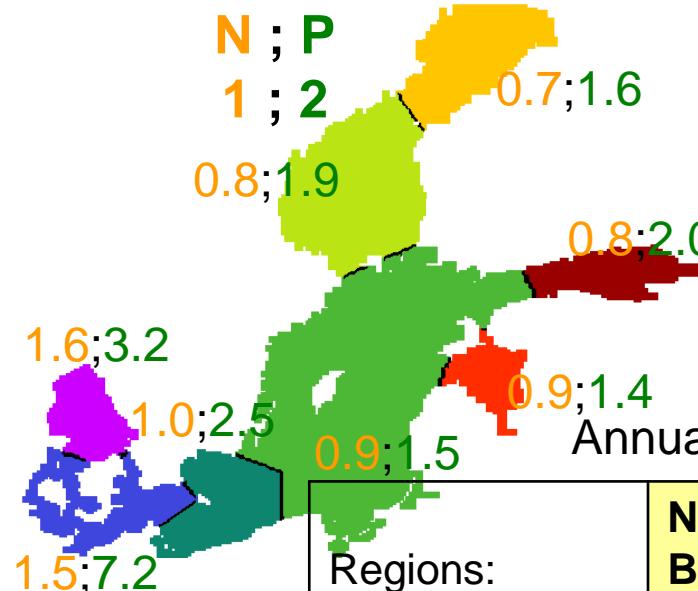


Gotland BY15 →



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Ratio BNI/IOW loads



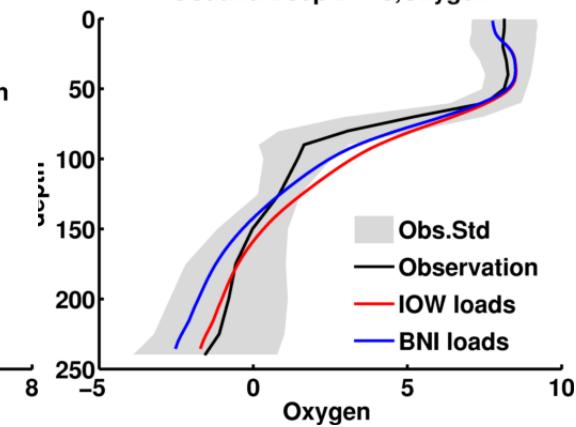
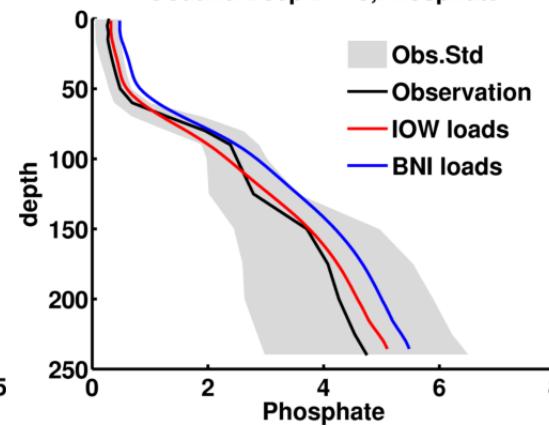
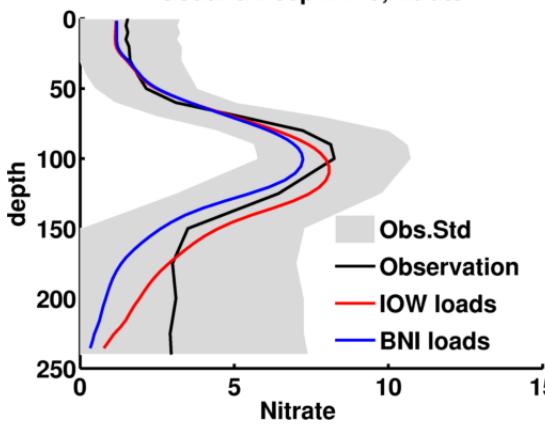
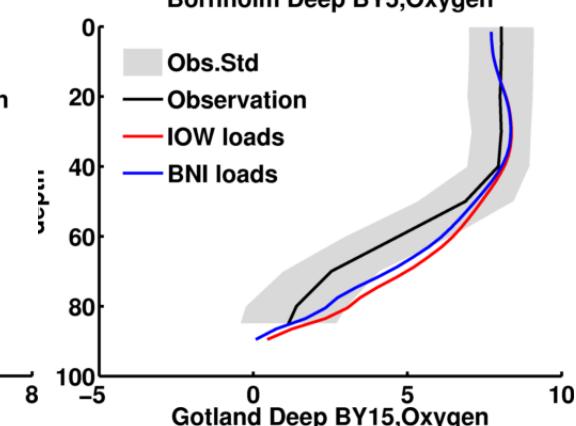
