Step-by-step guidelines for using the Climate explorer for analysis of station data, re-analysis and climate model data

Examples with temperature data

(for the IS-ENES3 spring school in Romania, May 2022)

Contents

Explanation

Bold: indicates the section on the web page or in the column at the right

Underlined: click on this/select this option

Find and analyse station data for maximum temperature for Cluj-Napoca in Romania

1. Go to https://climexp.knmi.nl/start.cgi (use Chrome as a browser)
2. Login through "log in or register" (just above the map on the home page)
3. Go to **Select a time series** and click on Daily station data in the right column
4. Select the data set that you want to use (Blended or non-blended ECA&D or GHCN-D database), select "maximum temperature". Under **Select** fill in "Cluj" after "stations with a name containing"
5. Then click on Get stations lower on the same page. On the page that will appear you will find the following information:

Looking for stations with substring CLUJ

Found 1 stations

CLUJ_NAPOCA (Romania)

coordinates: 46.78N, 23.57E, 410.0m

GHCN-D station code: ROE00100902 (get data)

WMO station: 15120

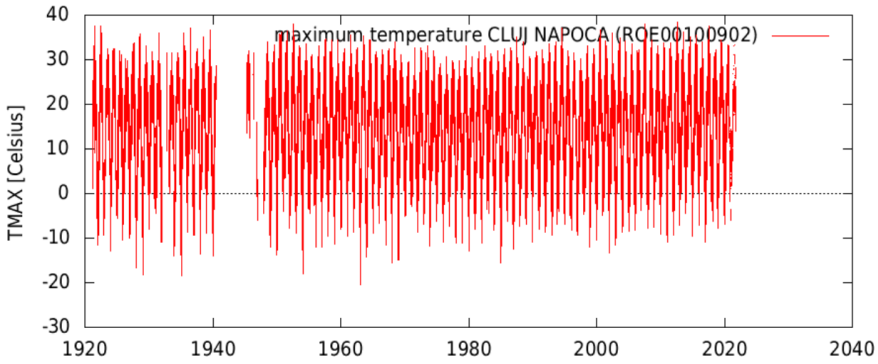
Found 96 years of data in 1921-2021

6. Click on get data under CLUJ_NAPOCA (RO) and you will get the following page. If you scroll down you will get some information on mean, percentiles, missing data (is you click on raw data on top of the figure, you can see what is the fraction of missing data per year). From 1957 on there don't seem to be many missing data. So we will focus on the period after 1956. For 2020 also a considerable number of data is missing.

Time series

daily CLUJ NAPOCA maximum temperature

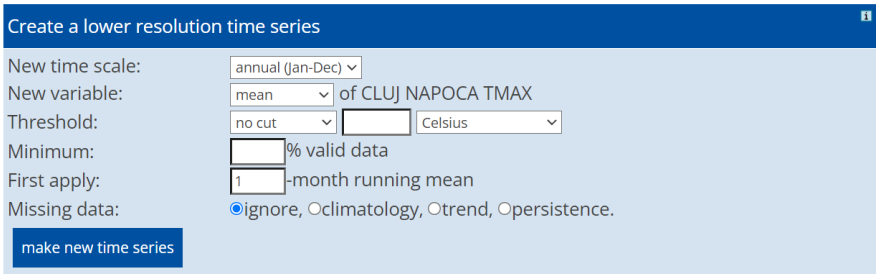
coordinates: 46.78N, 23.57E, 410.0m; GHCN-D station code: ROE00100902 CLUJ NAPOCA Romania, WMO station 15120, TMAX [Celsius] daily maximum temperature, (eps, pdf, metadata, raw data, netcdf)



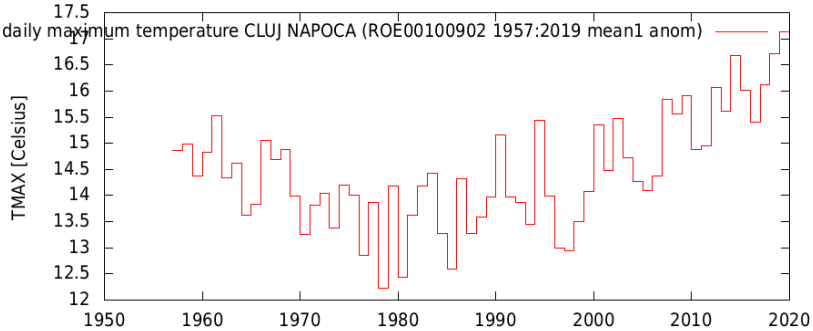
7. To select the data from 1957 to now, go to **Manipulate this time series** just below the figure with missing data and fill in the period that you want to select: 1957-2019 (always select years that have finished completely). You will get a similar page as above, but only with data for the selected period. Before continuing with the dataset, check available information on homogeneity (see separate paragraph on this in this document)

Calculate trends

8. To see whether there is a trend in average annual maximum temperature, go to **Create a lower resolution time series** and select as in the figure below. Then click on make a new time series

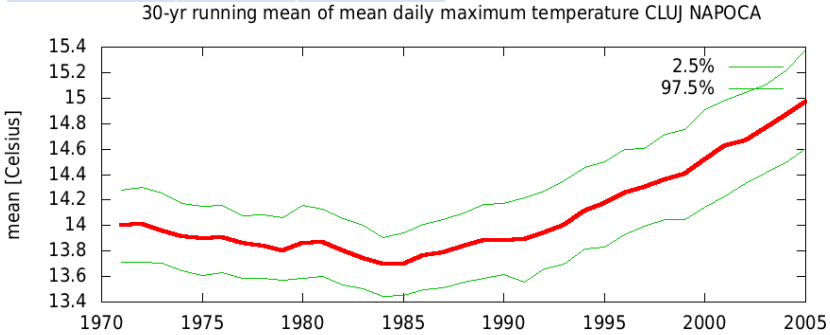


9. You will get the following figure:

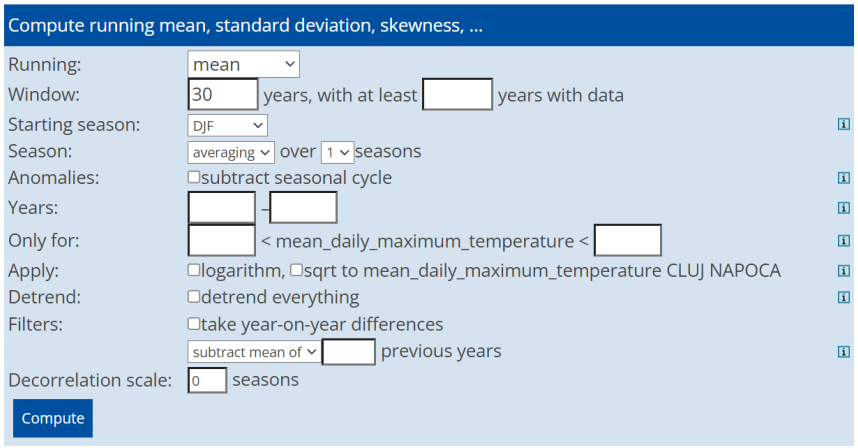


10. Go to **Investigate this time series** in the right column and click on Running mean/s.d./……. In the next screen after "window" fill in 30 (moving 30-year average) and click on Compute.
11. You will get, among others, the following information. The average annual maximum temperature has increased from around 14 to 15 °C.

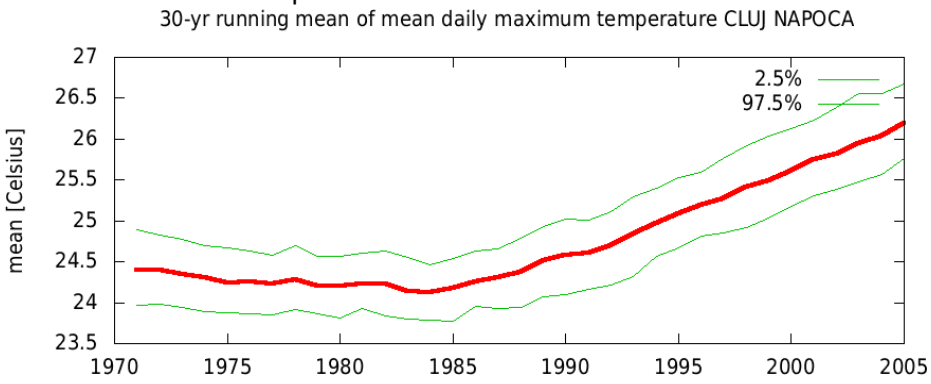
Probability that the distribution is a chance fluctuation around a constant		
statistic	value	p-value
minimum	13.69	0.0013
maximum	14.97	0.0263
difference	1.27	0.0013



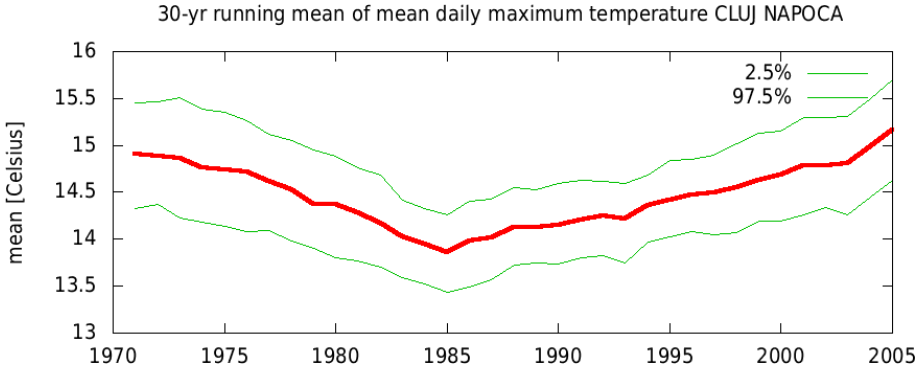
12. If you go back to step 8 and select seasonal instead of annual (Jan-Dec), you can also investigate the trends in seasonal average maximum temperature, which are in general more interesting. Then, in step 10 you will get a slightly different menu, which now also includes **Starting season**: select the season that you want to investigate (see below). You will see that until about 1985 there is no change or a decrease in temperature. As you may have seen when checking the homogeneity there seem to be some problems with the data. Although not impossible, it does not seem very likely that there has been a decrease in temperature over such a long period. This may be due to relocation of the weather station. After 1985 the increase in maximum temperature is strongest in summer.



