Global Surface Temperature Anomalies (Yearly Average)

Surface Temperature Anomalies for Selected Countries

Temperature Anomalies: United States

Temperature Anomalies: China

China ▼

Temperature Anomalies: Brazil

Brazil ▼
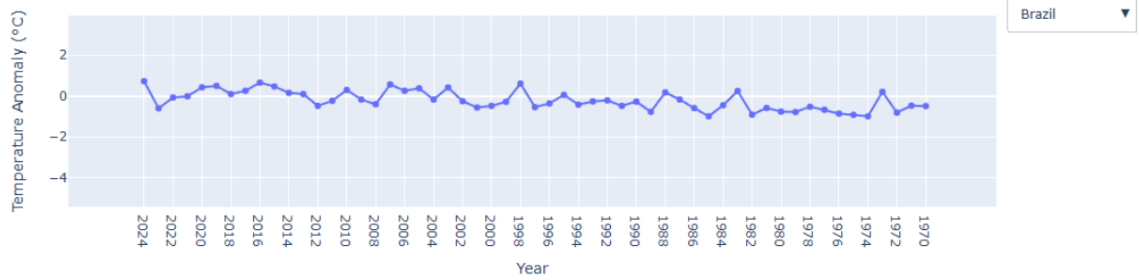
Temperature Anomalies: Russia

Russia ▼
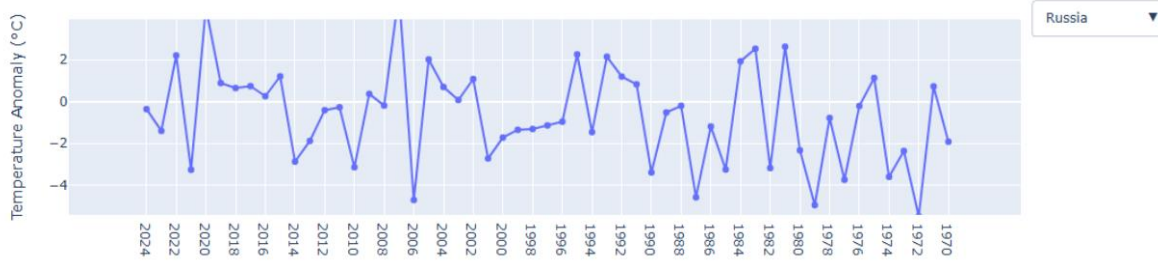
```
Global Model Metrics:
AIC: 66.75678326258341
BIC: 78.69068754196907
MAE: 0.40183143471518684
MSE: 0.7147896323711652
P-Values: ar.L1    0.000138
ar.L2    0.247232
ar.L3    0.636312
ar.L4    0.386853
ar.L5    0.208691
sigma2   0.000002
dtype: float64

United States Model Metrics:
AIC: 186.63030341116007
BIC: 198.56420769054571
MAE: 1.0717293449548375
MSE: 1.609734614642576
P-Values: ar.L1    2.890267e-07
ar.L2    2.579217e-05
ar.L3    7.407794e-02
ar.L4    1.421288e-02
ar.L5    3.424988e-01
sigma2   8.894346e-05
dtype: float64

China Model Metrics:
AIC: 173.4869837531671
BIC: 185.42088803255274
MAE: 0.8188420848573174
MSE: 1.1758308472518482
P-Values: ar.L1    1.015738e-04
ar.L2    1.149798e-03
ar.L3    1.069801e-01
ar.L4    1.458693e-01
ar.L5    8.333965e-01
sigma2   6.689768e-08
```
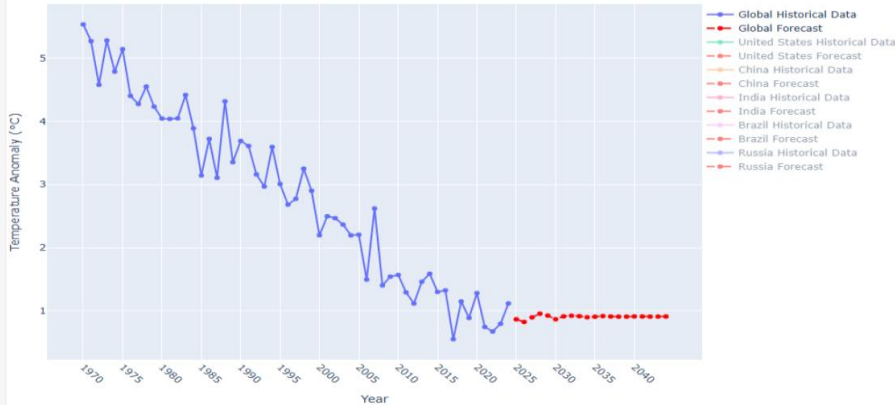
```
India Model Metrics:
AIC: 103.31925567165013
BIC: 115.25315995103577
MAE: 0.470006265283964
MSE: 0.313915967539361B
P-Values: ar.L1    1.099653e-11
ar.L2    4.880968e-03
ar.L3    1.802707e-01
ar.L4    2.052730e-01
ar.L5    1.967634e-02
sigma2   1.716482e-05
dtype: float64

Brazil Model Metrics:
AIC: 66.92930592037499
BIC: 78.86321019976064
MAE: 0.32254212783663194
MSE: 0.16316529393312806
P-Values: ar.L1    2.734152e-08
ar.L2    5.191726e-05
ar.L3    2.463557e-02
ar.L4    3.237488e-01
ar.L5    6.466857e-01
sigma2   1.196762e-05
dtype: float64

Russia Model Metrics:
AIC: 261.2066108727628
BIC: 273.1405151521484
MAE: 2.068875583156426
MSE: 5.89B305351513549
P-Values: ar.L1    6.606997e-10
ar.L2    9.420351e-03
ar.L3    1.175753e-01
ar.L4    1.607244e-01
ar.L5    9.157422e-01
sigma2   2.871613e-04
```