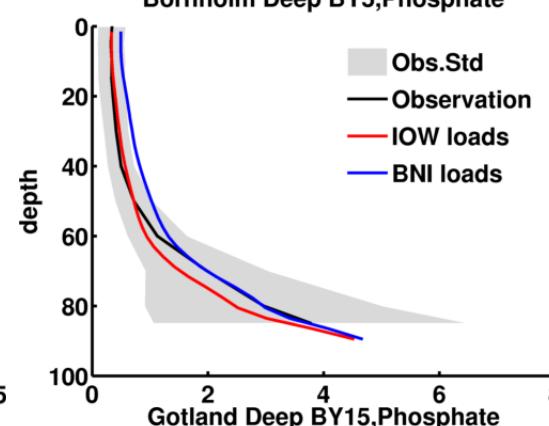
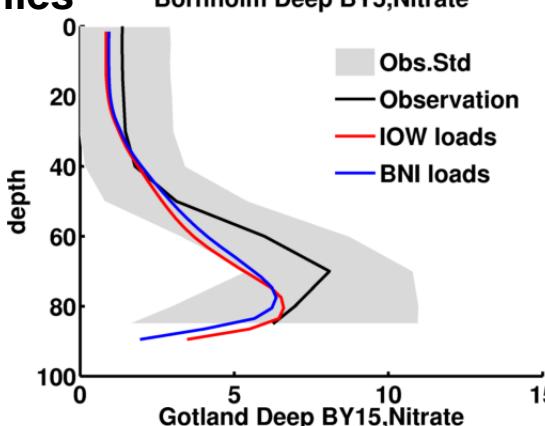
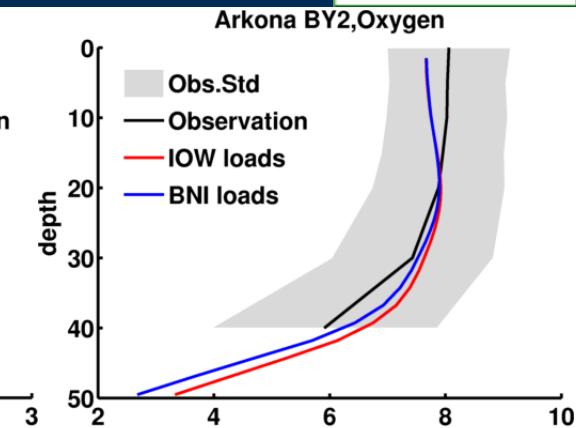
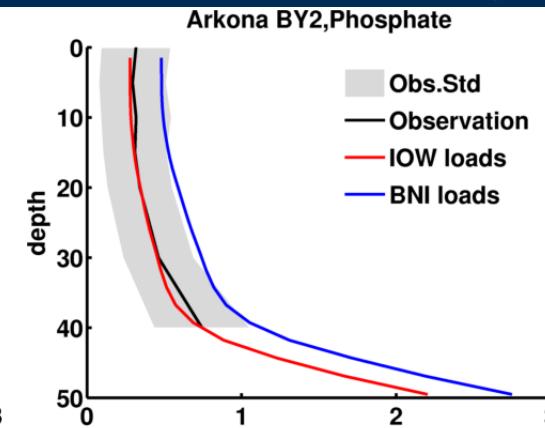
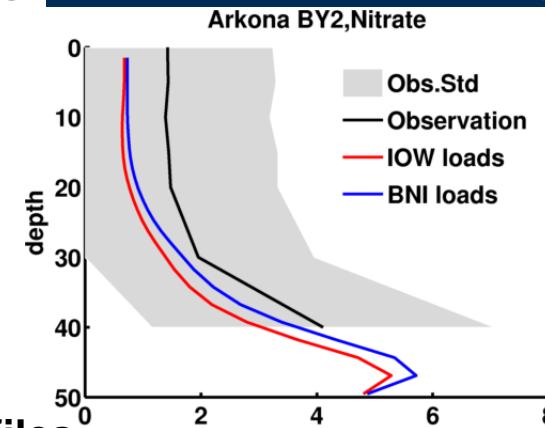
Annual mean (1970-2000) loads of N and P to the Baltic Sea

