

```
import matplotlib.pyplot as plt
import seaborn as sns

fc_df = pd.concat(all_forecasts, ignore_index=True)

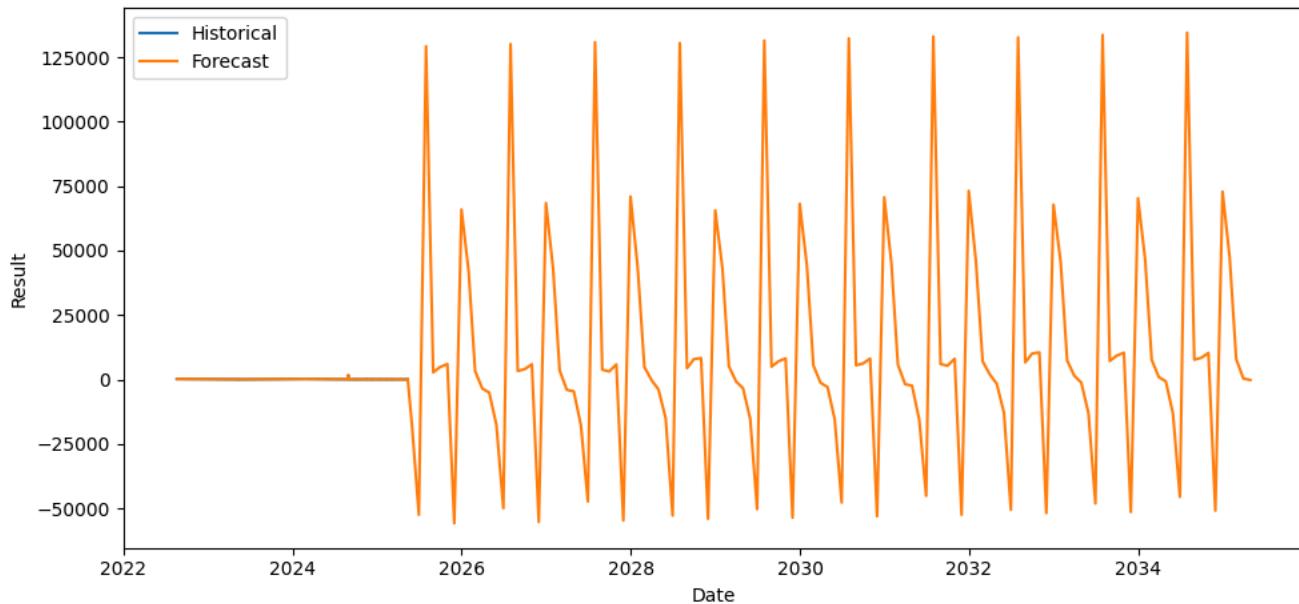
for (county, analyte), grp in fc_df.groupby(['county', 'analyte Name']):
    plt.figure(figsize=(10, 5))
    actual = df[(df[county_col] == county) & (df[analyte_col] == analyte)]
    plt.plot(actual['Analysis Complete Date'], actual['Result'], label='Historical')

    future = grp
    plt.plot(future['ds'], future['yhat'], label='Forecast')
    plt.fill_between(future['ds'], future['yhat_lower'], future['yhat_upper'], alpha=0.3)

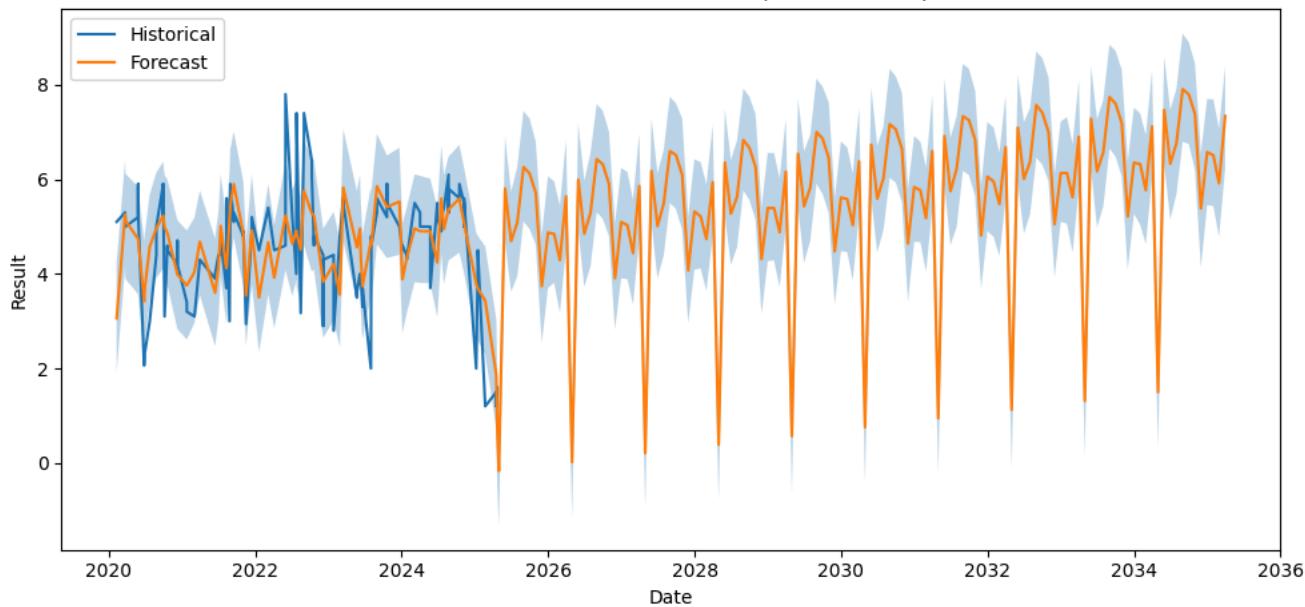
    plt.title(f"{analyte} Forecast in {county} (Next 10 Years)")
    plt.xlabel("Date")
    plt.ylabel("Result")
    plt.legend()
    plt.tight_layout()
    plt.show()
```



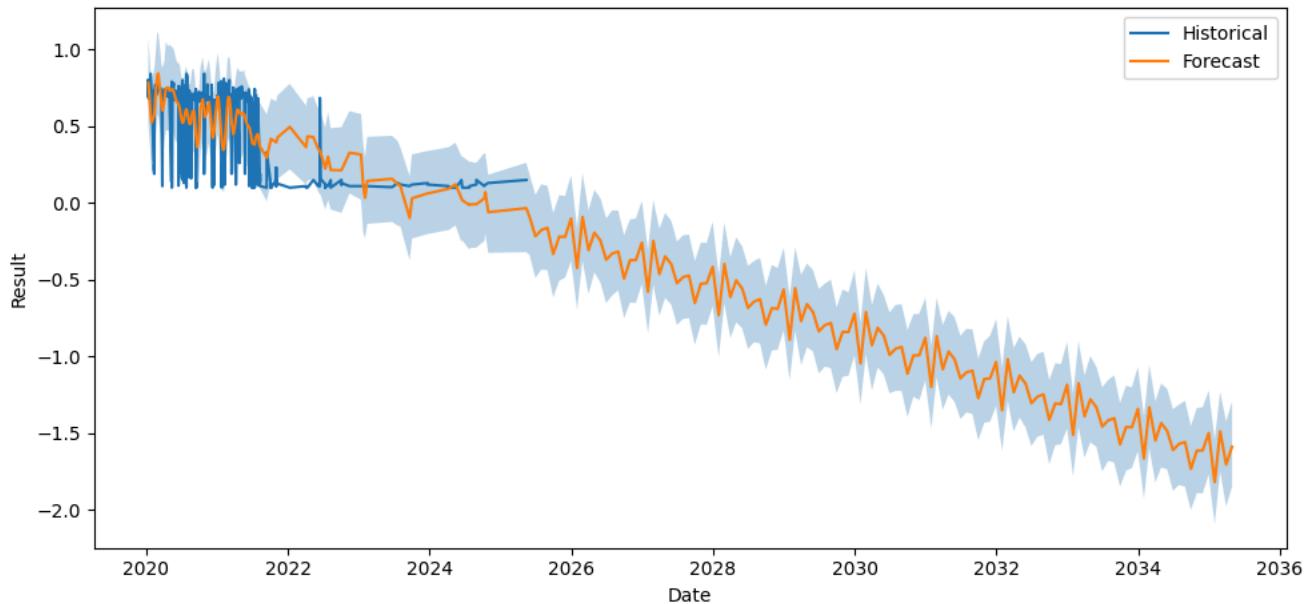
MANGANESE Forecast in (Next 10 Years)



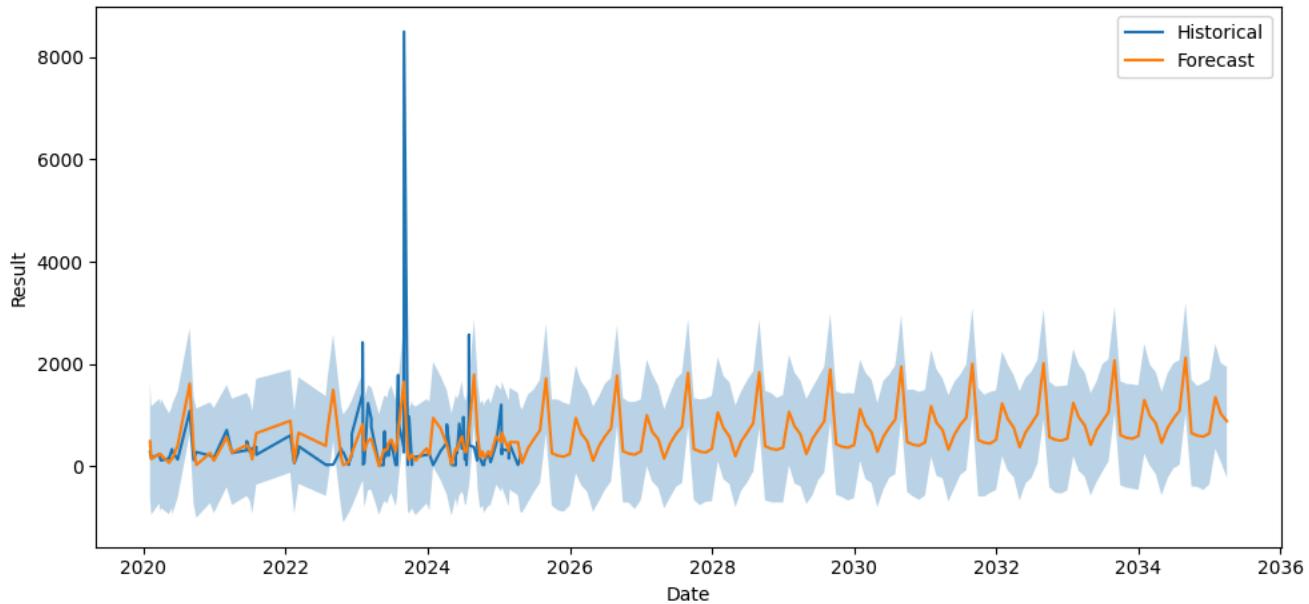
ARSENIC Forecast in ALAMEDA (Next 10 Years)



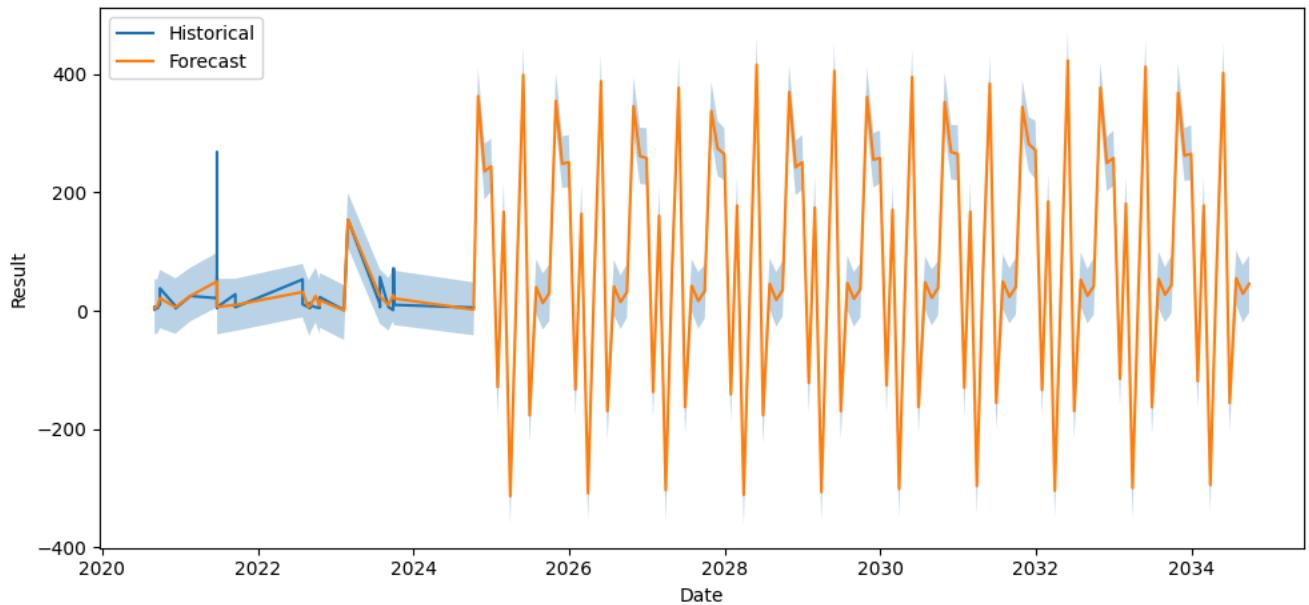
FLUORIDE Forecast in ALAMEDA (Next 10 Years)



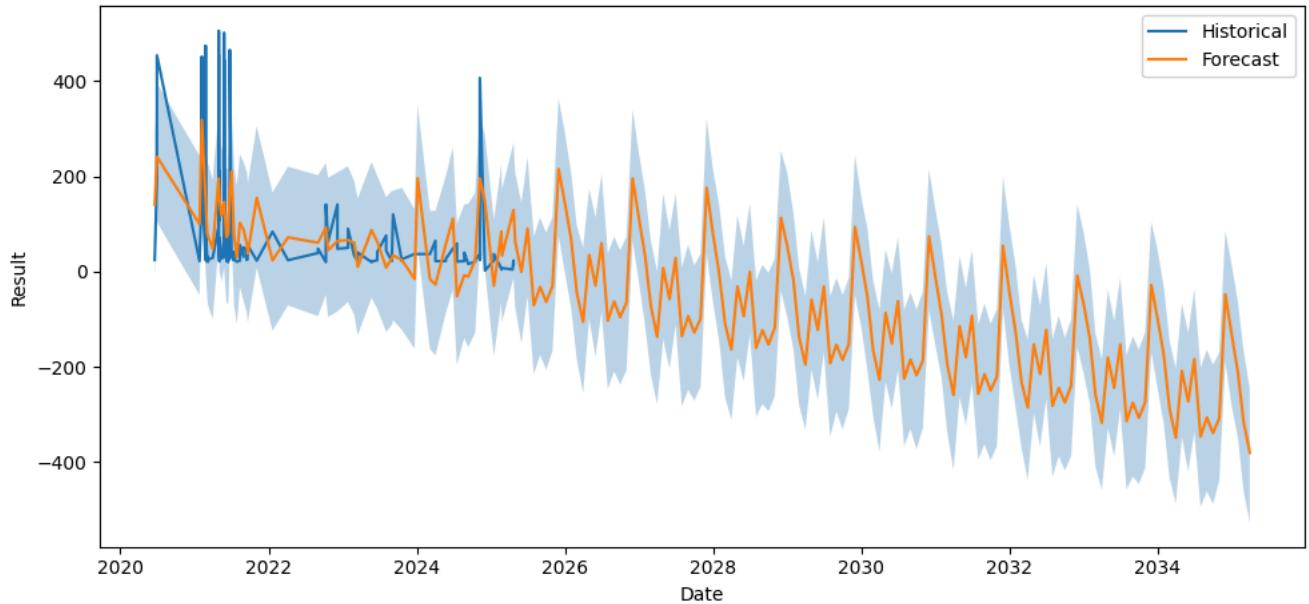
IRON Forecast in ALAMEDA (Next 10 Years)



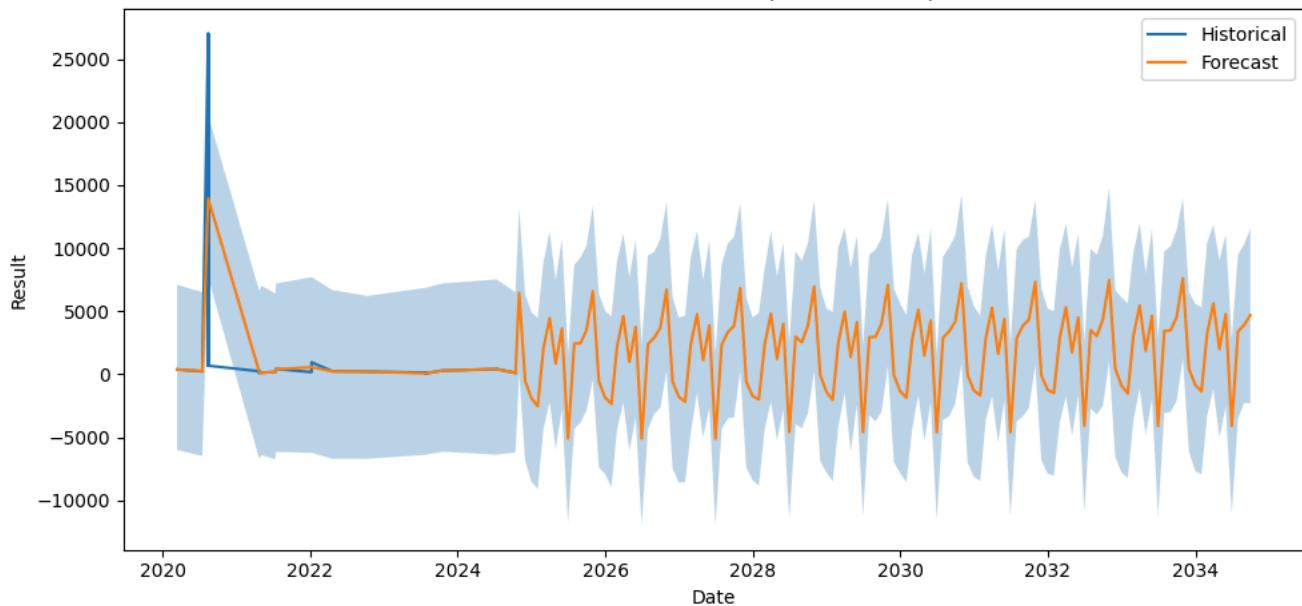
LEAD Forecast in ALAMEDA (Next 10 Years)



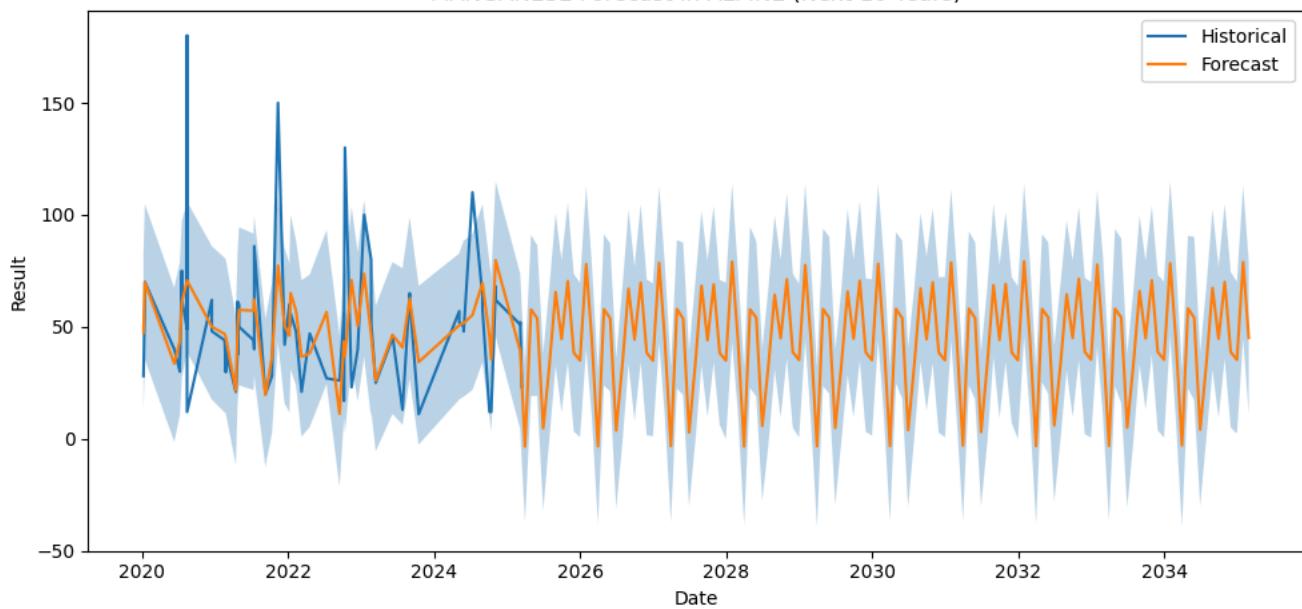
MANGANESE Forecast in ALAMEDA (Next 10 Years)



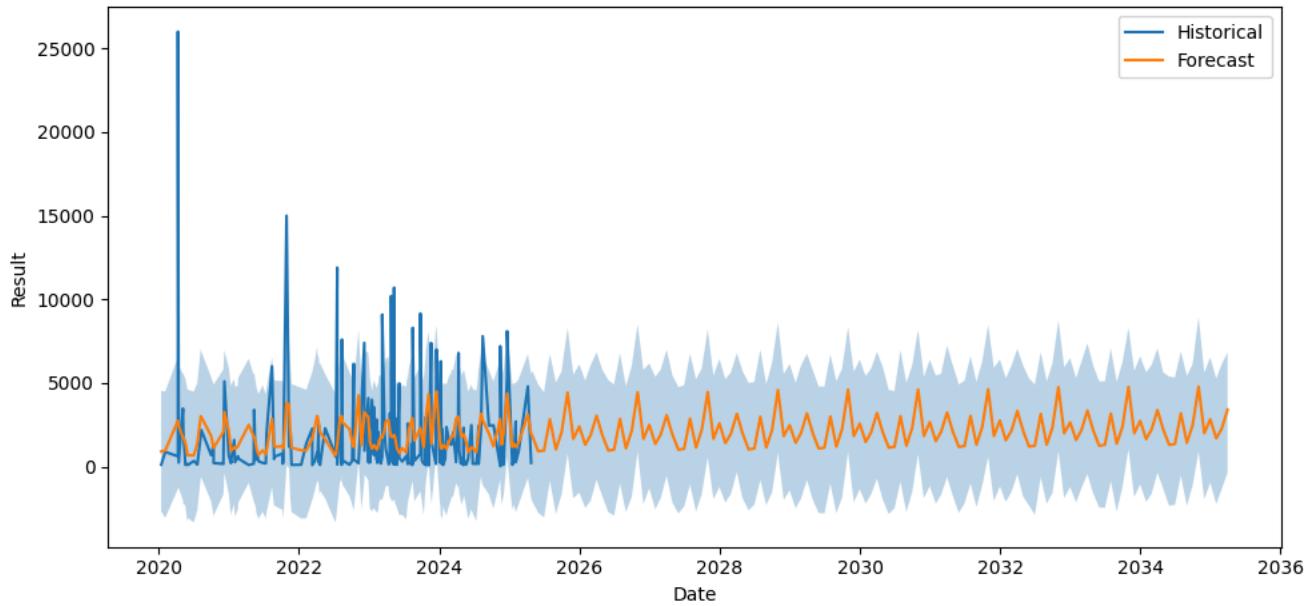
IRON Forecast in ALPINE (Next 10 Years)



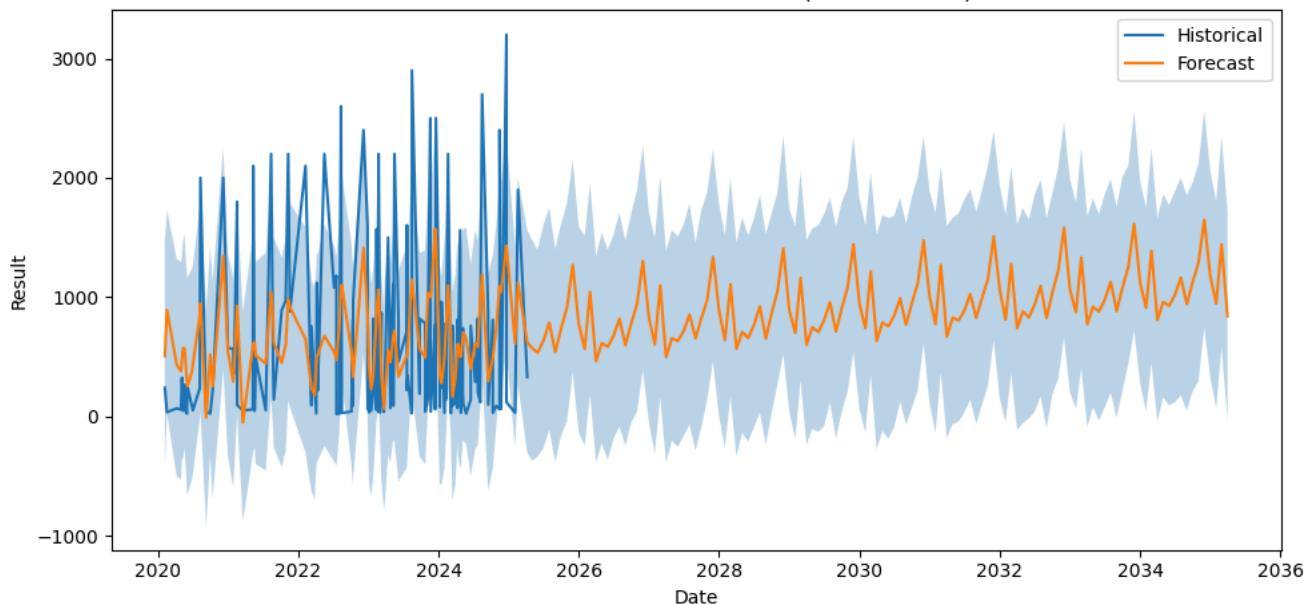
MANGANESE Forecast in ALPINE (Next 10 Years)



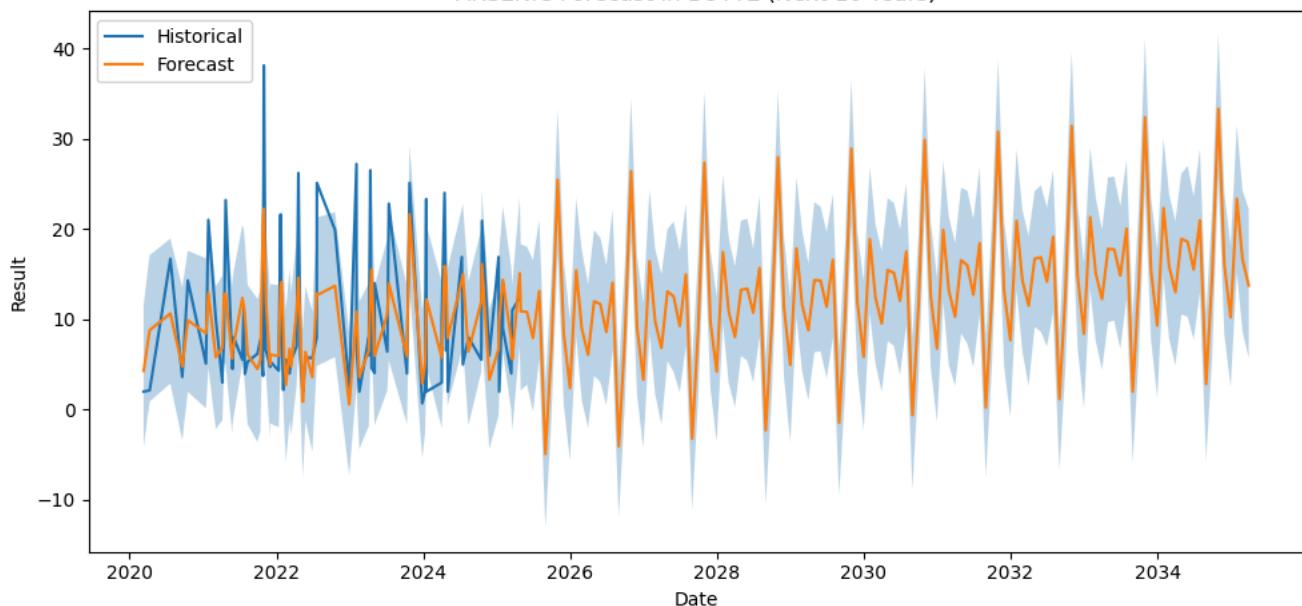
IRON Forecast in AMADOR (Next 10 Years)



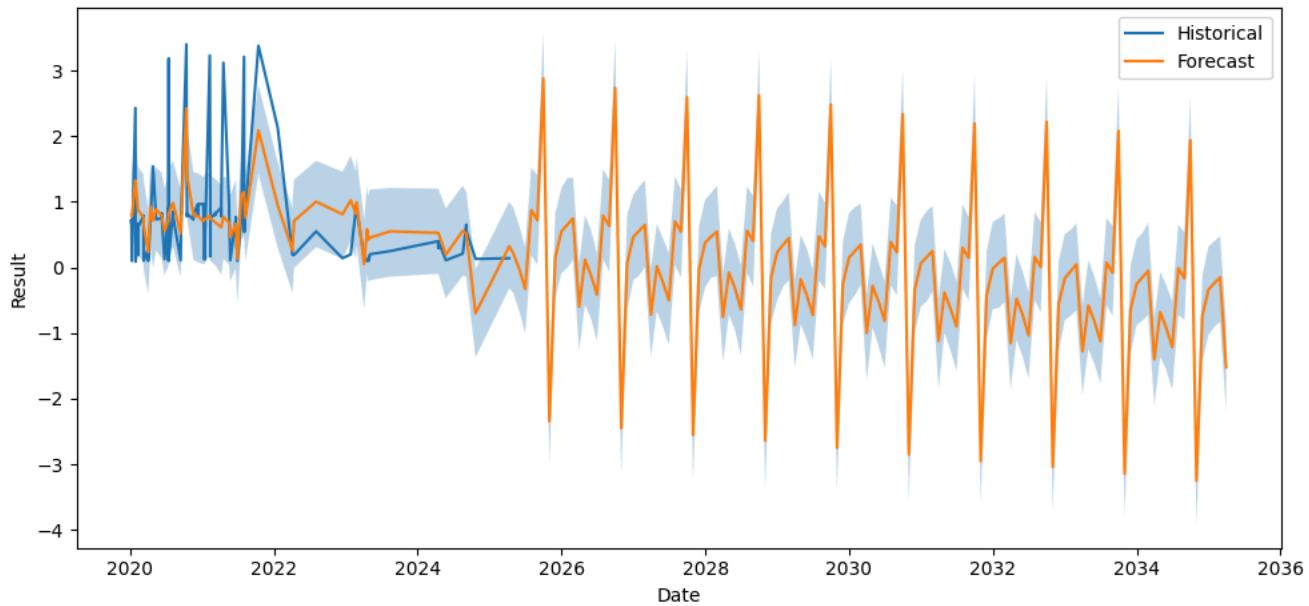
MANGANESE Forecast in AMADOR (Next 10 Years)



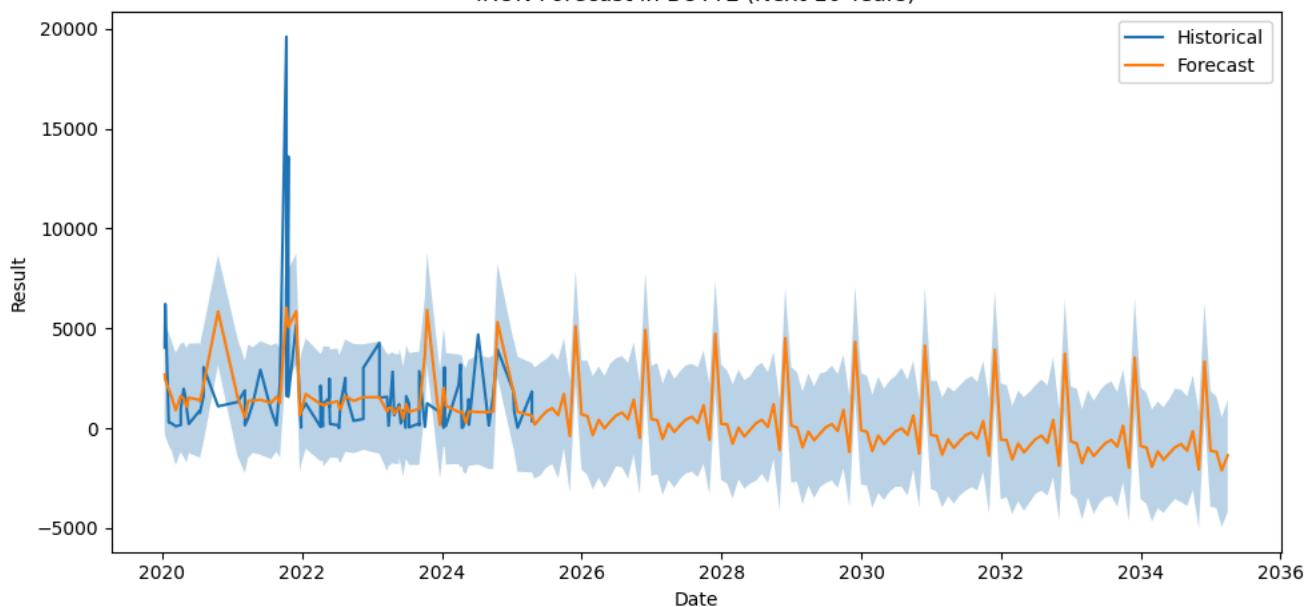
ARSENIC Forecast in BUTTE (Next 10 Years)



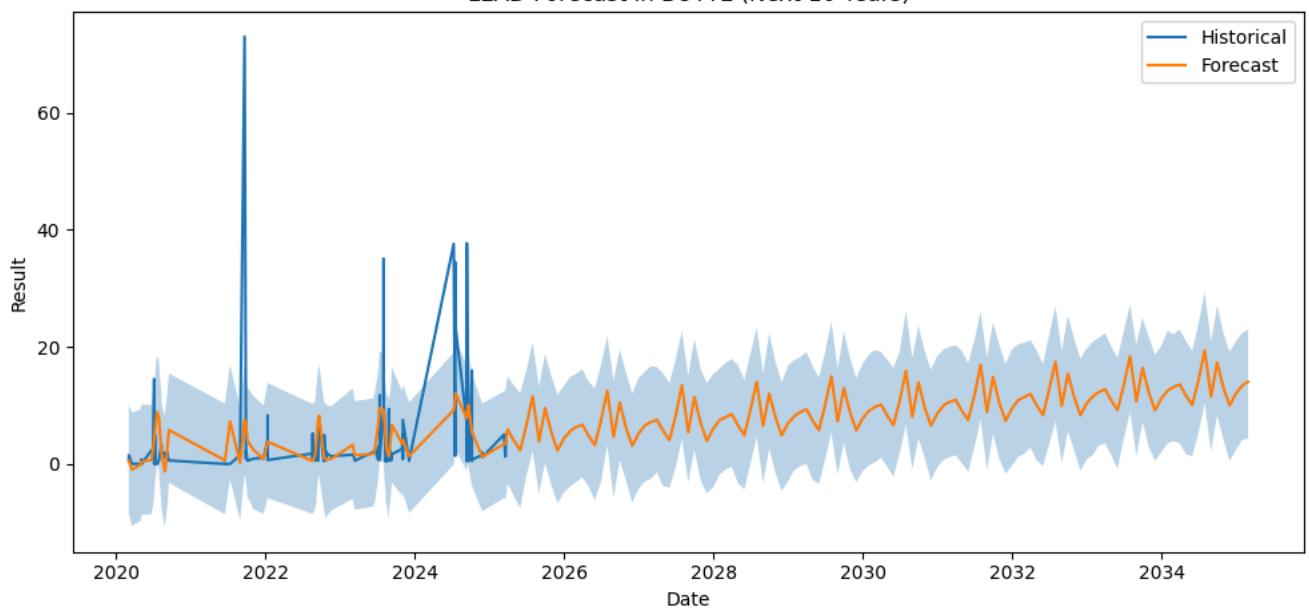
FLUORIDE Forecast in BUTTE (Next 10 Years)



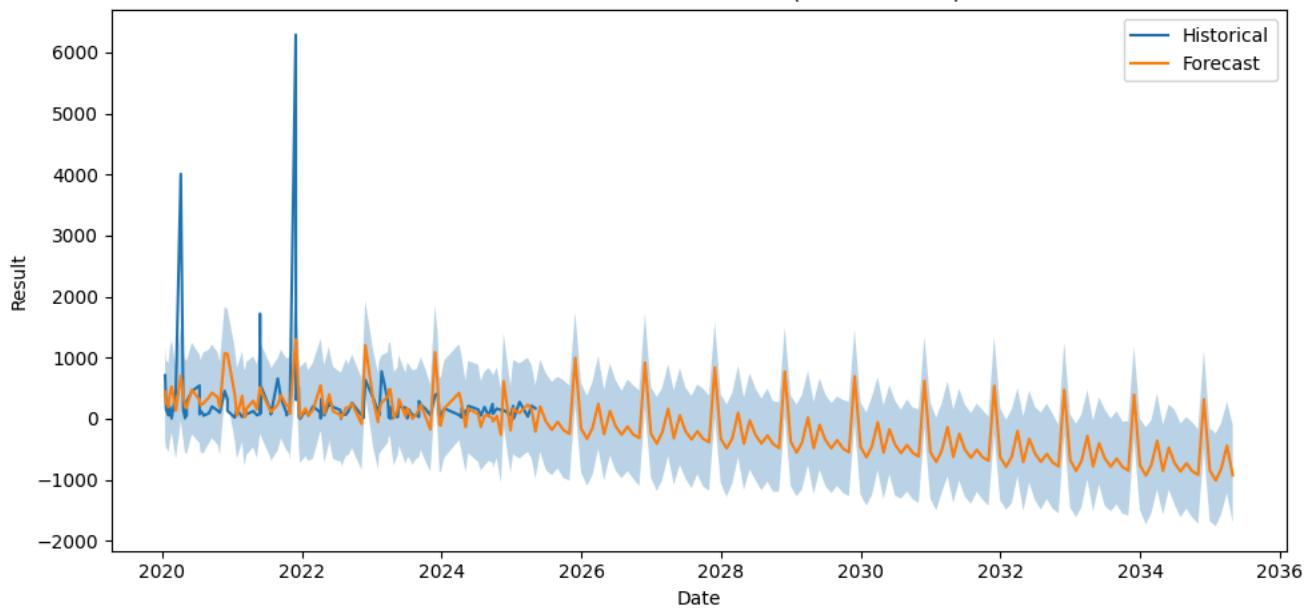
IRON Forecast in BUTTE (Next 10 Years)



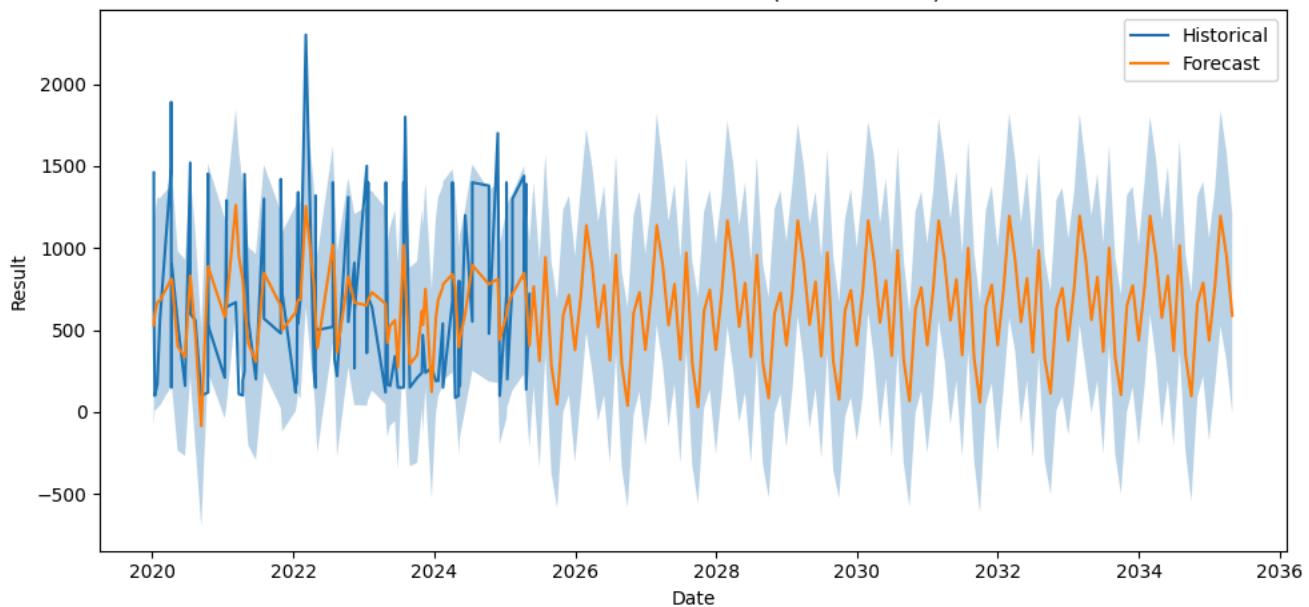
LEAD Forecast in BUTTE (Next 10 Years)



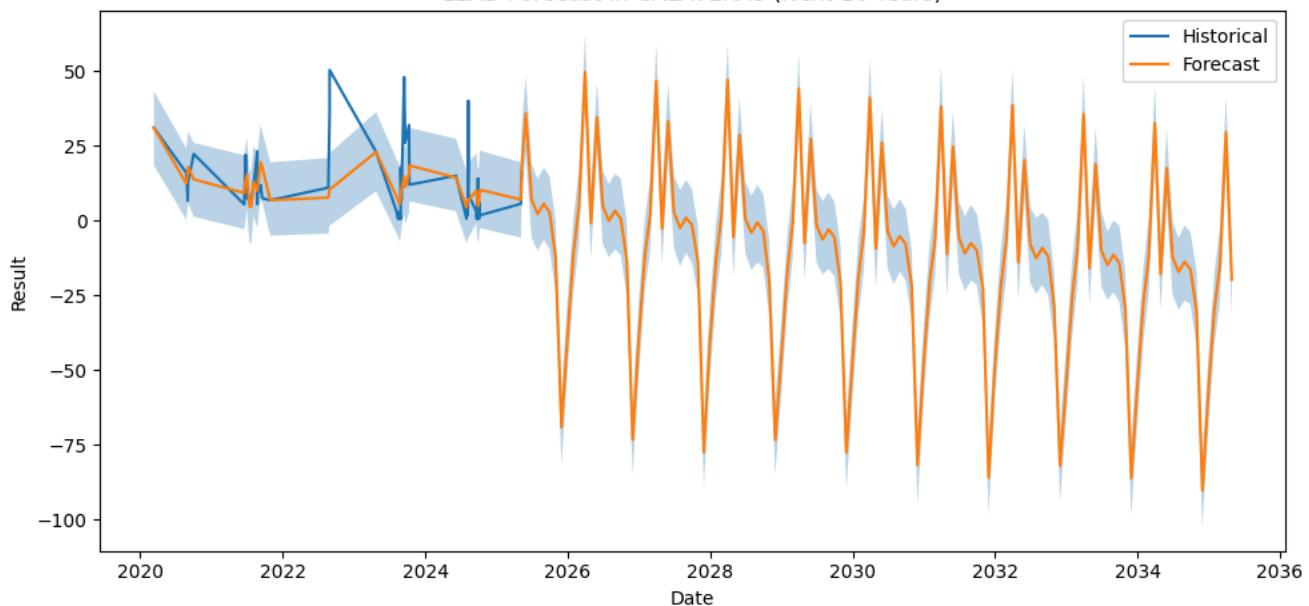
MANGANESE Forecast in BUTTE (Next 10 Years)



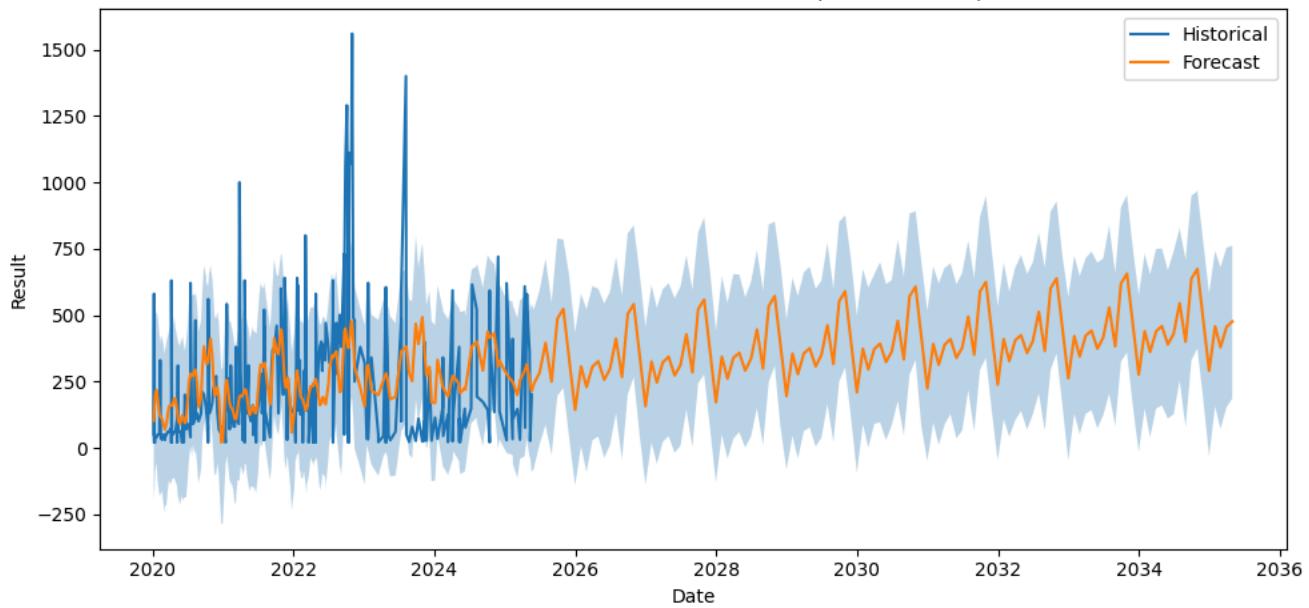
IRON Forecast in CALAVERAS (Next 10 Years)



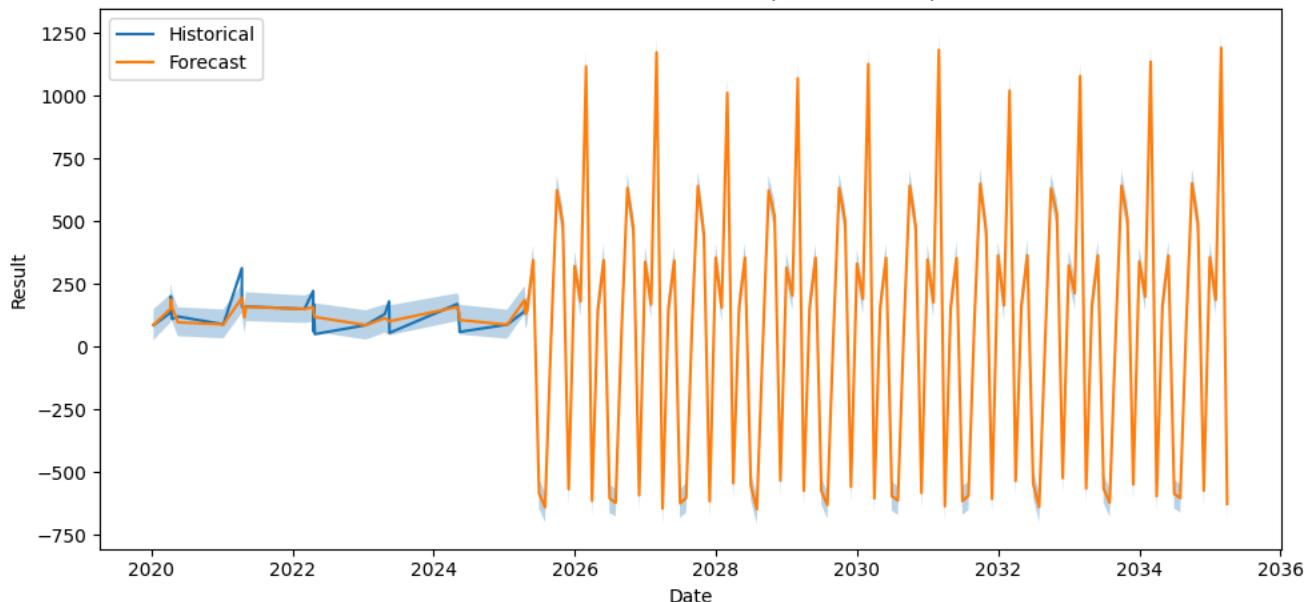
LEAD Forecast in CALAVERAS (Next 10 Years)



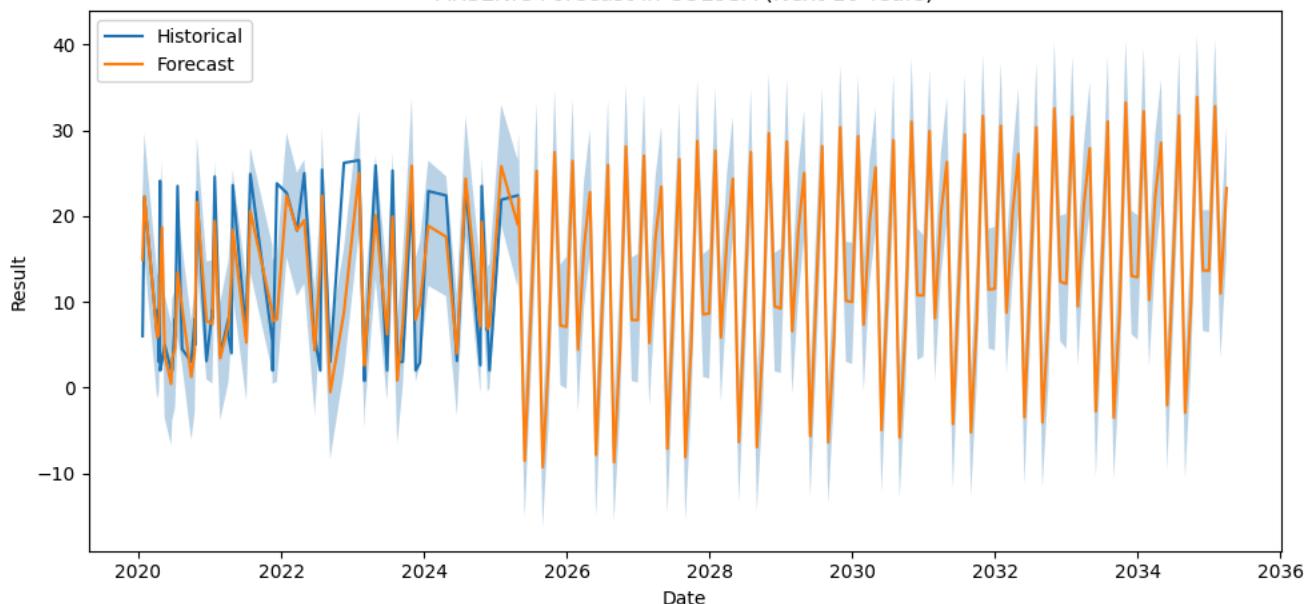
MANGANESE Forecast in CALAVERAS (Next 10 Years)



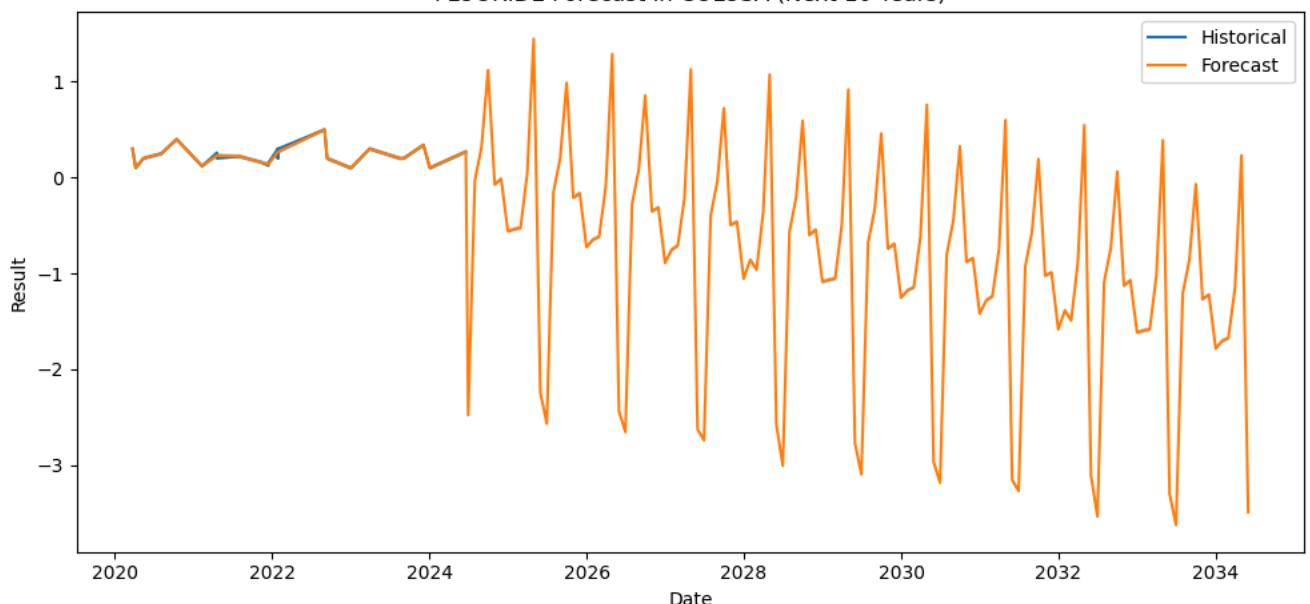
ZINC Forecast in CALAVERAS (Next 10 Years)



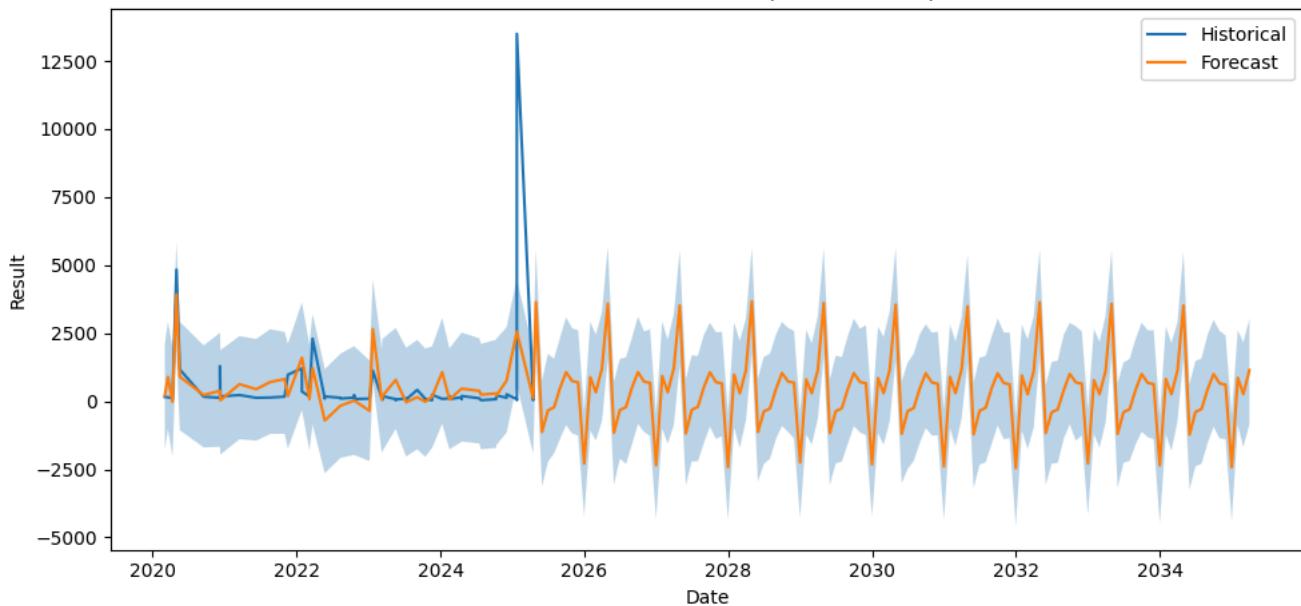
ARSENIC Forecast in COLUSA (Next 10 Years)



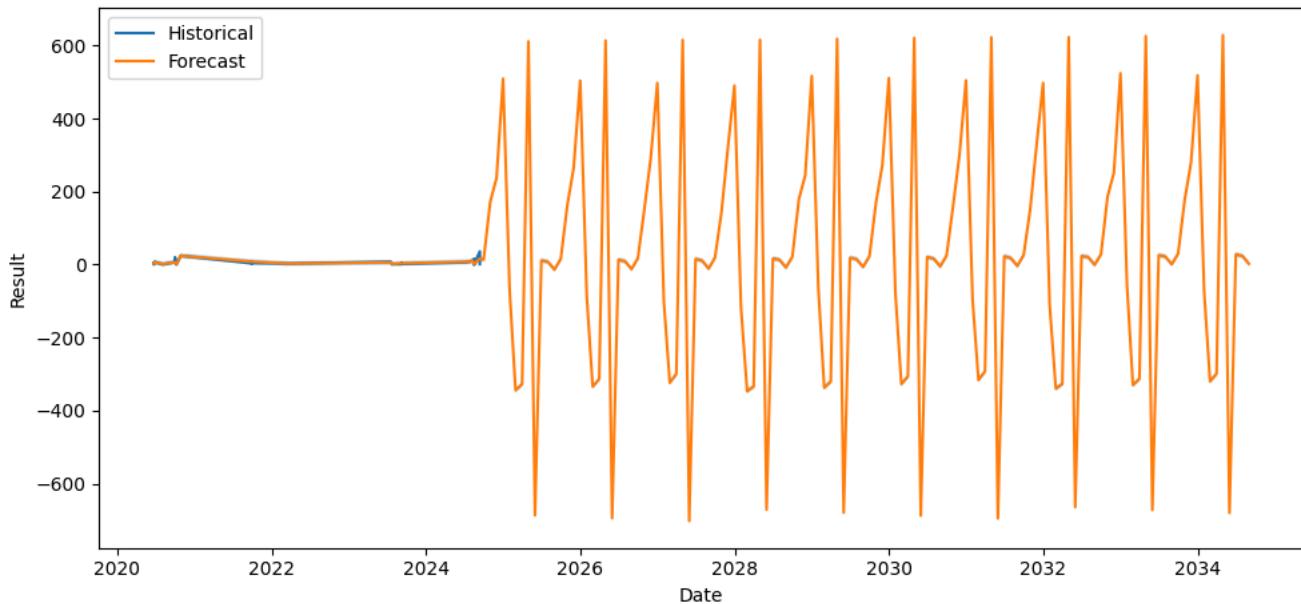
FLUORIDE Forecast in COLUSA (Next 10 Years)



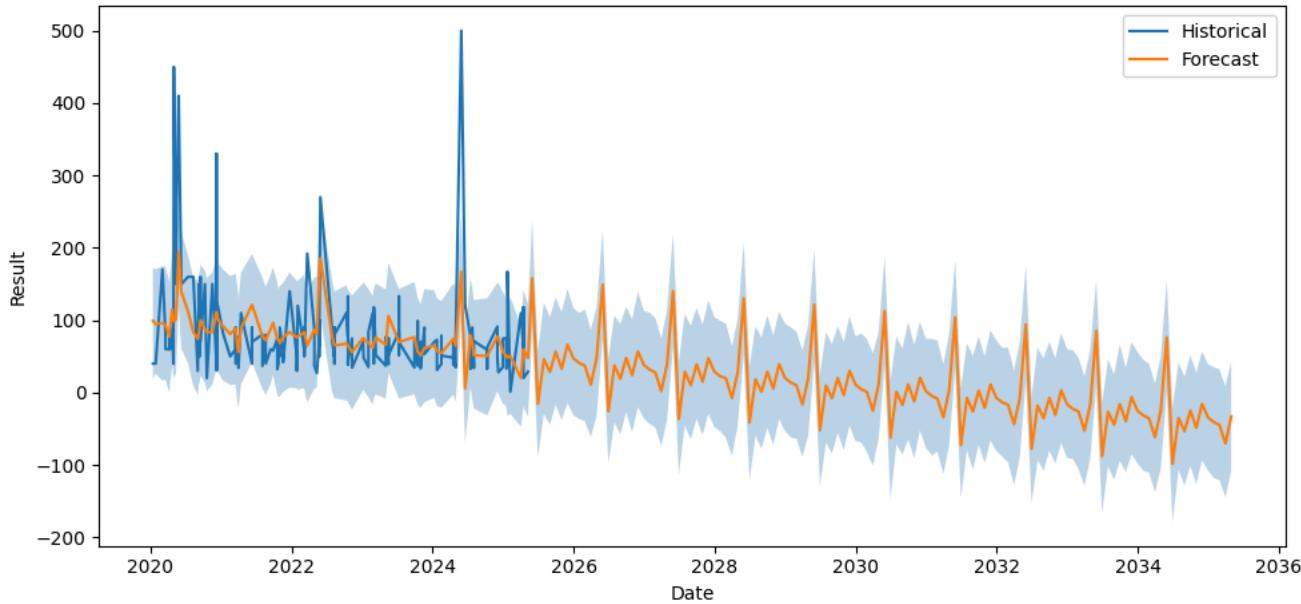
IRON Forecast in COLUSA (Next 10 Years)



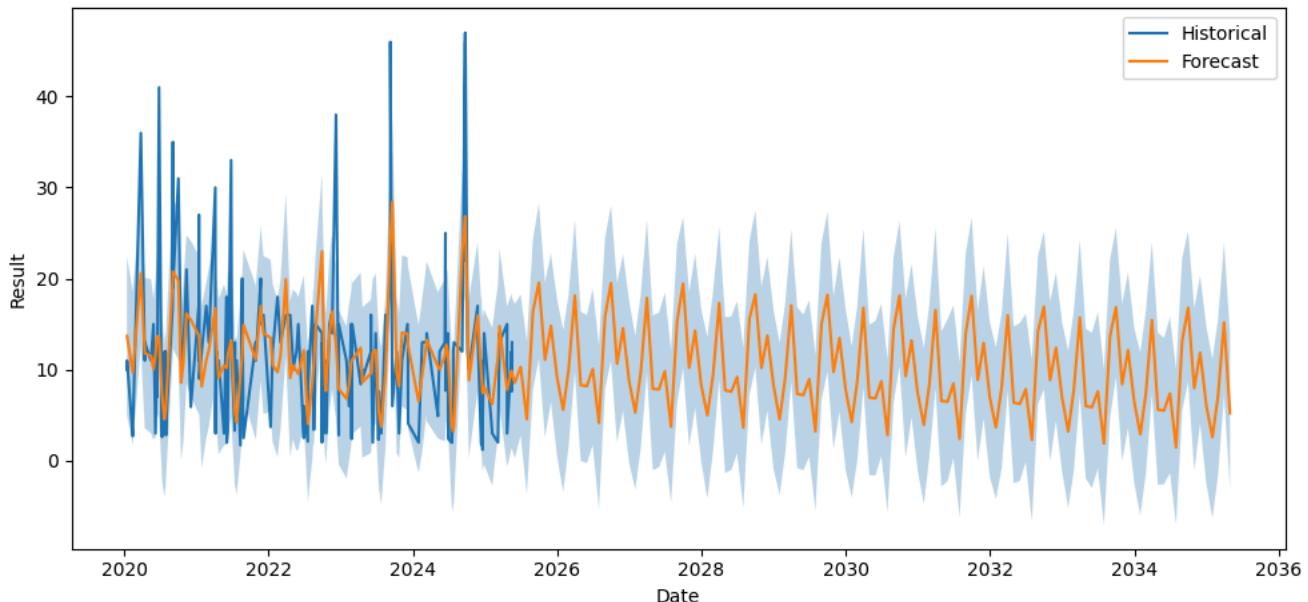
LEAD Forecast in COLUSA (Next 10 Years)



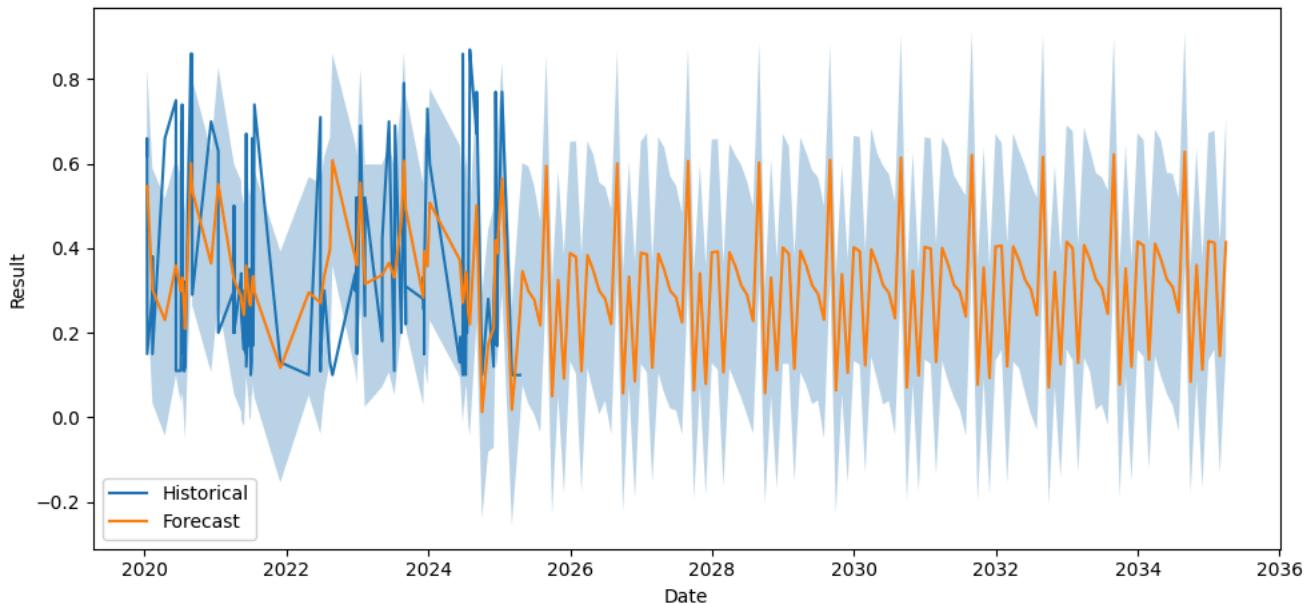
MANGANESE Forecast in COLUSA (Next 10 Years)



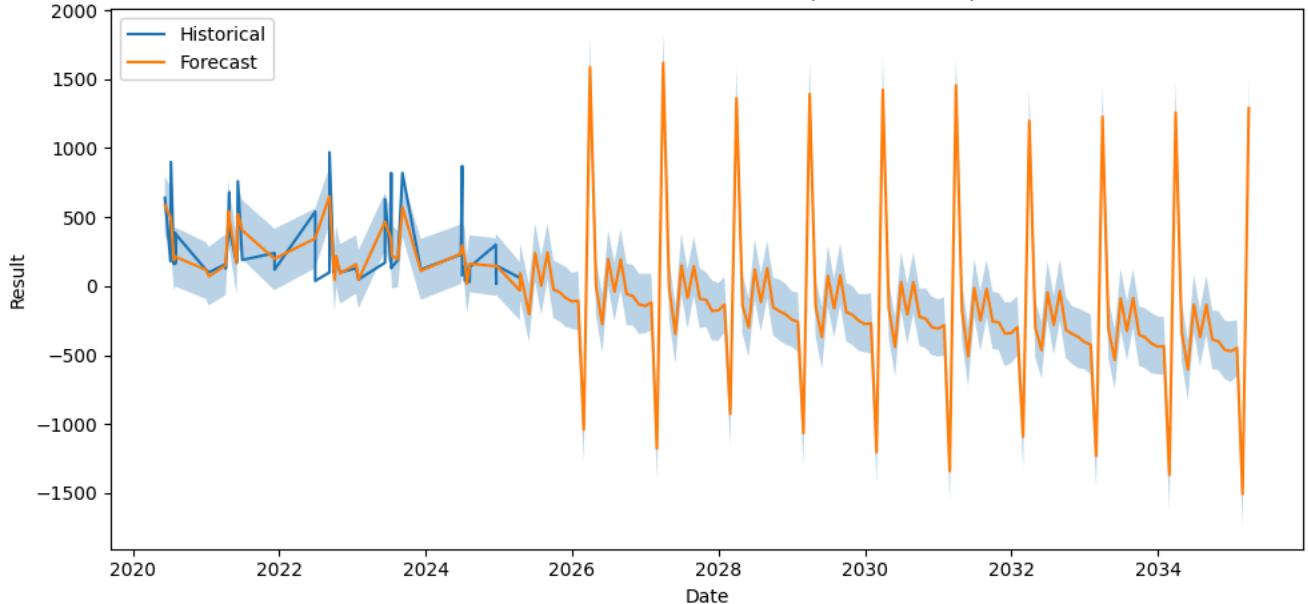
ARSENIC Forecast in CONTRA COSTA (Next 10 Years)



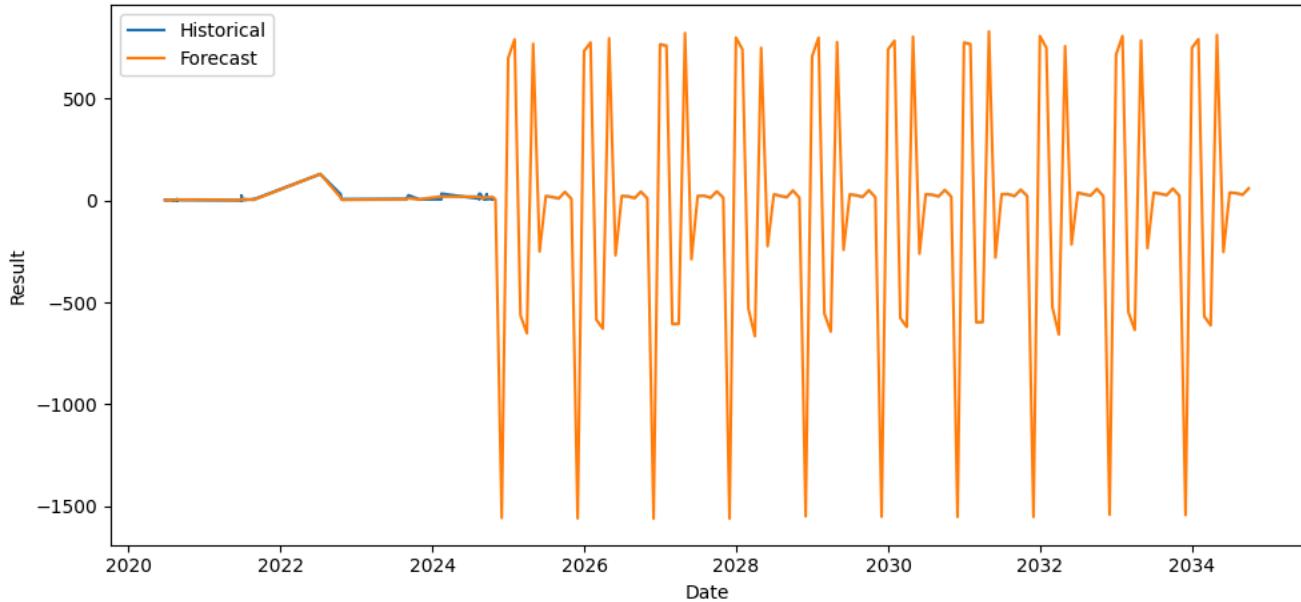
FLUORIDE Forecast in CONTRA COSTA (Next 10 Years)



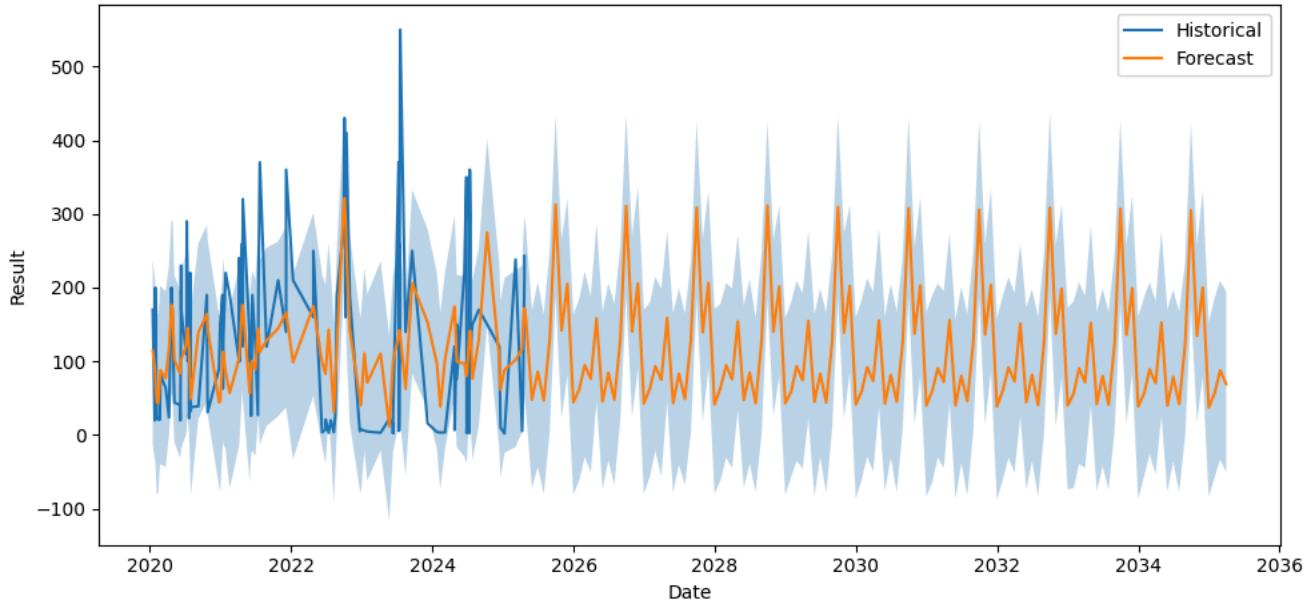
IRON Forecast in CONTRA COSTA (Next 10 Years)



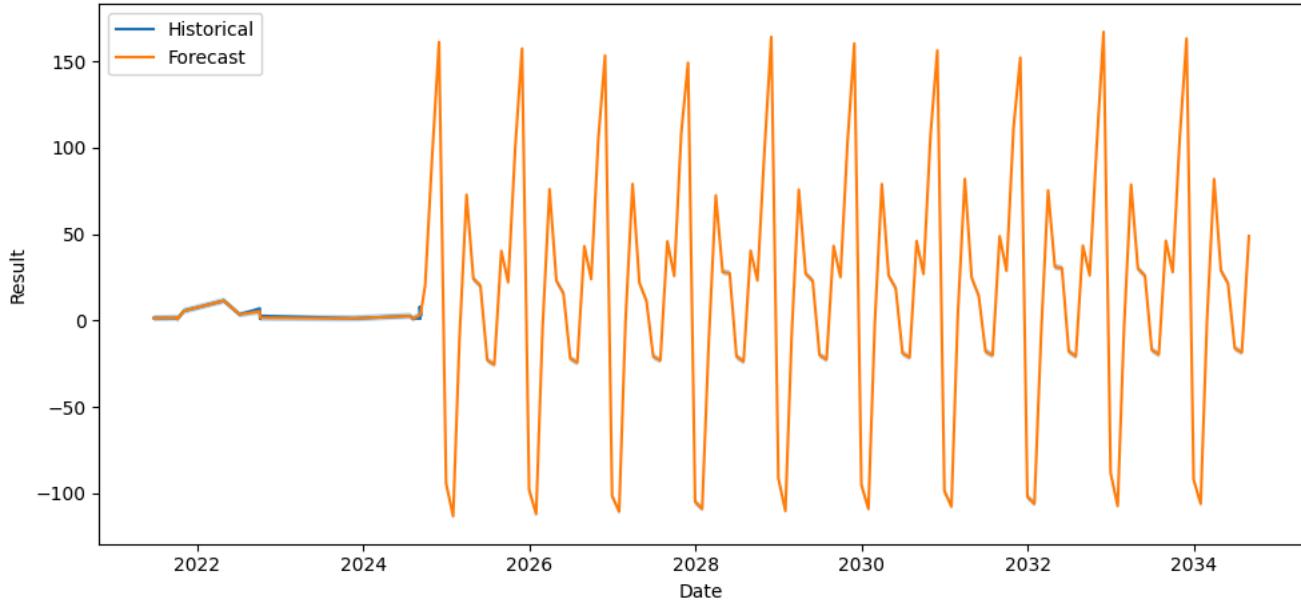
LEAD Forecast in CONTRA COSTA (Next 10 Years)



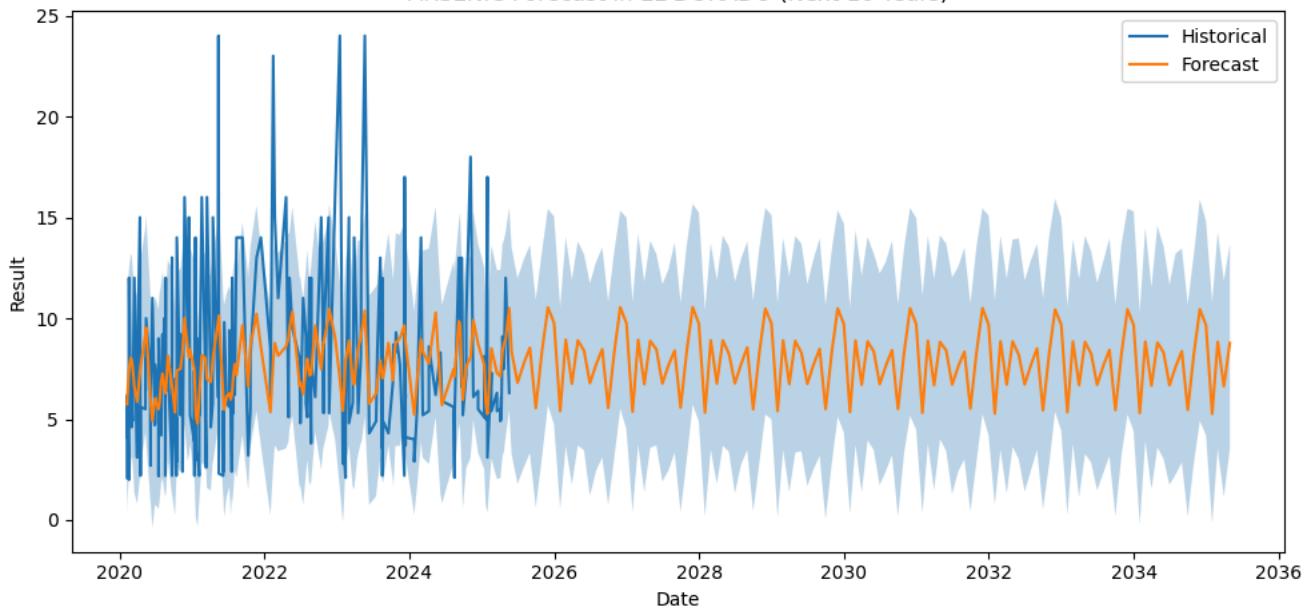
MANGANESE Forecast in CONTRA COSTA (Next 10 Years)