Trend summer max temperature

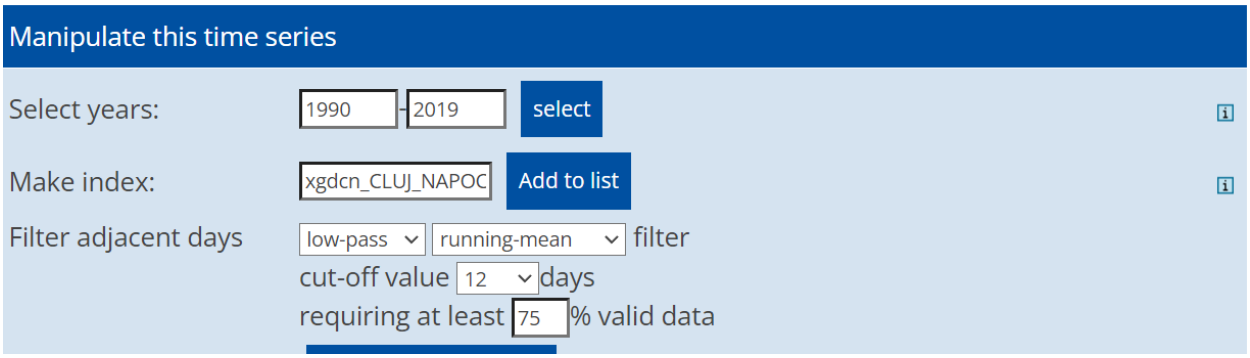


Trend autumn max temperature

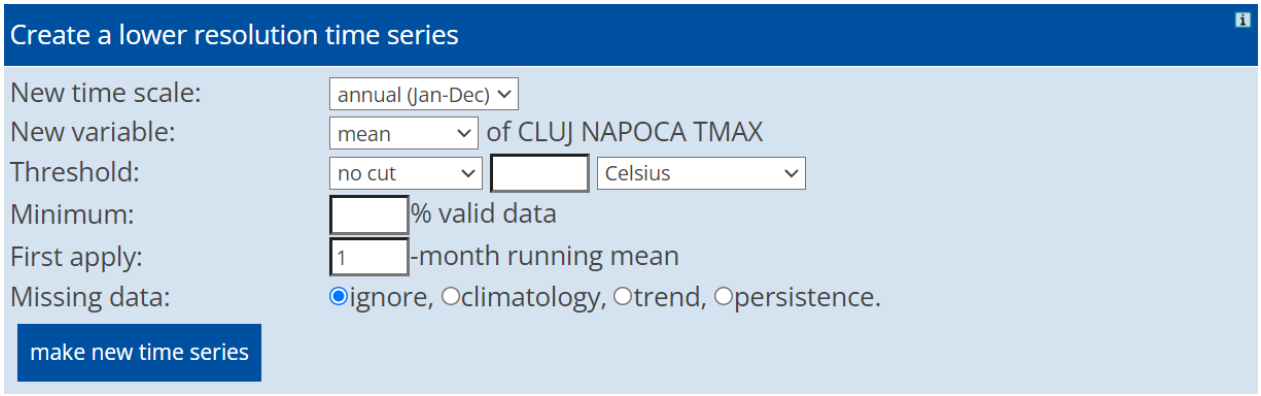


Calculate climatological averages

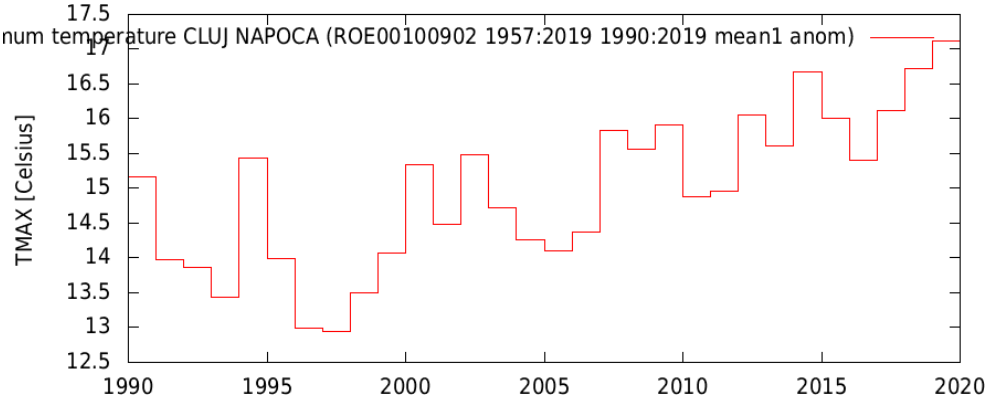
13. Go back to step 7 where you had the complete time series with daily data
14. Go to **Manipulate this time series**, and indicate that you want only the period 1991-2020 or select 1990-2019 (see below) and click on select



15. In the next screen go to **Create a lower resolution time series** at the bottom. To calculate the climatological average annual maximum temperature select annual (Jan-Dec) and mean and click on make new time series (to calculate the seasonal averages, select seasonal after **New time scale**)



15. You will get the following graph (among others).



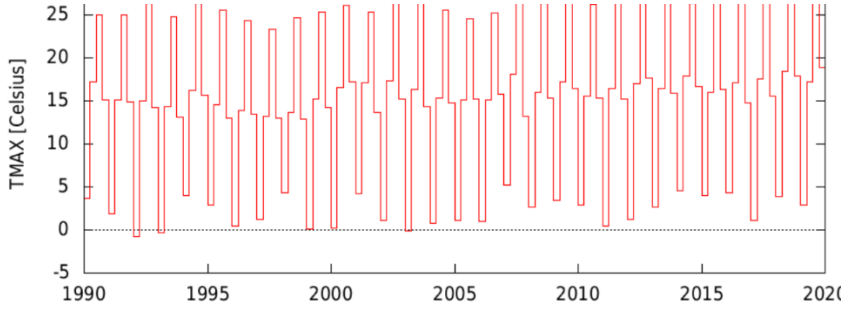
16. Go to **Investigate this time series** in the right column and click on Running mean/s.d./..... In the next screen after "window" fill in 30 (moving 30-year average) and click on Compute.
17. You will get, among others, the following information.

Probability that the distribution is a chance fluctuation around a constant		
statistic	value	p-value
minimum	14.89	0.3316
maximum	14.97	0.5203
difference	0.07	0.0013

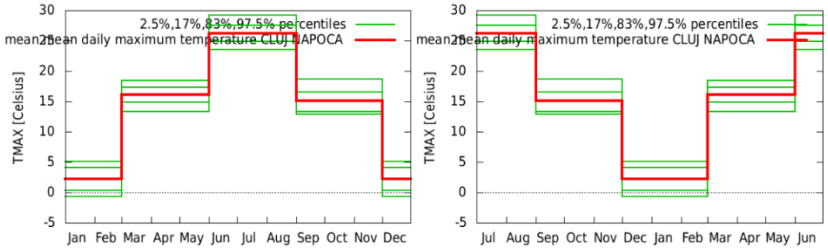
Demanding at least 24 years in a sliding window of 30 years

moment	value	95% CI
mean	14.97	14.61 ... 15.33

18. If you select seasonal in step 15 and click on Make new time series, in the next screen you will get already the seasonal averages (see below, the figures at the bottom)



Annual cycles, computed with all data available (Jan-Dec: eps, pdf, raw data,. Jul-Jun: eps, pdf, raw data).

