

HIRLAM results

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Results

- Annual results over period 2001-2010
- Monthly results over period 2001-2010
- Monthly results over period 1965-2010

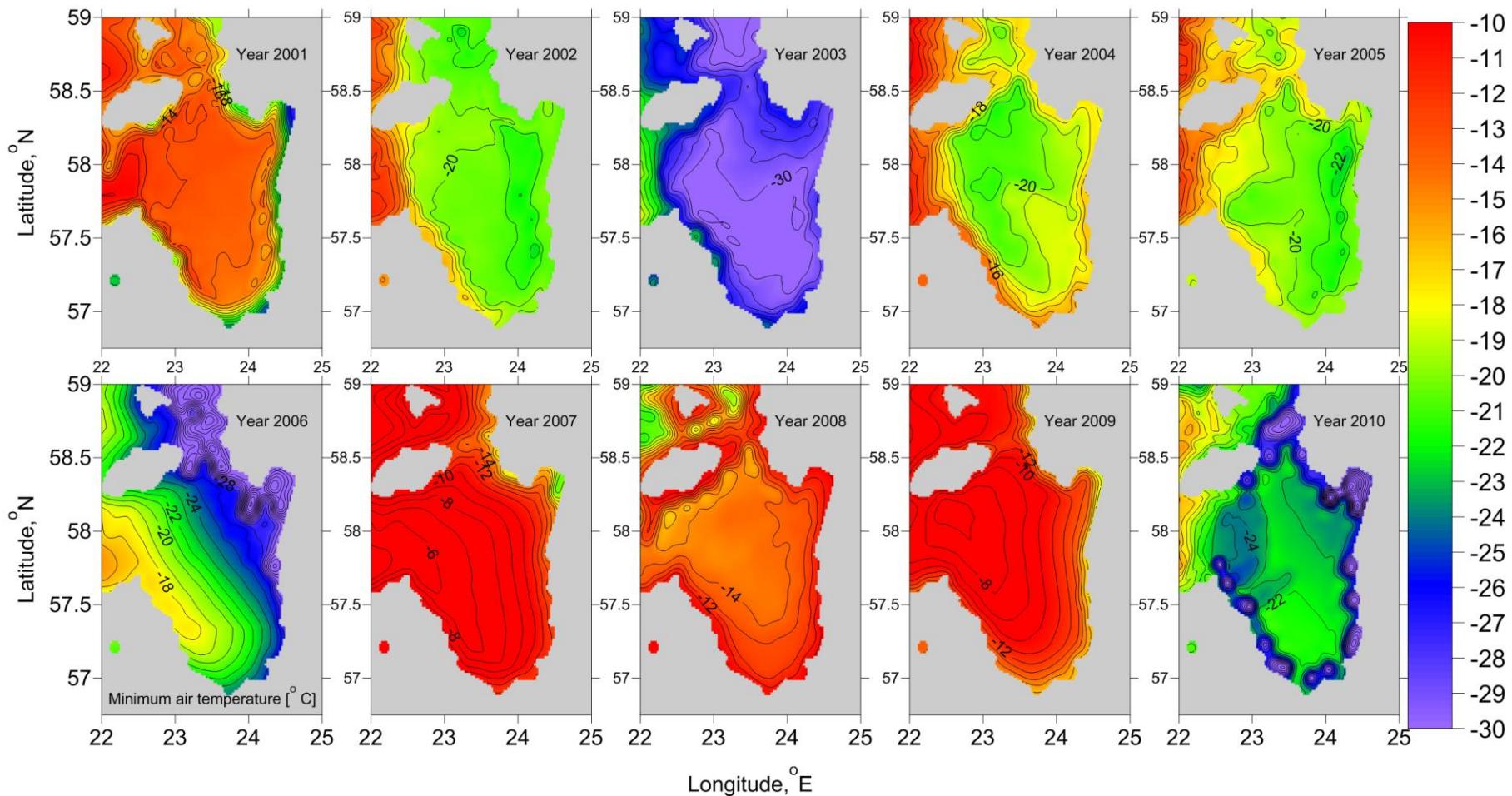
Annual means

Data availability for finding the annual means for the period 2001-2010:

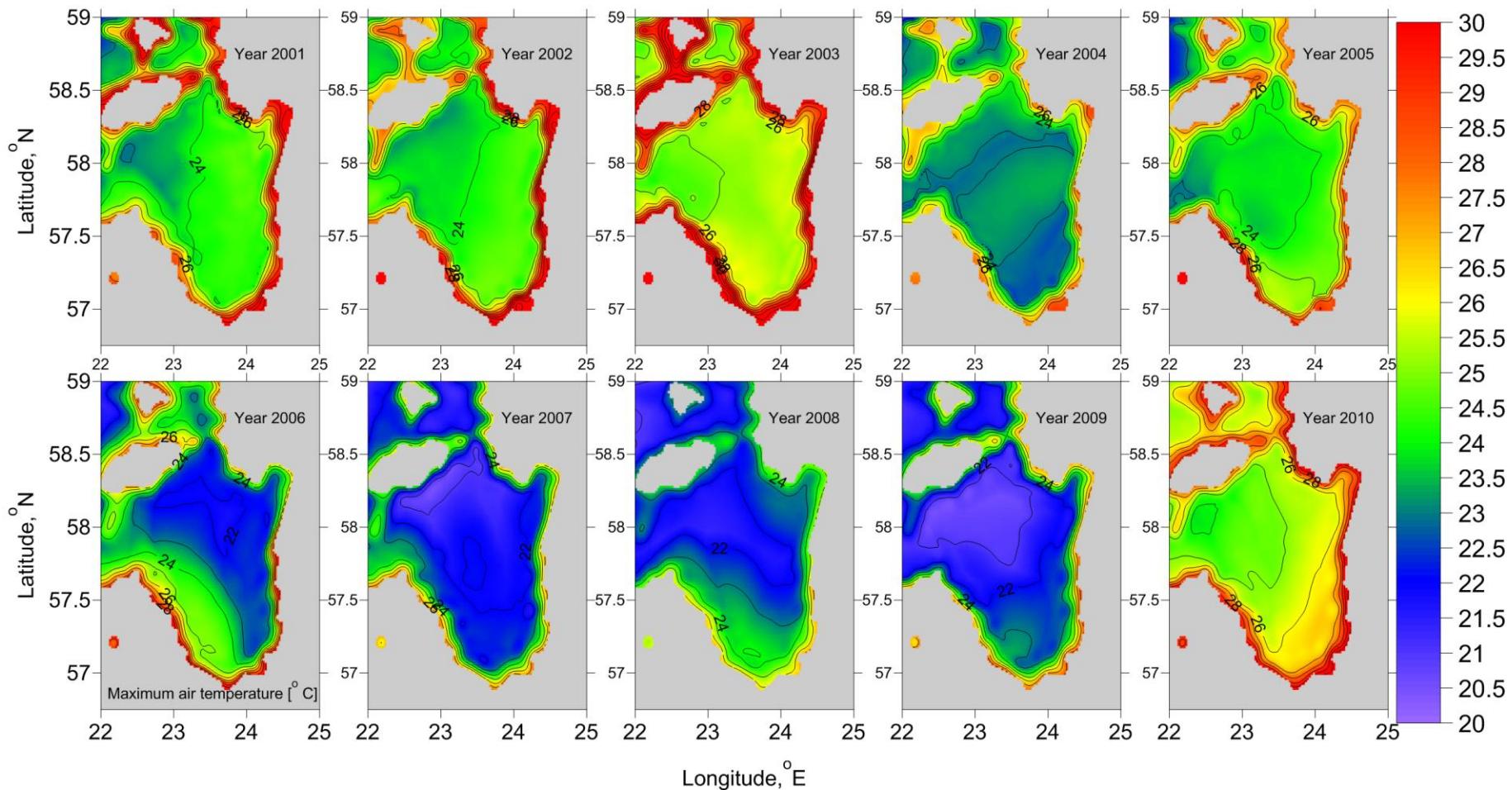
Year	Number of fields	Data availability (%)
2001	1460	100.00
2002	1460	100.00
2003	1460	100.00
2004	1464	100.00
2005	1460	100.00
2006	2790	95.55
2007	2070	70.89
2008	2698	92.40
2009	2882	98.70
2010	2882	98.70