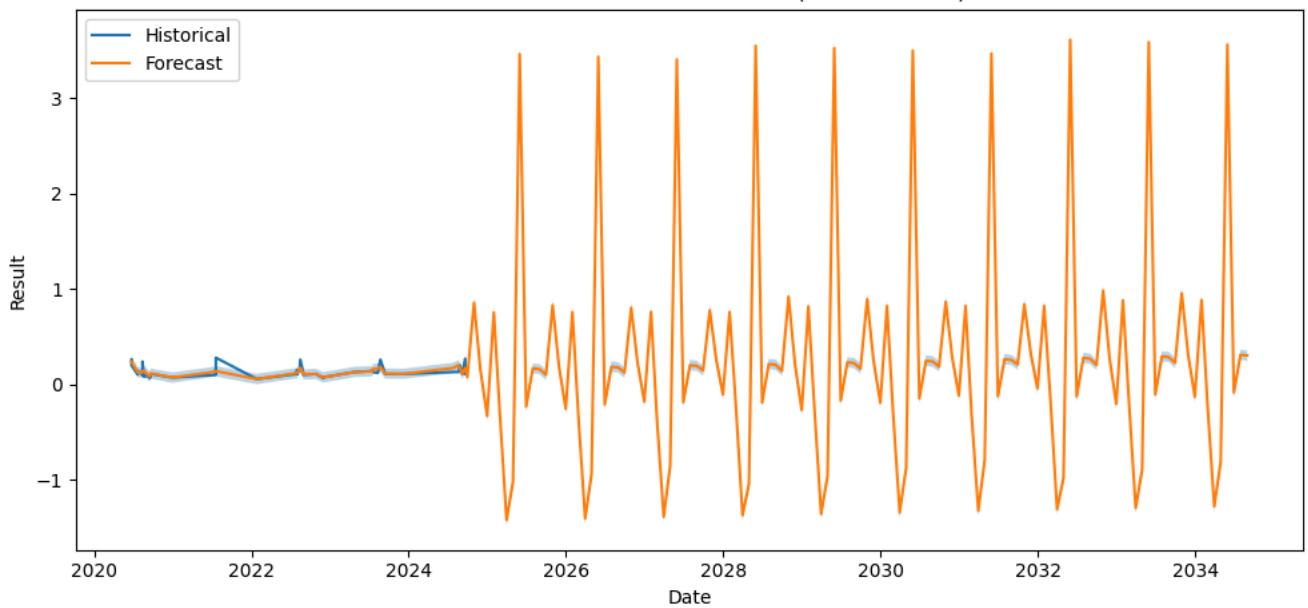
LEAD Forecast in DEL NORTE (Next 10 Years)



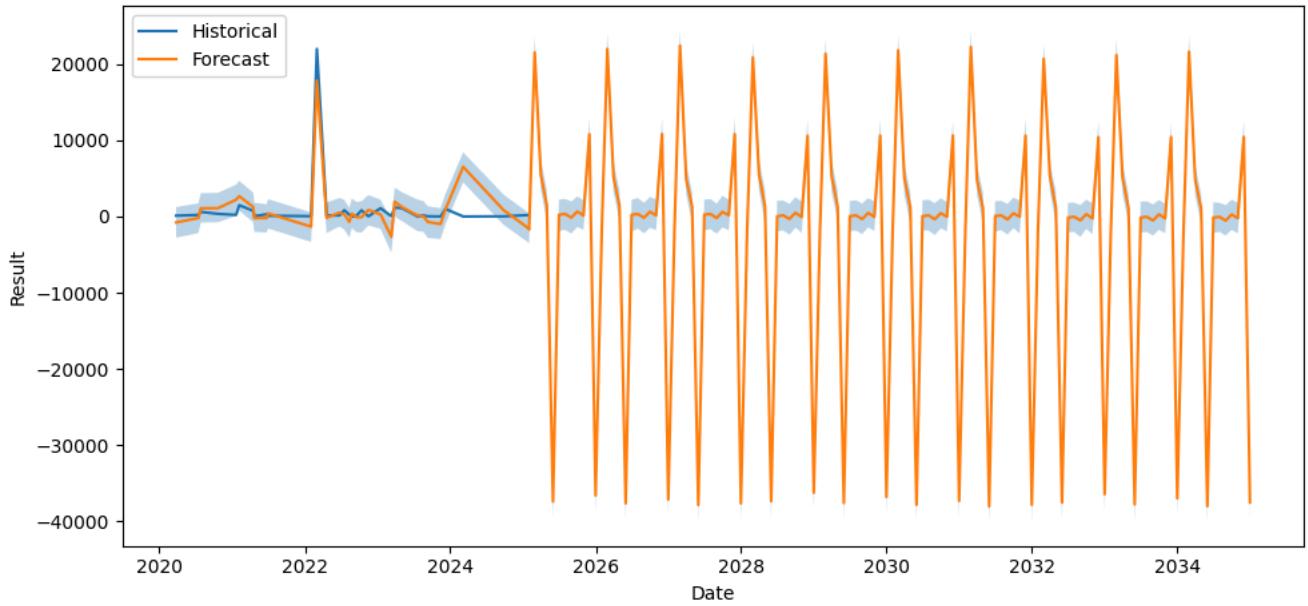
ARSENIC Forecast in EL DORADO (Next 10 Years)



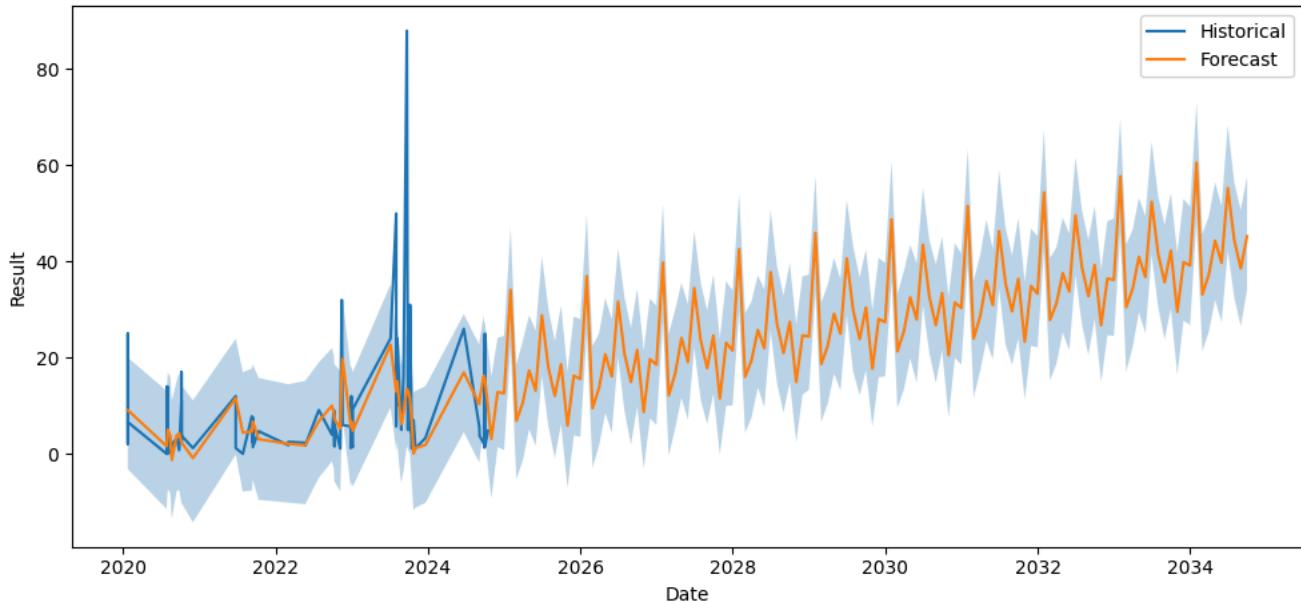
FLUORIDE Forecast in EL DORADO (Next 10 Years)



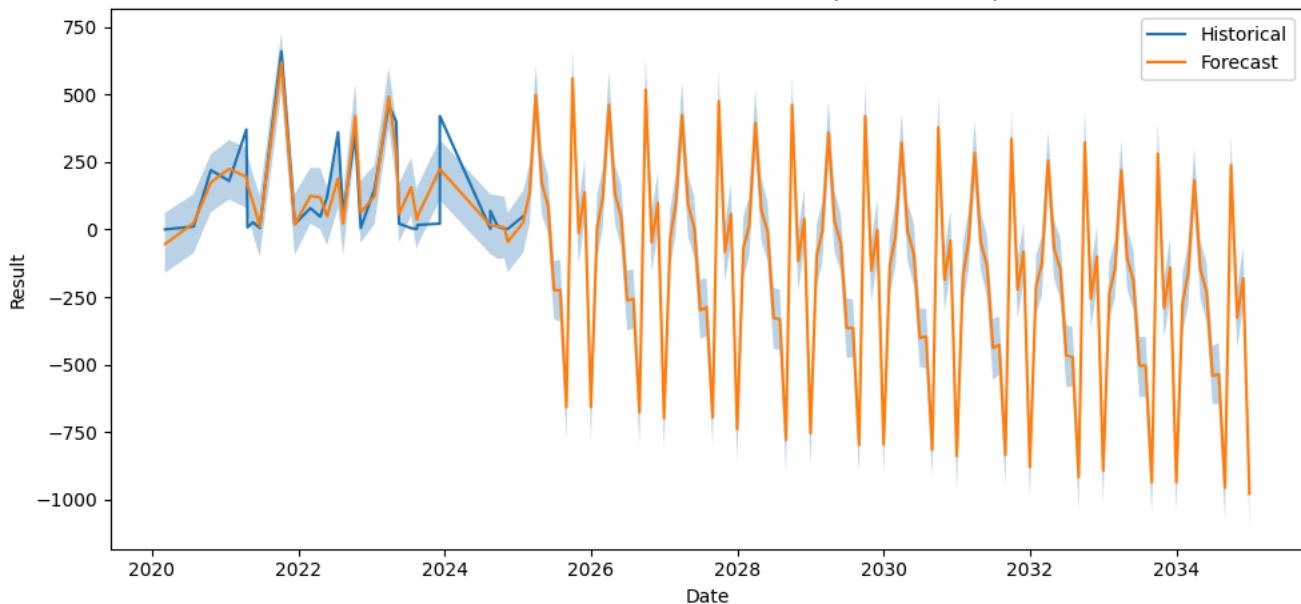
IRON Forecast in EL DORADO (Next 10 Years)



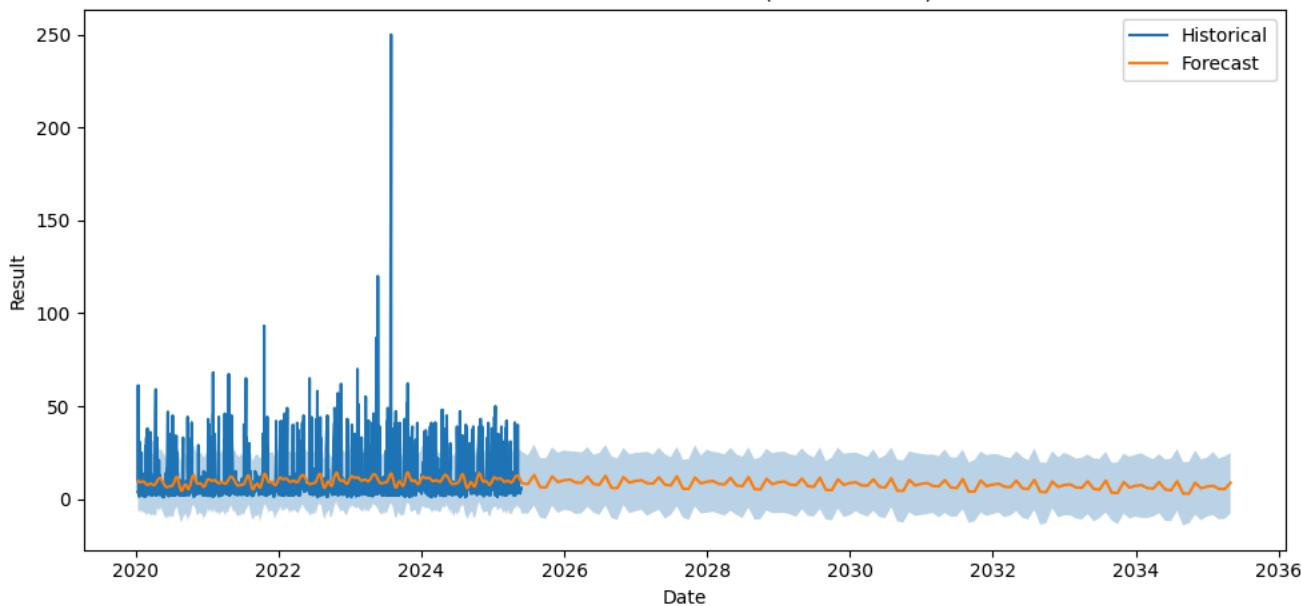
LEAD Forecast in EL DORADO (Next 10 Years)



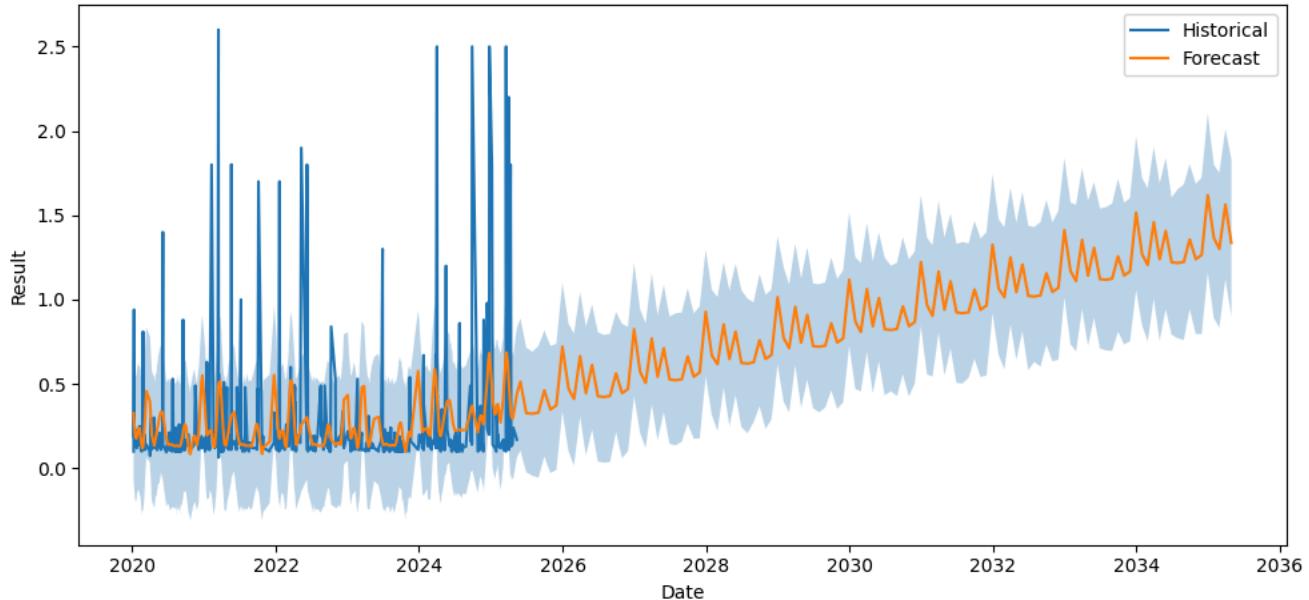
MANGANESE Forecast in EL DORADO (Next 10 Years)



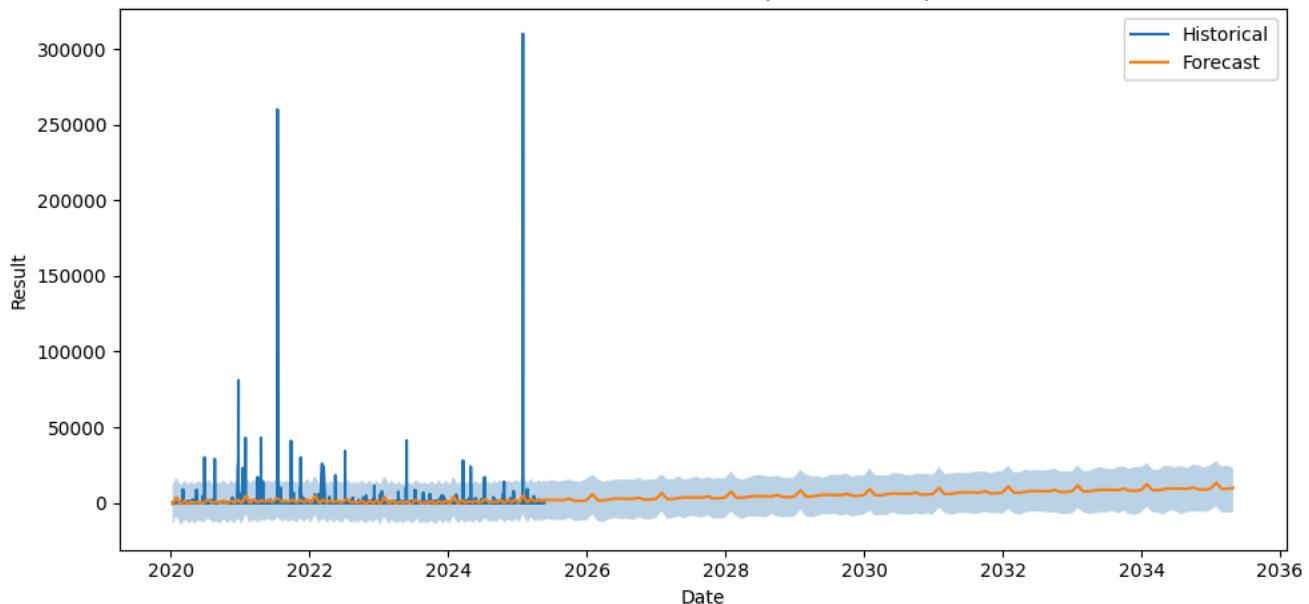
ARSENIC Forecast in FRESNO (Next 10 Years)



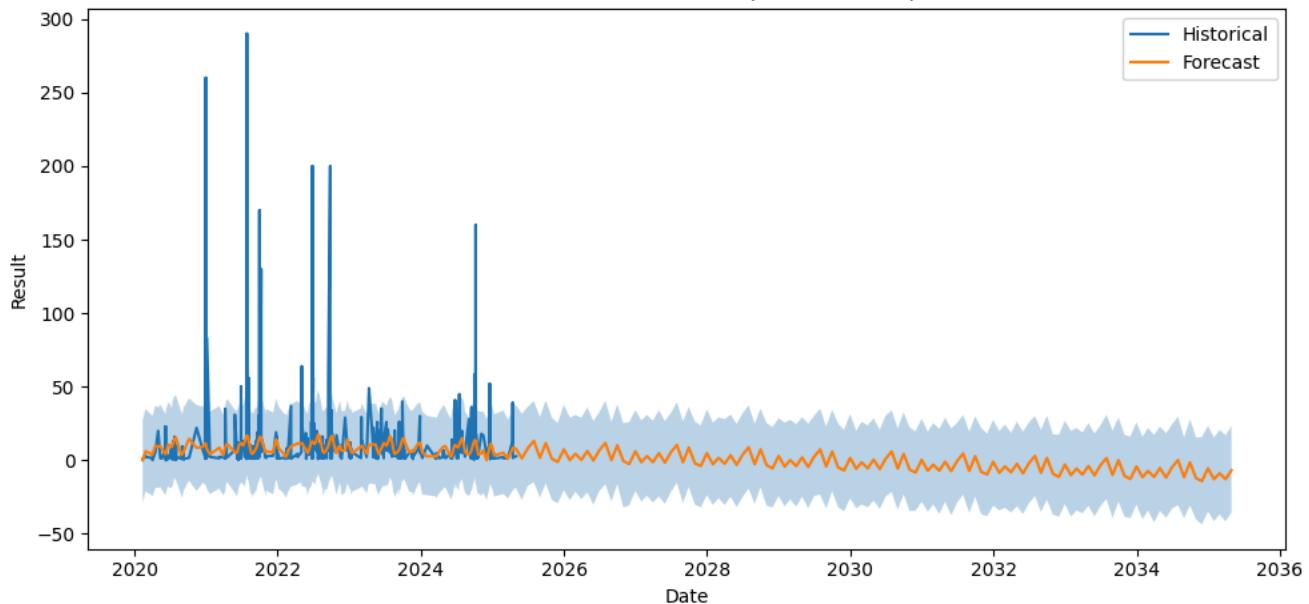
FLUORIDE Forecast in FRESNO (Next 10 Years)

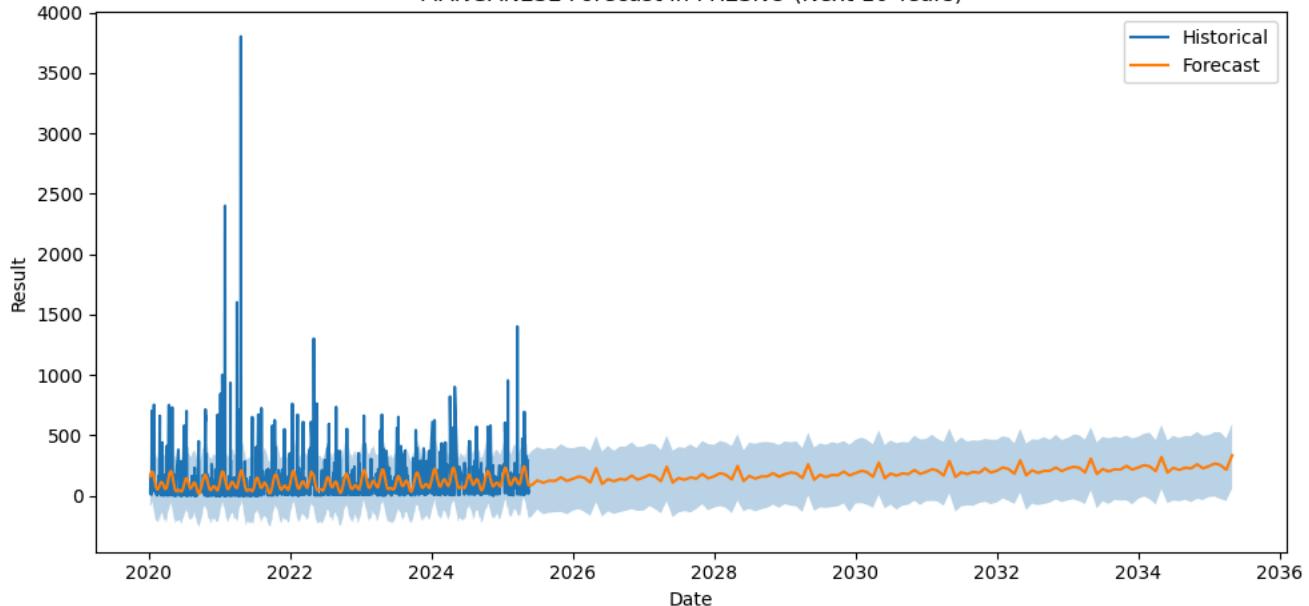


IRON Forecast in FRESNO (Next 10 Years)

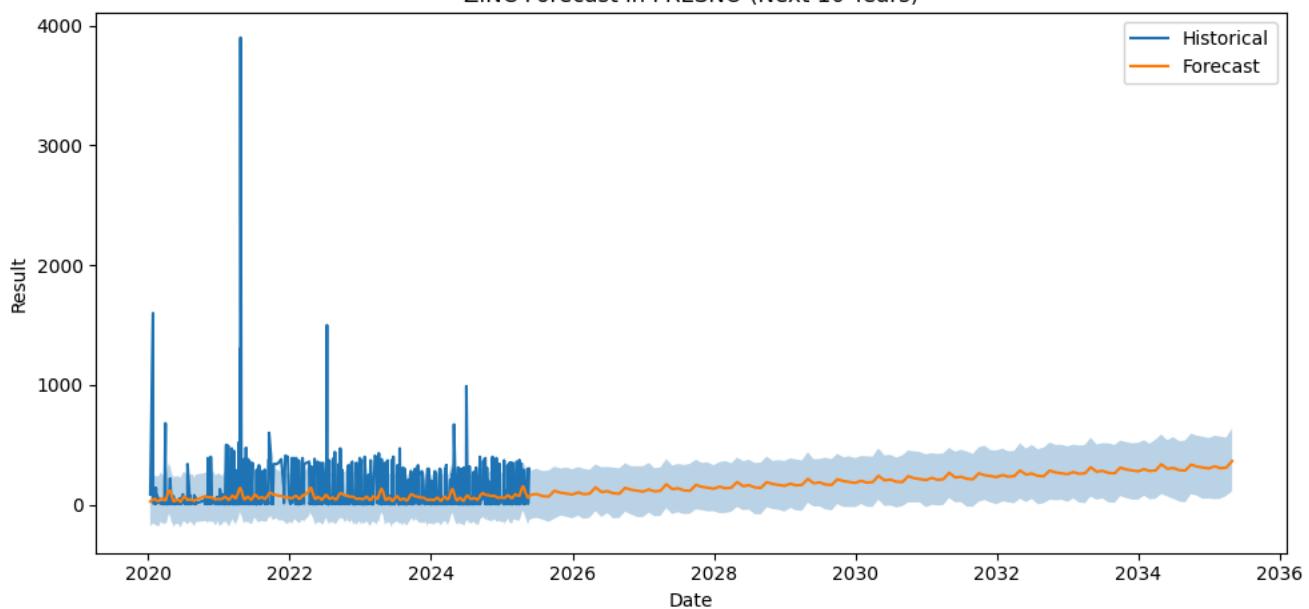


LEAD Forecast in FRESNO (Next 10 Years)

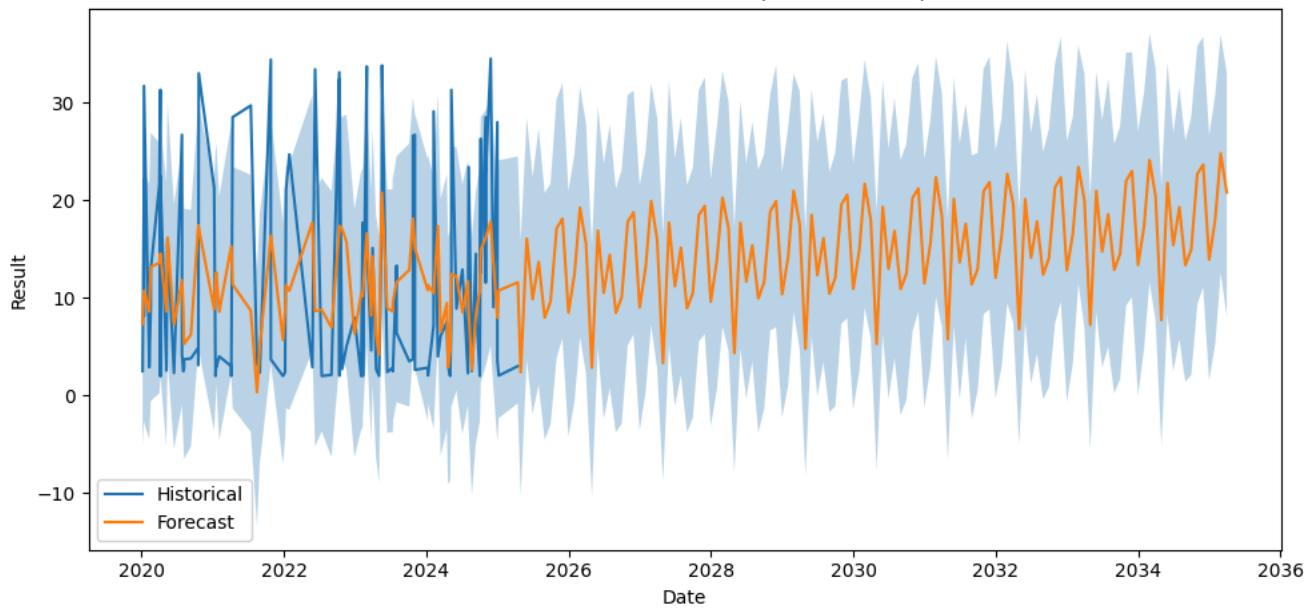


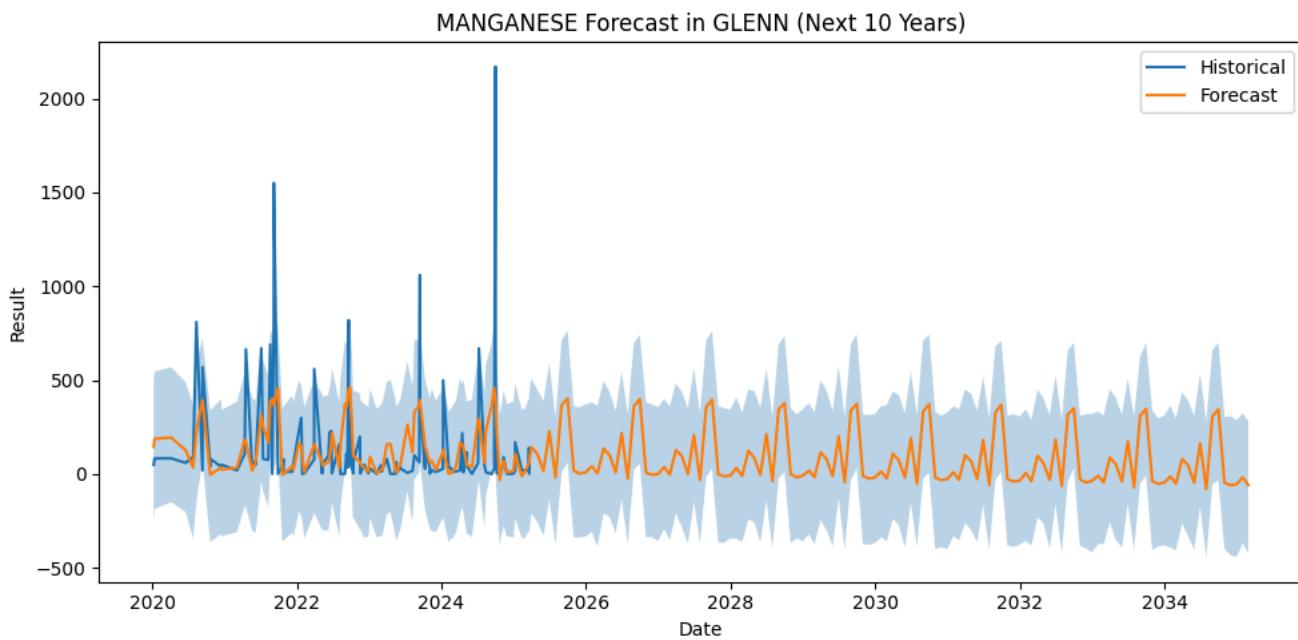
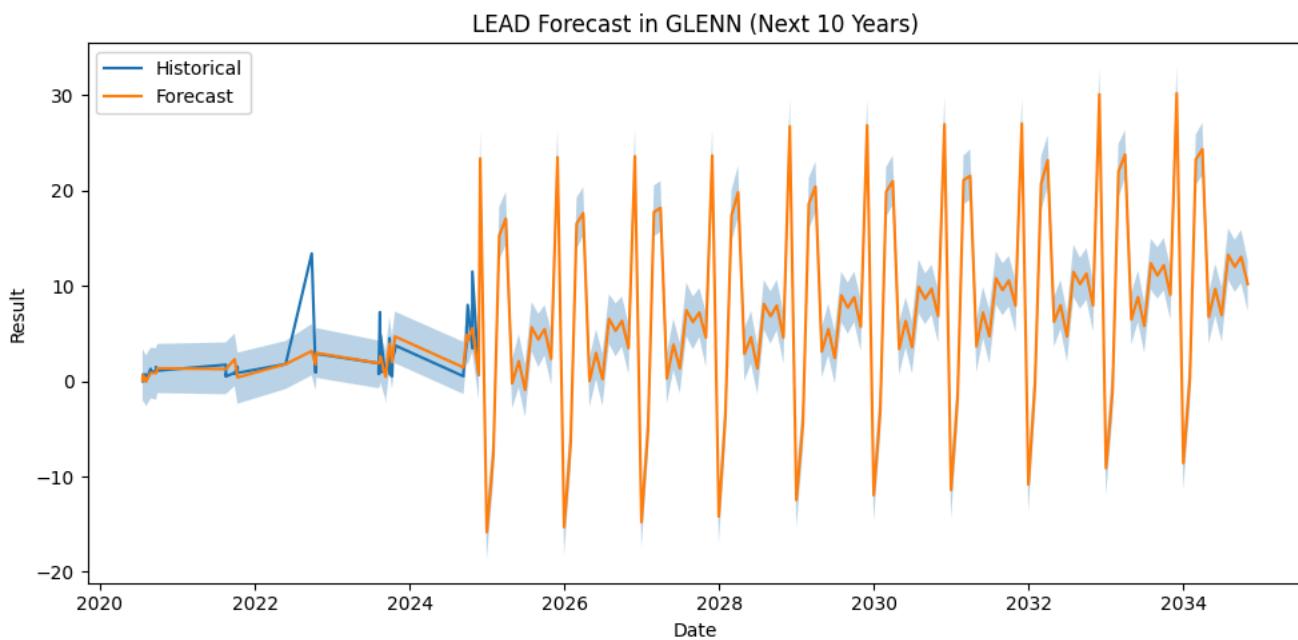
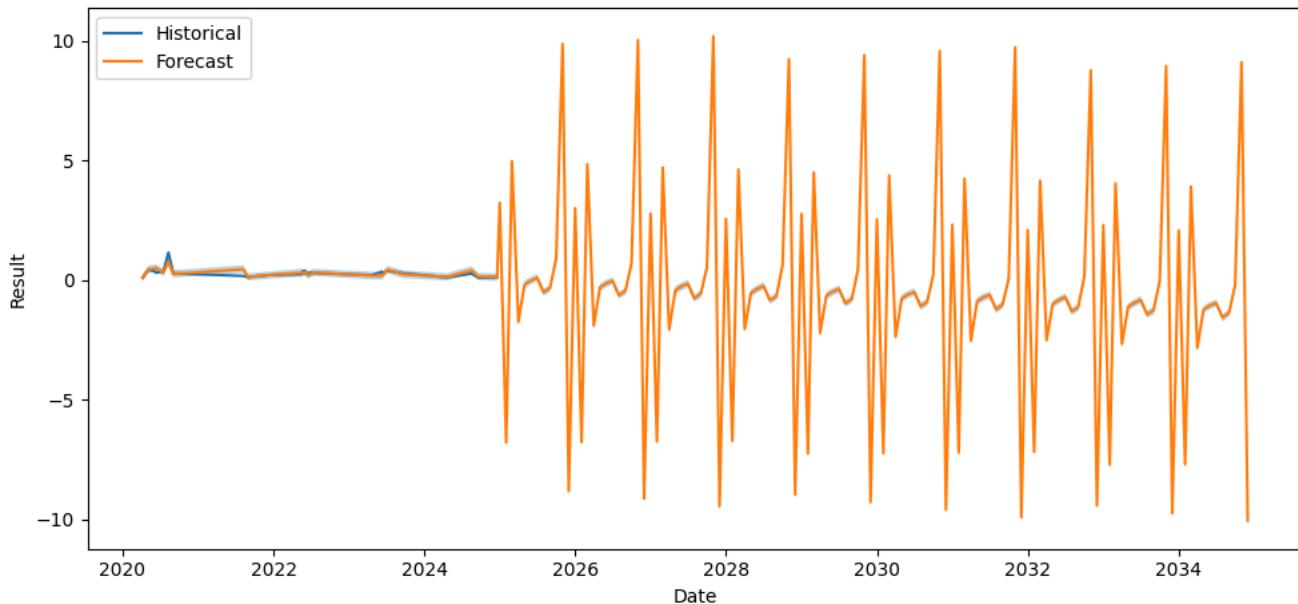


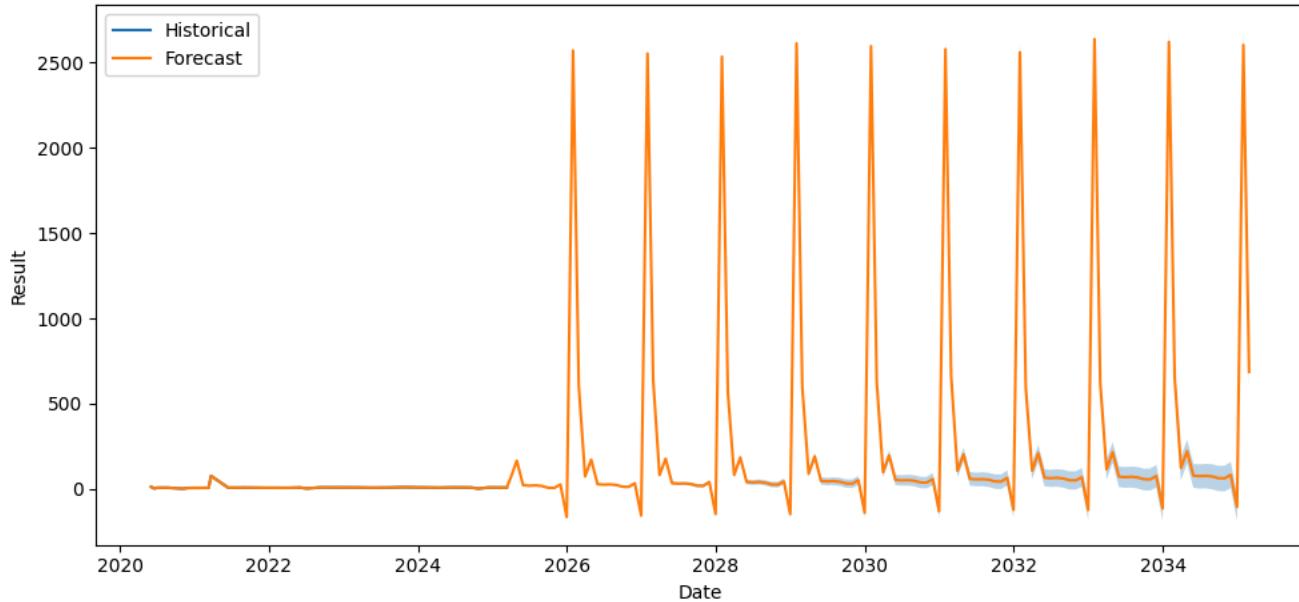
ZINC Forecast in FRESNO (Next 10 Years)



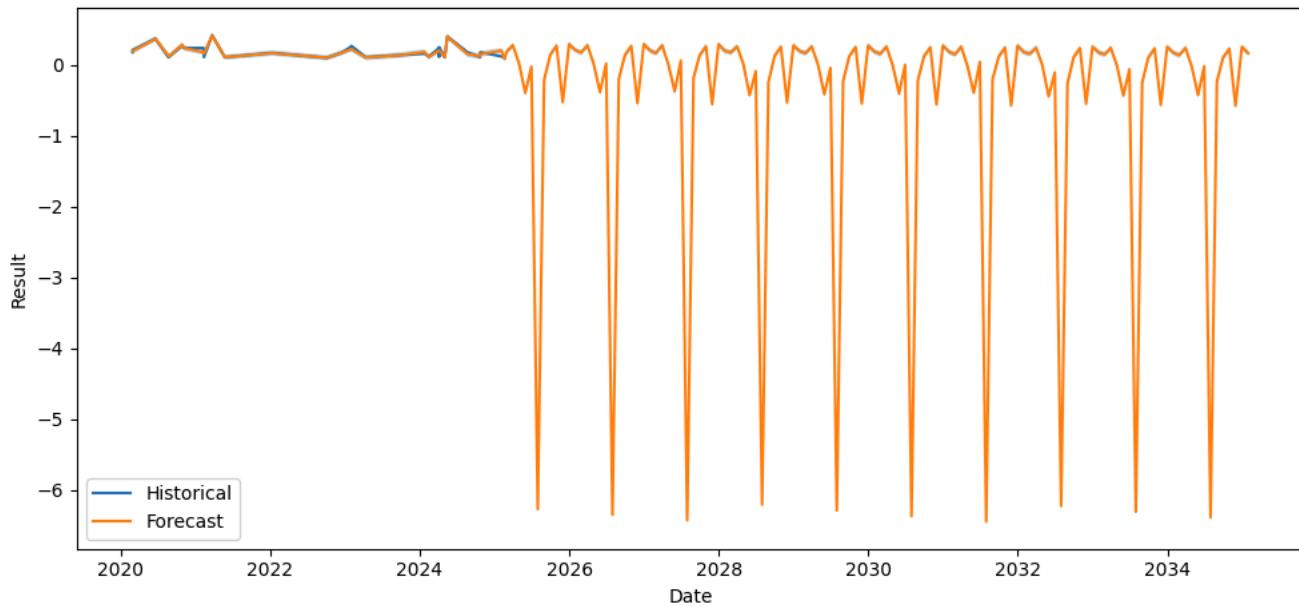
ARSENIC Forecast in GLENN (Next 10 Years)



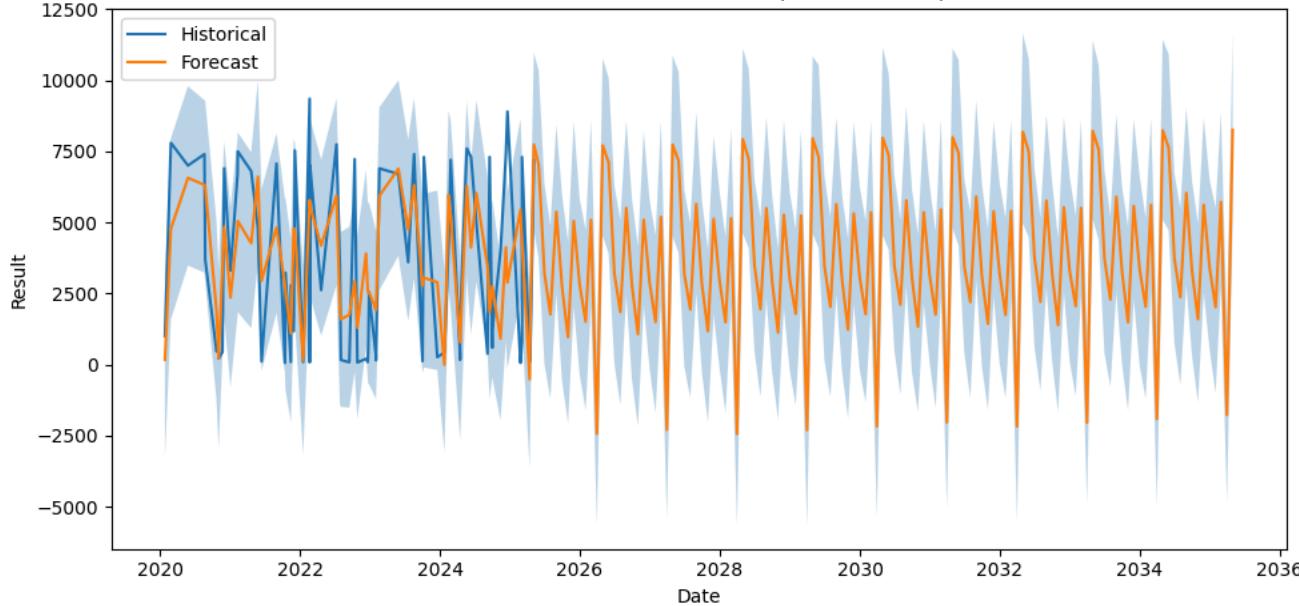


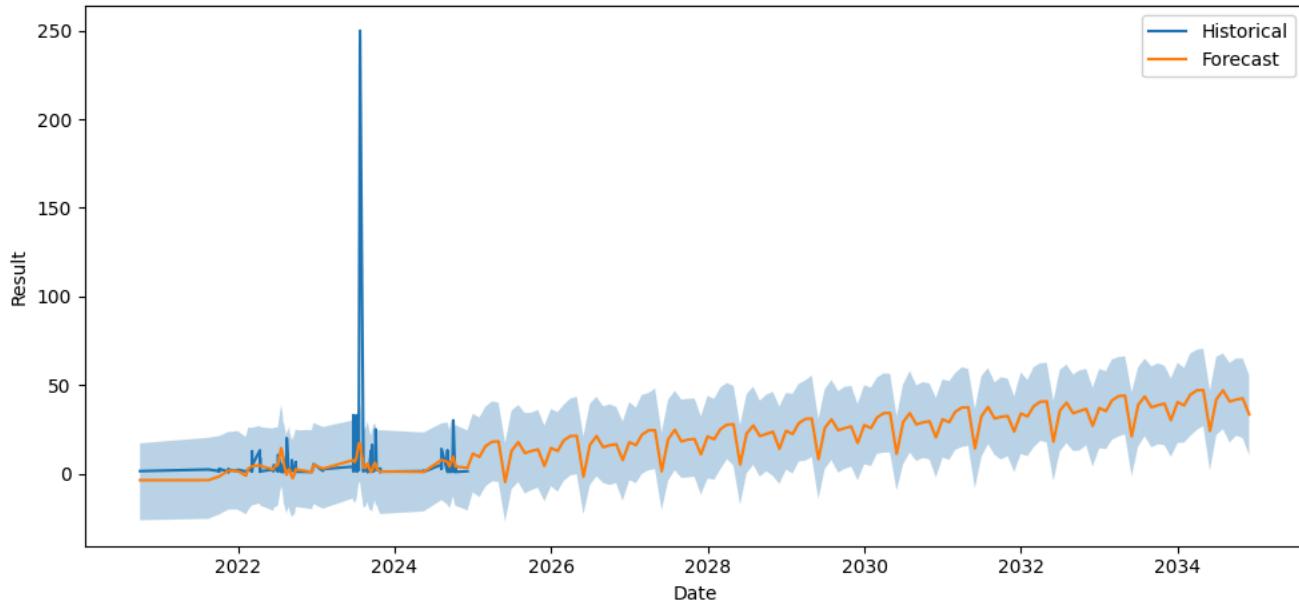


FLUORIDE Forecast in HUMBOLDT (Next 10 Years)

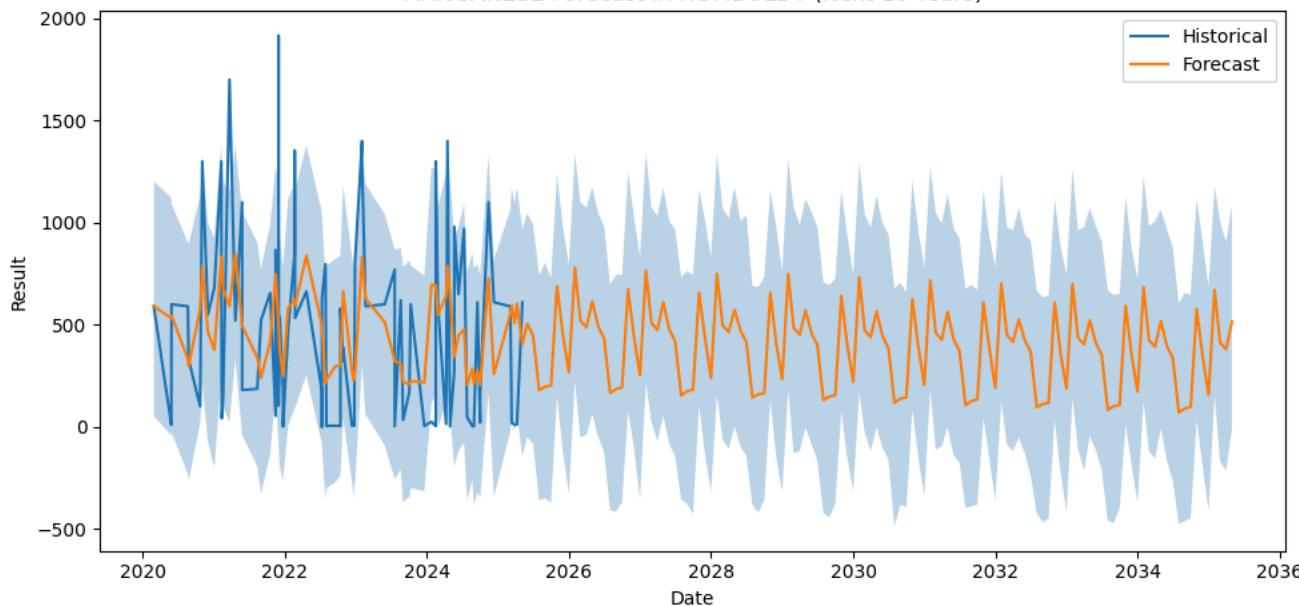


IRON Forecast in HUMBOLDT (Next 10 Years)

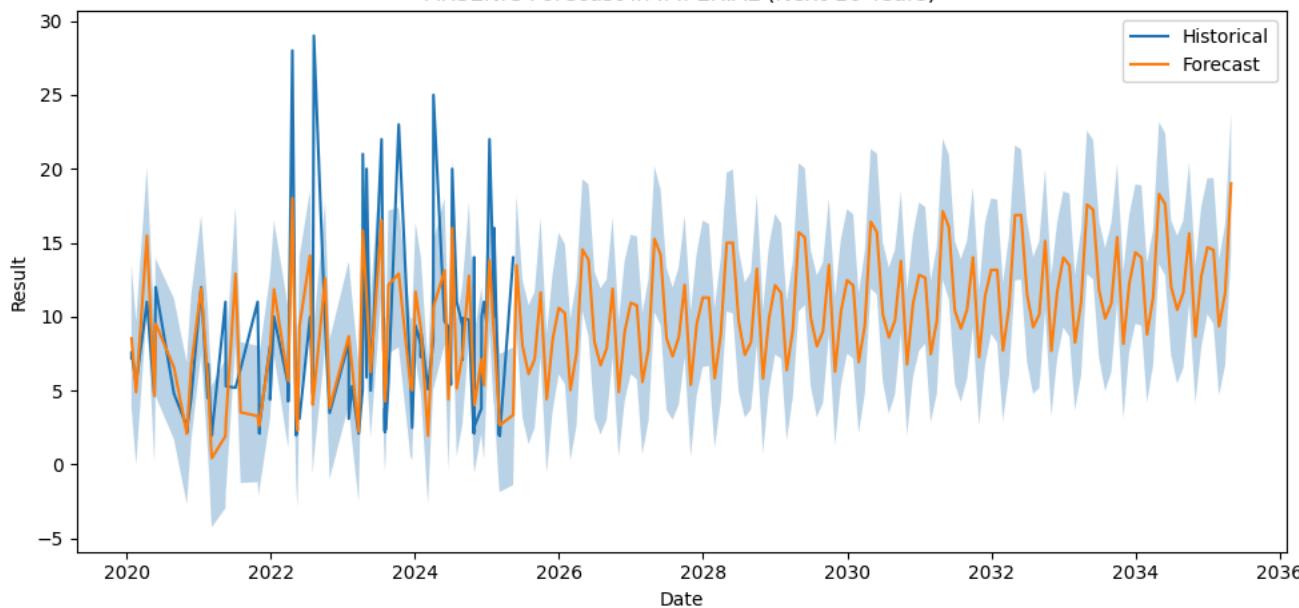


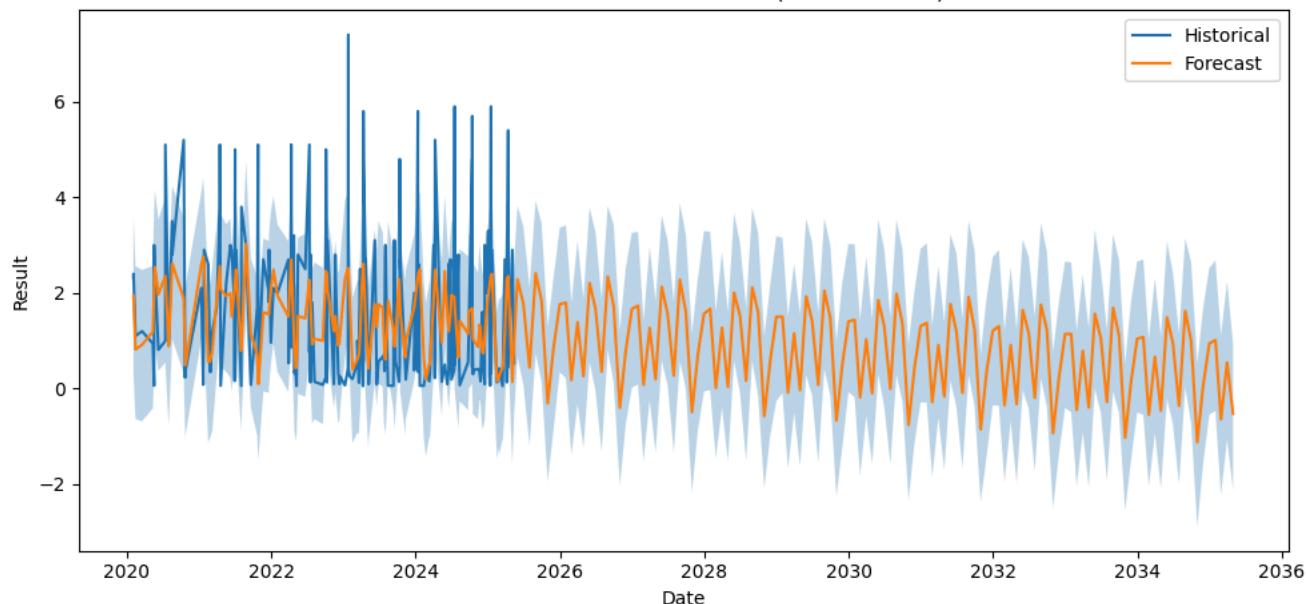


MANGANESE Forecast in HUMBOLDT (Next 10 Years)

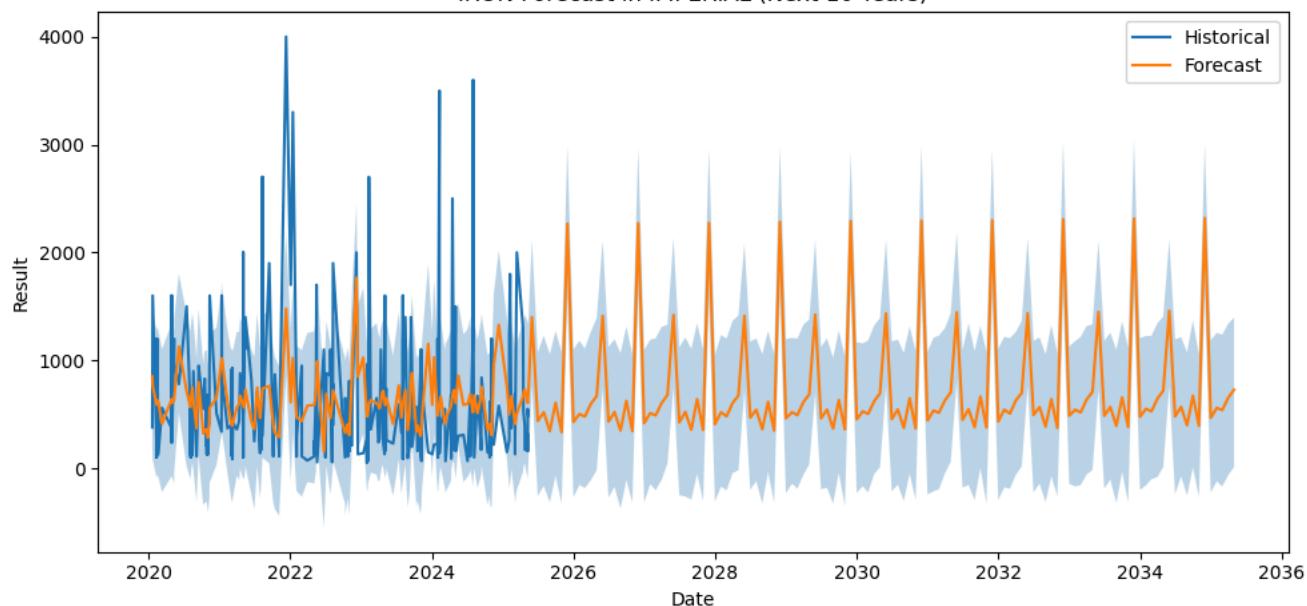


ARSENIC Forecast in IMPERIAL (Next 10 Years)

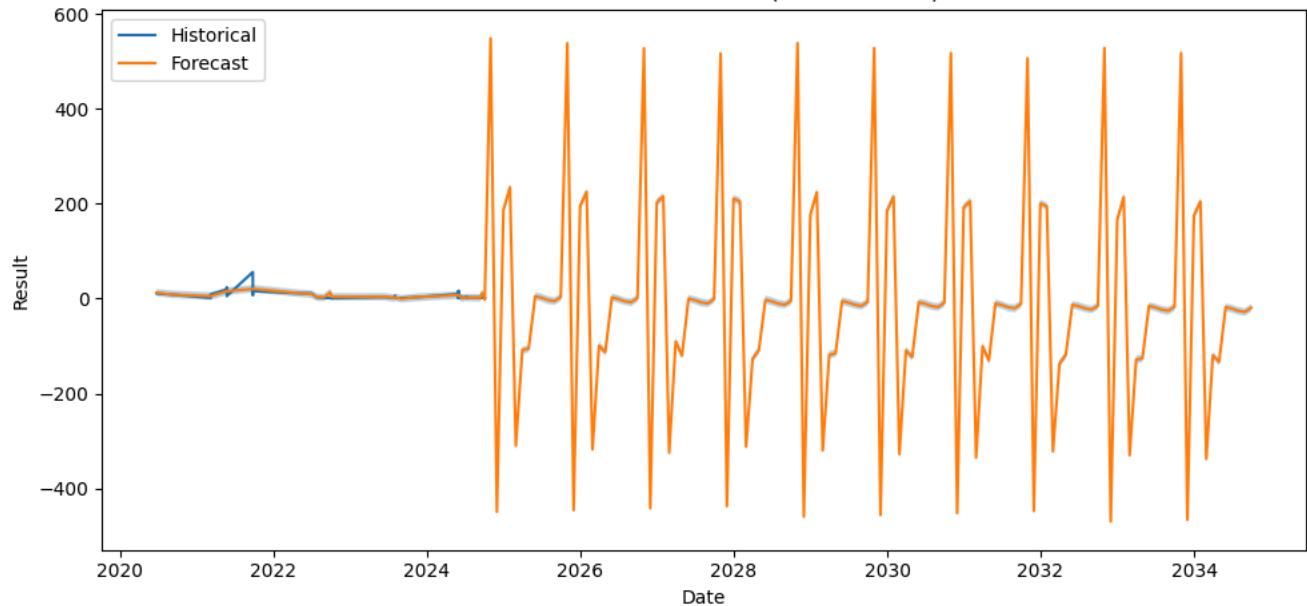


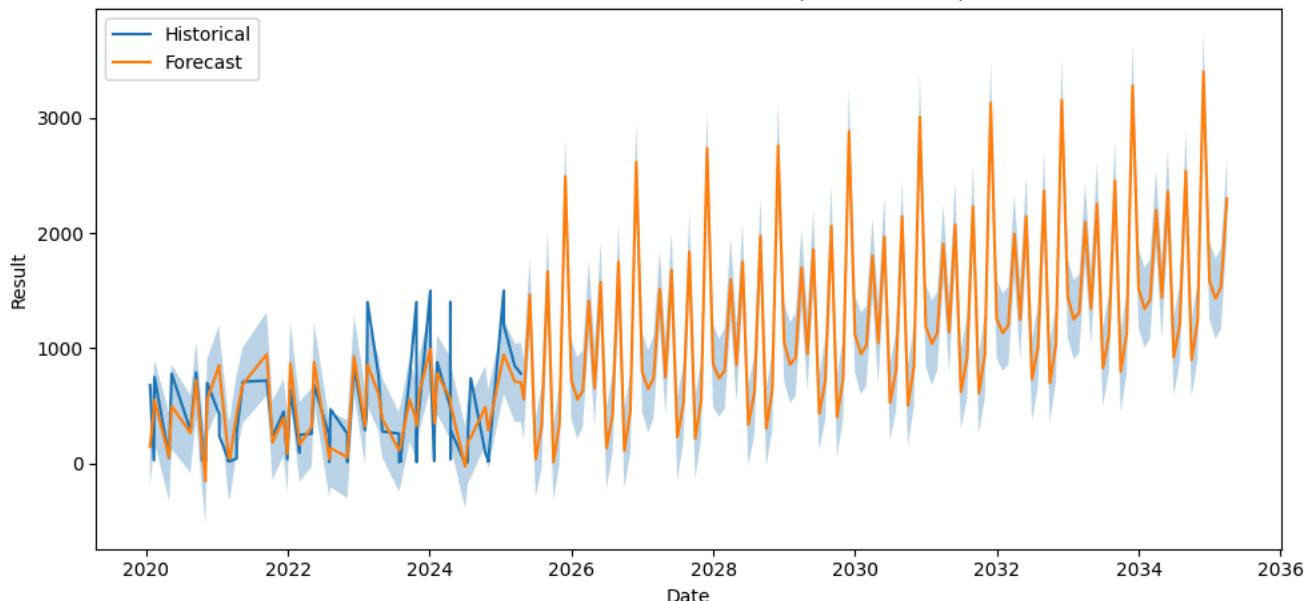


IRON Forecast in IMPERIAL (Next 10 Years)

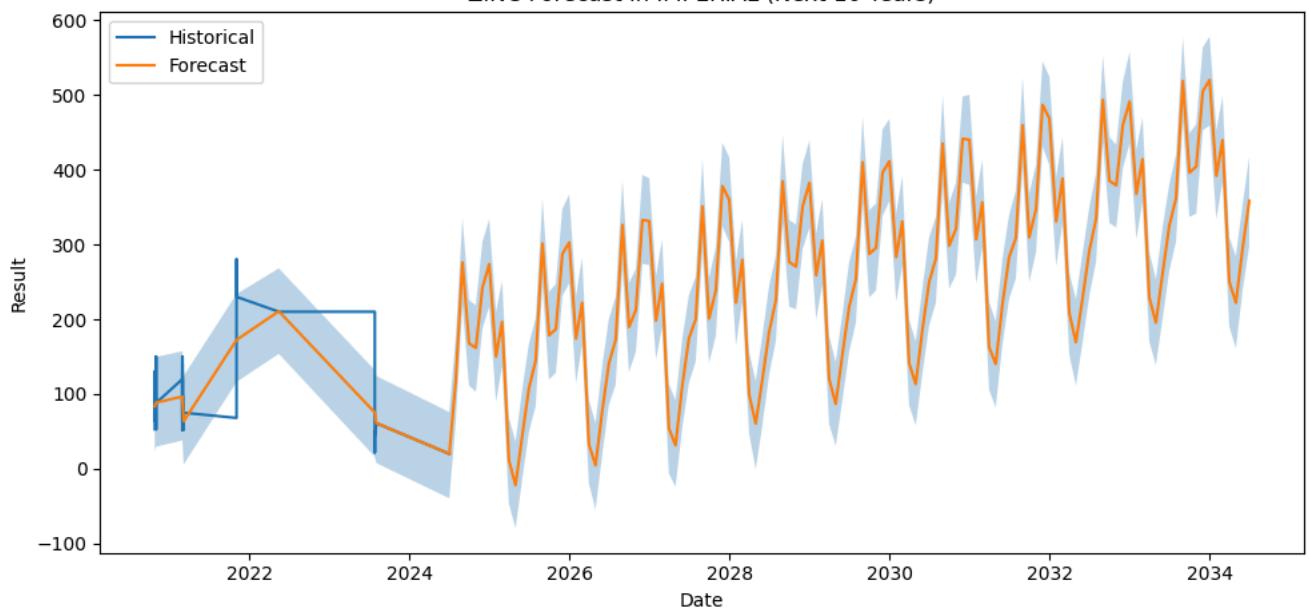


LEAD Forecast in IMPERIAL (Next 10 Years)

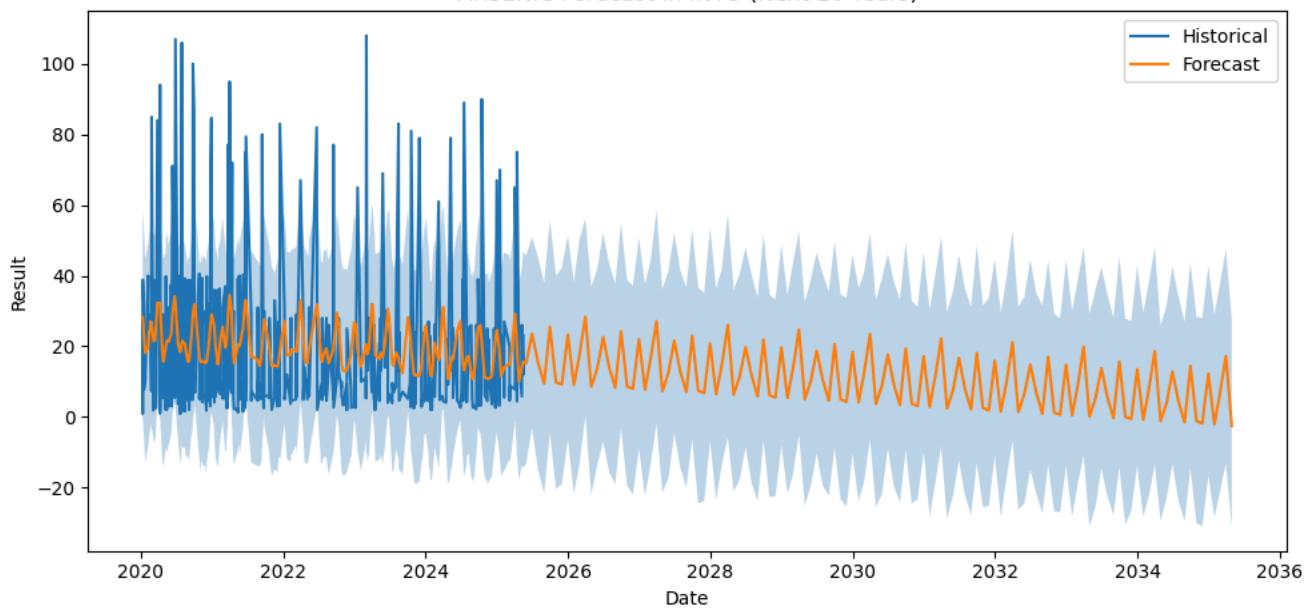


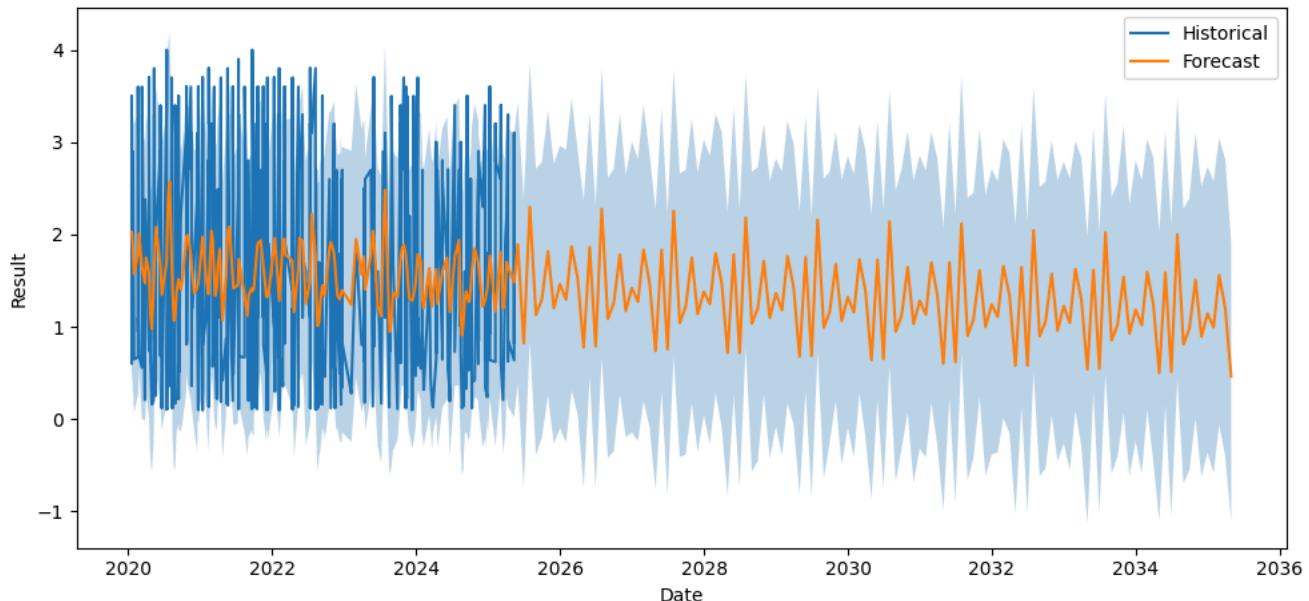


ZINC Forecast in IMPERIAL (Next 10 Years)

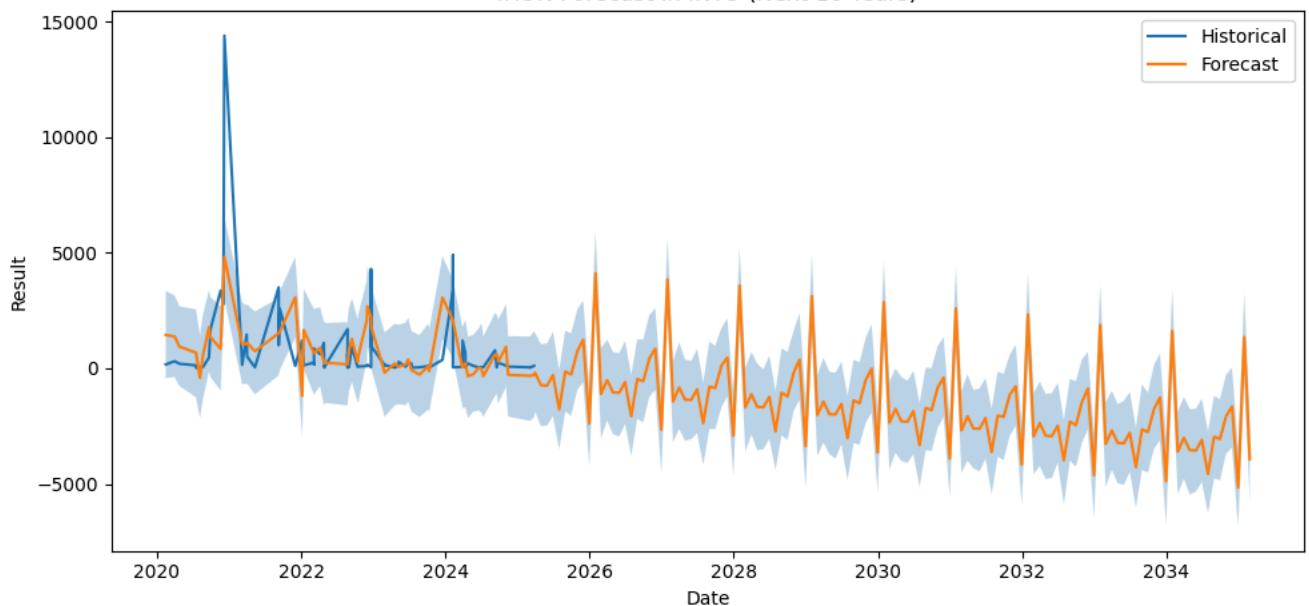


ARSENIC Forecast in INYO (Next 10 Years)

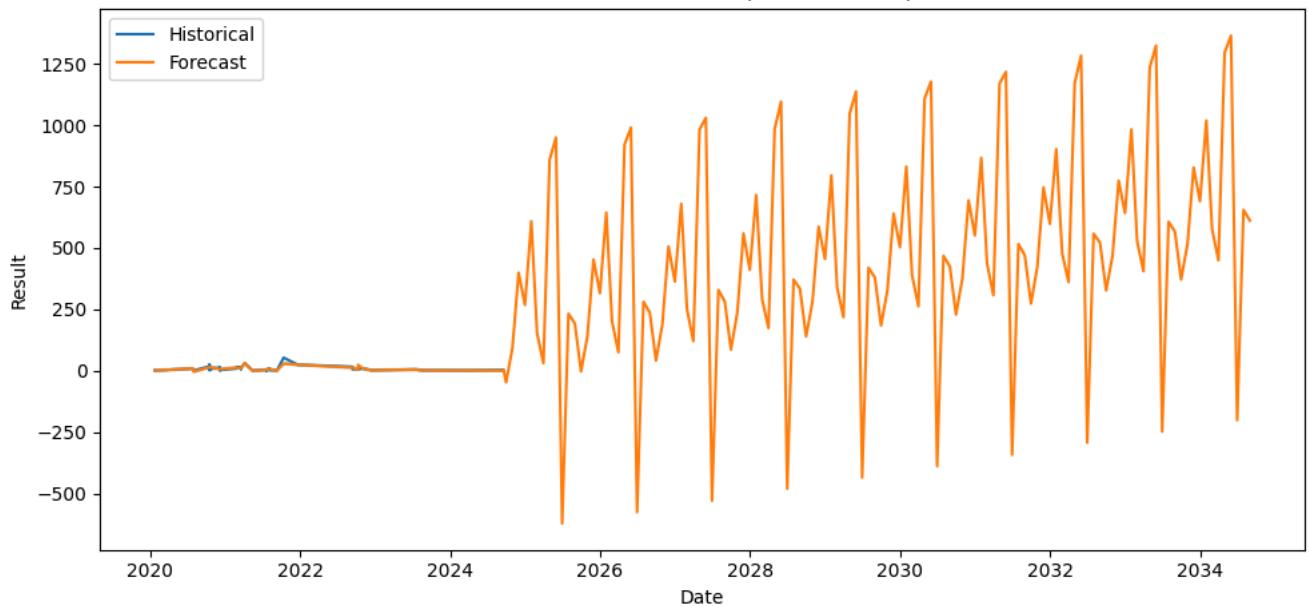


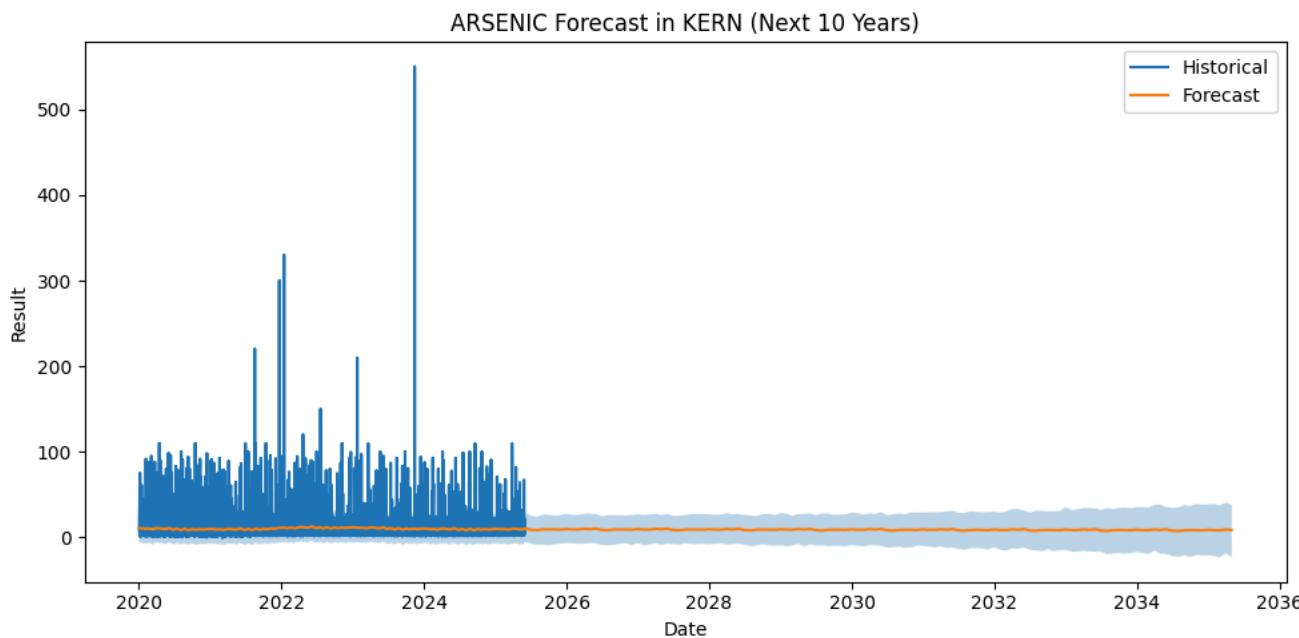
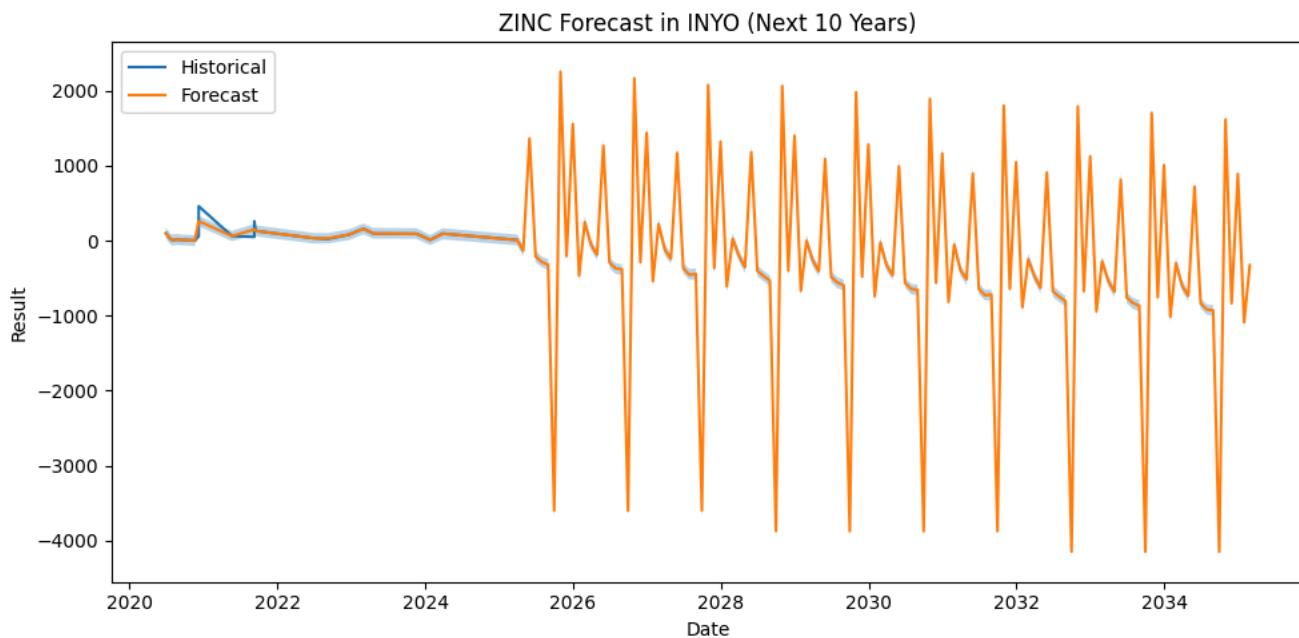
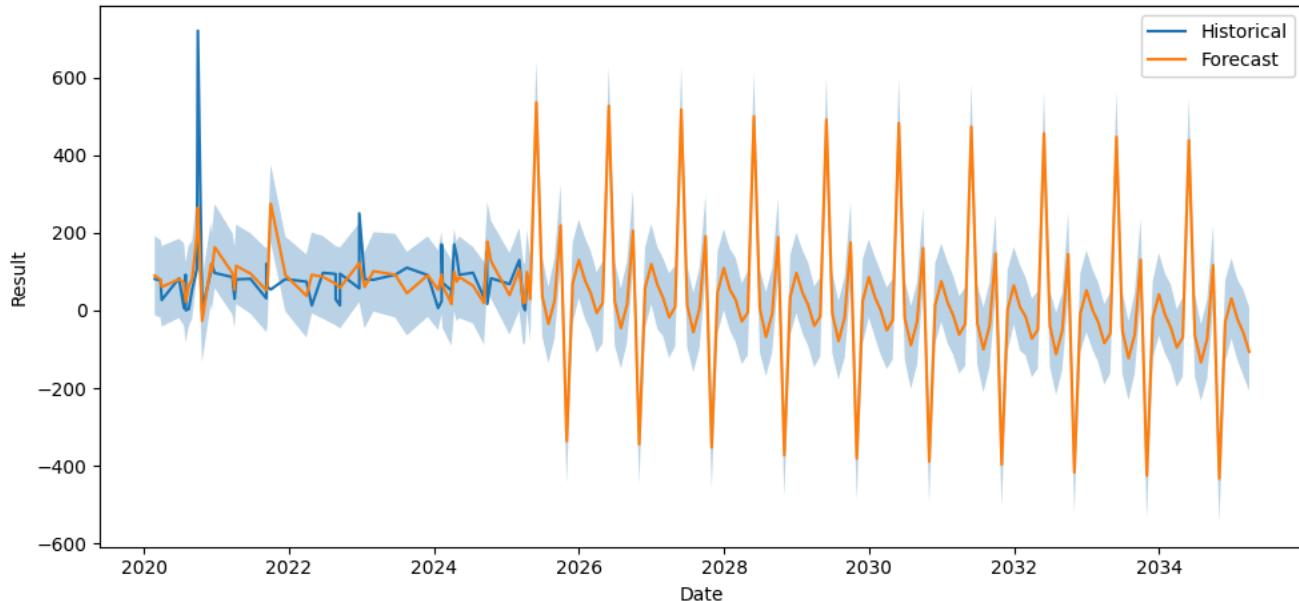