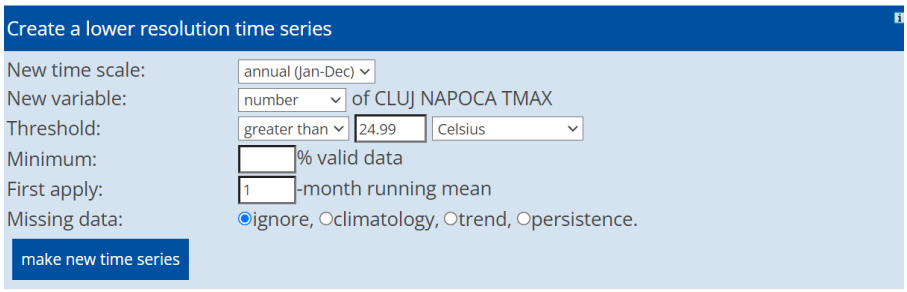


19. If you click on raw data on top of the figure (bottom left), you can obtain the data behind the figure

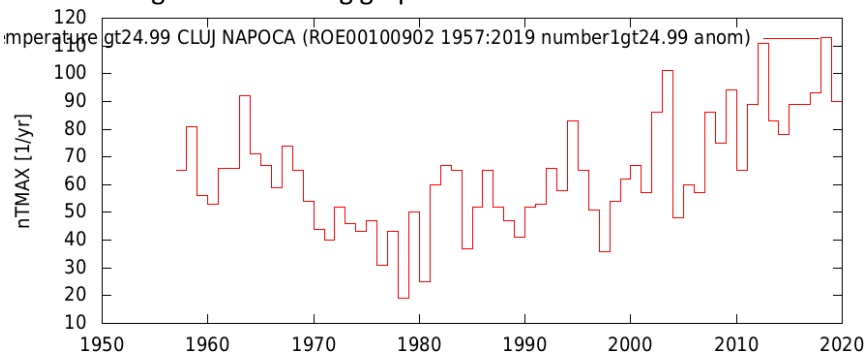
```
# description :: ROE00100902
# elevation ::    410.0 m
# ensemble :: metadata is from ensemble member   0 but data from the full ensemble   0 to   0
# file :: ./data/xgdcnROE00100902_1957:2019_1990:2019_mean4_anom.dat
# history ::  2022-04-05  7:08:27 ./bin/climatology ./data/xgdcnROE00100902_1957:2019_1990:2019_mean4_anom.dat\n 2022-04-05  7:08:26 dat2nc
./data/xgdcnROE00100902_1957:2019_1990:2019_mean4_anom.dat xgdcn CLUJ_NAPOCA ./data/xgdcnROE00100902_1957:2019_1990:2019_mean4_anom.nc\n 2022-04-05  7:08:26 bin/daily2longer
data/xgdcnROE00100902_1957:2019_1990:2019.dat 4 mean add_anom ROE00100902_1957:2019_1990:2019_mean4_anom\n 2022-04-05  7:01:47 dat2nc
./data/xgdcnROE00100902_1957:2019_1990:2019.dat xgdcn CLUJ_NAPOCA ./data/xgdcnROE00100902_1957:2019_1990:2019.nc\n 2022-04-05  6:59:30 bin/selectyear 1990 2019
data/xgdcnROE00100902_1957:2019.dat ROE00100902_1957:2019_1990:2019\n 2022-04-05  6:50:08 dat2nc ./data/xgdcnROE00100902_1957:2019.dat xgdcn CLUJ_NAPOCA
./data/xgdcnROE00100902_1957:2019.nc\n 2022-04-05  6:50:07 bin/selectyear 1957 2019 data/xgdcnROE00100902.dat ROE00100902_1957:2019\n 2022-04-05  6:40:35 dat2nc
./data/xgdcnROE00100902.dat x ROE00100902 ./data/xgdcnROE00100902.nc.3311477\n 2022-04-05  6:40:34 ./GDCNData/gdcntmax ROE00100902\n
# institution :: KNMI Climate Explorer and NOAA/NCEI
# latitude ::   46.78 degrees_north
# license :: U.S. Government Work. The non-U.S. data cannot be redistributed within or outside of the U.S. for any commercial activities.
# longitude ::   23.57 degrees_east
# olderfile :: /data/volume_2/climexp/data/xgdcnROE00100902.dat
# olderfile :: /data/volume_2/climexp/data/xgdcnROE00100902_1957:2019_1990:2019.dat
# reference :: Matthew J. Menne, Imke Durre, Russell S. Vose, Byron E. Gleason, and Tamara G. Houston, 2012: An Overview of the Global Historical Climatology Network-Daily
Database. J. Atmos. Oceanic Technol., 29, 897-910. doi:10.1175/JTECH-D-11-00103.1.
# scripturl01 :: http://climexp.knmi.nl/gdcntmax.cgi?STATION=CLUJ_NAPOCA&WMO=ROE00100902&id=$id
# scripturl02 :: http://climexp.knmi.nl/selectyear.cgi?
email=$id&file=xgdcnROE00100902.dat&name='maximum_temperature'&station=CLUJ_NAPOCA&type=xgdcn&wmo=ROE00100902&yr1=1957&yr2=2019
# scripturl03 :: http://climexp.knmi.nl/selectyear.cgi?
email=$id&file=xgdcnROE00100902_1957:2019.dat&name='maximum_temperature'&station=CLUJ_NAPOCA&type=xgdcn&wmo=ROE00100902_1957:2019&yr1=1990&yr2=2019
# scripturl04 :: http://climexp.knmi.nl/daily2longer.cgi?
EMAIL=$id&NAME='maximum_temperature'&NPERYEAR=366&STATION=CLUJ_NAPOCA&TYPE=xgdcn&WMO=ROE00100902_1957:2019_1990:2019&addoption=add_anom&nperyearnew=4&oper=mean&sum=1
# source_doi :: https://doi.org/10.7289/V5D21VHZ
# source_url :: https://catalog.data.gov/dataset/global-historical-climatology-network-daily-ghcn-daily-version-3
# station_code :: ROE00100902
# station_country :: Romania
# station_name :: CLUJ_NAPOCA
# timestamp :: Mon Oct  4 00:15:27 2021
# wmo_code :: 15120
#2000 + date       mean              2.5%              17%               50%               83%              97.5%
19991201        2.17943         -0.647534          0.378901          2.25194           4.10467           5.08417
20000301         16.0846           13.3071           14.8654           16.2457           17.3017           18.3932
20000601         26.1938           23.5726           24.8917           26.3359           27.6083           29.2177
20000901         15.1620           12.9349           13.3224           15.2143           16.5578           18.6574
20001201        2.17943         -0.647534          0.378901          2.25194           4.10467           5.08417
```

Calculate the trend in average number of summer days per year and the average for the current climate (1991-2020)

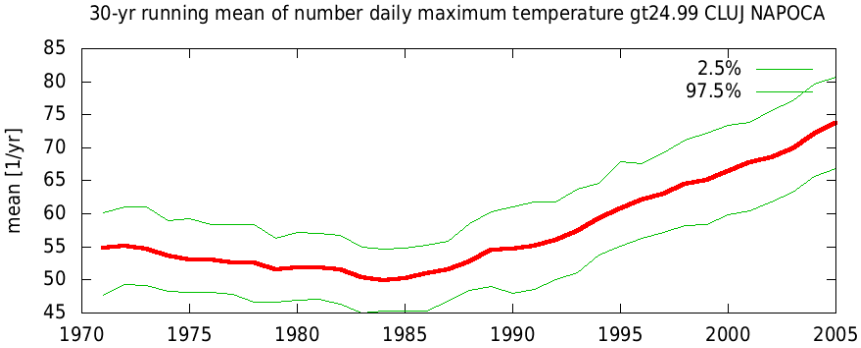
20. Go back to step 7
21. In the next screen go to **Create a lower resolution time series** at the bottom. To calculate the average number of summer days (with max temperature greater or equal to 25 C) per year select annual (Jan-Dec) and number, then select greater than and fill in 24.99, and click on make new time series



22. You will get the following graph



23. Go to **Investigate this time series** in the right column and click on Running mean/s.d./……. In the next screen after "window" fill in 30 (moving 30-year average) and click on Compute.
24. You will get, among others, the following graph. There doesn't seem to be a clear trend in the annual maximum daily maximum temperature



25. Go back to step 22 where you had the time series with the annual number of summer days
26. Go to **Manipulate this time series**, and indicate that you want only the period 1991-2020 or 1990-2019 and click on select
27. Go to **Investigate this time series** in the right column and click on Running mean/s.d./……. In the next screen after "window" fill in 30 (moving 30-year average) and click on Compute.