Annual mean 2001-2010

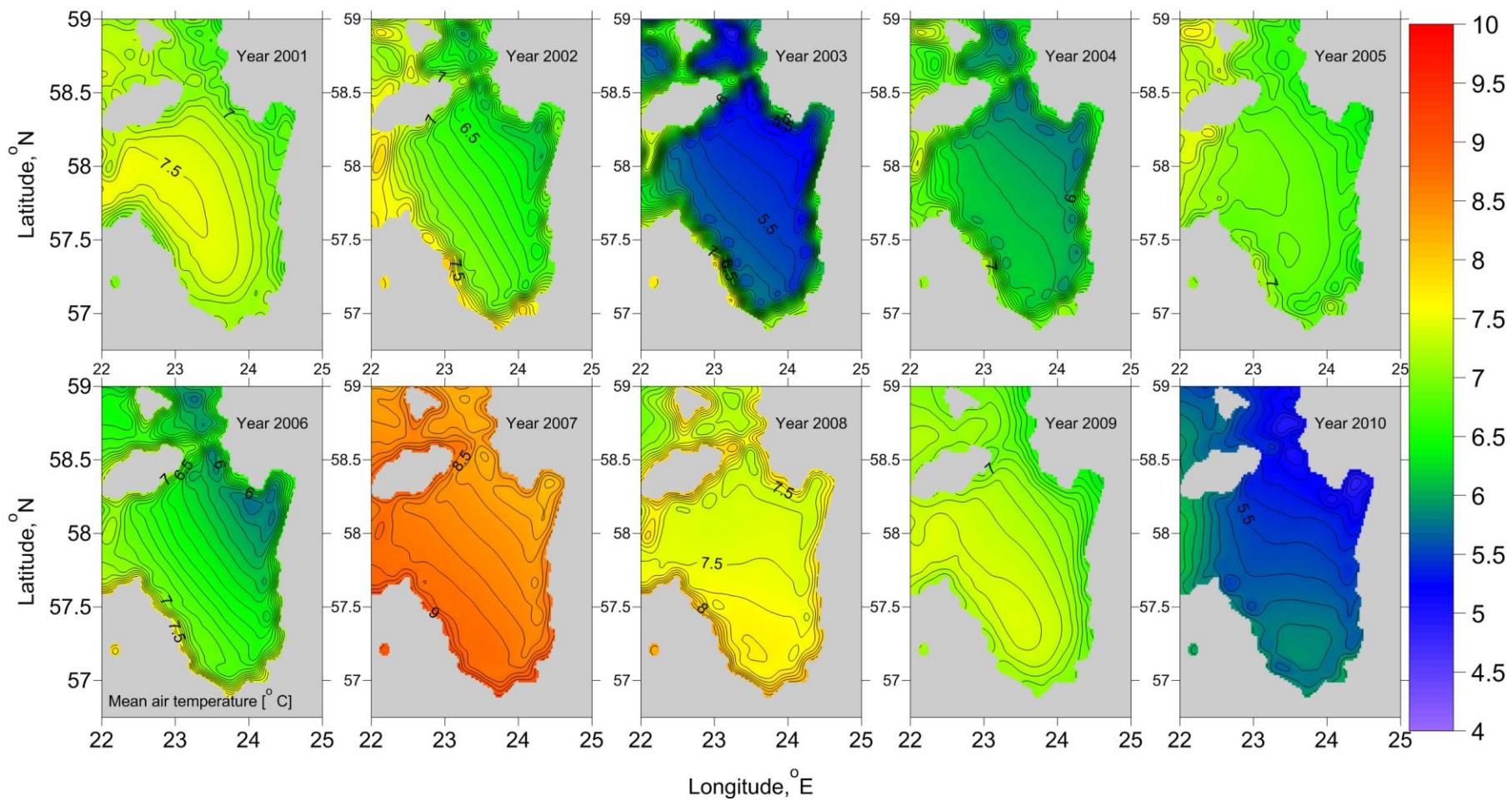
Annual minimum air temperature



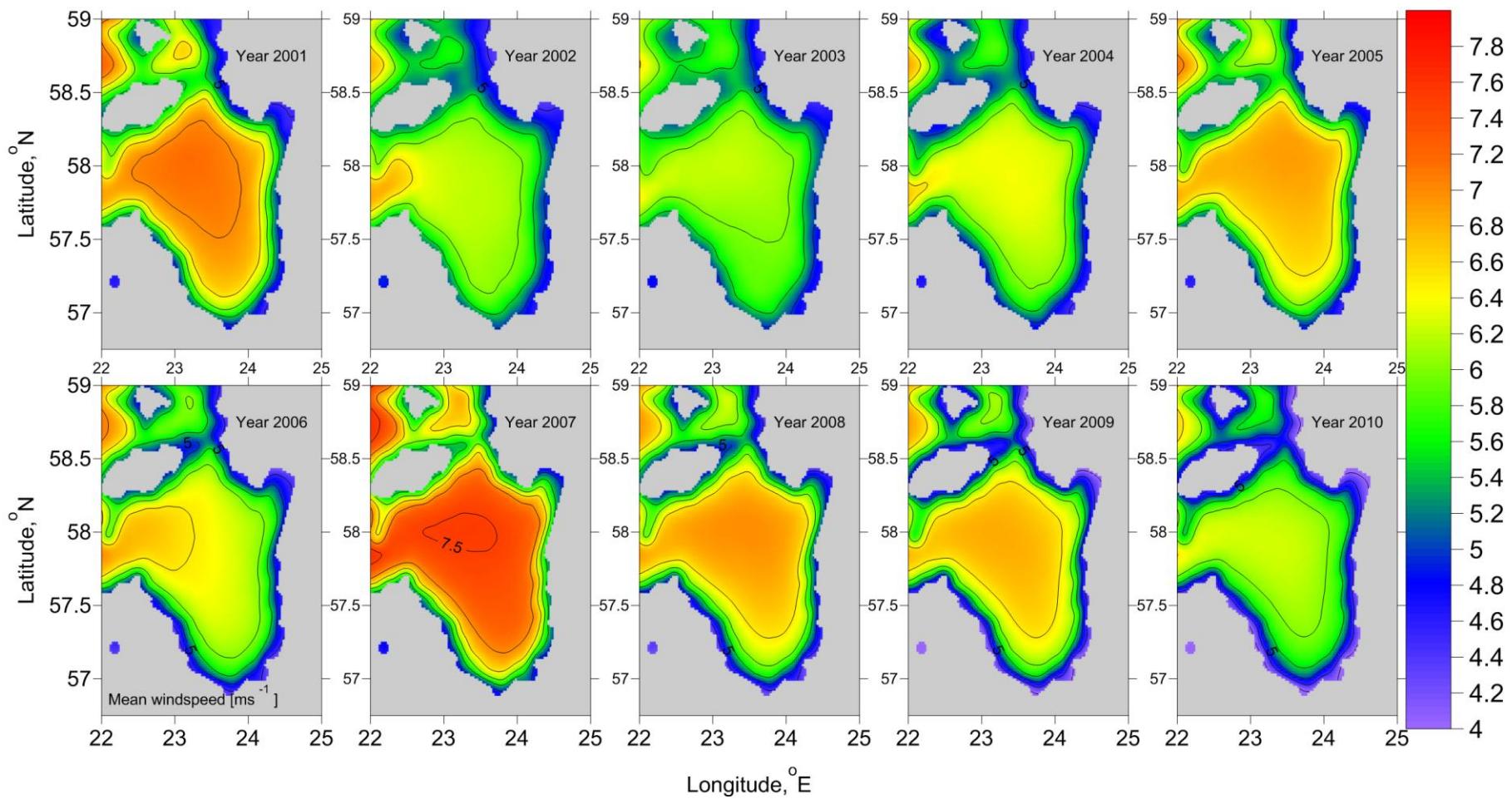
Annual maximum air temperature



Annual mean air temperature

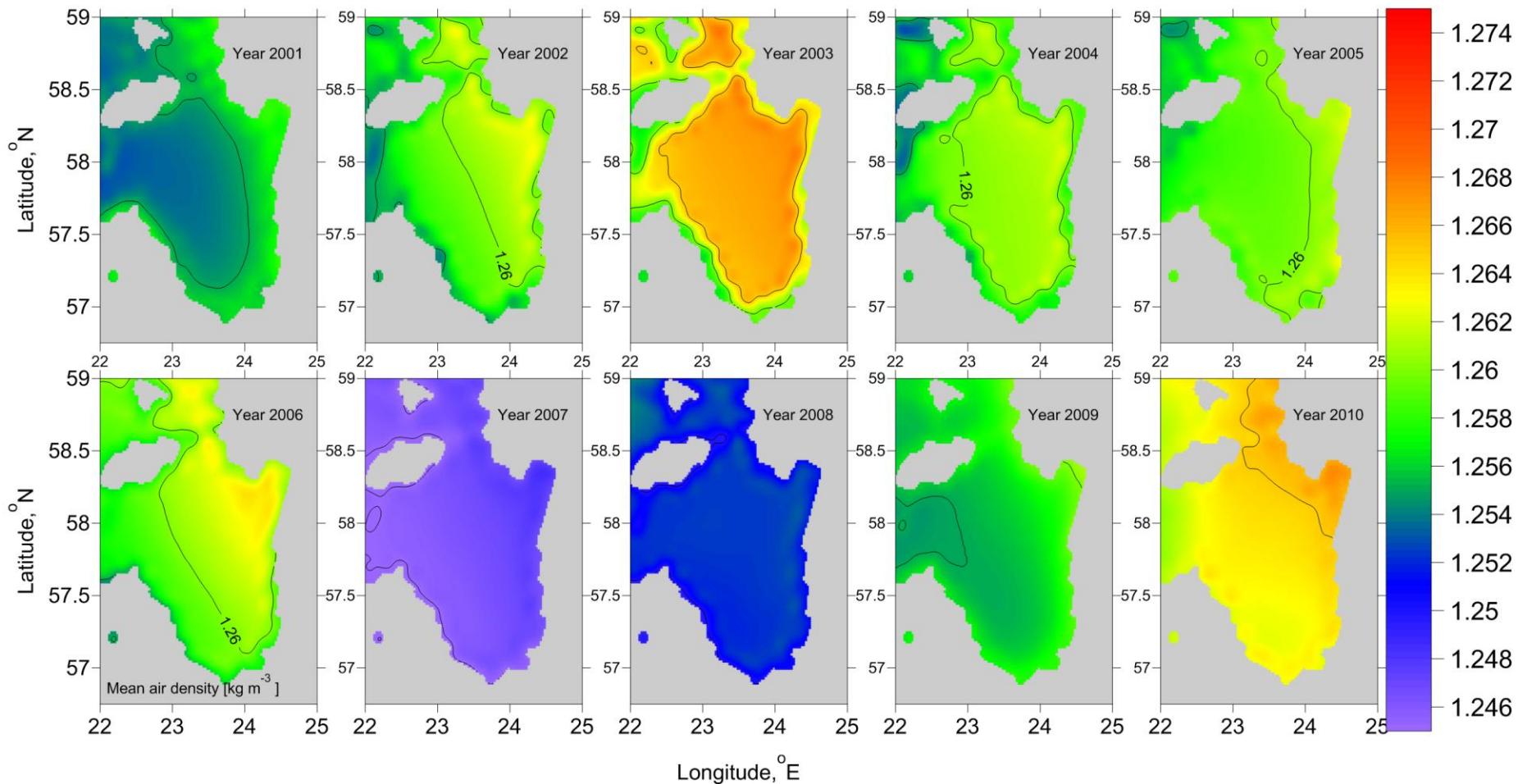


Annual mean wind speed



Annual mean air density

$$\rho_{air} = \frac{P_d}{R_d \cdot T} + \frac{P_v}{R_v \cdot T}$$



Windspeed distributions

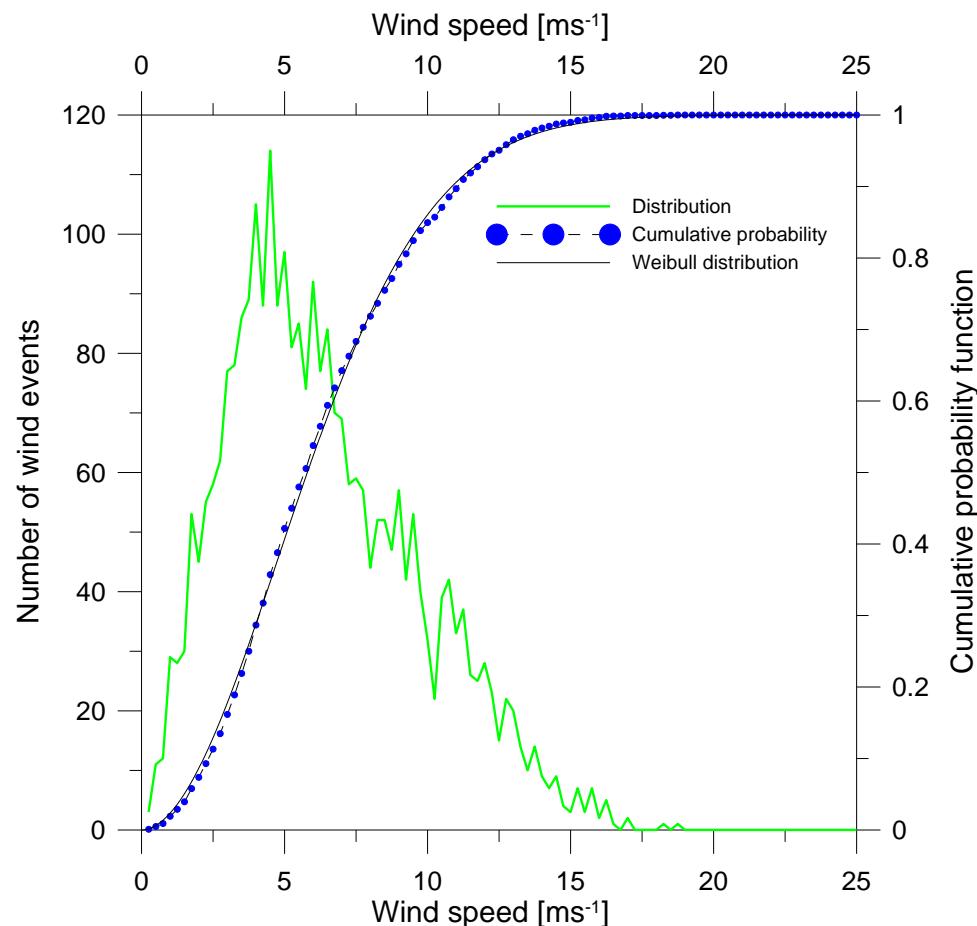
We estimated the annual probability distribution functions in each grid cell. For example in the point 23.5139 and 57.8247 in 2010:

Weibull distribution:

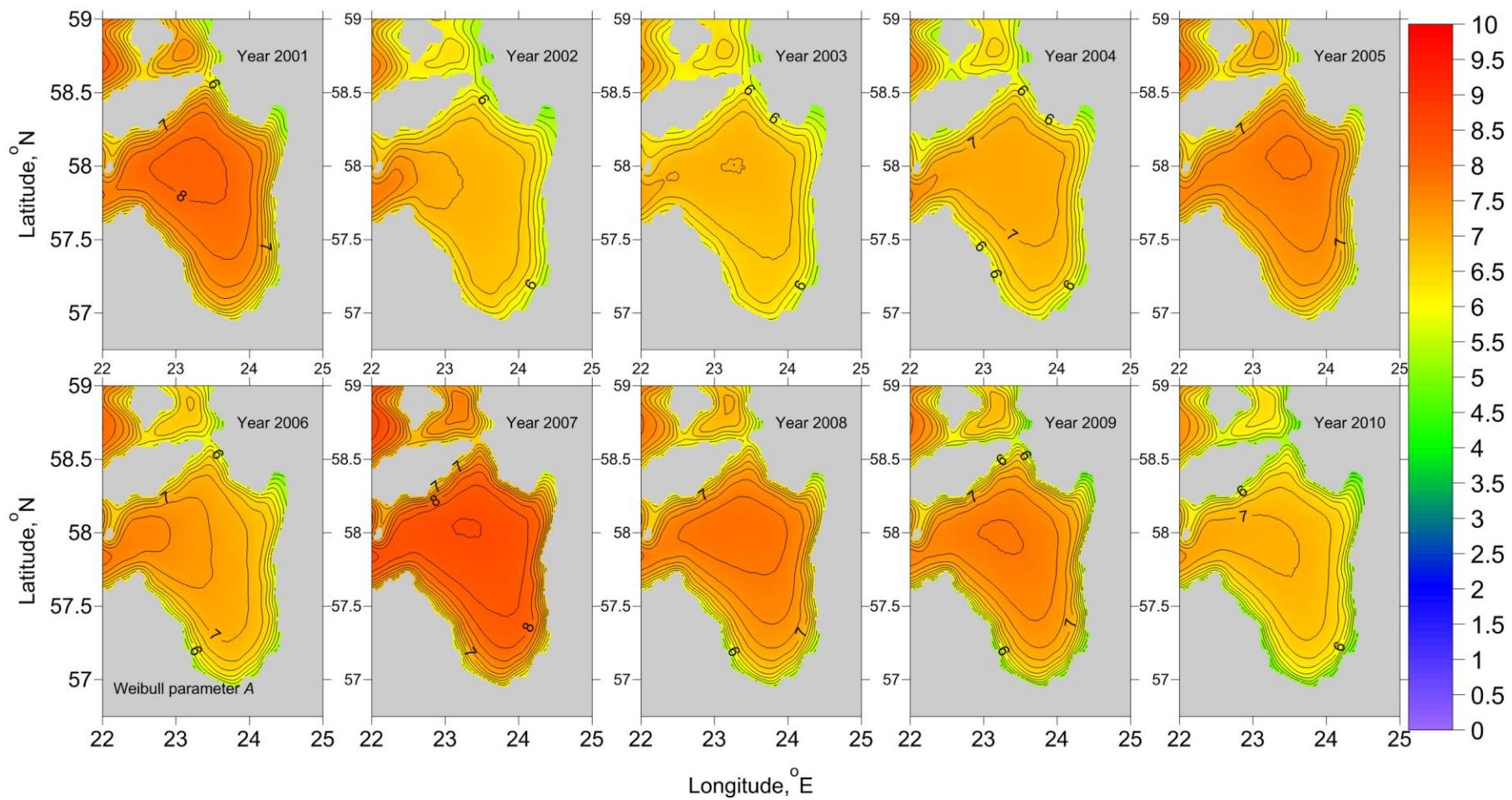
$$f(x) = 1 - \exp(-(x-a)^b)$$

Weibull $a = 7.0194$

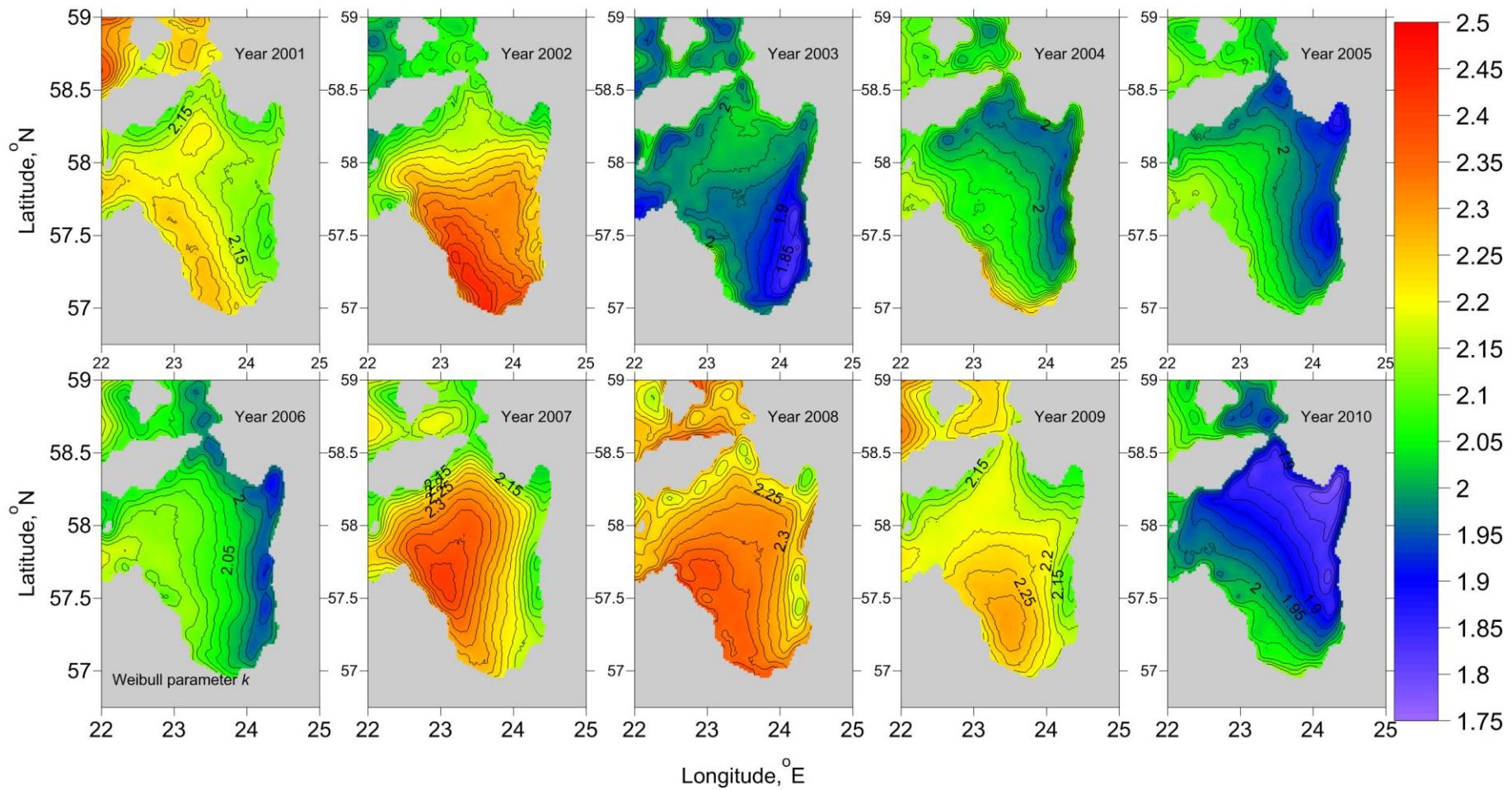
Weibull $b = 1.9157$



Annual Weibull a



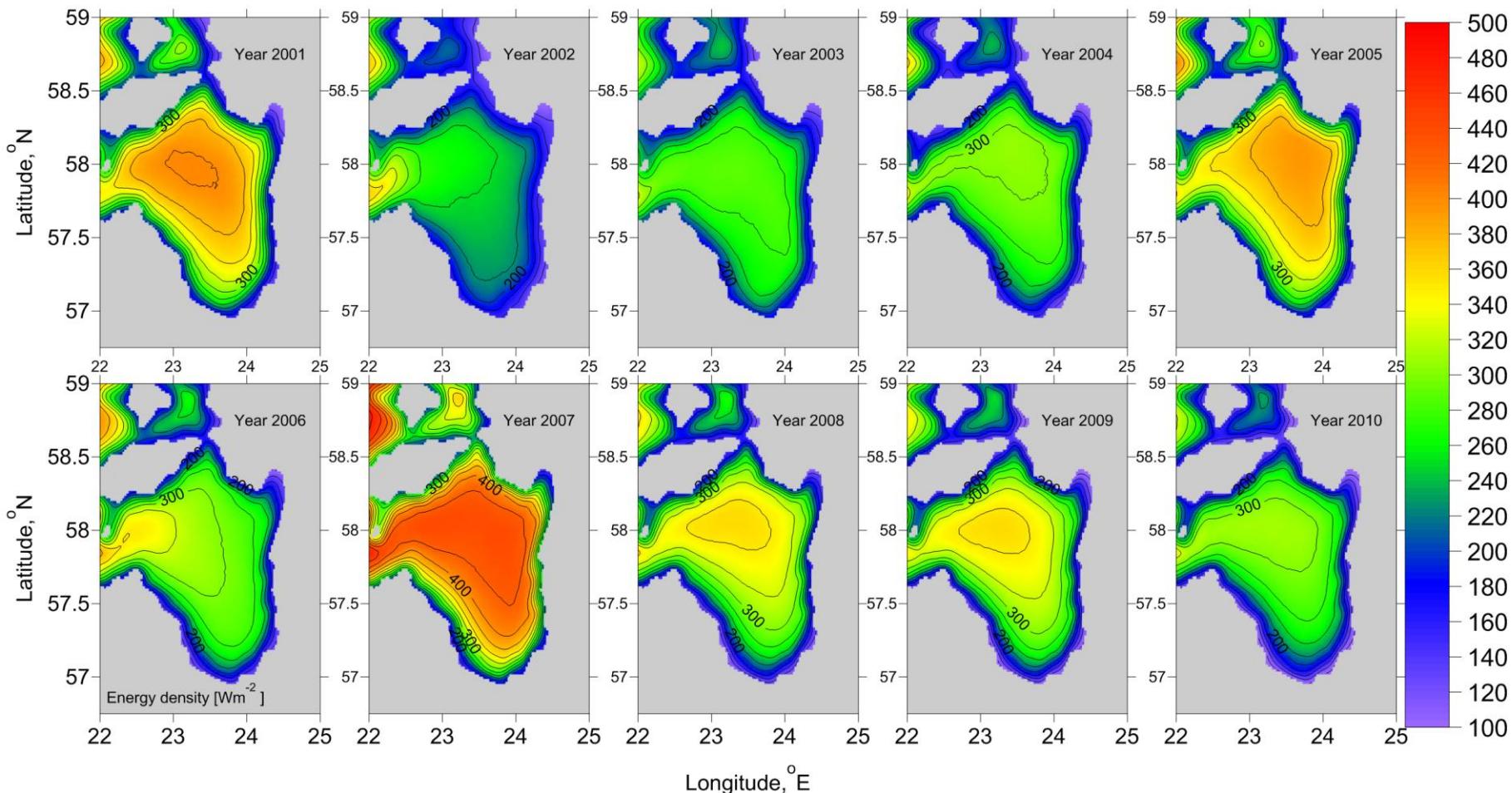