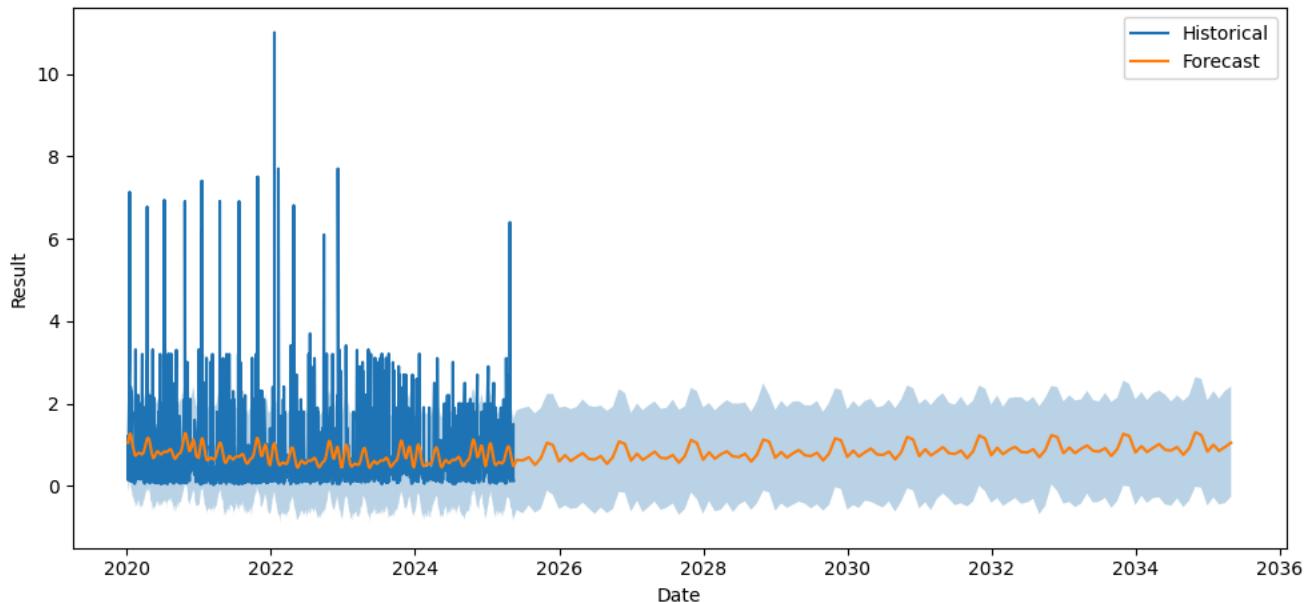
IRON Forecast in INYO (Next 10 Years)



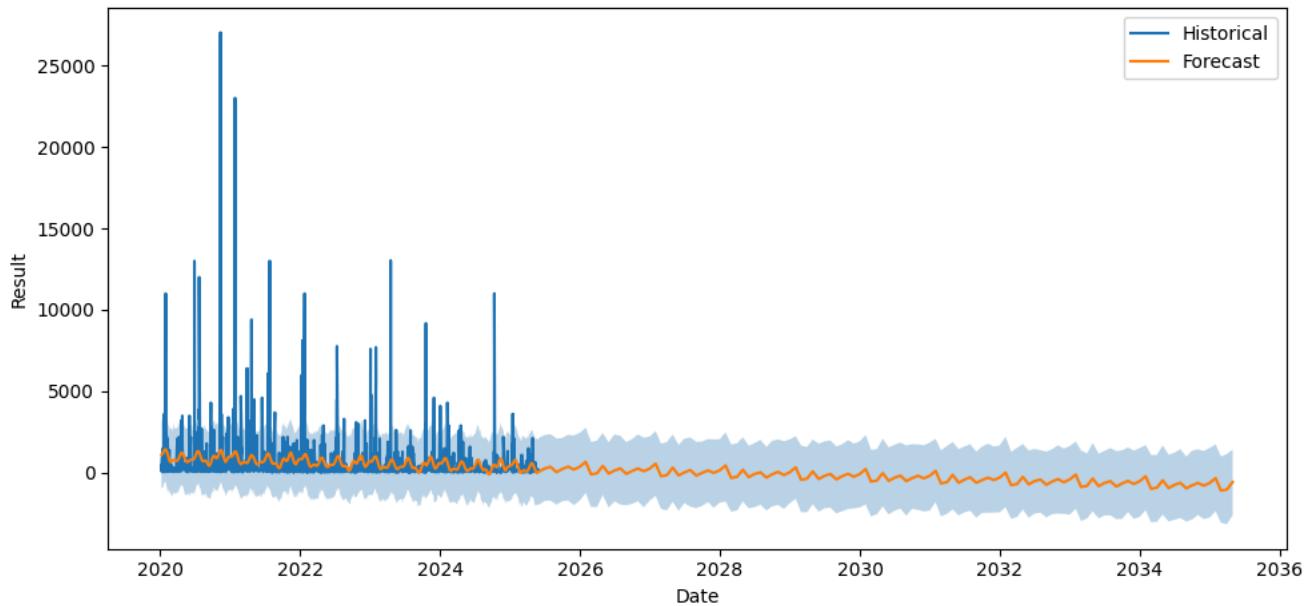
LEAD Forecast in INYO (Next 10 Years)



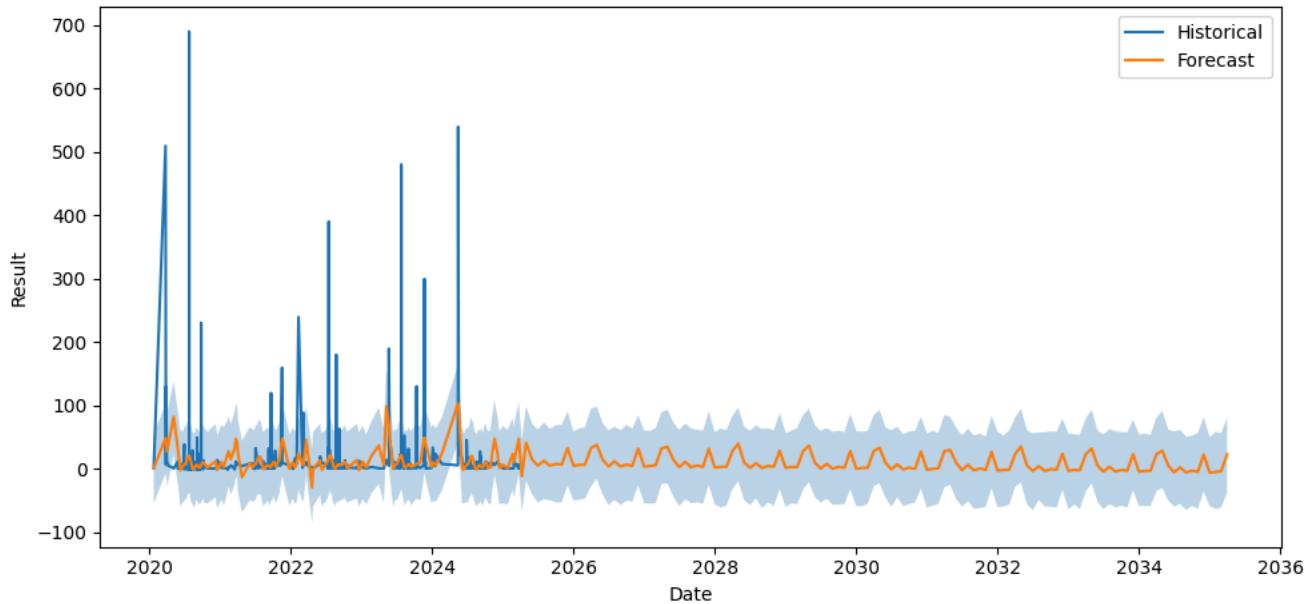


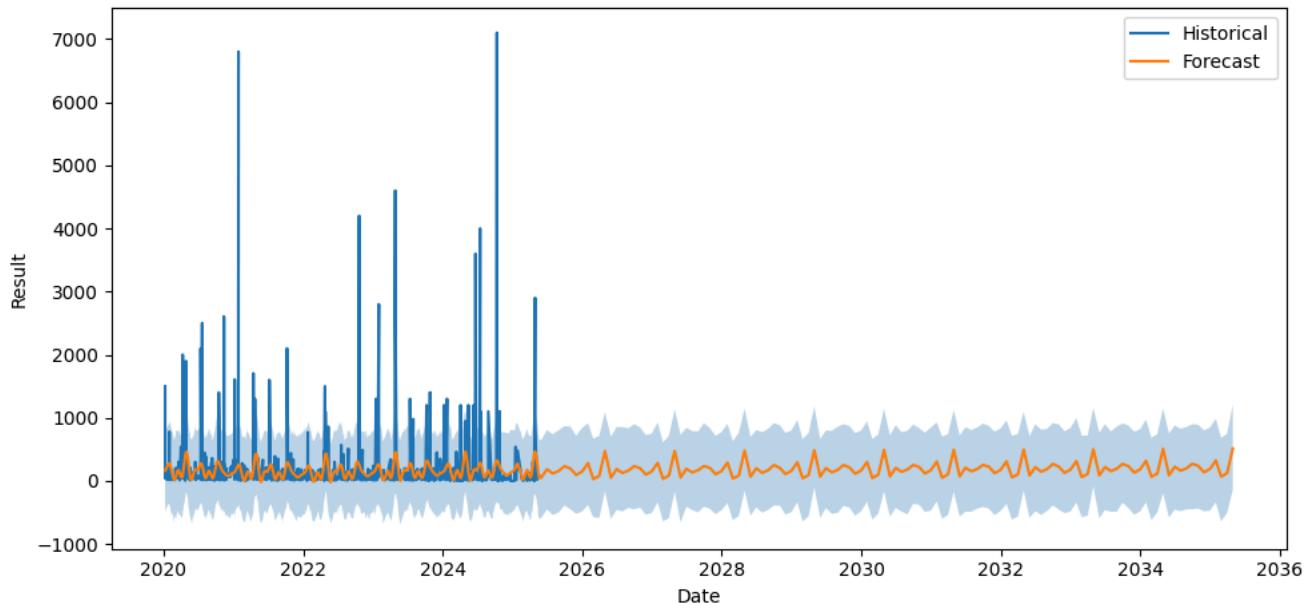


IRON Forecast in KERN (Next 10 Years)

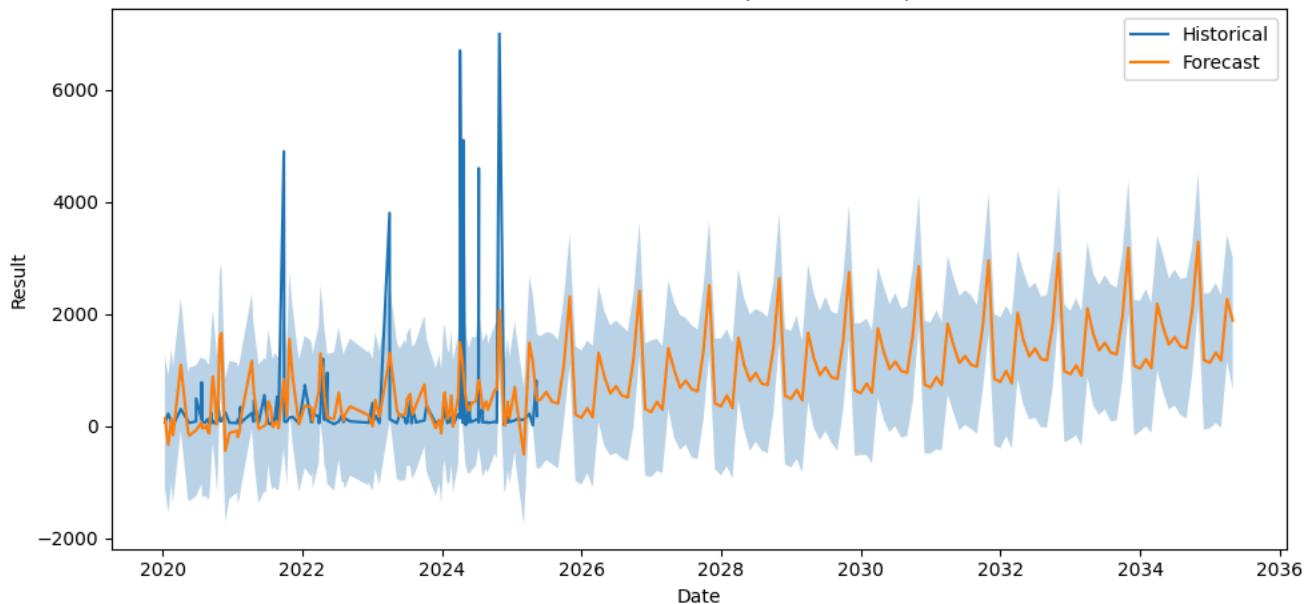


LEAD Forecast in KERN (Next 10 Years)

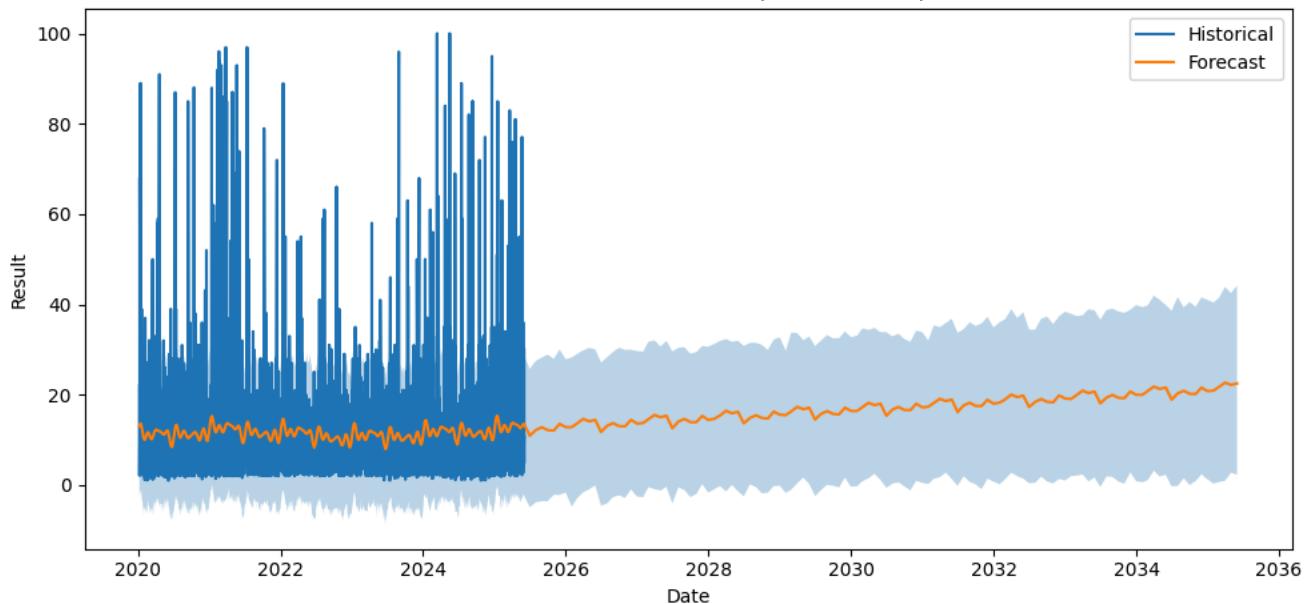




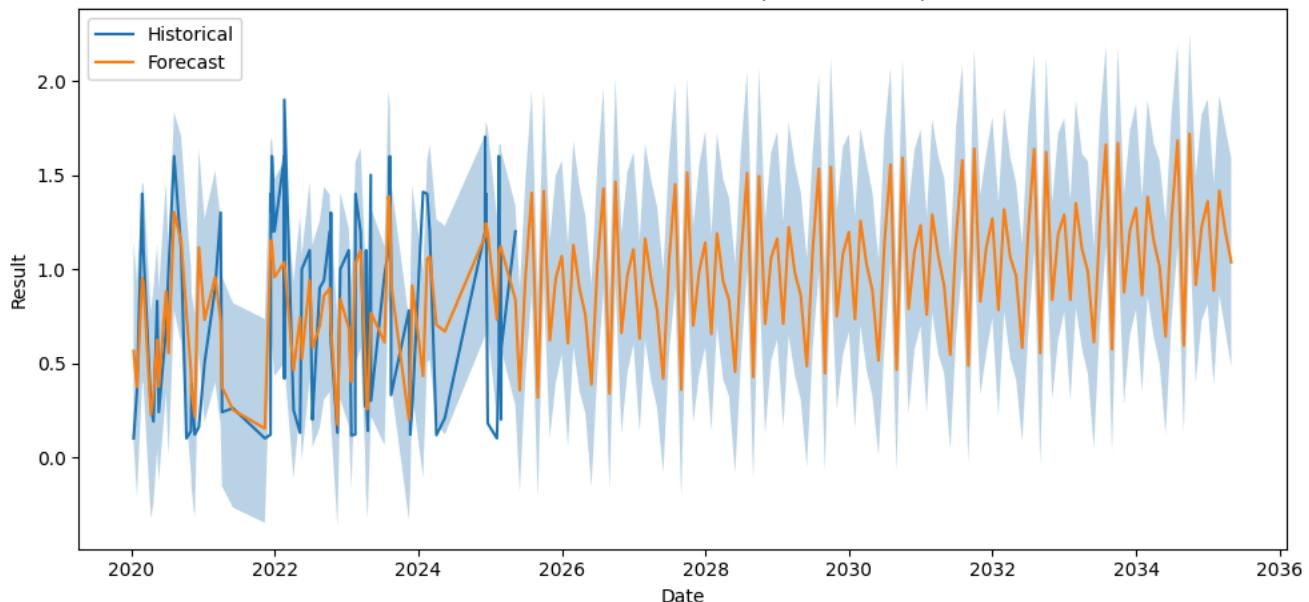
ZINC Forecast in KERN (Next 10 Years)



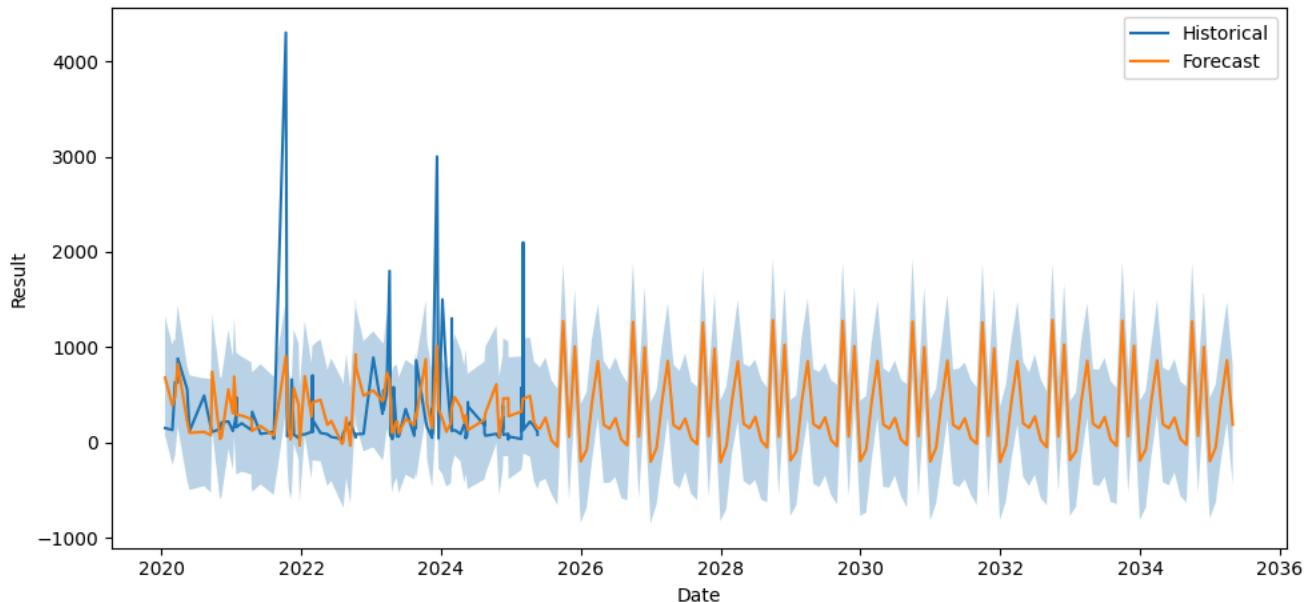
ARSENIC Forecast in KINGs (Next 10 Years)



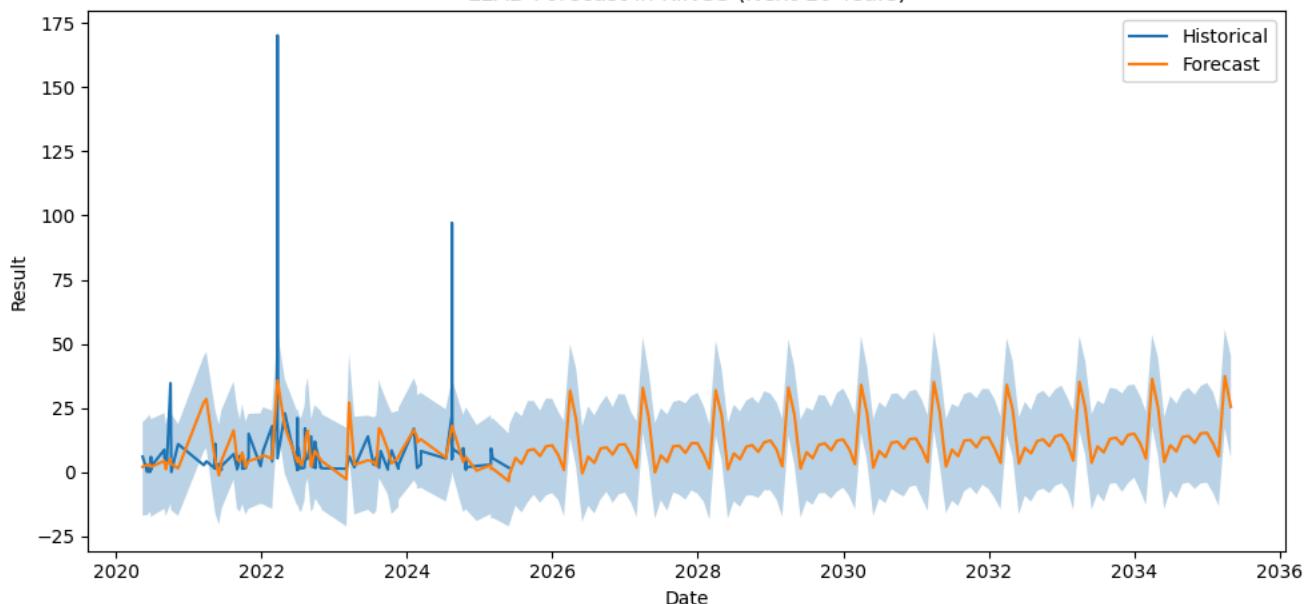
FLUORIDE Forecast in KINGs (Next 10 Years)



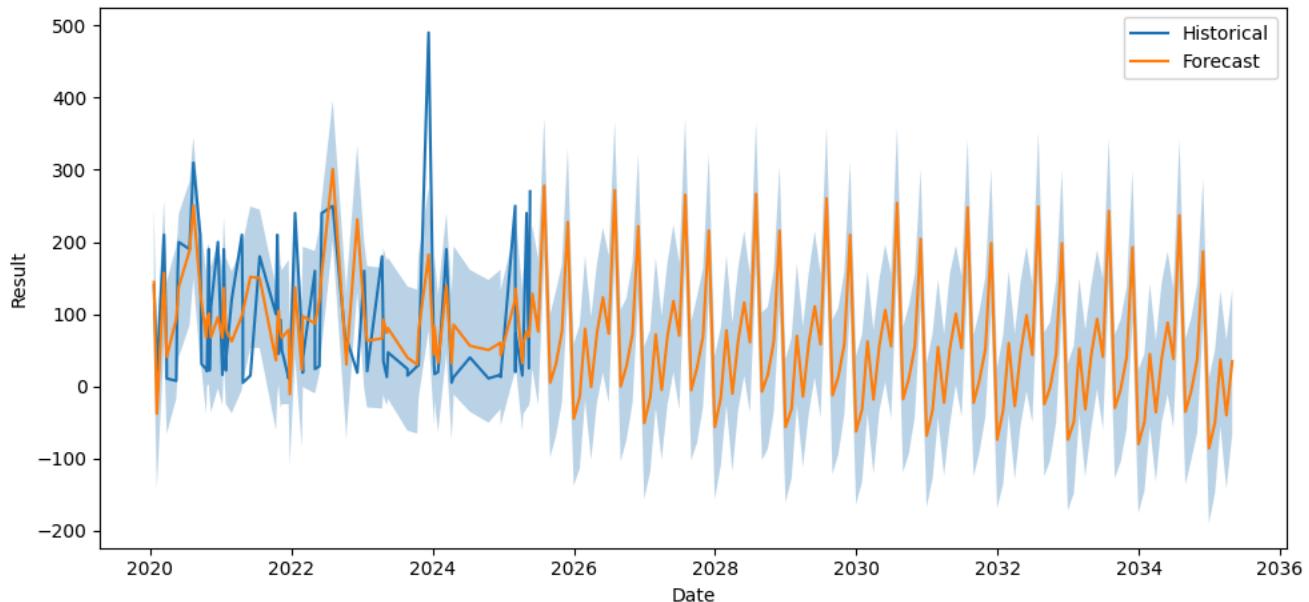
IRON Forecast in KINGS (Next 10 Years)



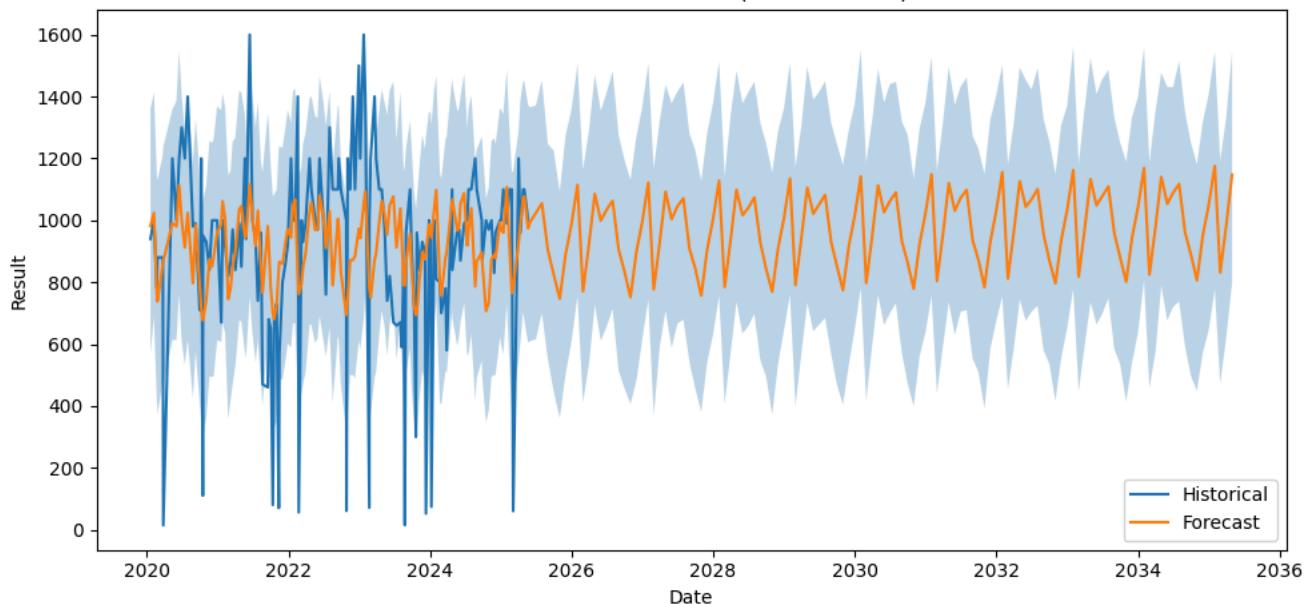
LEAD Forecast in KINGS (Next 10 Years)



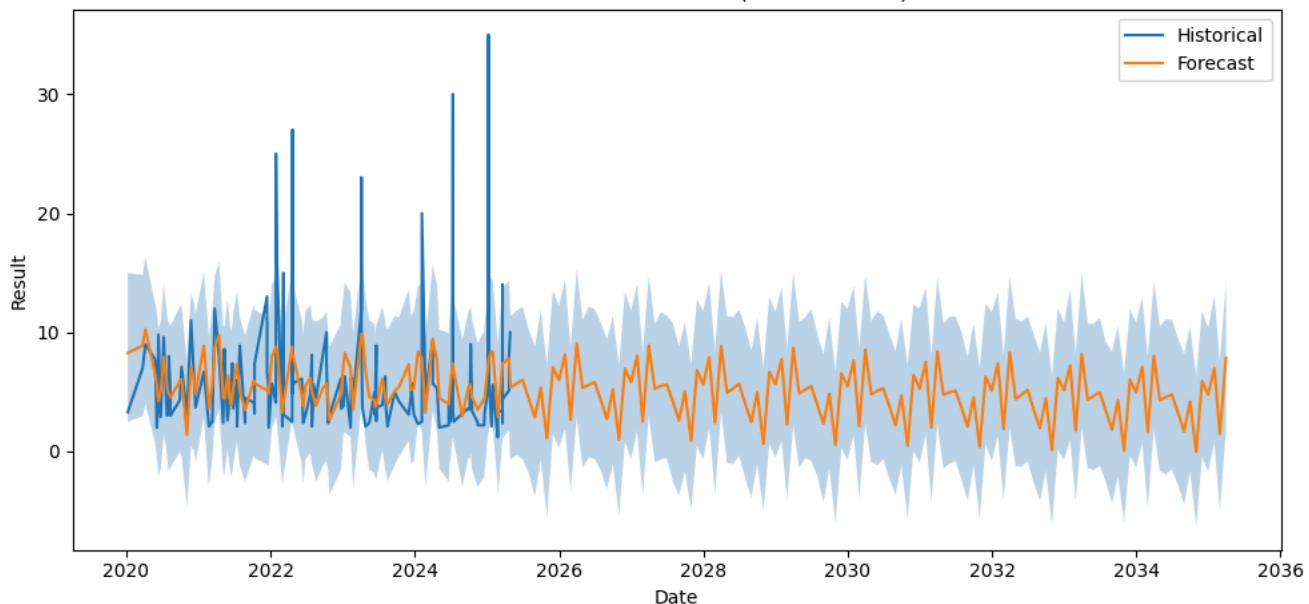
MANGANESE Forecast in KINGS (Next 10 Years)



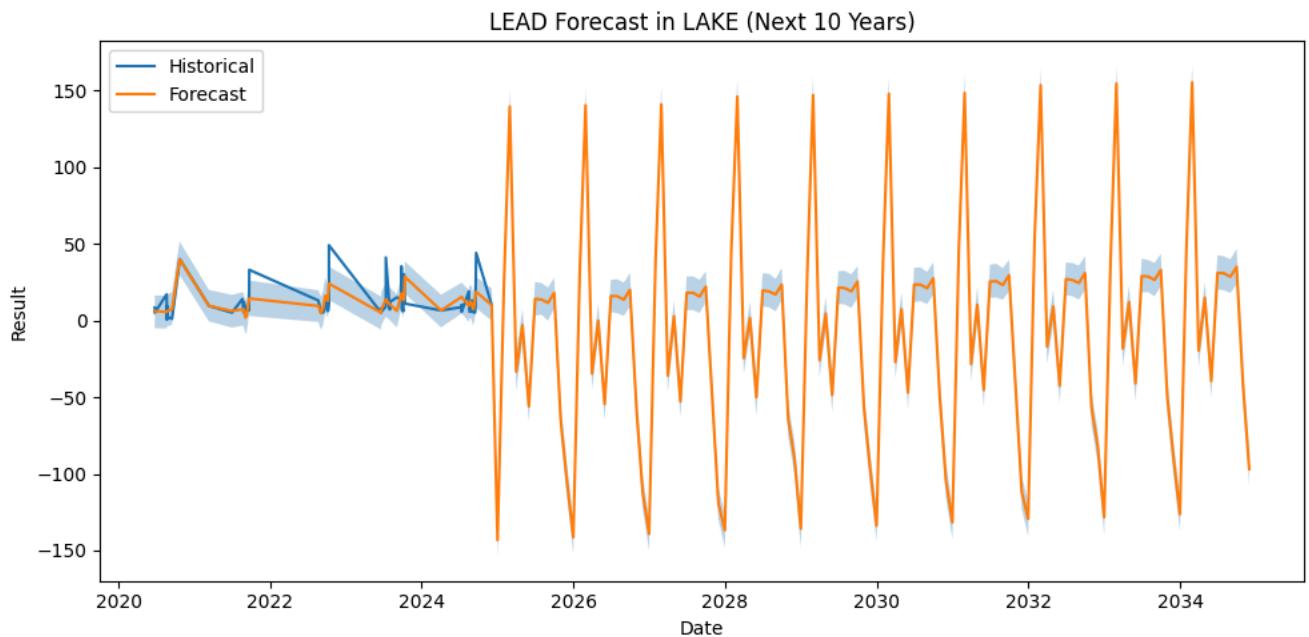
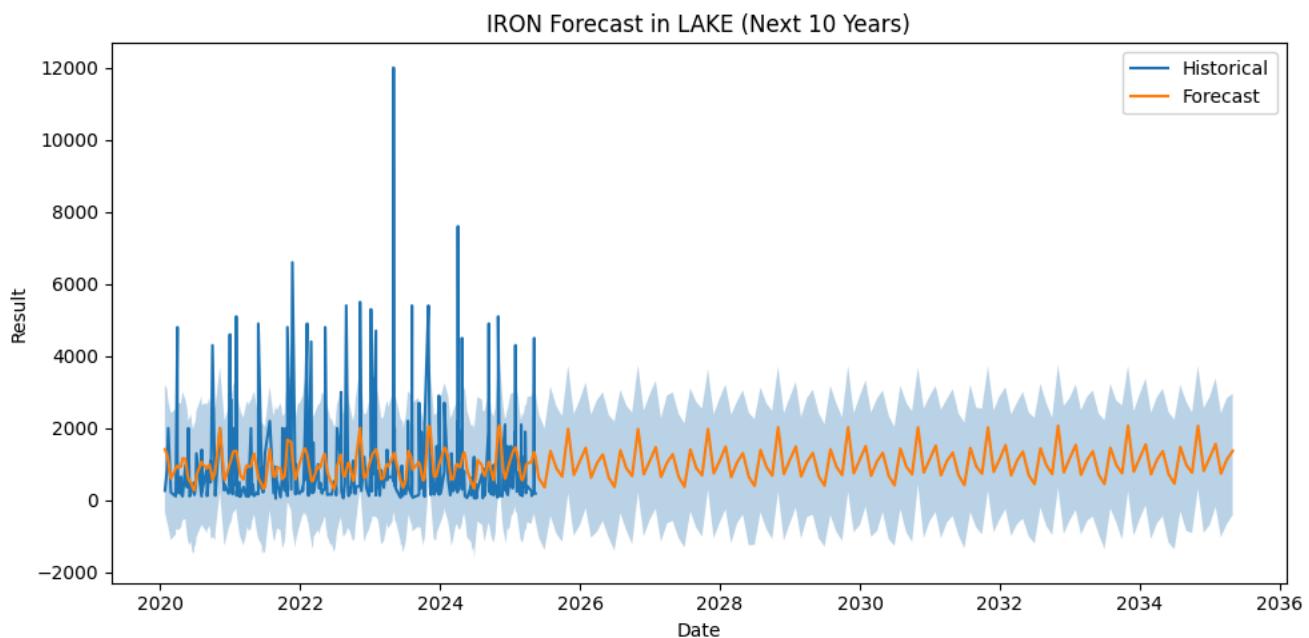
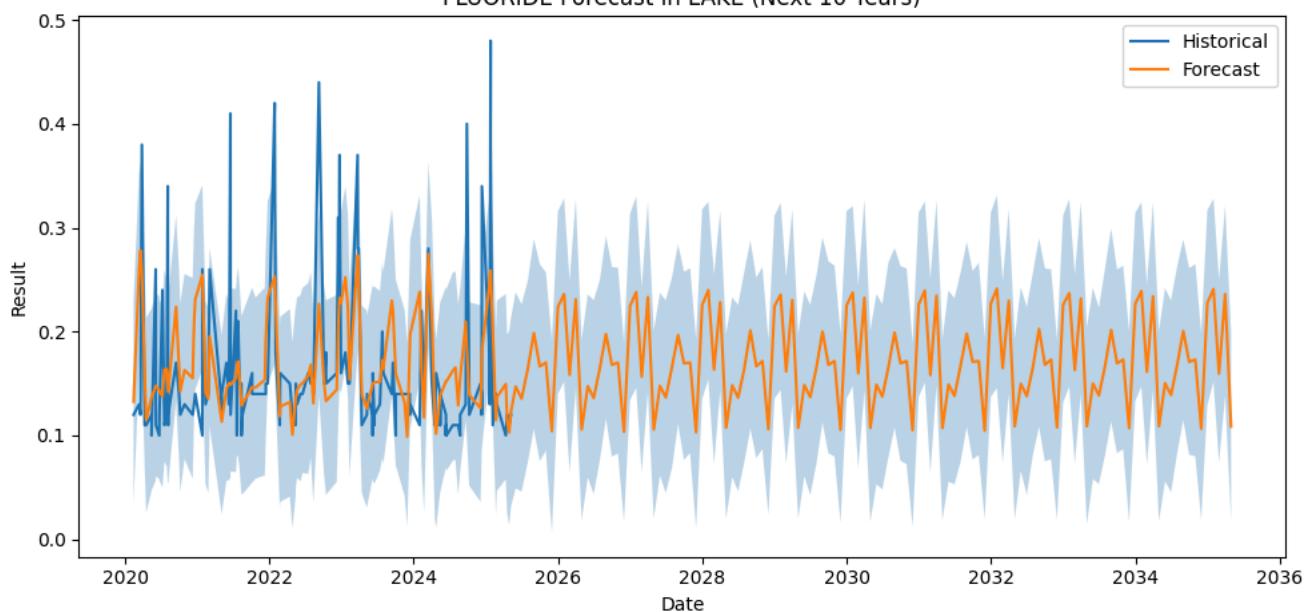
ZINC Forecast in KINGS (Next 10 Years)

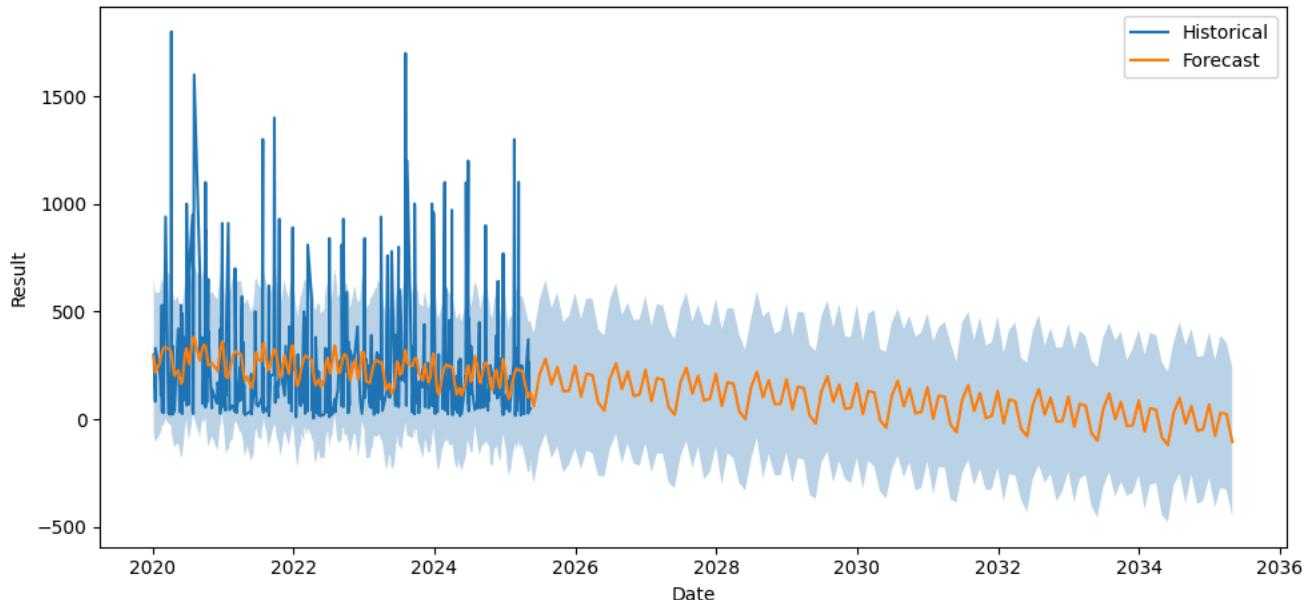


ARSENIC Forecast in LAKE (Next 10 Years)

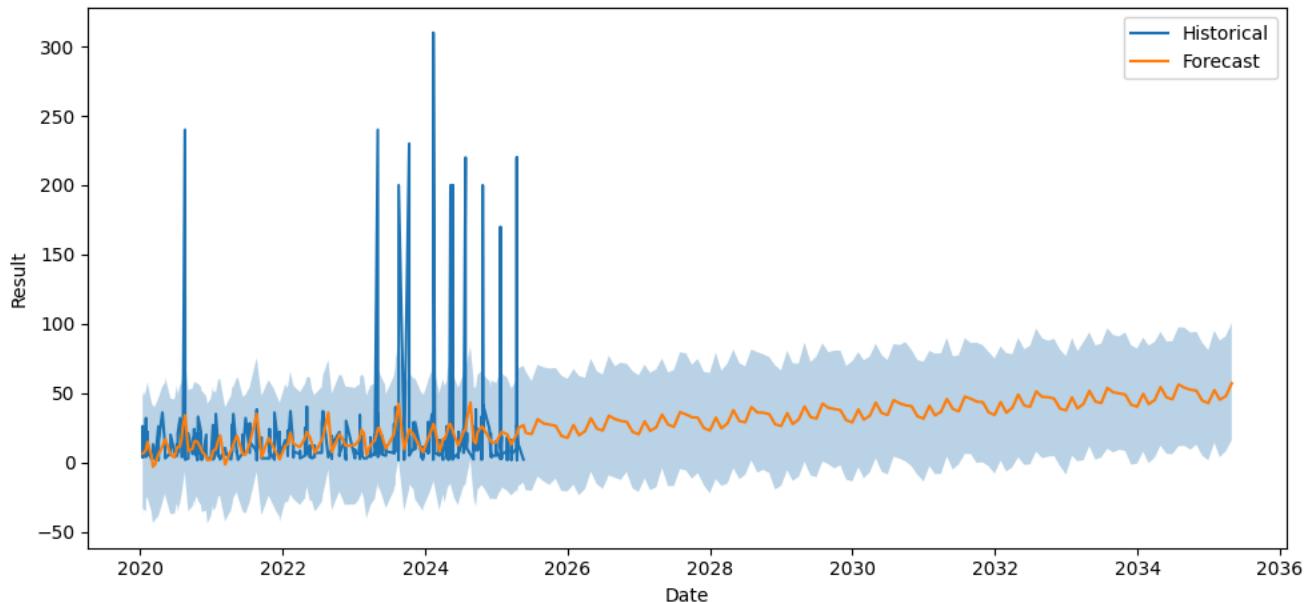


FLUORIDE Forecast in LAKE (Next 10 Years)

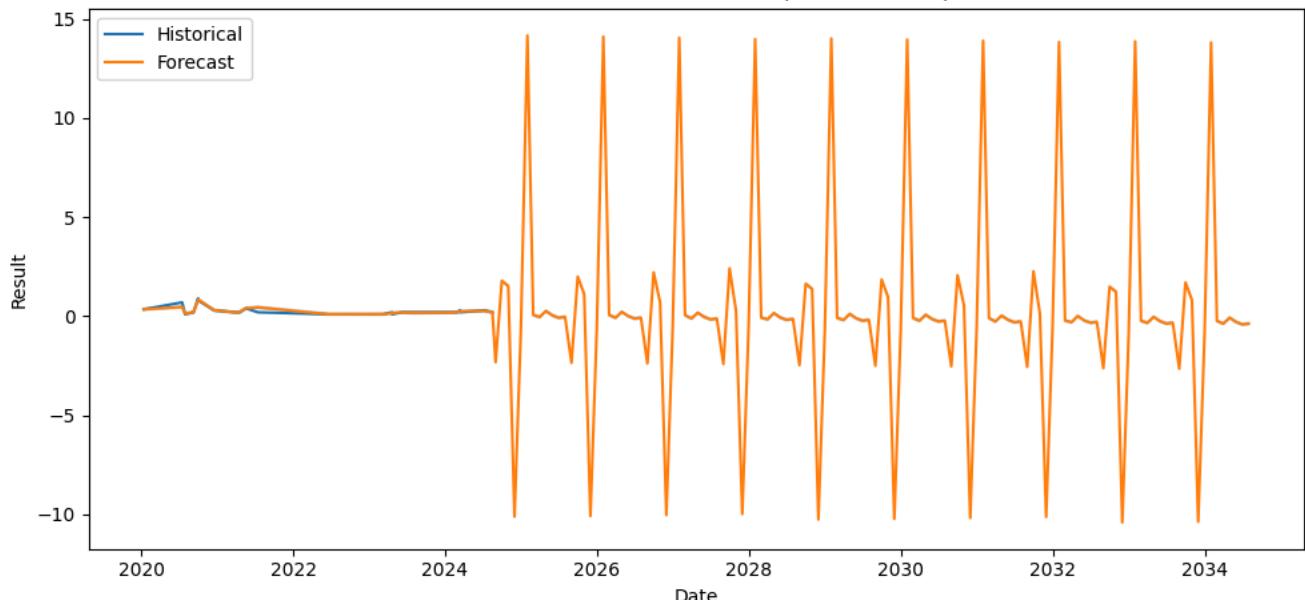
**MANGANESE Forecast in LAKE (Next 10 Years)**



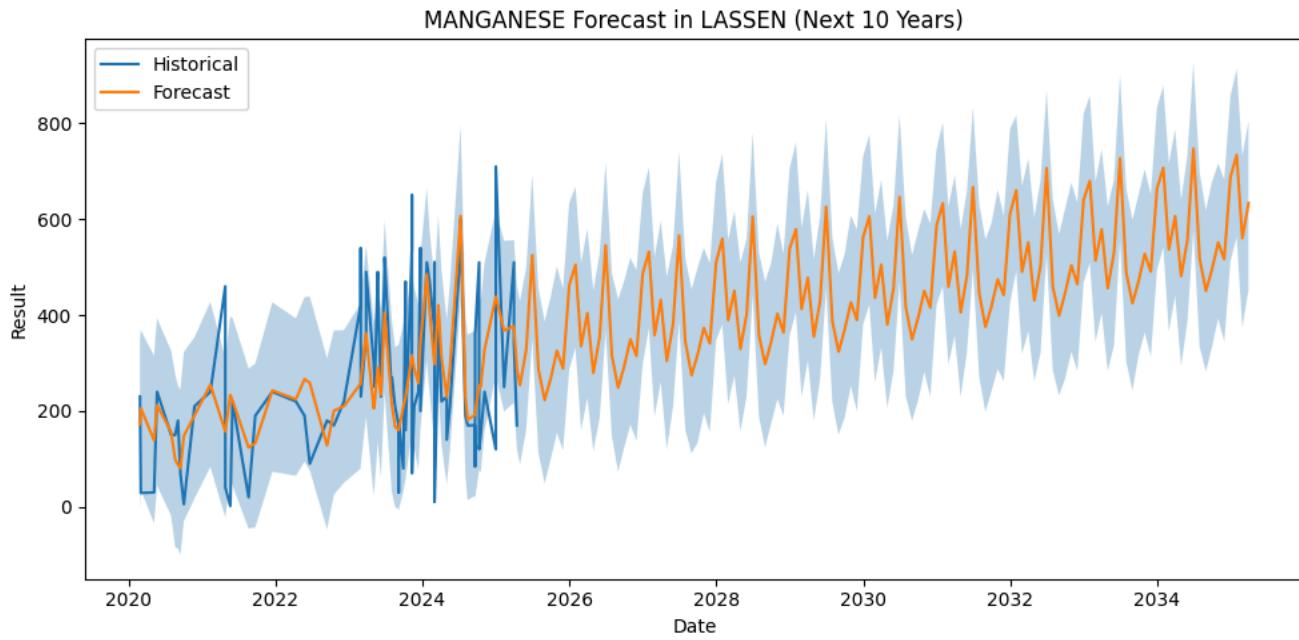
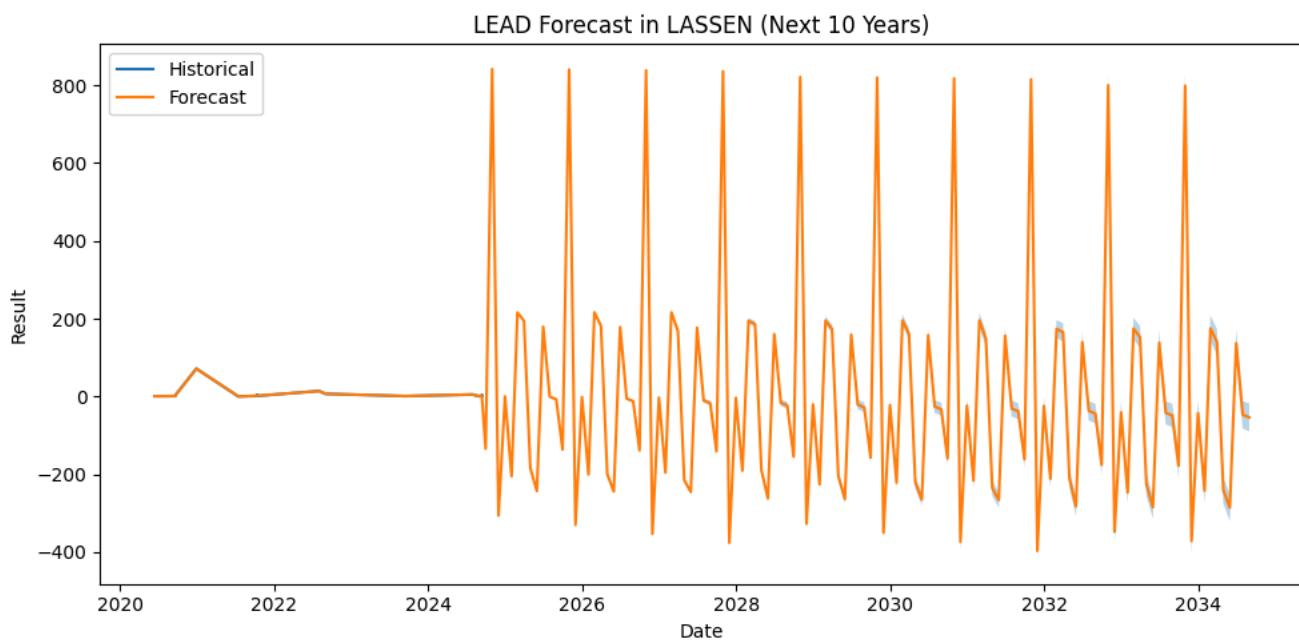
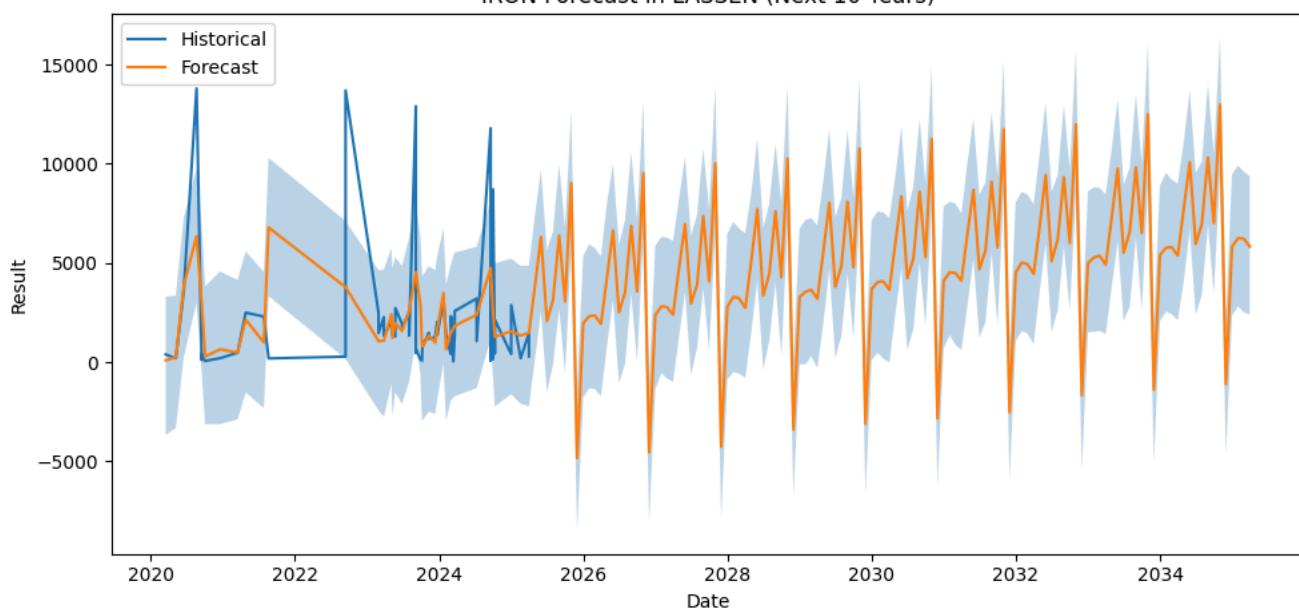
ARSENIC Forecast in LASSEN (Next 10 Years)

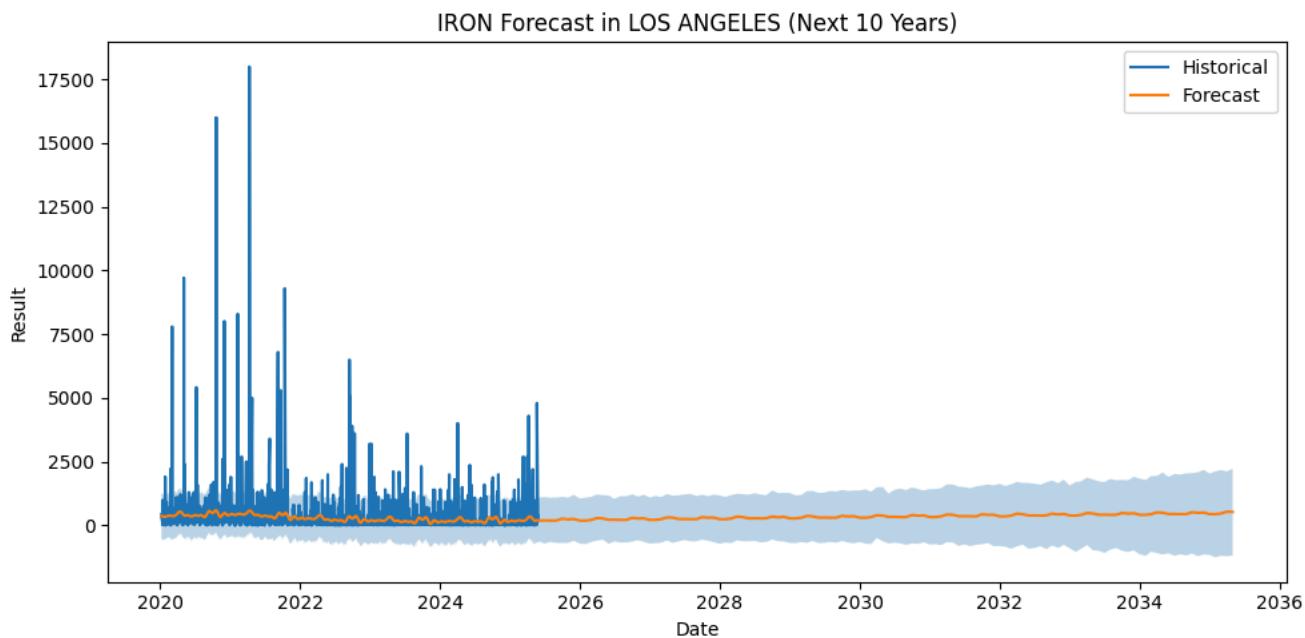
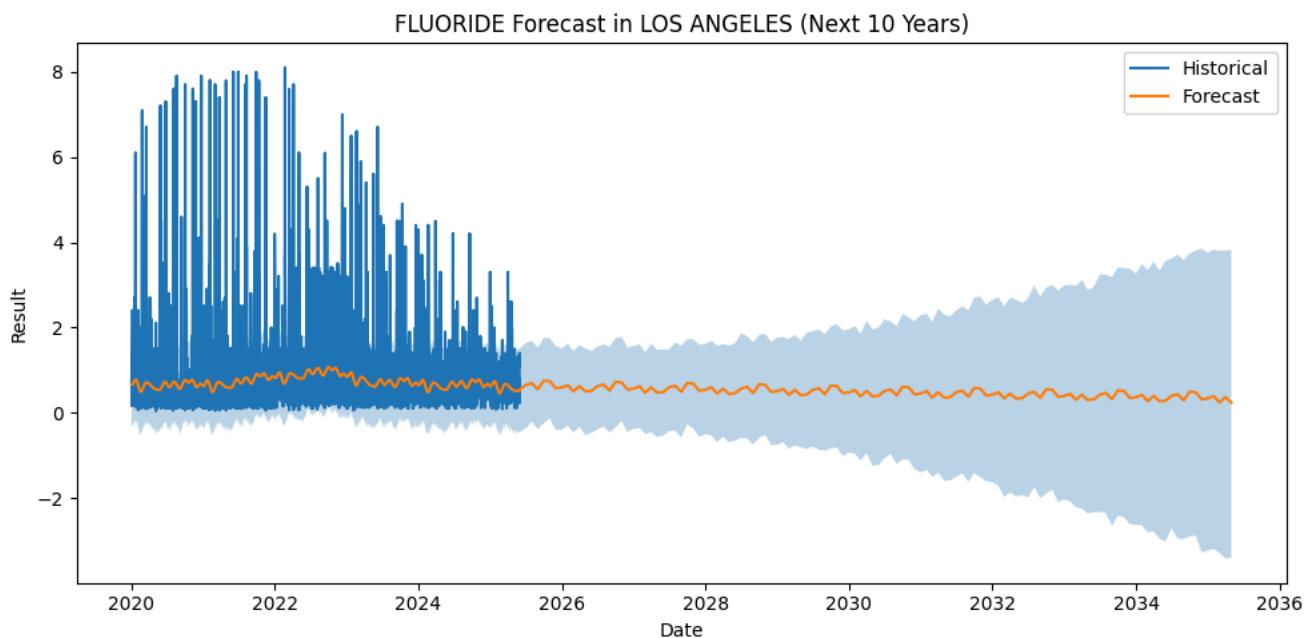
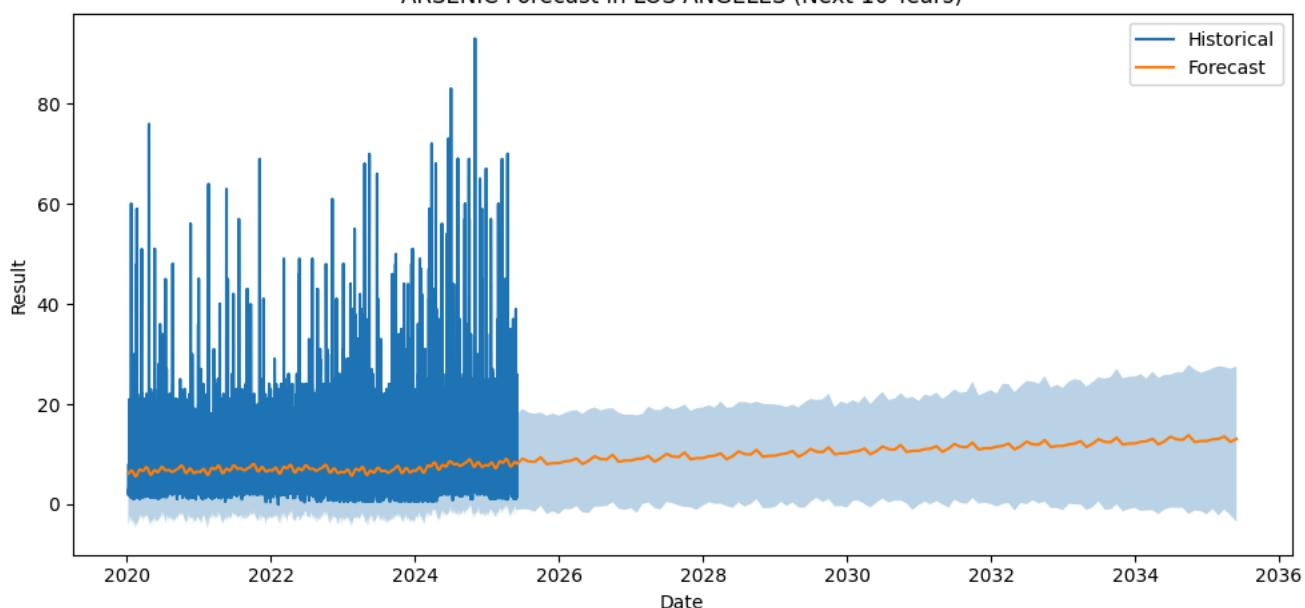


FLUORIDE Forecast in LASSEN (Next 10 Years)

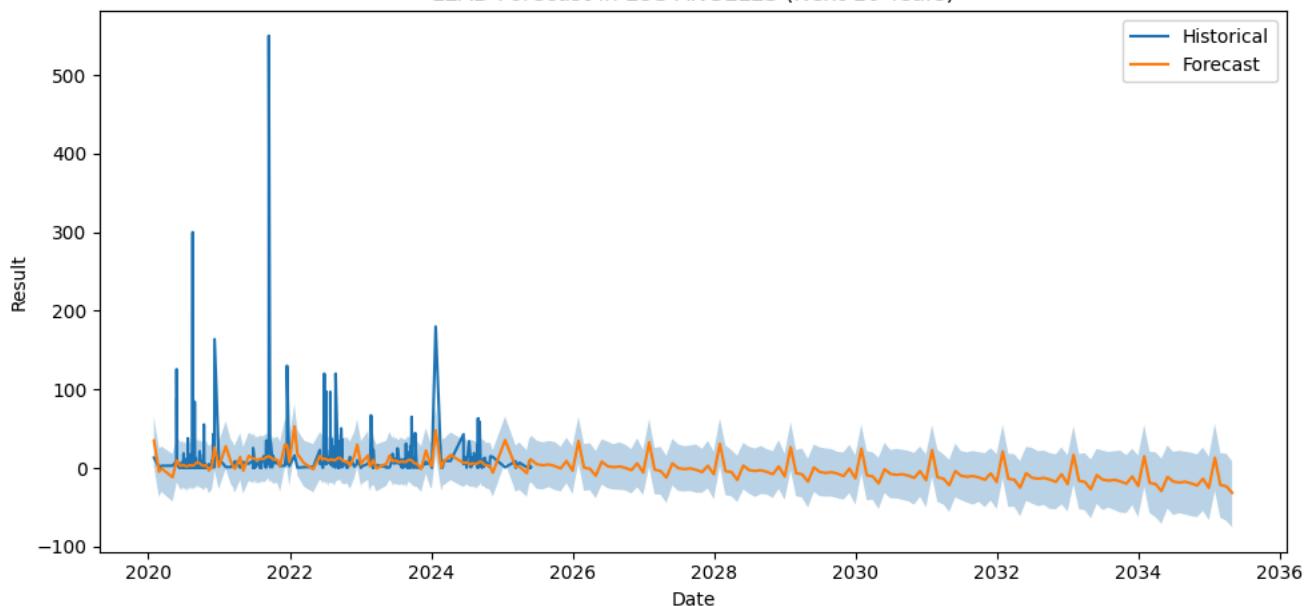


IRON Forecast in LASSEN (Next 10 Years)

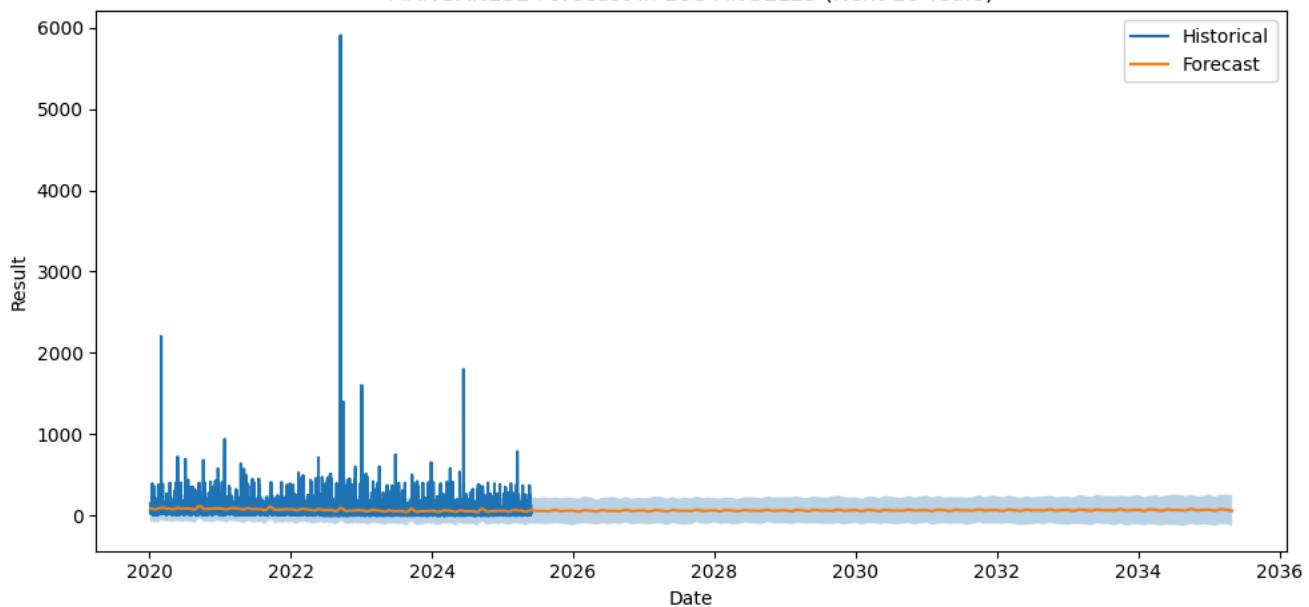
**ARSFNIC Forecast in LOS ANGELES (Next 10 Years)**



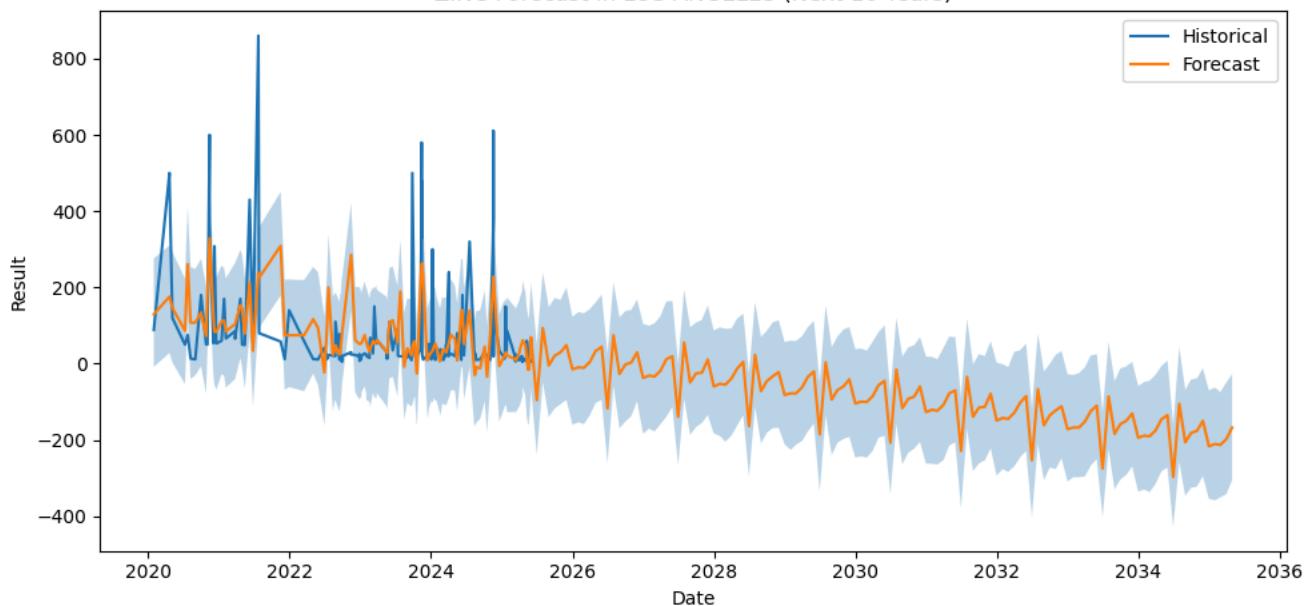
I FAD Forecast in LOS ANGELES (Next 10 Years)



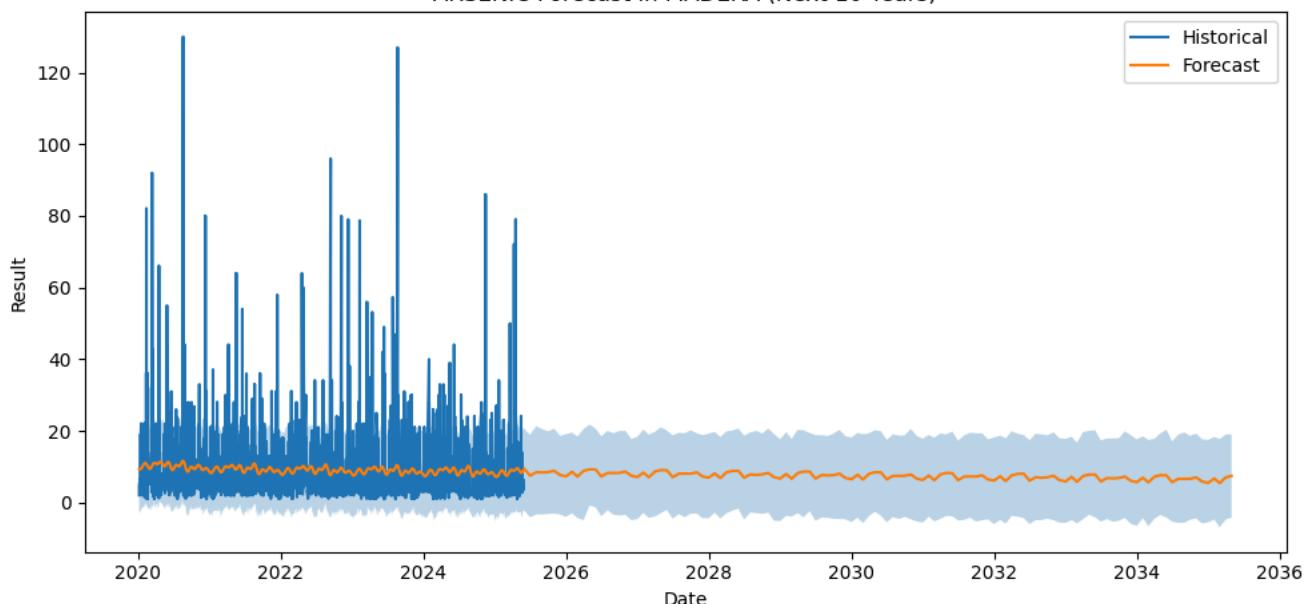
MANGANESE Forecast in LOS ANGELES (Next 10 Years)



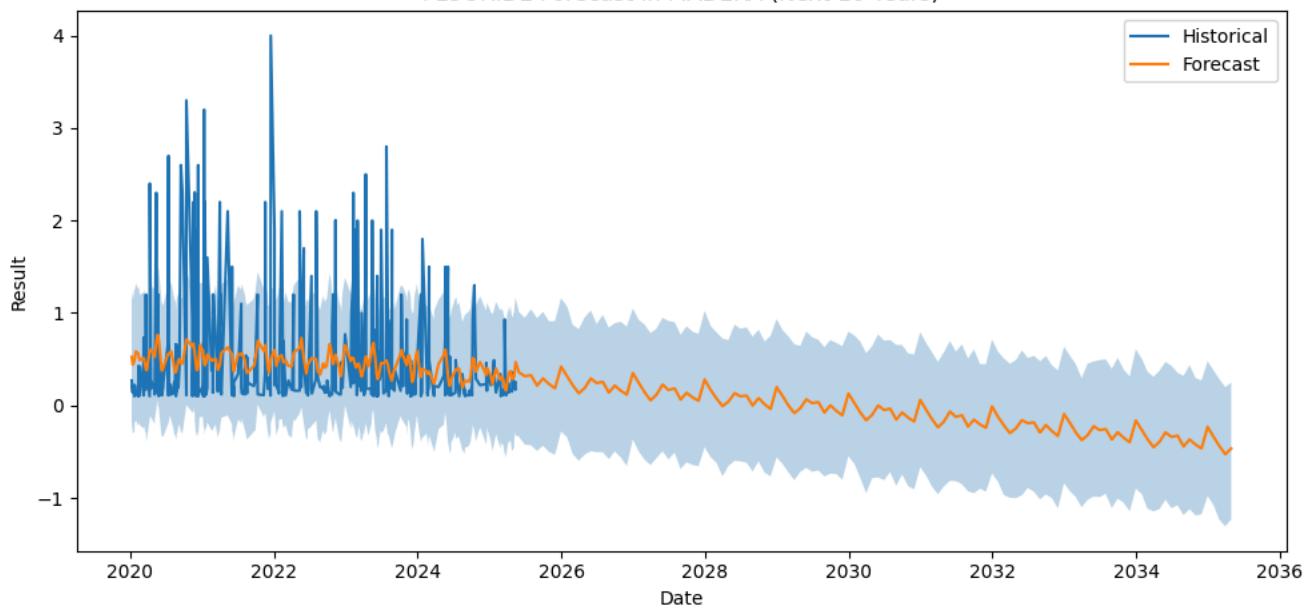
ZINC Forecast in LOS ANGELES (Next 10 Years)



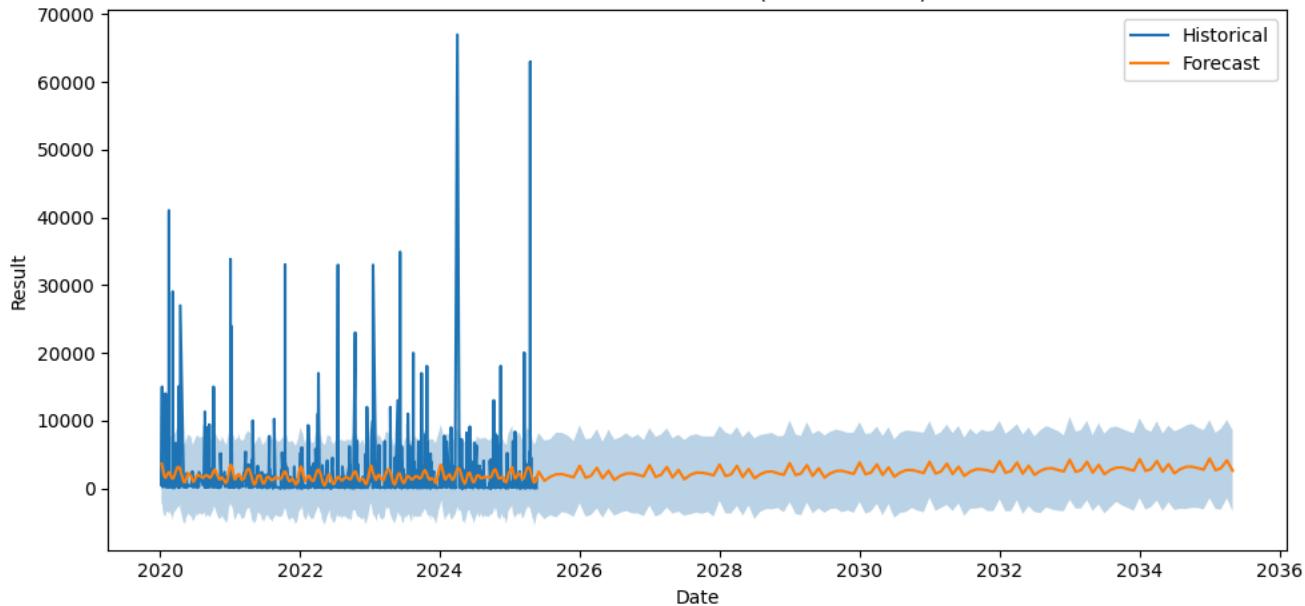
ARSENIC Forecast in MADERA (Next 10 Years)



