

Atmospheric conditions in the region of the Vistula Lagoon of the Baltic Sea

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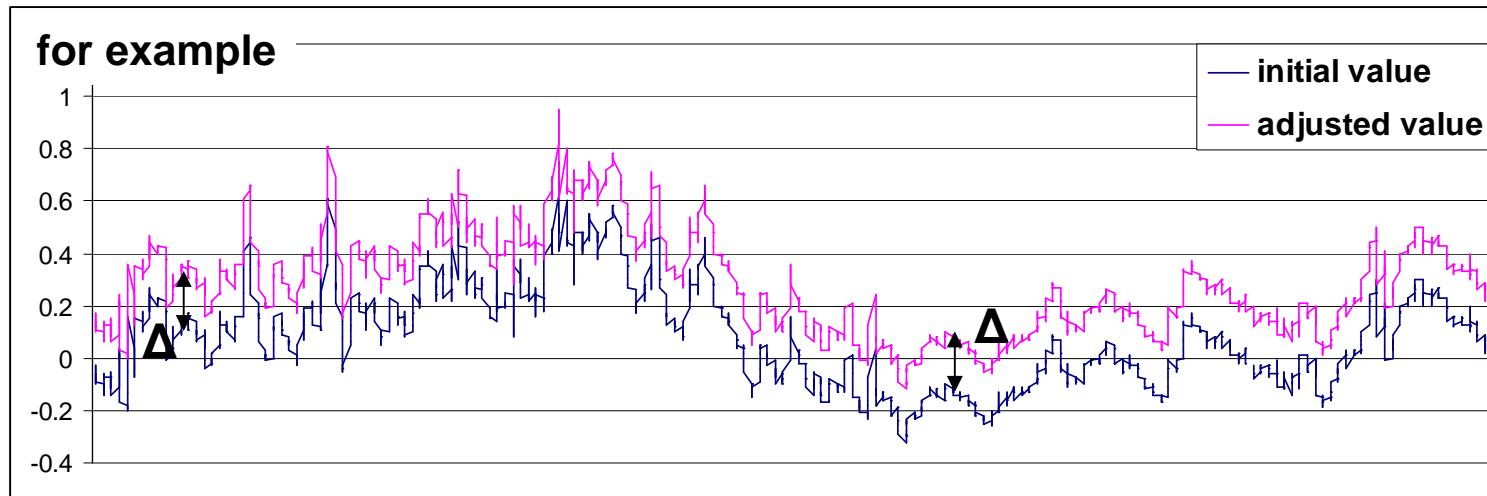
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There are typical initial conditions (in **1998-2000**) for modelling (air temperature, precipitation, etc.) for Vistula Lagoon. (*the result of work from previous project*).

The model MIKE 21 was used to investigate temporal variability of hydrophysical parameters (temperature, salinity), using the typical initial conditions in **1998 - 2000** for Vistula Lagoon.

Prospects:

- to estimate the change of typical air temperature, precipitation, etc. - on basis of the forecast from **RCAO-hadcm3ref-a1b-25km** (in 1957-2099);
- to set up new initial conditions for modelling (air temperature, precipitation, cloudiness, pressure, humidity, wind), using the forecast from **RCAO-hadcm3ref-a1b-25km** (in 1957-2099); for that correct the typical initial conditions on Δ (to increase or to decrease);



- to compare of simulated results (temperature, salinity) **at the close of the XXI century** with results in **1998-2000** for Vistula Lagoon.