Annual Weibull b



Annual mean energy density

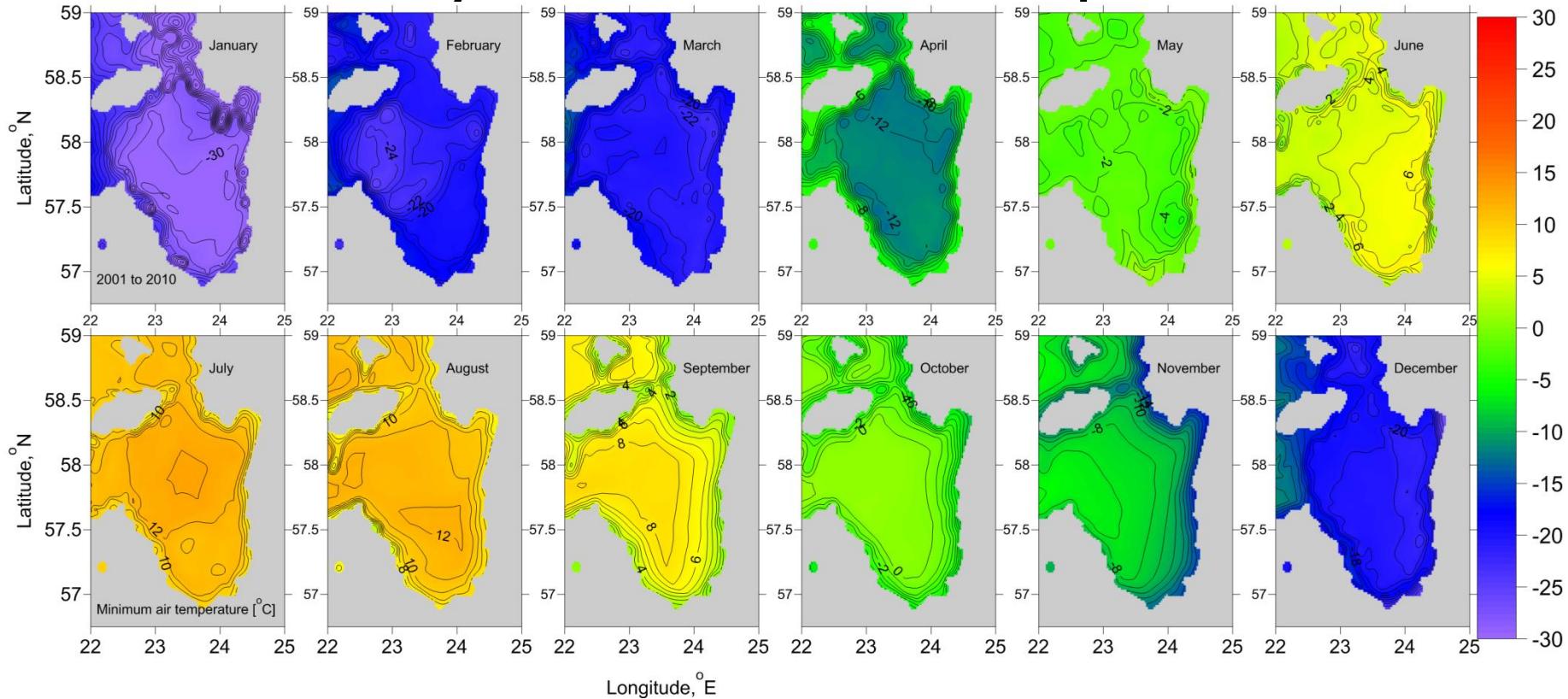
$$E = \frac{\bar{\rho}_{air} \cdot a^3 \cdot \Gamma\left(1 + \frac{3}{b}\right)}{2}$$

Hasager et al 2011 "Remote Sensing"