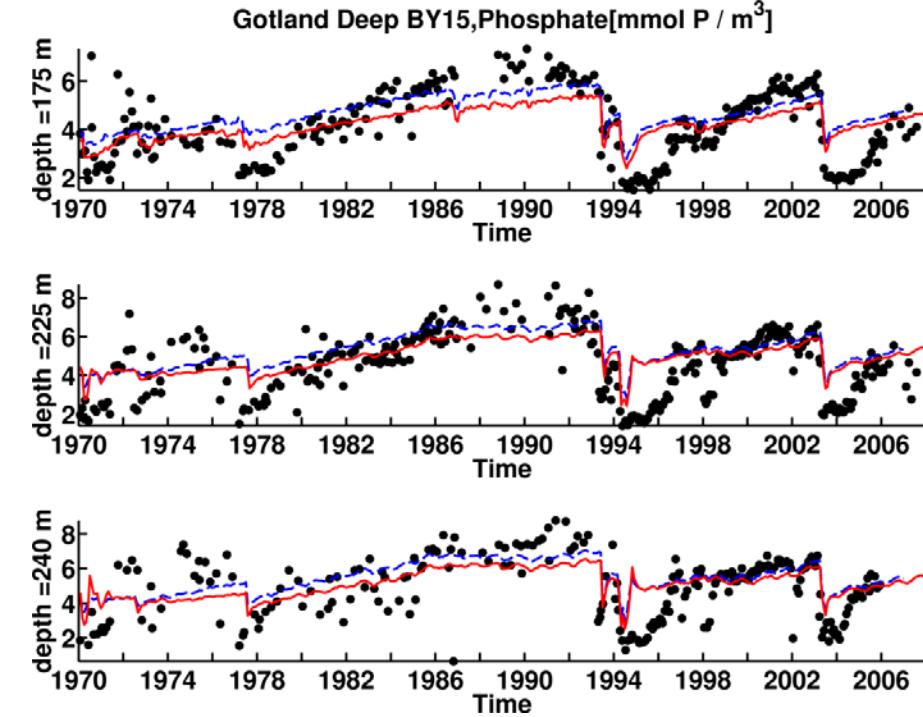
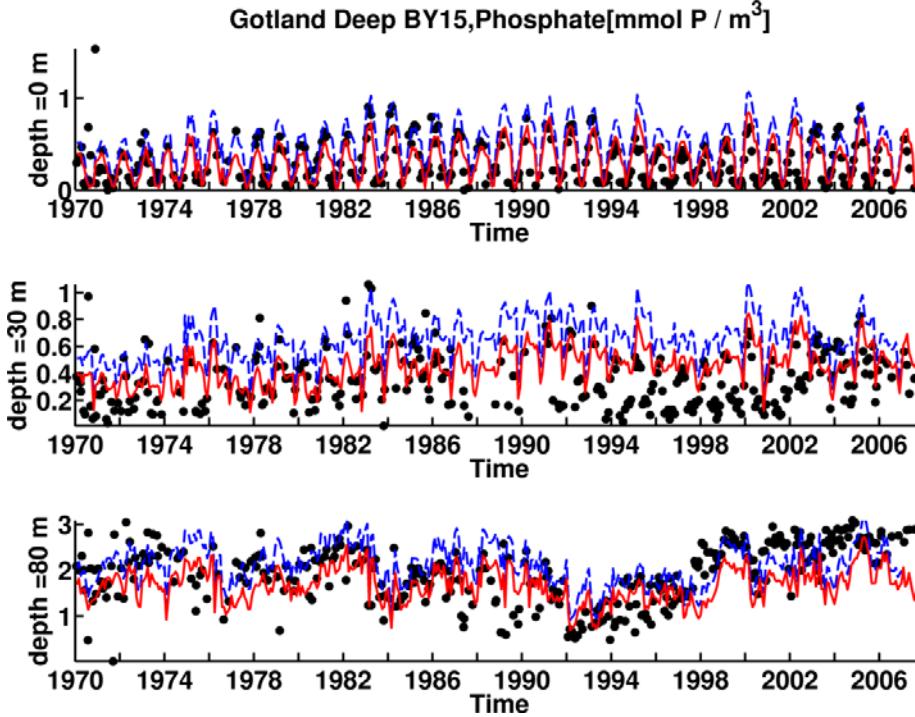
Regions:	N kt, BNI	N kt, IOW	N BNI/MOM	P kt, BNI	P kt, IOW	P BNI/MOM
Kattegat	75.6	46.9	1.61	2.9	0.9	3.22
Arkona+straits	102.1	67.0	1.52	8.6	1.2	7.18
Bornholm	125.9	120.6	1.04	10.5	4.2	2.47
Baltic proper	337.0	376.0	0.90	15.4	10.4	1.48
Bothnian Sea	59.7	73.7	0.81	3.9	2.1	1.92
Bothnian Bay	34.6	49.9	0.69	3.6	2.3	1.60
Gulf of Riga	79.4	90.2	0.88	4.8	3.6	1.35
Guld of Finland	93.5	119.0	0.79	9.6	4.8	2.01
Total:	907.8	943.2	0.96	59.3	29.4	2.02