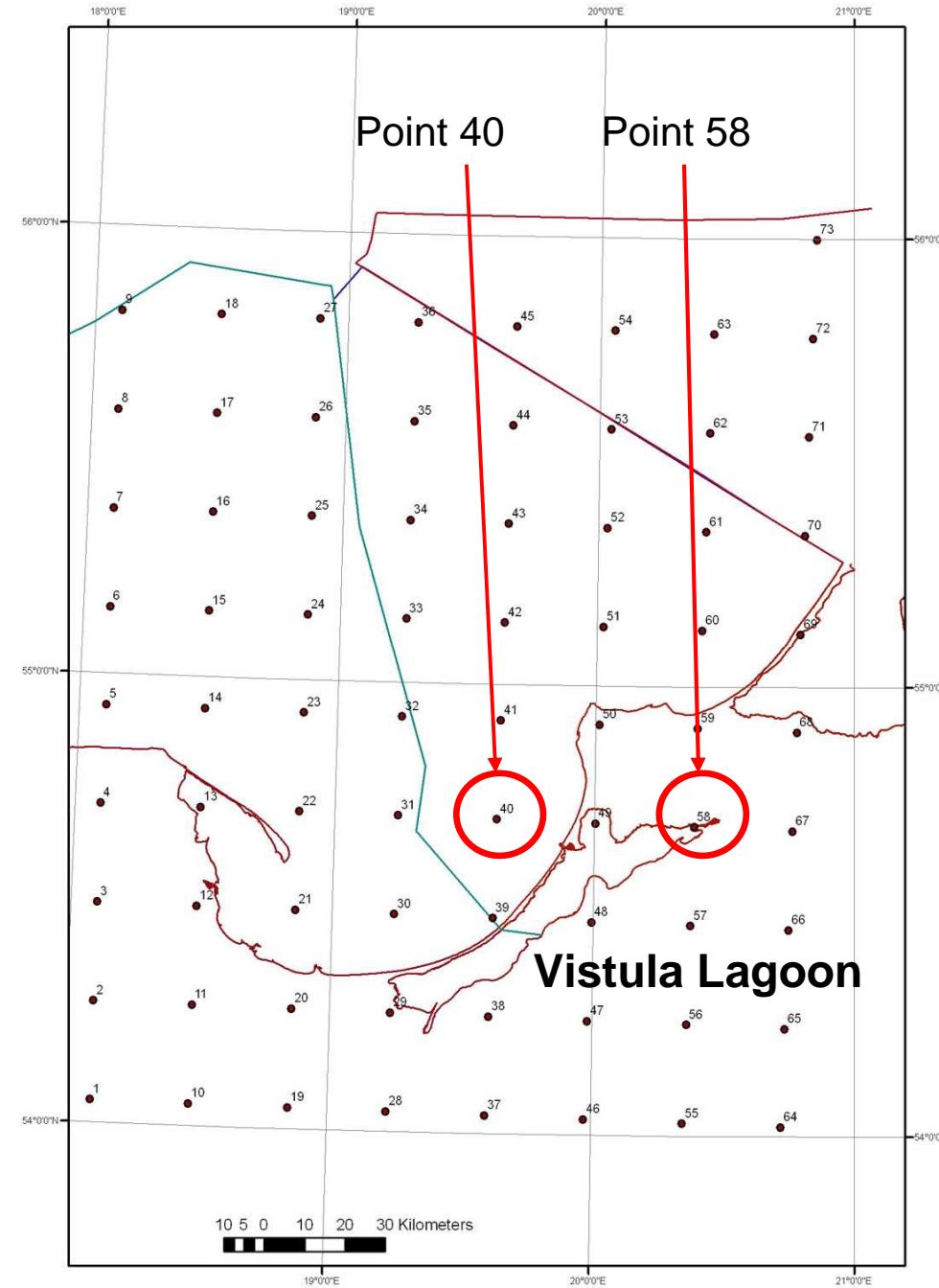
Region of the investigation

Analysis of data obtained from
RCAO-hadcm3ref-a1b-25km
([ftp.smhi.se](ftp://smhi.se)) was carried out for two points: point 40 and 58.

Point 40 is located off the sea, point 58 is located overland – close to Vistula Lagoon.

Data obtained from **RCAO-hadcm3ref-a1b-25km**

- 1: station number
- 2: name
- 3: lat
- 4: lon
- 5: year
- 6: month
- 7: day
- 8: hour
- 9: u10 [m/s]
- 10: v10 [m/s]
- 11: Temp [°C]
- 12: Relative humidity [fraction, i.e. 0-1]
- 13: Specific humidity [kg/kg]
- 14: Total cloudcover [fraction, i.e. 0-1]
- 15: Pressure [Pa]
- 16: Total precipitation (accumulated over the last 3 hours) [kg/m² = mm]



Analysis of data obtained from **RCAO-hadcm3ref-a1b-25km**
[ftp.smhi.se](ftp://ftp.smhi.se)

(point 40 and 58).

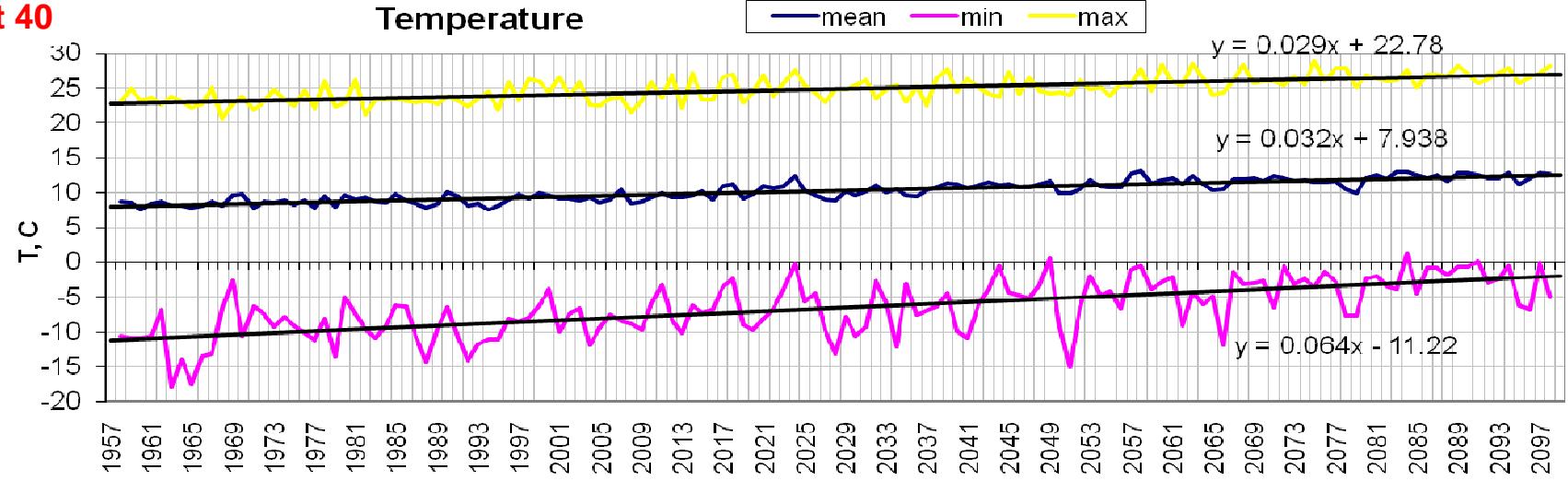
Period: 1957 – 2099.

mean-annual values:

- air temperature
- total precipitation
- pressure
- total cloudcover
- relative humidity