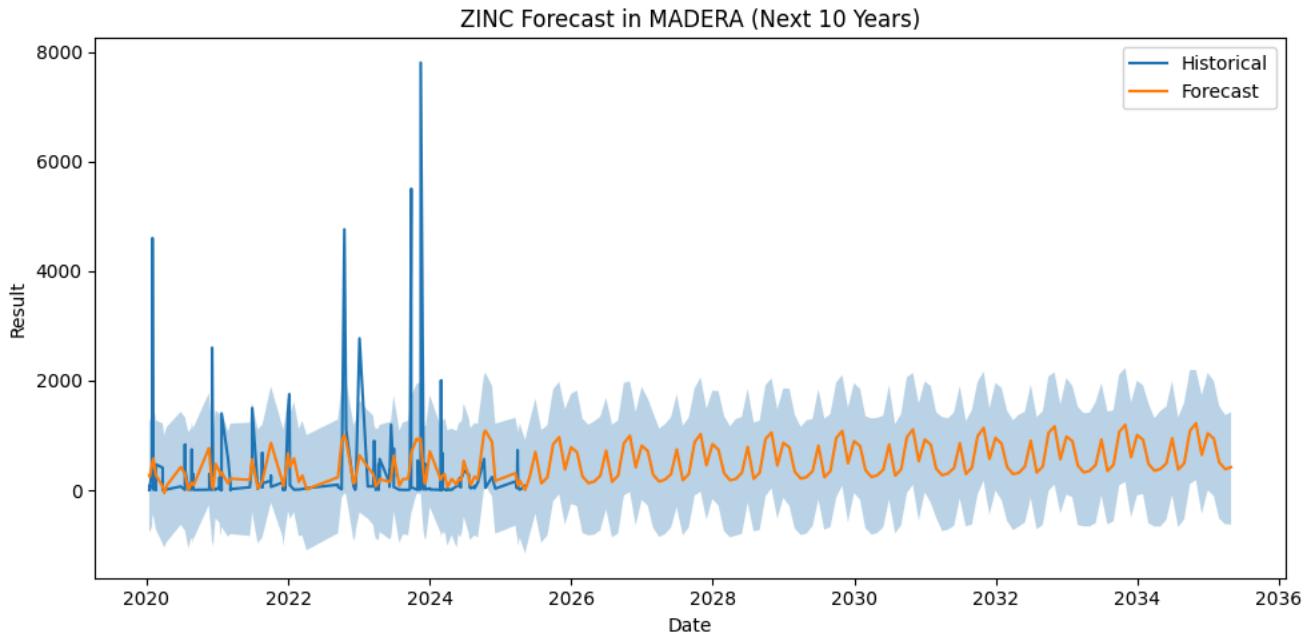
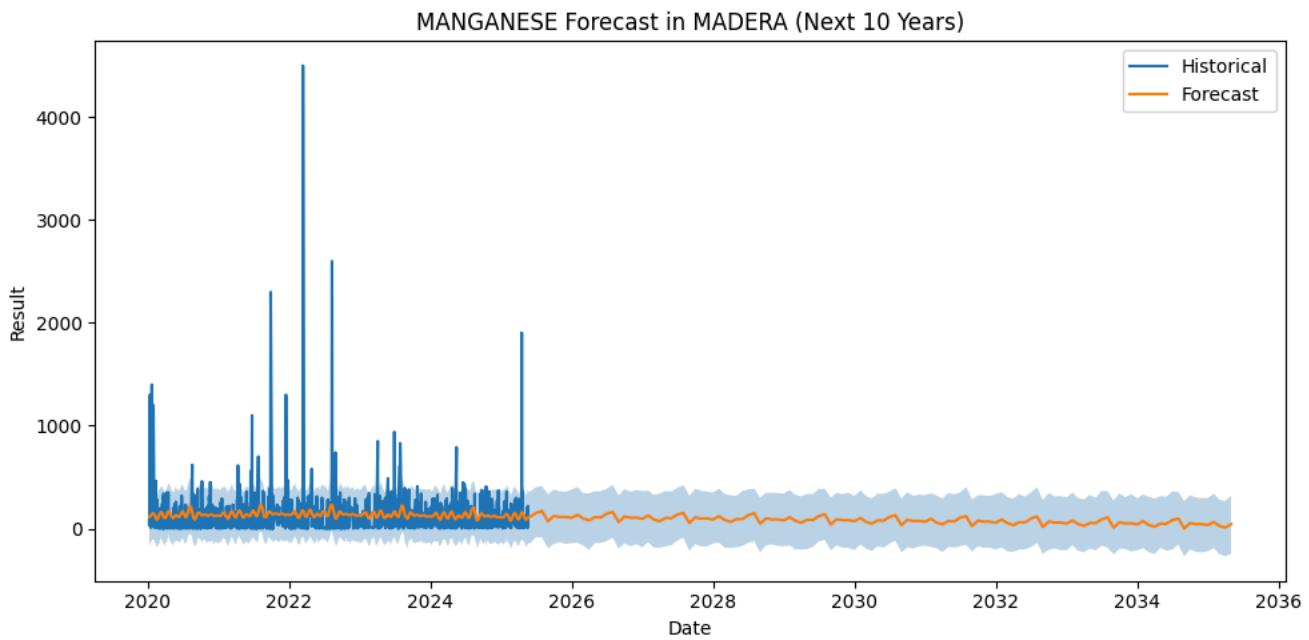
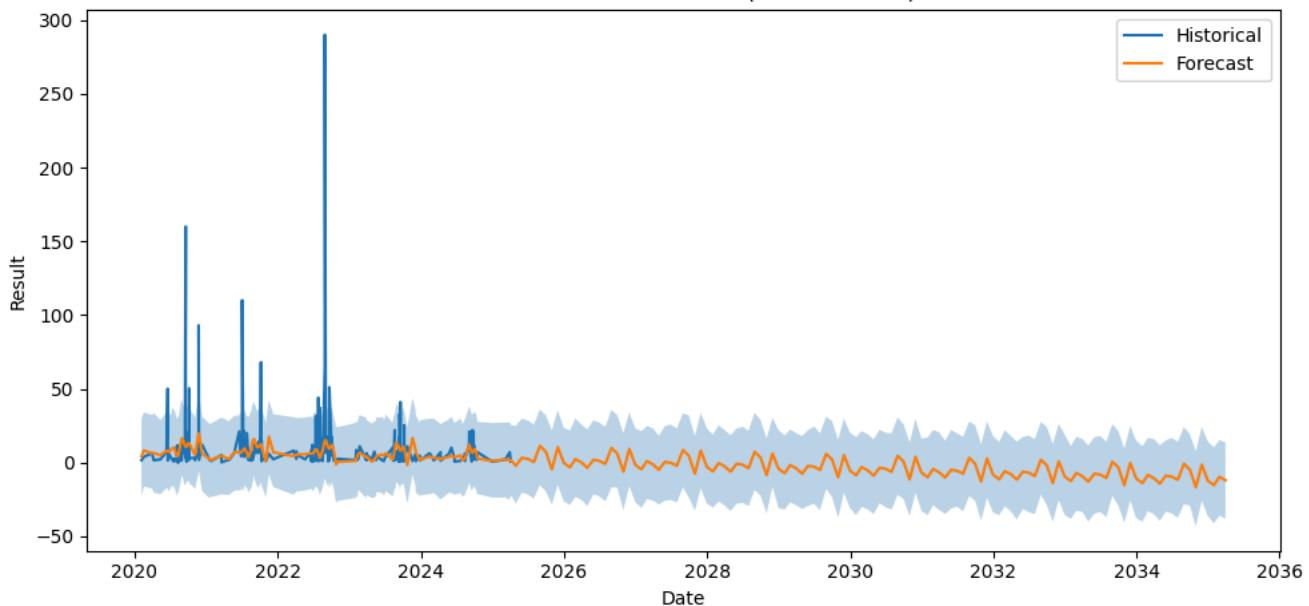
FLUORIDE Forecast in MADERA (Next 10 Years)



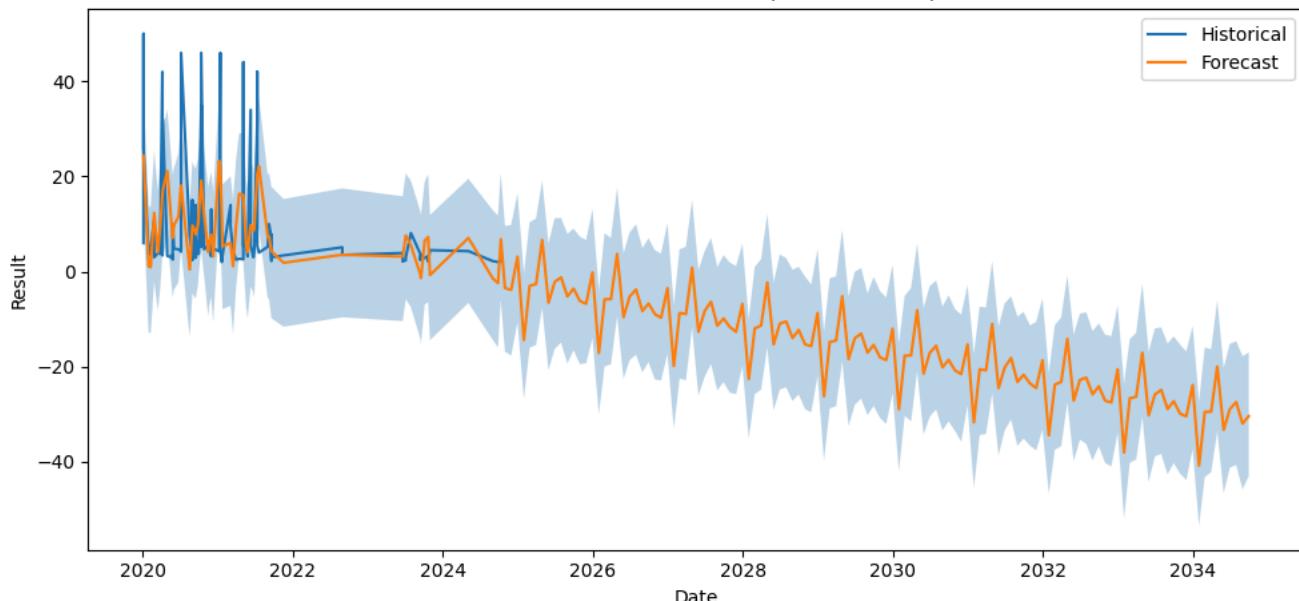
IRON Forecast in MADERA (Next 10 Years)



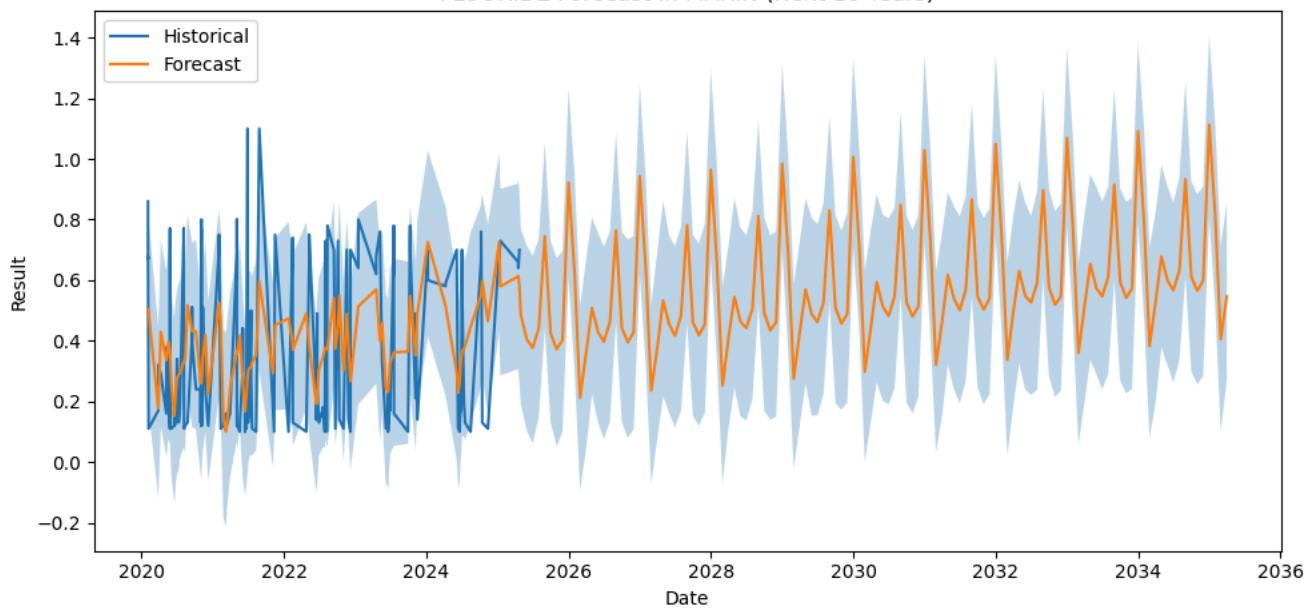
LEAD Forecast in MADERA (Next 10 Years)



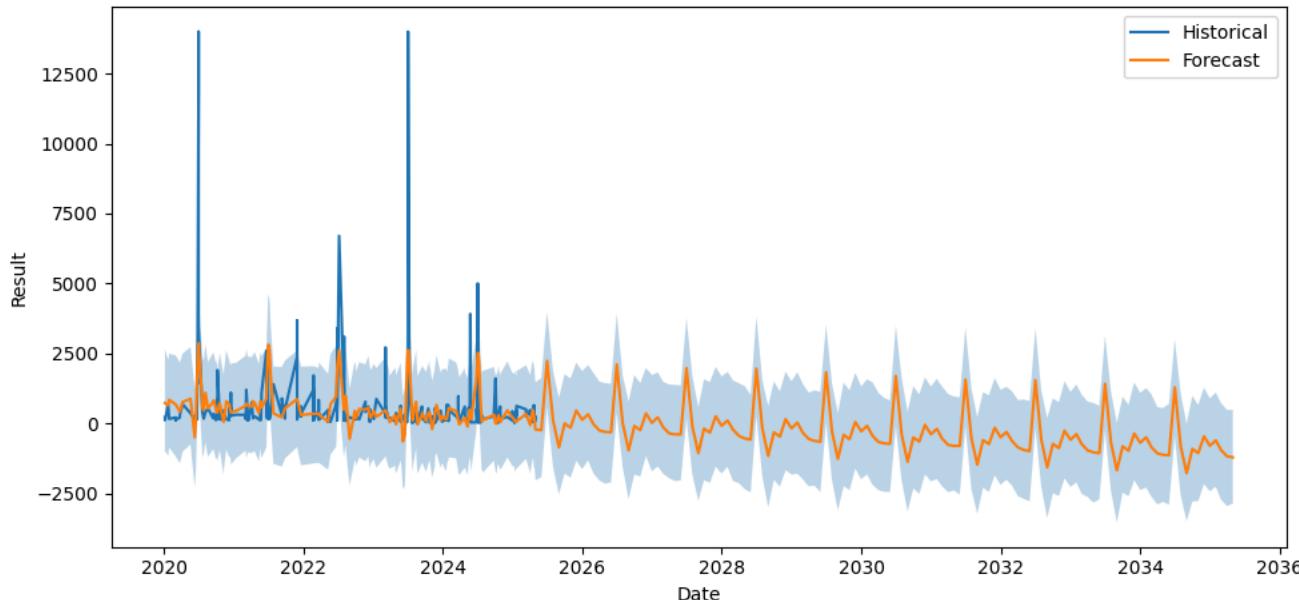
ARSENIC Forecast in MARIN (Next 10 Years)



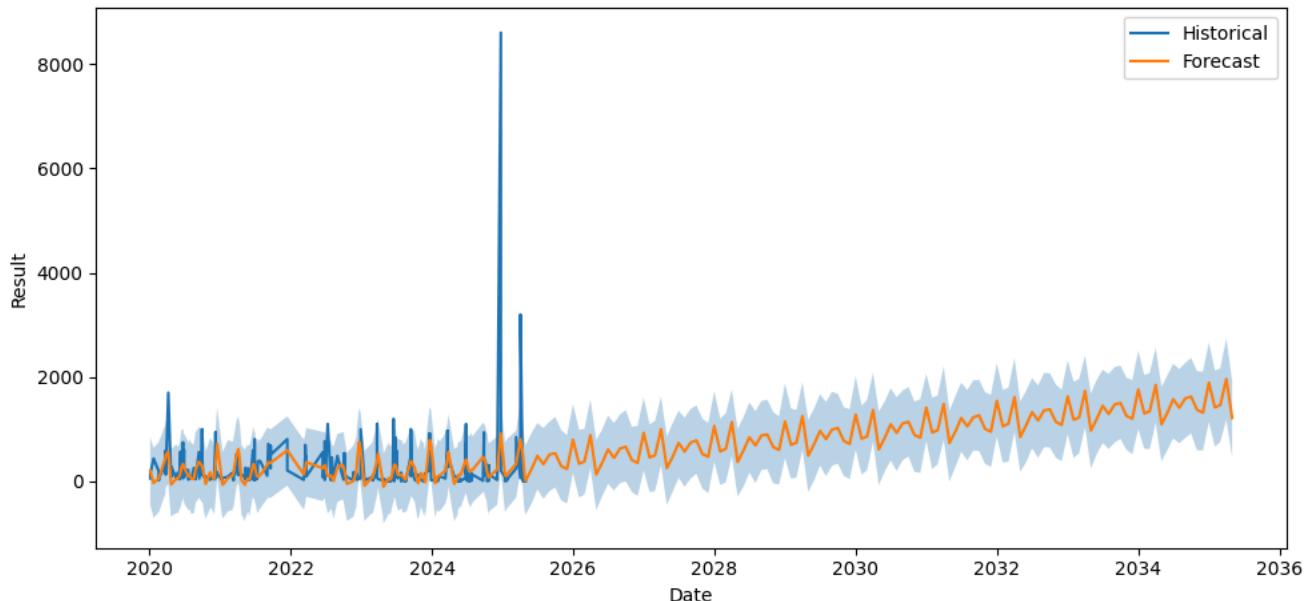
FLUORIDE Forecast in MARIN (Next 10 Years)



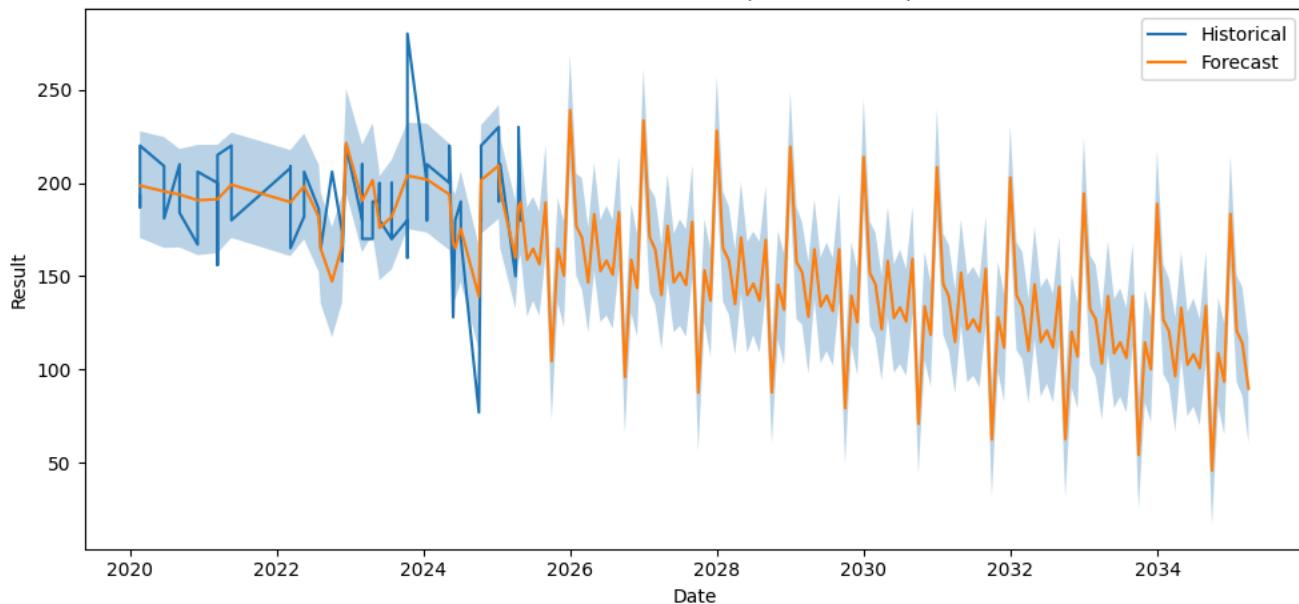
IRON Forecast in MARIN (Next 10 Years)



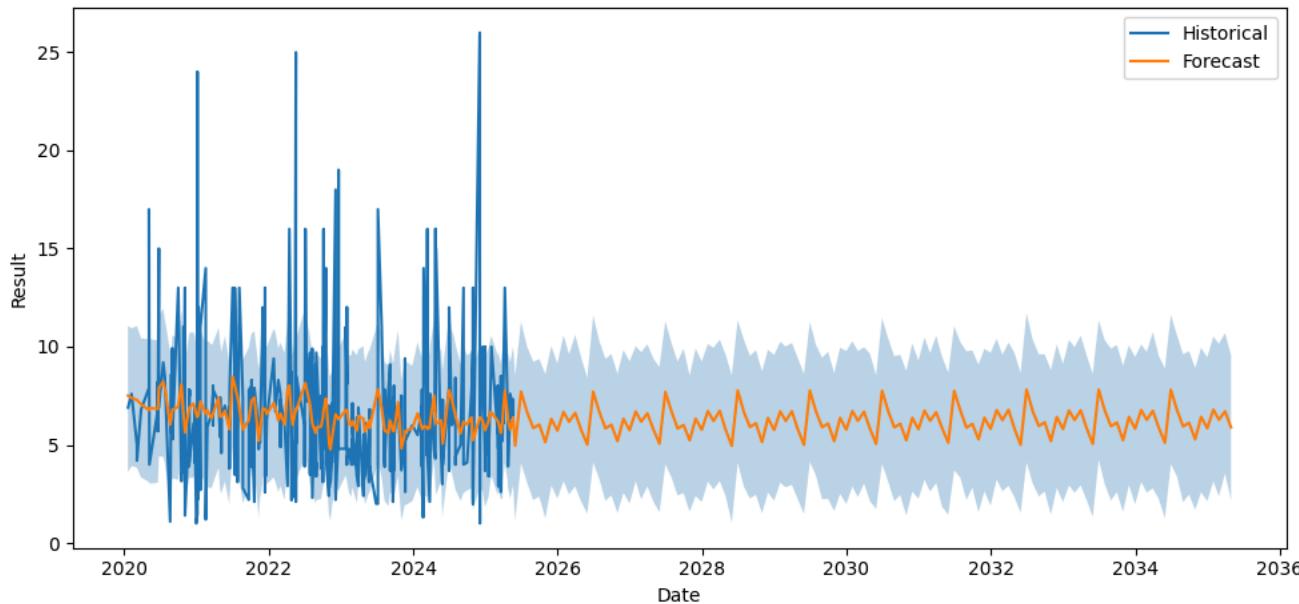
MANGANESE Forecast in MARIN (Next 10 Years)



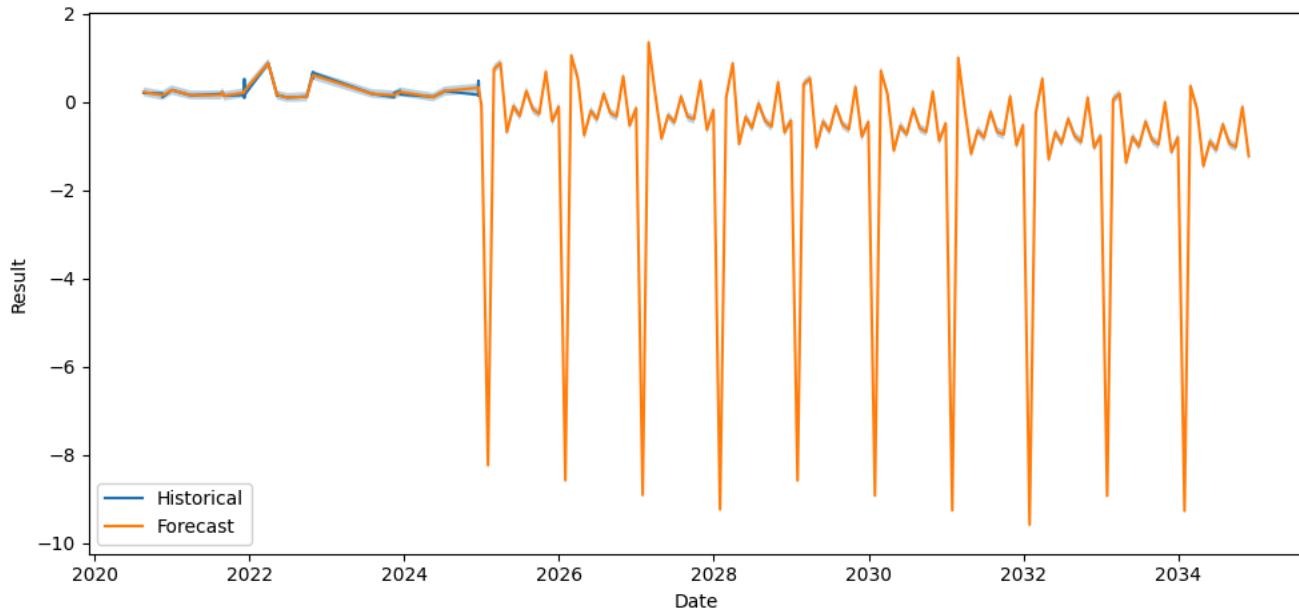
ZINC Forecast in MARIN (Next 10 Years)



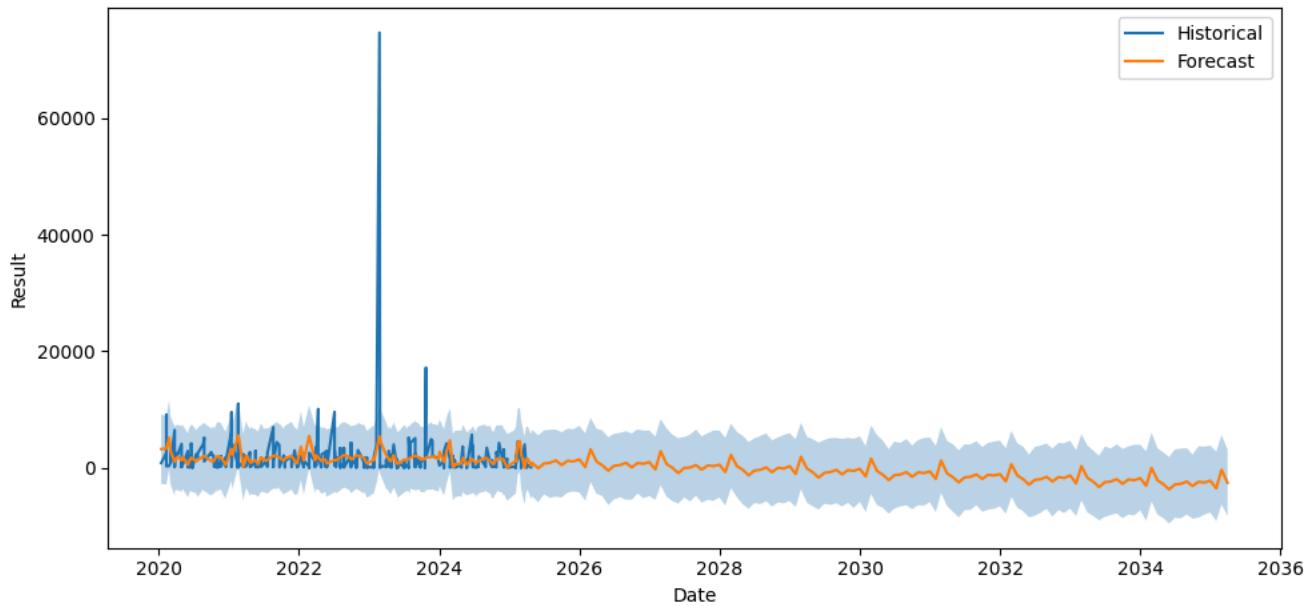
ZINC Forecast in MARIN (Next 10 Years)



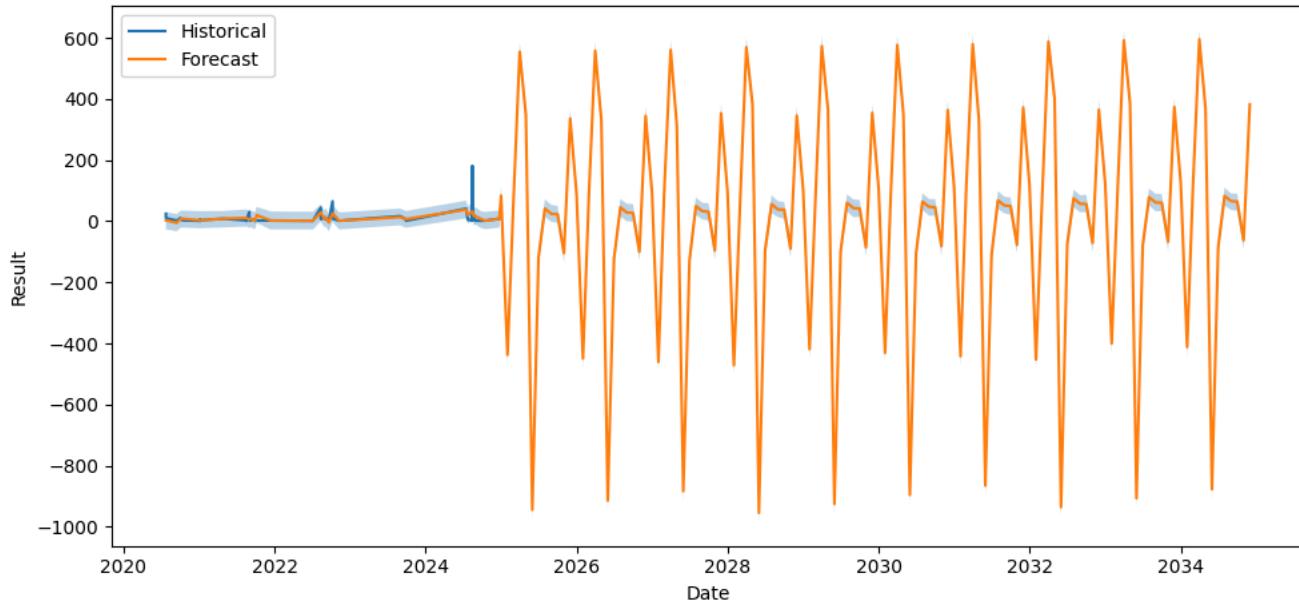
ARSENIC Forecast in MARIPOSA (Next 10 Years)



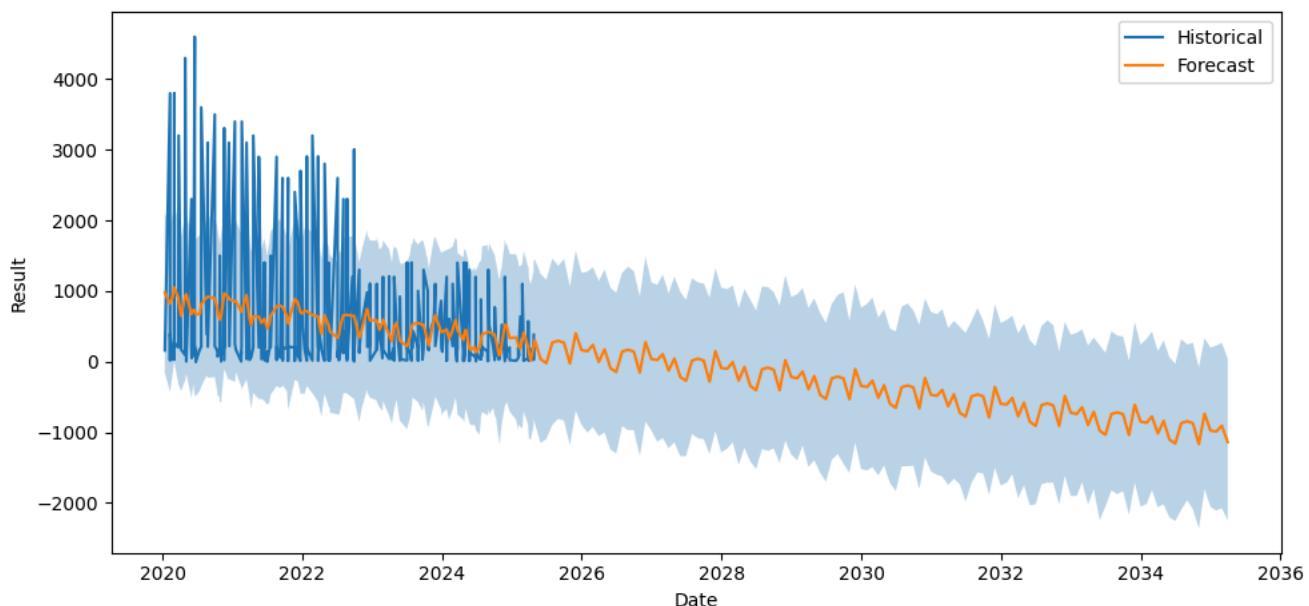
IRON Forecast in MARIPOSA (Next 10 Years)



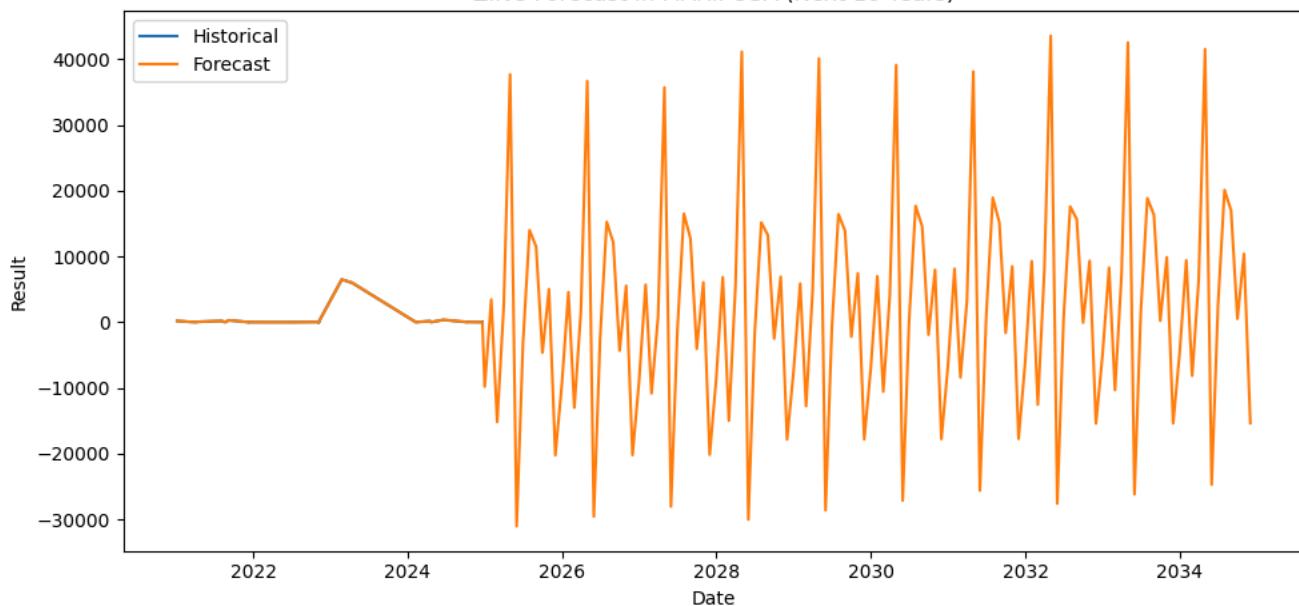
LEAD Forecast in MARIPOSA (Next 10 Years)



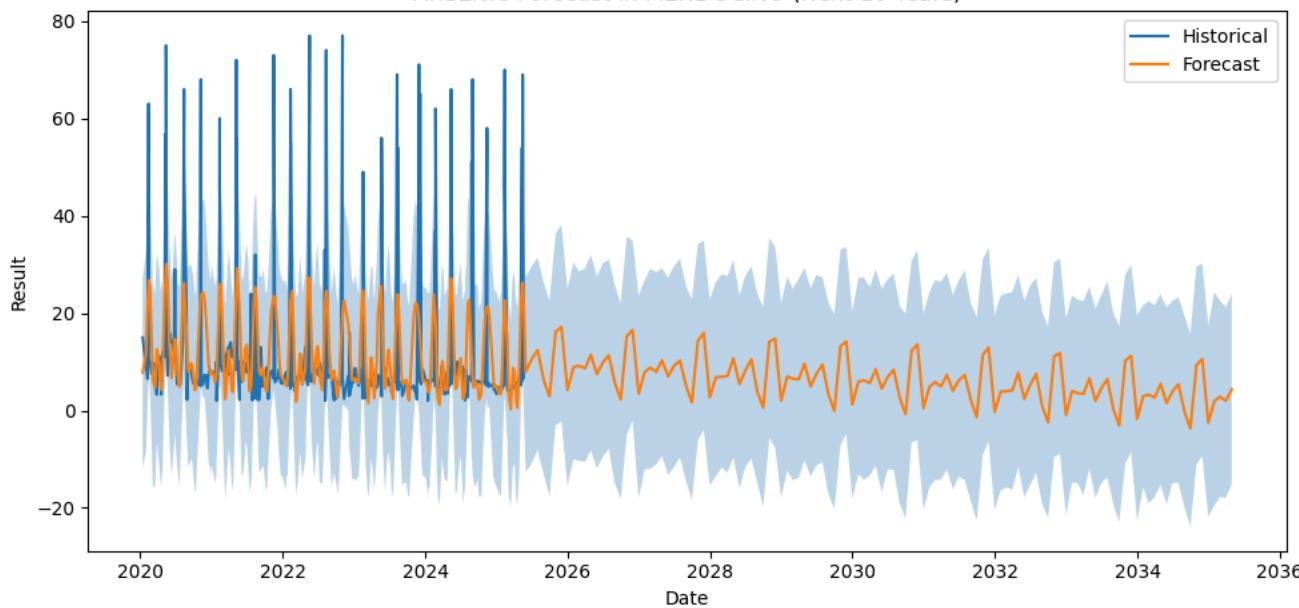
MANGANESE Forecast in MARIPOSA (Next 10 Years)



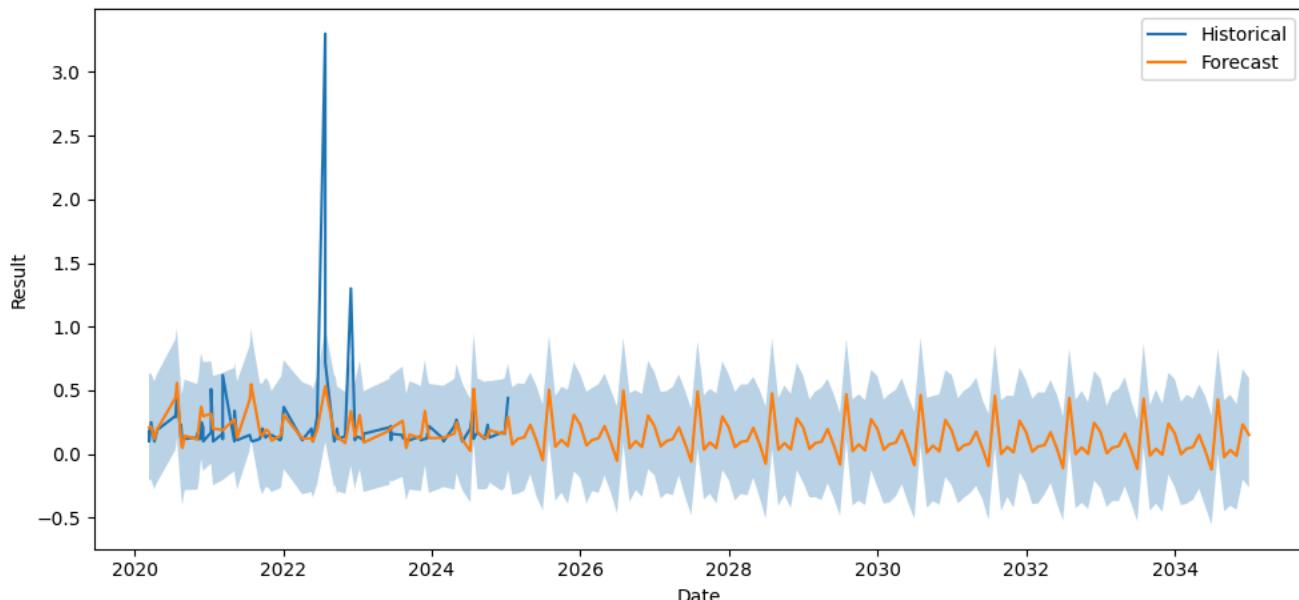
ZINC Forecast in MARIPOSA (Next 10 Years)



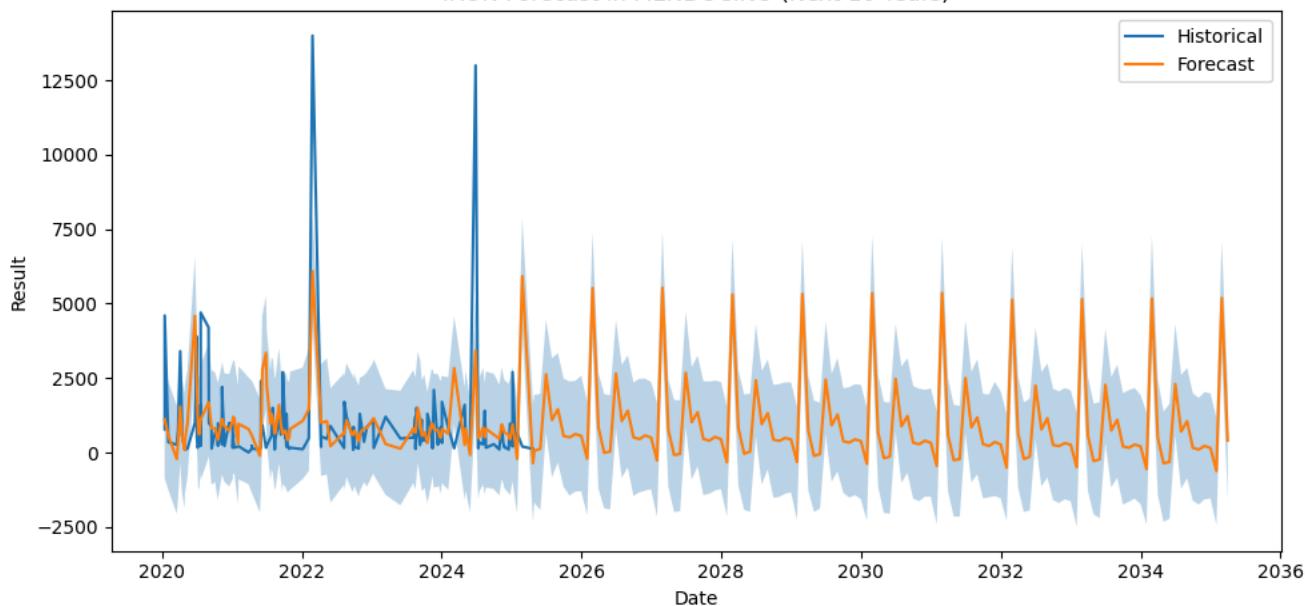
ARSENIC Forecast in MENDOCINO (Next 10 Years)



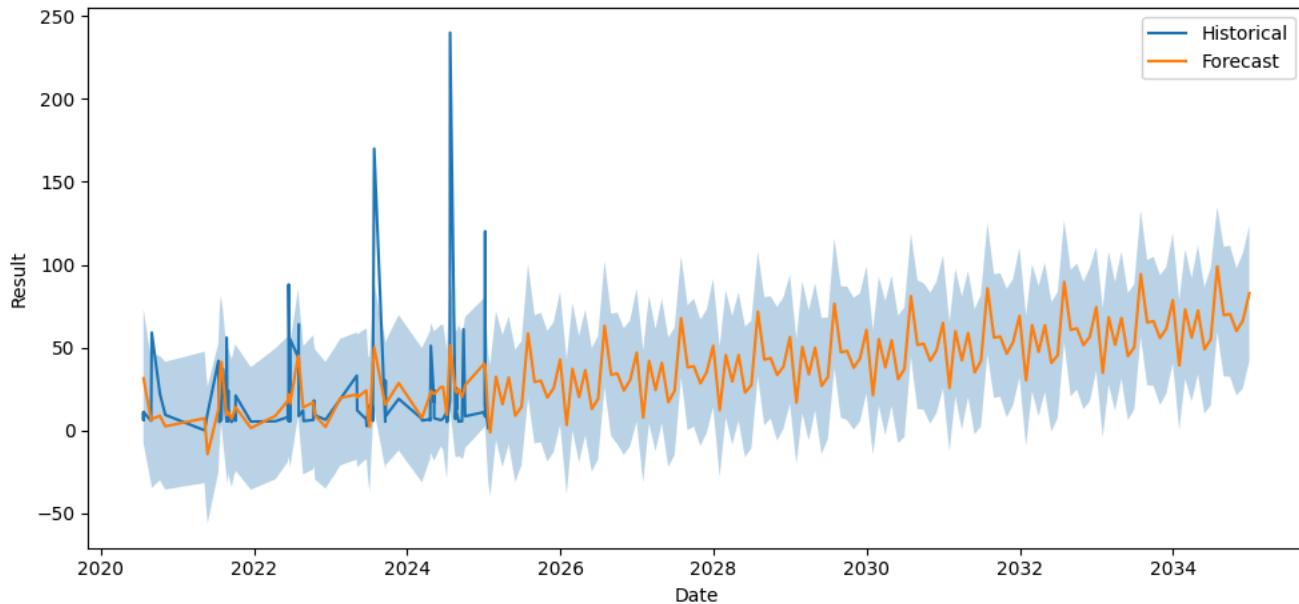
FLUORIDE Forecast in MENDOCINO (Next 10 Years)



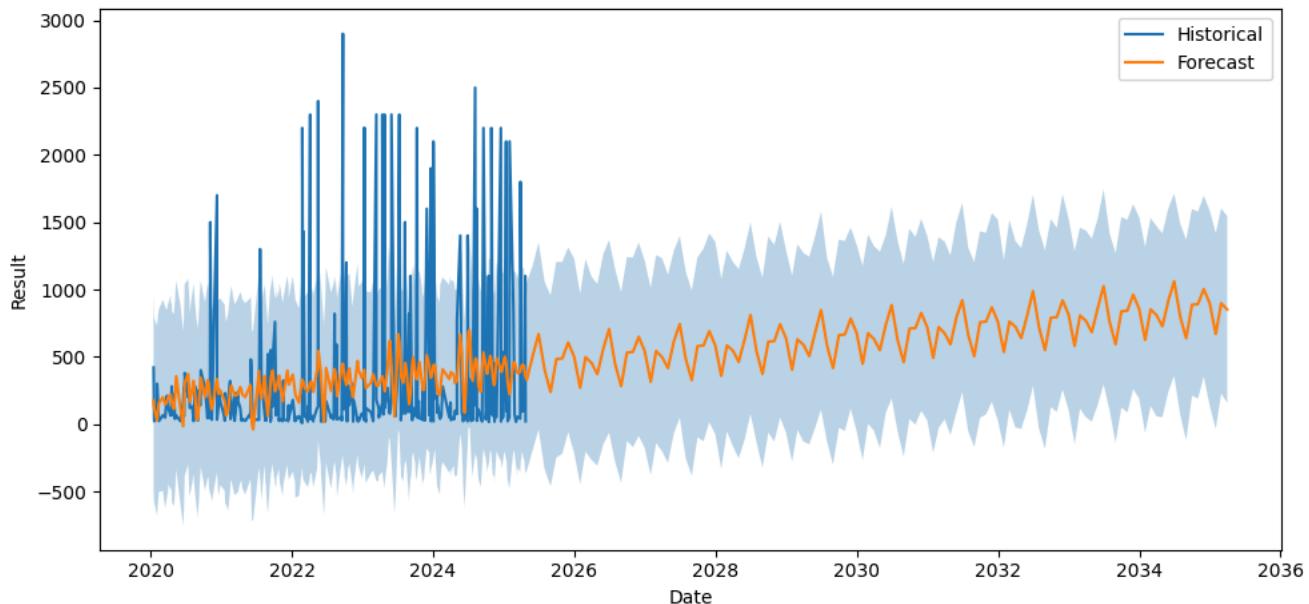
IRON Forecast in MENDOCINO (Next 10 Years)



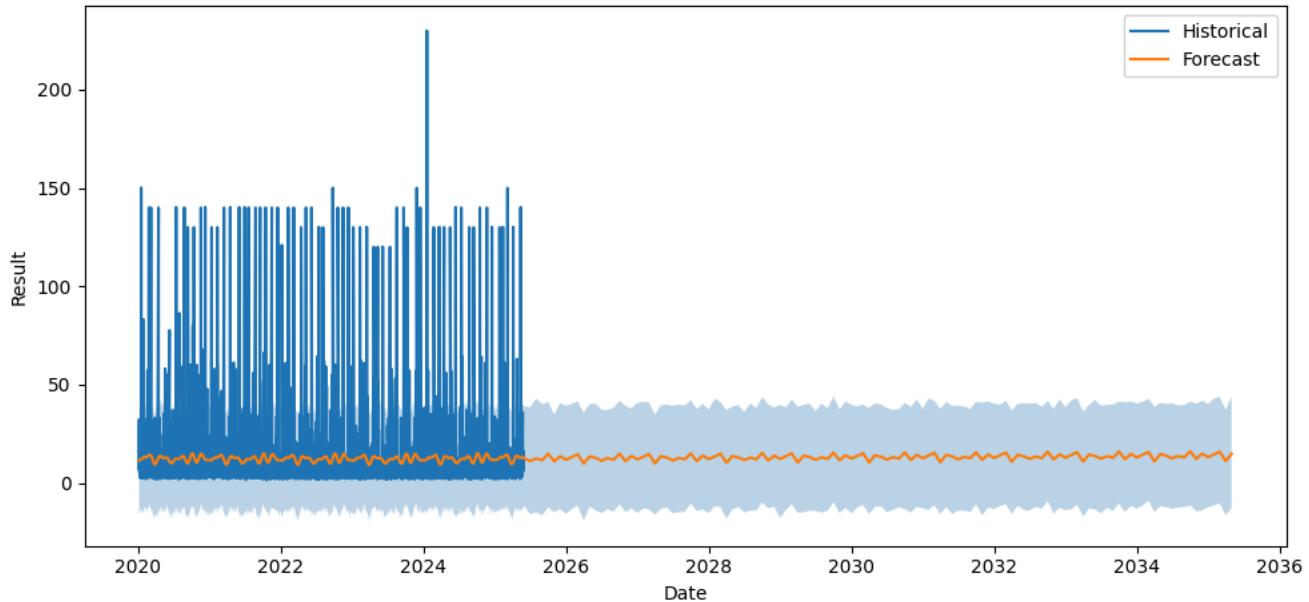
LEAD Forecast in MENDOCINO (Next 10 Years)



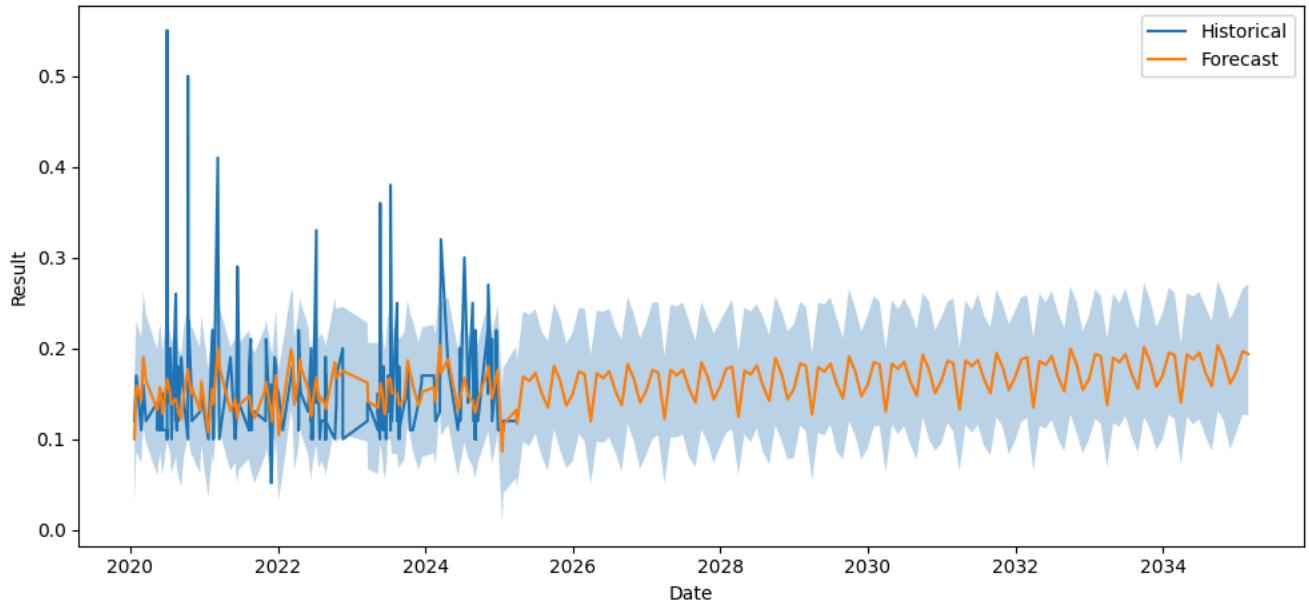
MANGANESE Forecast in MENDOCINO (Next 10 Years)



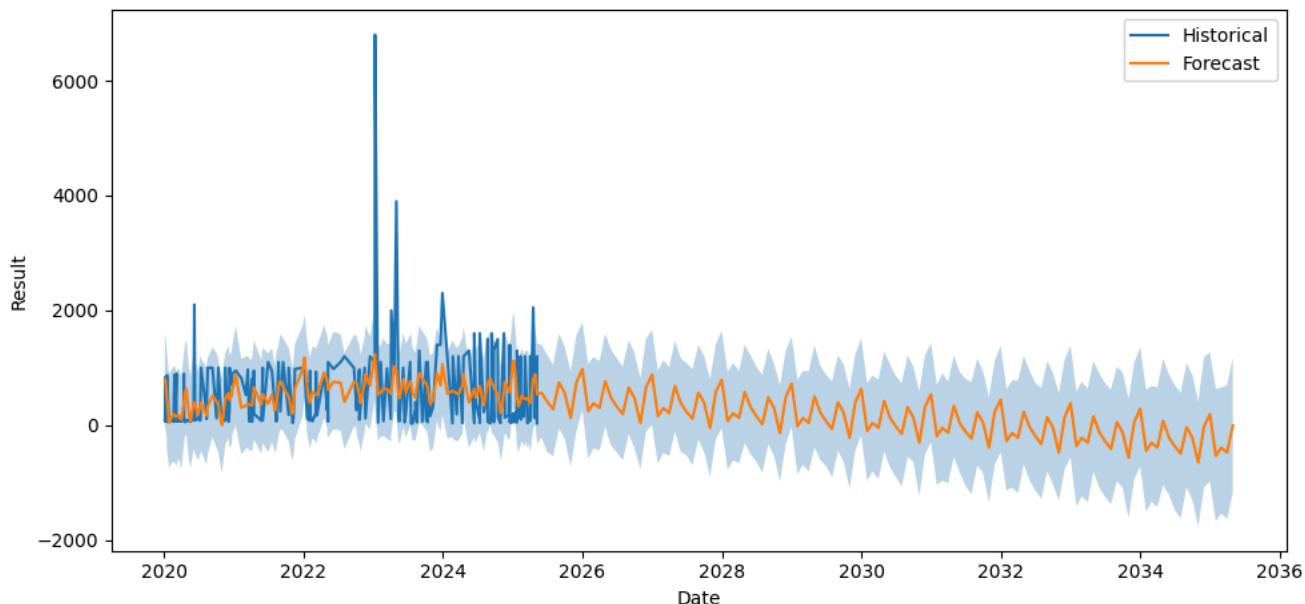
ARSENIC Forecast in MERCED (Next 10 Years)



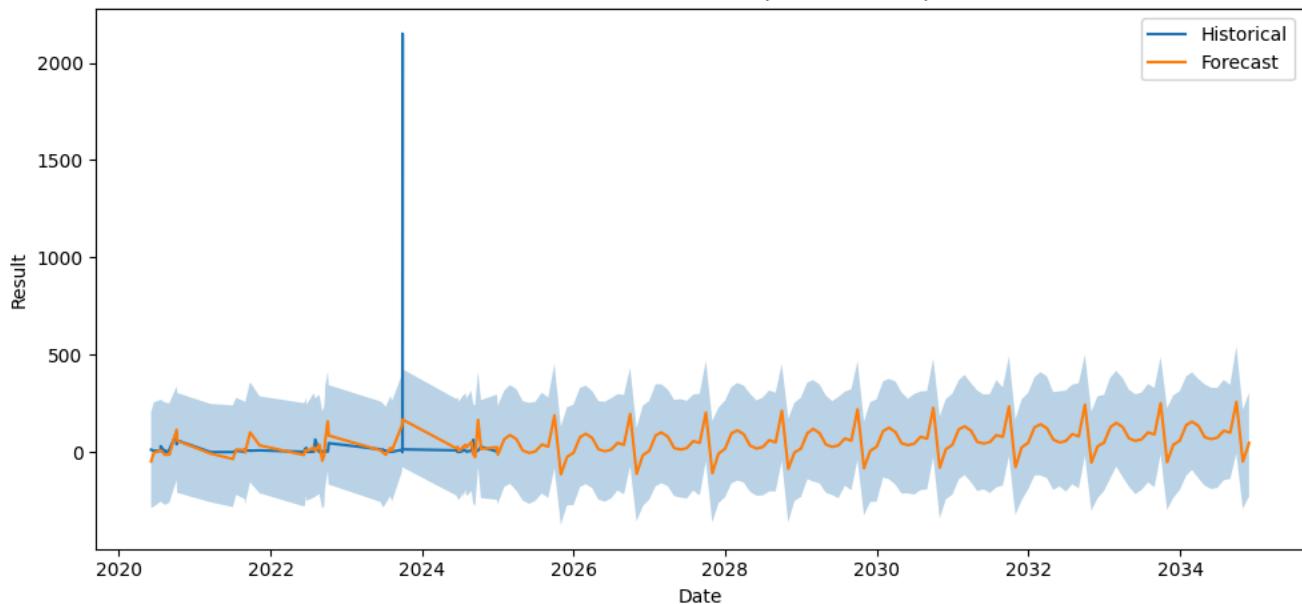
ARSENIC Forecast in MERCED (Next 10 Years)



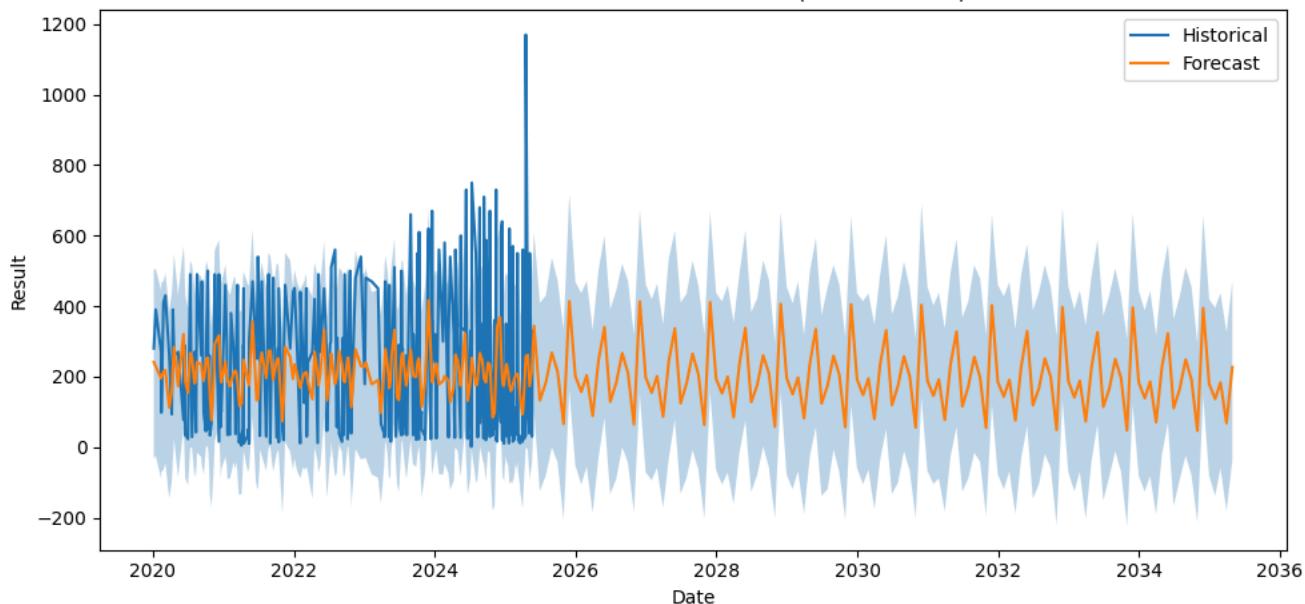
FLUORIDE Forecast in MERCED (Next 10 Years)



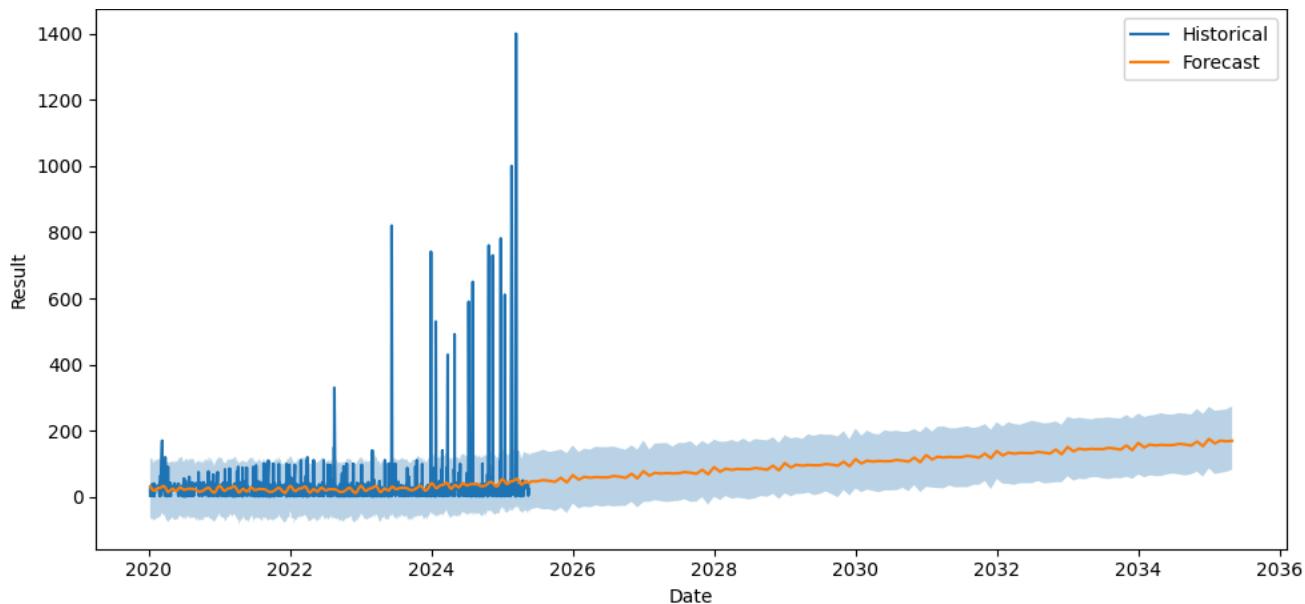
LEAD Forecast in MERCED (Next 10 Years)



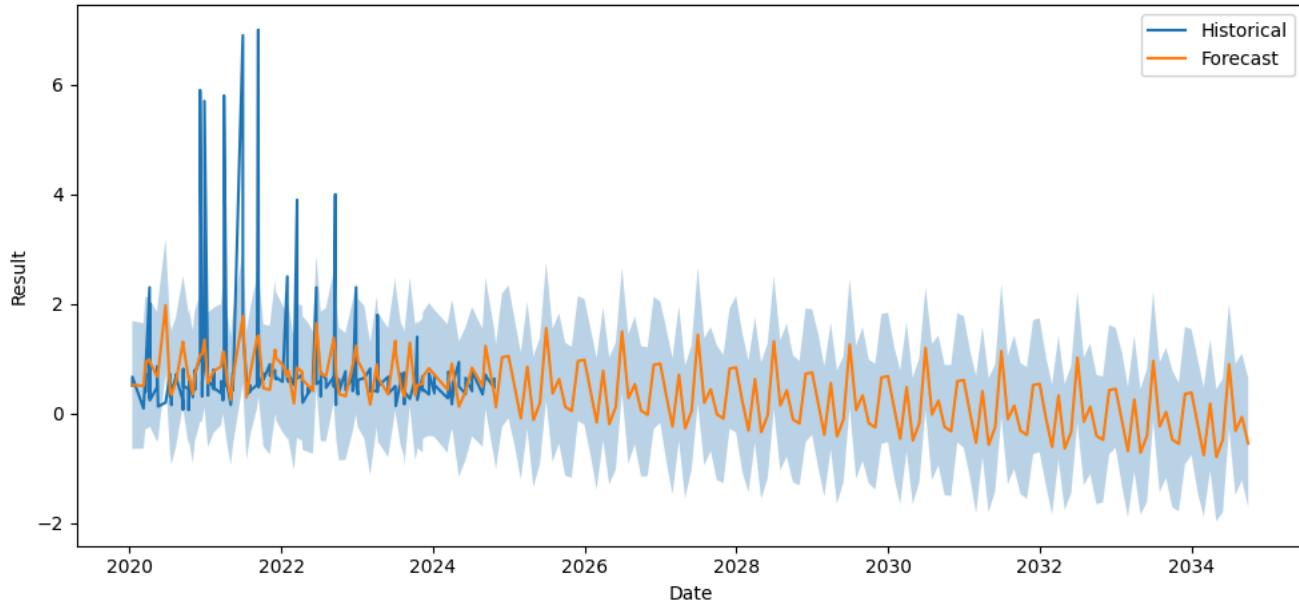
MANGANESE Forecast in MERCED (Next 10 Years)



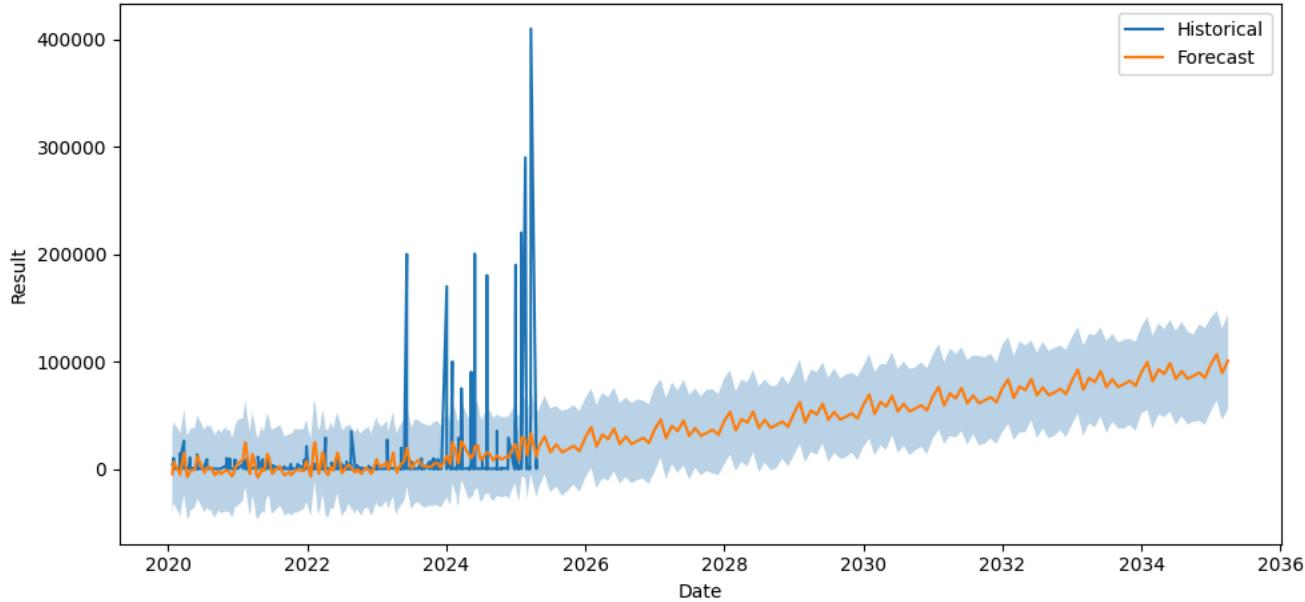
ARSENIC Forecast in MONO (Next 10 Years)



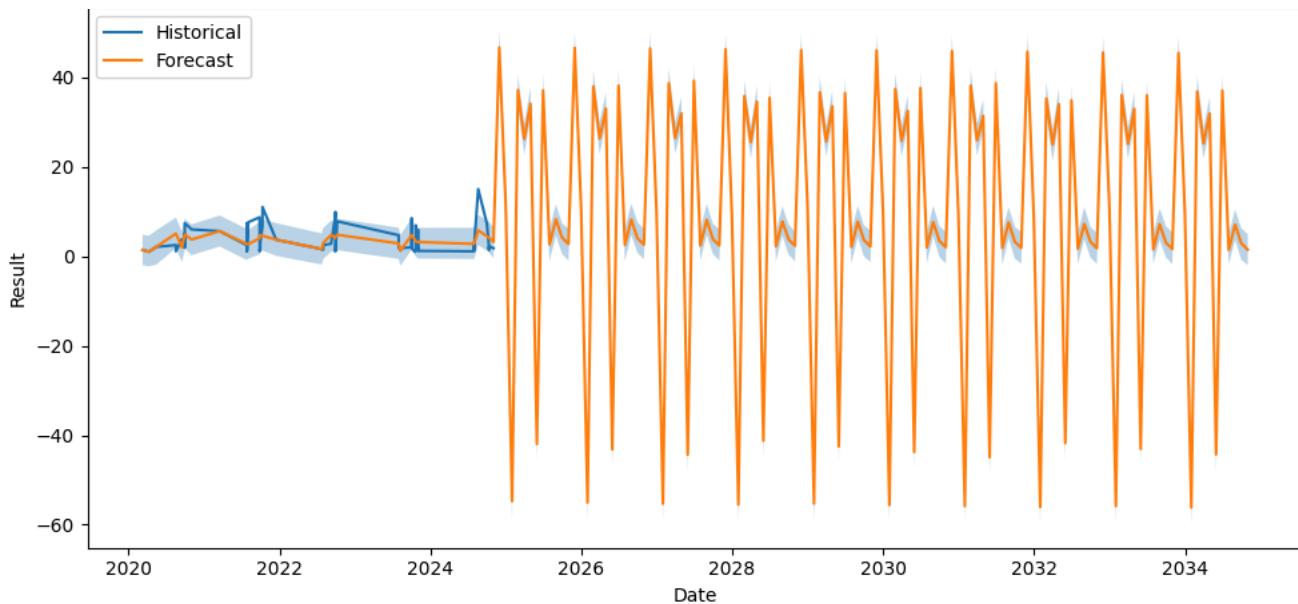
FLUORIDE Forecast in MONO (Next 10 Years)



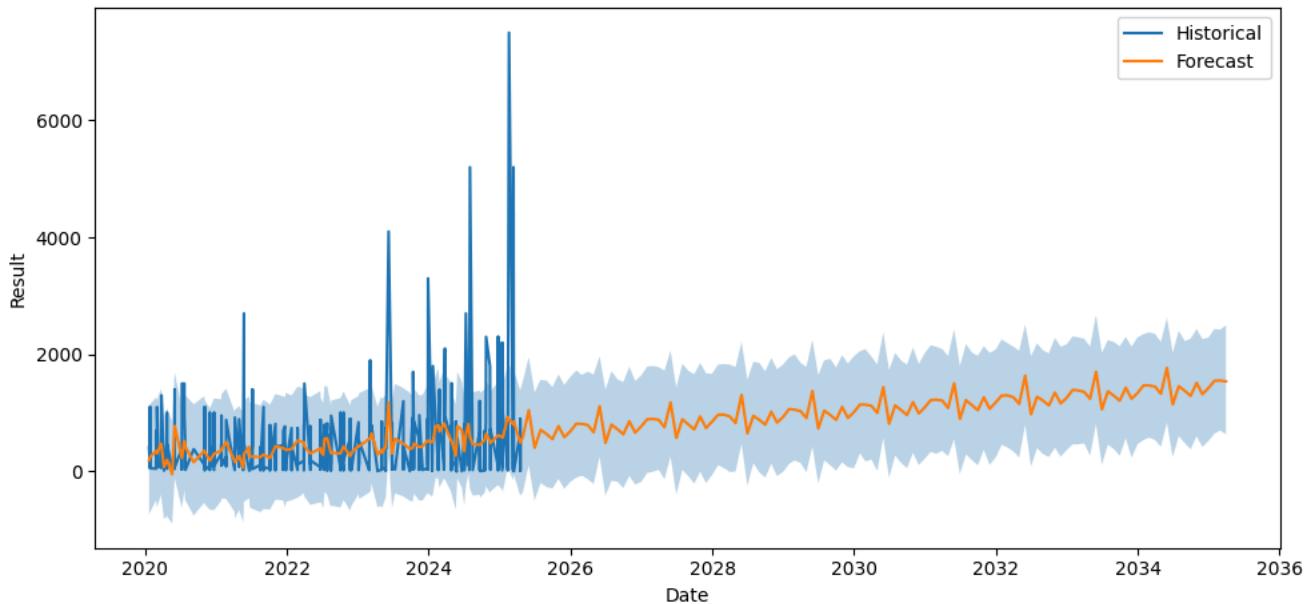
IRON Forecast in MONO (Next 10 Years)



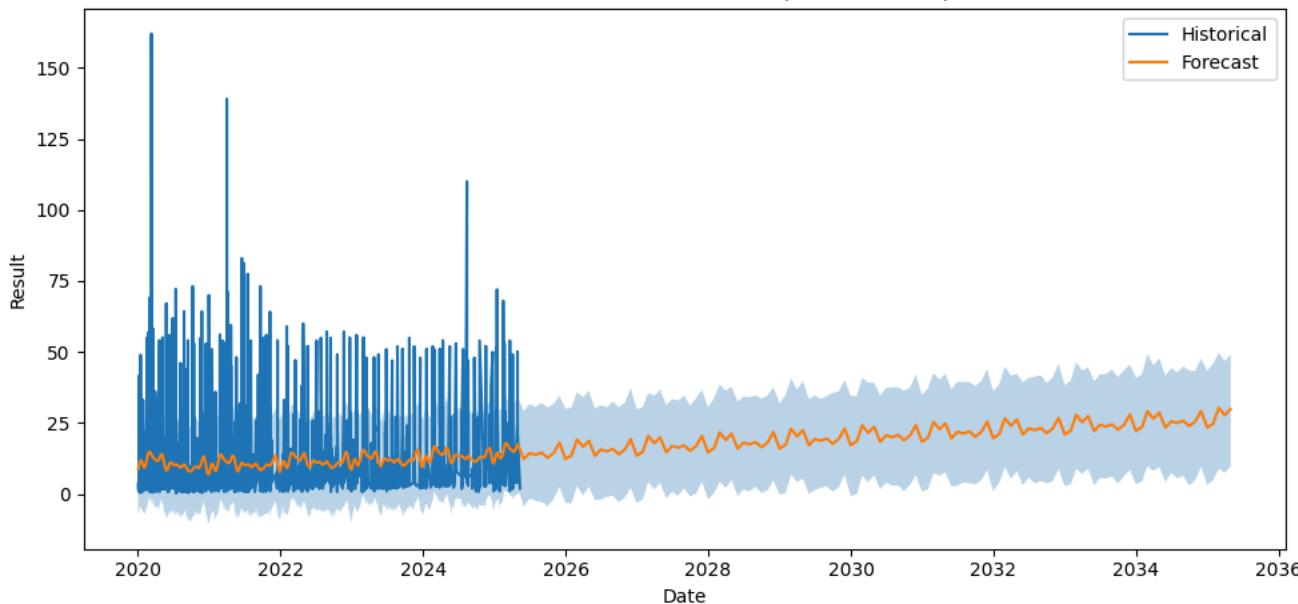
LEAD Forecast in MONO (Next 10 Years)



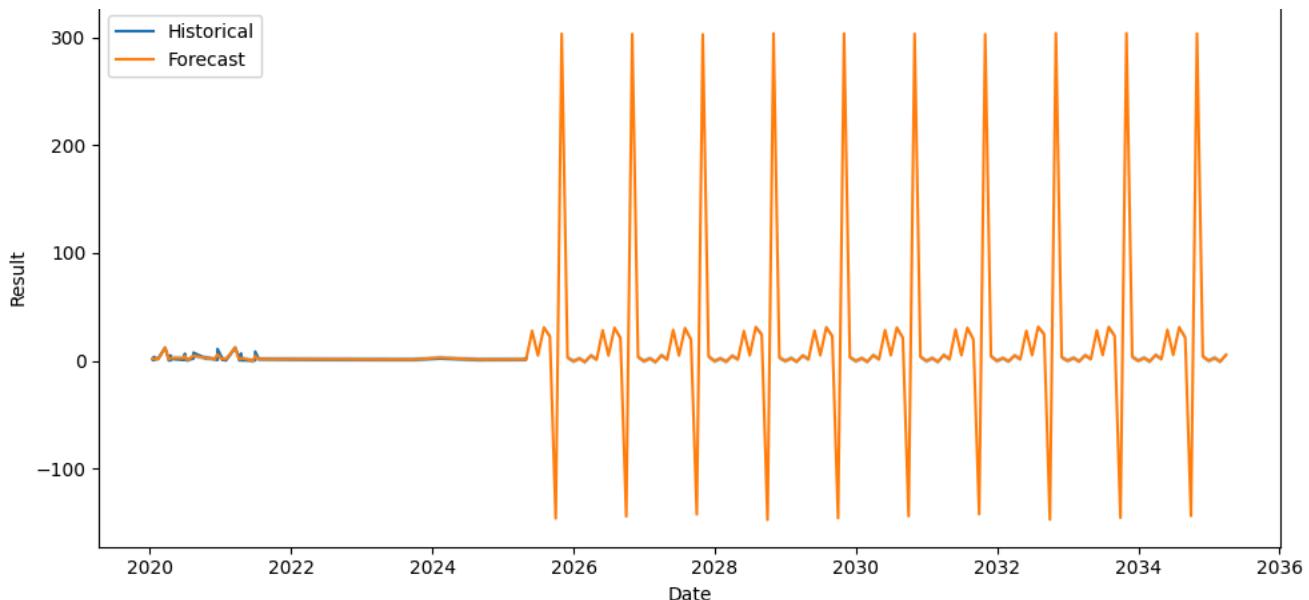
MANGANESE Forecast in MONO (Next 10 Years)