28. You will get, among others, the following information.

Probability that the distribution is a chance fluctuation around a constant		
statistic	value	p-value
minimum	73.14	0.4352
maximum	73.70	0.5025
difference	0.56	0.0013

Demanding at least 24 years in a sliding window of 30 years

moment	value	95% CI
mean	73.70	66.83 ... 81.03

Download data

29. Go back to the screen in step 6
30. Scroll down to **Manipulate this time series**, indicate that you want the data for the period 1990 to 2019 (the same as available for temperature), and click on Select
31. On top of the figure in the next screen, you can click on raw data (just above the figure) and you will get the next screen.

```
# Searching for GHCND series nr ROE00100902
# coordinates:  46.78N,   23.57E,    410.0m; GHCN-D station code: ROE00100902 CLUJ_NAPOCA Romania
# WMO station 15120
# file :: /data/volume_2/climexp/data/xgdcnROE00100902.dat
# description :: ROE00100902
# institution :: KNMI Climate Explorer and NOAA/NCEI
# source_url :: https://catalog.data.gov/dataset/global-historical-climatology-network-daily-ghcn-daily-version-3
# source_doi :: https://doi.org/10.7289/V5D21VHZ
# contact_email :: ncdc.ghcnd@noaa.gov
# reference :: Matthew J. Menne, Imke Durre, Russell S. Vose, Byron E. Gleason, and Tamara G. Houston, 2012: An Overview of the Global Historical Climatology Network-Daily
Database. J. Atmos. Oceanic Technol., 29, 897-910. doi:10.1175/JTECH-D-11-00103.1.
# license :: U.S. Government Work. The non-U.S. data cannot be redistributed within or outside of the U.S. for any commercial activities.
# station_code :: ROE00100902
# station_name :: CLUJ_NAPOCA
# station_country :: Romania
# wmo_code :: 15120
# latitude ::   46.78 degrees_north
# longitude ::   23.57 degrees_east
# elevation ::   410.0 m
# climexp_url :: https://climexp.knmi.nl/gdcntmax.cgi?WMO=ROE00100902
# scripturl01 :: http://climexp.knmi.nl/gdcntmax.cgi?STATION=CLUJ_NAPOCA&WMO=ROE00100902&id=$id
# timestamp :: Mon Oct  4 00:15:27 2021
# comment ::
# scripturl02 :: http://climexp.knmi.nl/selectyear.cgi?
email=$id&file=xgdcnROE00100902.dat&name='maximum_temperature'&station=CLUJ_NAPOCA&type=xgdcn&wmo=ROE00100902&yr1=1990&yr2=2019
# history ::  2022-04-07 12:27:46 bin/selectyear 1990 2019 data/xgdcnROE00100902.dat ROE00100902_1990:2019\n 2022-04-05  6:40:35 dat2nc ./data/xgdcnROE00100902.dat x
ROE00100902 ./data/xgdcnROE00100902.nc.3311477\n 2022-04-05  6:40:34 ./GDCNData/gdcntmax ROE00100902\n
# TMAX [Celsius] daily maximum temperature
19900101  -2.200000
19900102  -5.200000
19900103  -2.800000
19900104  -5.200000
19900105  -9.100000
19900106  -11.00000
19900107  -9.700000
```

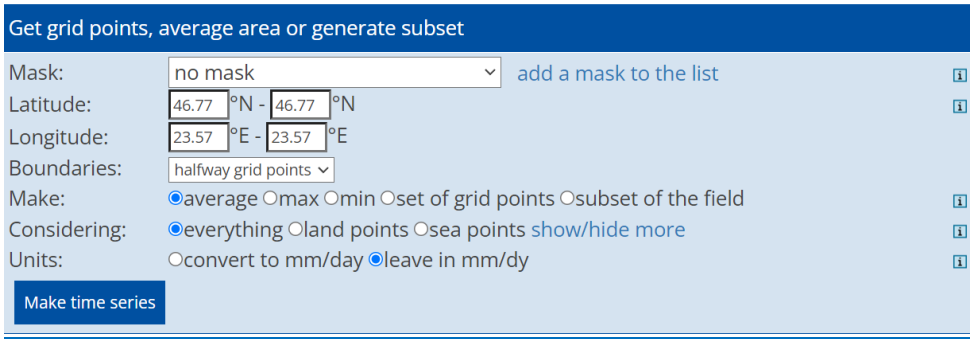
32. On top you will find metadata and lower in the file you will find the daily data. By clicking on the right side of your mouse to can save this file on your own computer.

Find and analyse gridded observational data for maximum temperature for Cluj-Napoca in Romania

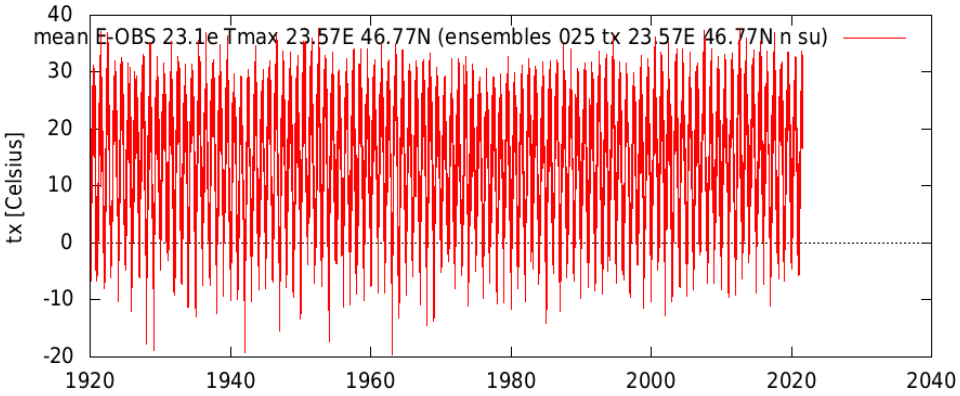
1. Go to https://climexp.knmi.nl/start.cgi (use Chrome as a browser)
2. Login through "log in or register" (just above the map on the home page)
3. Go to **Select a field** and click on Daily fields in the right column
4. On the next page, go to the part under **Observations**

Observations	Tmean	Tmax	Tmin	Prcp	SLP	Glob. Rad.	Elev	
CPC 0.5° global 1979-now				x,x				
CPC 0.25° CONUS 1948-now				x,x				
GPCC 1° 1988-now				x,x				
GPCP v1.3 1° 1997-now				x				
CMORPH 0.5° 1998-now				x				
CHIRPS 2.0 Africa 0.25° 1981-now				x				
KNMI Radar 1km 2009-Feb2019				x				
GPM IMERG V06 2000-now				0.5°, 0.2°				
UMD/NCEI 1° OLR 1979-now				x				
Berkeley 1880-now 1° anomalies	x	x	x					
Berkeley 1880-now 1° full	x	x	x					
E-OBS 1920-now 0.25° Europe	x	x	x	x	x	x	x	

5. We are interested in maximum temperature, therefore we look here for **Tmax**. We are interested in a country in Europe and the gridded dataset with observations with the highest spatial resolution for Europe which has maximum temperature data is **E-OBS 1920-now 0.25° Europe**. Select the X behind this data set for maximum temperature.
6. You will get a screen where you can select a region or grid point for further analysis. To compare the information with the station data for Cluj-Napoca, we need the location of this station (Latitude 46:46:00, longitude 23:34:00; location generally given with the metadata; convert to decimal degrees). Click on Make time series

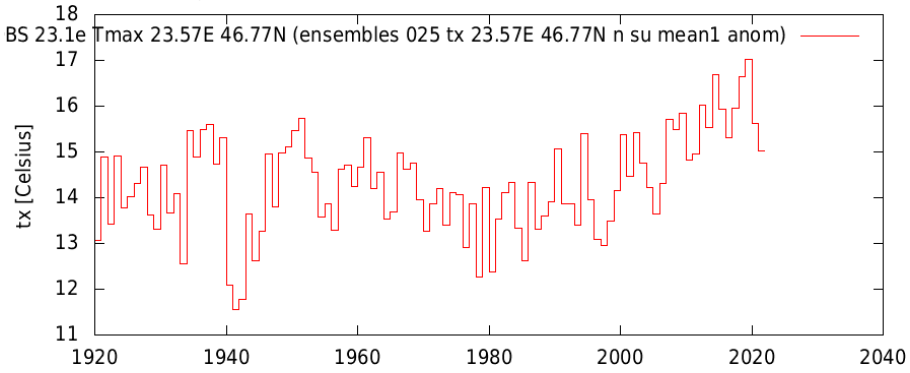


7. This may take some time, but afterwards you will get a screen which starts with "Time series", and lower on the page will give you among others the following graph

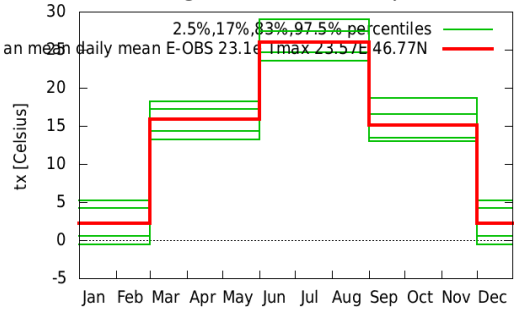


8. With this time series you can do similar analysis as for the station data for Cluj-Napoca (steps 7-32). As you can see in the figure below, the annual maximum temperature is comparable with the station data and also you see that for the period 1957 to about 1980 the average annual maximum temperature is decreasing. The seasonal average maximum temperatures are very much the same as those of the station data, which is logical, since E-OBS is based on station data. If we look at the number of summer days and the trend in summer days in the E-OBS dataset for Cluj, we also see some strange effect: in the beginning of the 20th century the number of summer days was clearly higher than in the period 1970-1995. This could be due to inhomogeneities in the dataset, however for that one should also look at the metadata of the station. For the period 1970 and later the number of summer days is almost identical to the data from the station. So gridding does not seem to have much effect on the values of temperature data from stations.