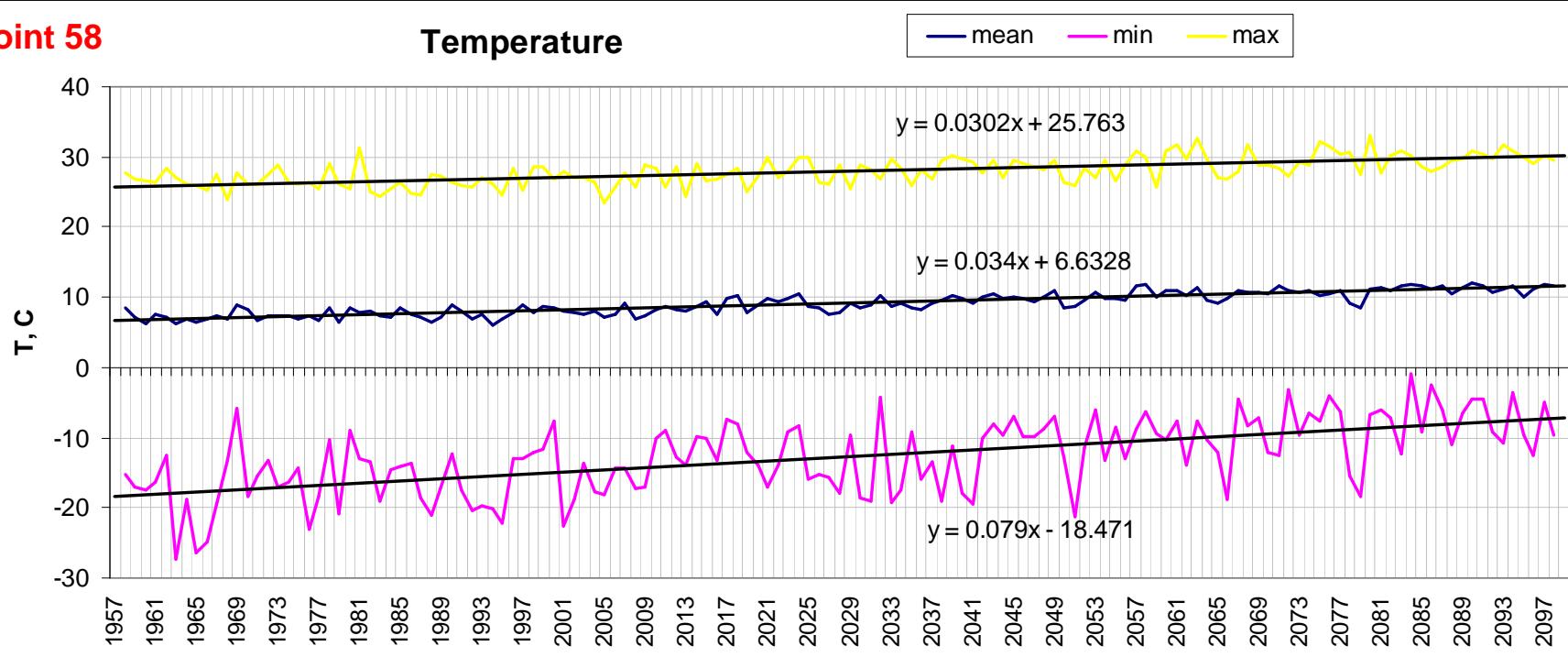
Point 40

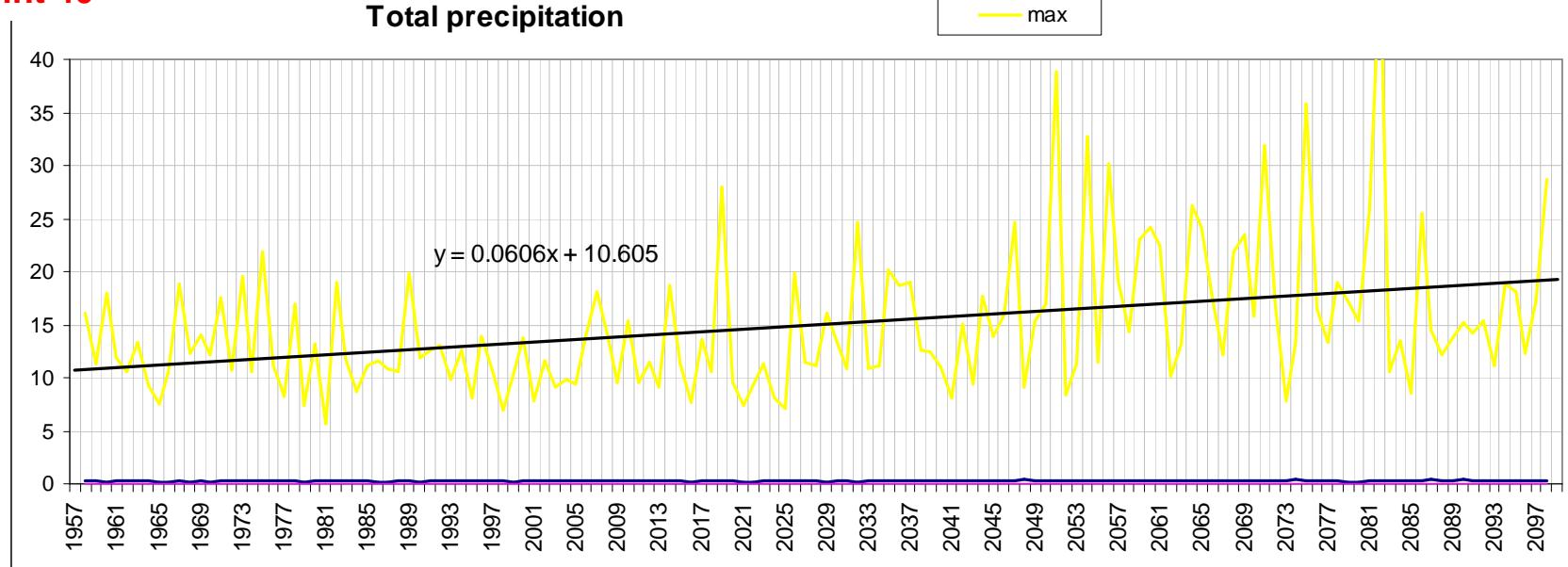
