LESLIE
LAND MANAGEMENT
ENVIRONMENT &
SOLID-WASTE

LAND MANAGEMENT, ENVIRONMENT & SOLID-WASTE: INSIDE EDUCATION AND BUSINESS IN CENTRAL ASIA
ERASMUS-EDU-2023-CBHE Project Number: 101129032

MICRO-CREDENTIAL

CLIMATE CHANGE FOR SUSTAINABLE LAND MANAGEMENT IN CENTRAL ASIA

2- Observed Climate Change and Attribution

Mini-Lab Data

Simple Excel/CSV dataset of temperature trends

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1. INSTRUCTION GUIDELINES

Use the accompanying Table below to compare a global temperature series with a Central Asian city series. The workbook includes NASA global annual anomalies and annual mean temperatures for Tashkent, with a calculated city anomaly relative to the available 1991–2020 baseline years.

- Open the Data in the preferred program and create a line graph using Year on the x-axis.
- Create a line graph with Year on the x-axis and two y-series: Global anomaly (column B) and Tashkent anomaly (column D) from the Data sheet.
- Describe the overall trend in 2–3 sentences. Do both series rise? Do they rise smoothly or with year-to-year variability?
- Compare the last five years with the first five years in the worksheet. Which period is warmer? Use numbers from the graph or the 5-year mean columns.
- Explain one limitation of this comparison. (Example: the global series is an anomaly series, while the city source is based on one station with some missing years).

Important Notes

- Tashkent anomaly (°C) is calculated in this workbook as annual mean minus the available-year mean for 1991–2020 (15.63 °C).
- Some station years are missing in the source. Blank cells indicate unavailable city data. **DO NOT** fill them manually.
- Tashkent annual mean temperature (°C) from station 384570 / UTTT (NOAA source via Tutiempo).
- Baseline (Tashkent 1991–2020 available years): 15,6308 °C

Important Coding

Every code below, is referred to the last box of the designated column

*They are given for verification and future similar work

- **Tashkent anomaly vs 1991–2020 (°C) Column:** =IF(C32="";"";C32-**Baseline number**)
- **5-year mean global Column:** =IF(COUNT(B28:B32)<5;"";AVERAGE(B28:B32))
- **5-year mean Tashkent anomaly Column:** =IF(COUNT(D28:D32)<5;"";AVERAGE(D28:D32))

Year	Global anomaly (°C)	Tashkent annual mean (°C)	Tashkent anomaly vs 1991–2020 (°C)	5-year mean global	5-year mean Tashkent anomaly
2000	0,39	16,00	0,37		
2001	0,53	16,30	0,67		
2002	0,62				
2003	0,61	15,60	-0,03		
2004	0,53	16,60	0,97	0,54	
2005	0,68			0,59	
2006	0,64	16,40	0,77	0,62	
2007	0,66	16,20	0,57	0,62	
2008	0,54	15,90	0,27	0,61	
2009	0,65	16,10	0,47	0,63	
2010	0,72	16,80	1,17	0,64	0,65
2011	0,61	15,80	0,17	0,64	0,53
2012	0,64	15,00	-0,63	0,63	0,29
2013	0,67	16,30	0,67	0,66	0,37
2014	0,75	14,90	-0,73	0,68	0,13
2015	0,89	16,30	0,67	0,71	0,03
2016	1,01	16,80	1,17	0,79	0,23
2017	0,91	16,00	0,37	0,85	0,43
2018	0,85	16,00	0,37	0,88	0,37
2019	0,98	16,60	0,97	0,93	0,71
2020	1,01	15,50	-0,13	0,95	0,55
2021	0,85	17,00	1,37	0,92	0,59
2022	0,89	16,70	1,07	0,92	0,73
2023	1,17	17,30	1,67	0,98	0,99