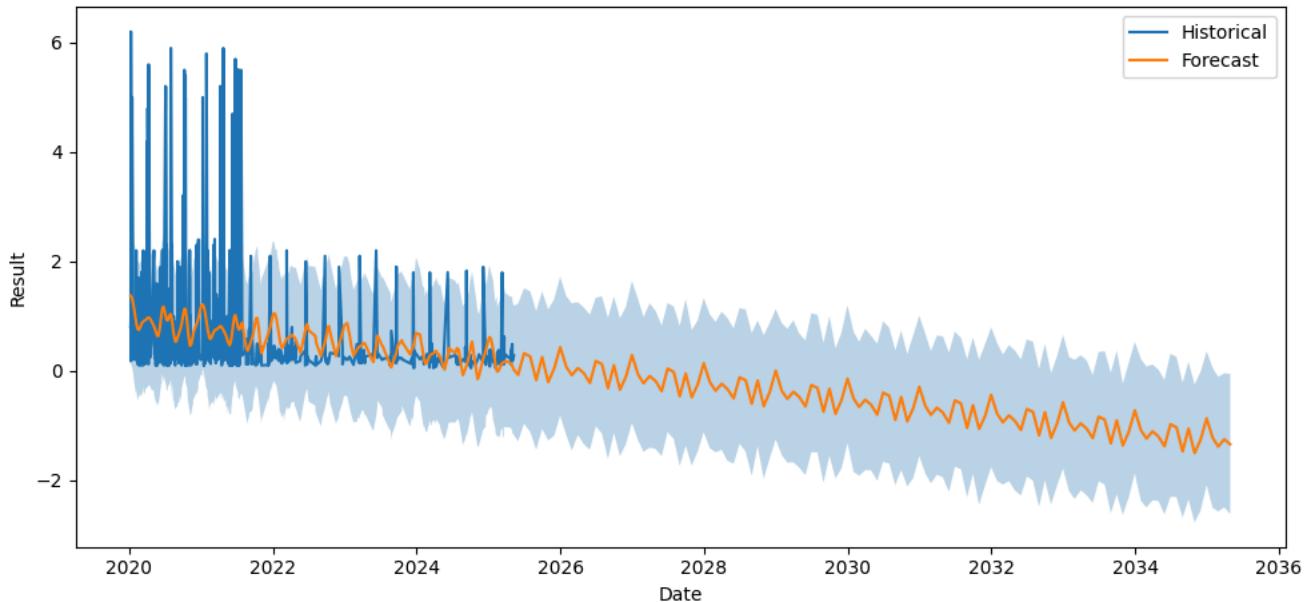
ARSENIC Forecast in MONTEREY (Next 10 Years)



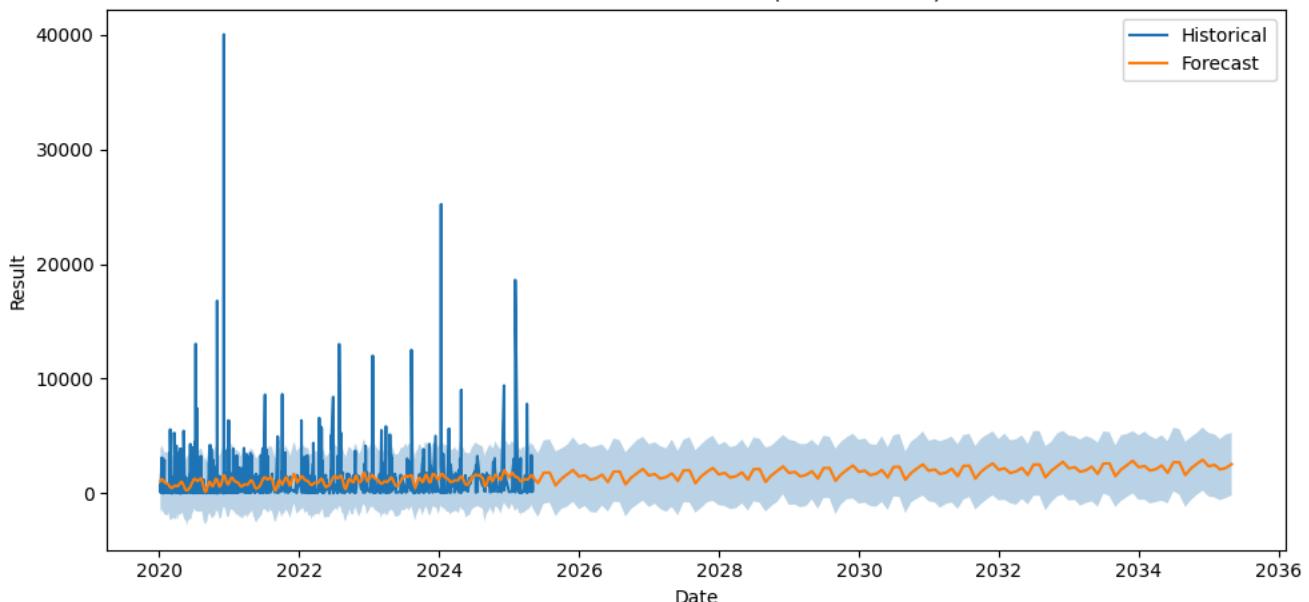
CADMIUM Forecast in MONTEREY (Next 10 Years)



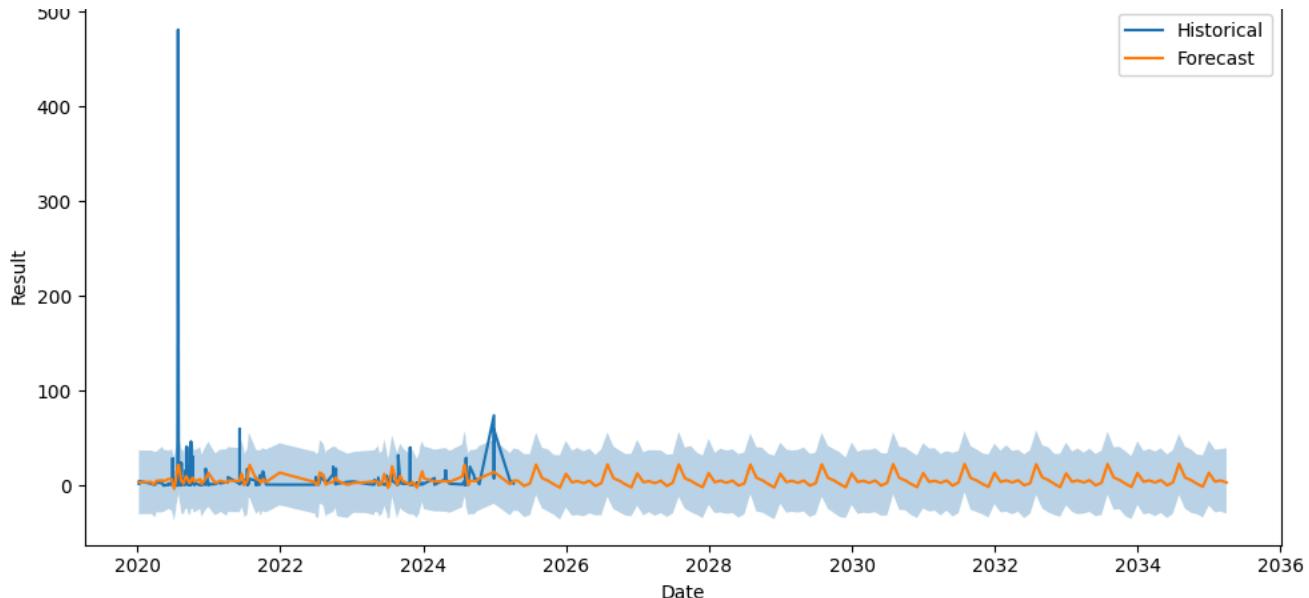
FLUORIDE Forecast in MONTEREY (Next 10 Years)



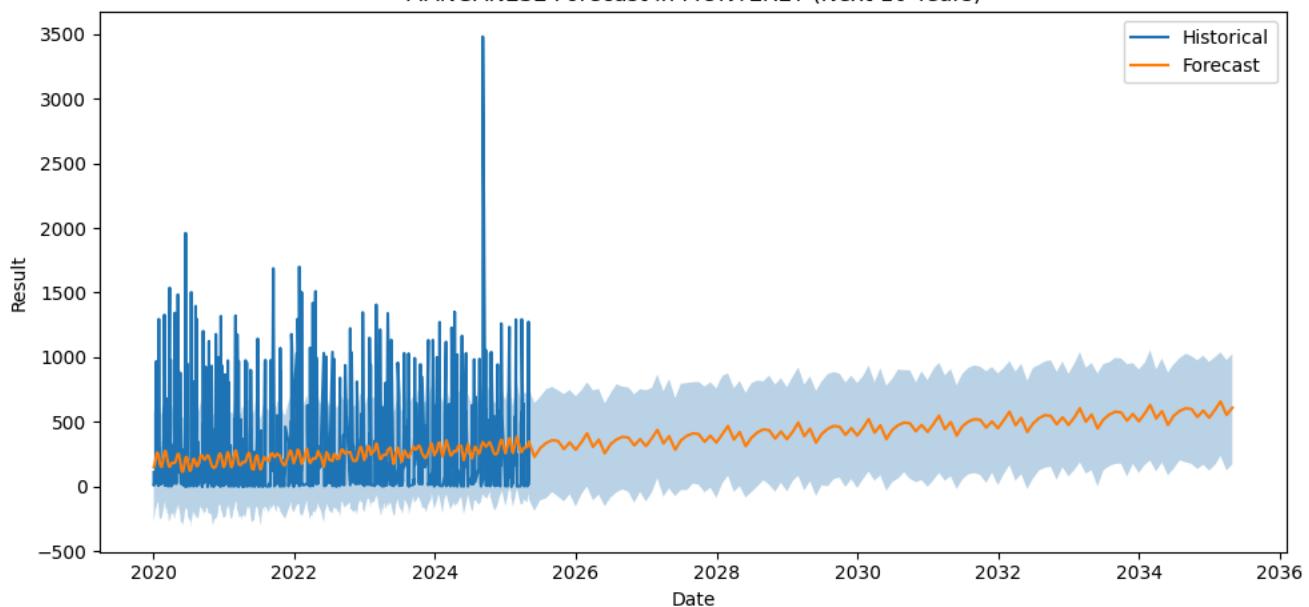
IRON Forecast in MONTEREY (Next 10 Years)



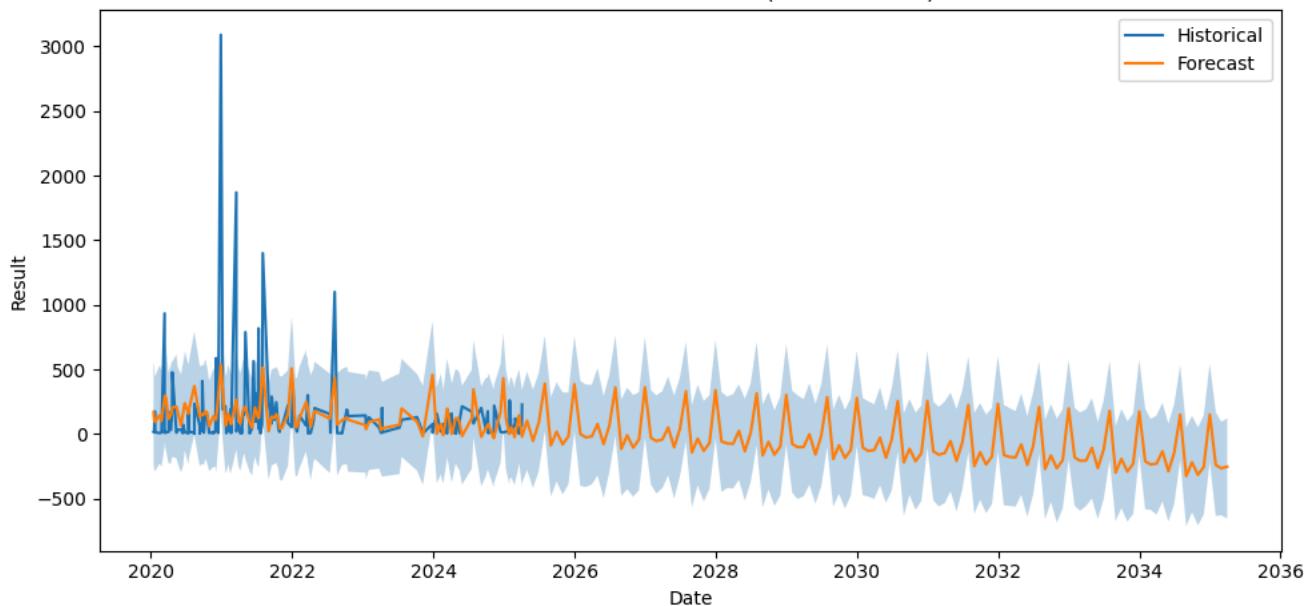
LEAD Forecast in MONTEREY (Next 10 Years)



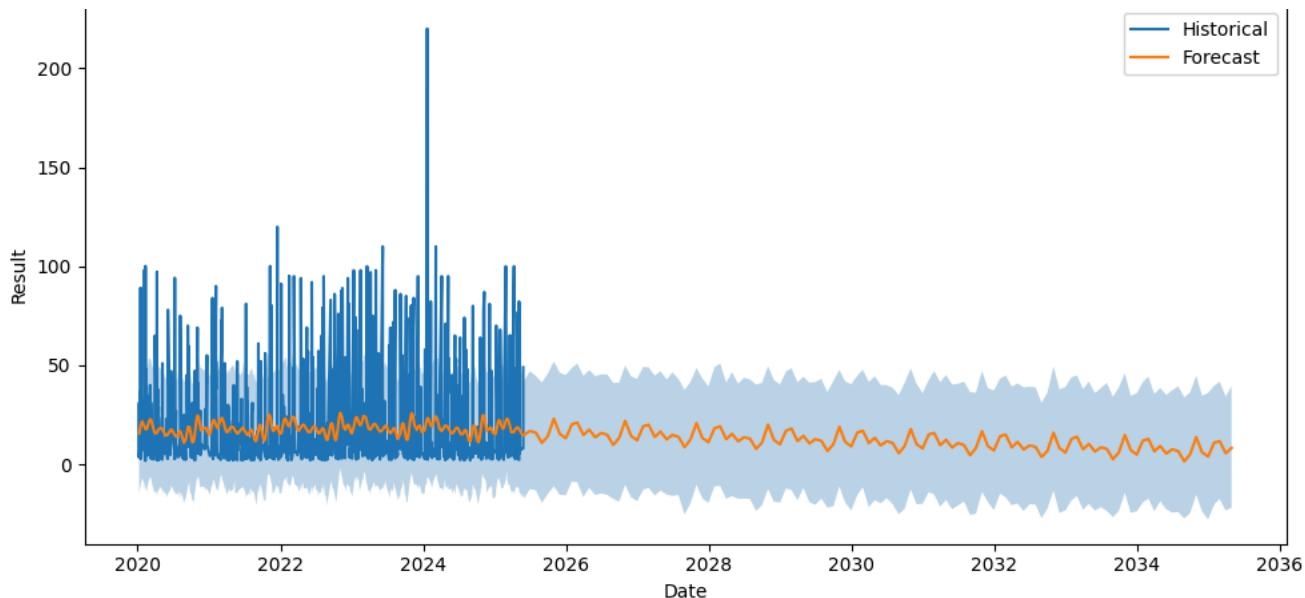
MANGANESE Forecast in MONTEREY (Next 10 Years)



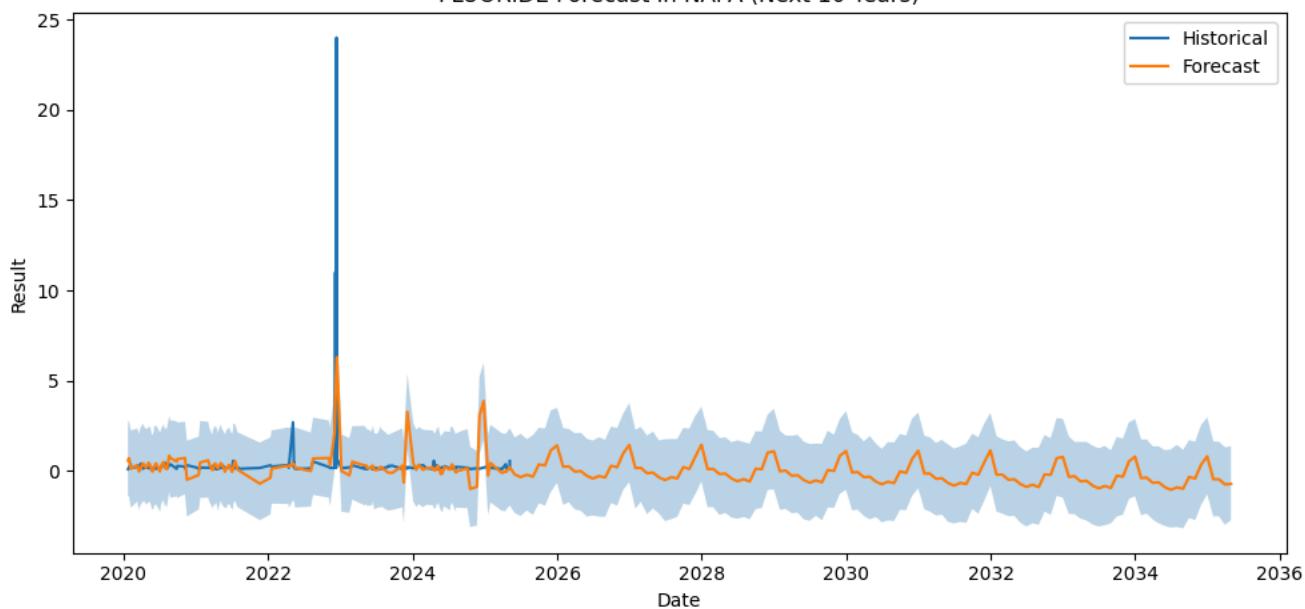
ZINC Forecast in MONTEREY (Next 10 Years)



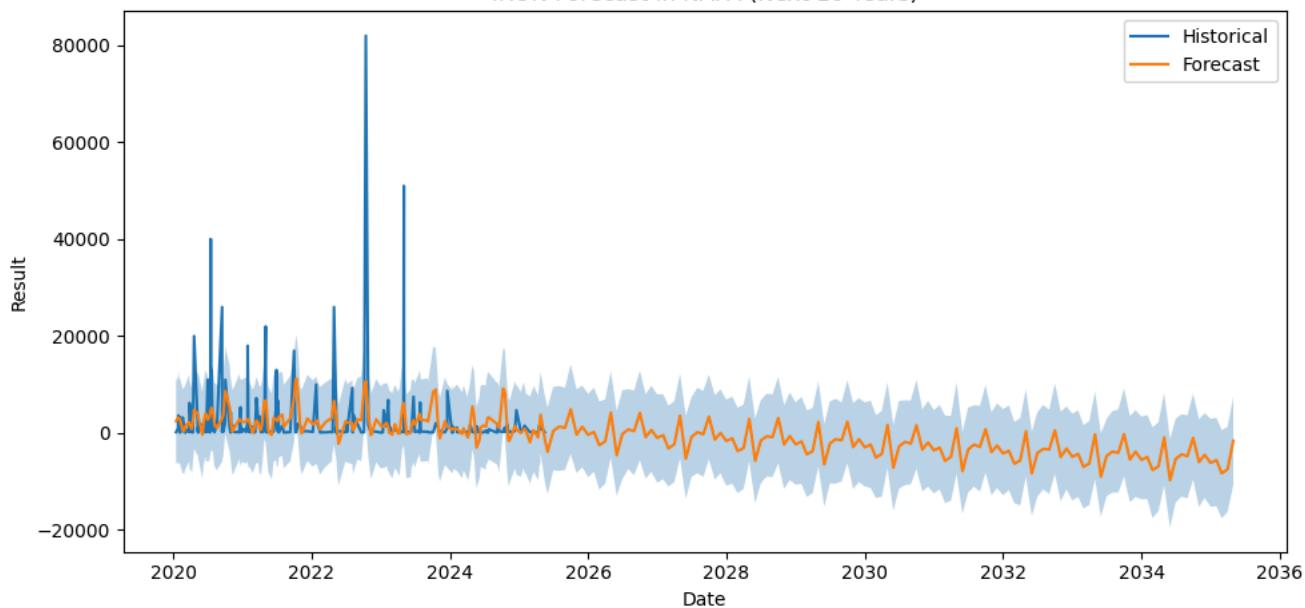
ARSENIC Forecast in NAPA (Next 10 Years)



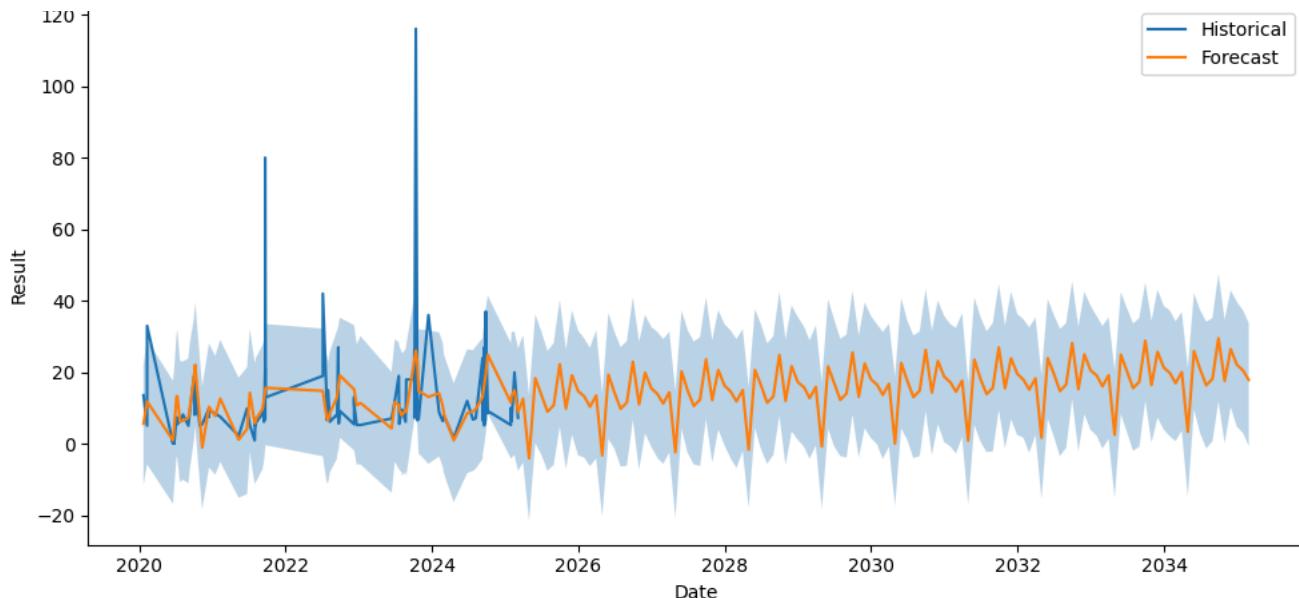
FLUORIDE Forecast in NAPA (Next 10 Years)



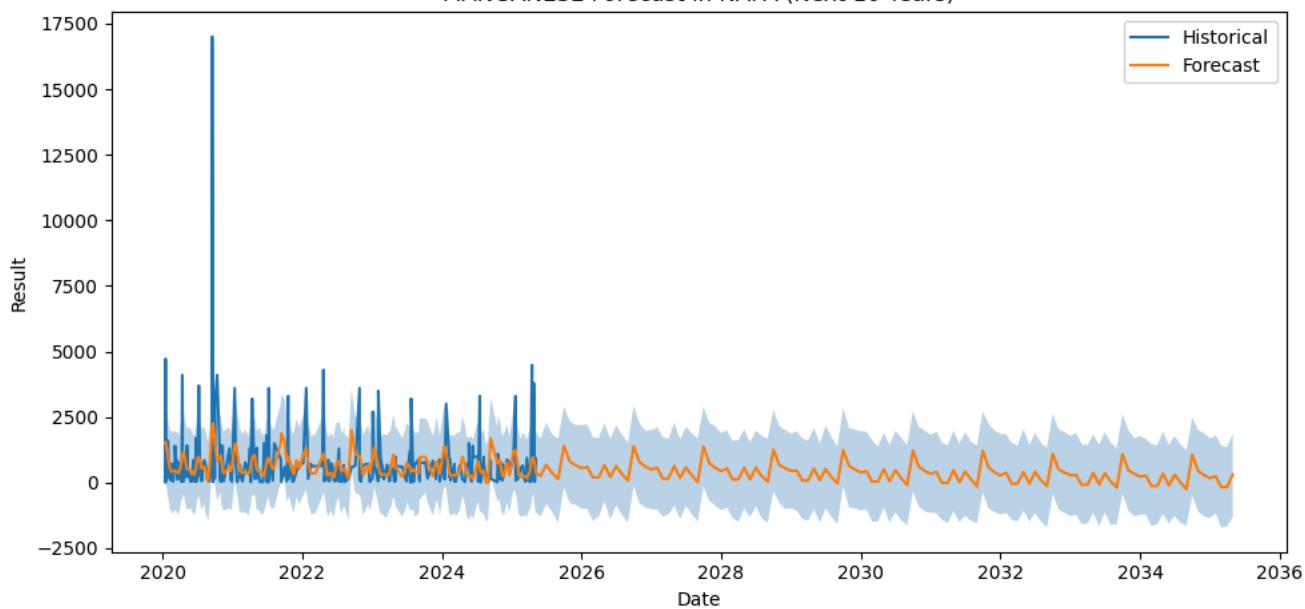
IRON Forecast in NAPA (Next 10 Years)



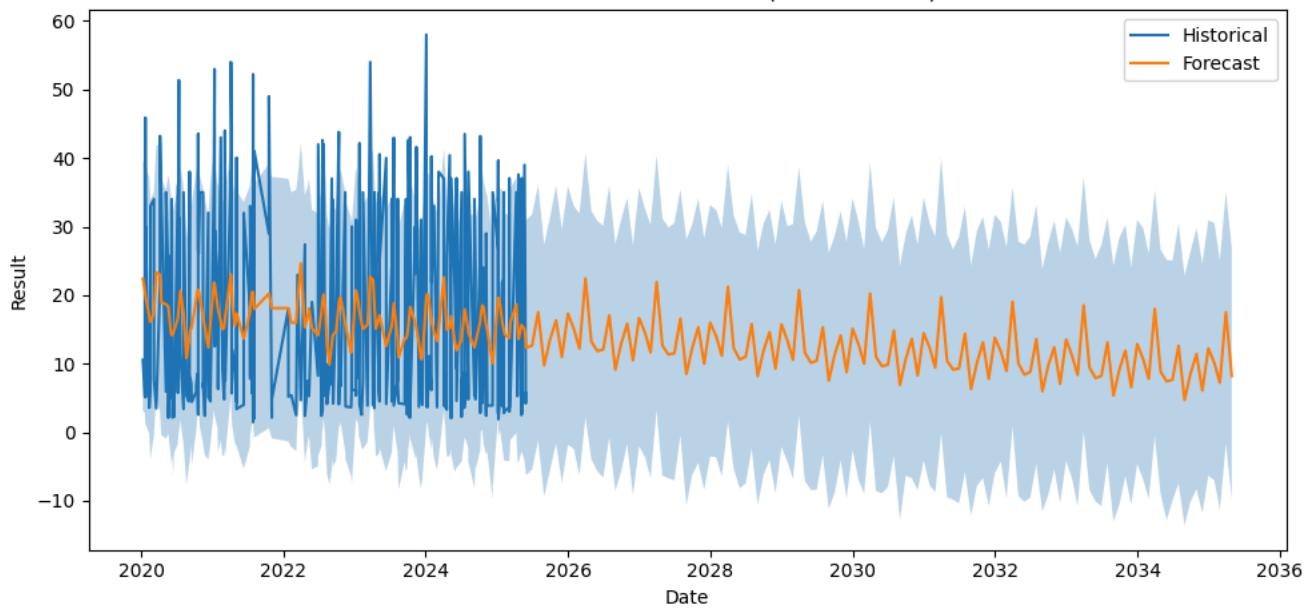
LEAD Forecast in NAPA (Next 10 Years)



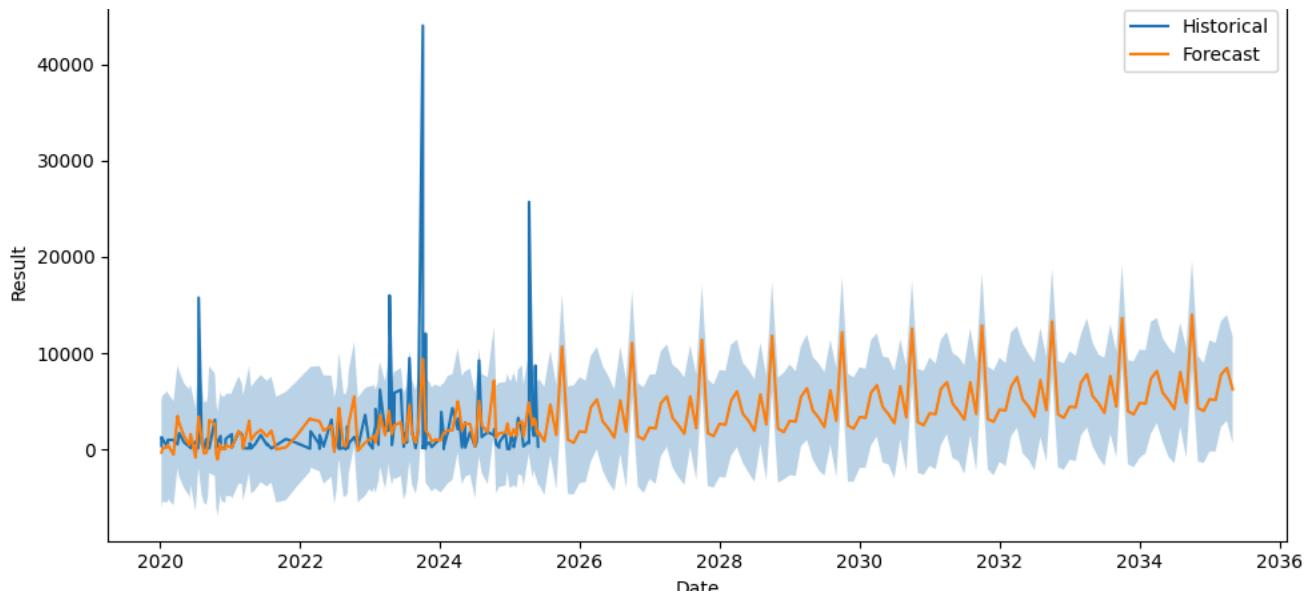
MANGANESE Forecast in NAPA (Next 10 Years)



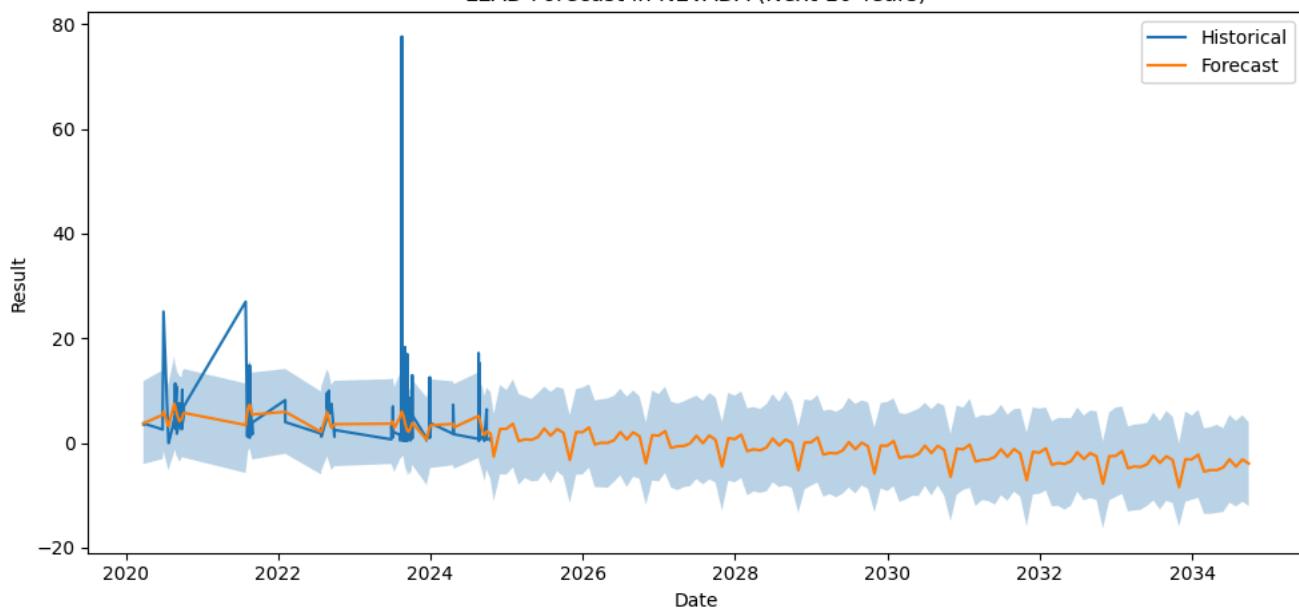
ARSENIC Forecast in NEVADA (Next 10 Years)



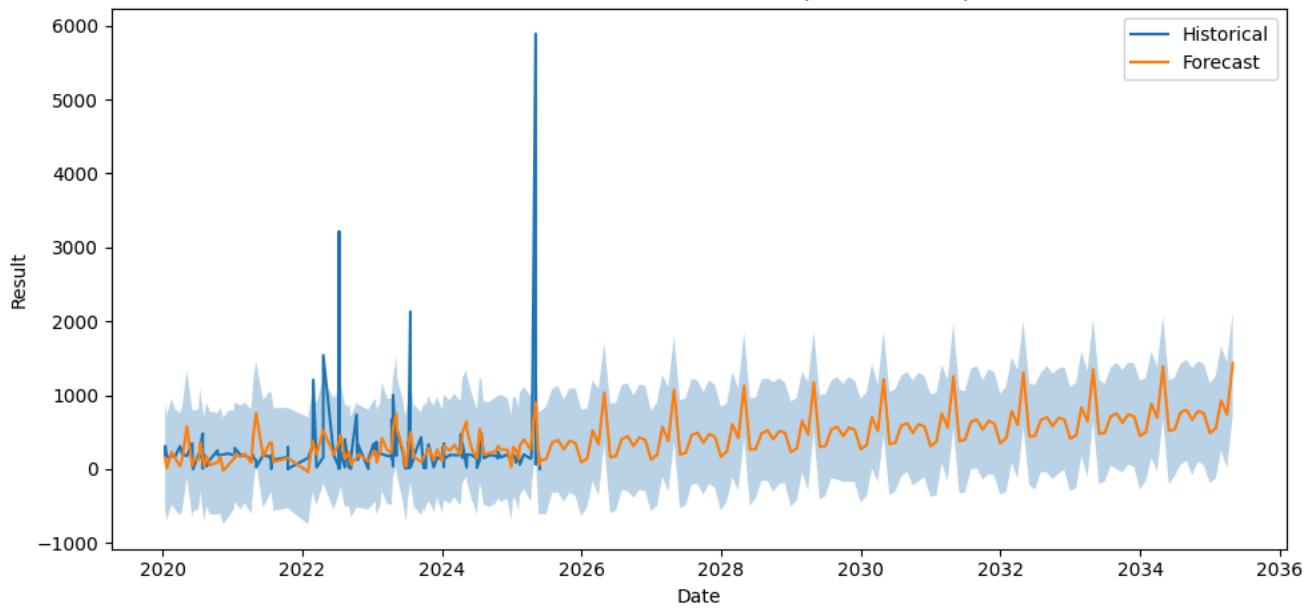
IRON Forecast in NEVADA (Next 10 Years)



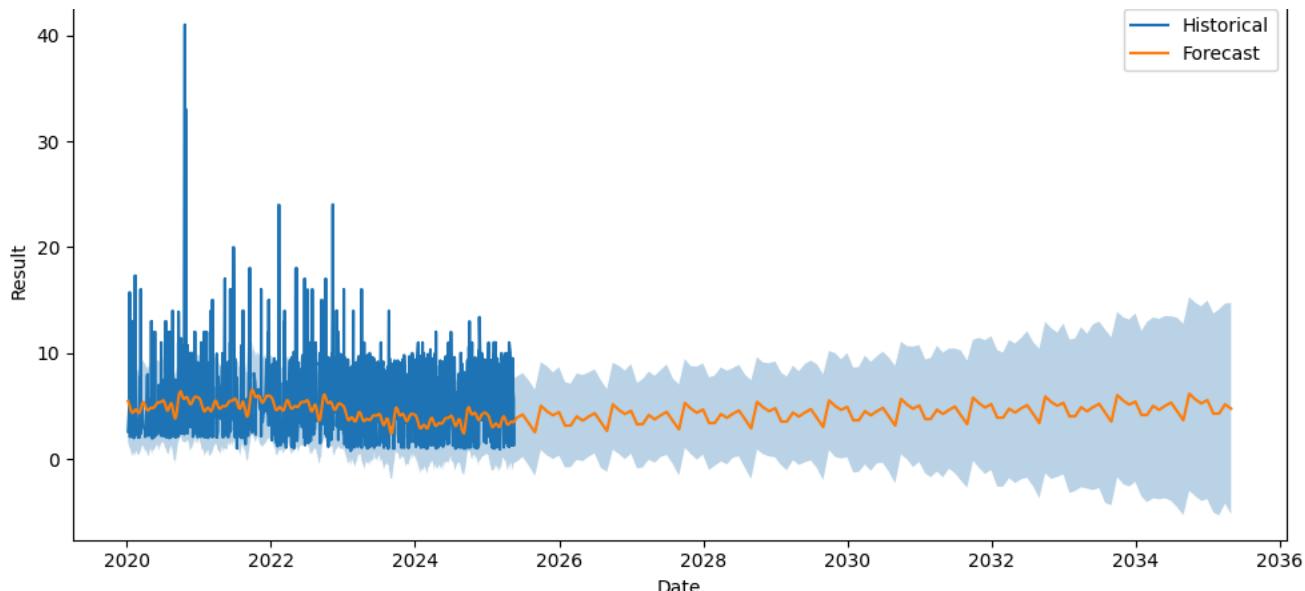
LEAD Forecast in NEVADA (Next 10 Years)



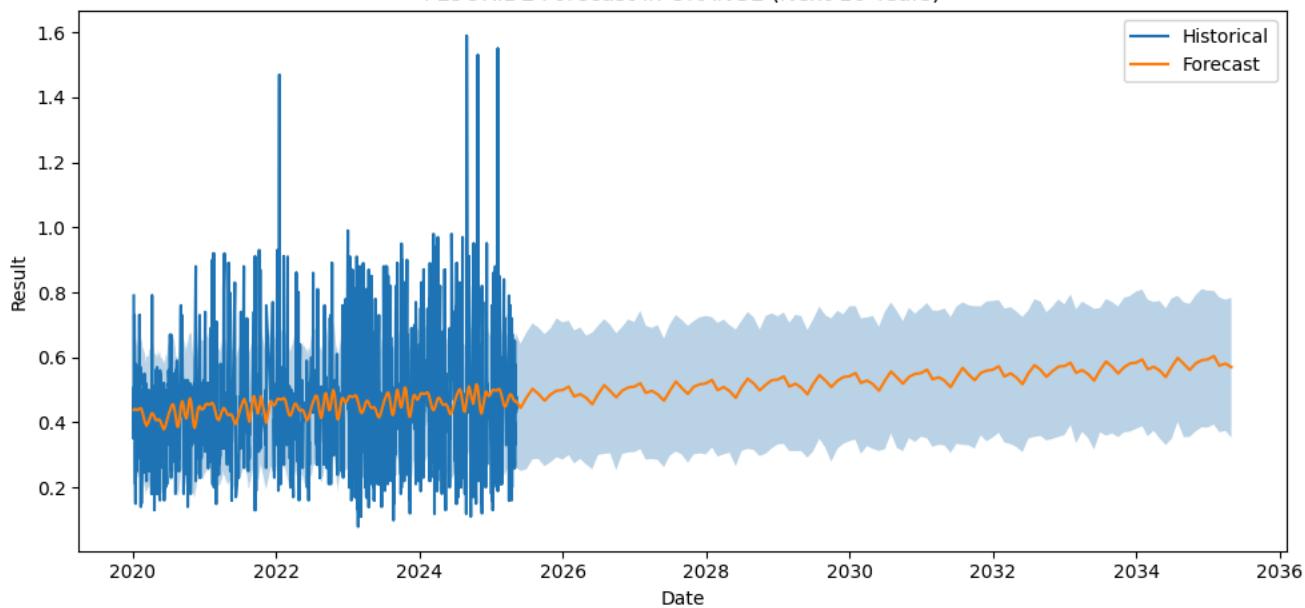
MANGANESE Forecast in NEVADA (Next 10 Years)



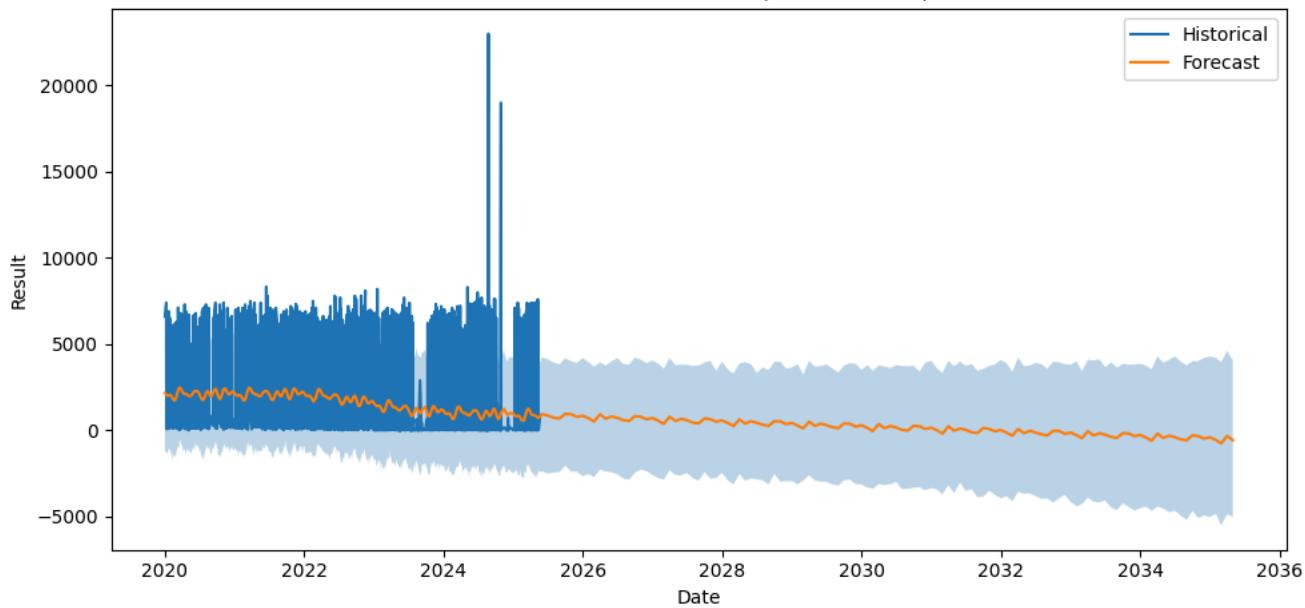
ARSENIC Forecast in ORANGE (Next 10 Years)



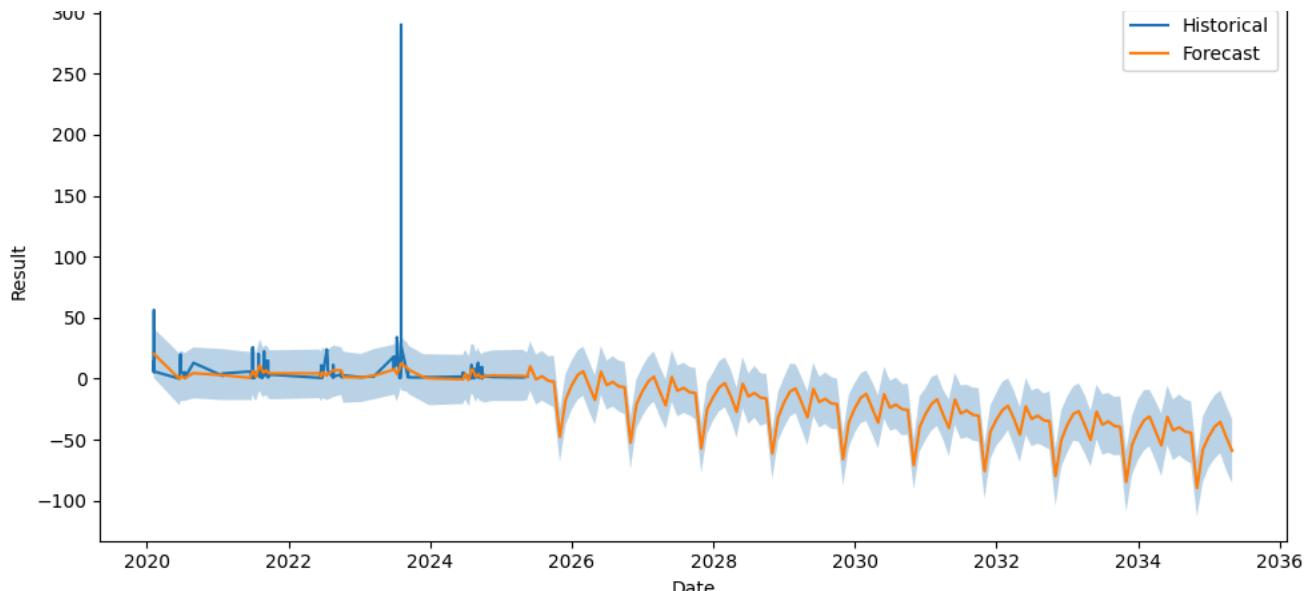
FLUORIDE Forecast in ORANGE (Next 10 Years)



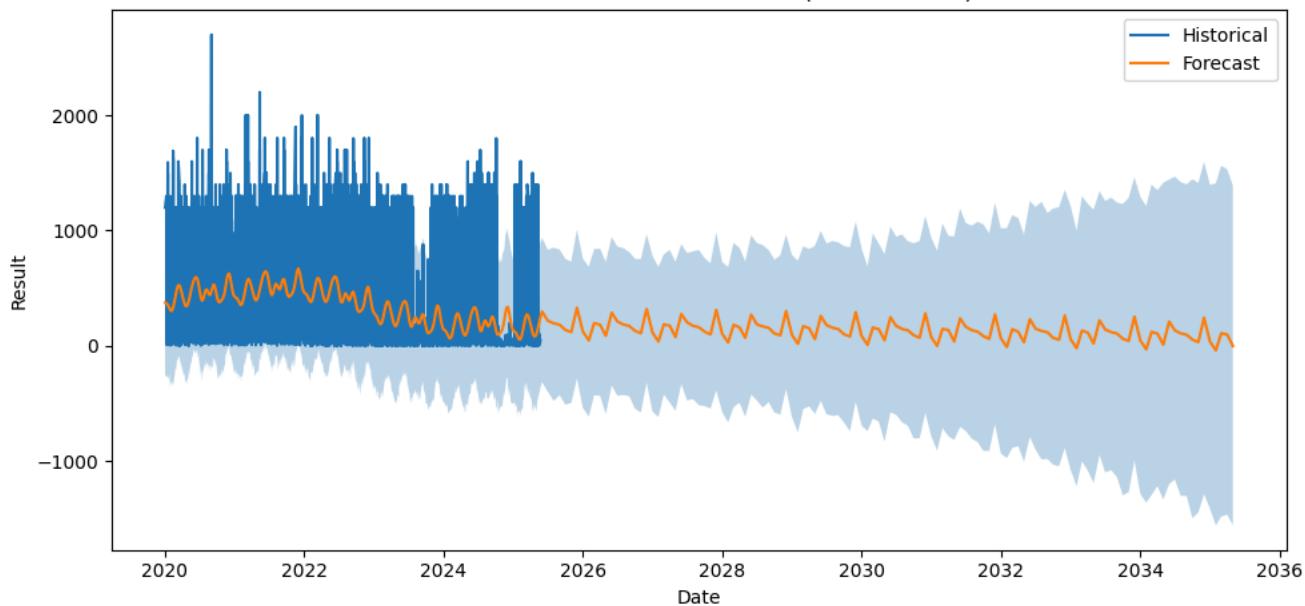
IRON Forecast in ORANGE (Next 10 Years)



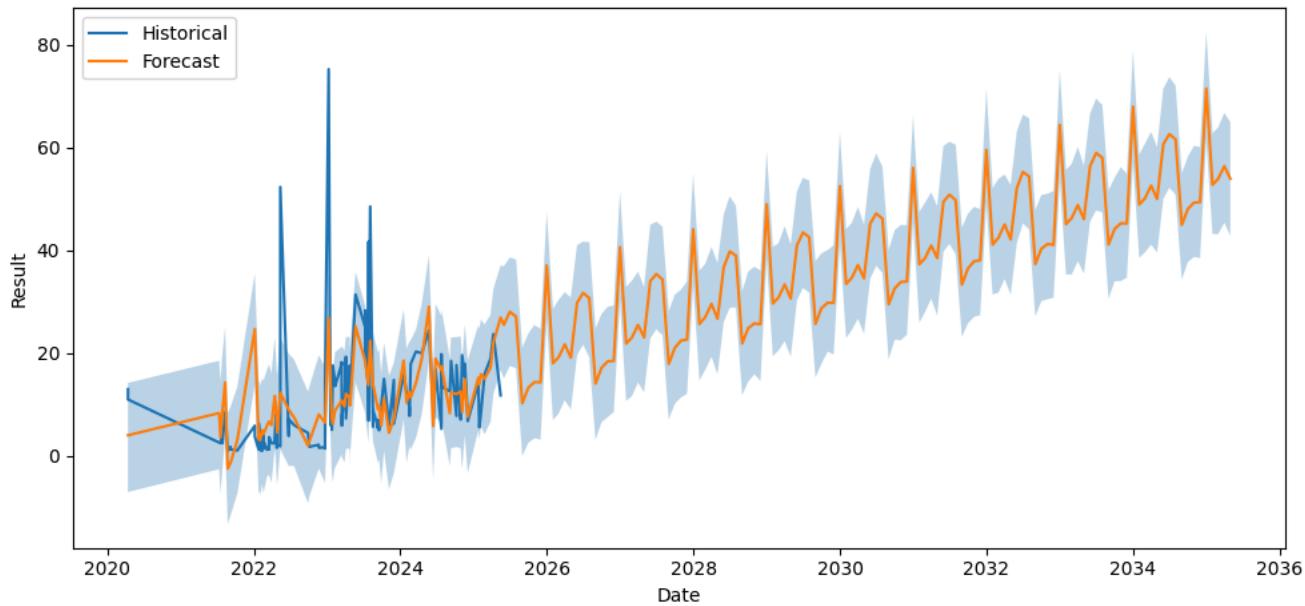
LEAD Forecast in ORANGE (Next 10 Years)



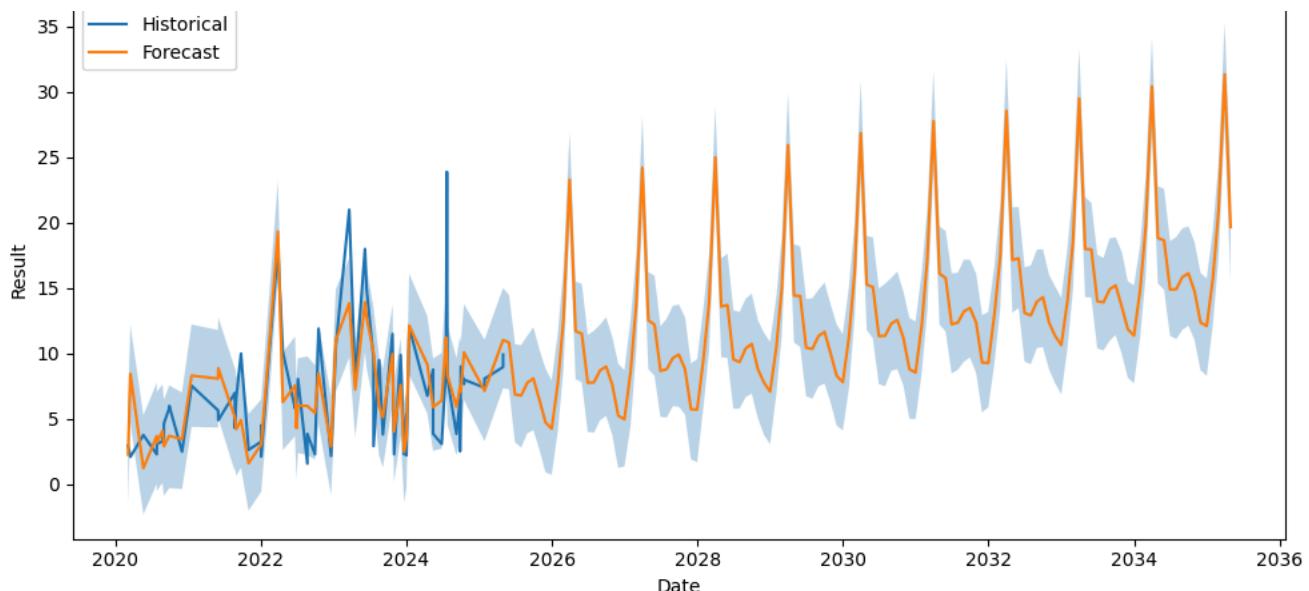
MANGANESE Forecast in ORANGE (Next 10 Years)



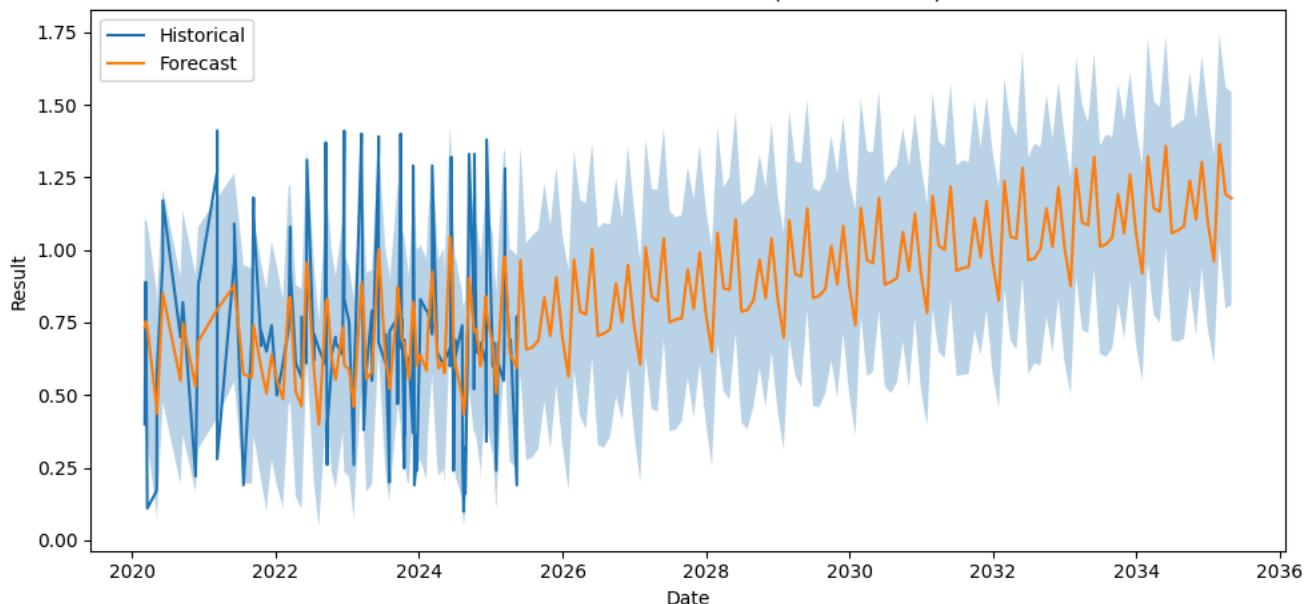
ZINC Forecast in ORANGE (Next 10 Years)



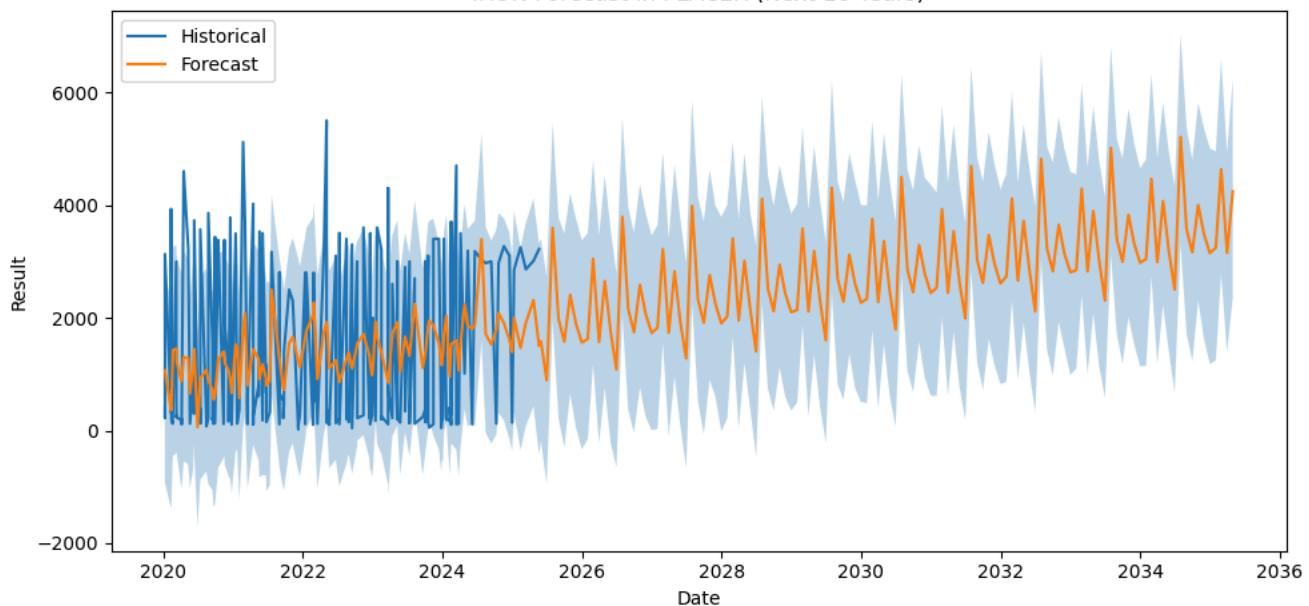
ARSENIC Forecast in PLACER (Next 10 Years)



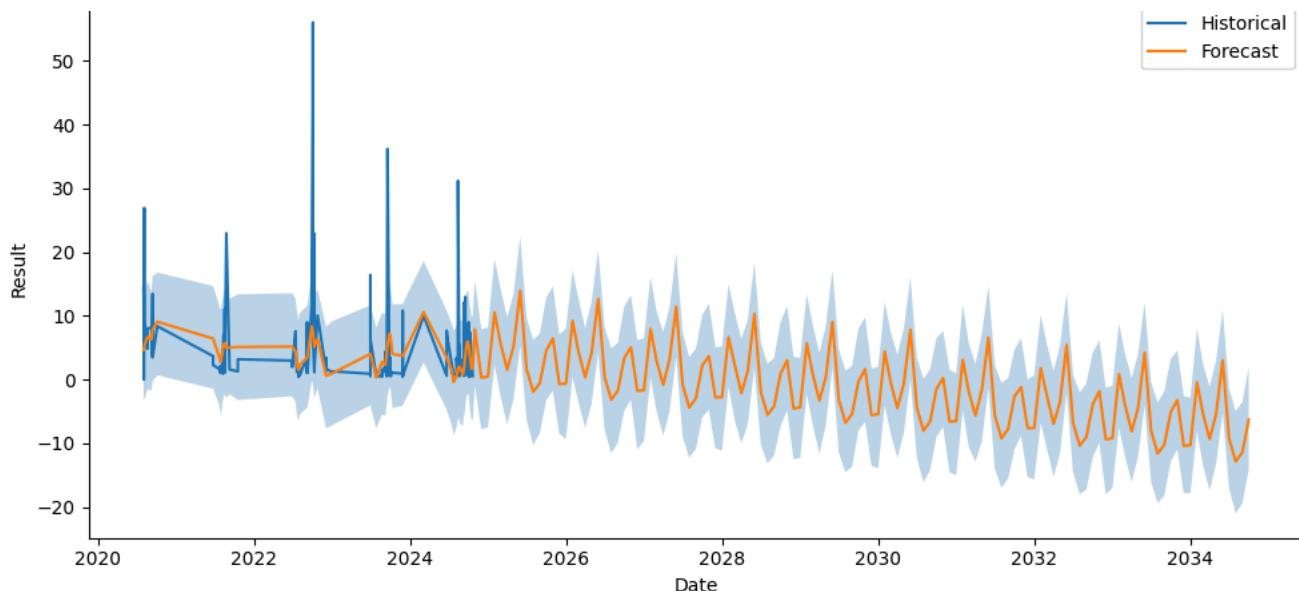
FLUORIDE Forecast in PLACER (Next 10 Years)



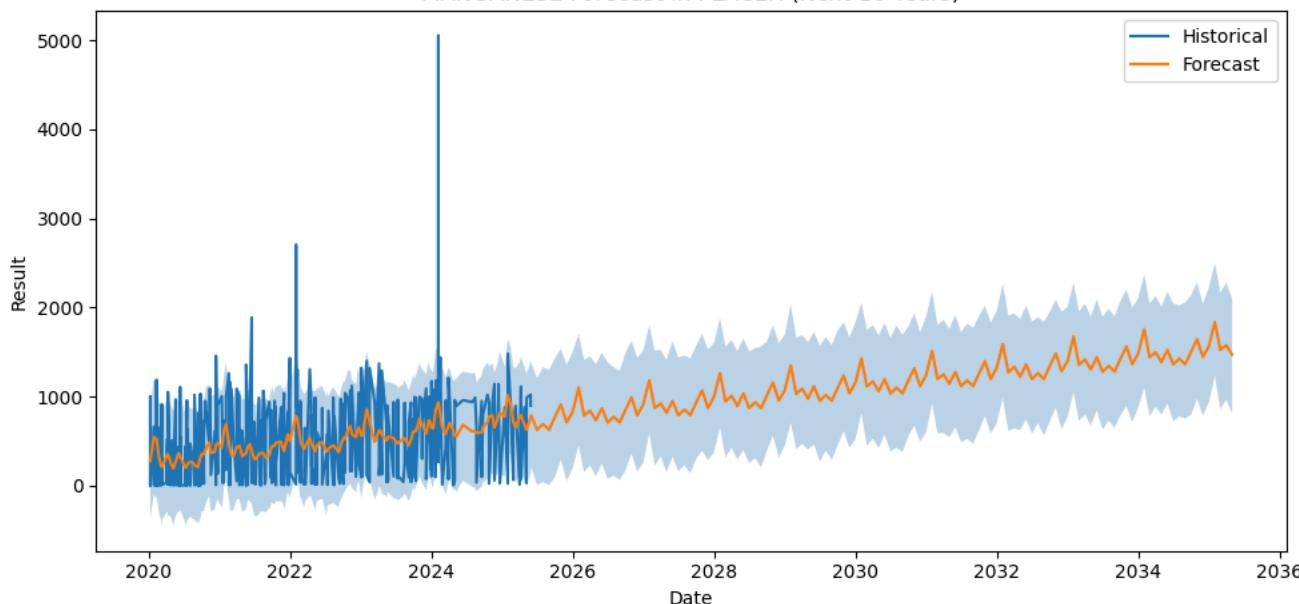
IRON Forecast in PLACER (Next 10 Years)



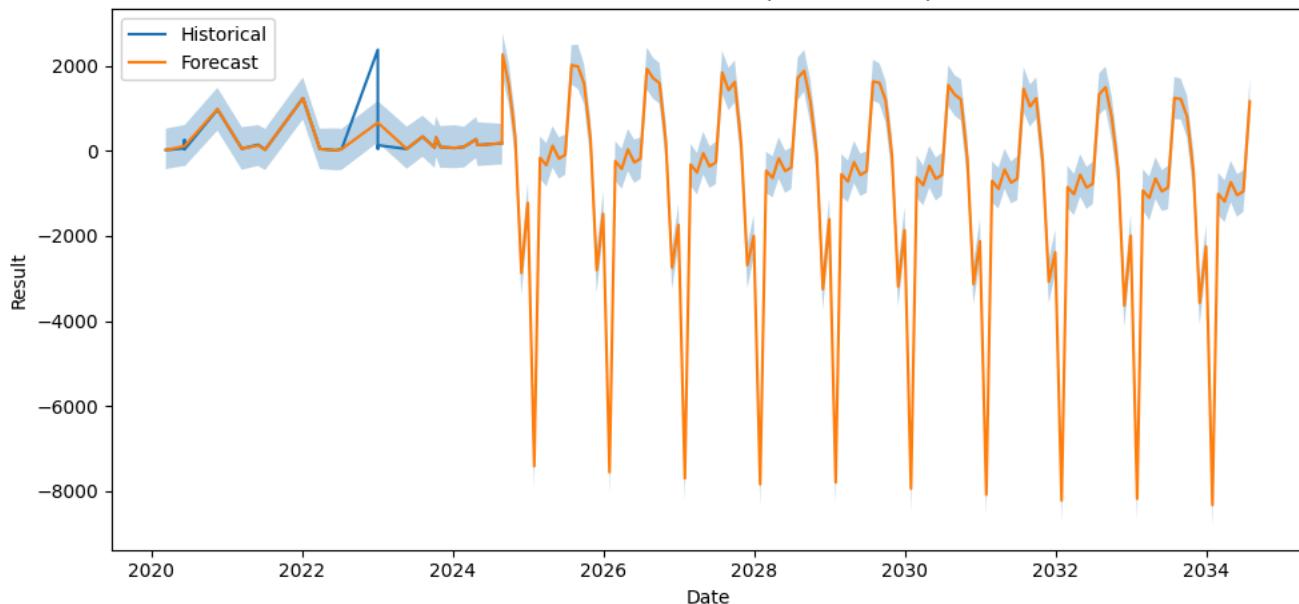
LEAD Forecast in PLACER (Next 10 Years)



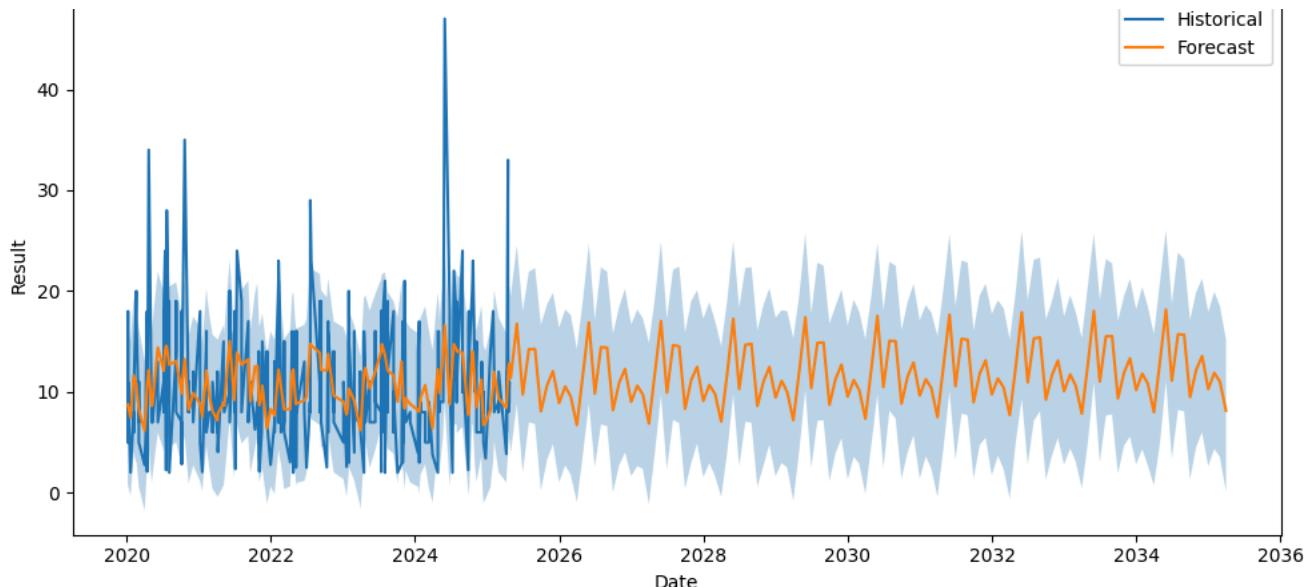
MANGANESE Forecast in PLACER (Next 10 Years)



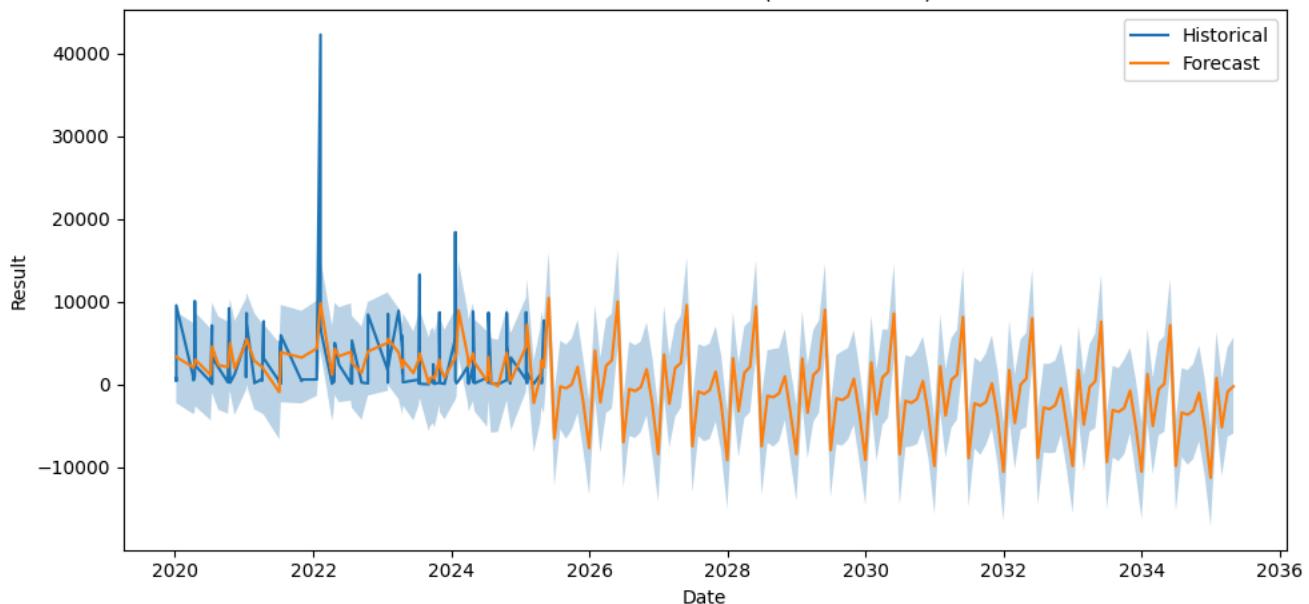
ZINC Forecast in PLACER (Next 10 Years)



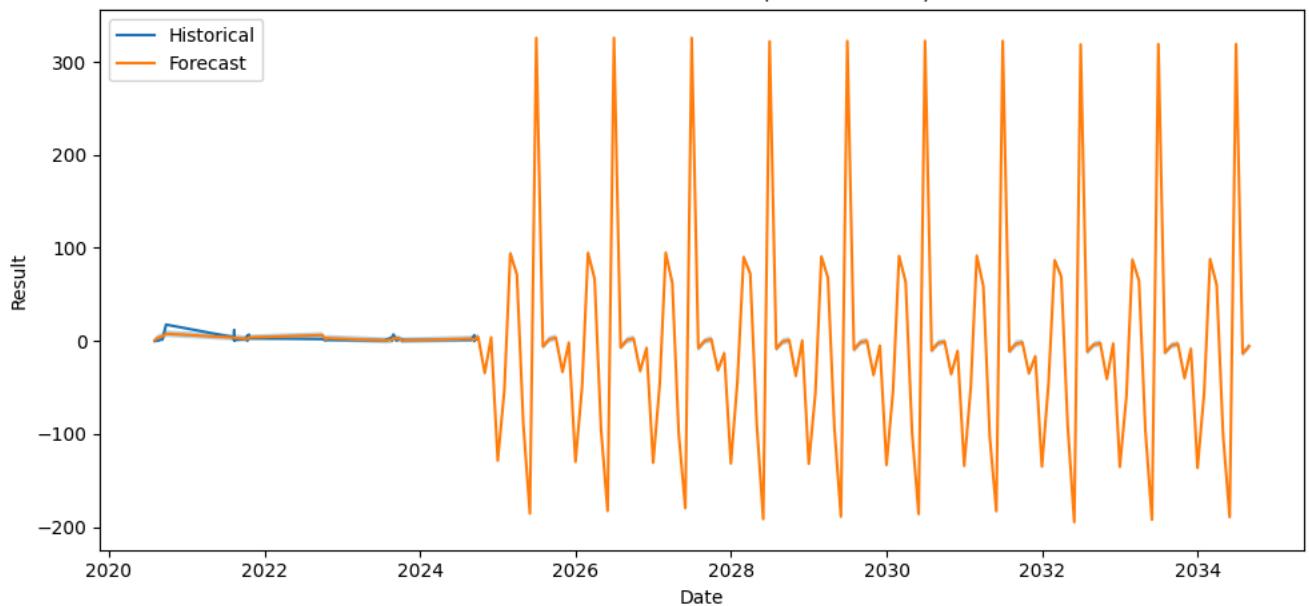
ARSENIC Forecast in PLUMAS (Next 10 Years)



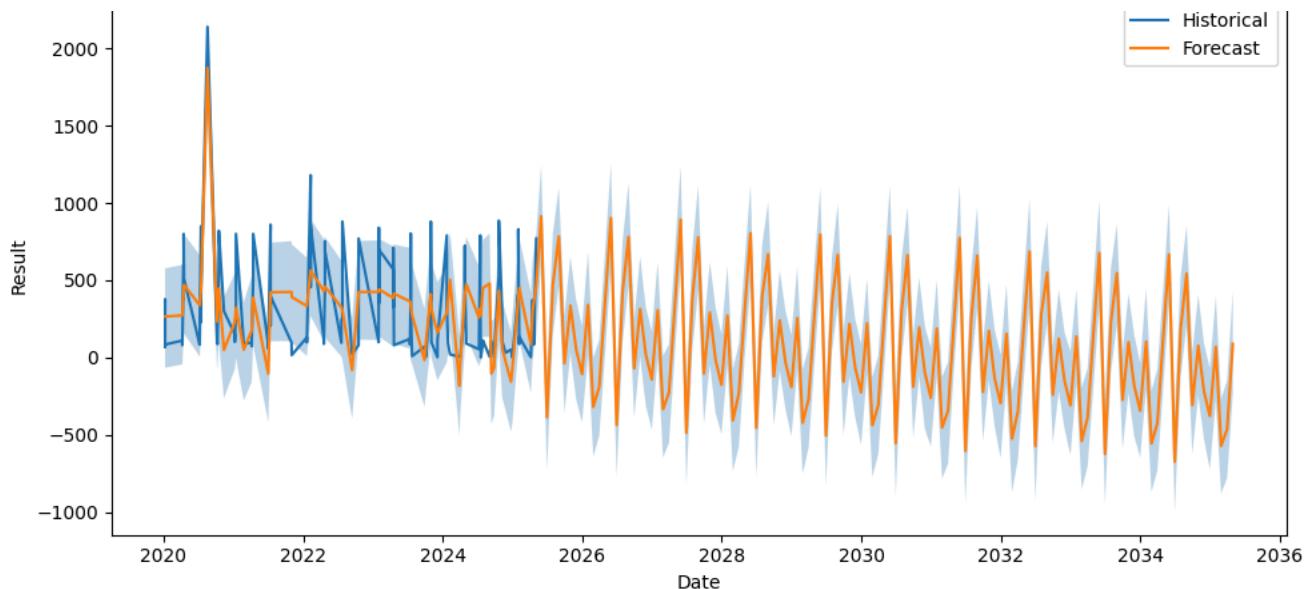
IRON Forecast in PLUMAS (Next 10 Years)



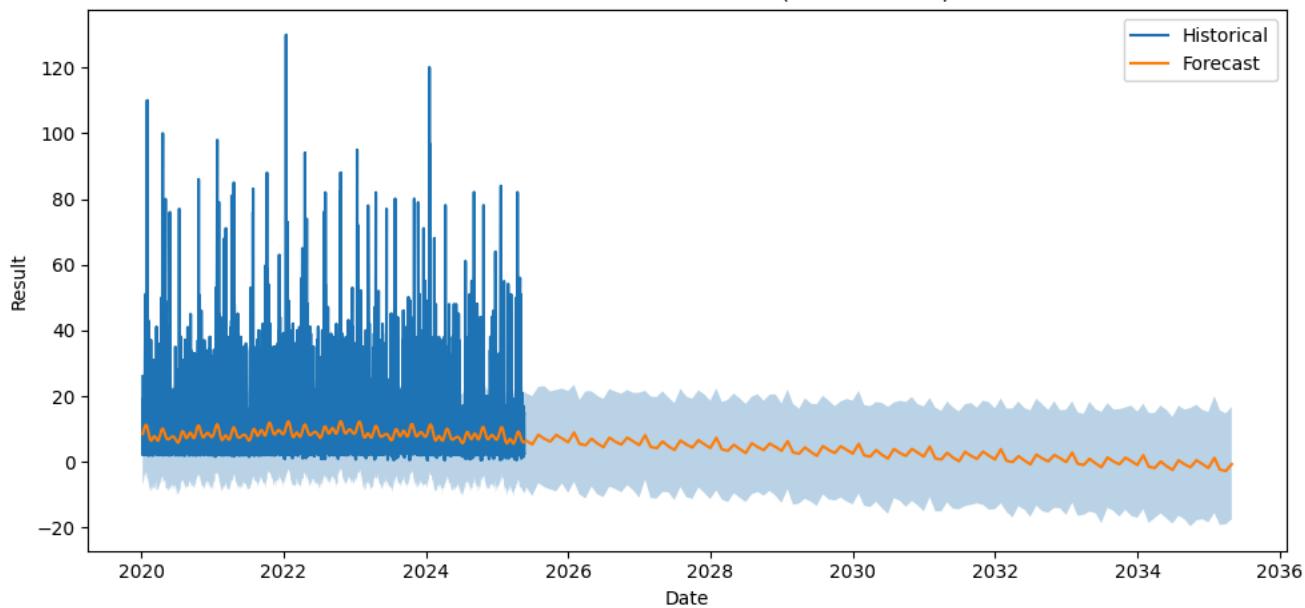
LEAD Forecast in PLUMAS (Next 10 Years)



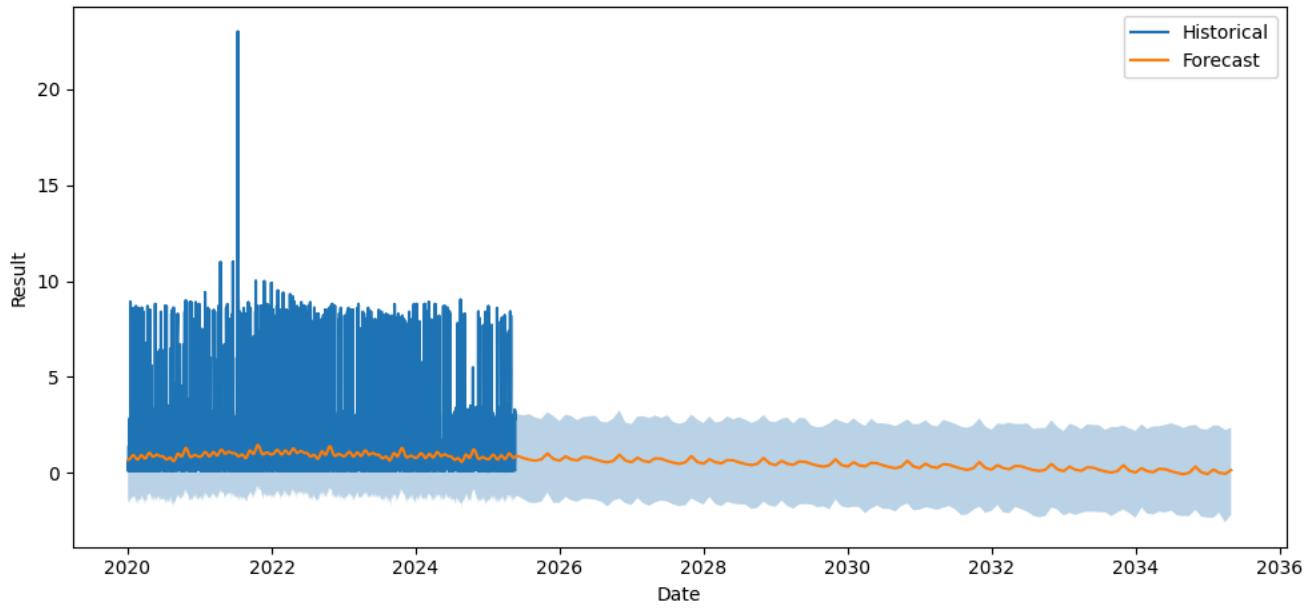
MANGANESE Forecast in PLUMAS (Next 10 Years)