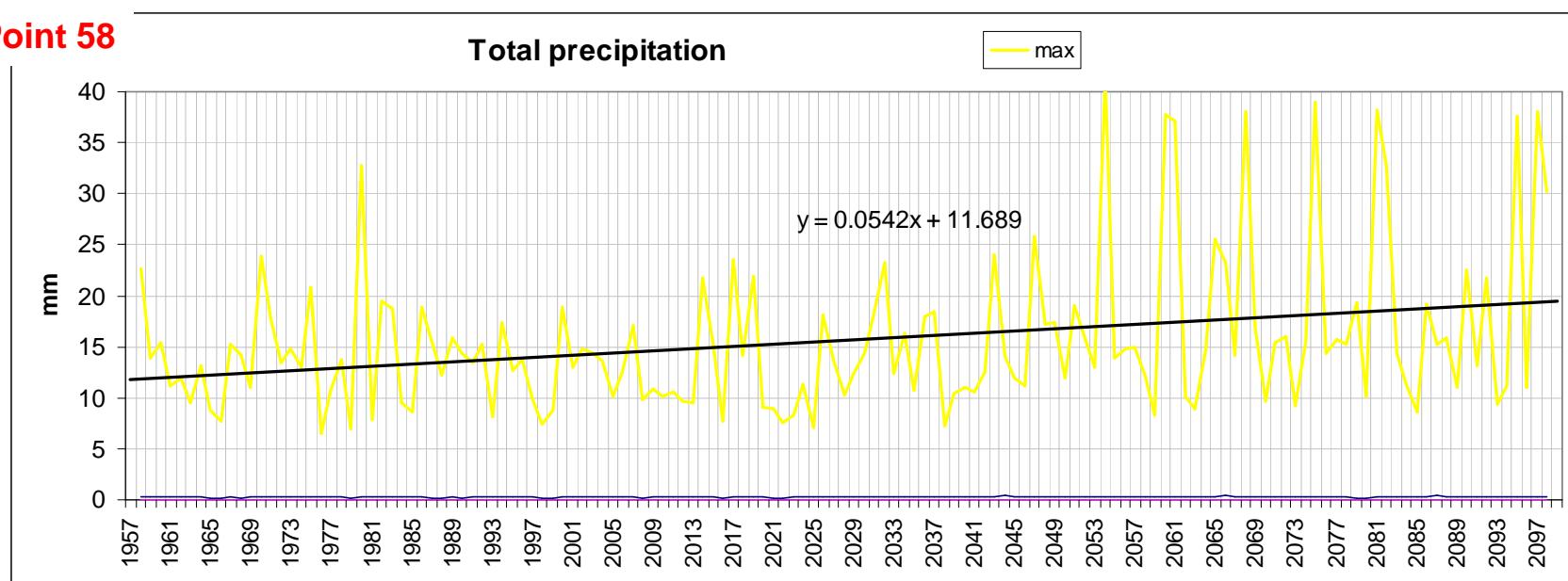
Temperature