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1970 – 2007

Average profiles

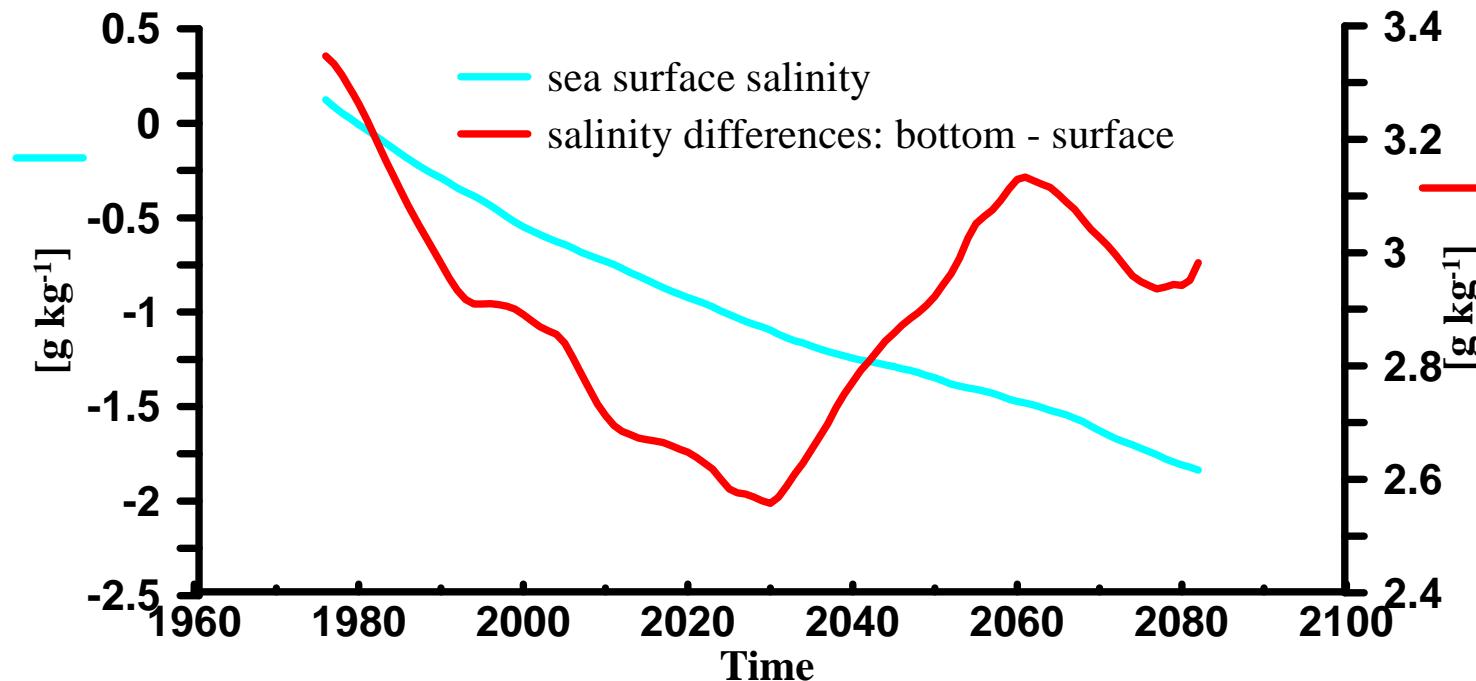




1960 – 2100, simulation

