

## Supplementary Material

### Article title: Homogeneity Assessment and Correction Methodology for the 1980–2022 Daily Temperature Series in Padua, Italy

Claudio Stefanini <sup>1</sup>, Francesca Becherini <sup>2,\*</sup>, Antonio della Valle <sup>3</sup>, Francesco Rech <sup>4</sup>, Fabio Zecchini <sup>4</sup> and Dario Camuffo <sup>3</sup>

<sup>1</sup> Department of Environmental Sciences, Informatics and Statistics, Ca' Foscari University of Venice, 30170 Venice Mestre, Italy

<sup>2</sup> National Research Council-Institute of Polar Sciences, Via Torino 155, 30172 Venice Mestre, Italy

<sup>3</sup> National Research Council-Institute of Atmospheric Sciences and Climate, Corso Stati Uniti 4, 35127 Padua, Italy

<sup>4</sup> Regional Agency for Environmental Protection and Prevention of Veneto, Via Ospedale Civile 24, 35121 Padua, Italy

\* Correspondence: francesca.becherini@cnr.it

**Table S1.** Transfer functions from *OB\_UNIPD* of the period 1 Jan 1980 – 23 Oct 1990 to *OB\_ARPAV* for minimum temperature.

1980-2022	<i>OB_UNIPD</i> (1 Jan 1980 – 23 Oct 1990) to <i>OB_ARPAV</i>	
Month	Tmin (°C)	r <sup>2</sup>
January	$Y = 0.9768 \cdot X - 0.44$	0.991
February	$Y = 0.9847 \cdot X - 0.26$	0.957
March	$Y = 0.9500 \cdot X - 0.07$	0.953
April	$Y = 0.9640 \cdot X - 0.09$	0.948
May	$Y = 0.9882 \cdot X - 0.34$	0.943
June	$Y = 1.0136 \cdot X - 0.69$	0.942
July	$Y = 0.9961 \cdot X - 0.30$	0.915
August	$Y = 1.0010 \cdot X - 0.38$	0.926
September	$Y = 0.9416 \cdot X + 0.52$	0.946
October	$Y = 0.9443 \cdot X + 0.14$	0.970
November	$Y = 0.9408 \cdot X - 0.11$	0.977
December	$Y = 0.9408 \cdot X - 0.35$	0.968

**Table S2.** Transfer functions from *CUS\_ARPAV* to *OB\_ARPAV* for minimum temperature.

1980-2022	<i>CUS_ARPAV</i> to <i>OB_ARPAV</i>	
Month	Tmin (°C)	r <sup>2</sup>
January	$Y = 0.9701 \cdot X + 0.28$	0.968
February	$Y = 0.9913 \cdot X + 0.39$	0.921
March	$Y = 0.9781 \cdot X + 0.65$	0.910
April	$Y = 0.9915 \cdot X + 0.79$	0.906
May	$Y = 1.0328 \cdot X + 0.43$	0.904
June	$Y = 1.0617 \cdot X + 0.02$	0.909
July	$Y = 1.0380 \cdot X + 0.54$	0.872
August	$Y = 1.0403 \cdot X + 0.52$	0.884
September	$Y = 0.9749 \cdot X + 1.36$	0.910
October	$Y = 0.9735 \cdot X + 0.99$	0.934
November	$Y = 0.9682 \cdot X + 0.70$	0.954
December	$Y = 0.9758 \cdot X + 0.32$	0.939

**Table S3.** Transfer functions from *OB\_UNIPD* of the period 1 Jan 1980 – 31 Dec 1983 to *OB\_ARPAV* for maximum temperature.

1980-2022	<i>OB_UNIPD</i> (1 Jan 1980 – 31 Dec 1983) to <i>OB_ARPAV</i>	
Month	Tmax (°C)	r <sup>2</sup>
January	$Y = 0.9938 \cdot X + 0.65$	0.996
February	$Y = 0.9803 \cdot X + 0.84$	0.978
March	$Y = 1.0032 \cdot X + 0.70$	0.980
April	$Y = 1.0160 \cdot X + 0.40$	0.975
May	$Y = 1.0117 \cdot X + 0.27$	0.977
June	$Y = 0.9983 \cdot X + 0.46$	0.975
July	$Y = 0.9992 \cdot X + 0.46$	0.967
August	$Y = 1.0147 \cdot X + 0.04$	0.971
September	$Y = 0.9868 \cdot X + 0.69$	0.969
October	$Y = 0.9731 \cdot X + 0.80$	0.971
November	$Y = 0.9529 \cdot X + 0.97$	0.973
December	$Y = 0.9675 \cdot X + 0.89$	0.959

**Table S4.** Transfer functions from *OB\_UNIPD* of the period 1 Jan 1984 – 30 Sep 1993 to *OB\_ARPAV* for maximum temperature.

1980-2022	<i>OB_UNIPD</i> (1 Jan 1984 – 30 Sep 1993) to <i>OB_ARPAV</i>	
Month	Tmax (°C)	r <sup>2</sup>
January	$Y = 1.0010 \cdot X - 0.31$	0.992
February	$Y = 0.9739 \cdot X - 0.02$	0.969
March	$Y = 0.9979 \cdot X - 0.13$	0.968
April	$Y = 1.0112 \cdot X - 0.34$	0.966
May	$Y = 1.0088 \cdot X - 0.38$	0.971
June	$Y = 1.0044 \cdot X - 0.33$	0.968
July	$Y = 1.0047 \cdot X - 0.27$	0.960
August	$Y = 1.0274 \cdot X - 0.92$	0.962
September	$Y = 0.9983 \cdot X - 0.26$	0.962
October	$Y = 0.9742 \cdot X + 0.01$	0.964
November	$Y = 0.9490 \cdot X + 0.21$	0.964
December	$Y = 0.9611 \cdot X + 0.00$	0.951

**Table S5.** Transfer functions from *OB\_micros\_UNIPD* to *OB\_ARPAV* for maximum temperature.

1980-2022	<i>OB_micros_UNIPD</i> to <i>OB_ARPAV</i>	
Month	Tmax (°C)	r <sup>2</sup>
January	$Y = 1.0401 \cdot X - 0.15$	0.997
February	$Y = 1.0661 \cdot X - 0.29$	0.988
March	$Y = 1.0795 \cdot X - 0.44$	0.988
April	$Y = 1.0900 \cdot X - 0.72$	0.983
May	$Y = 1.0831 \cdot X - 0.80$	0.986
June	$Y = 1.0748 \cdot X - 0.77$	0.985
July	$Y = 1.0738 \cdot X - 0.77$	0.975
August	$Y = 1.0836 \cdot X - 1.02$	0.977
September	$Y = 1.0703 \cdot X - 0.71$	0.980
October	$Y = 1.0546 \cdot X - 0.48$	0.982
November	$Y = 1.0238 \cdot X - 0.05$	0.983
December	$Y = 1.0410 \cdot X - 0.17$	0.972