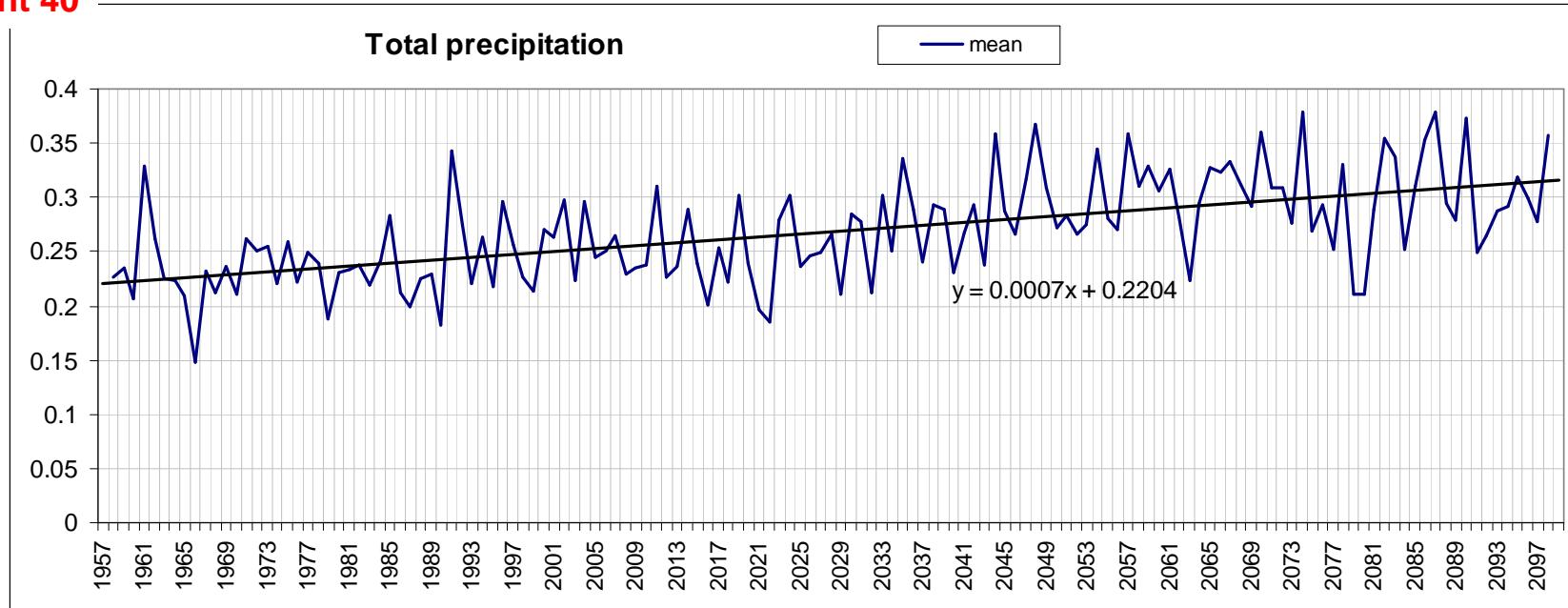
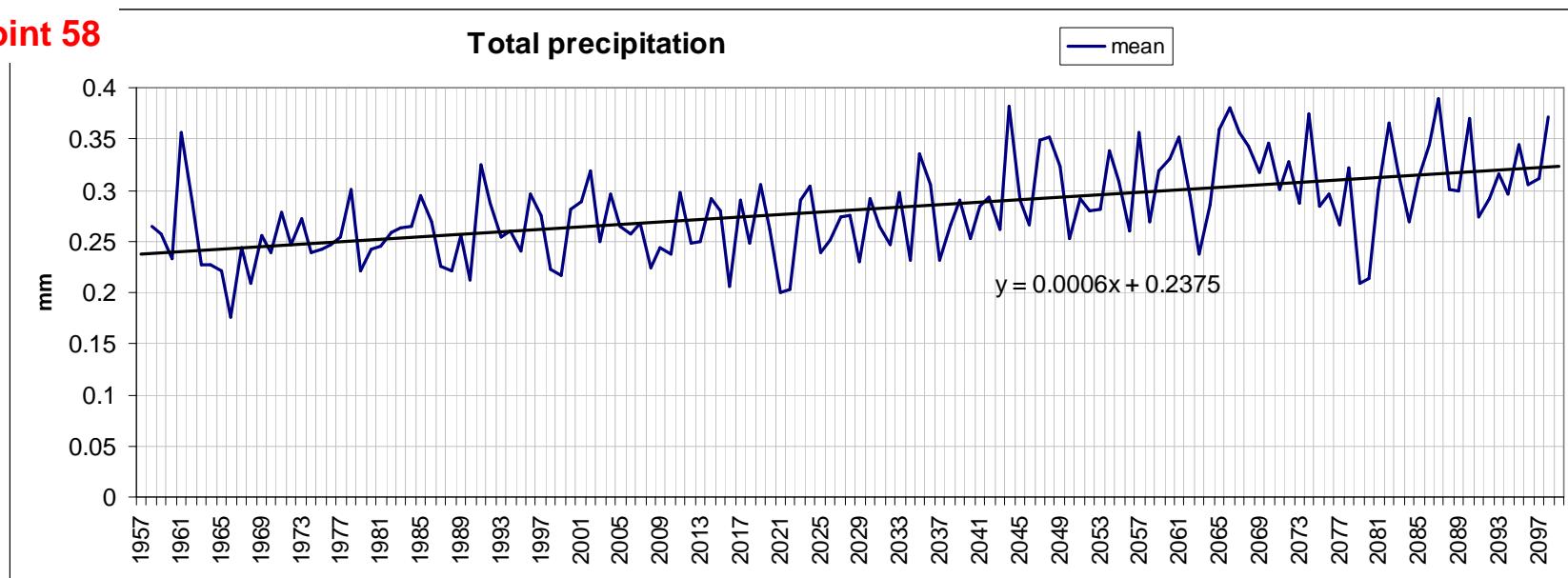