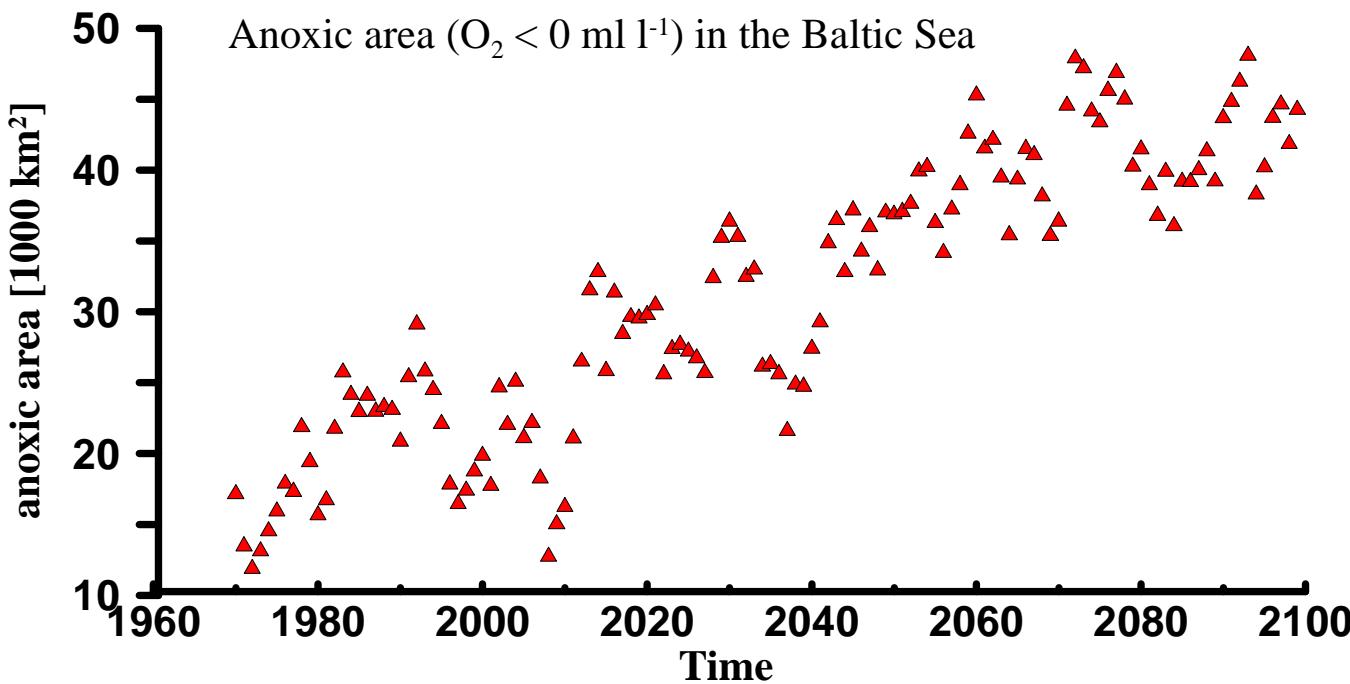
forcing: RCAO-ECHAM, A1B

Change in salinity and salinity differences
(30-year running mean)
Central Eastern Gotland Sea