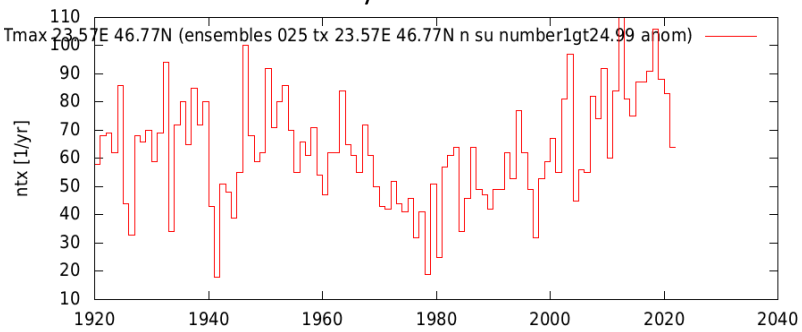
Annual max temperature



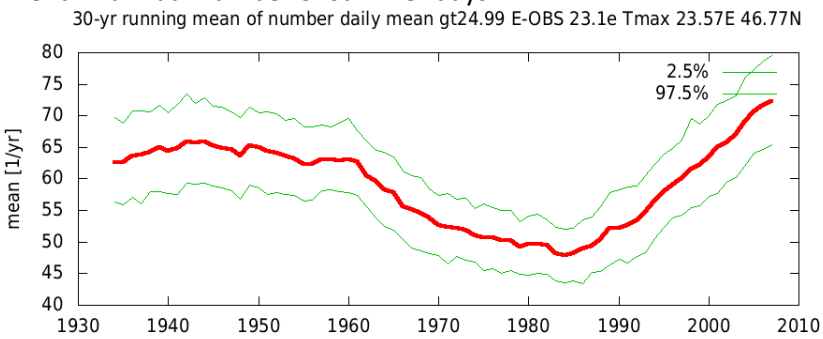
Seasonal averege maximum temperature in de period 1990-2019



Annual number of summer days



Trend in annual number of summer days

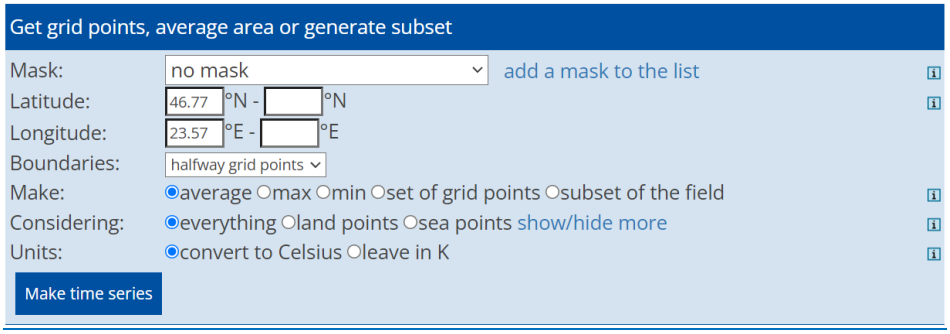


Find and analyse re-analysis data for maximum temperature for Cluj-Napoca in Romania

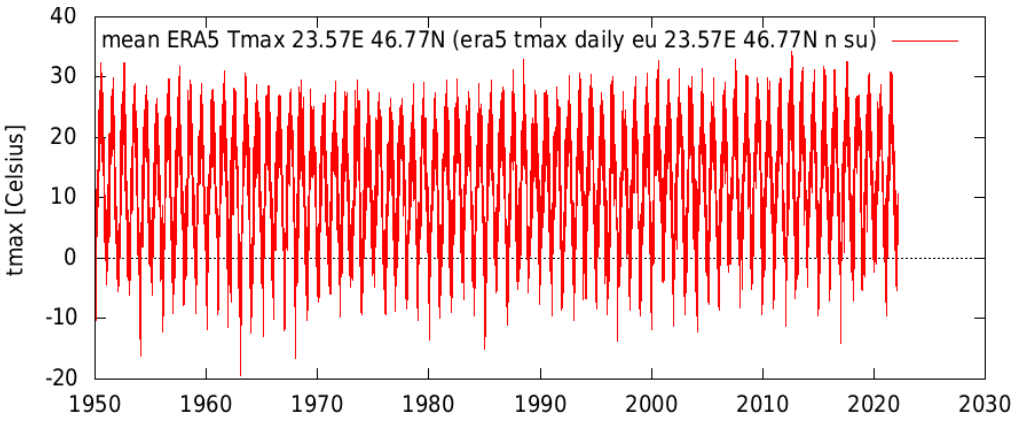
1. Go to https://climexp.knmi.nl/start.cgi (use Chrome as a browser)
2. Login through "log in or register" (just above the map on the home page)
3. Go to **Select a field** and click on Daily fields in the right column
4. On the next page, scroll down until you reach the part on **reanalysis**

Reanalysis	t2m	prcp	slp	z500	u200	v200	evap	wspd	
NCEP/NCAR 1948-now	x	x	x	x		x			
ERA5 1950-now 0.5°	x	x	x	x			x	x	
ERA5 1950-now 0.25° Europe	x	x	x	x			x	x	
ERA5 1950-now 0.25° Africa	x	x	x	x			x	x	
ERA5 1950-now 0.25° North America	x	x	x	x			x	x	
	Tmin	Tmax	Tdew	Twet	sp	t850	pot evap	max wspd	
ERA5 1950-now 0.5°	x	x	x	x	x	x		x	
ERA5 1950-now 0.25° Europe	x	x	x	x	x	x		x	
ERA5 1950-now 0.25° Africa	x	x	x	x	x	x		x	
ERA5 1950-now 0.25° North America	x	x	x	x	x	x		x	

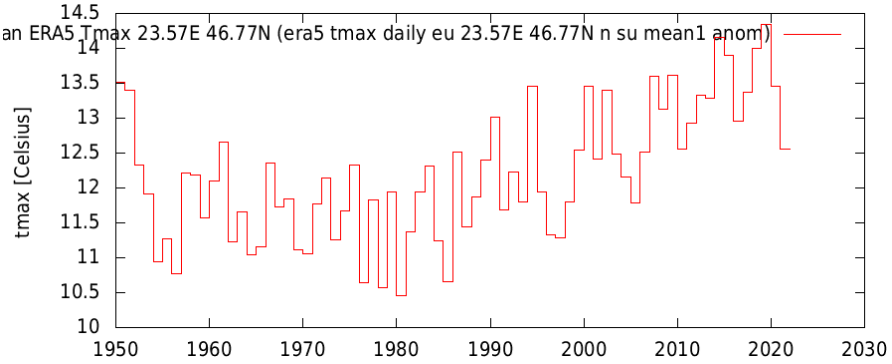
5. We are interested in the maximum temperature, therefore we look here for **Tmax**. We are interested in a country in Europe and the dataset with the highest spatial resolution for Europe which has maximum temperature data is **ERA5 1950-now 0.25° Europe**. Select the X behind this data set for maximum temperature.
6. You will get a screen where you can select a region or grid point for further analysis. To compare the information with the station data for Cluj-Napoca, we need the location of this station (Latitude 46:46:00, longitude 23:34:00; location generally given with the metadata; convert to decimal degrees). Click on Make time series



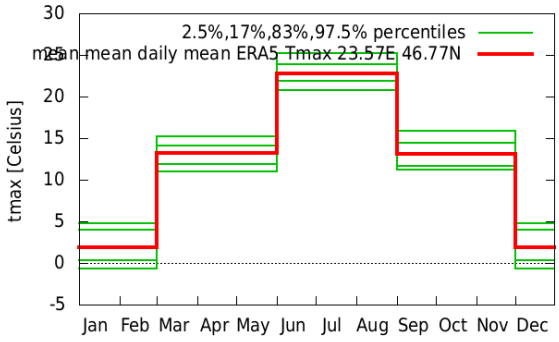
7. This may take some time, but afterwards you will get a screen which starts with "Time series", and lower on the page will give you among others the following graph



8. With this time series you can do similar analysis as for the station data for Cluj-Napoca (steps 7-32). As you can see in the figure below, the annual average maximum temperature is clearly underestimated in this re-analysis for this location. In relatively flat areas re-analysis give often relatively good estimates for temperatures. However, in more hilly and mountainous areas this may be less accurate, due to the relatively coarse resolution for altitudes. The seasonal average temperatures show that winter temperature is not really underestimated, but for the other seasons this is the case.