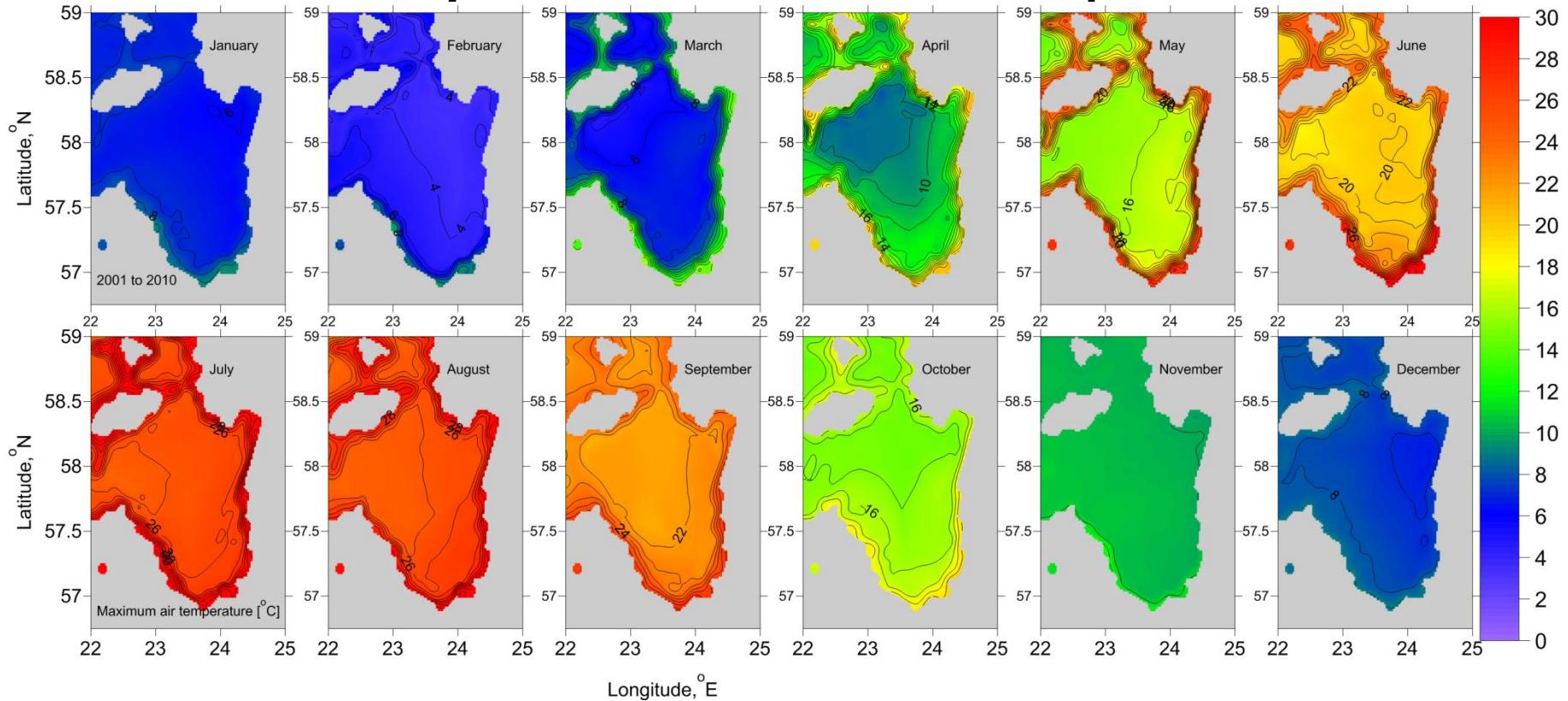


Monthly mean 2001-2010

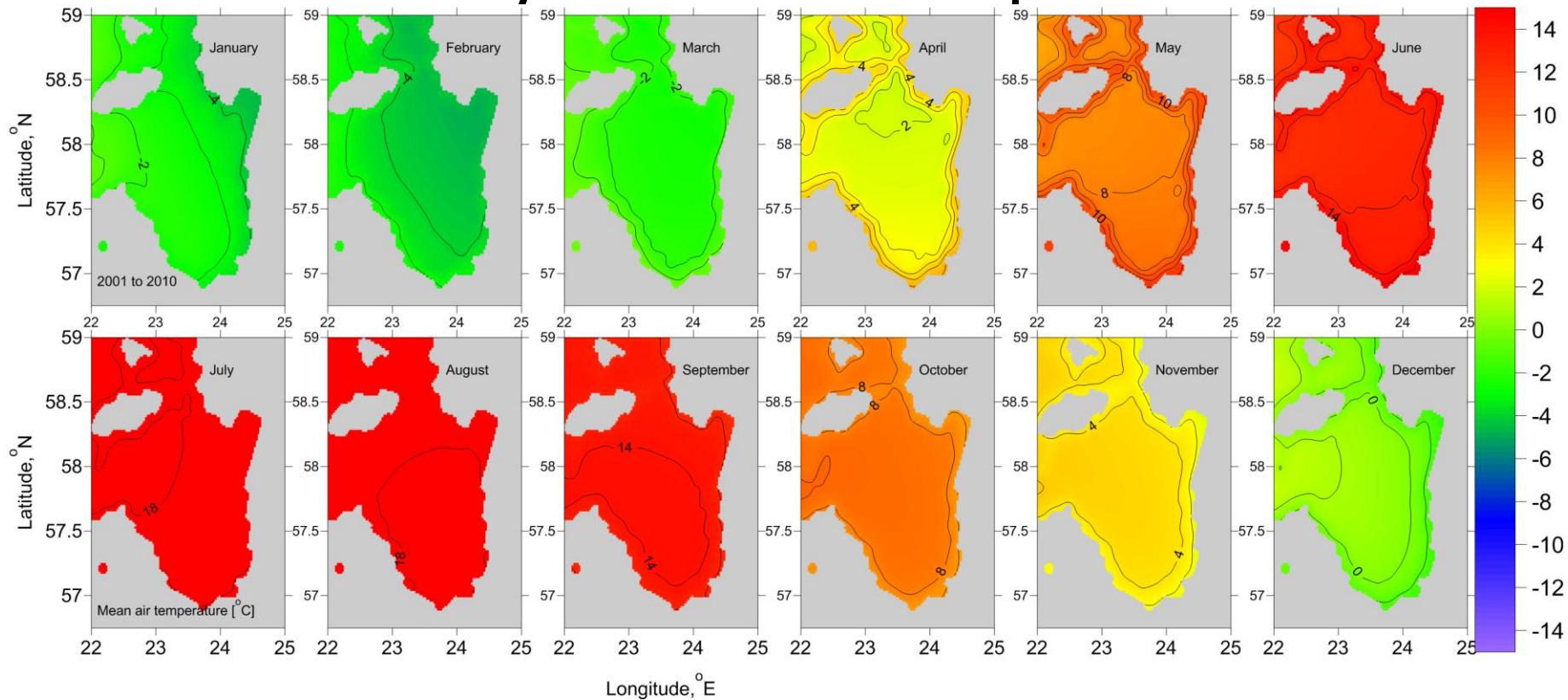
Monthly minimum air temperature



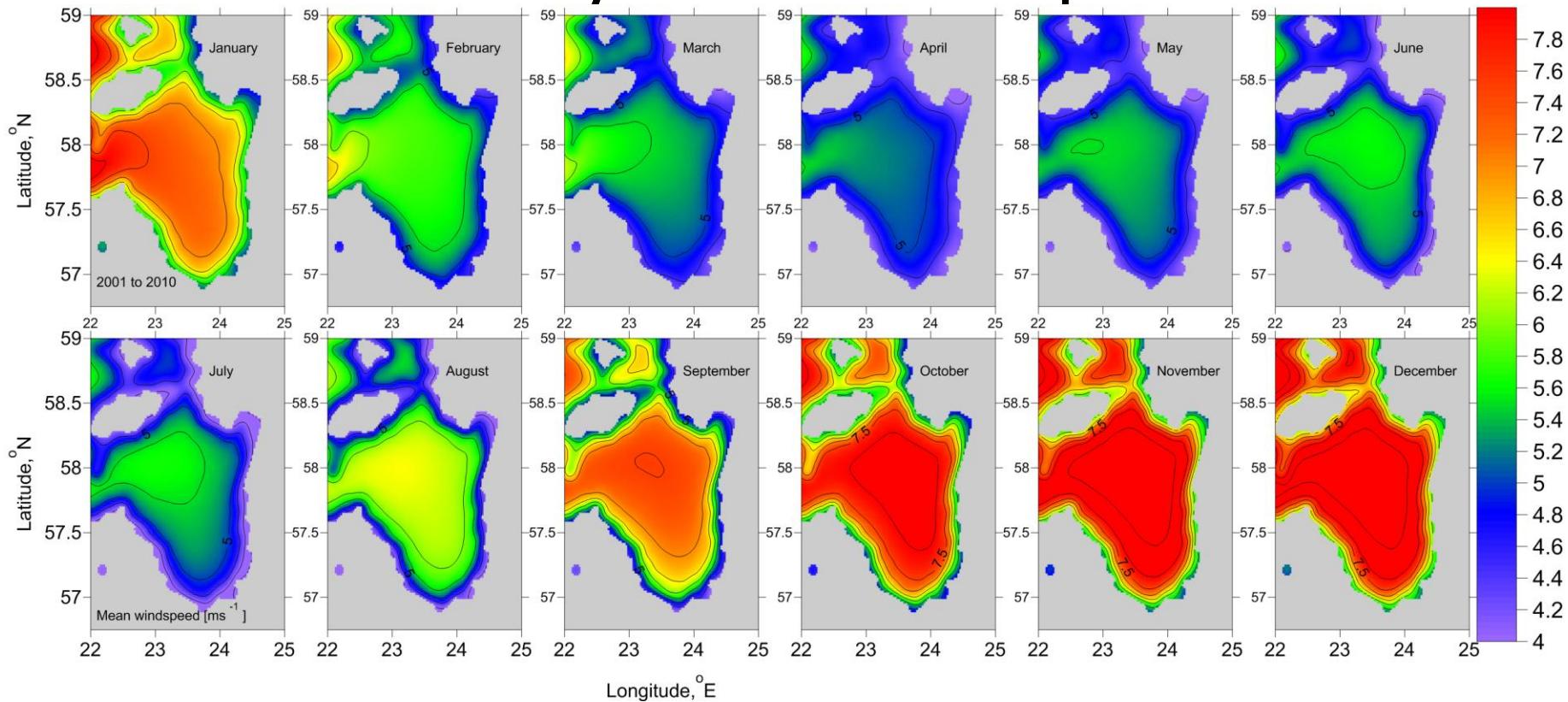
Monthly maximum air temperature



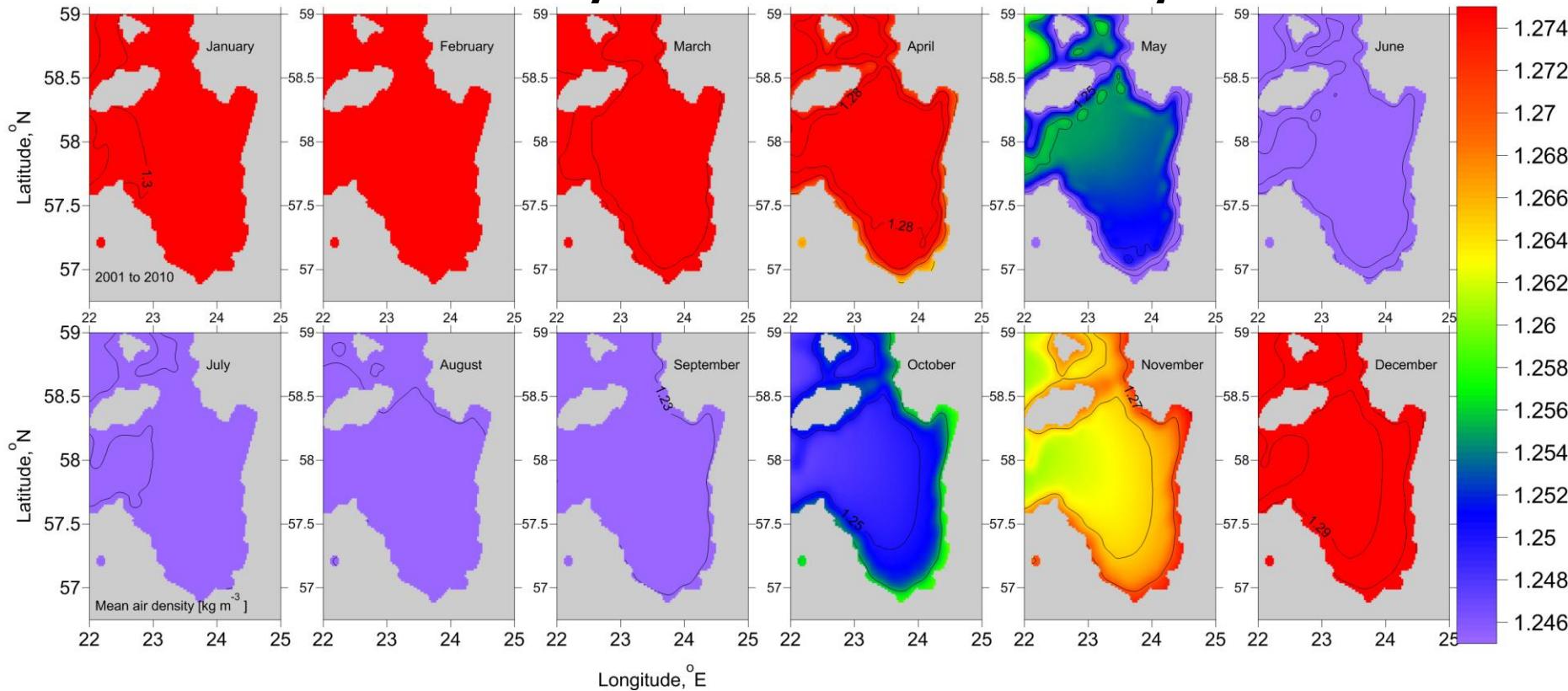
