Temperature Time-Series of some Brazilian cities

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Problem Motivation

ipcc

REPORTS   SYNTHESIS REPORT   WORKING GROUPS   ACTIVITIES   NEWS

CALENDAR

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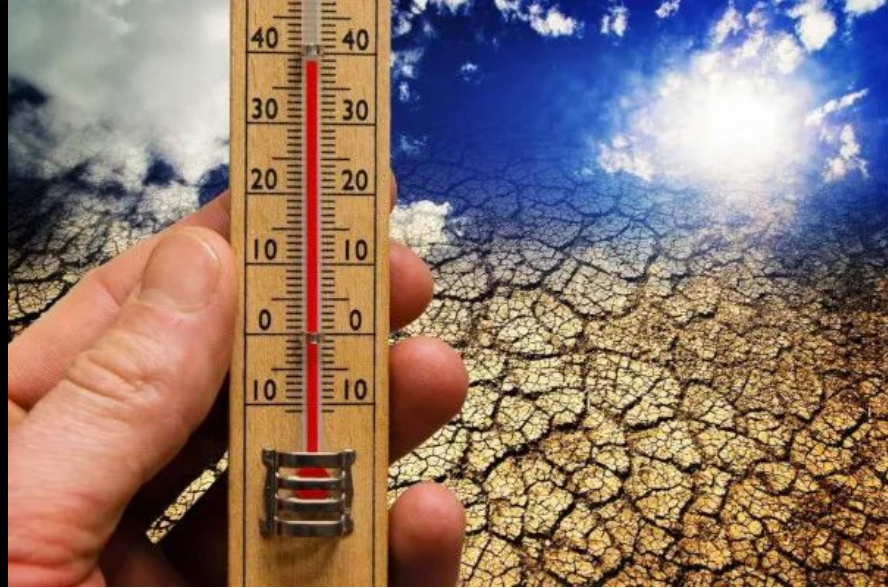
About the IPCC _____

The Intergovernmental Panel on Climate Change (IPCC) is the United Nations body for assessing the science related to climate change.

OVERVIEW_
HISTORY
STRUCTURE
PREPARING REPORTS
GENDER
AD-HOC AND TASK GROUPS
FUTURE WORK
SCHOLARSHIP
ENGAGE
CONTACT

Data

- **Temporal series of temperatures from some Brazilian cities:** Belém, Curitiba, Fortaleza, Goiânia, Macapá, Manaus, Recife, Rio de Janeiro, Salvador, São Luiz, São Paulo, Vitória

- The content is provided by NOAA GHCN v4 and post-processed by NASA's GISTEMP v4

- The time series provides temperature records by month for each year

Data

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	D-J-F	M-A-M	J-J-A	S-O-N	metANN
1961	26.09	27.29	27.08	26.35	999.90	22.58	21.90	23.14	25.10	24.92	25.41	25.54	26.25	25.92	22.54	25.14	24.96
1962	26.38	26.81	26.82	999.90	23.46	21.18	21.12	22.50	22.46	23.14	24.53	24.95	26.24	25.22	21.60	23.38	24.11
1963	27.59	26.73	999.90	25.56	23.31	21.98	21.75	21.87	23.78	24.82	25.69	24.78	26.42	25.15	21.87	24.76	24.55
1964	25.28	999.90	999.90	999.90	999.90	22.02	20.24	21.84	22.41	23.23	23.49	25.06	25.39	999.90	21.37	23.04	23.56
1965	25.65	27.18	26.40	25.48	24.09	23.07	22.46	23.64	24.19	23.77	999.90	27.54	25.96	25.32	23.06	24.39	24.68
1966	27.38	28.06	27.49	25.27	23.80	999.90	21.96	22.15	22.21	24.37	24.65	27.07	27.66	25.52	22.23	23.74	24.79
1967	27.48	27.62	27.41	999.90	23.91	23.78	22.28	22.85	22.95	24.83	24.95	24.63	27.39	25.74	22.97	24.24	25.09
1968	26.15	999.90	999.90	999.90	999.90	999.90	999.90	999.90	999.90	999.90	999.90	26.00	25.75	999.90	999.90	999.90	999.90
1969	27.80	28.36	27.19	999.90	24.34	22.60	22.17	22.83	23.65	23.52	999.90	24.40	27.39	25.84	22.53	24.00	24.94
1970	25.97	27.12	27.33	25.34	24.91	23.93	21.32	21.87	22.82	23.34	23.87	27.11	25.83	25.86	22.37	23.34	24.35
1971	27.99	28.71	27.77	26.22	24.45	22.85	22.29	22.66	22.79	22.59	23.11	26.17	27.94	26.15	22.60	22.83	24.88
1972	27.93	27.27	28.00	24.80	23.68	24.18	22.27	23.18	23.05	24.29	25.50	26.05	27.12	25.49	23.21	24.28	25.03
1973	28.34	28.46	26.45	27.08	24.26	24.63	23.40	22.95	22.65	22.68	23.15	26.22	27.62	25.93	23.66	22.83	25.01
1974	26.95	26.94	26.37	25.32	24.08	22.43	22.21	22.93	23.55	23.95	24.90	25.42	26.70	25.26	22.52	24.13	24.65
1975	26.22	28.17	26.68	24.62	22.91	22.00	21.11	23.38	22.83	24.28	25.23	26.34	26.60	24.74	22.16	24.11	24.40
1976	27.70	27.38	27.30	26.10	23.92	23.72	22.13	23.15	22.93	23.23	24.75	25.88	27.14	25.77	23.00	23.64	24.89
1977	26.98	27.30	28.60	26.03	23.90	23.62	23.55	23.70	23.07	24.55	25.20	25.51	26.72	26.18	23.62	24.27	25.20
1978	26.60	26.47	26.86	25.03	23.91	22.19	22.84	22.83	22.82	24.15	25.00	25.64	26.19	25.27	22.62	23.99	24.52
1979	24.56	25.84	25.44	24.94	999.90	999.90	22.21	999.90	999.90	999.90	999.90	999.90	25.35	24.39	999.90	999.90	999.90
1980	26.18	999.90	999.90	25.74	999.90	999.90	999.90	999.90	999.90	999.90	999.90	999.90	999.90	999.90	999.90	999.90	999.90
1981	27.32	999.90	999.90	999.90	999.90	23.14	22.40	23.07	999.90	23.43	999.90	999.90	999.90	999.90	22.87	999.90	999.90
1982	999.90	26.86	999.90	999.90	999.90	23.82	22.23	22.63	22.13	23.83	26.23	999.90	999.90	999.90	22.89	24.06	999.90

Questions to answer

- How are temperatures in Brazilian cities? Too hot? Cold weather sometimes?
- What about climate changes? Is Brazil getting hotter?
- What will be the temperatures for the **next five, ten, fifteen years**?
- What are the cities with **similar average temperatures**?

Proposed approach

- Using the ARIMA and SARIMA algorithms to perform forecasts
- Using the K-Means algorithm with DTW metric to perform clustering

Expected results

- Providing an interactive dashboard with temperature time-series
- Providing forecasting and clustering of temporal series
- Allowing the comparison of different time-series