Surface Temperature Anomalies with Future Projections for Selected Countries

Legend:
- Global Historical Data
- Global Forecast
- United States Historical Data
- United States Forecast
- China Historical Data
- China Forecast
- India Historical Data
- India Forecast
- Brazil Historical Data
- Brazil Forecast
- Russia Historical Data
- Russia Forecast

```
Z-Score Outliers in Global Temperature Anomalies (threshold 1.5):
1970    5.532704
1971    5.267449
1973    5.279541
1975    5.141480
2017    0.551684
2022    0.674184
dtype: float64

IQR Outliers in Global Temperature Anomalies:
Series([], dtype: float64)
```
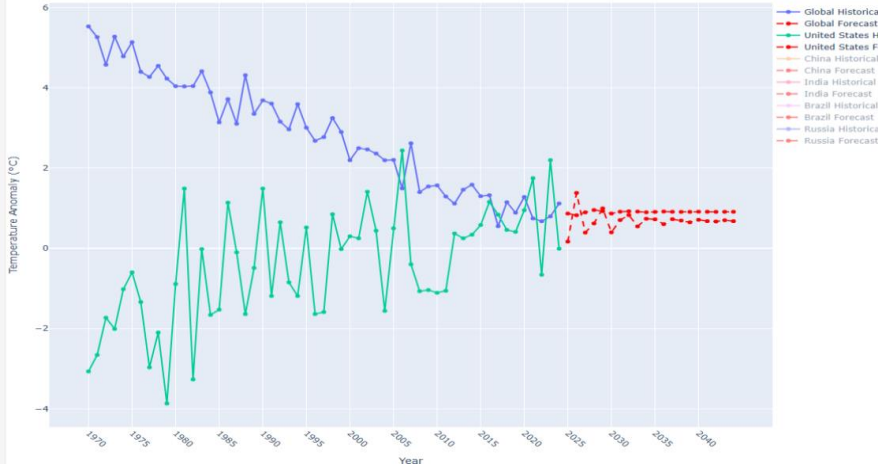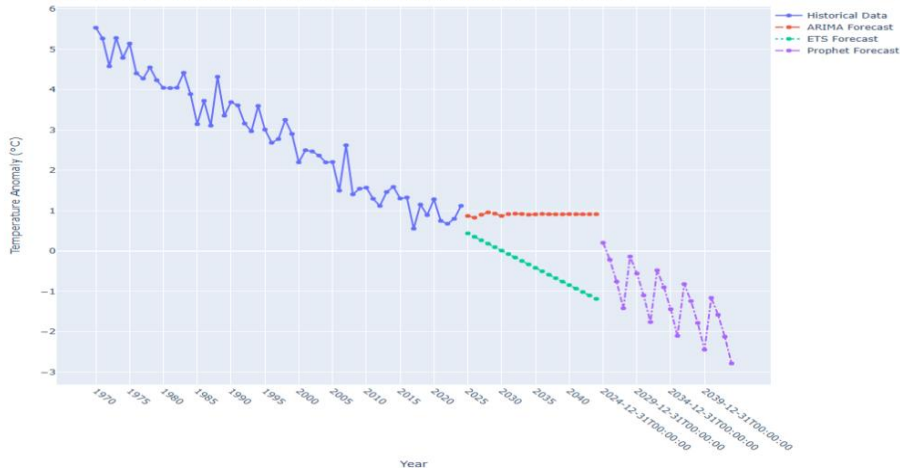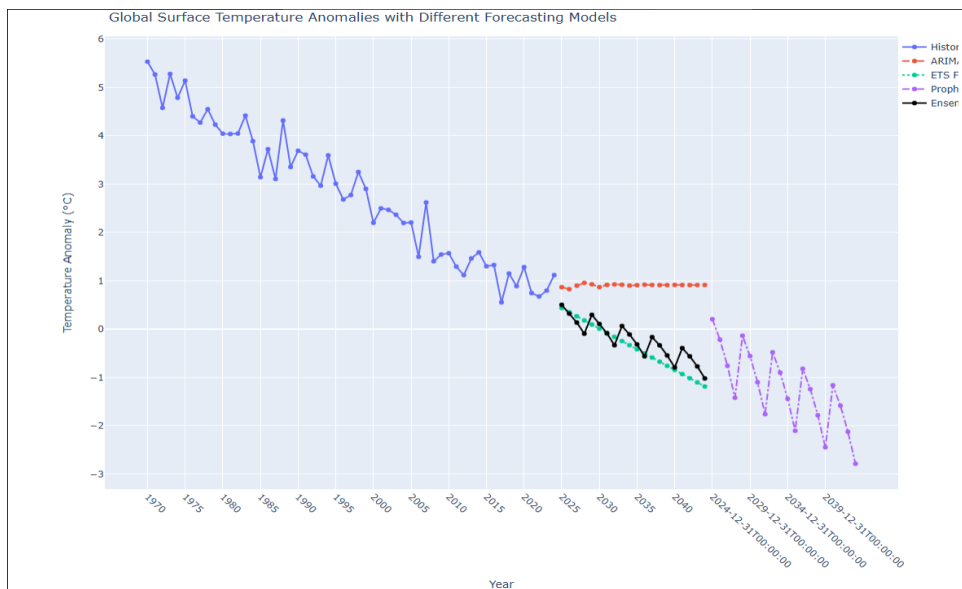
Global Surface Temperature Anomalies with Outliers

Legend:
- Global Anomalies
- Z-Score Outliers

Surface Temperature Anomalies with Future Projections for Selected Countries

Legend:
- Global Historica
- Global Forecast
- United States H
- United States F
- China Historical
- China Forecast
- India Historical
- India Forecast
- Brazil Historical
- Brazil Forecast
- Russia Historica
- Russia Forecast

Global Surface Temperature Anomalies with Different Forecasting Models

Legend:
- Historical Data
- ARIMA Forecast
- ETS Forecast
- Prophet Forecast

Global Surface Temperature Anomalies with Different Forecasting Models

Tried to improve the ensemble model

Global Surface Temperature Anomalies with Different Forecasting Models