Point 58

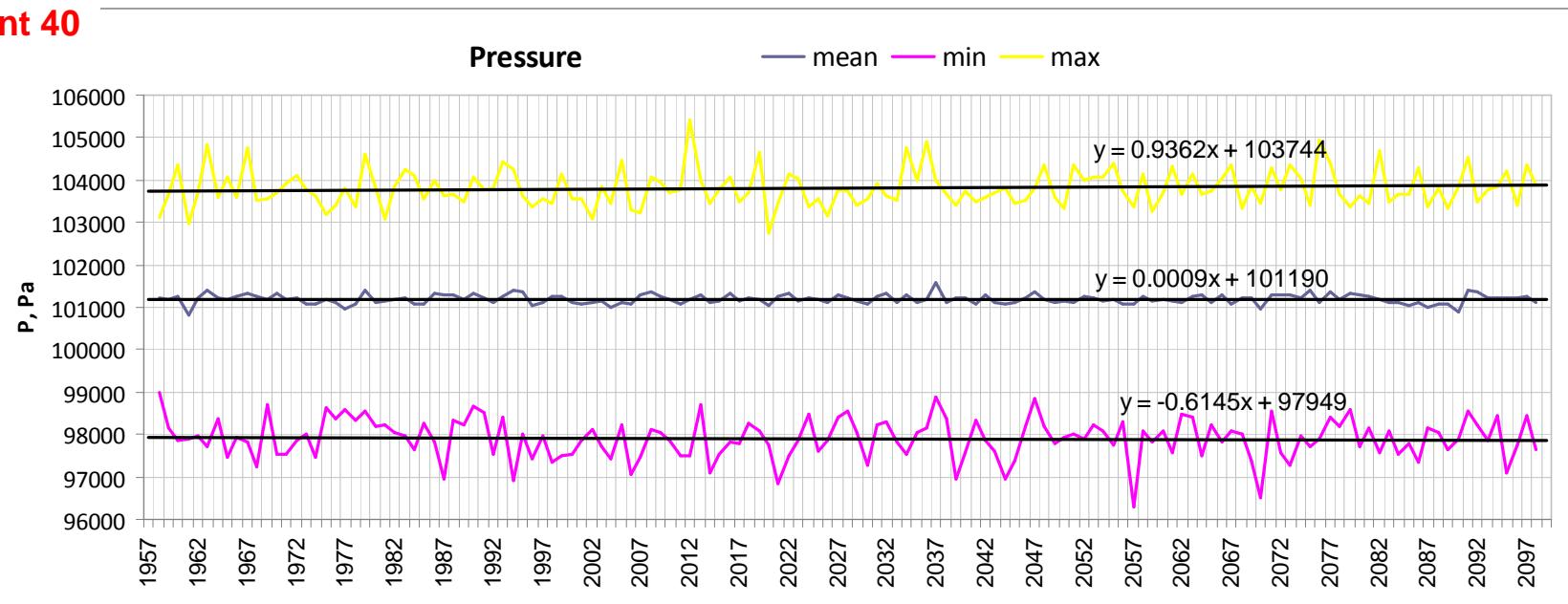
Temperature



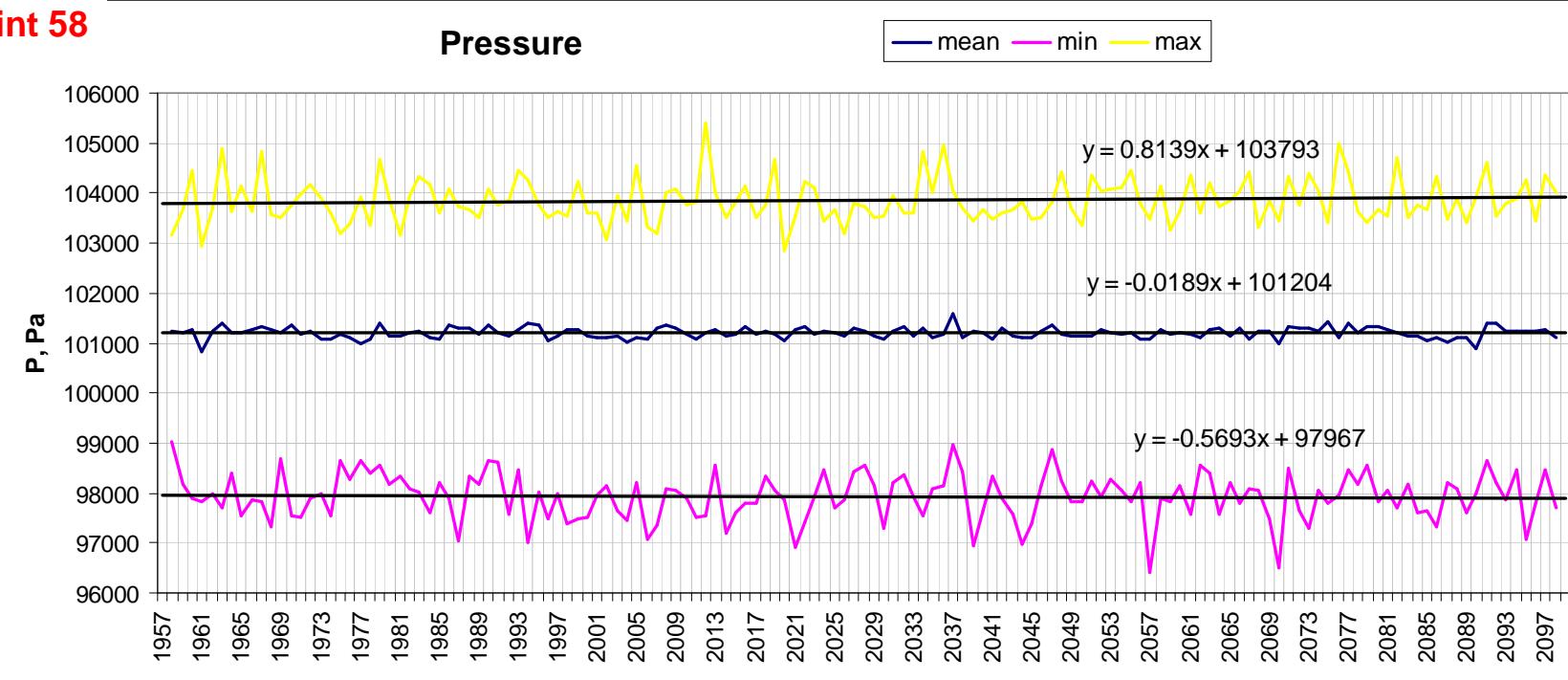
Point 40**Point 58**

Point 40**Point 58**

Point 40



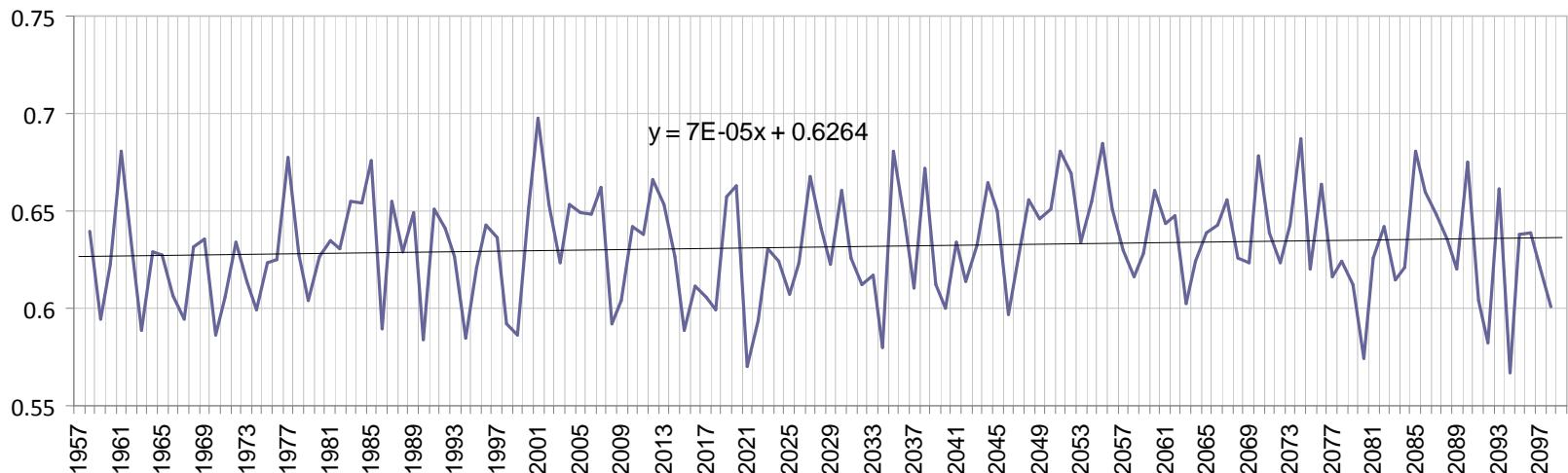
Point 58



Point 40

Total cloudcover

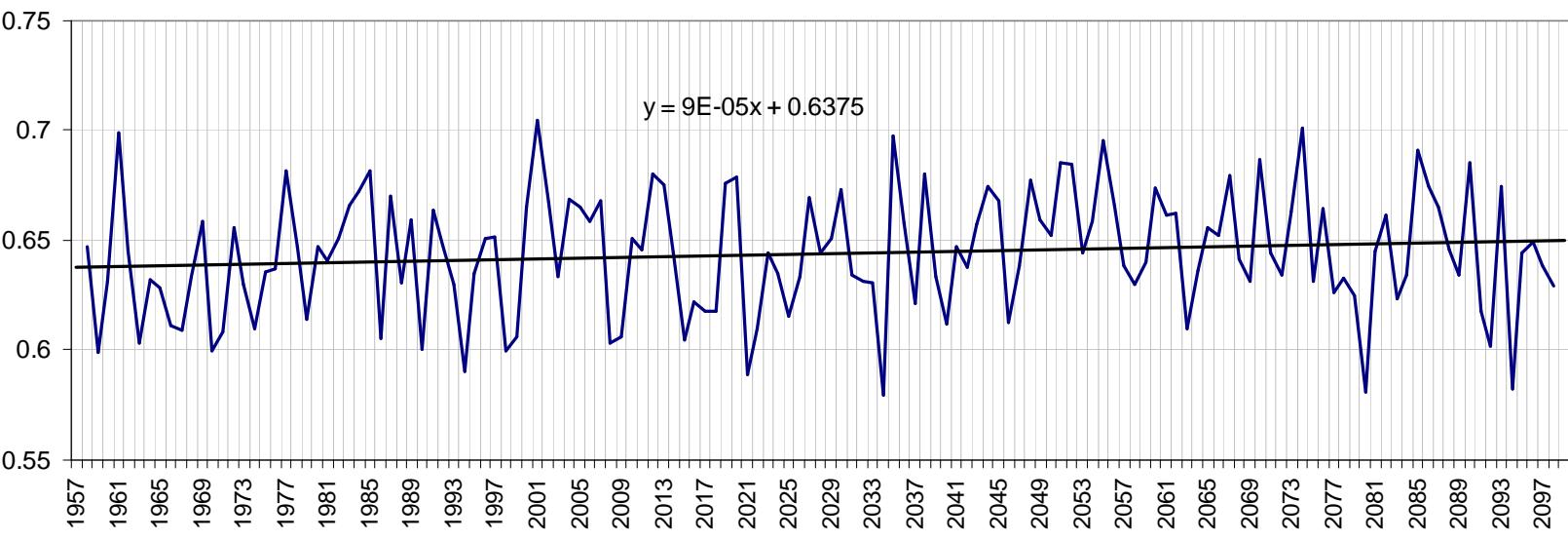
— mean



Point 58

Total cloudcover

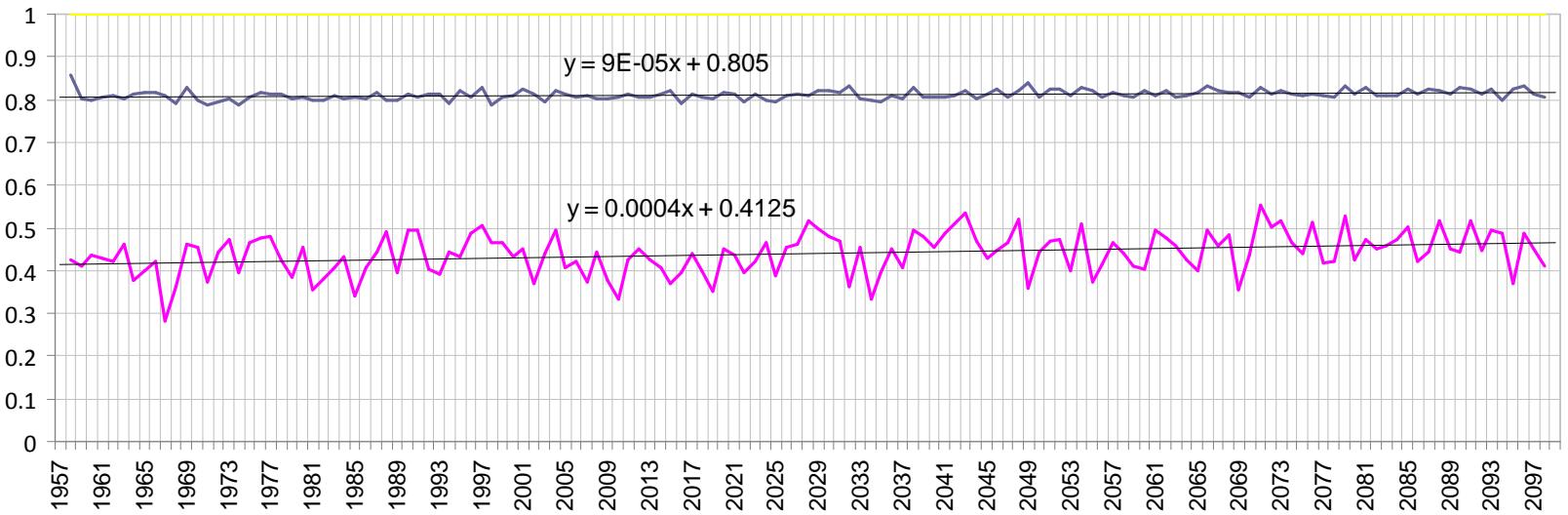
— mean



Point 40

Relative humidity