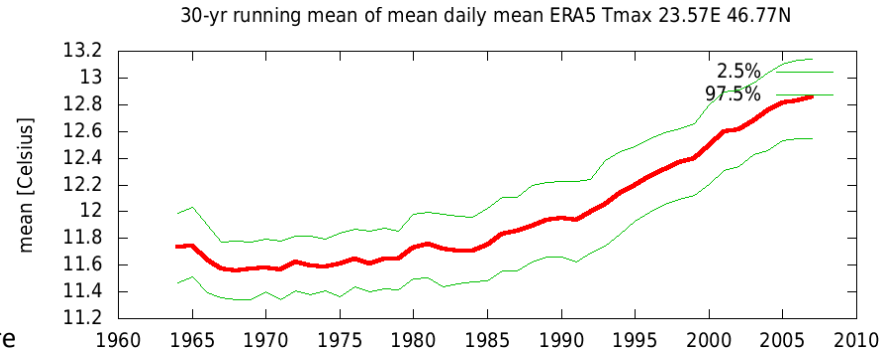


Annual max temperature

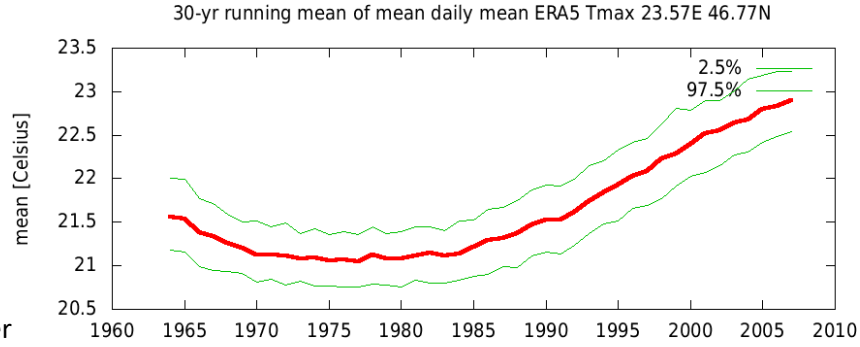


Seasonal max temperature 1990-2019

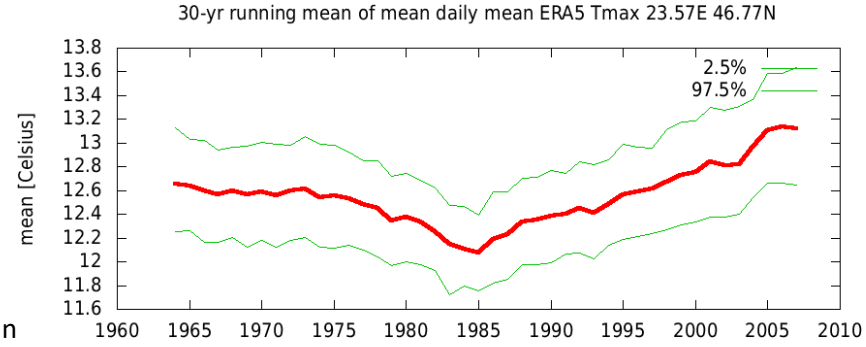
The trend is more or less the same for the annual average max temperature, even though the maximum temperature is underestimated. The trend is strongest in summer and least in autumn, as we also observed in the station data. Observed temperature data are generally assimilated in re-analysis, therefore this is not very surprising.



Trend annual max temperature

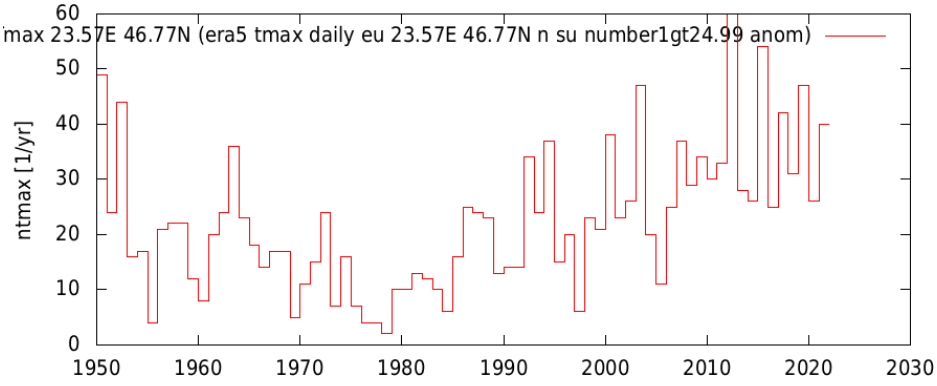


Trend summer

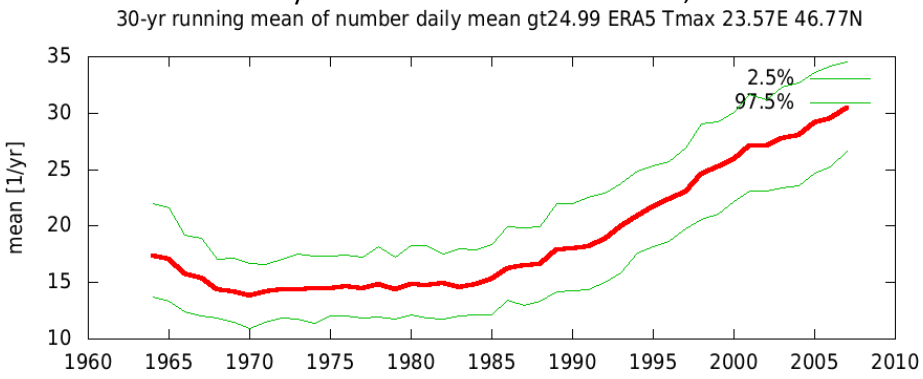


Trend autumn

The number of summer days is underestimated, compared to the station data, which is logical, since the maximum temperatures in spring to autumn seem to be underestimated in this re-analysis for Cluj-Napoca.



The trend in summer days is similar as in the station data, but also underestimated.

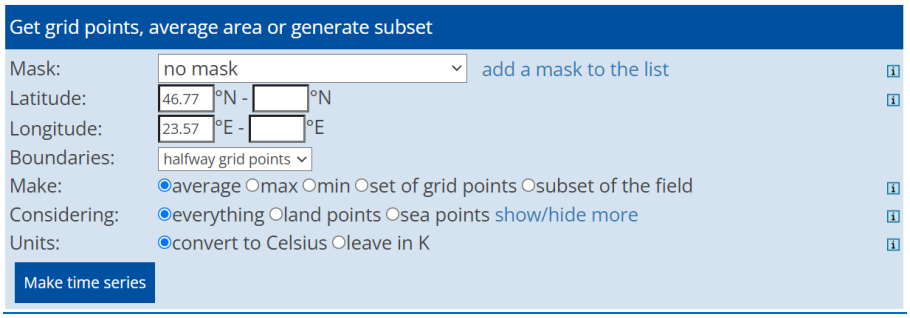


Find and analyse climate model data for maximum temperature for Cluj-Napoca in Romania

1. Go to https://climexp.knmi.nl/start.cgi (use Chrome as a browser)
2. Login through "log in or register" (just above the map on the home page)
3. Go to **Select a field** and click on Daily fields in the right column
4. On the next page, go to the right column and click on Attribution runs
5. Scroll to **EC-EARTH2.3 coupled run**. Lower you can also find higher spatial resolution data from the regional climate model **RACMO 12 km/EC-EARTH2.3 1950-2100**. These are data from the regional climate model RACMO for Europe, run with the global model EC-EARTH at its boundaries. However, data for Romania is just outside the range that is covered in this RCM simulation. Therefore we will use the global climate model EC-EARTH data for this example. We are interested in daily maximum temperature, therefore we look here for **tasmax** (here a different abbreviation is used! and **daily** data (16 stands for the number of runs made, an ensemble of 16 members). Select the X behind this data set for maximum temperature. Then click on Select field at the top of the web page.

RACMO 12km /EC-EARTH2.3 1950-2100	scenario	tas	tas min	tas max	pr		mrso	mrso 1m	mrso 10cm	evap pot	psl
16 daily	RCP8.5	○	○	○	○						
16 monthly	RCP8.5	○	○	○	○		○	○	○		
		RX1day	RX2day	RX3day	RX5day						
16 annual	RCP8.5	○	○	○	○						
16 Oct-Mar	RCP8.5	○	○	○	○						

6. After some time you will get a screen where you can select a region or grid point for further analysis. To compare the information with the station data for Cluj-Napoca, we need the location of this station (Latitude 46:46:00, longitude 23:34:00; location generally given with the metadata; convert to decimal degrees). Also click on convert to Celsius. Click on Make time series



7. This may take a considerable time (hour or more), since a lot of data have to be accessed. You will see information on the progress on your screen similar as shown below. Information from the nearest grid point is extracted, but as you can see the grid box that is used is rather large.