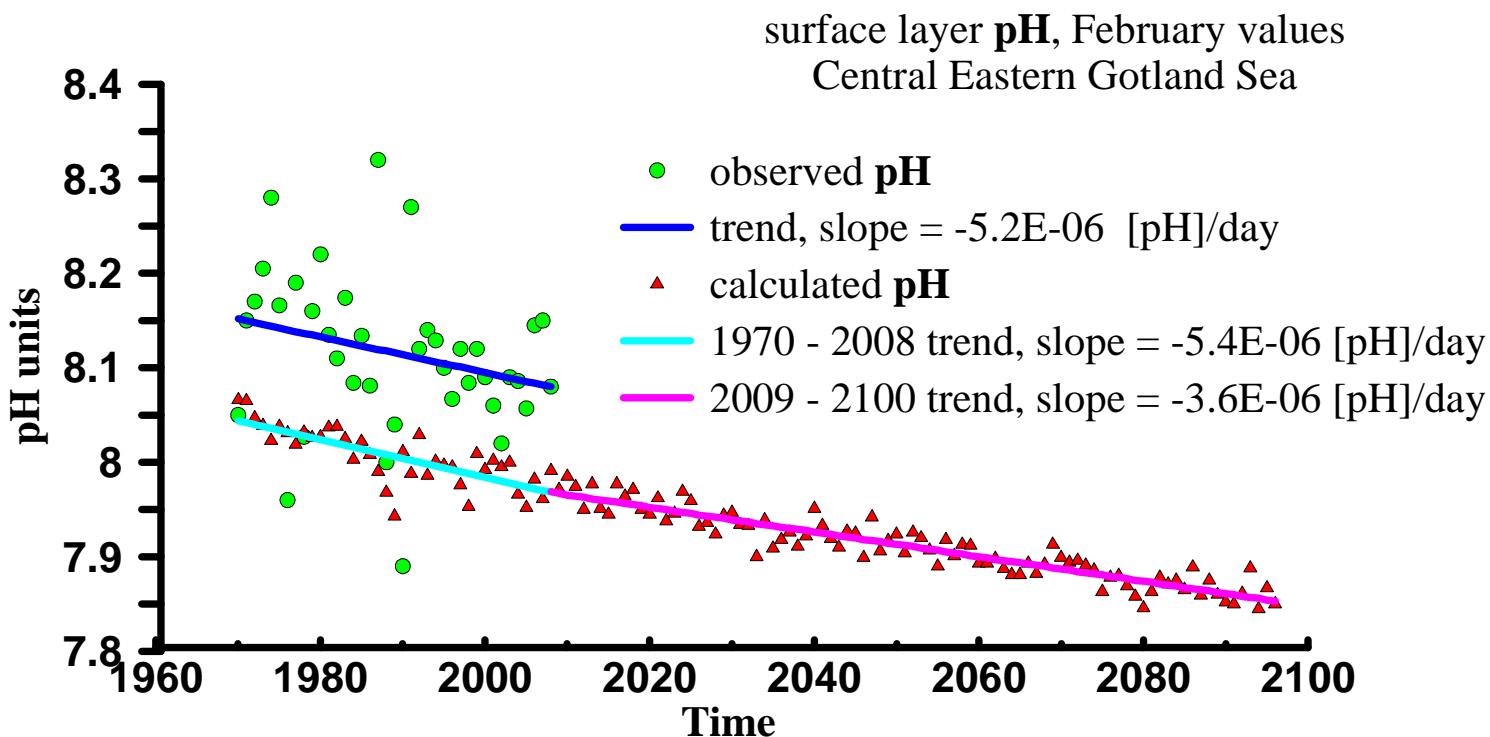
Decrease of the salinity
Stratification

1960 – 2100, simulation



Increase of the anoxic area

Long term simulation



As a conclusion:

	Years	Forcing	River runoff	Loads
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	1961 – 2100	ECHAM5 A2	ECHAM5 A2	IOW
	1961 – 2100	HadCM3ref A1B	HadCM3ref A1B	IOW

Thank you !