Monthly mean air temperature



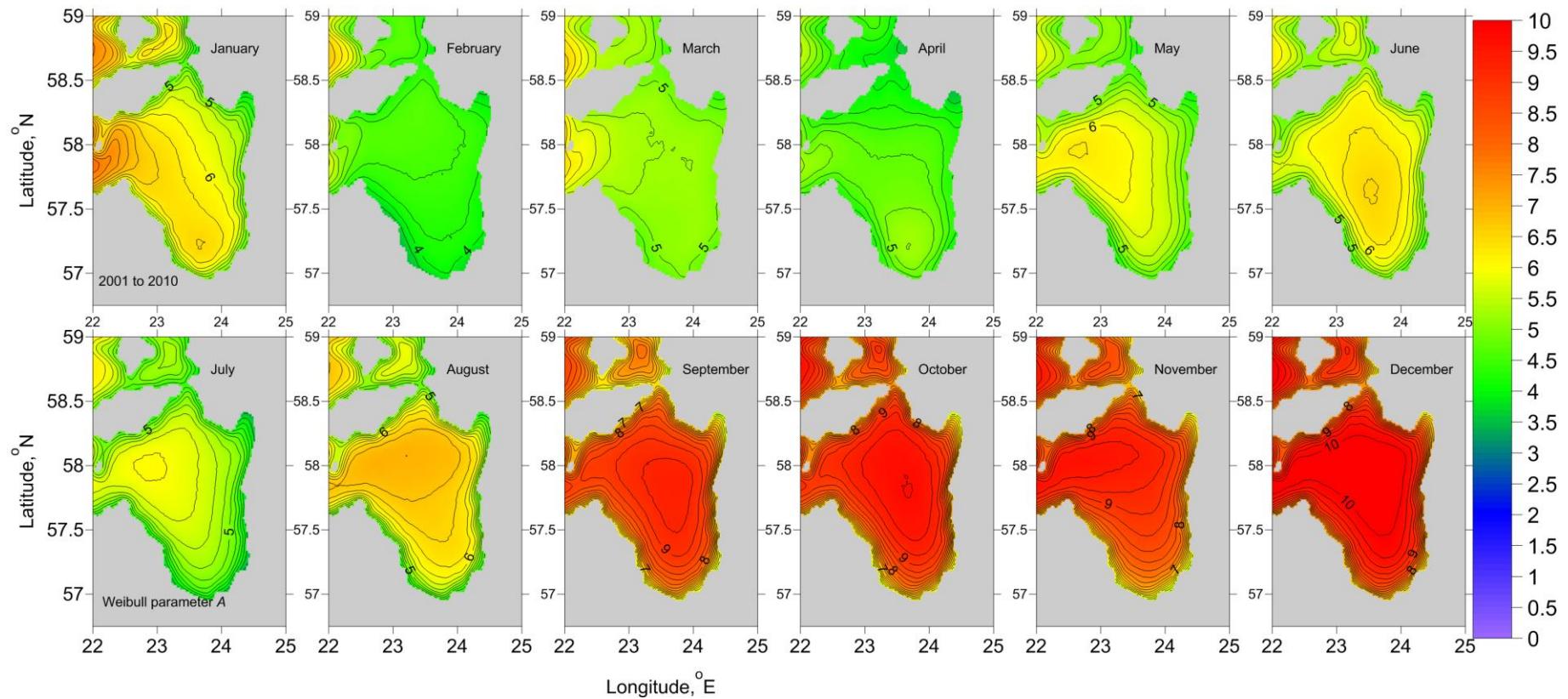
Monthly mean wind speed



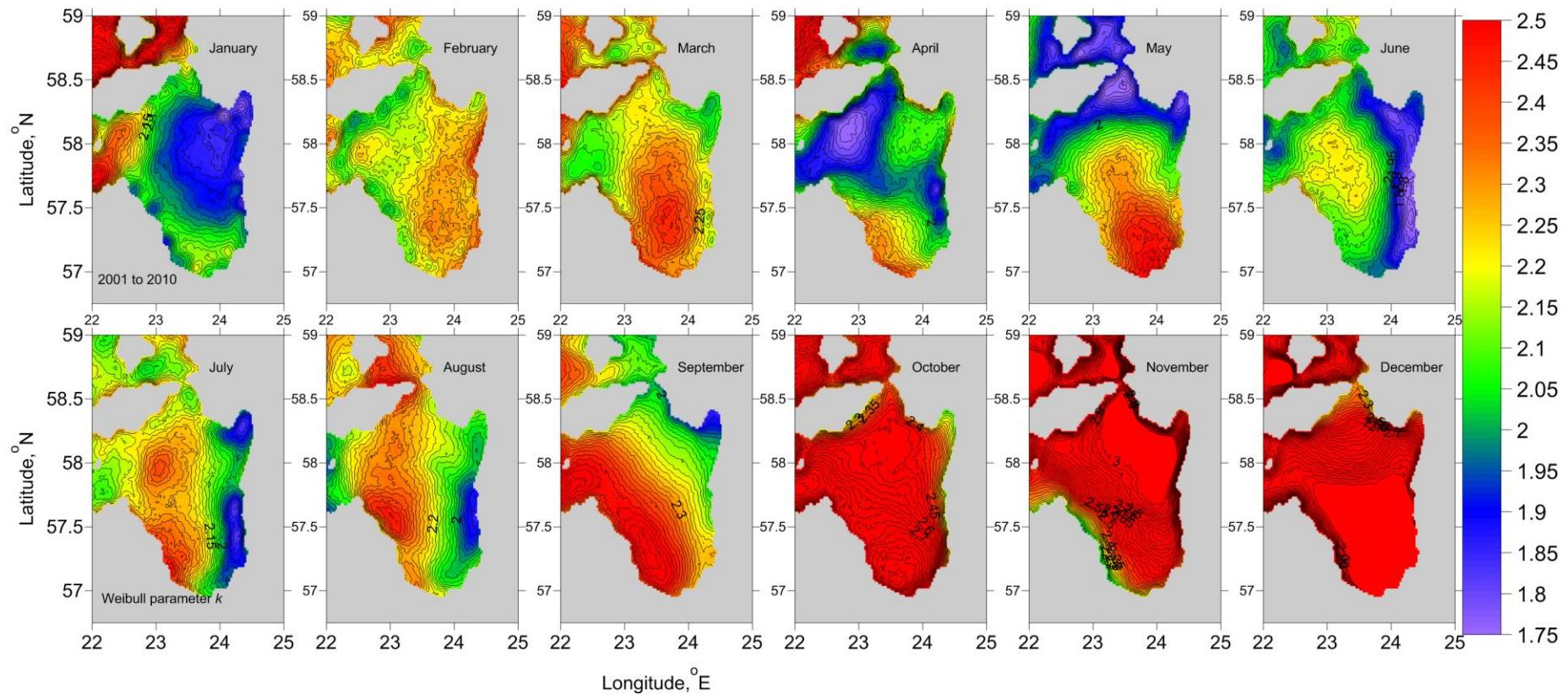
Monthly mean air density



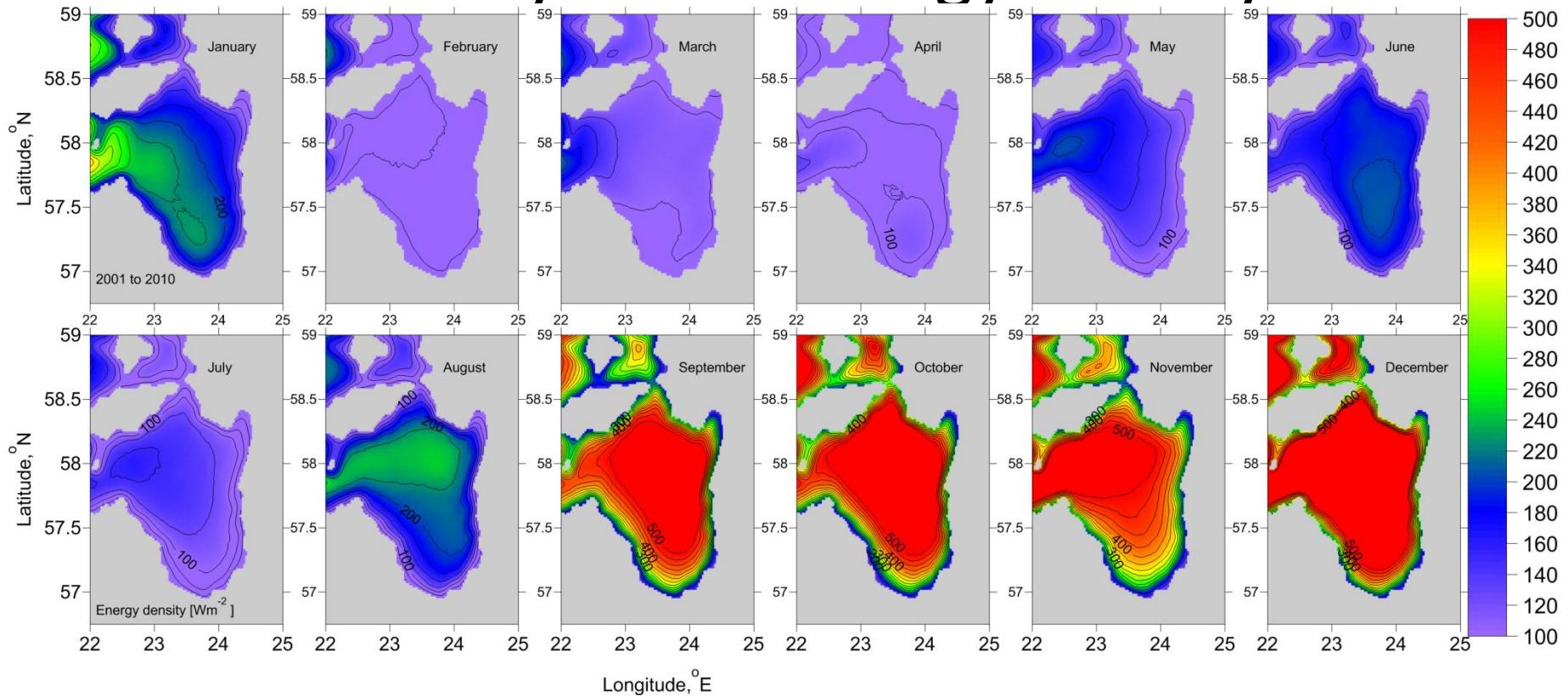
Monthly Weibull a



Monthly Weibull b