Reading day 13865/ 18263 (CPU time 8.9s, wall time 0:00:31)

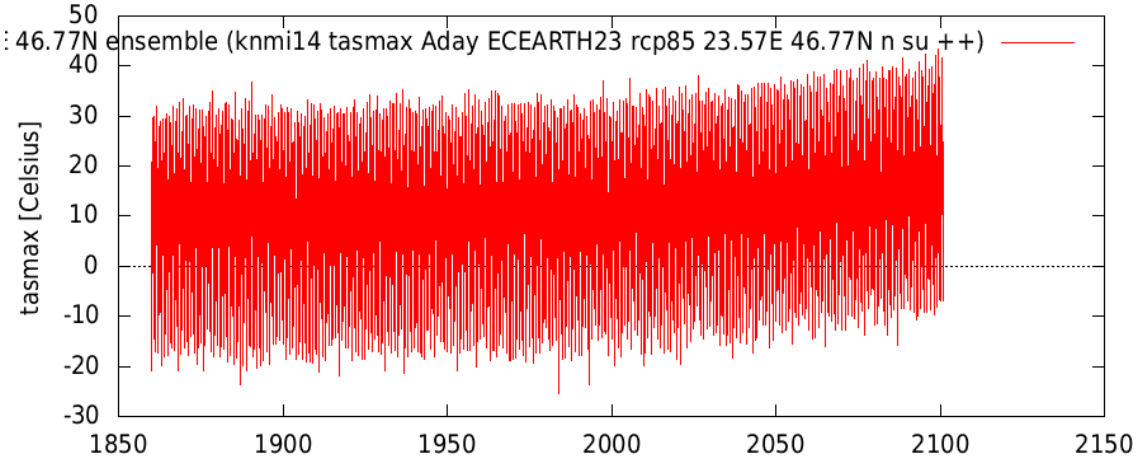
taking grid box region lon= 23.062 24.188, lat= 45.981 47.103

tasmax_day_ECEARTH23_rcp85_20010101-20501231_01

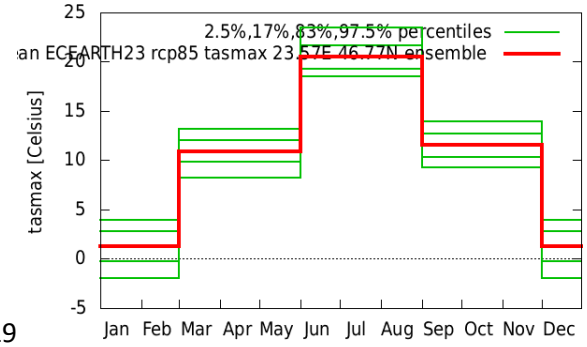
Reading day 15429/ 18262 (CPU time 9.7s, wall time 0:00:31)

taking grid box region lon= 23.062 24.188, lat= 45.981 47.103

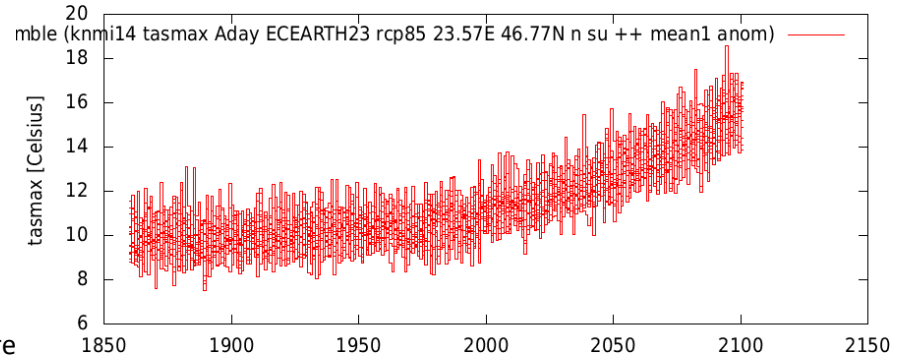
8. Afterwards you will get a screen which starts with “Time series”, and lower on the page will give you among others the following graph



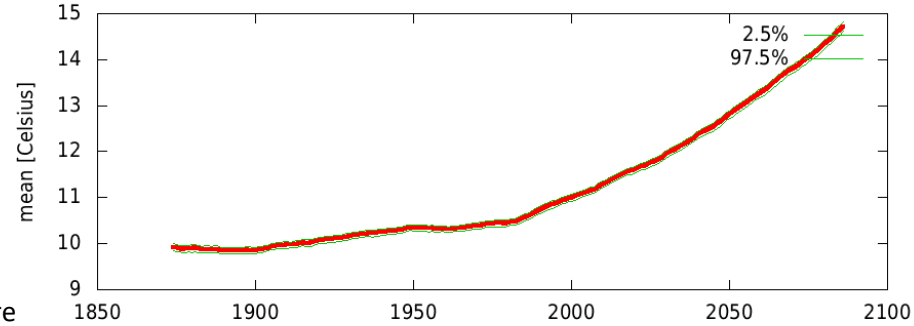
9. With this time series you can do similar analysis as for the station data for Cluj-Napoca (steps 7-28). In this case you have data for the period 1860 to 2100 under scenario RCP8.5 (the highest emission scenario). We first look at the seasonal mean maximum temperature to see hoe well the model simulates the climate in Cluj Napoca. As you can see in the figure below, the average seasonal maximum temperatures are clearly underestimated in spring to Autumn, but the underestimation is less for winter. This underestimation may also be due to the fact that a point is compared with a rather big area with considerable part with mountains. Therefore the estimate for the area as a whole will probably be less underestimated (it is known that this EC-EARTH version underestimates temperatures somewhat). In the figure for the annual average maximum temperature you see that from about 1980 on the maximum temperature increases. You do not see that in the model the temperature before 1980 was higher at some time.



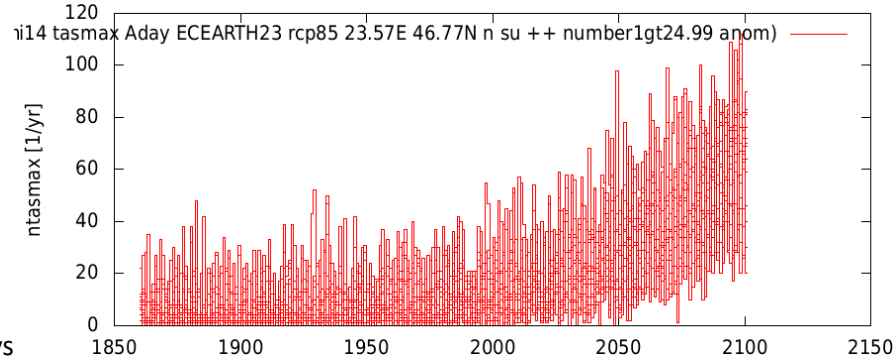
Seasonal avg max temperature 1990-2019



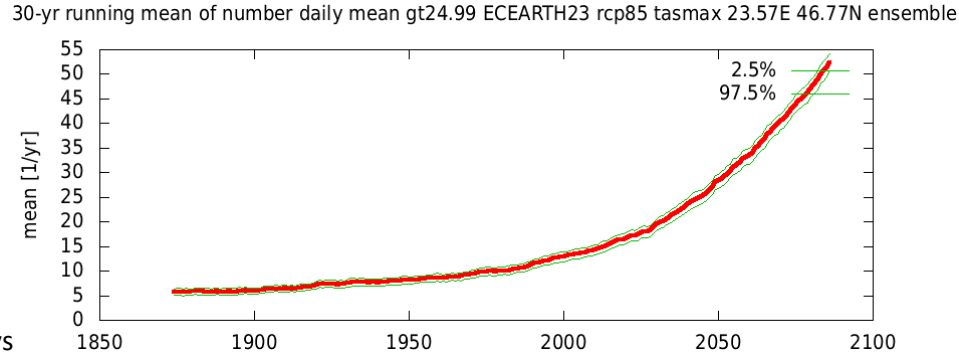
Annual avg max temperature



Trend avg max temperature



Number of summer days

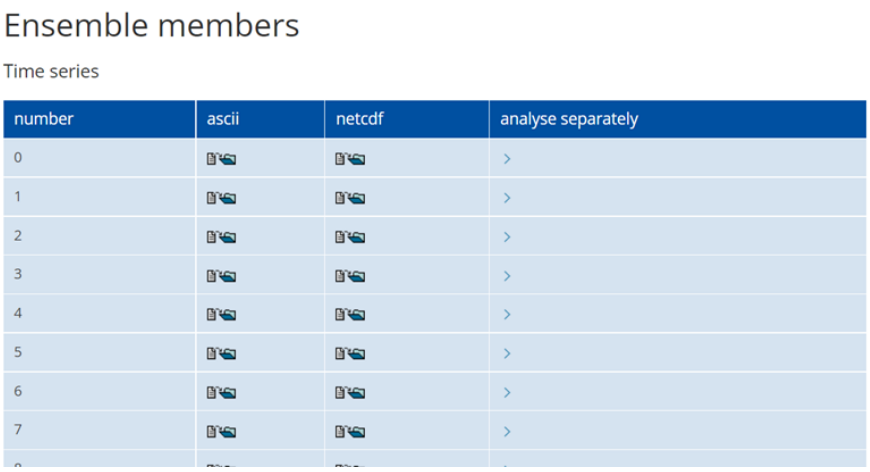


Trend nr. summer days

Download data

10. To download data, go back to the screen in step 8
11. Scroll down to **Manipulate this time series**, indicate that you want the data for the period 1990 to 2019, and click on Select

12. On top of the figure in the next screen, you can click on raw data (just above the figure), and you will get the following screen