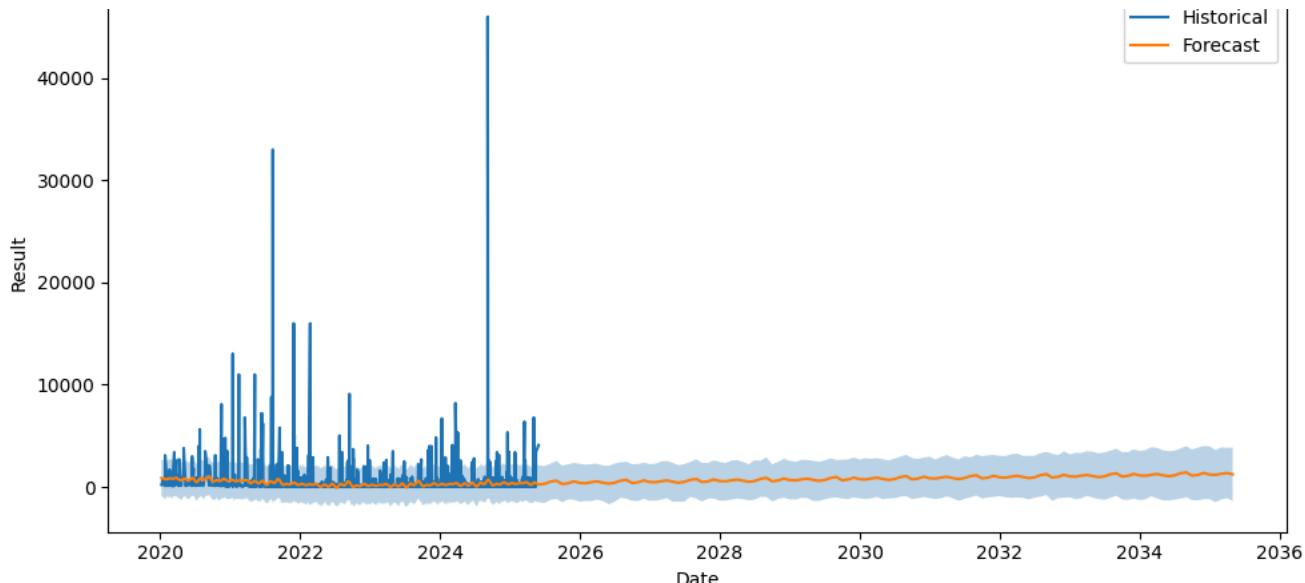
ARSENIC Forecast in RIVERSIDE (Next 10 Years)



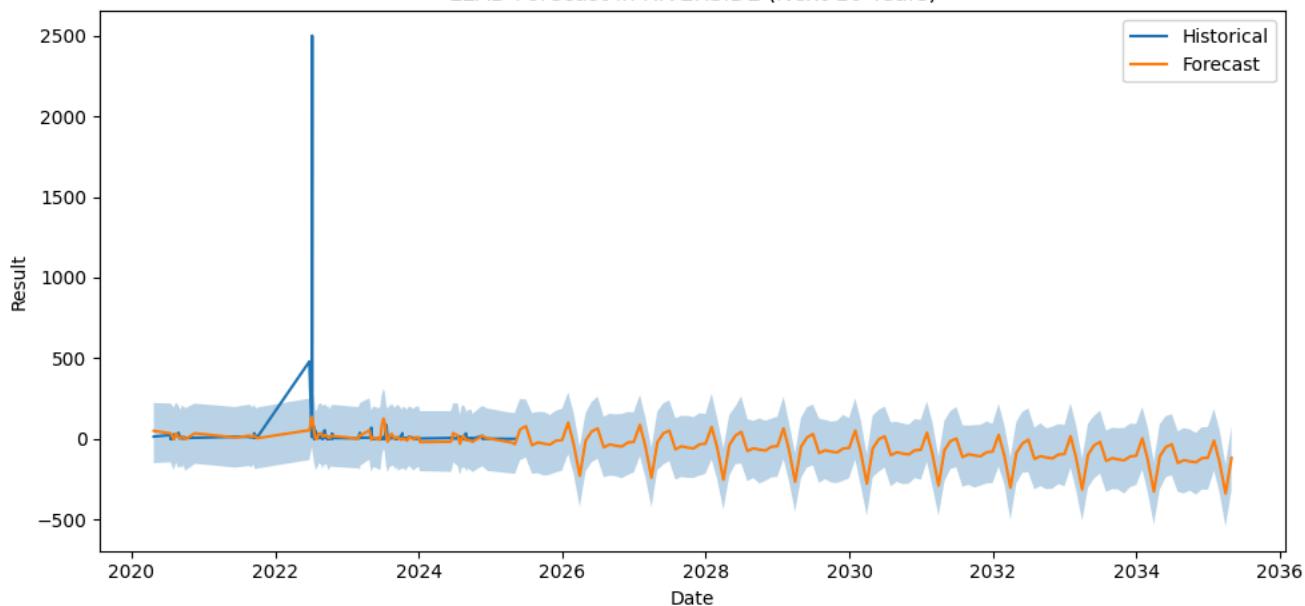
FLUORIDE Forecast in RIVERSIDE (Next 10 Years)



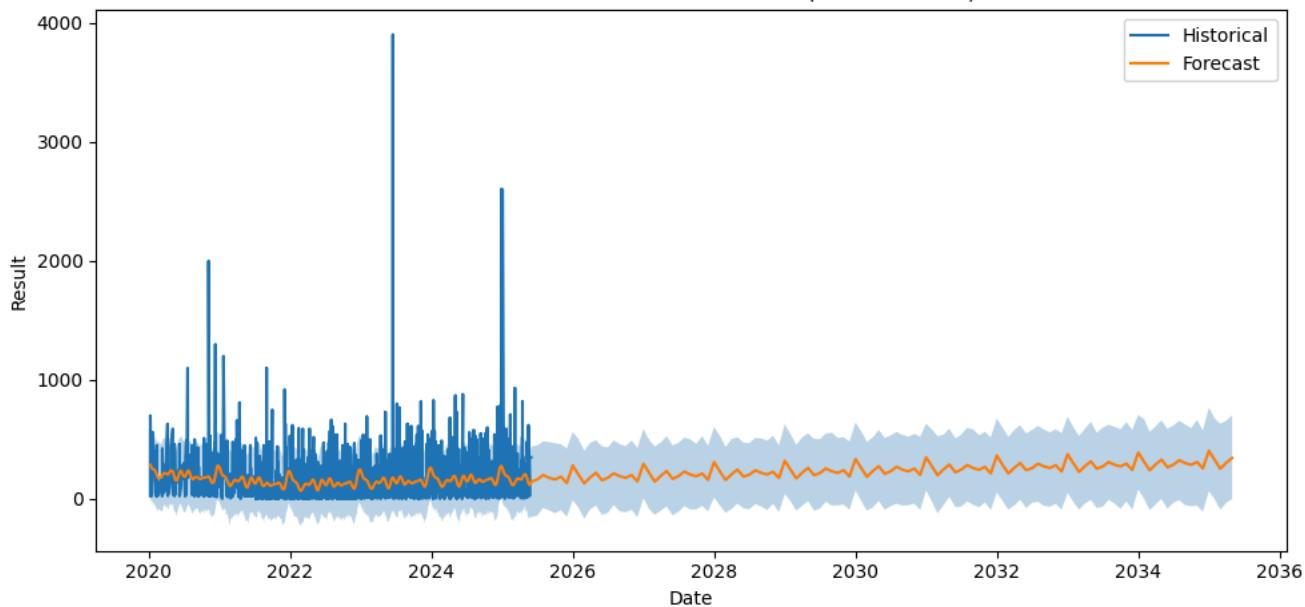
IRON Forecast in RIVERSIDE (Next 10 Years)



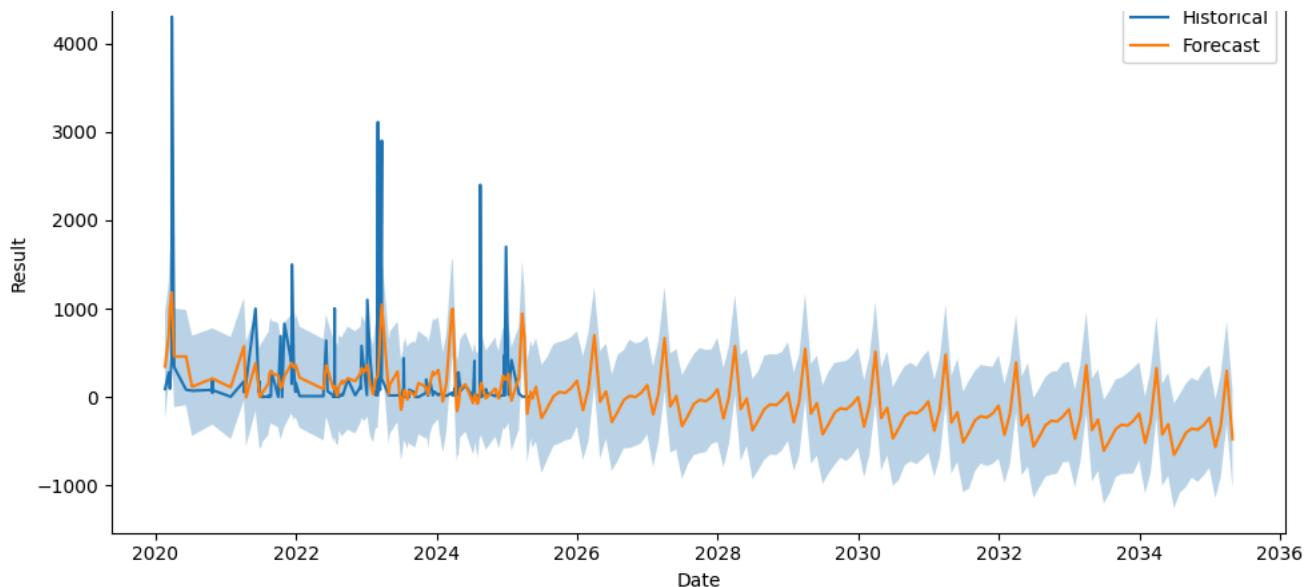
LEAD Forecast in RIVERSIDE (Next 10 Years)



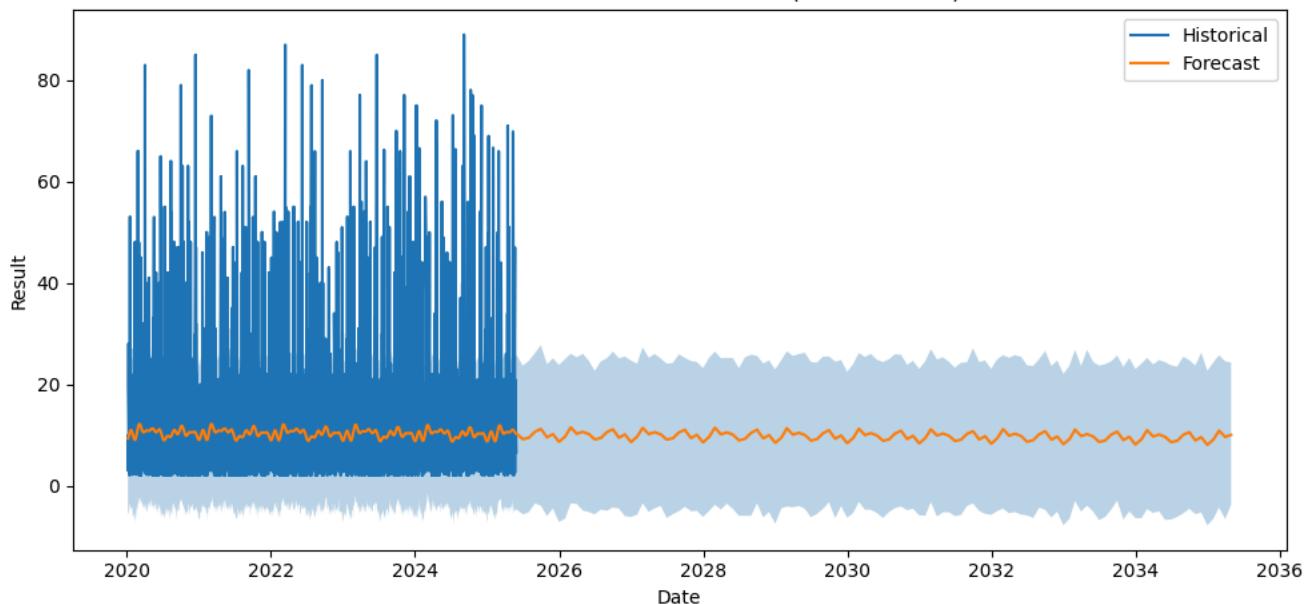
MANGANESE Forecast in RIVERSIDE (Next 10 Years)



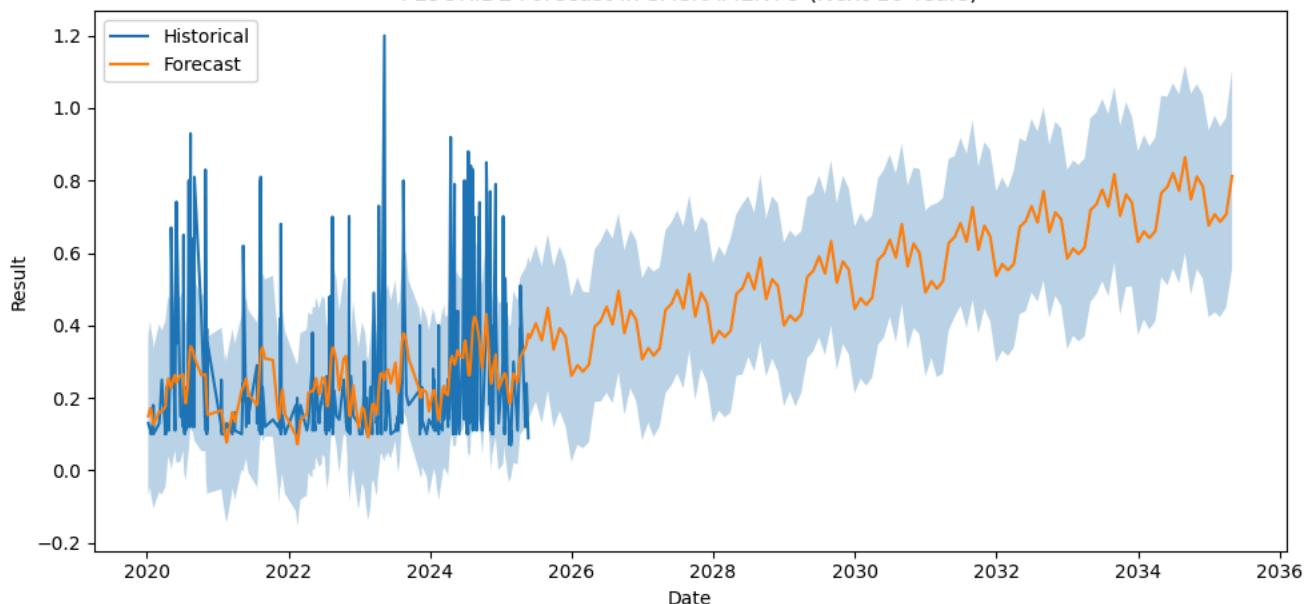
ZINC Forecast in RIVERSIDE (Next 10 Years)



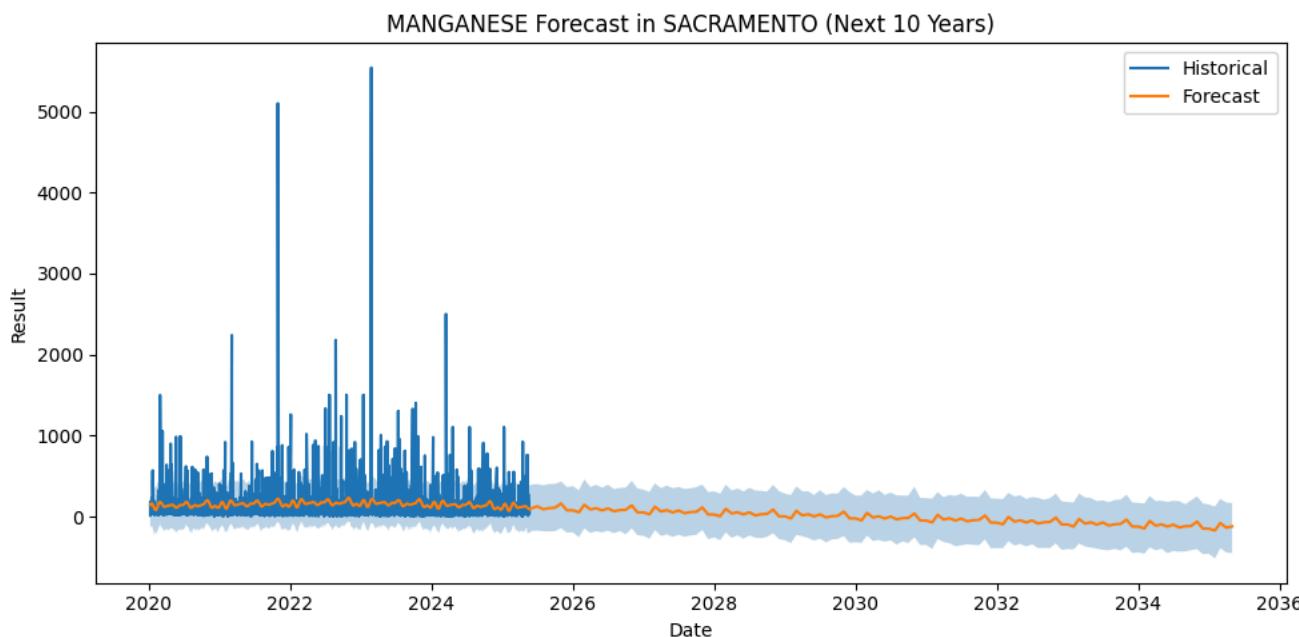
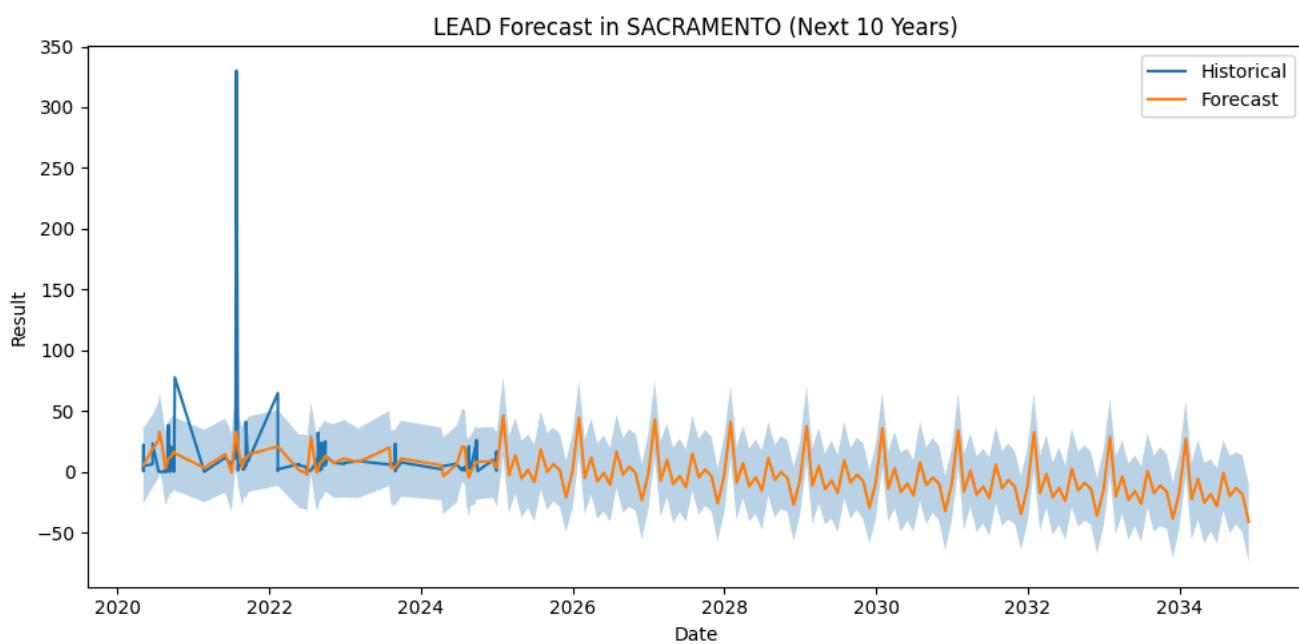
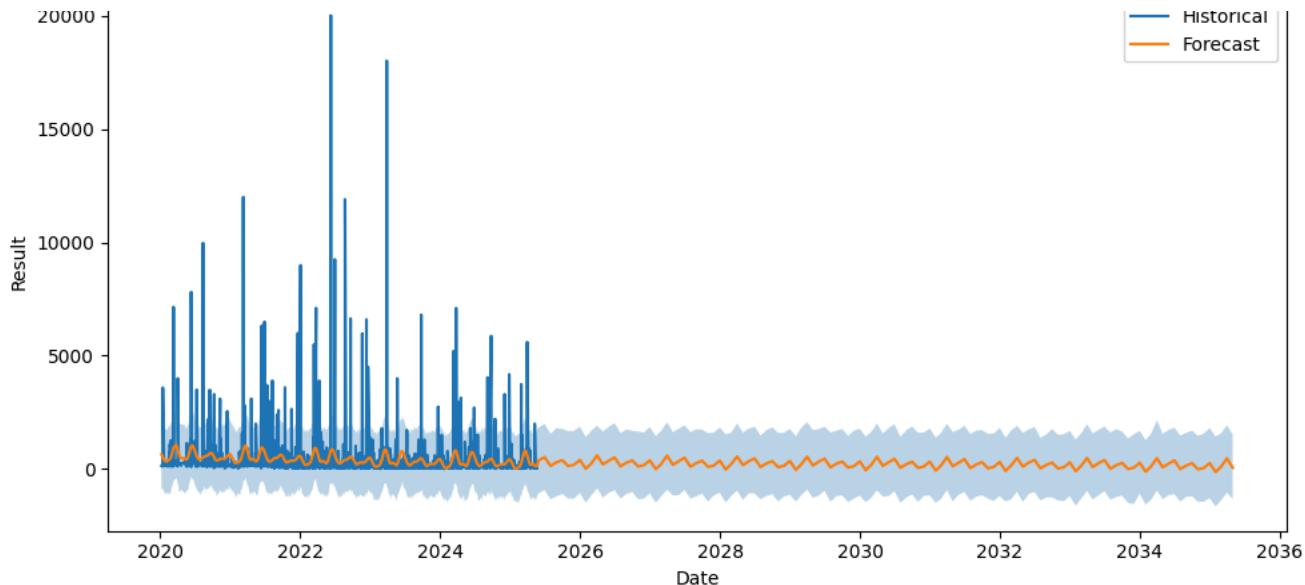
ARSENIC Forecast in SACRAMENTO (Next 10 Years)



FLUORIDE Forecast in SACRAMENTO (Next 10 Years)

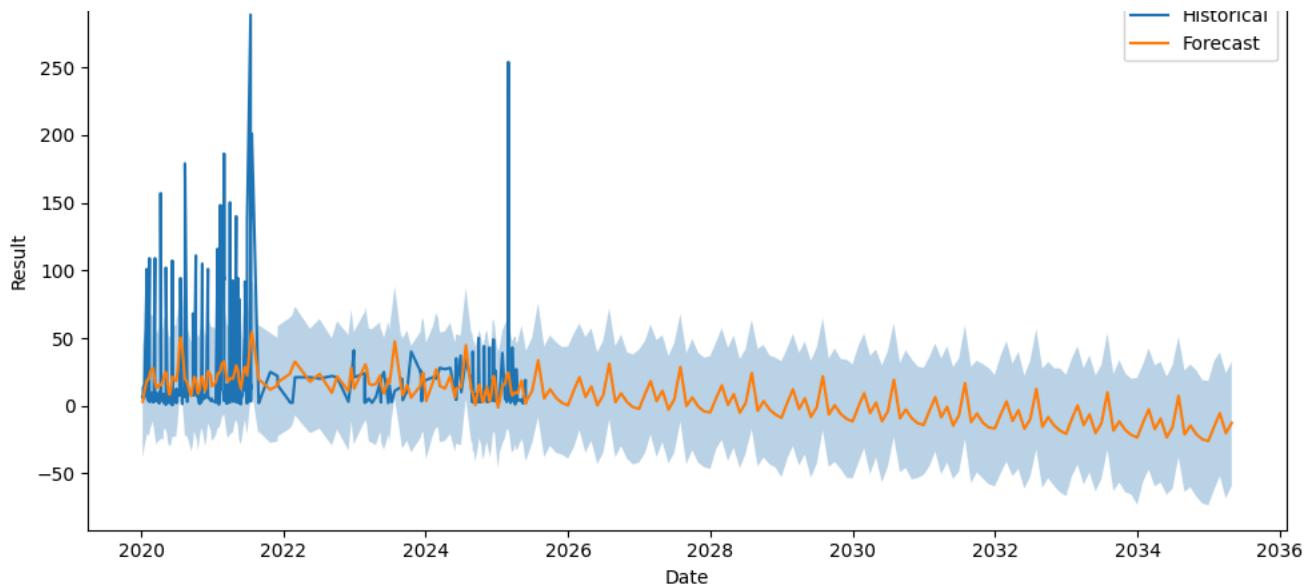


IRON Forecast in SACRAMENTO (Next 10 Years)

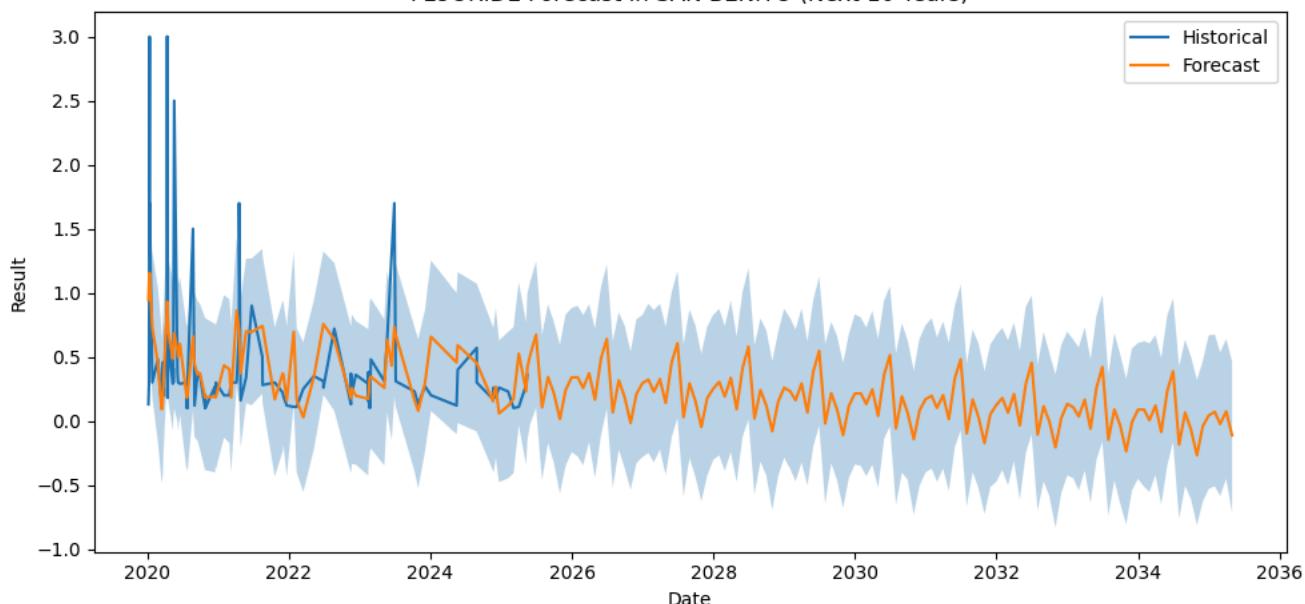


ARSENIC Forecast in SAN BENITO (Next 10 Years)

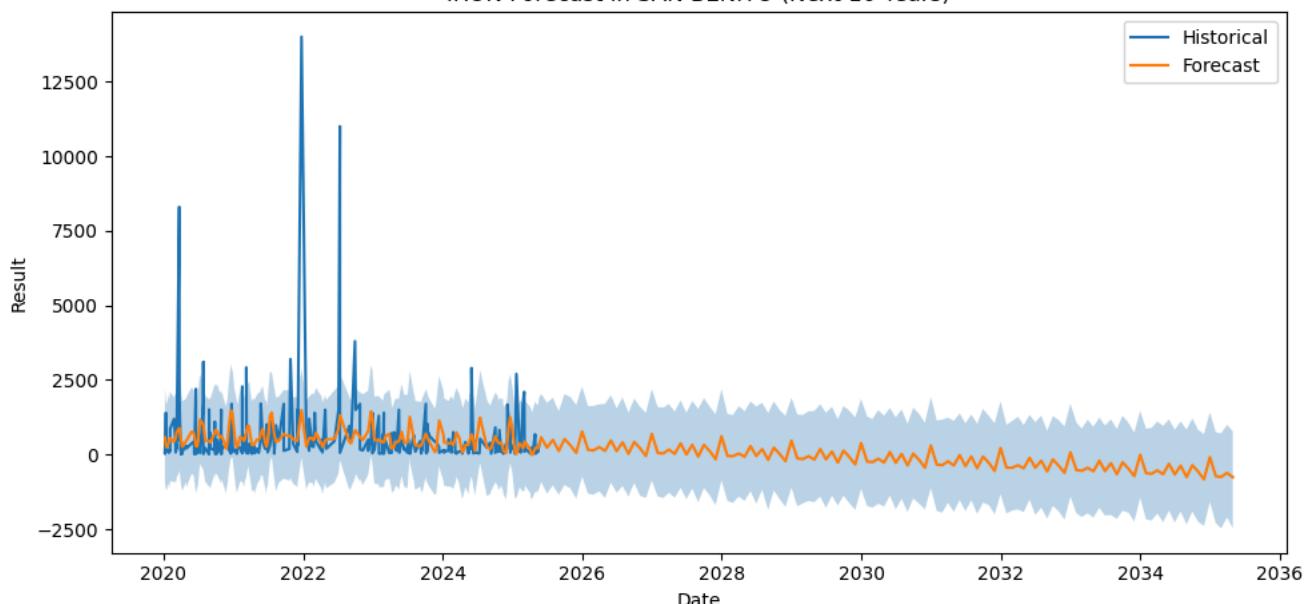
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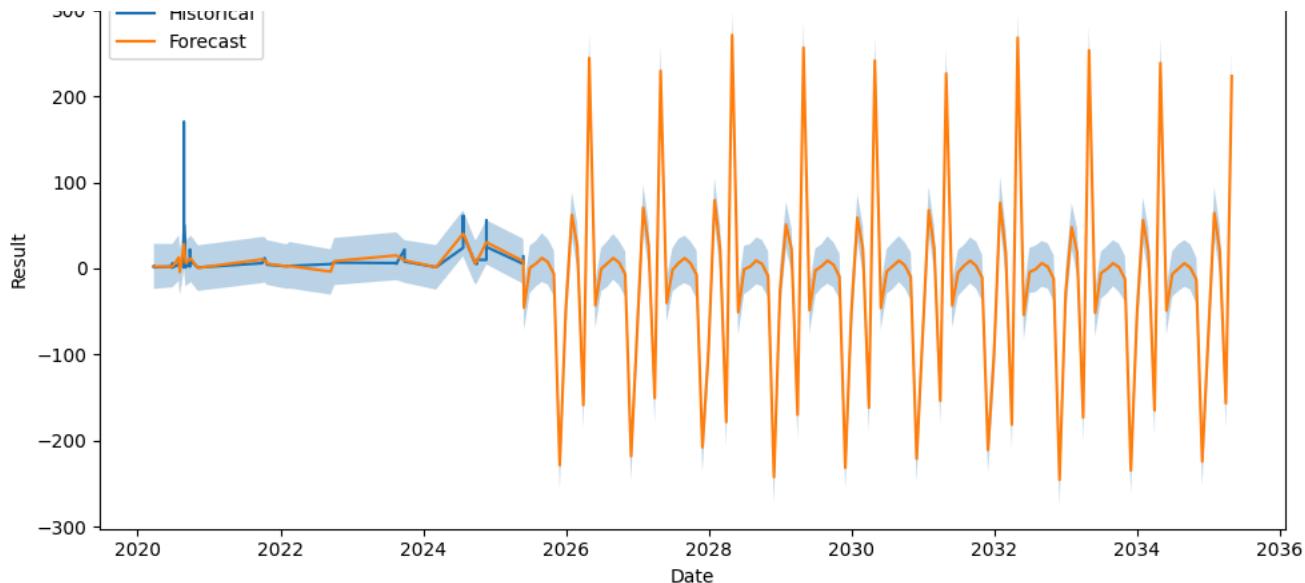
FLUORIDE Forecast in SAN BENITO (Next 10 Years)



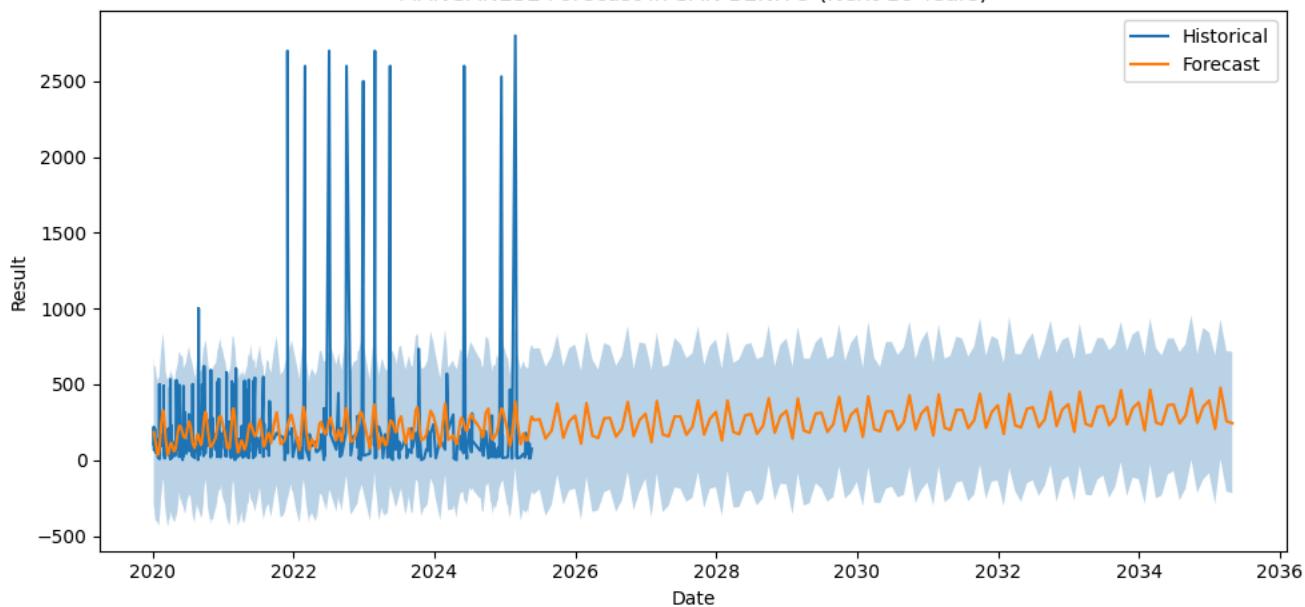
IRON Forecast in SAN BENITO (Next 10 Years)



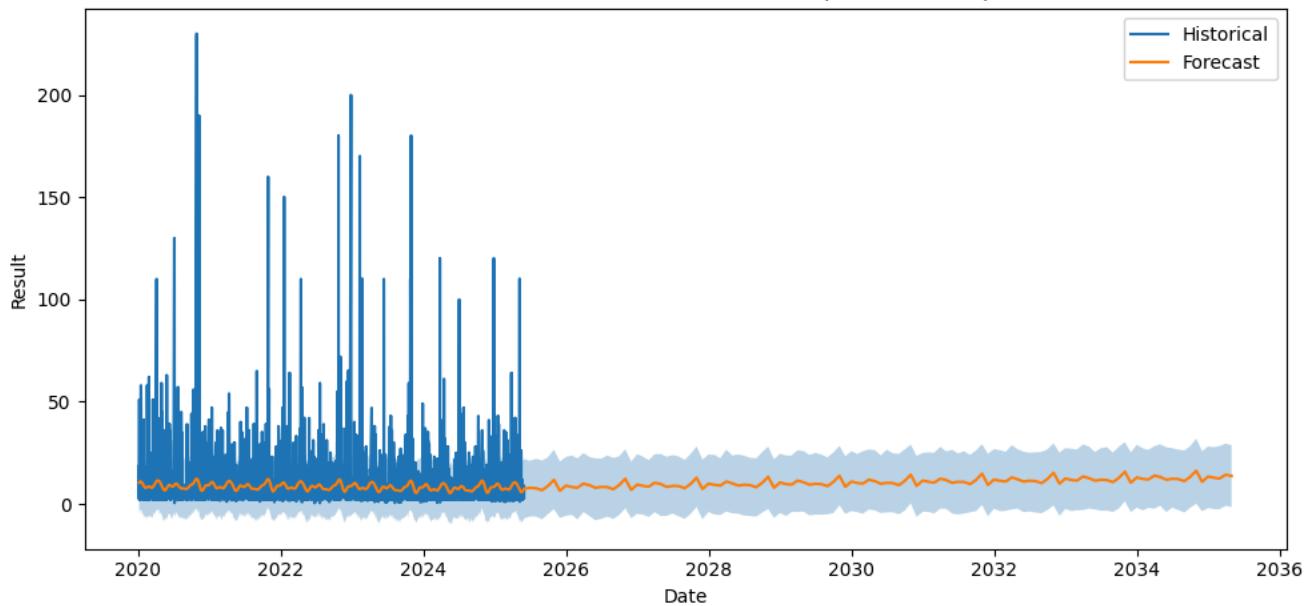
LEAD Forecast in SAN BENITO (Next 10 Years)



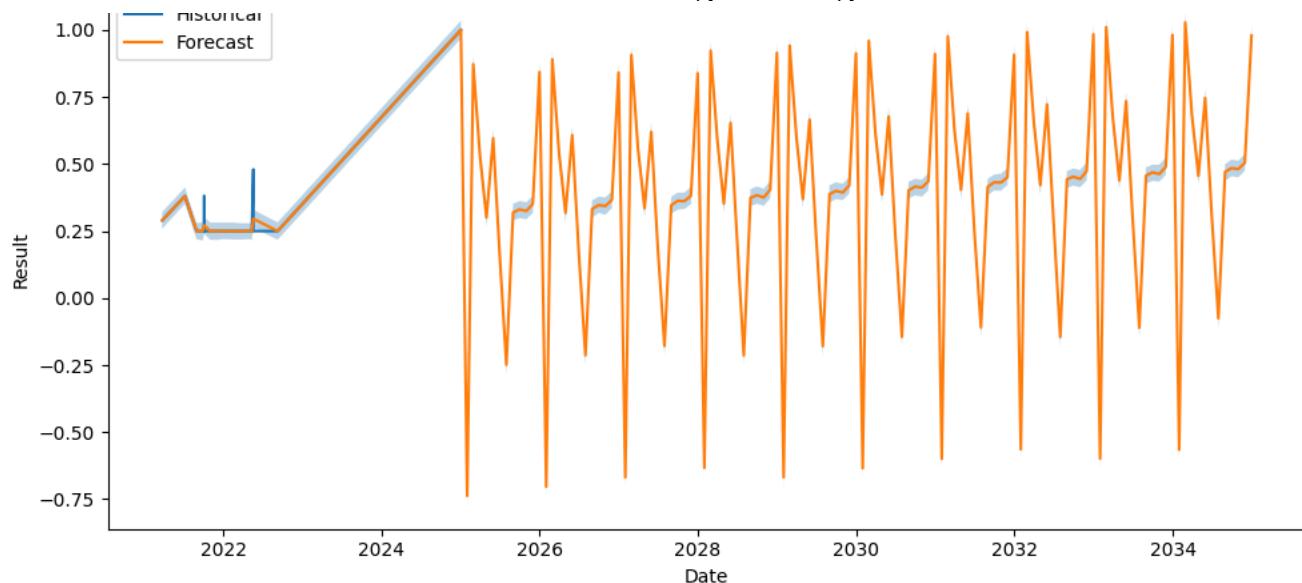
MANGANESE Forecast in SAN BENITO (Next 10 Years)



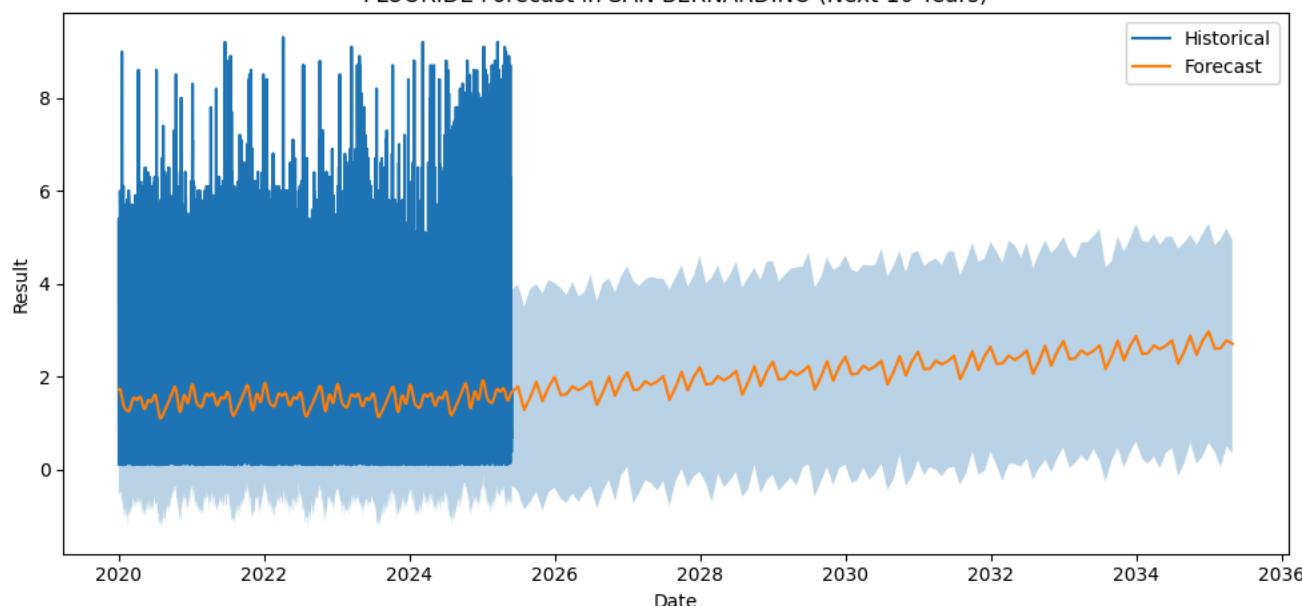
ARSENIC Forecast in SAN BERNARDINO (Next 10 Years)



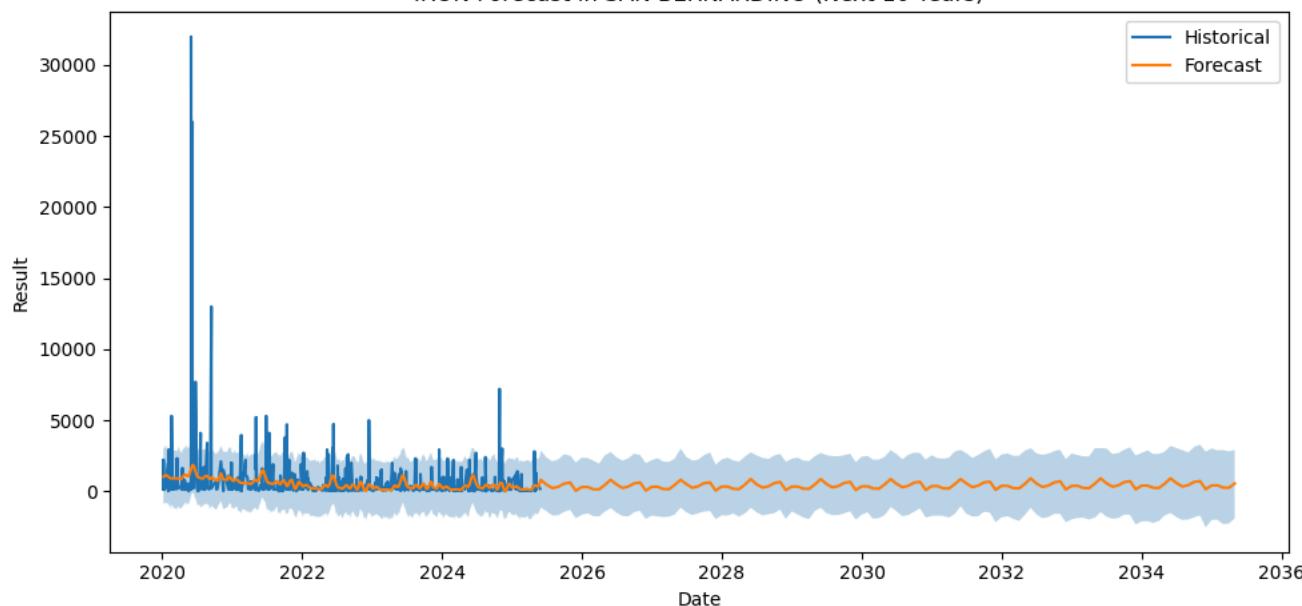
CADMIUM Forecast in SAN BERNARDINO (Next 10 Years)



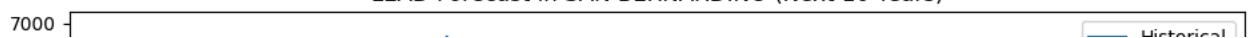
FLUORIDE Forecast in SAN BERNARDINO (Next 10 Years)

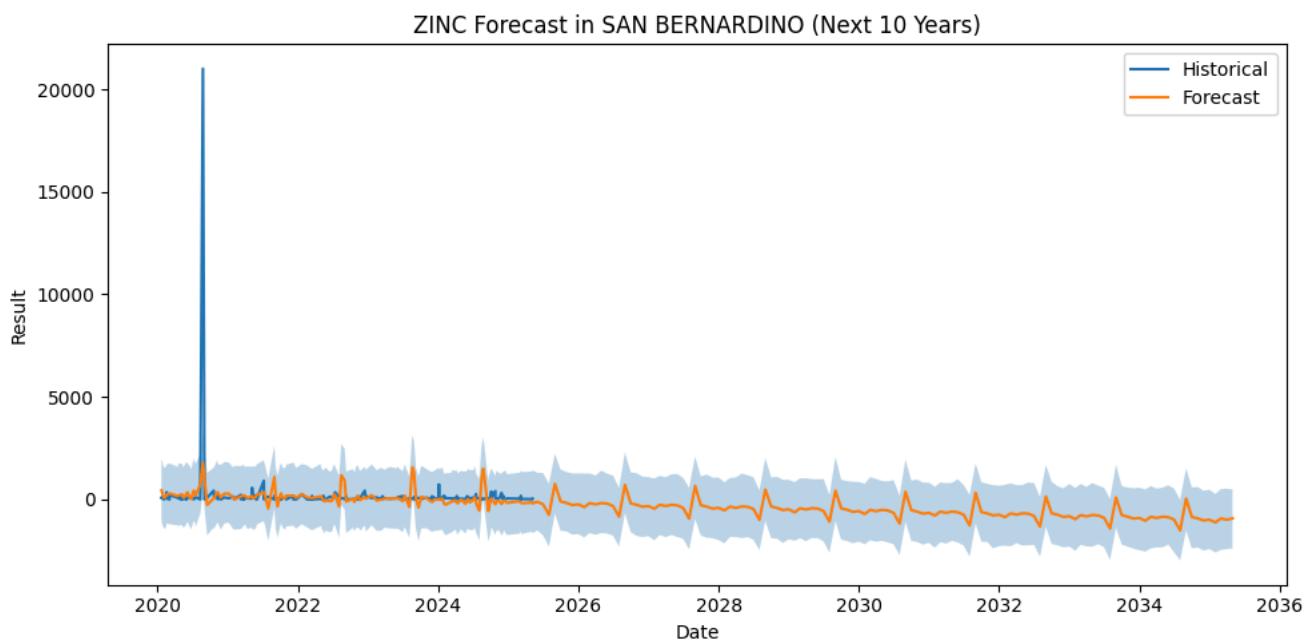
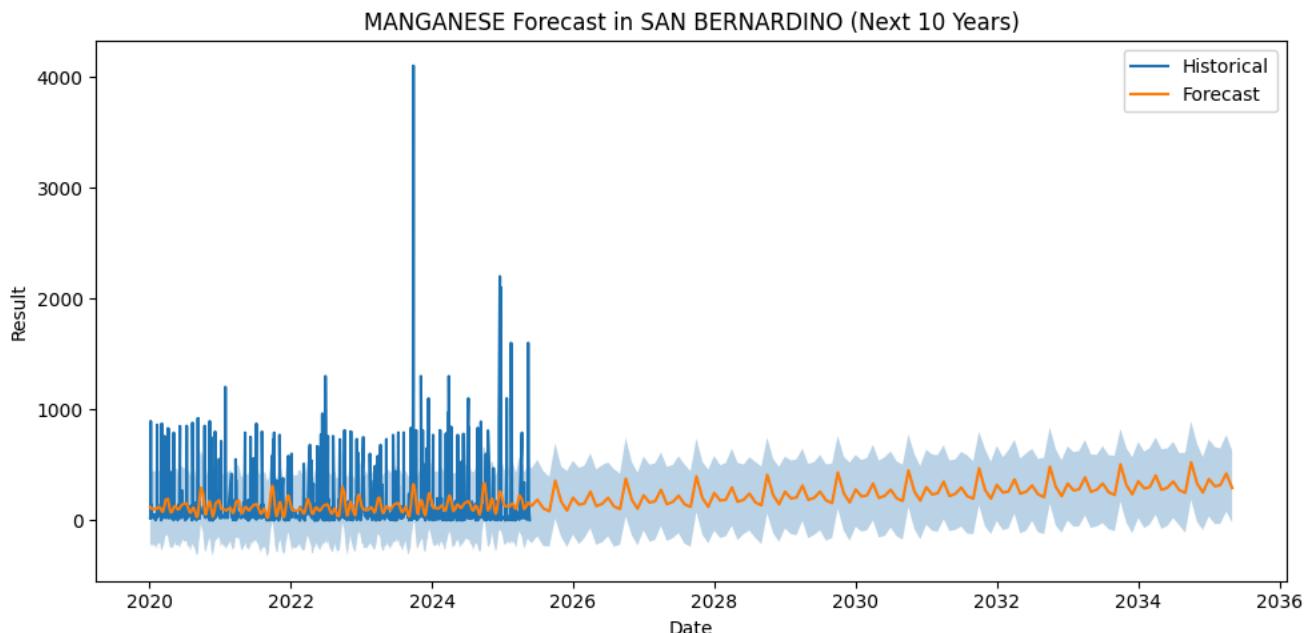
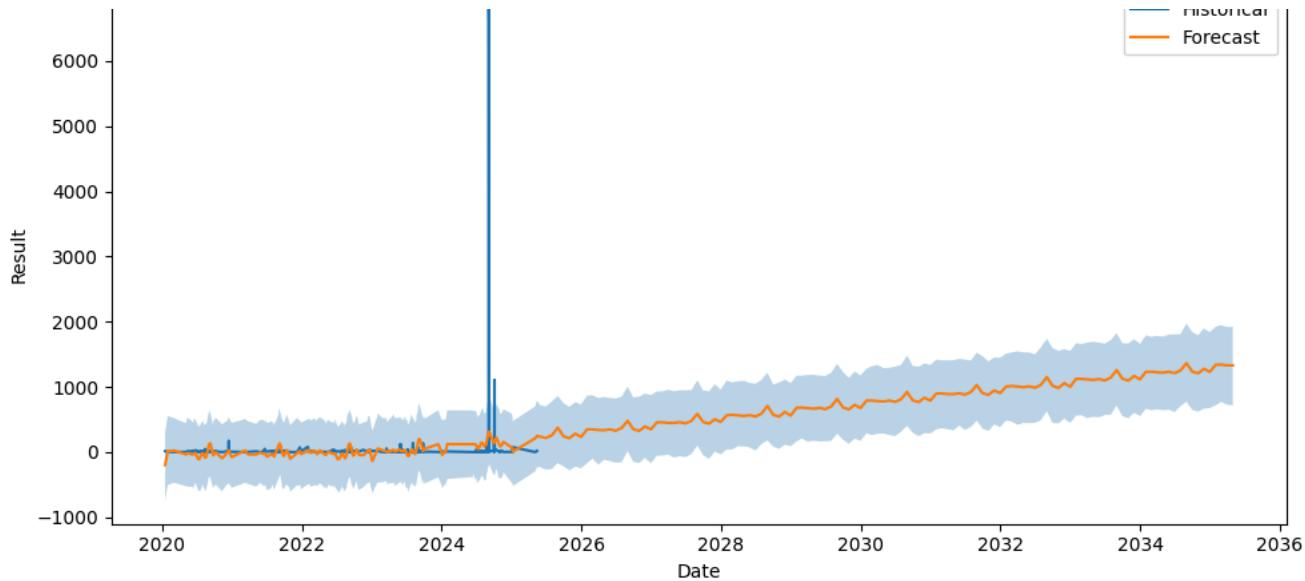


IRON Forecast in SAN BERNARDINO (Next 10 Years)



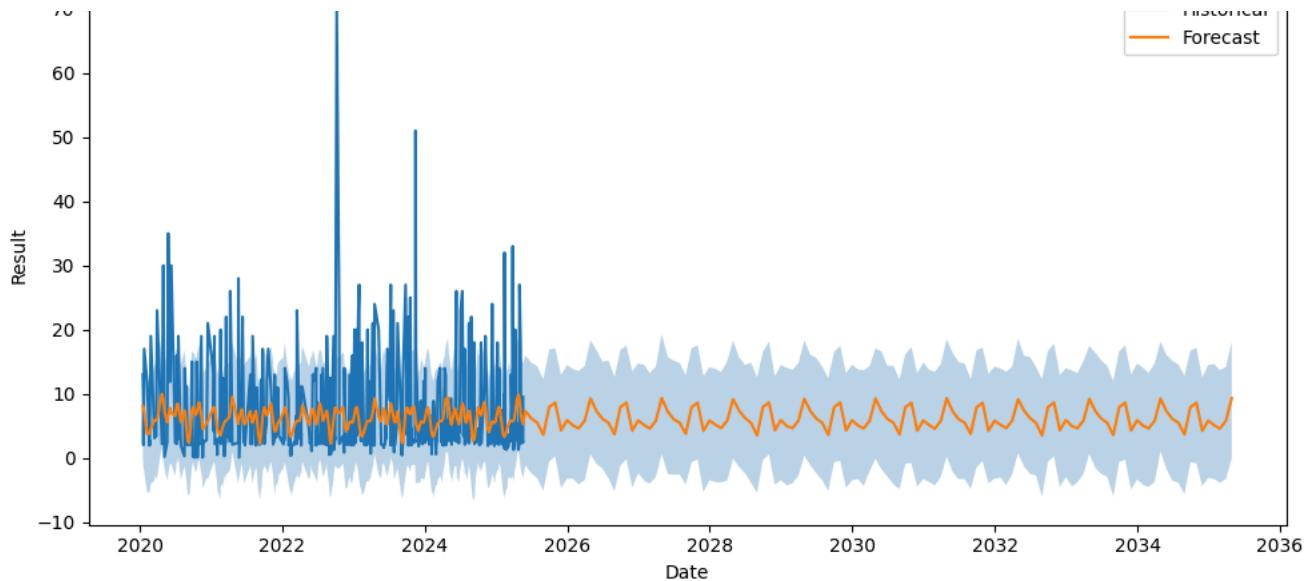
LEAD Forecast in SAN BERNARDINO (Next 10 Years)



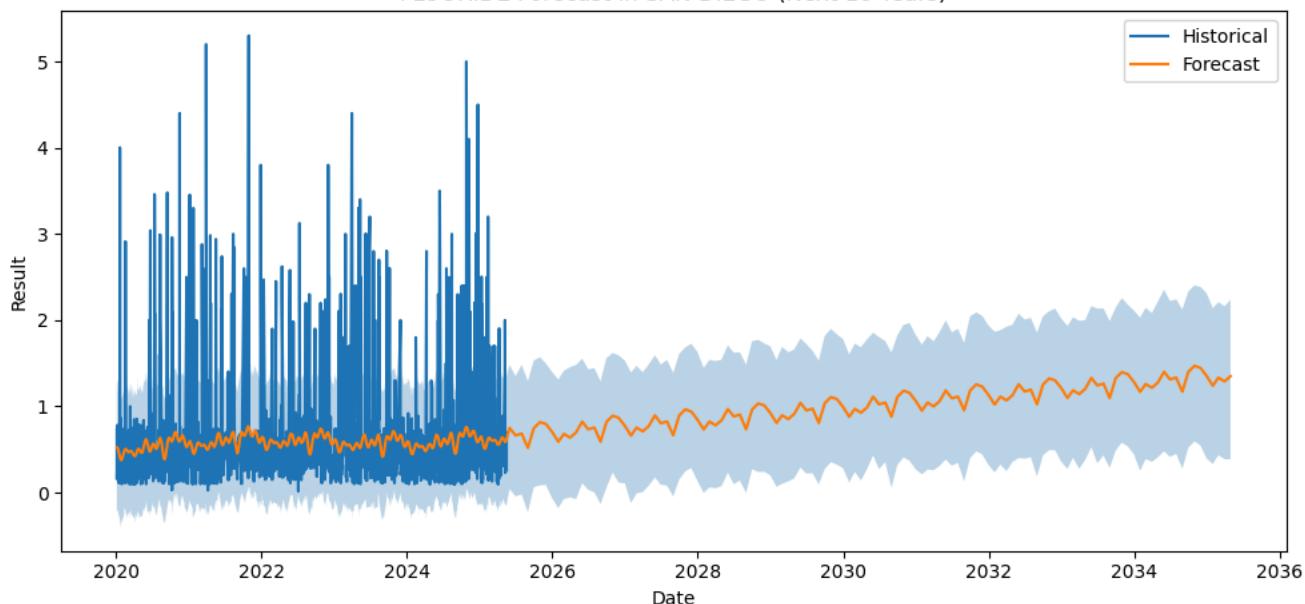


ARSENIC Forecast in SAN DIEGO (Next 10 Years)

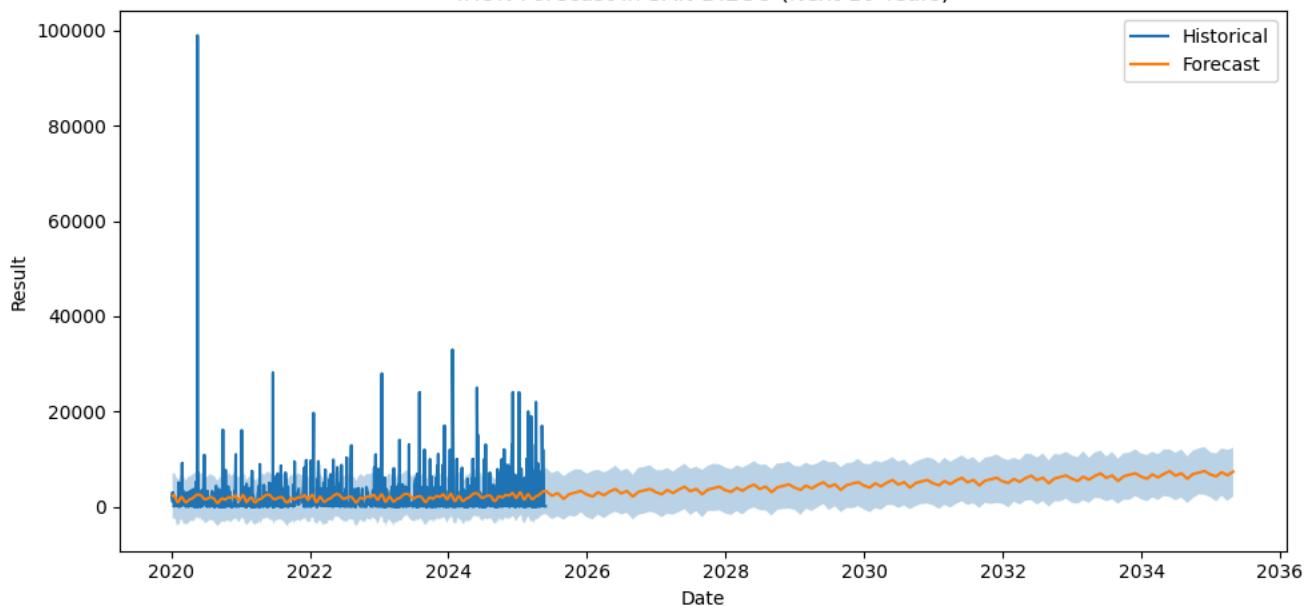




FLUORIDE Forecast in SAN DIEGO (Next 10 Years)

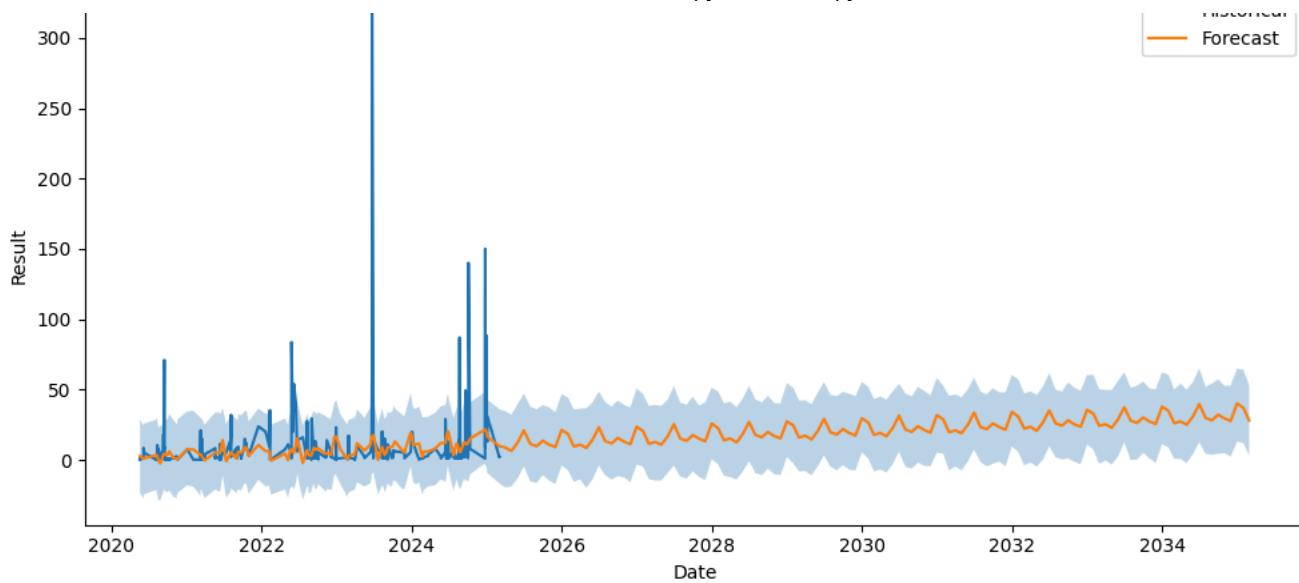


IRON Forecast in SAN DIEGO (Next 10 Years)

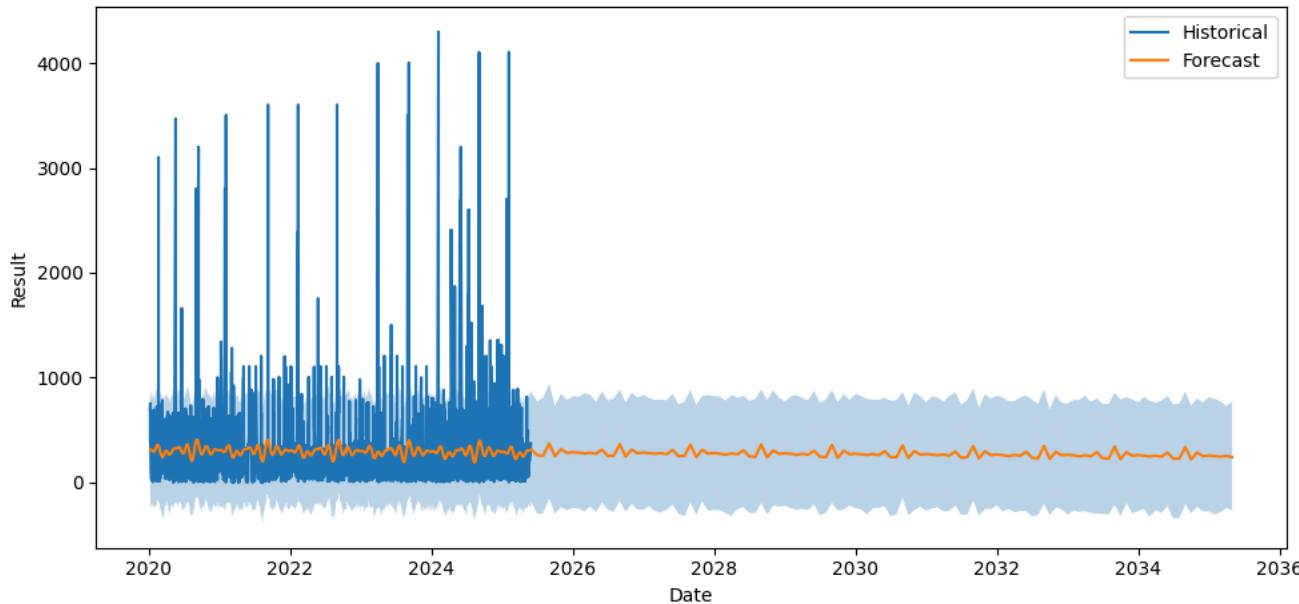


LEAD Forecast in SAN DIEGO (Next 10 Years)

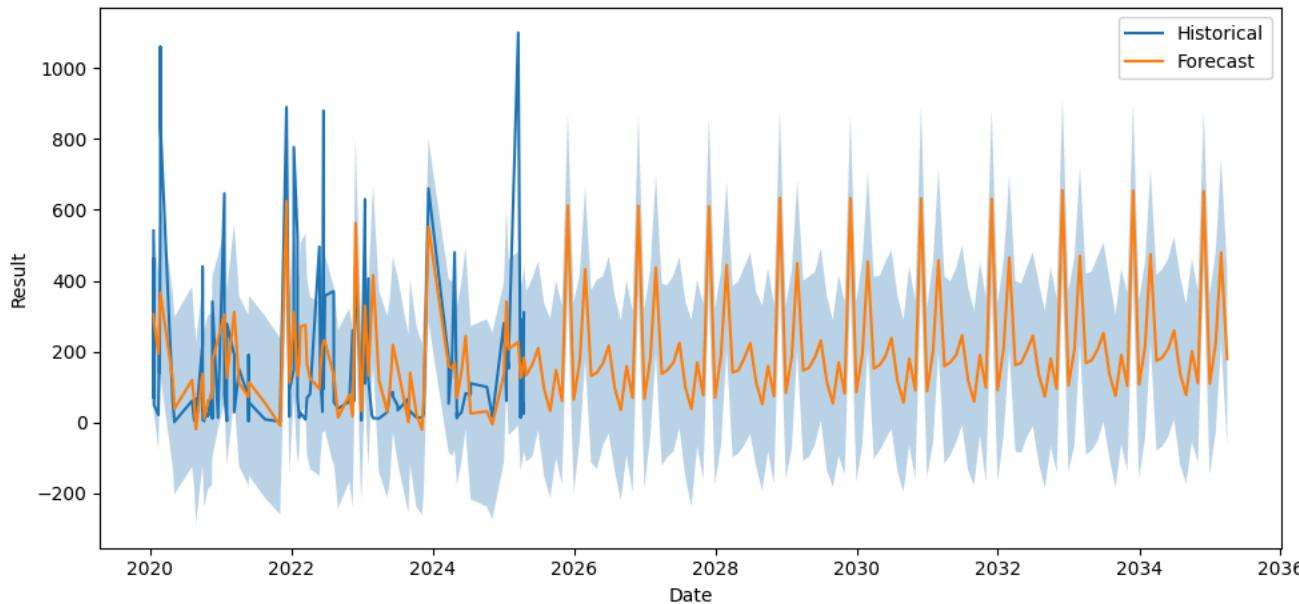




MANGANESE Forecast in SAN DIEGO (Next 10 Years)

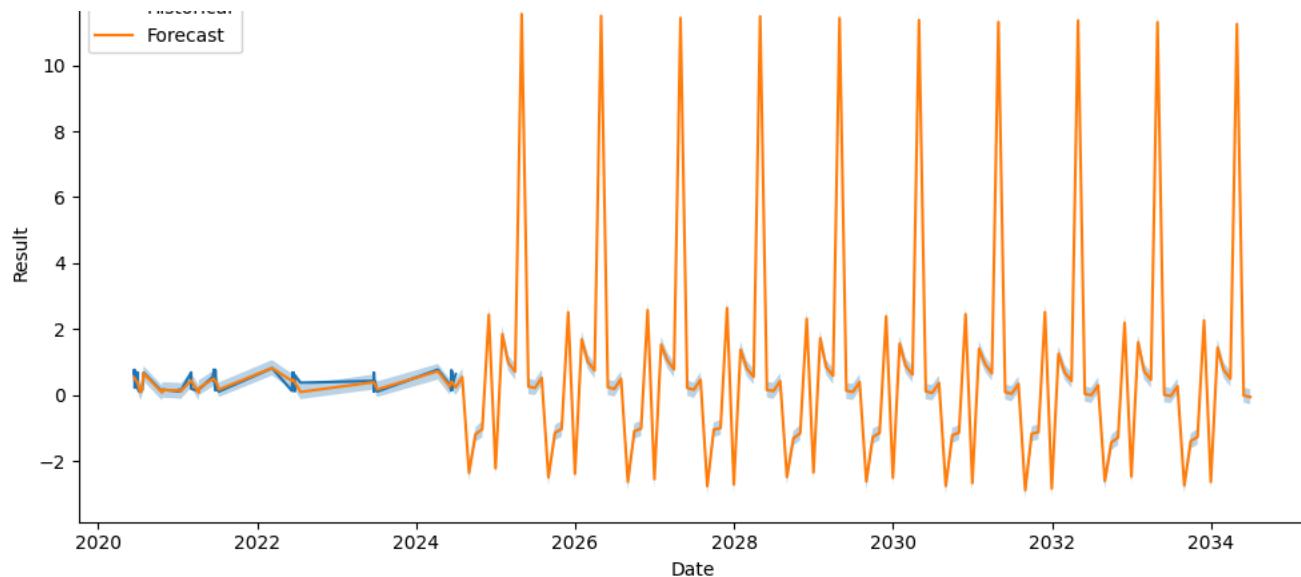


ZINC Forecast in SAN DIEGO (Next 10 Years)

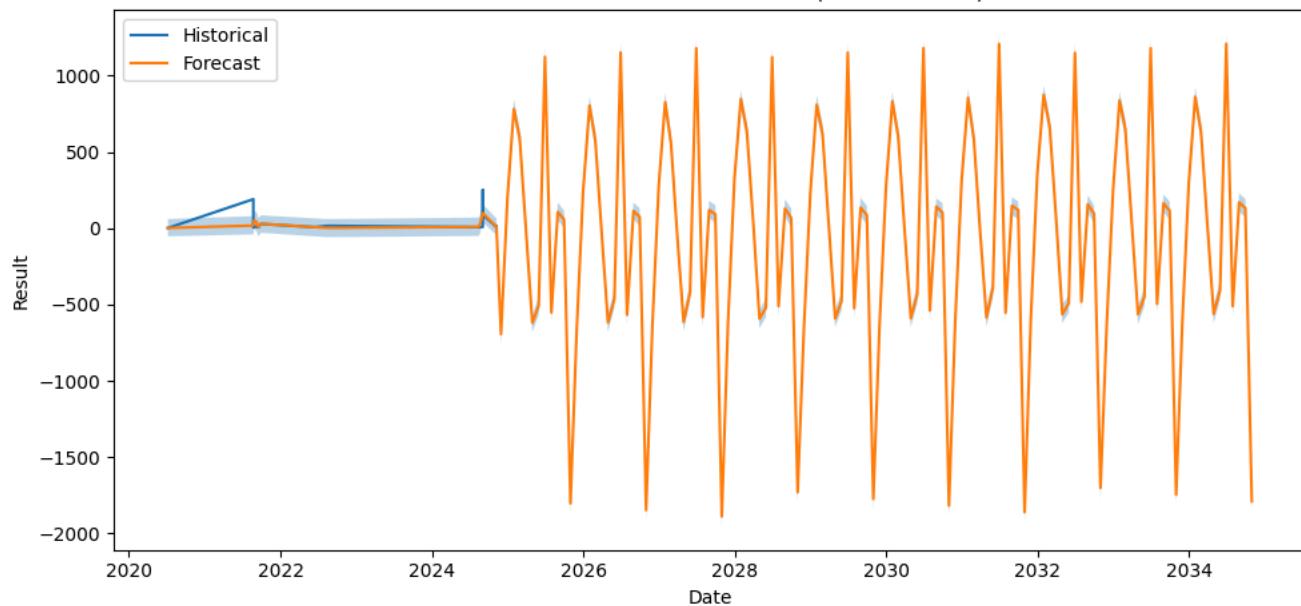


FLUORIDE Forecast in SAN FRANCISCO (Next 10 Years)

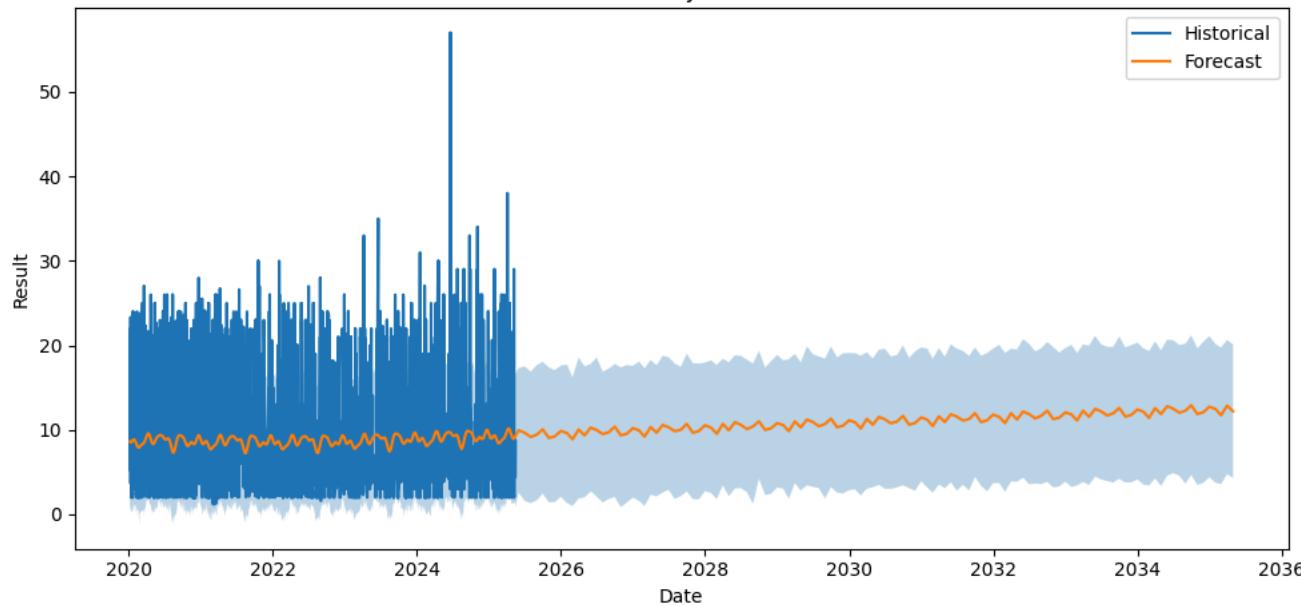
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LEAD Forecast in SAN FRANCISCO (Next 10 Years)

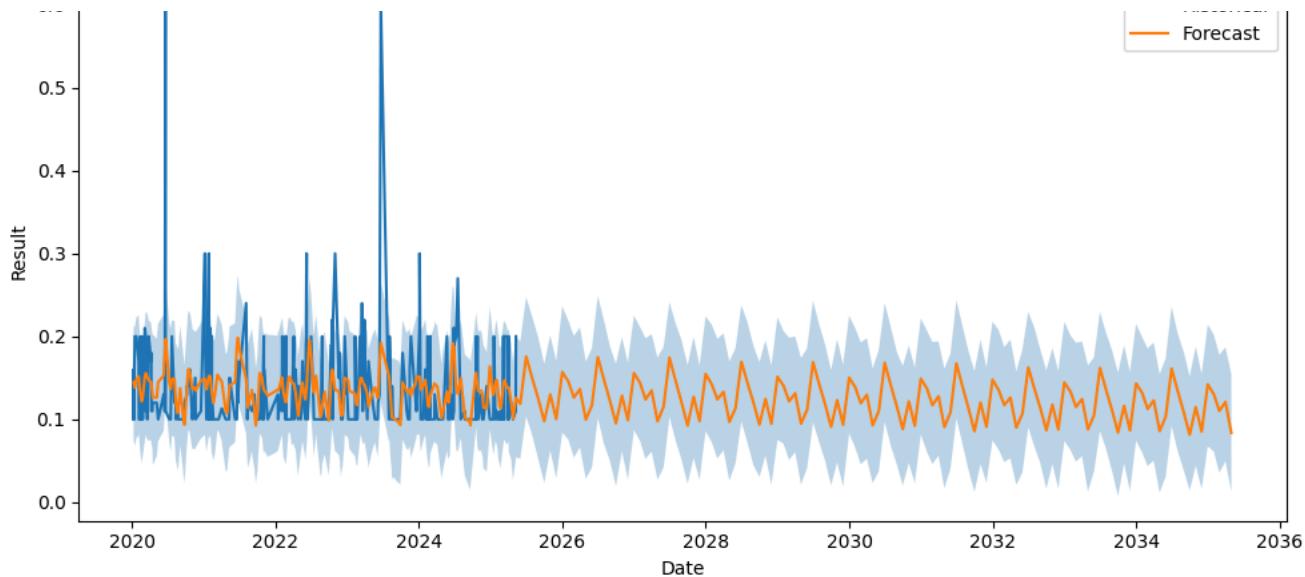


ARSENIC Forecast in SAN JOAQUIN (Next 10 Years)