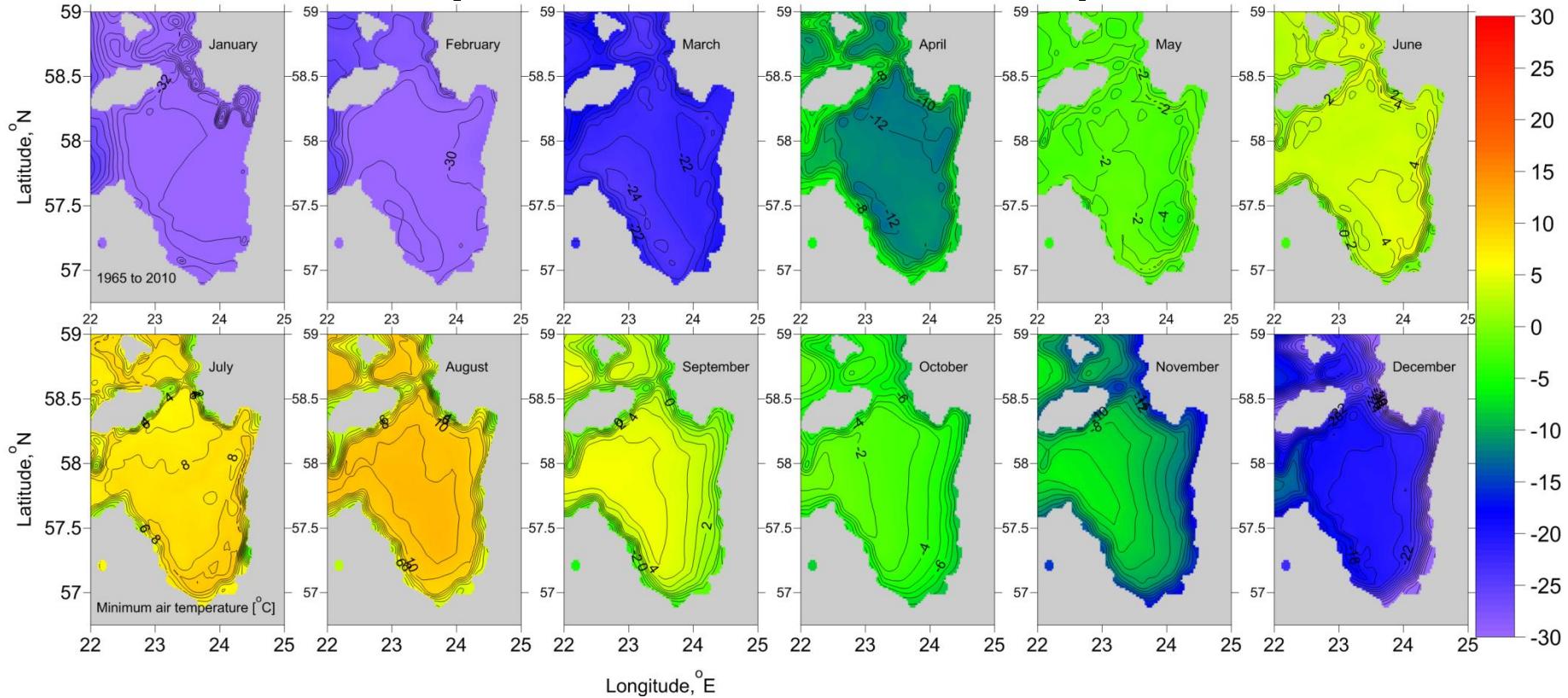


Monthly mean energy density

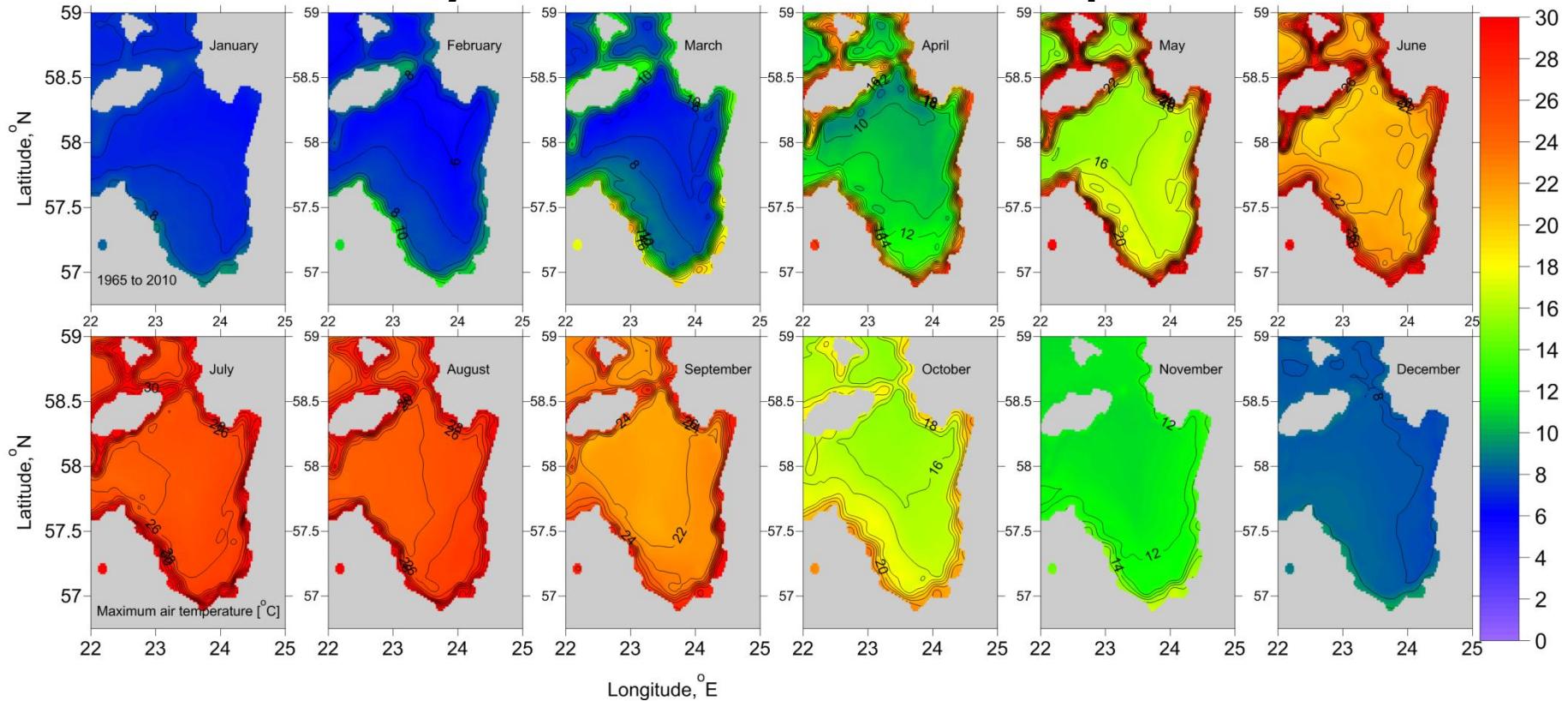


Monthly mean 1965- 2010

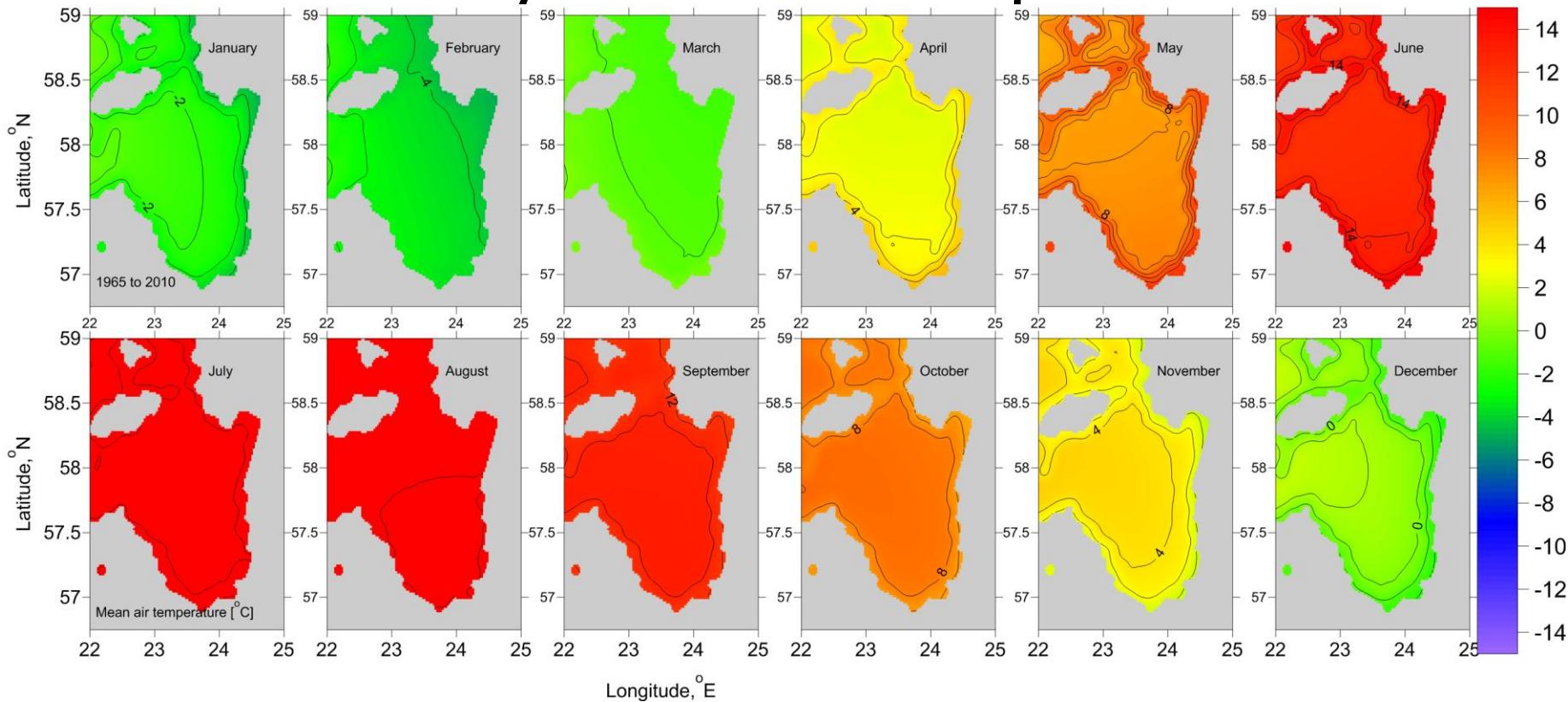
Monthly minimum air temperature



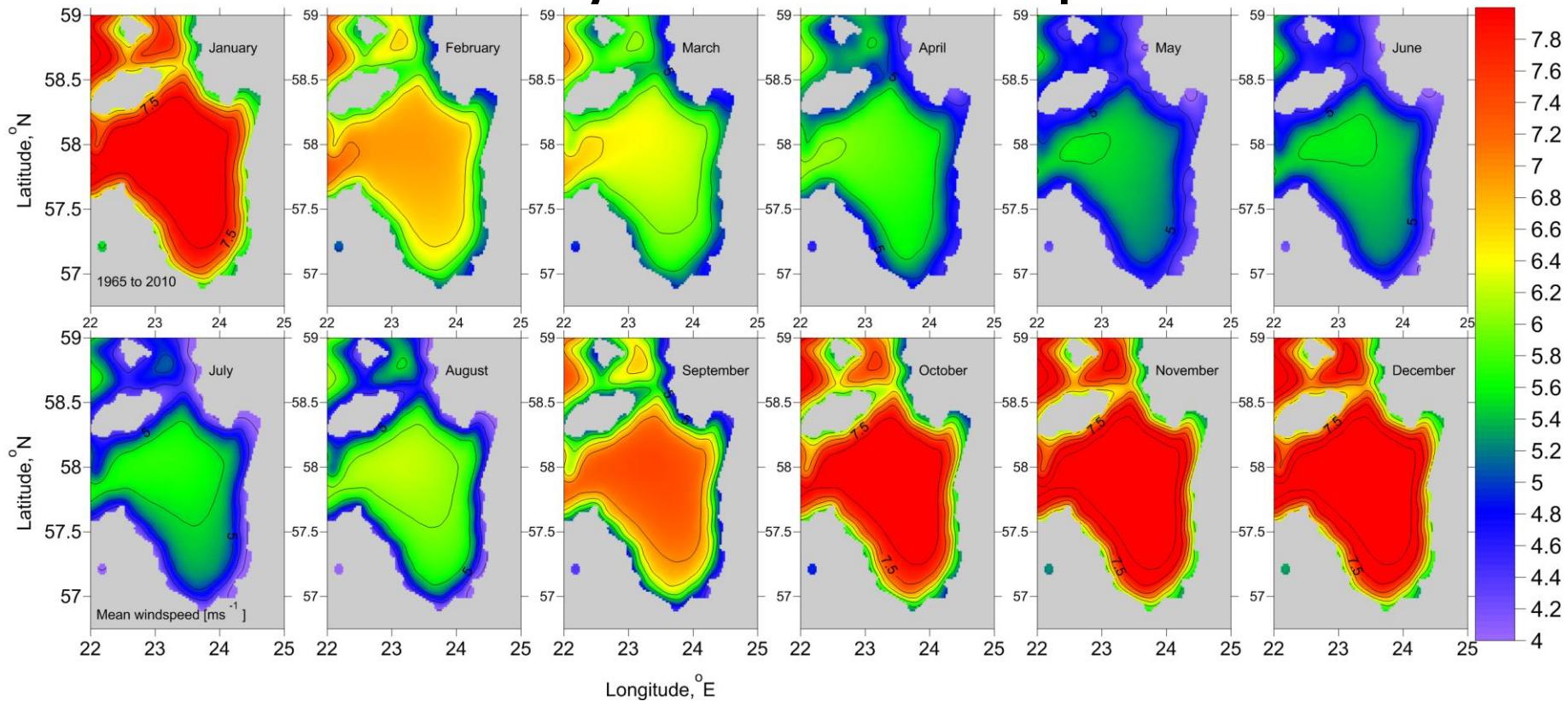