13. Here you can download the data per ensemble member by clicking on the icon behind the ensemble number (the 16 members are numbered here from 0 to 15). Depending on the impact model that you want to use, it may be better to use the ASCII format or the Net-CDF format (standard for spatial + temporal climate data). You can take a direct look at the ASCII data file. On top you will find metadata and lower in the file you will find the daily data in the following format

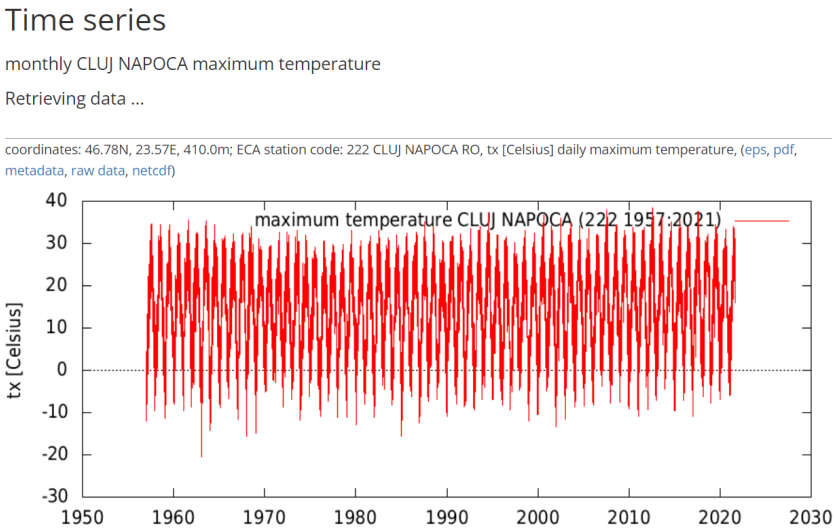
```
19900101  -3.387665
19900102  -2.818817
19900103  -4.299957
19900104  -7.358490
19900105  -3.097443
19900106  -4.367706
19900107  -2.117645
19900108  0.5787048
19900109 -0.7614136
19900110 -0.4680176
19900111  -3.364105
19900112 -0.5443115
19900113  -3.032745
19900114  -8.345551
19900115  -13.89404
19900116  -11.91113
```

(If you take a look at the data, you will see that this climate model run also contains leap years)

14. Save the datafile(s) on your own computer. If you use multiple climate variables, take care that you combine the climate variables from the same ensemble run, since these are consistent with each other at the daily level.

Check homogeneity of station data

1. Above the first give after selecting a station, you have the possibility to click on metadata above the first figure



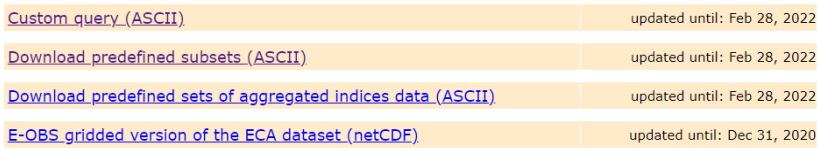
2. If you click on metadata, you will get the following screen

CLUJ NAPOCA

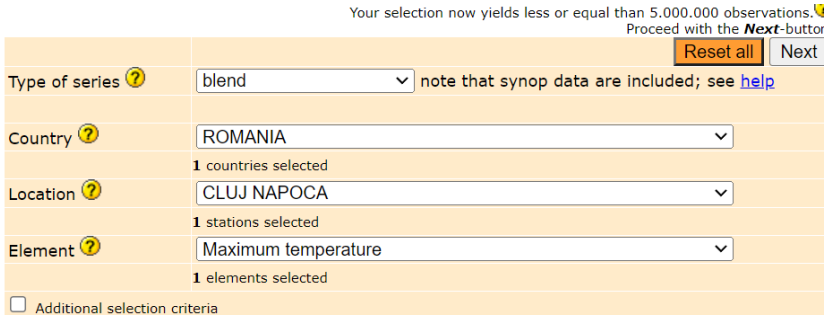
References	
Climate Explorer URL	climexp.knmi.nl/becatmax.cgi?WMO=222_1957:2021&STATION=CLUJ_NAPOCA
Climate Explorer filename	data/bxeca222_1957:2021.dat (temporary, will be deleted 3 days after last use)
Variable	
name	tx
units	Celsius
long_name	daily maximum temperature
Ascii global metadata	
description	coordinates: 46.78N, 23.57E, 410.0m; ECA station code: 222 CLUJ NAPOCA RO, tx [Celsius] daily maximum temperatu
file	/data/volume_3/climexp/data/bxeca222.dat
description	222
institution	KNMI Climate Explorer and KNMI
source_url	www.ecad.eu/
contact_email	eca@knmi.nl

3. Since we selected this from the blended ECA&D dataset, click on www.ecad.eu/ for further information (or open a page with this address)
4. You are referred to the ECA&D website. Click on daily data in the upper part of the screen

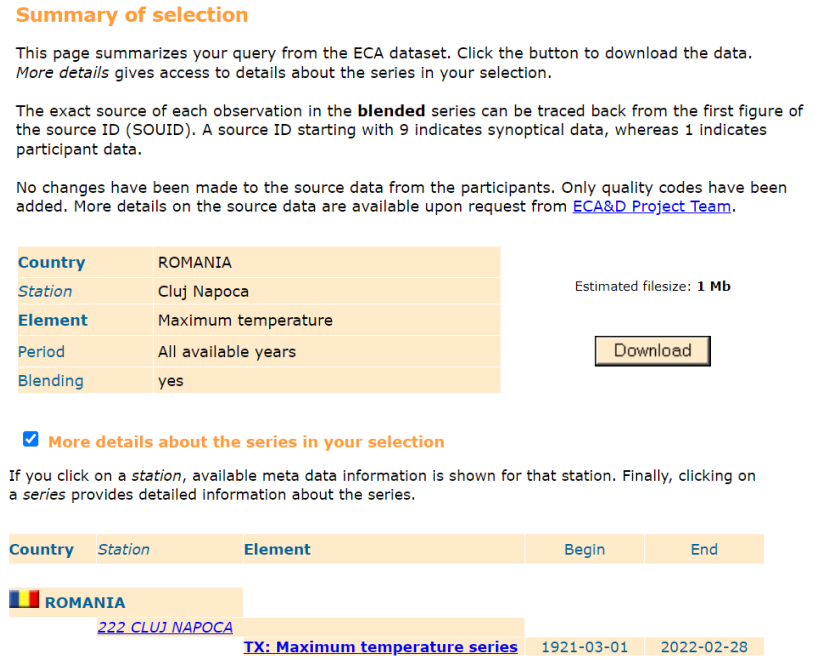
5. Then go to custom query (ASCII)



6. Select the required station and dataset as shown below and click on Next



7. Select More details about the series in your selection



8. If you click on the element, you will get more information, as shown below. Apparenbtly the data are suspect and may contain inhomogeneities. It would be good to collect more information on what problems there could be.

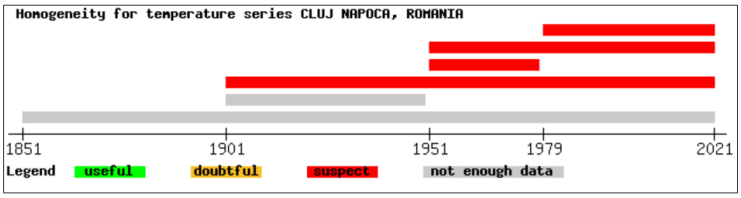
Detailed information about the selected series and its quality for climate change research

Close this window

Country	Station	Element
ROMANIA	222 CLUJ NAPOCA	TX: Maximum temperature series

Homogeneity test results

The quality for climate change research of each **blended** series was statistically tested. A description of the homogeneity tests that have been applied is given in Project info > ATBD and in this helptext. The diagram below summarizes the test results for fixed time periods. Only the results for periods with at least 80% data availability are shown.



Source information

The tables below provide details on the source data that is used to create the **blended** series. The exact source of each observation in the blended series can be traced back from the first figure of the source ID. A source ID starting with 9 indicates synoptical data, whereas 1 indicates participant data. The column "Dheight" is the difference in height (meters) between the main station and the station used for blending. "Dist" is the distance in kilometers between the main stations and the stations used for blending. "Ele ID" specifies the observation characteristics of the element and "Par ID" the data provider. "Downloadable" indicates if the series is available for download from ECA&D. Synoptical data can only be downloaded as part of the blended series, but not separately.

Source	Par ID	Ele ID	WMO	GSN	Latitude	Longitude	Height	Dheight	Dist	Begin	End	Downloadable
100693 CLUJ NAPOCA, ROMANIA	28	TX2	15120	N	+46:47:00	+23:34:00	410m	0m	0km	19210301	20200930	Y
915120 CLUJ-NAPOCA, ROMANIA	-	TX7	15120		+46:46:00	+23:34:00	411m	1m	2km	19820112	20200229	

Ele ID	Description	Unit
TX2	Maximum temperature 18-18 UT	0.1 °C
TX7	Maximum temperature between 06 and 18 UT today	0.1 °C