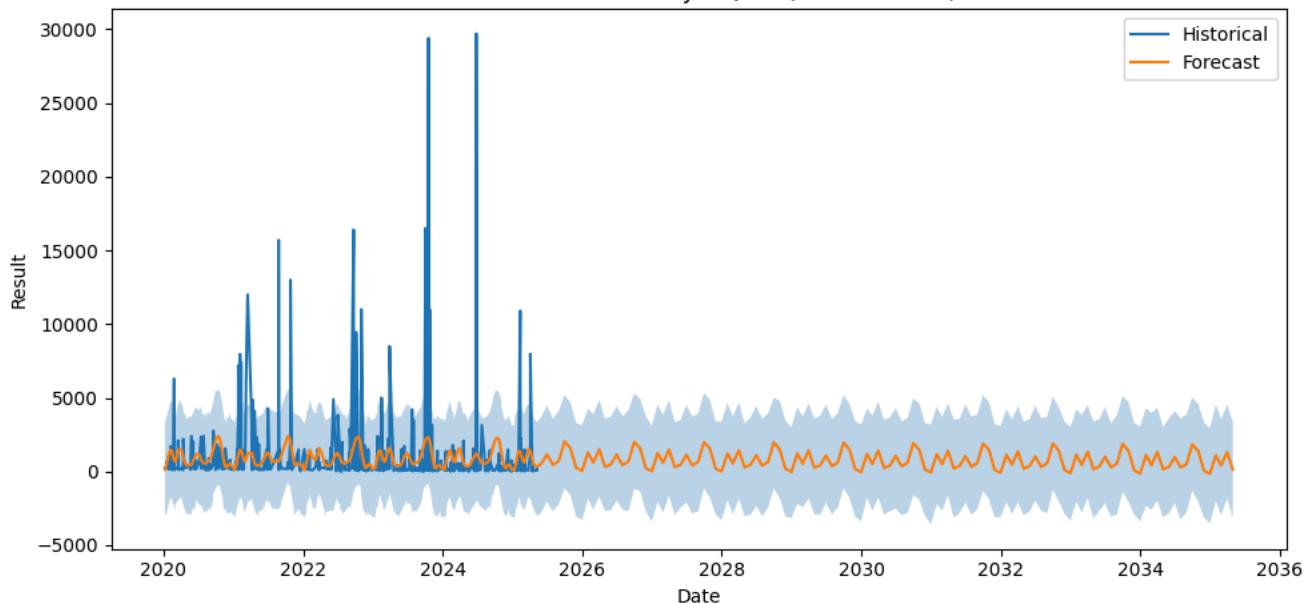


FLUORIDE Forecast in SAN JOAQUIN (Next 10 Years)

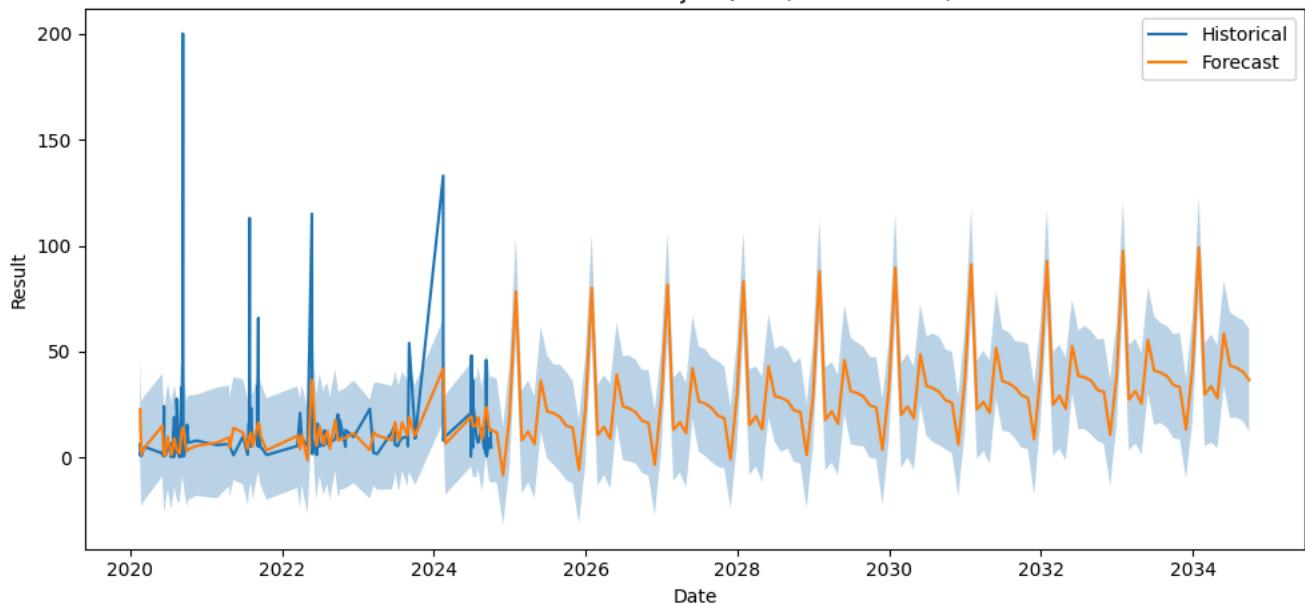




IRON Forecast in SAN JOAQUIN (Next 10 Years)

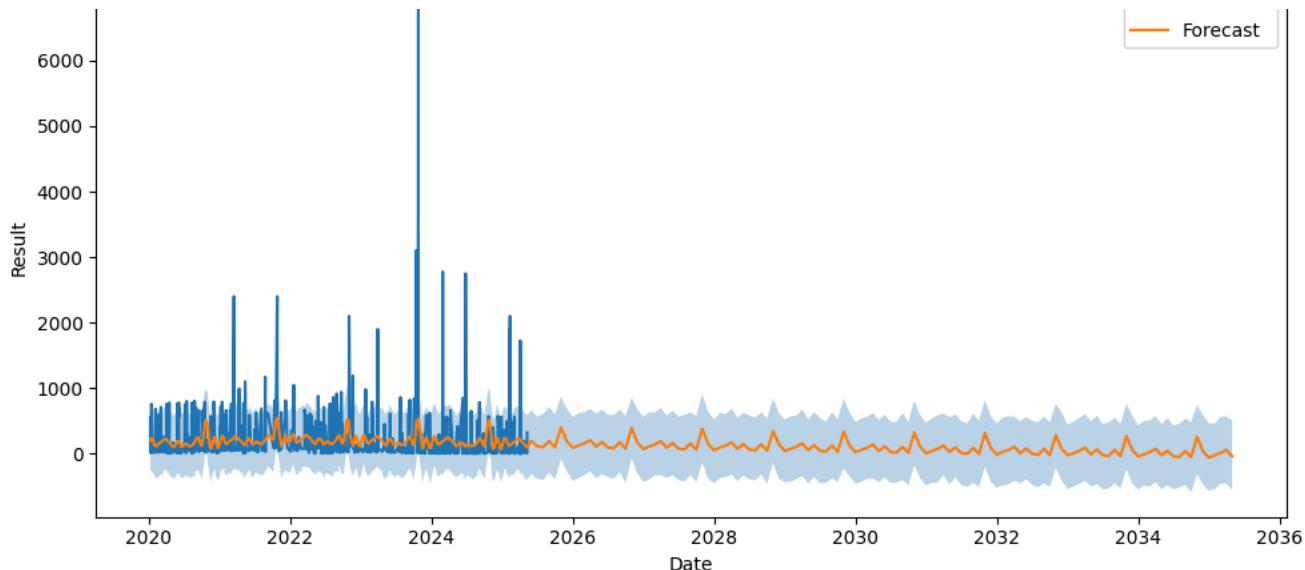


LEAD Forecast in SAN JOAQUIN (Next 10 Years)

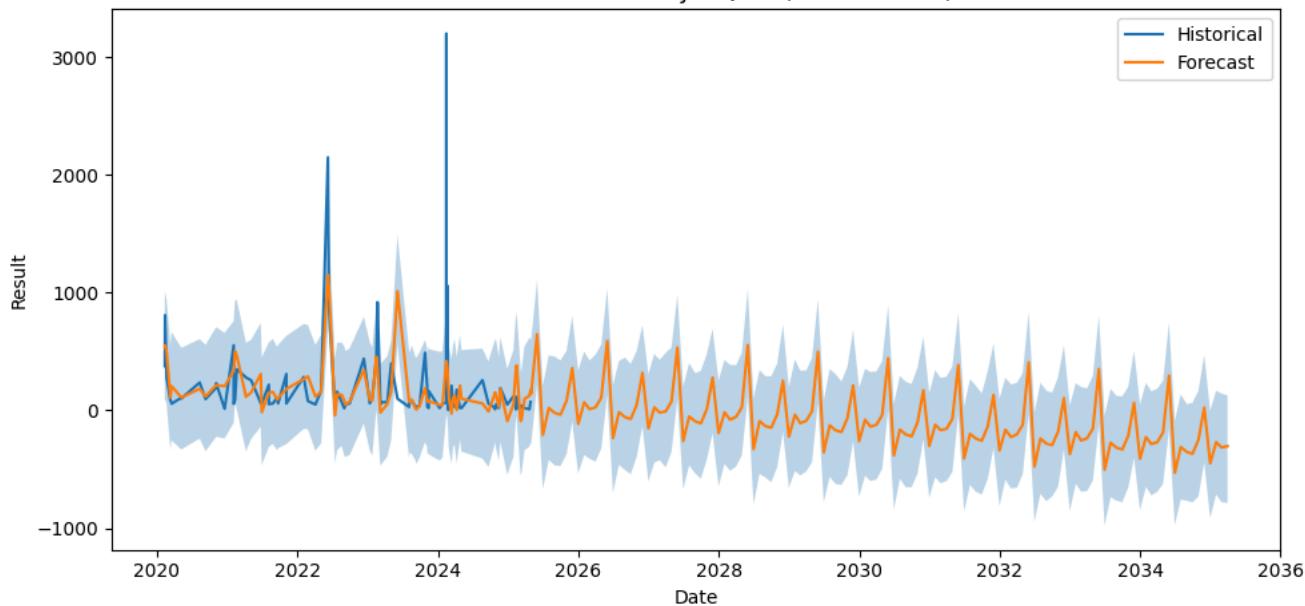


MANGANESE Forecast in SAN JOAQUIN (Next 10 Years)

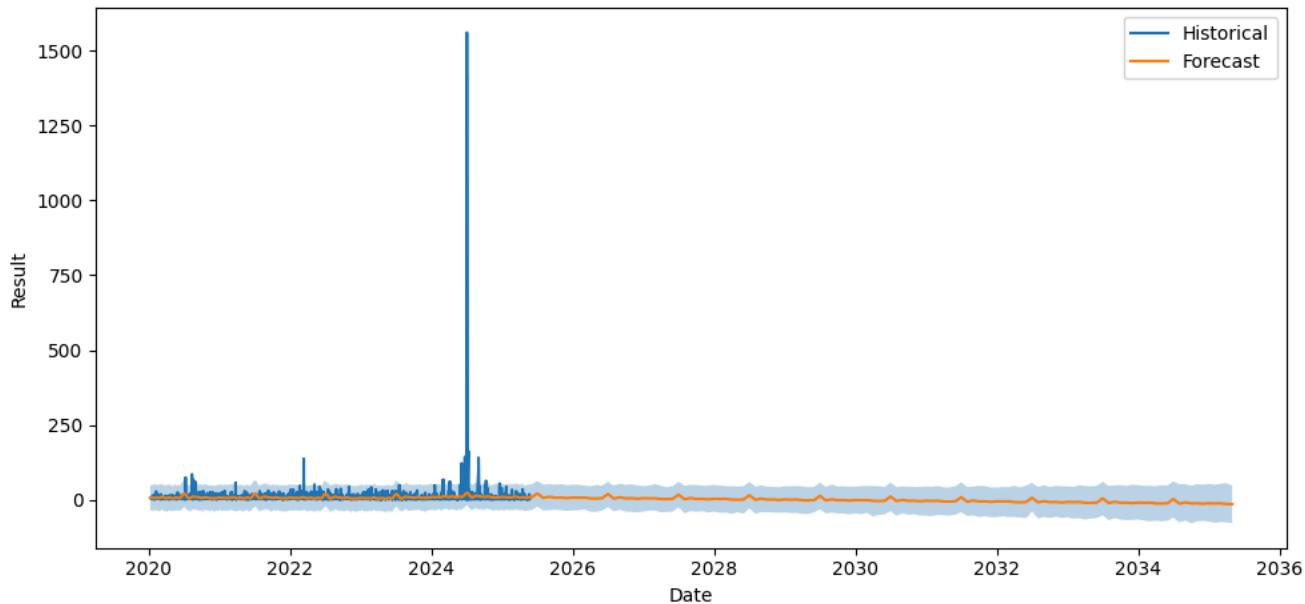




ZINC Forecast in SAN JOAQUIN (Next 10 Years)

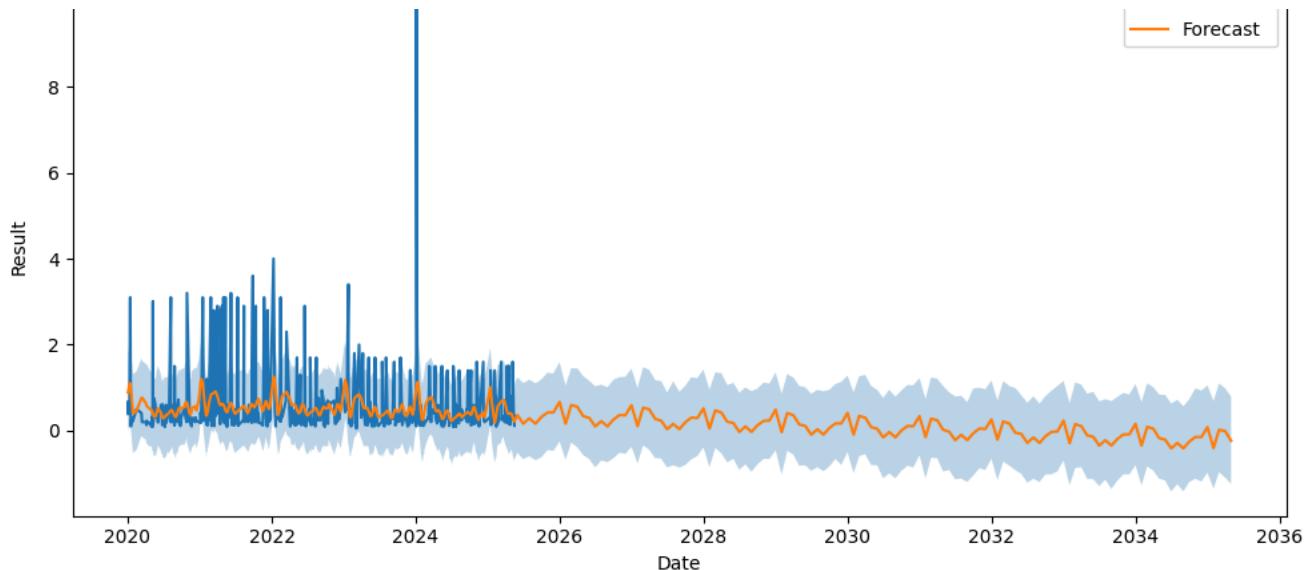


ARSENIC Forecast in SAN LUIS OBISPO (Next 10 Years)

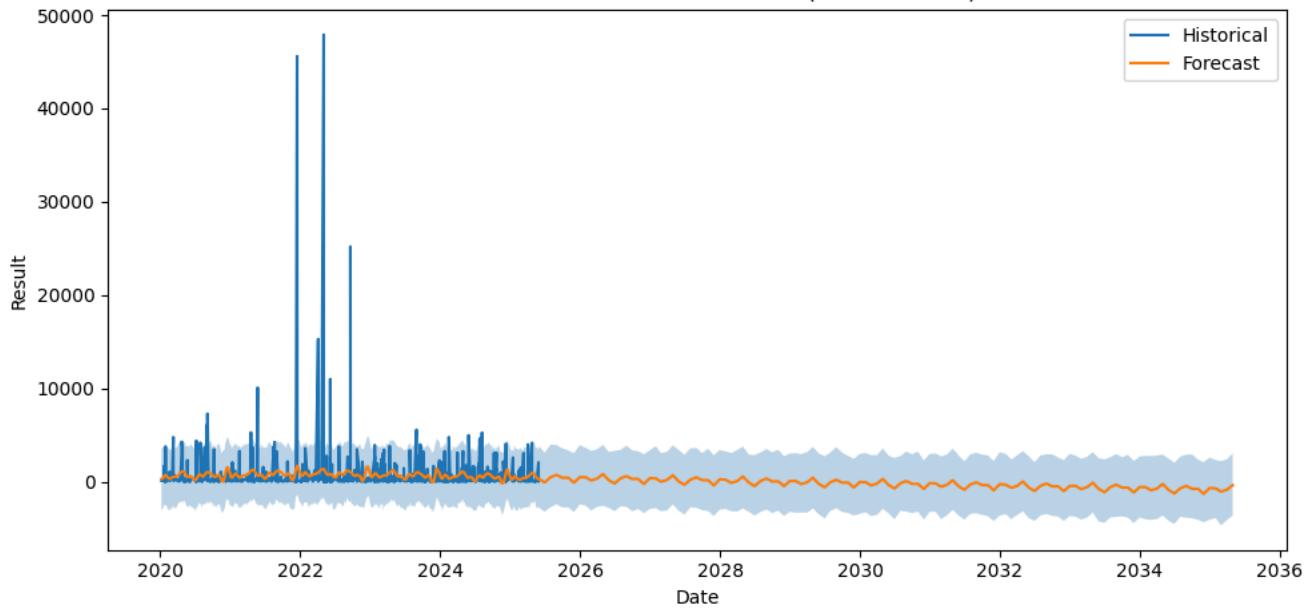


FLUORIDE Forecast in SAN LUIS OBISPO (Next 10 Years)

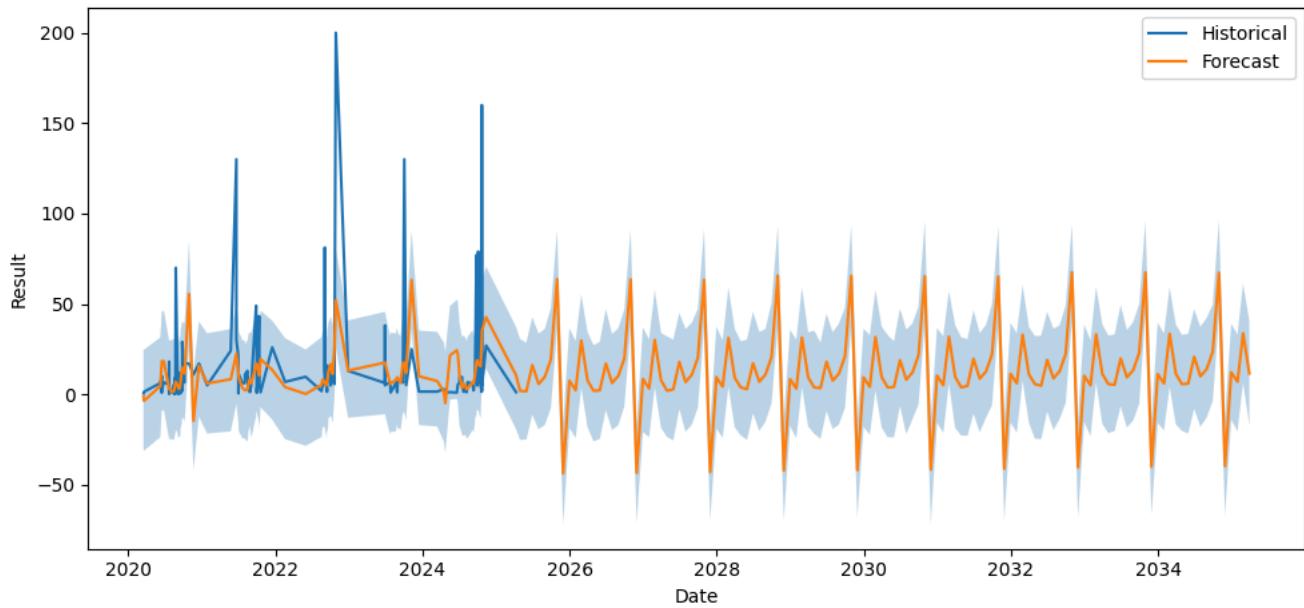




IRON Forecast in SAN LUIS OBISPO (Next 10 Years)

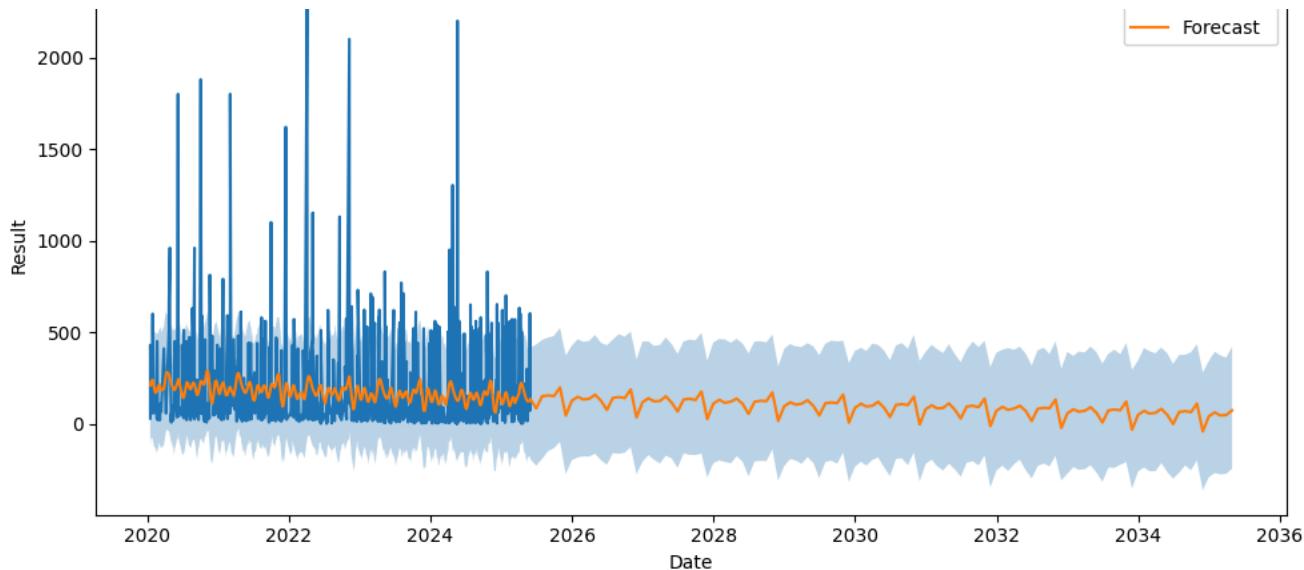


LEAD Forecast in SAN LUIS OBISPO (Next 10 Years)

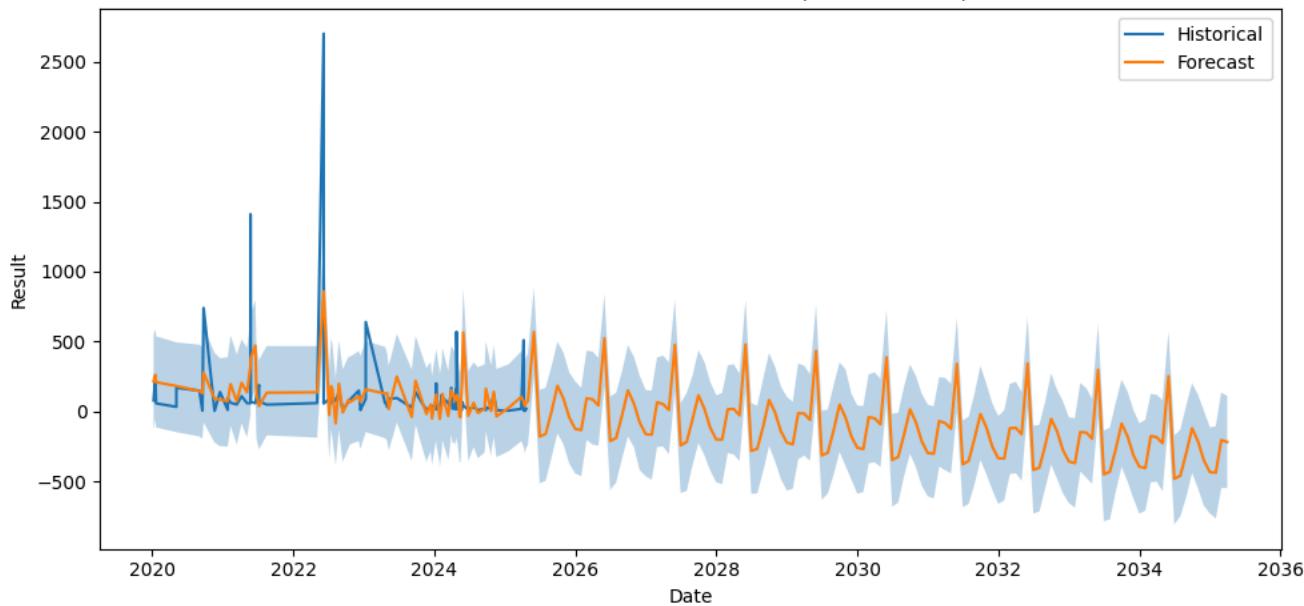


MANGANESE Forecast in SAN LUIS OBISPO (Next 10 Years)

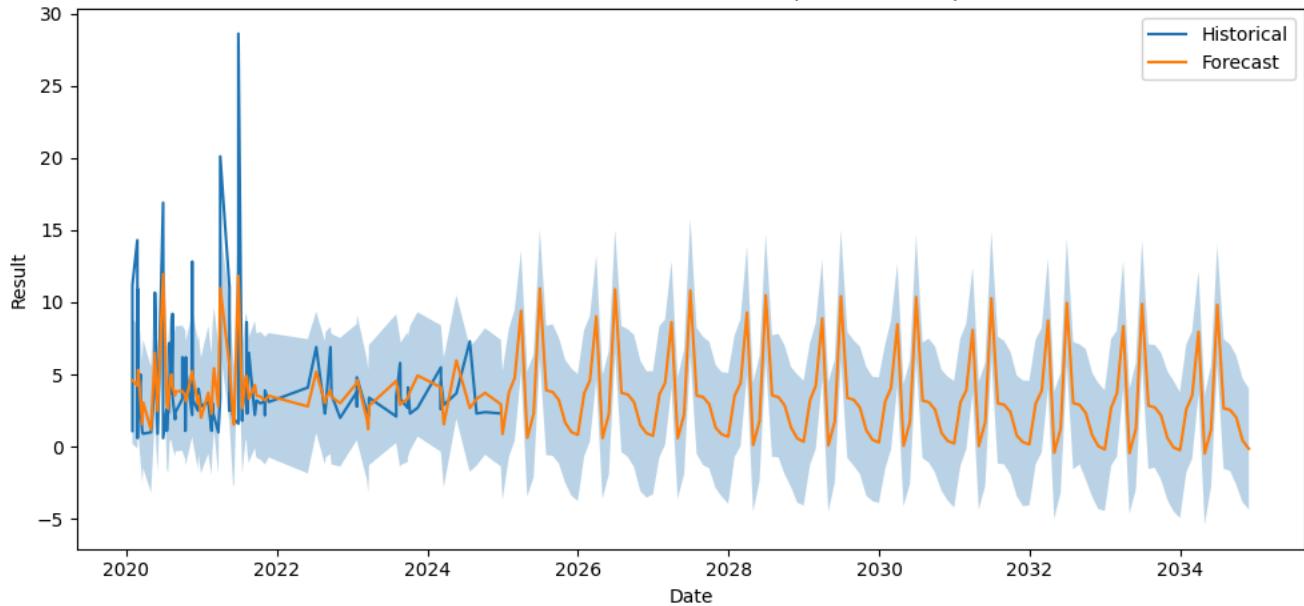




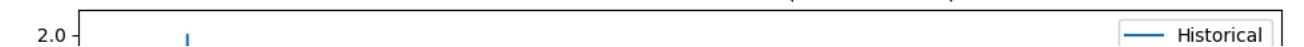
ZINC Forecast in SAN LUIS OBISPO (Next 10 Years)

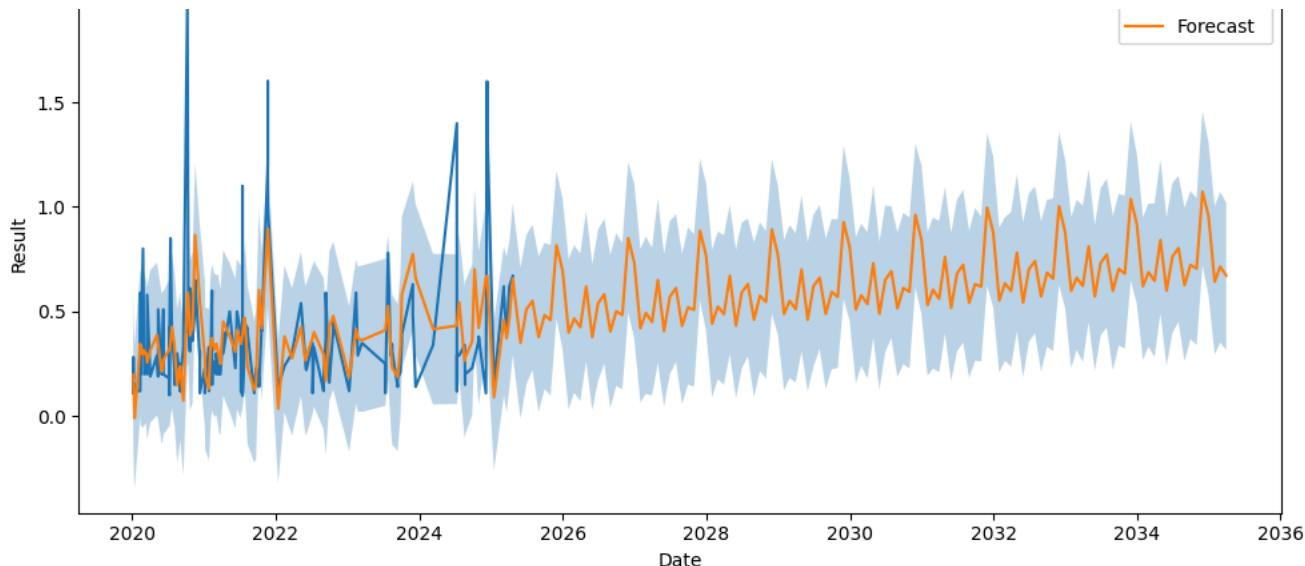


ARSENIC Forecast in SAN MATEO (Next 10 Years)

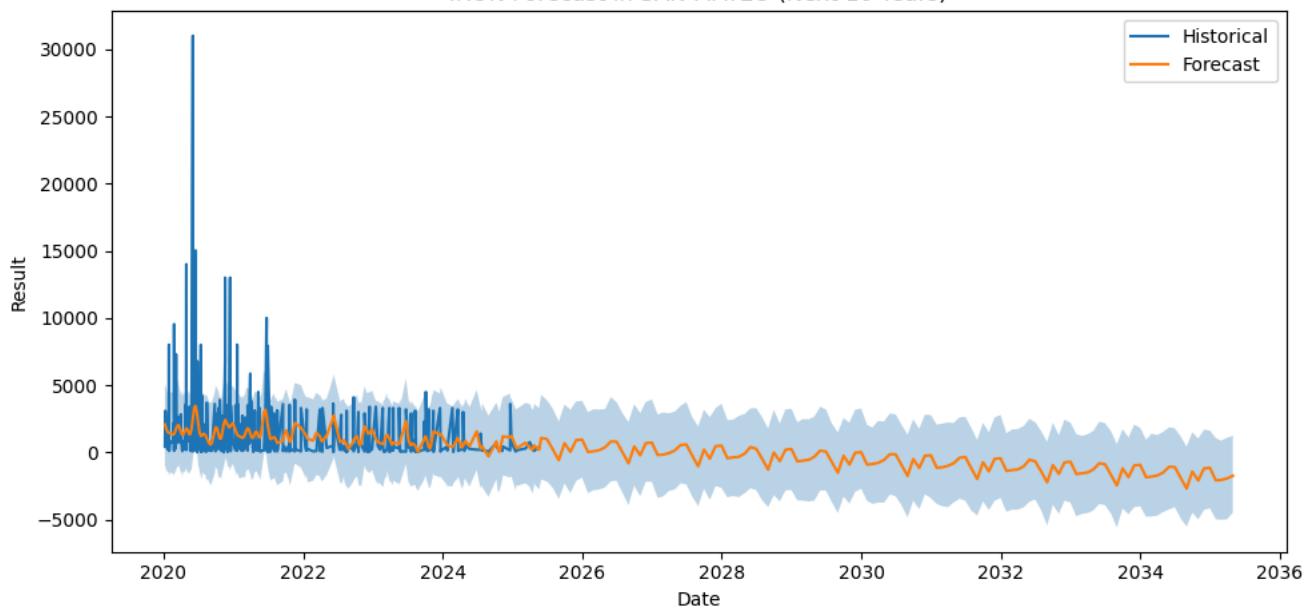


FLUORIDE Forecast in SAN MATEO (Next 10 Years)

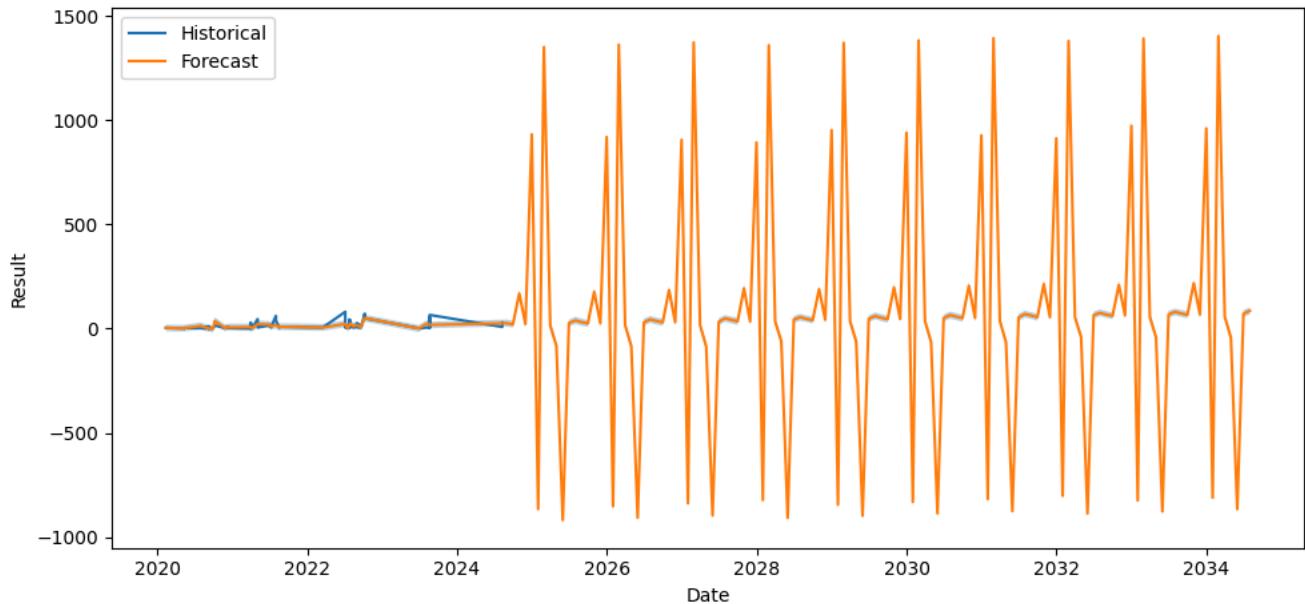




IRON Forecast in SAN MATEO (Next 10 Years)

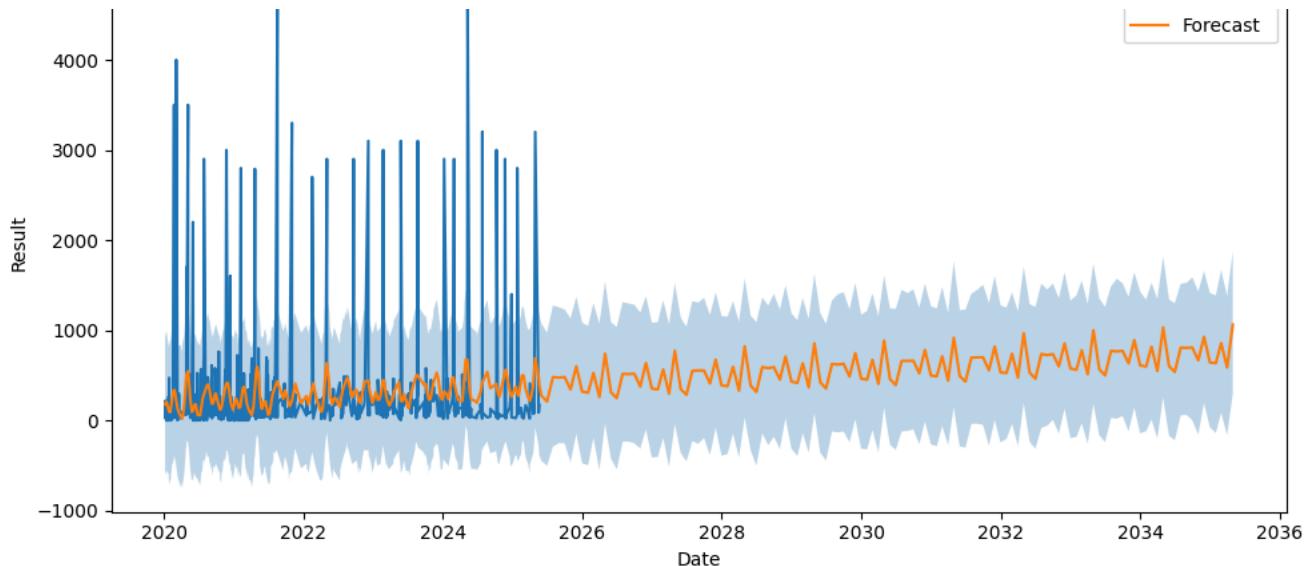


LEAD Forecast in SAN MATEO (Next 10 Years)

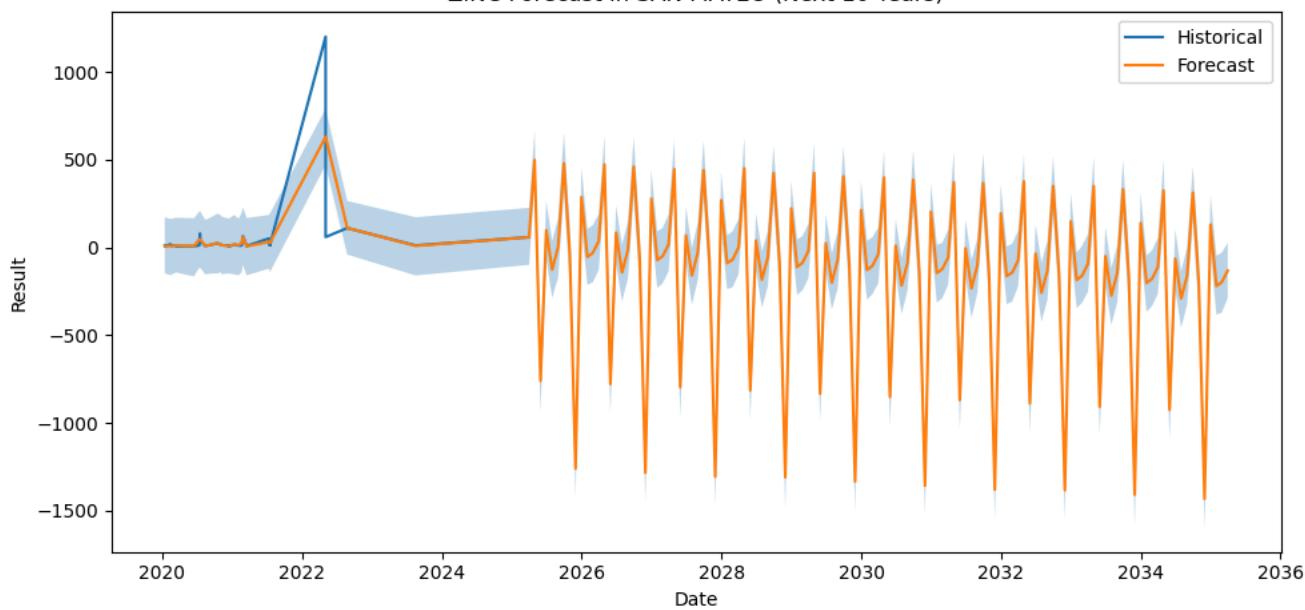


MANGANESE Forecast in SAN MATEO (Next 10 Years)

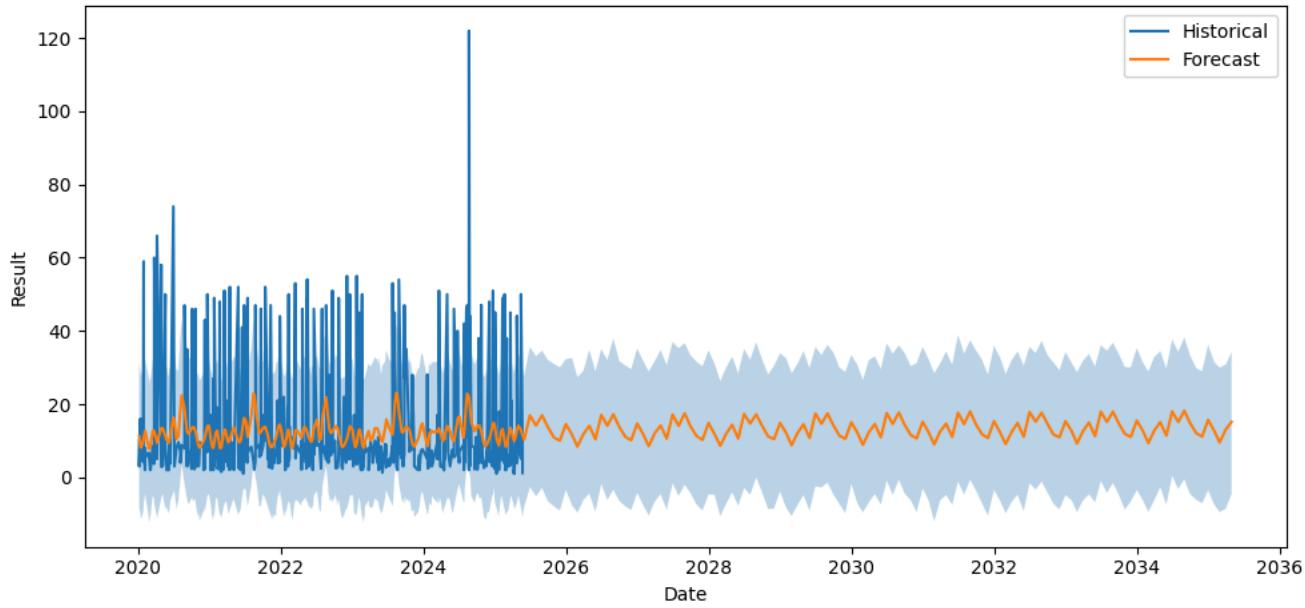




ZINC Forecast in SAN MATEO (Next 10 Years)

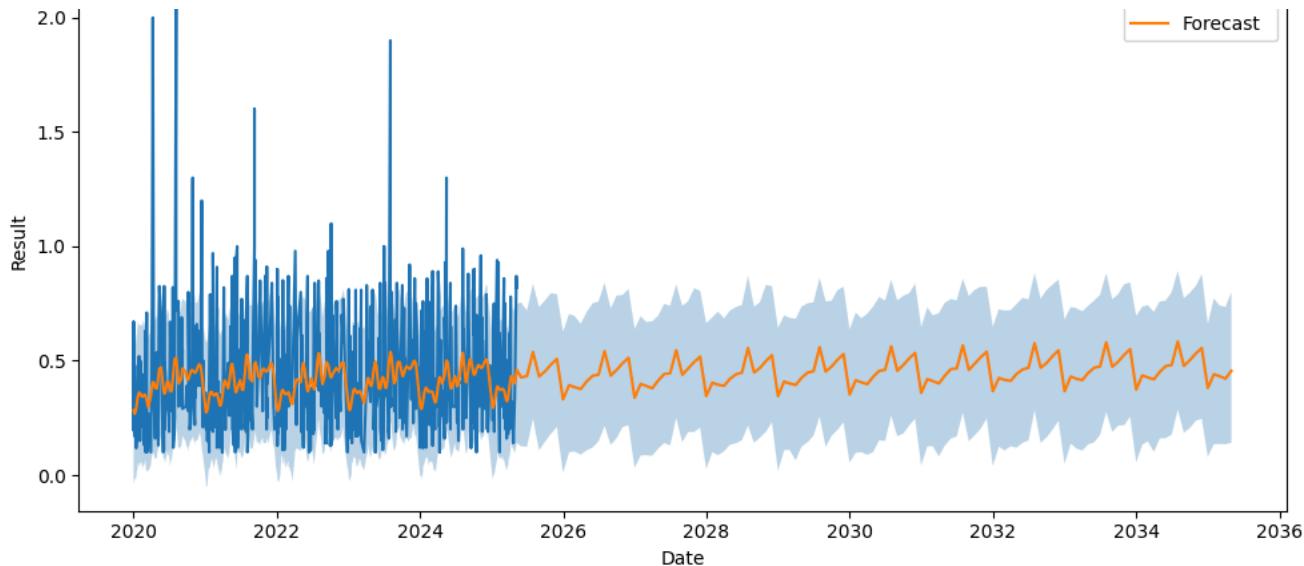


ARSENIC Forecast in SANTA BARBARA (Next 10 Years)

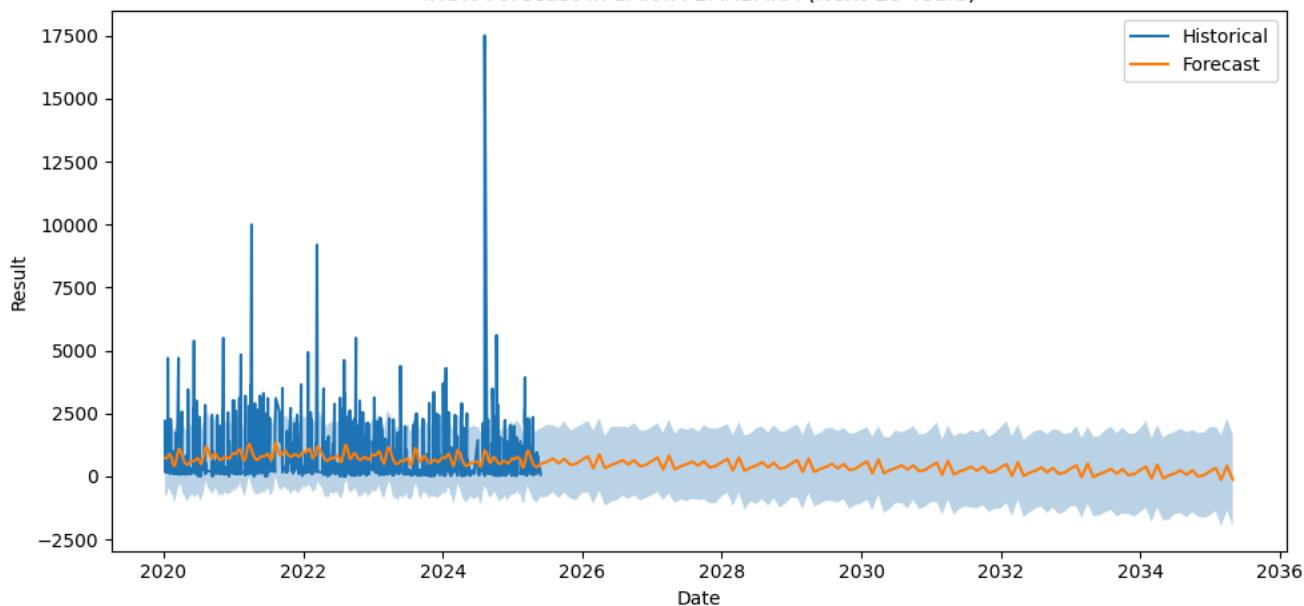


FLUORIDE Forecast in SANTA BARBARA (Next 10 Years)

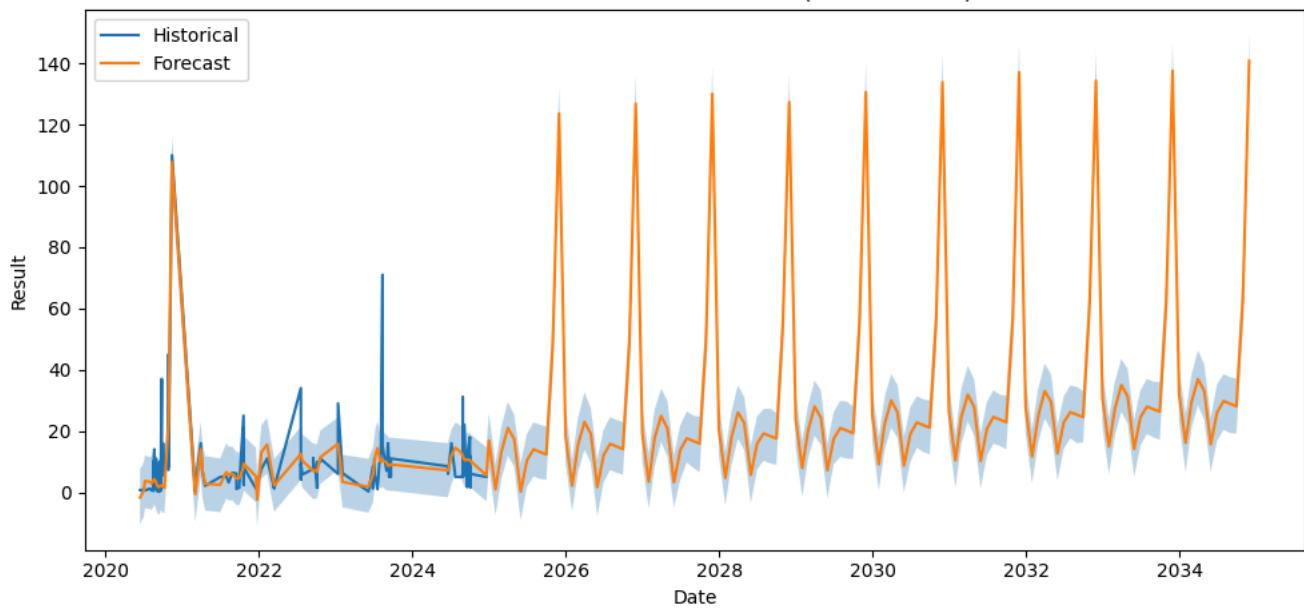




IRON Forecast in SANTA BARBARA (Next 10 Years)

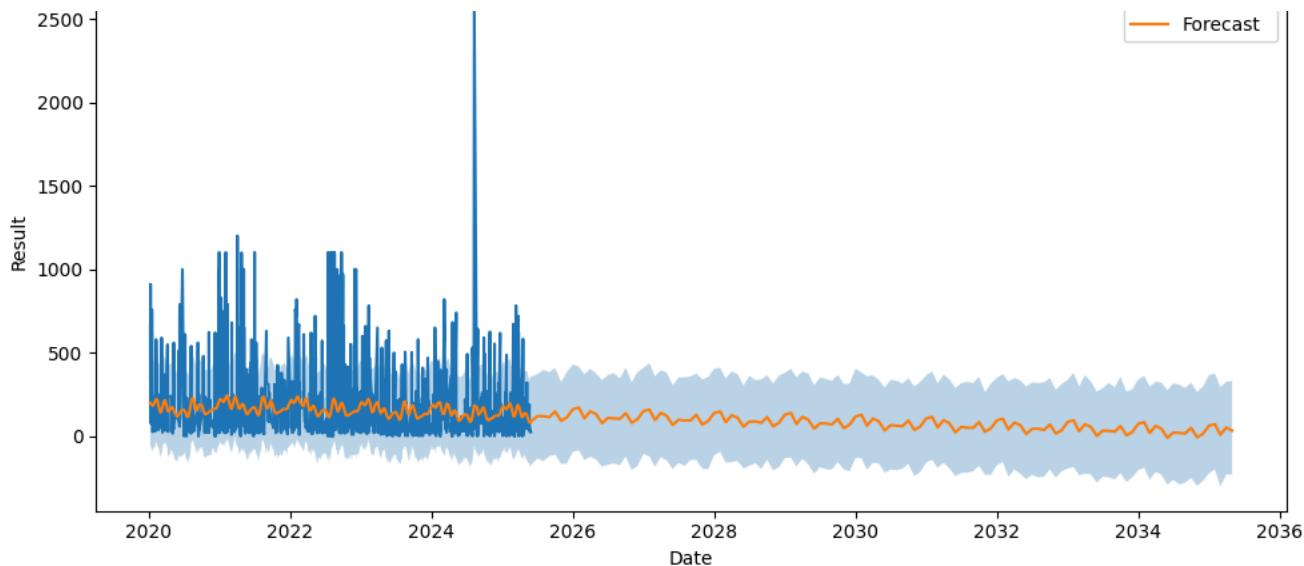


LEAD Forecast in SANTA BARBARA (Next 10 Years)

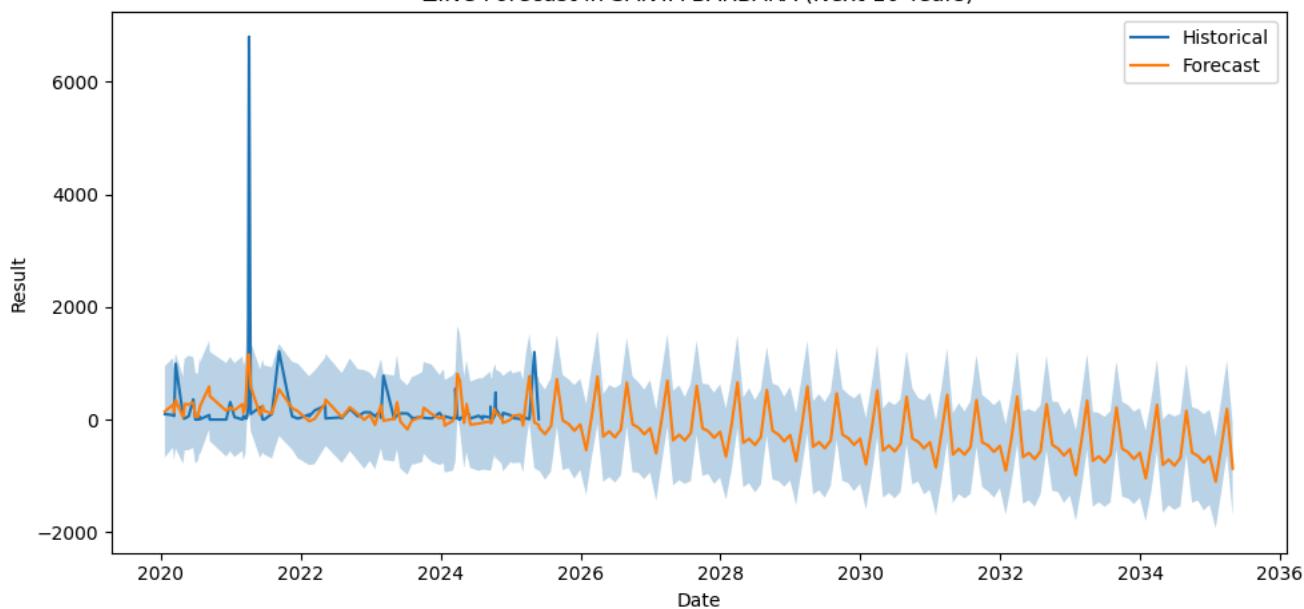


MANGANESE Forecast in SANTA BARBARA (Next 10 Years)

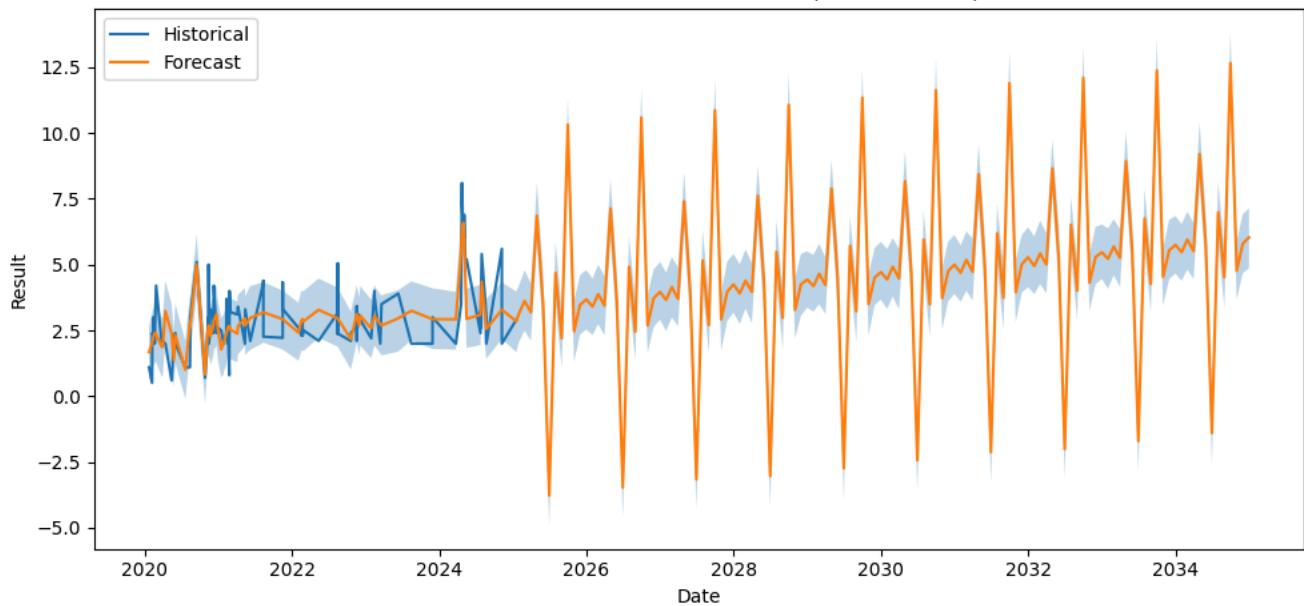




ZINC Forecast in SANTA BARBARA (Next 10 Years)

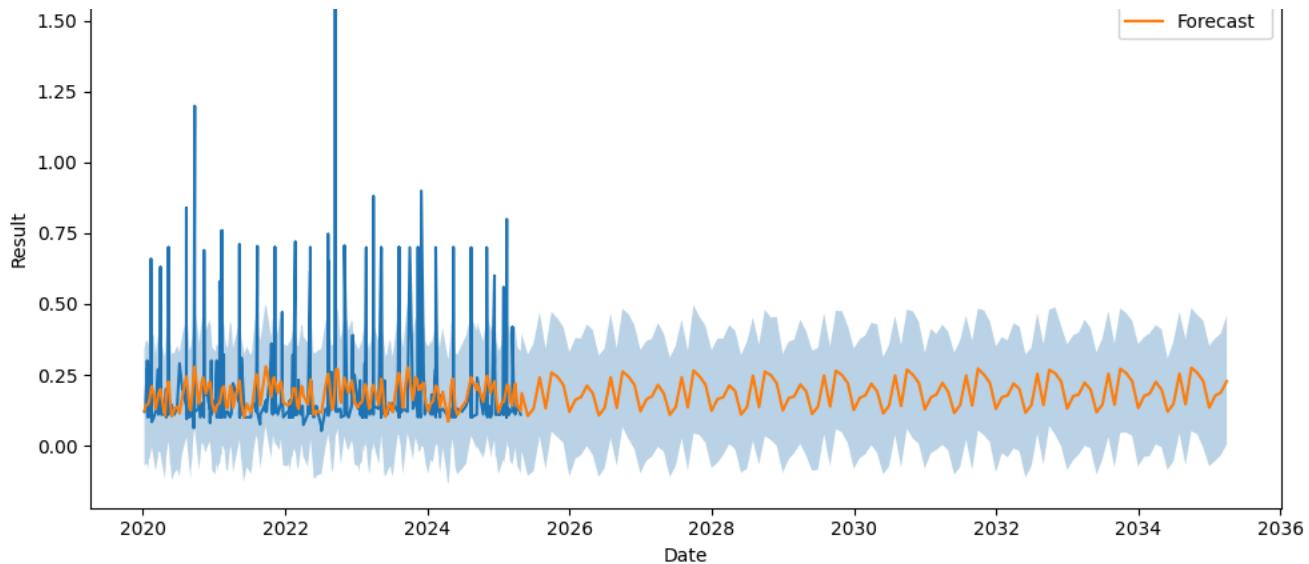


ARSENIC Forecast in SANTA CLARA (Next 10 Years)

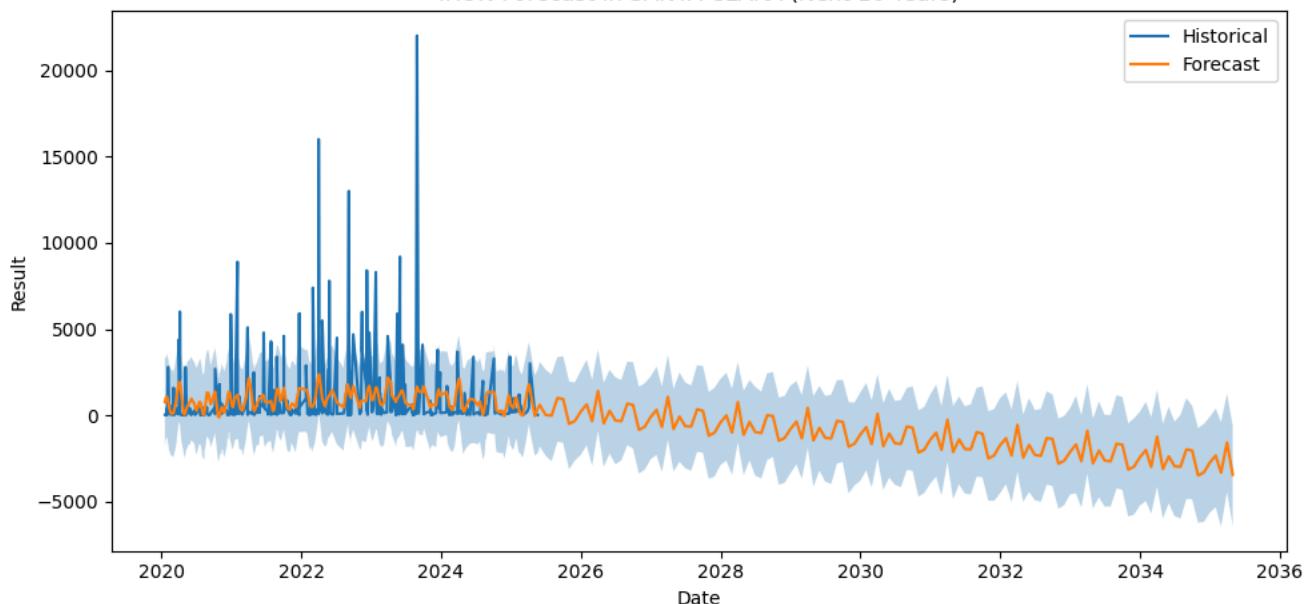


FLUORIDE Forecast in SANTA CLARA (Next 10 Years)

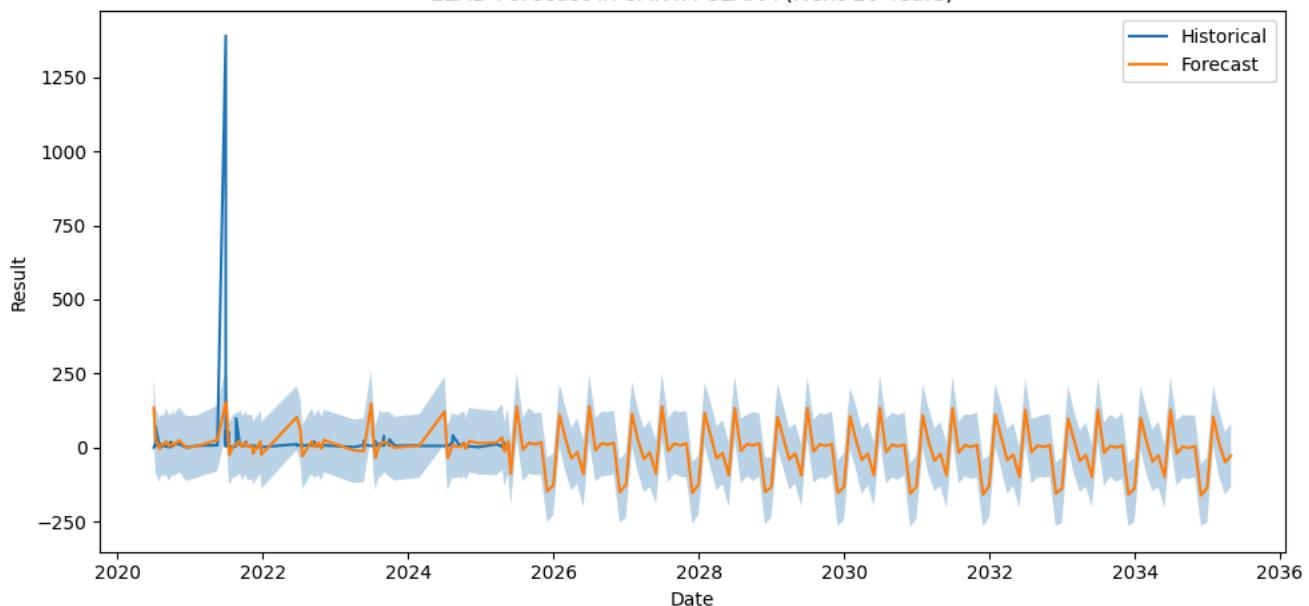




IRON Forecast in SANTA CLARA (Next 10 Years)



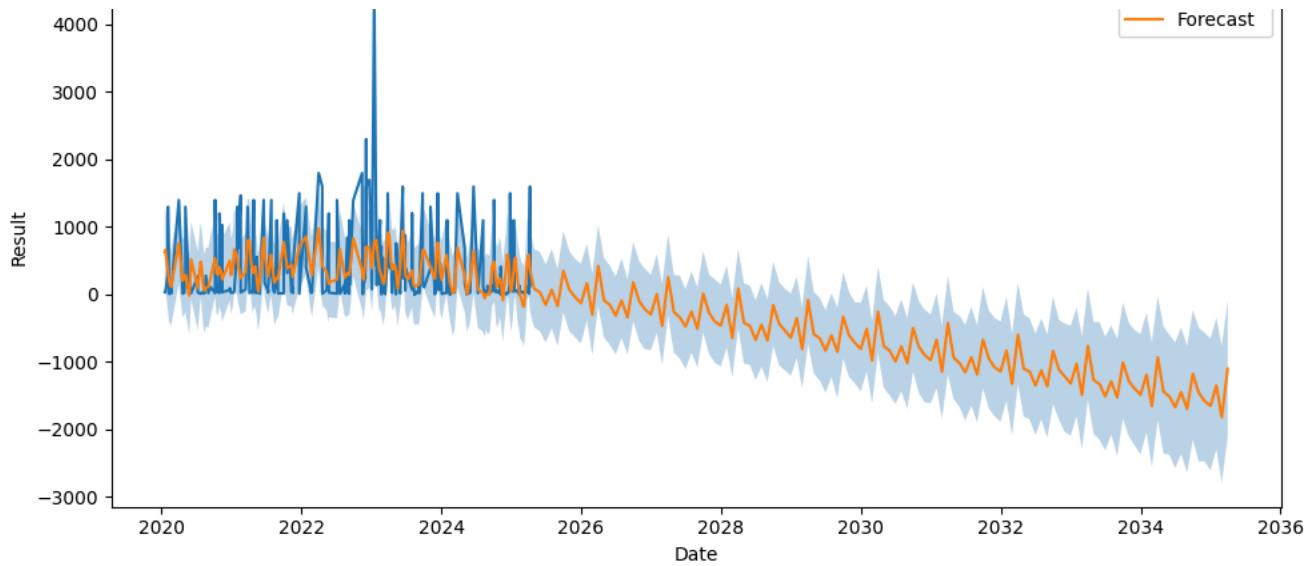
IRON Forecast in SANTA CLARA (Next 10 Years)



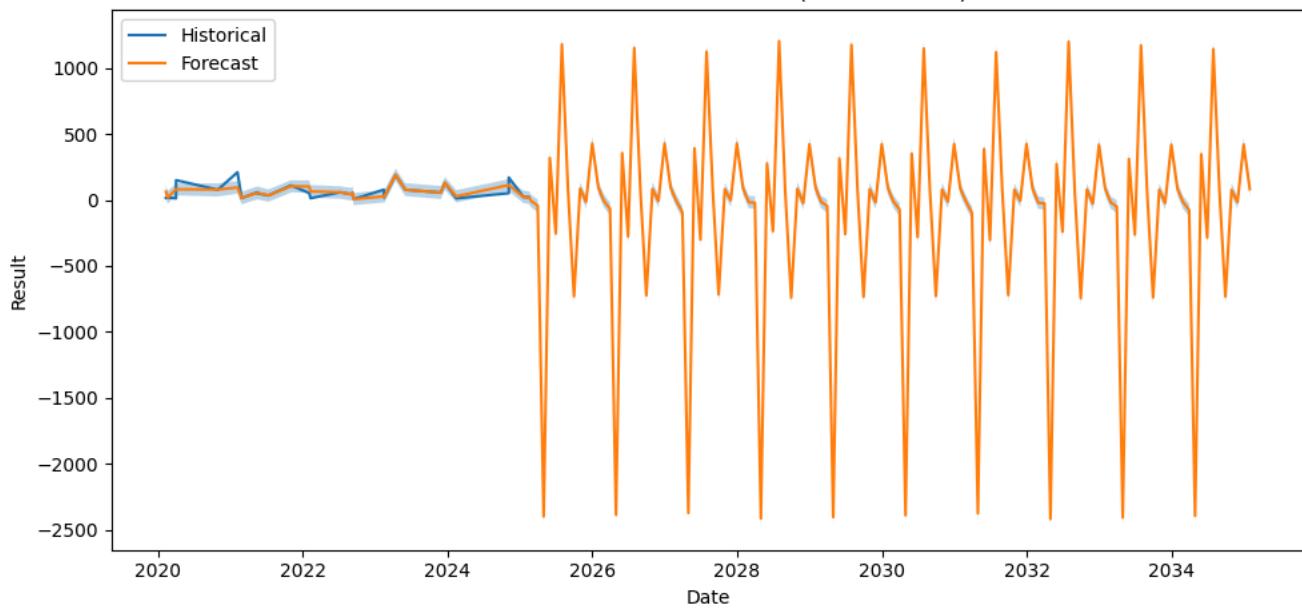
LEAD Forecast in SANTA CLARA (Next 10 Years)



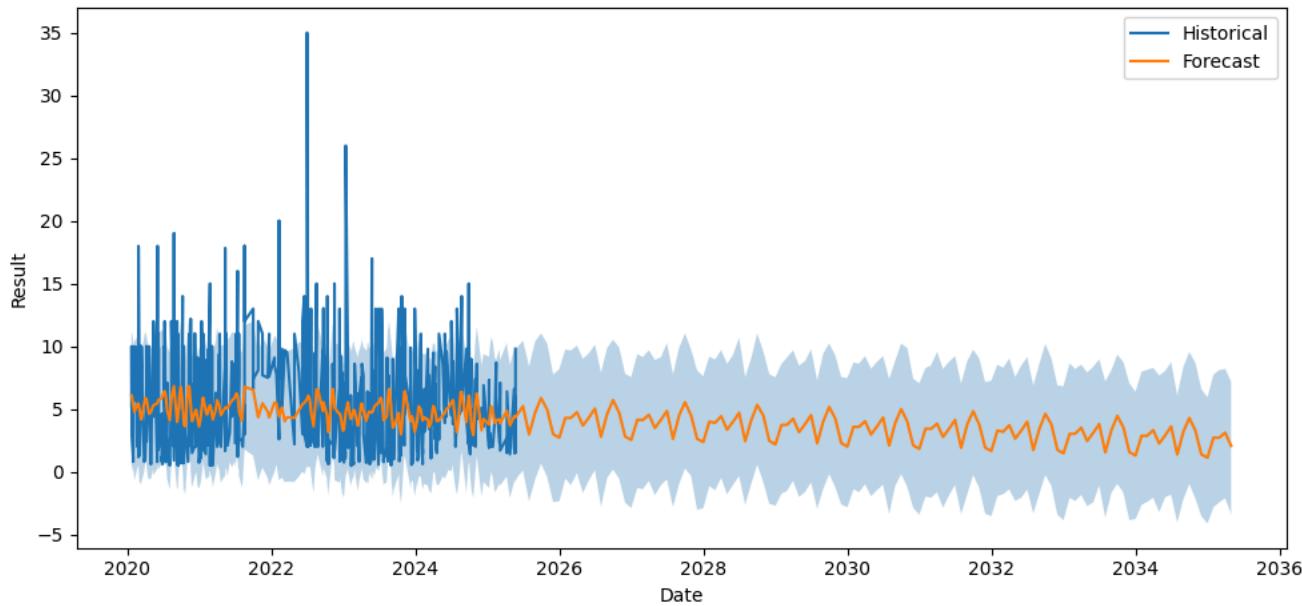
MANGANESE Forecast in SANTA CLARA (Next 10 Years)



ZINC Forecast in SANTA CLARA (Next 10 Years)

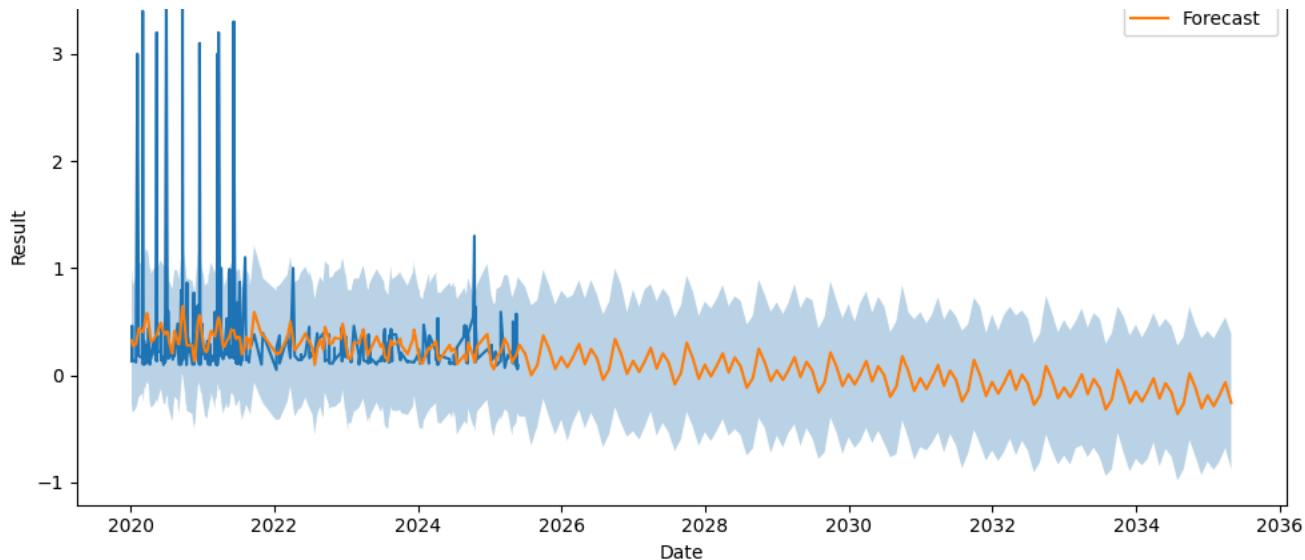


ARSENIC Forecast in SANTA CRUZ (Next 10 Years)

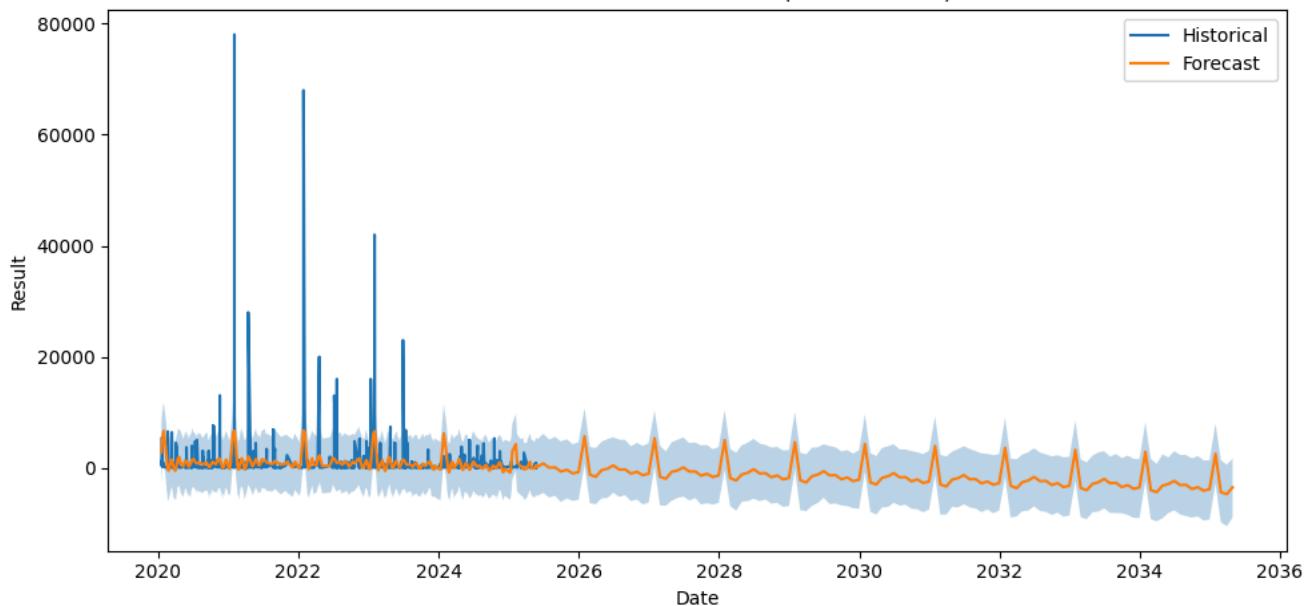


FLUORIDE Forecast in SANTA CRUZ (Next 10 Years)