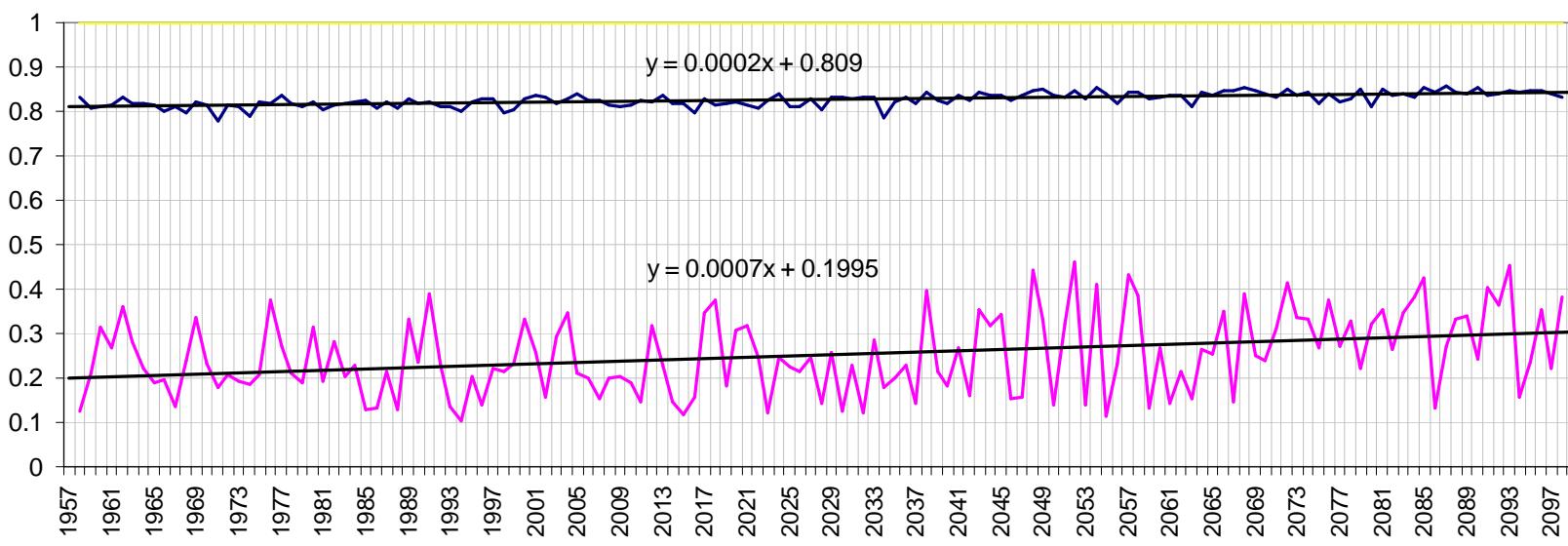
mean min max



Point 58

Relative humidity

mean min max



summary table

	Point 40	Point 58
	rate of change:	
Air temperature	mean – 0.032 °C/year (↑) min – 0.064 °C/year (↑) max – 0.029 °C/year (↑)	mean – 0.034 °C/year (↑) min – 0.079 °C/year (↑) max – 0.030 °C/year (↑)
total precipitation	mean – 0.0007 mm/year (↑) max – 0.0606 mm/year (↑)	mean – 0.0006 mm/year (↑) max – 0.0542 mm/year (↑)
pressure	mean – 0.0009 Pa/year (↑) min – 0.06145 Pa/year (↓) max – 0.9362 Pa/year (↑)	mean – 0.0189 Pa/year (↓) min – 0.5693 Pa/year (↓) max – 0.8139 Pa/year (↑)
total cloudcover	mean – 0.00007 1/year (↑)	mean – 0.00009 1/year (↑)
relative humidity	mean – 0.00009 1/year (↑) min – 0.0004 1/year (↑)	mean – 0.00002 1/year (↑) min – 0.0007 1/year (↑)



Thank you for your attention!