Monthly maximum air temperature



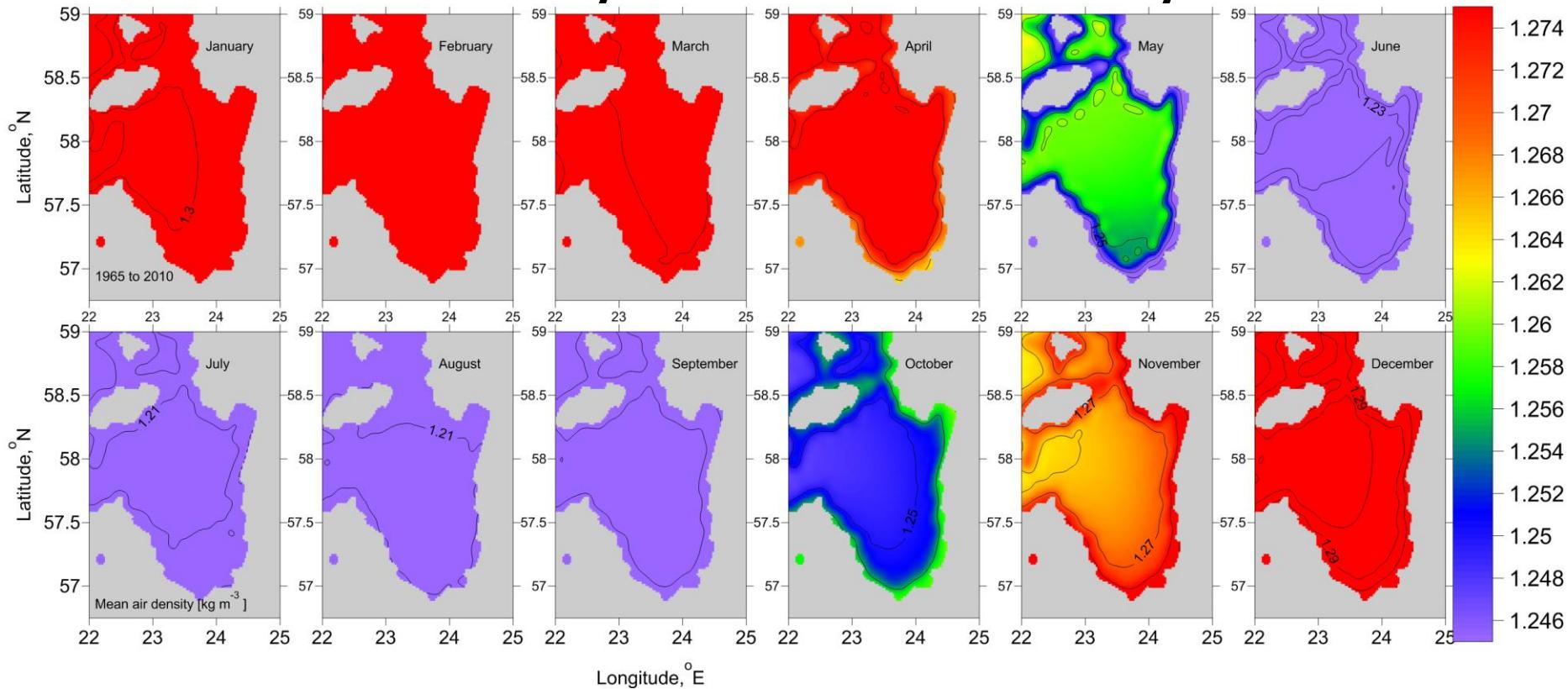
Monthly mean air temperature



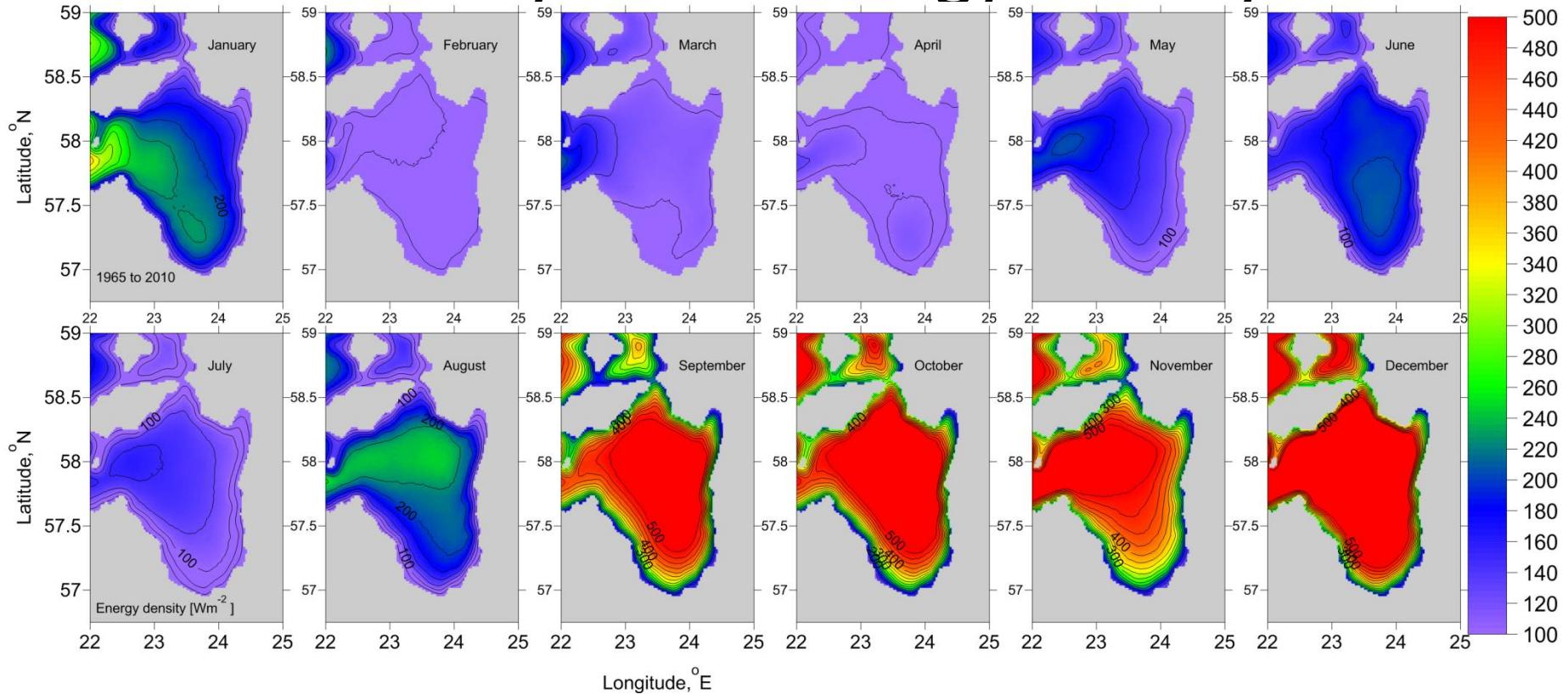
Monthly mean wind speed



Monthly mean air density



Monthly mean energy density



To do

- 30 m wind
- 100 m wind