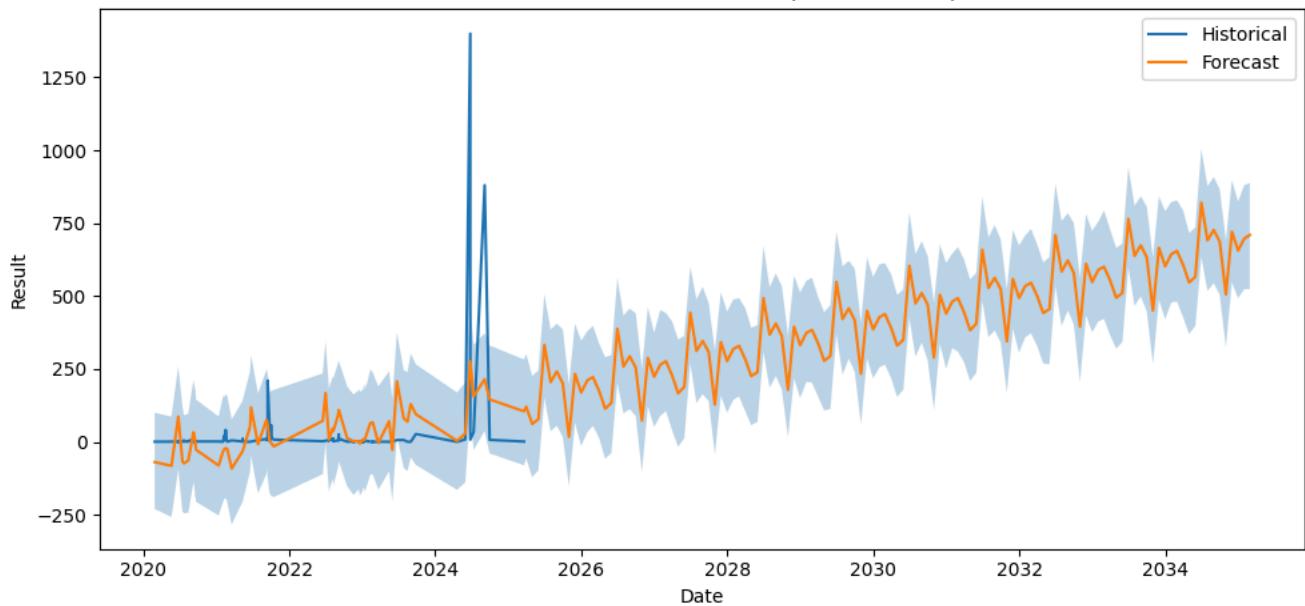




IRON Forecast in SANTA CRUZ (Next 10 Years)

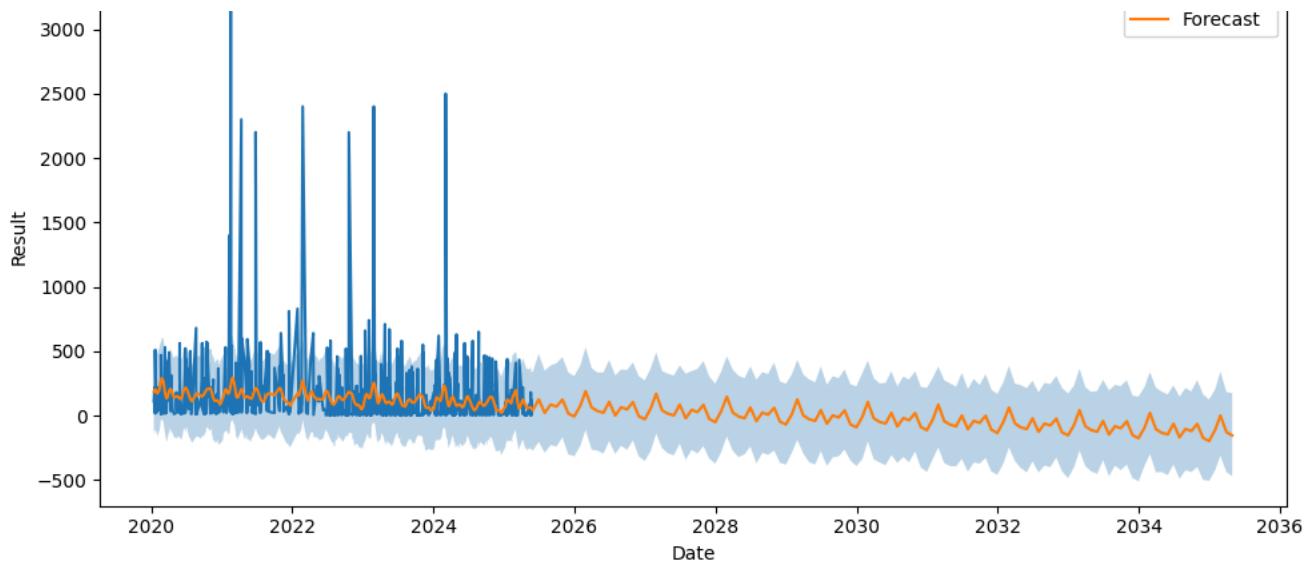


LEAD Forecast in SANTA CRUZ (Next 10 Years)

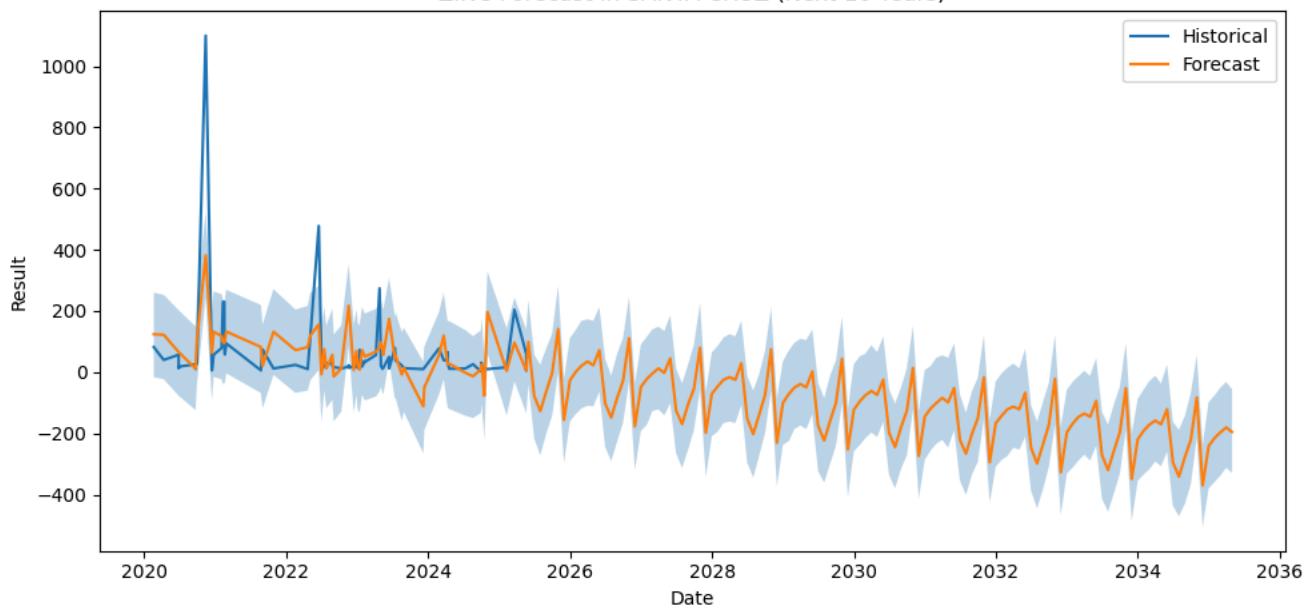


MANGANESE Forecast in SANTA CRUZ (Next 10 Years)

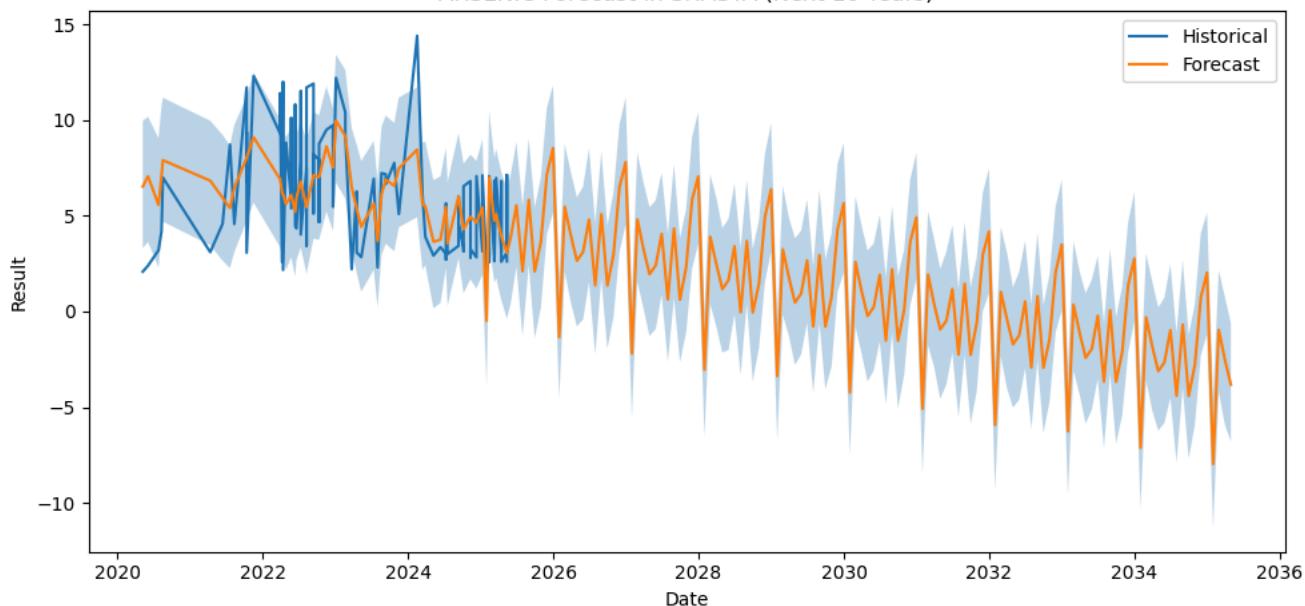




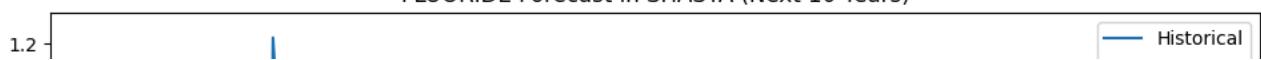
ZINC Forecast in SANTA CRUZ (Next 10 Years)

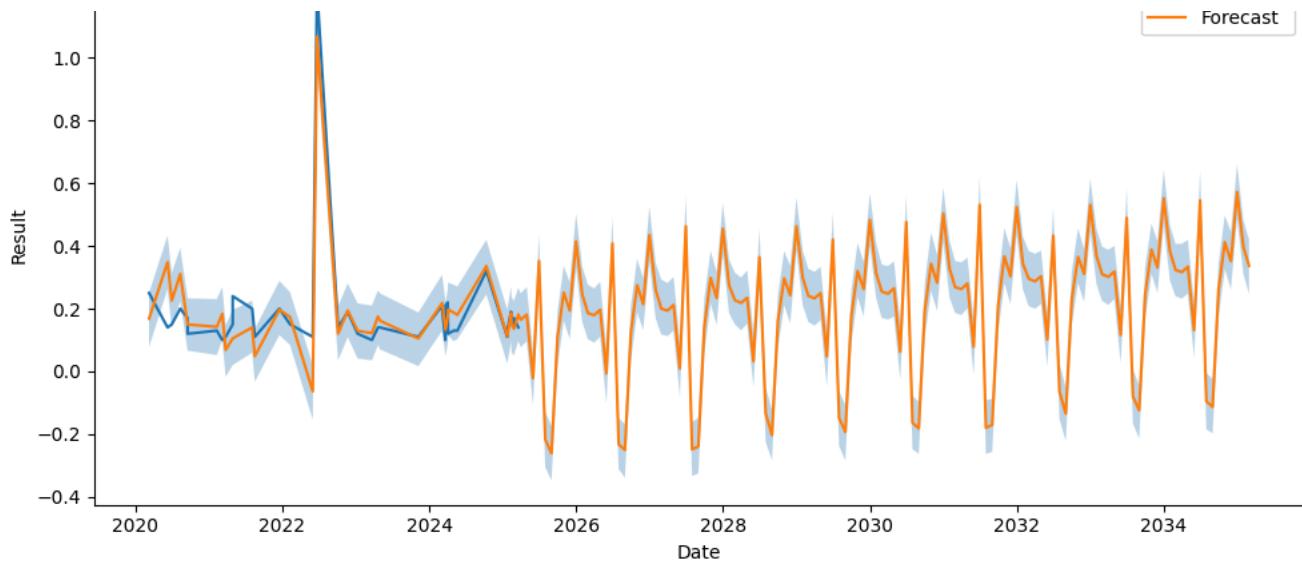


ARSENIC Forecast in SHASTA (Next 10 Years)

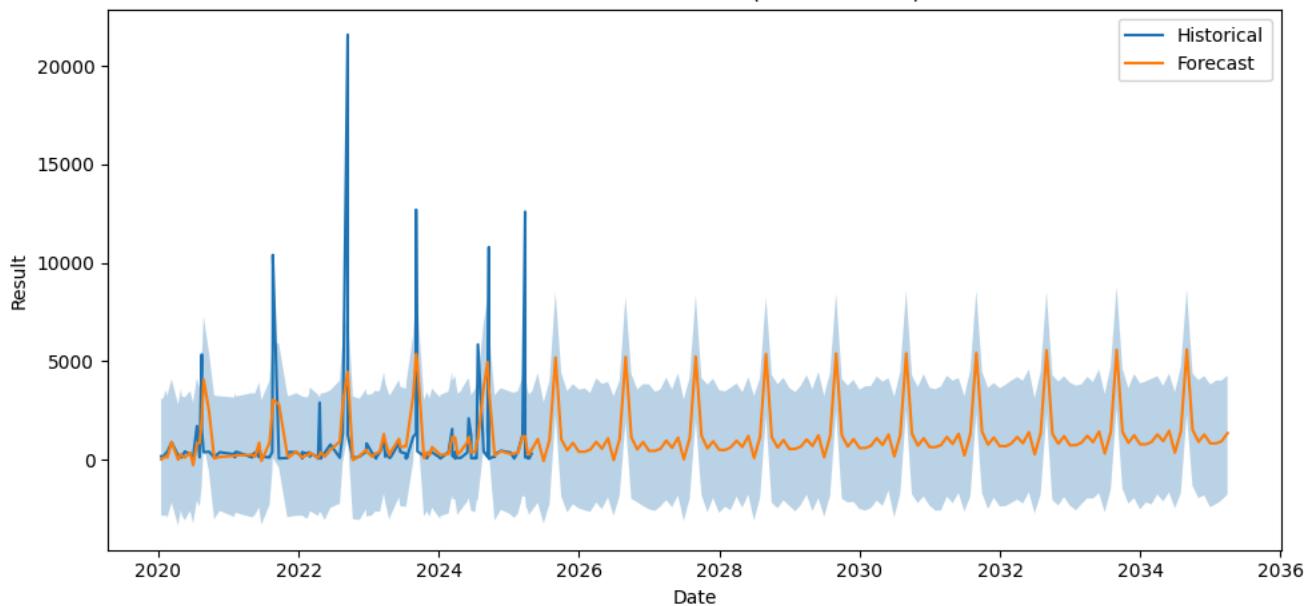


FLUORIDE Forecast in SHASTA (Next 10 Years)

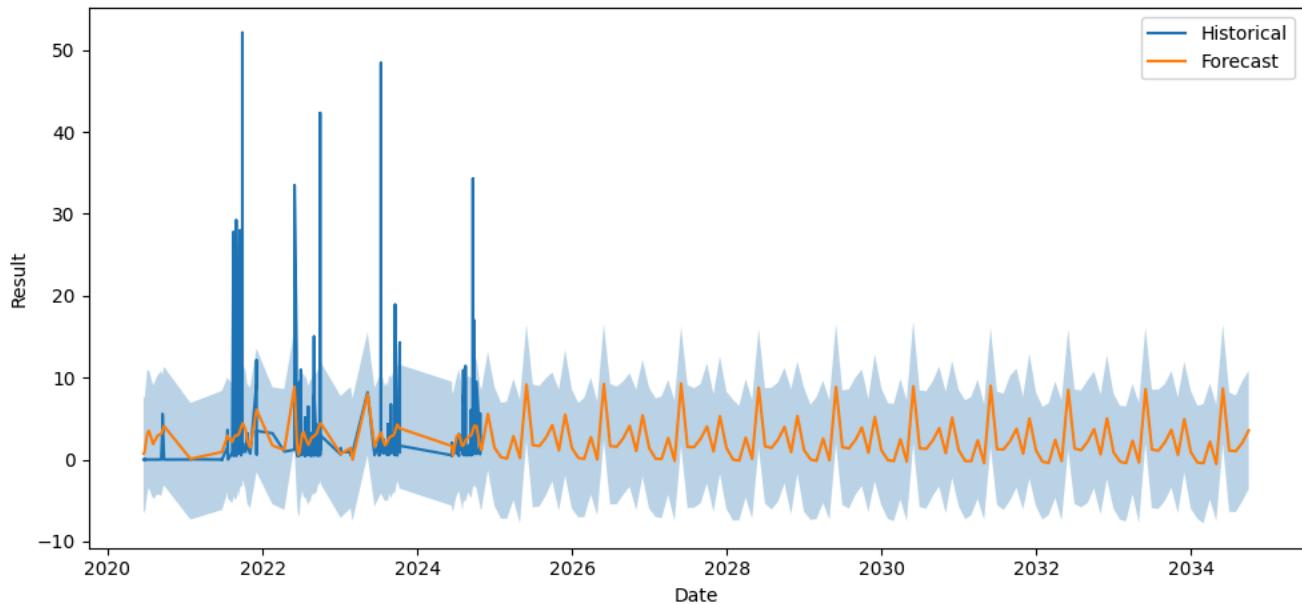




IRON Forecast in SHASTA (Next 10 Years)

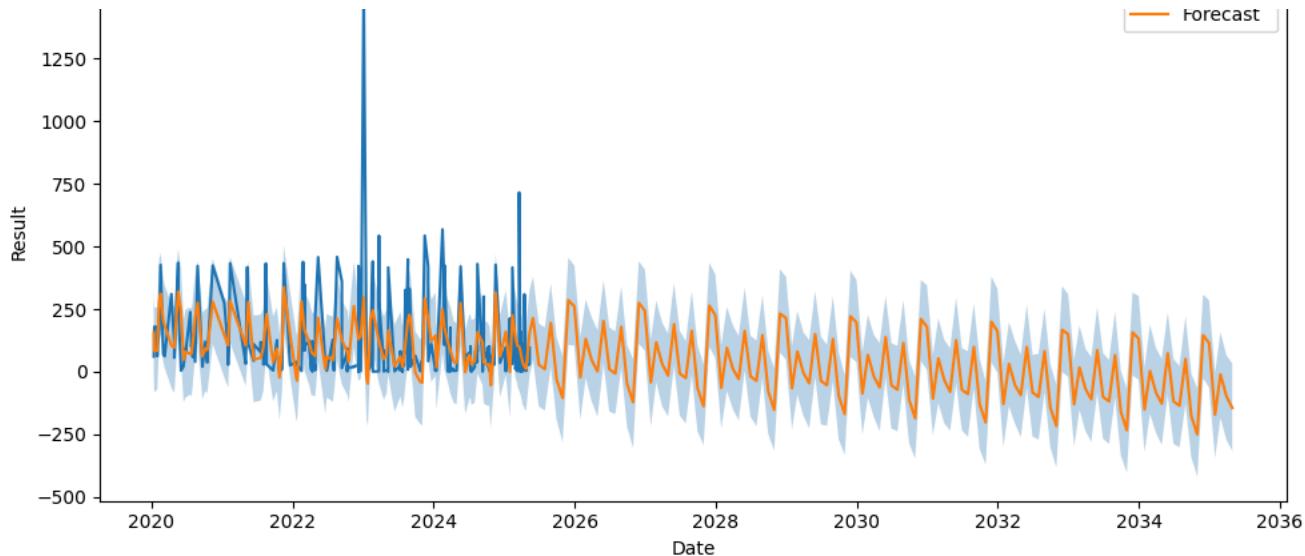


LEAD Forecast in SHASTA (Next 10 Years)

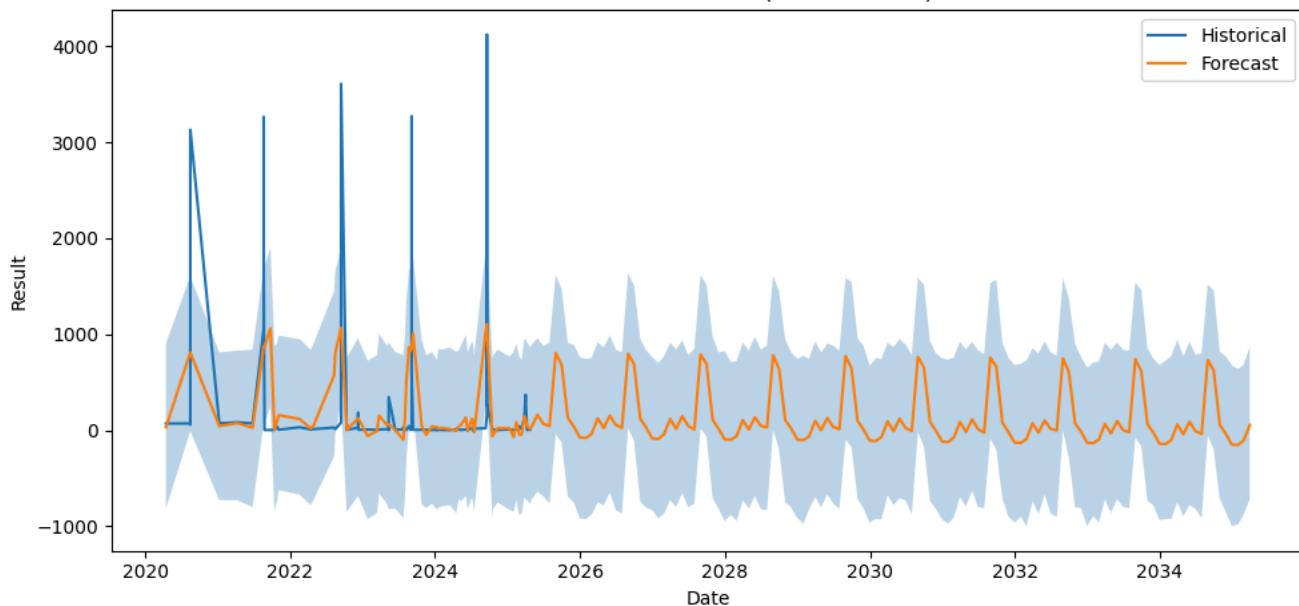


MANGANESE Forecast in SHASTA (Next 10 Years)

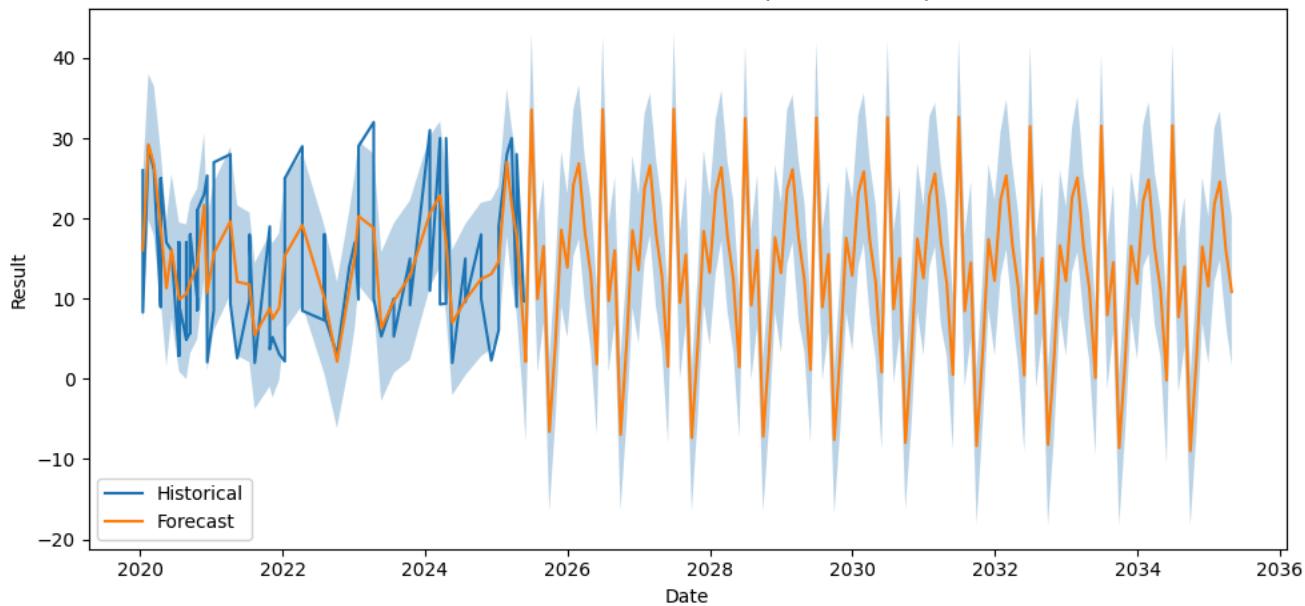




ZINC Forecast in SHASTA (Next 10 Years)



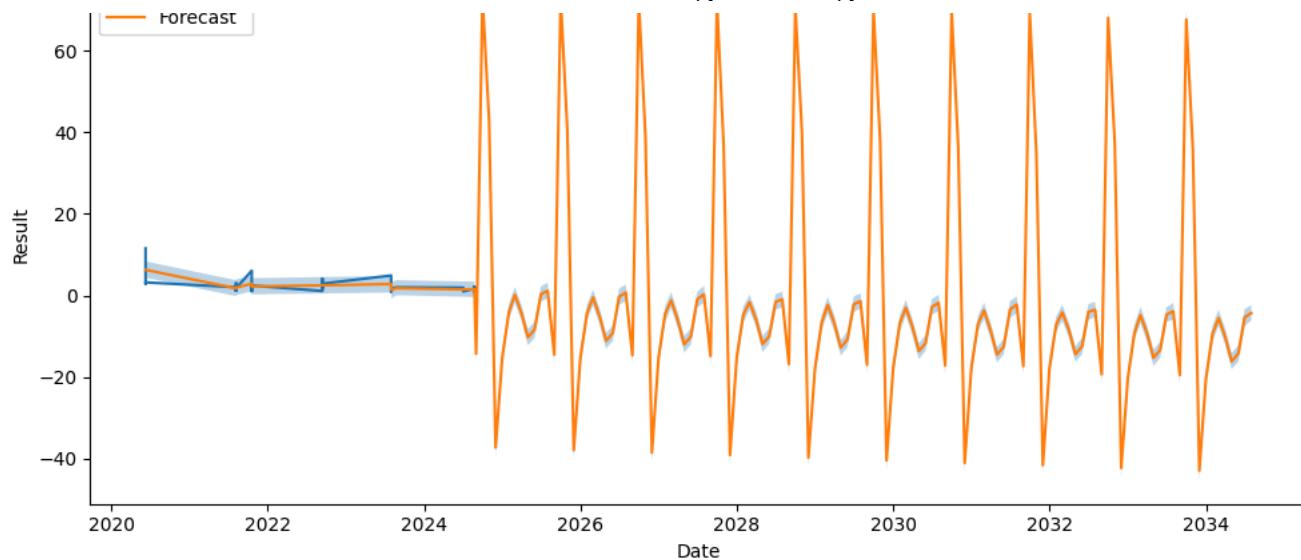
ZINC Forecast in SHASTA (Next 10 Years)



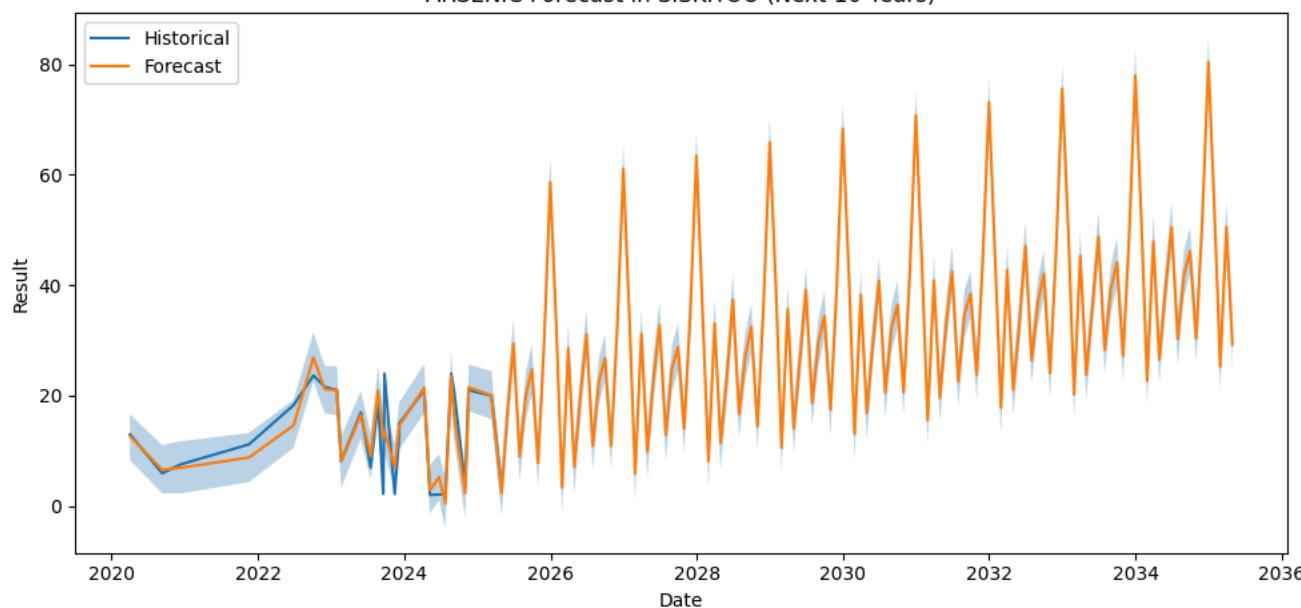
ARSENIC Forecast in SIERRA (Next 10 Years)



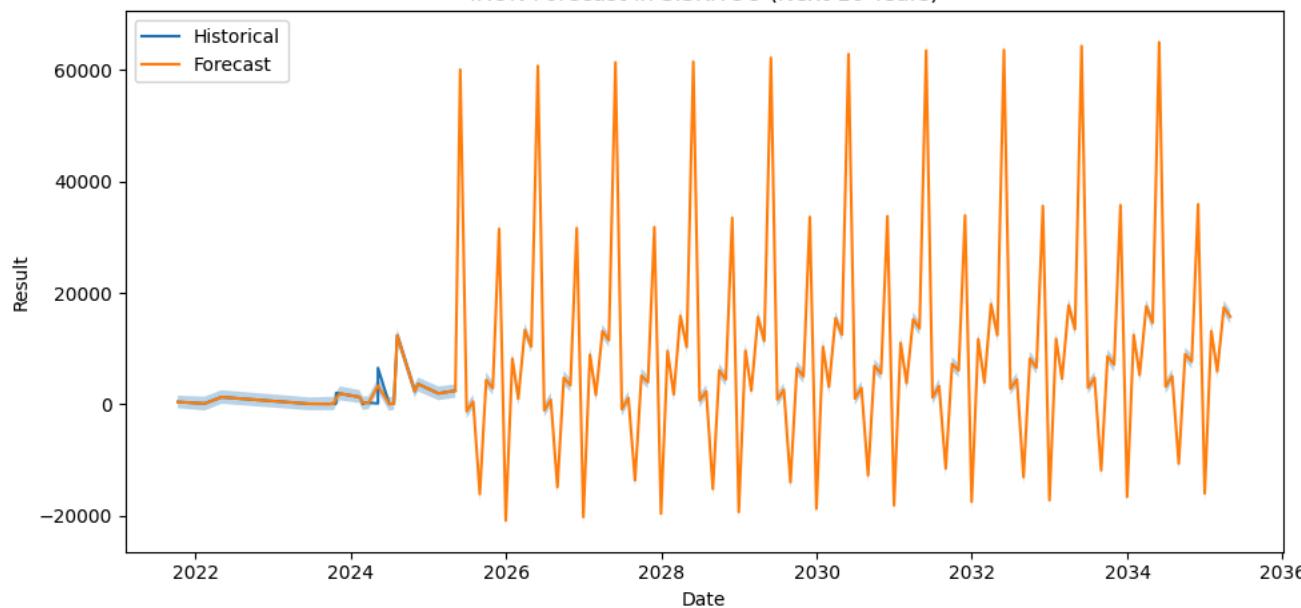
LEAD Forecast in SIERRA (Next 10 Years)



ARSENIC Forecast in SISKIYOU (Next 10 Years)

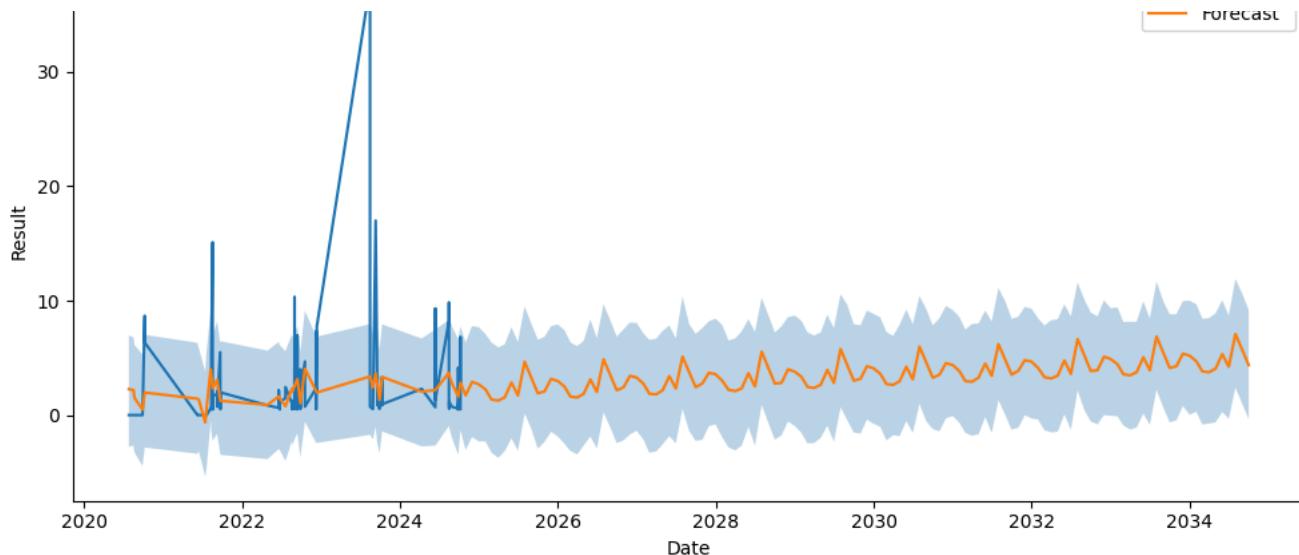


IRON Forecast in SISKIYOU (Next 10 Years)

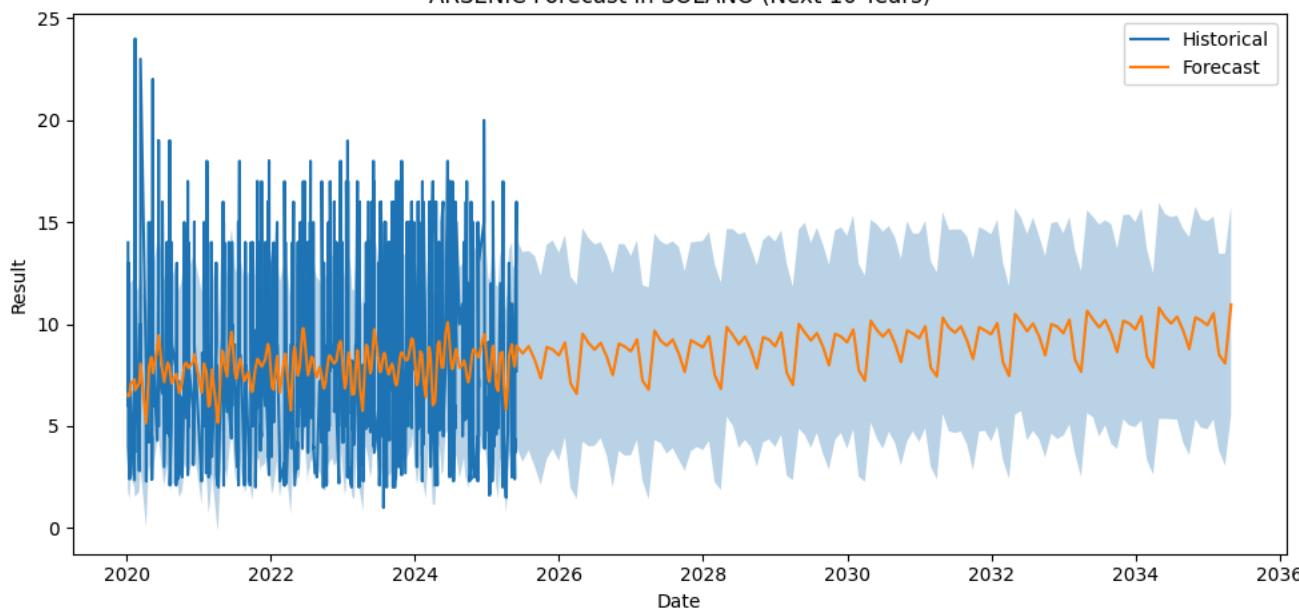


LEAD Forecast in SISKIYOU (Next 10 Years)

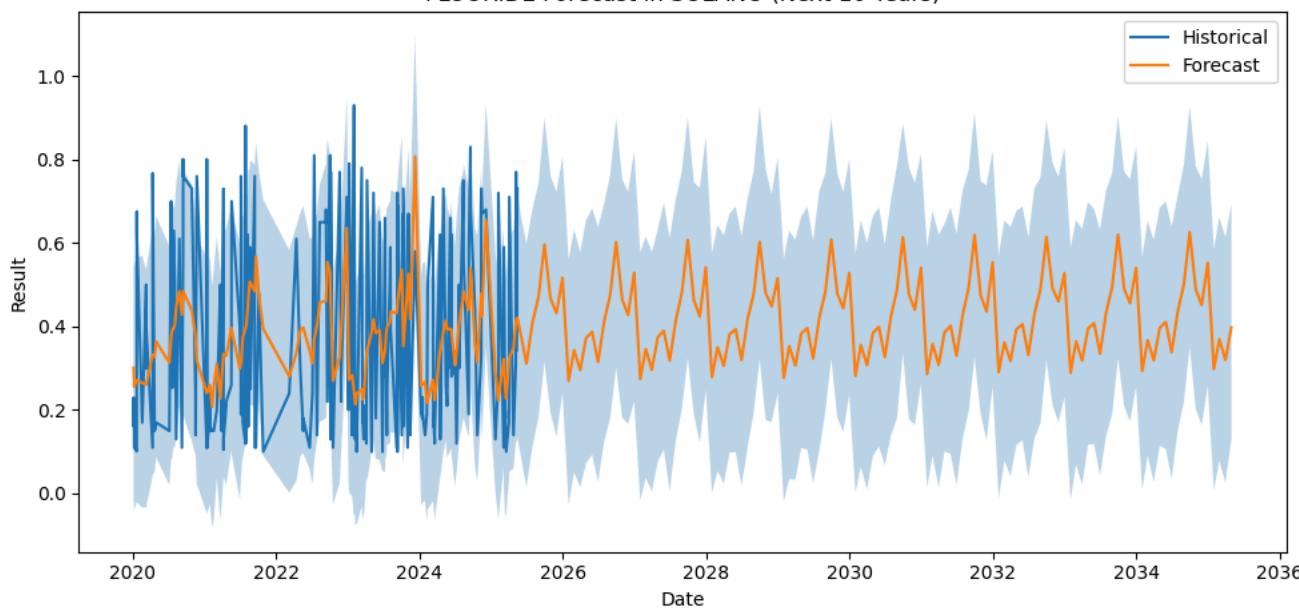




ARSENIC Forecast in SOLANO (Next 10 Years)

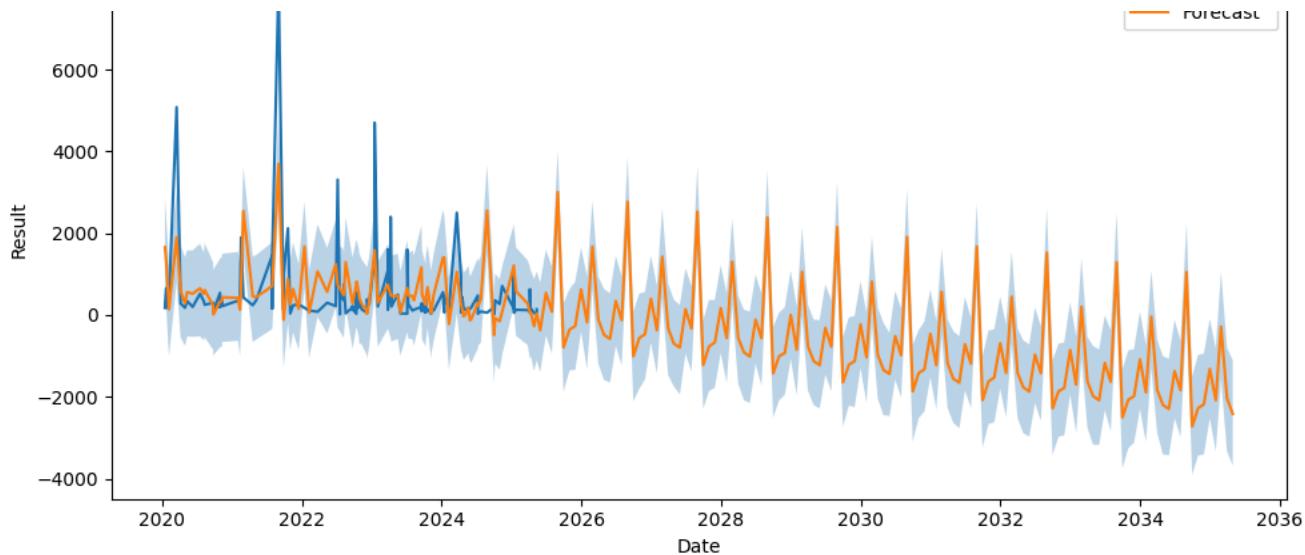


FLUORIDE Forecast in SOLANO (Next 10 Years)

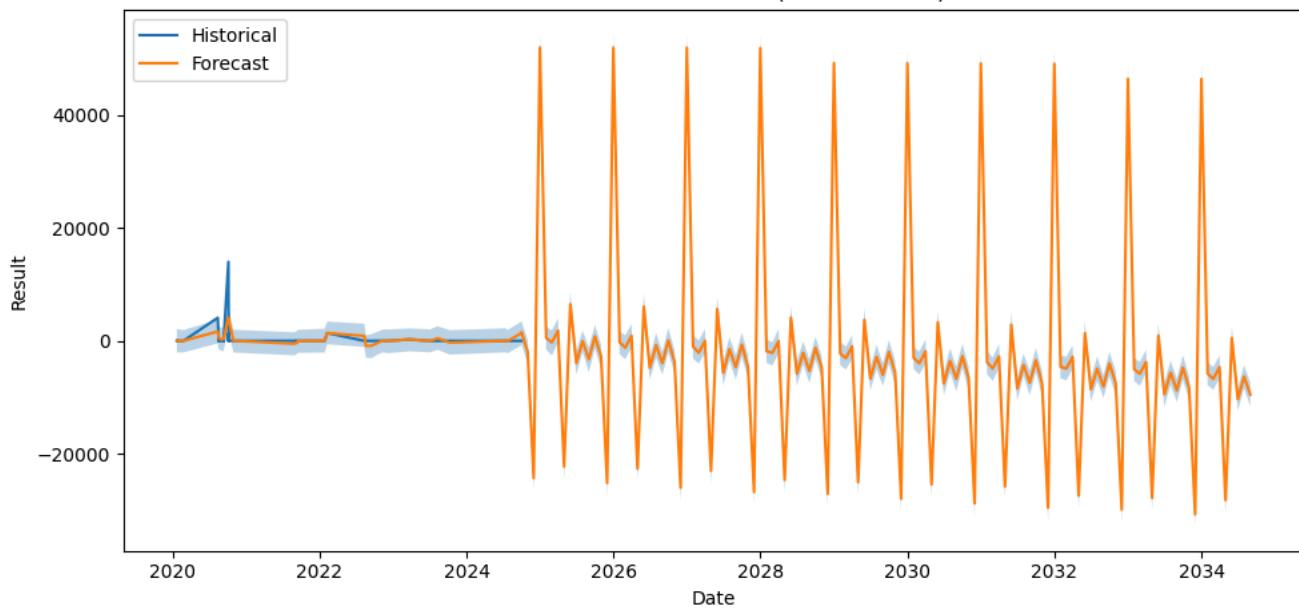


IRON Forecast in SOLANO (Next 10 Years)

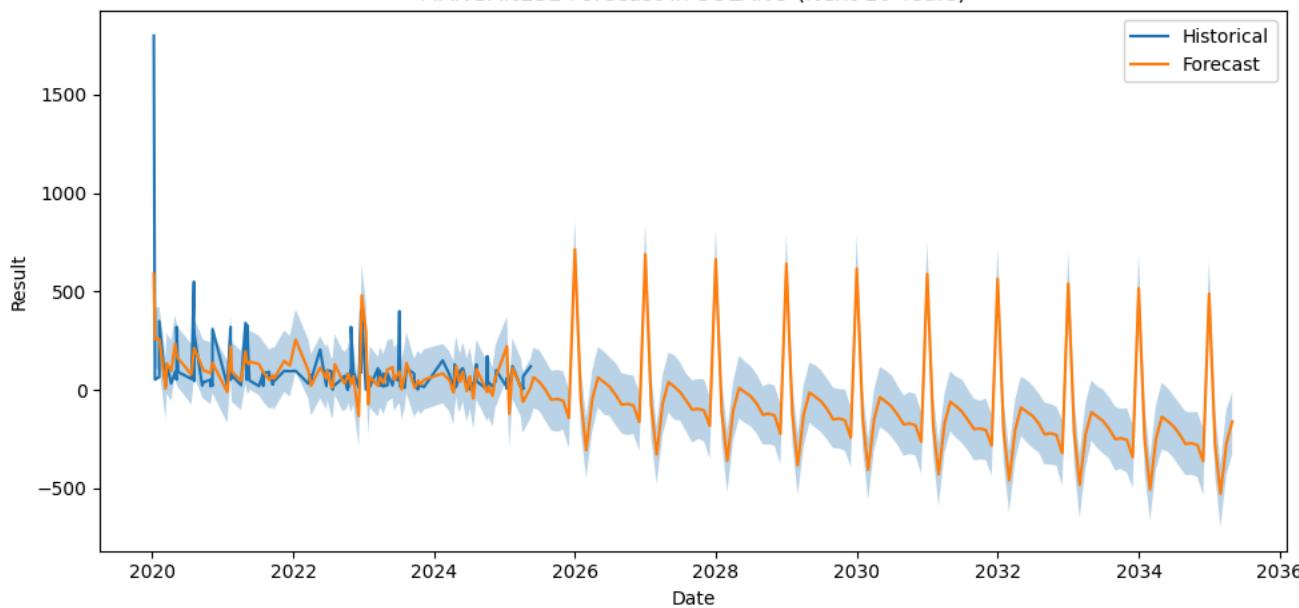




LEAD Forecast in SOLANO (Next 10 Years)

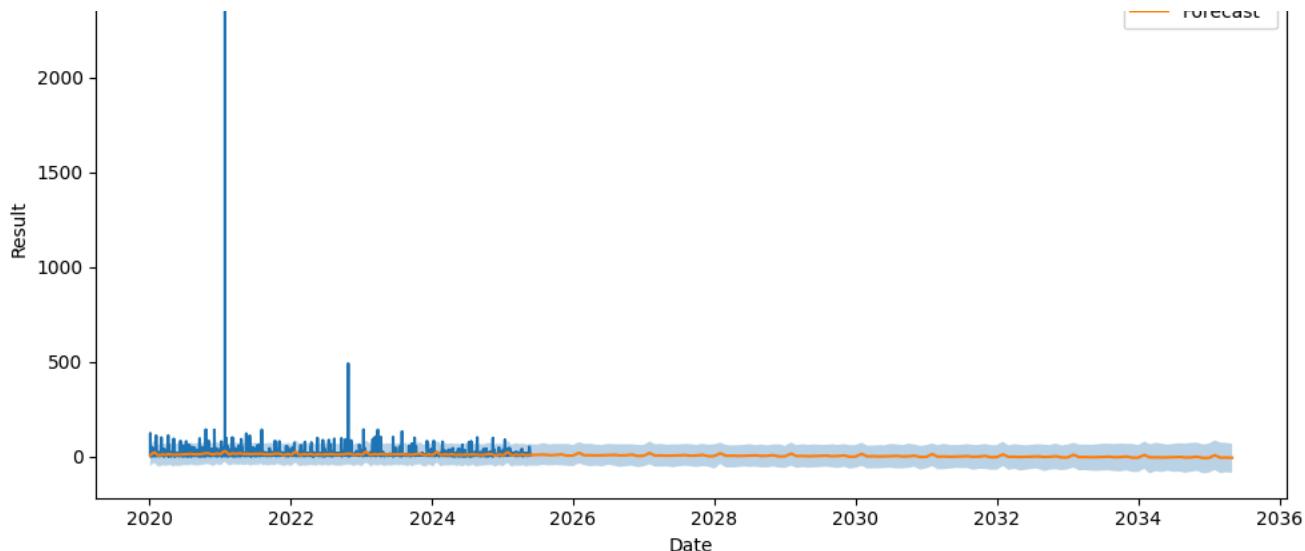


MANGANESE Forecast in SOLANO (Next 10 Years)

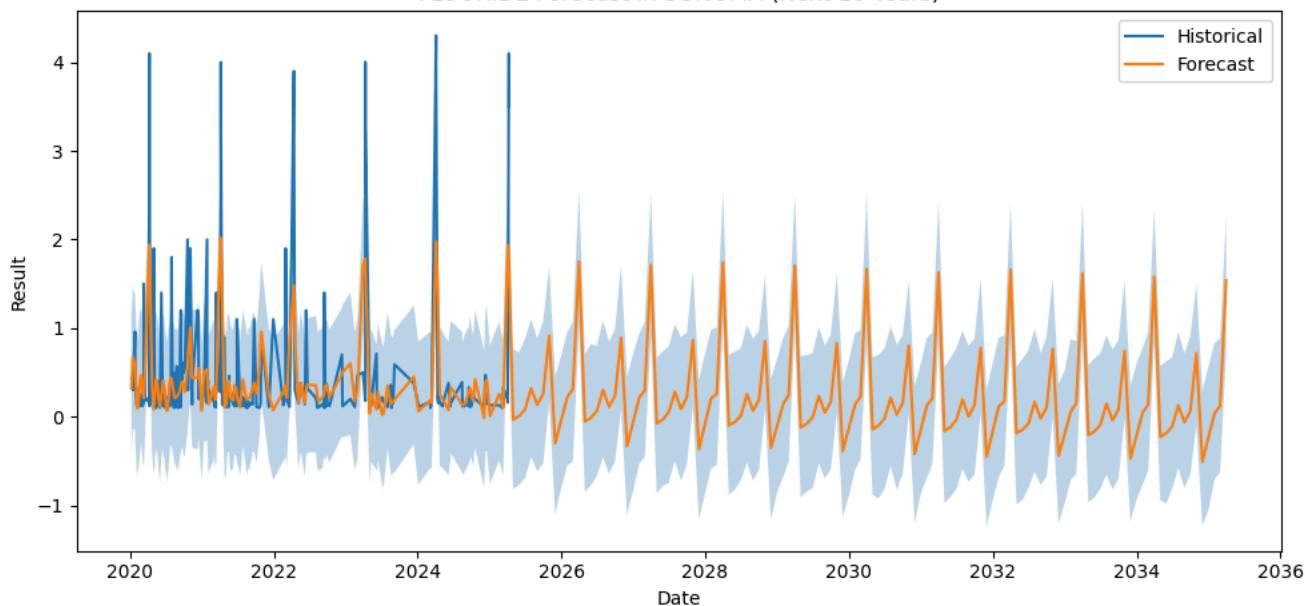


ARSENIC Forecast in SONOMA (Next 10 Years)

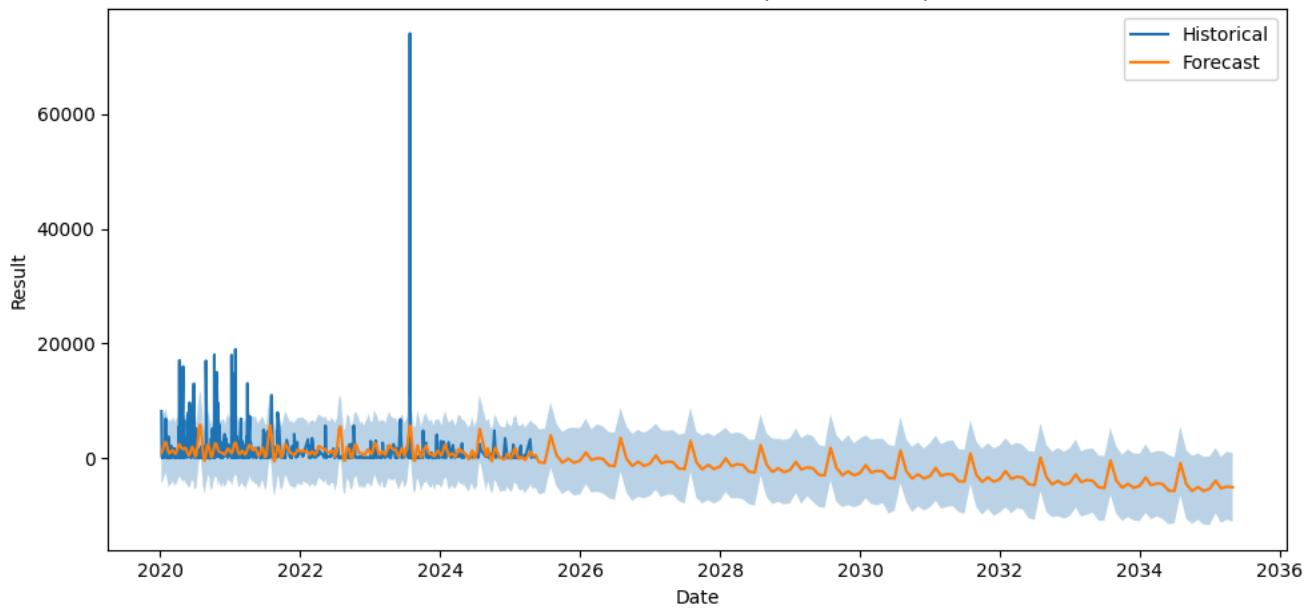




FLUORIDE Forecast in SONOMA (Next 10 Years)

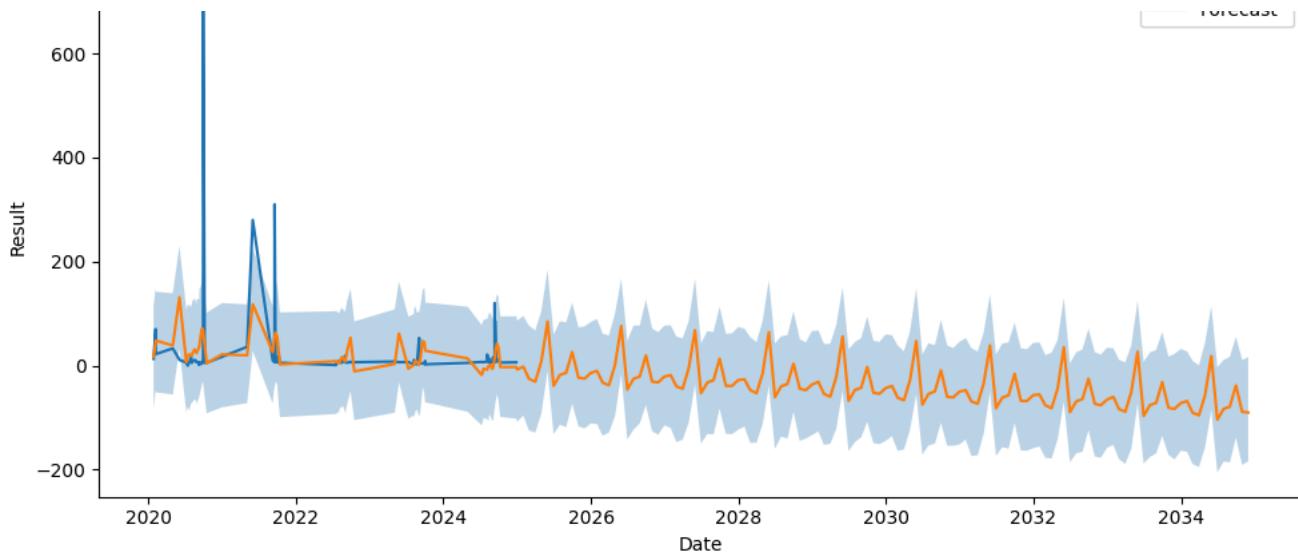


IRON Forecast in SONOMA (Next 10 Years)

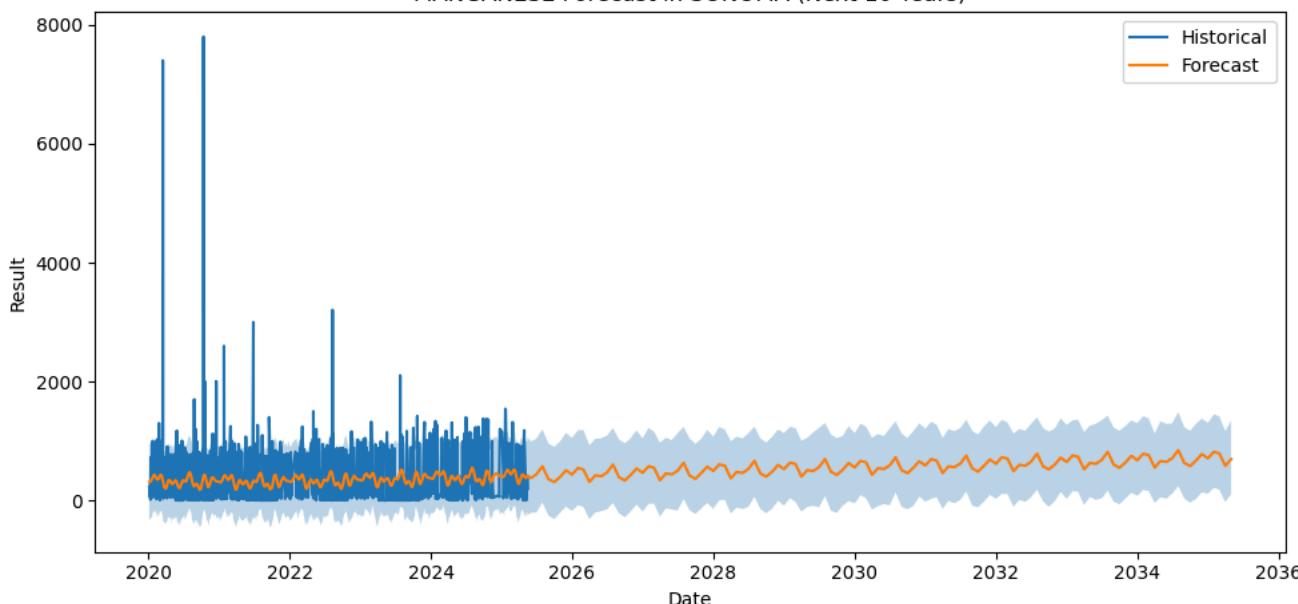


LEAD Forecast in SONOMA (Next 10 Years)

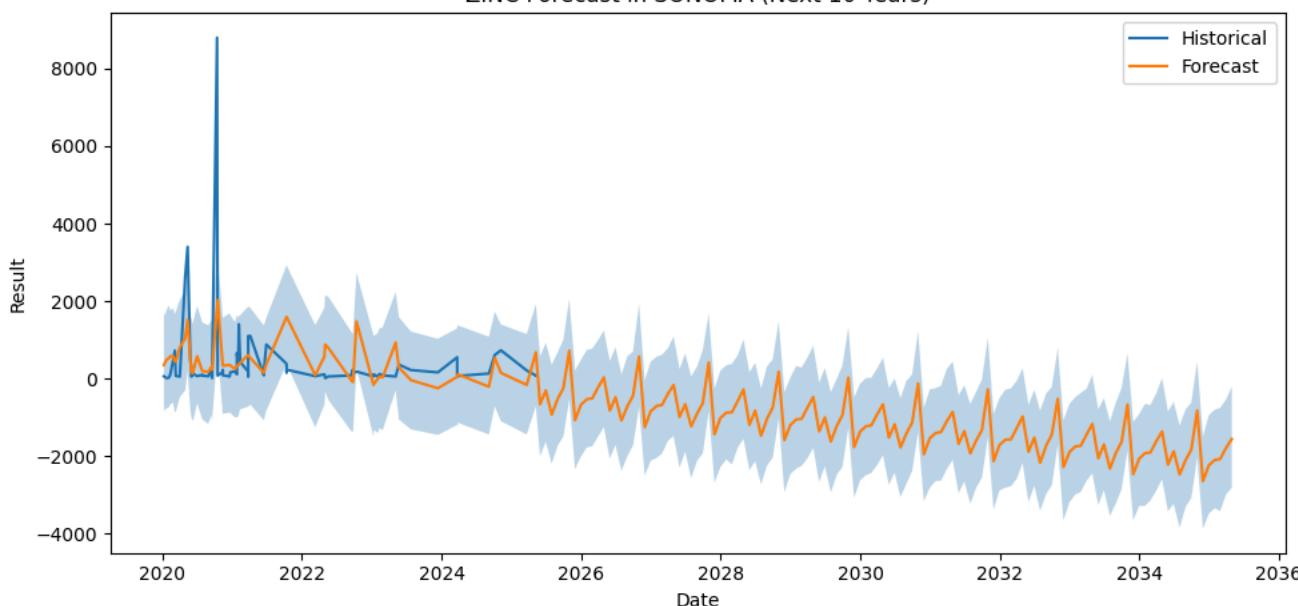




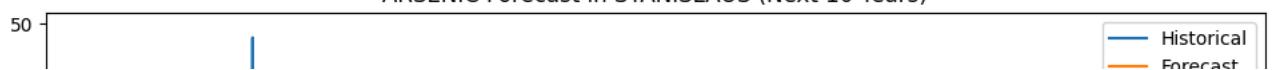
MANGANESE Forecast in SONOMA (Next 10 Years)

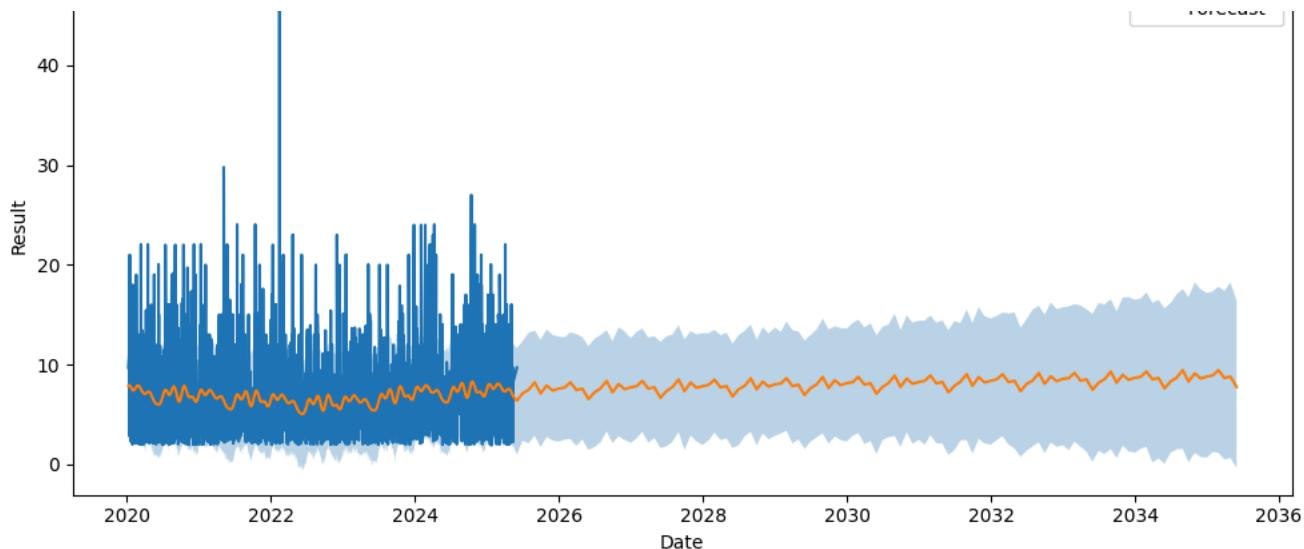


ZINC Forecast in SONOMA (Next 10 Years)

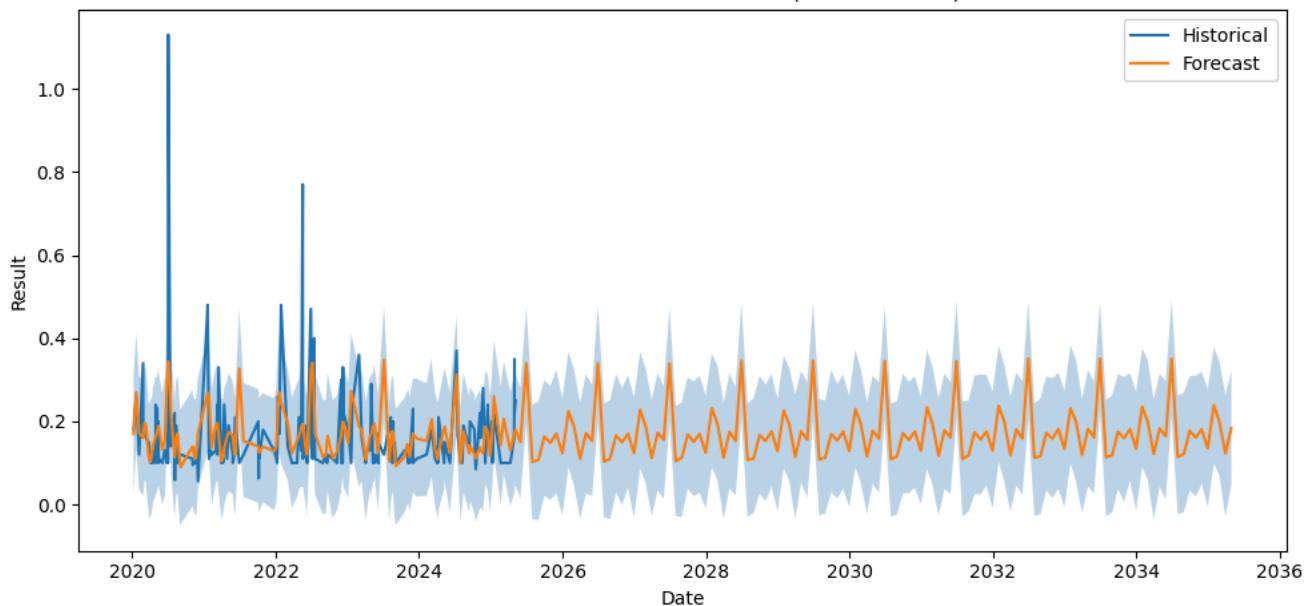


ARSENIC Forecast in STANISLAUS (Next 10 Years)

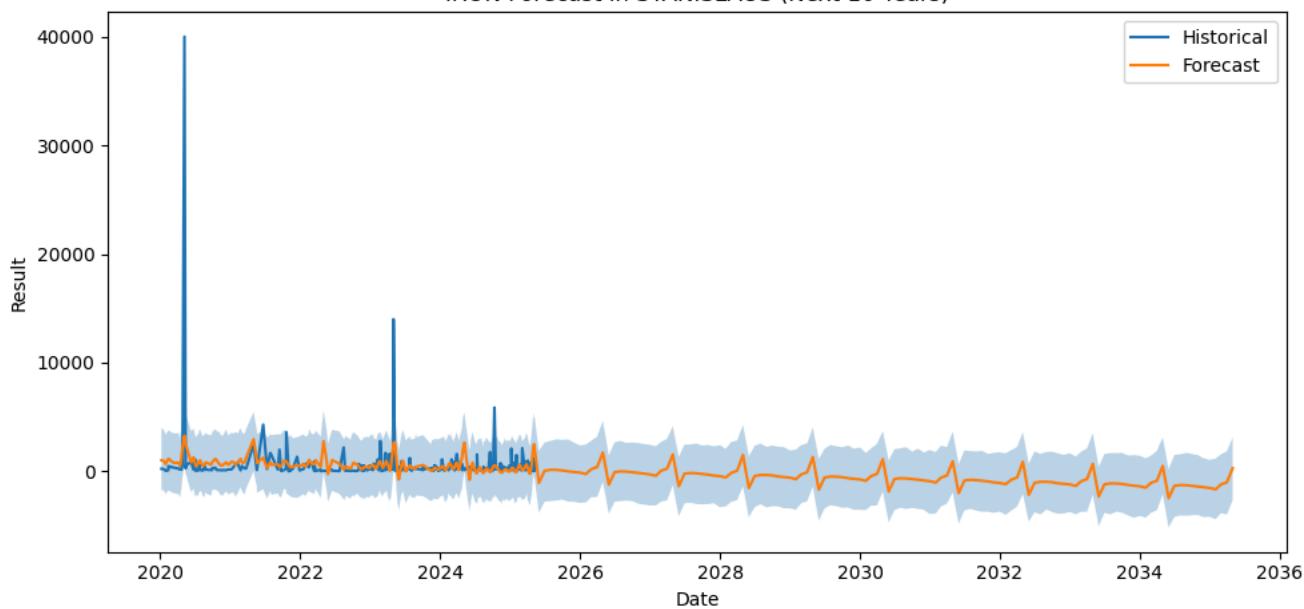




FLUORIDE Forecast in STANISLAUS (Next 10 Years)

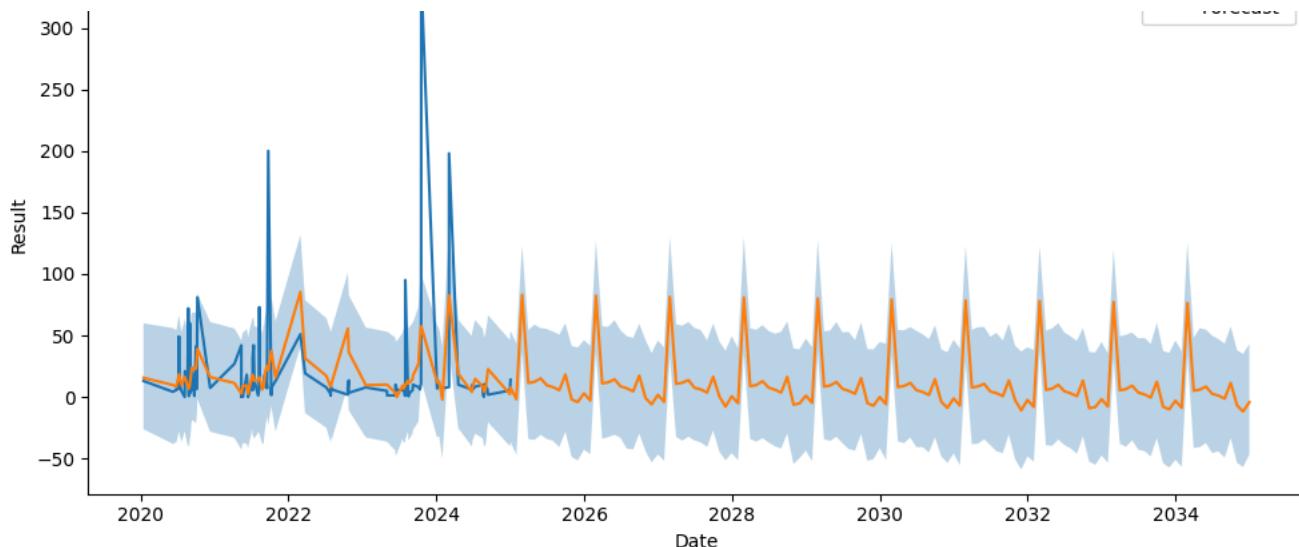


IRON Forecast in STANISLAUS (Next 10 Years)

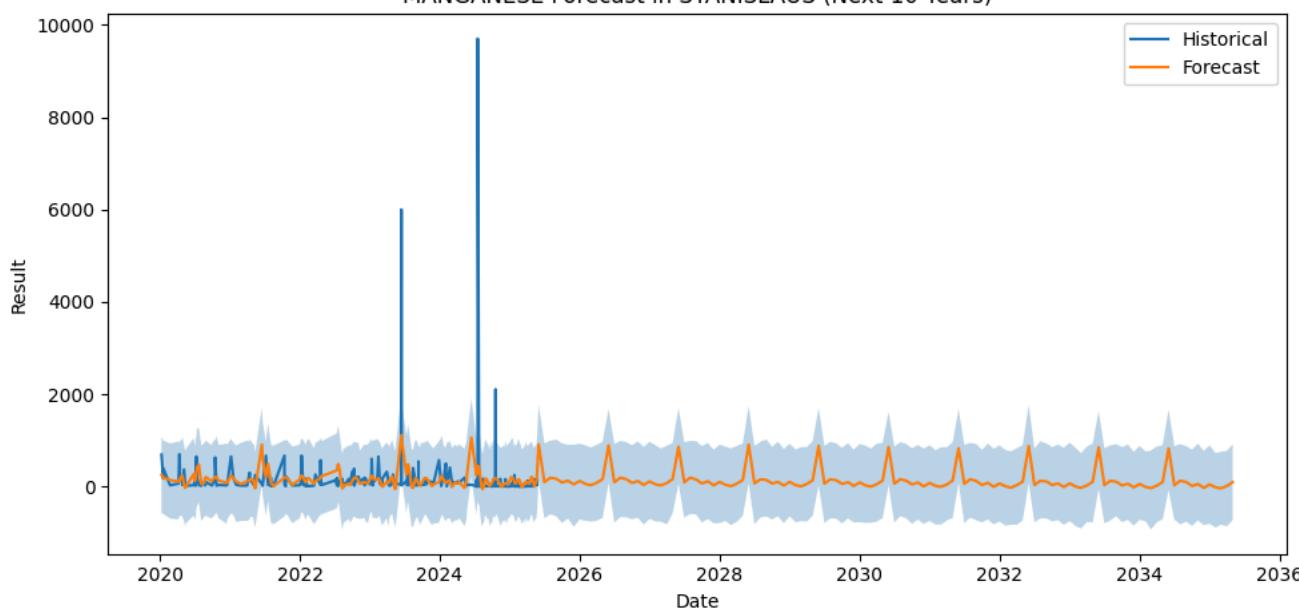


LEAD Forecast in STANISLAUS (Next 10 Years)

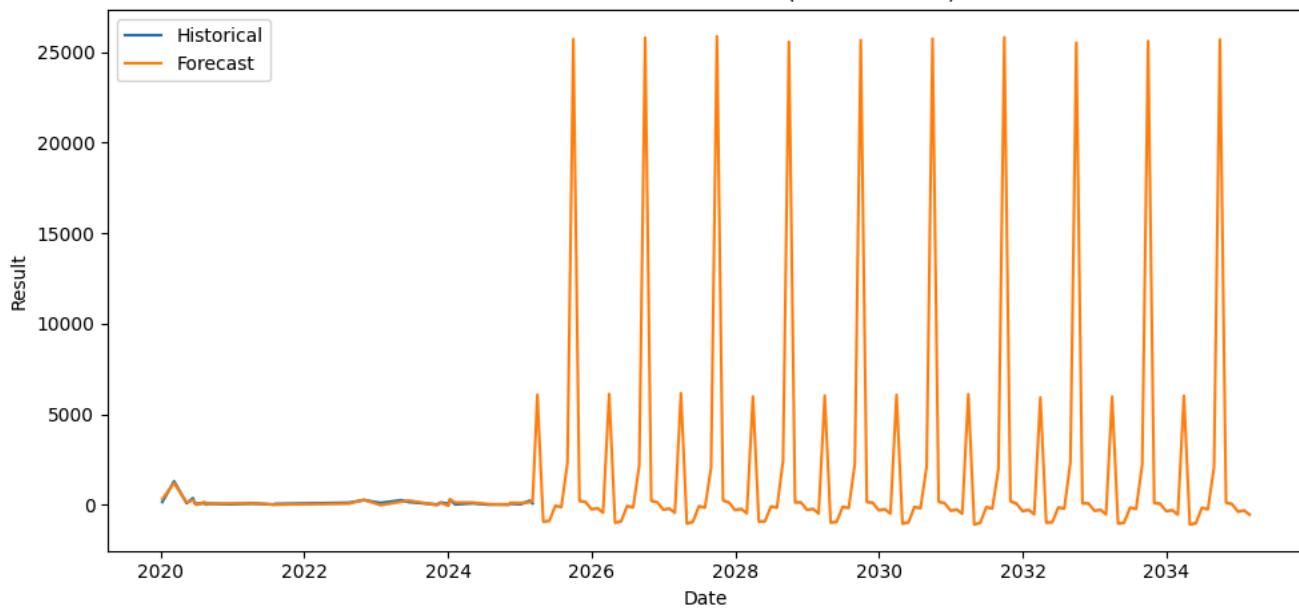




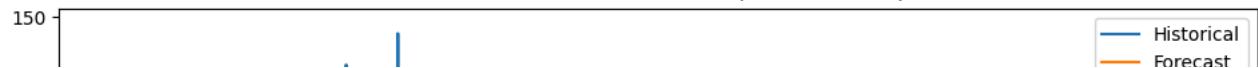
MANGANESE Forecast in STANISLAUS (Next 10 Years)

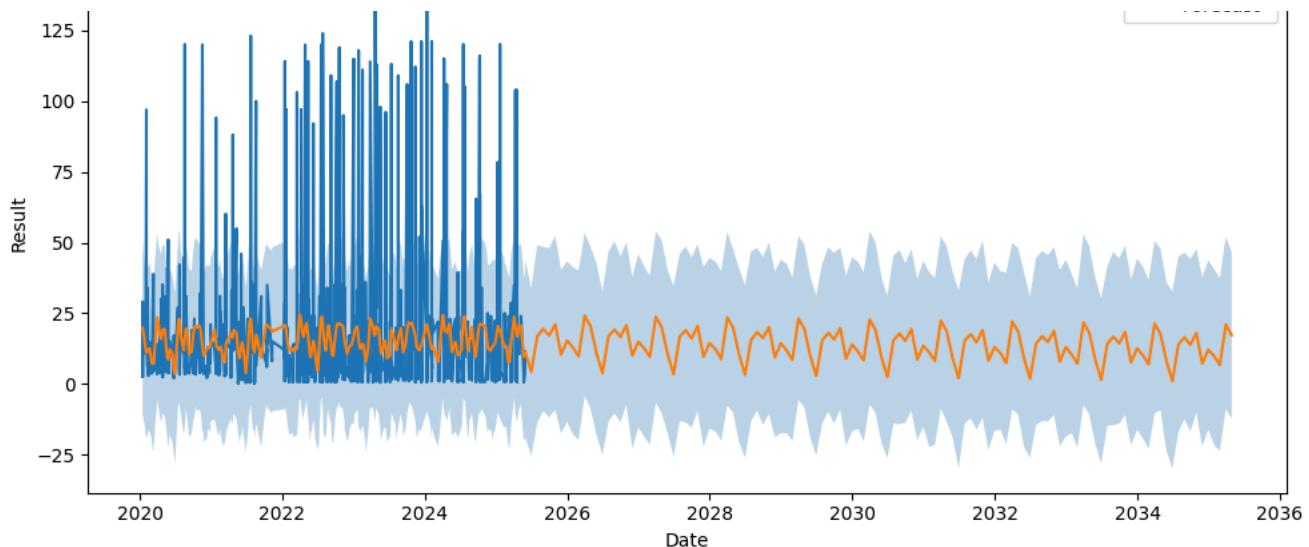


ZINC Forecast in STANISLAUS (Next 10 Years)

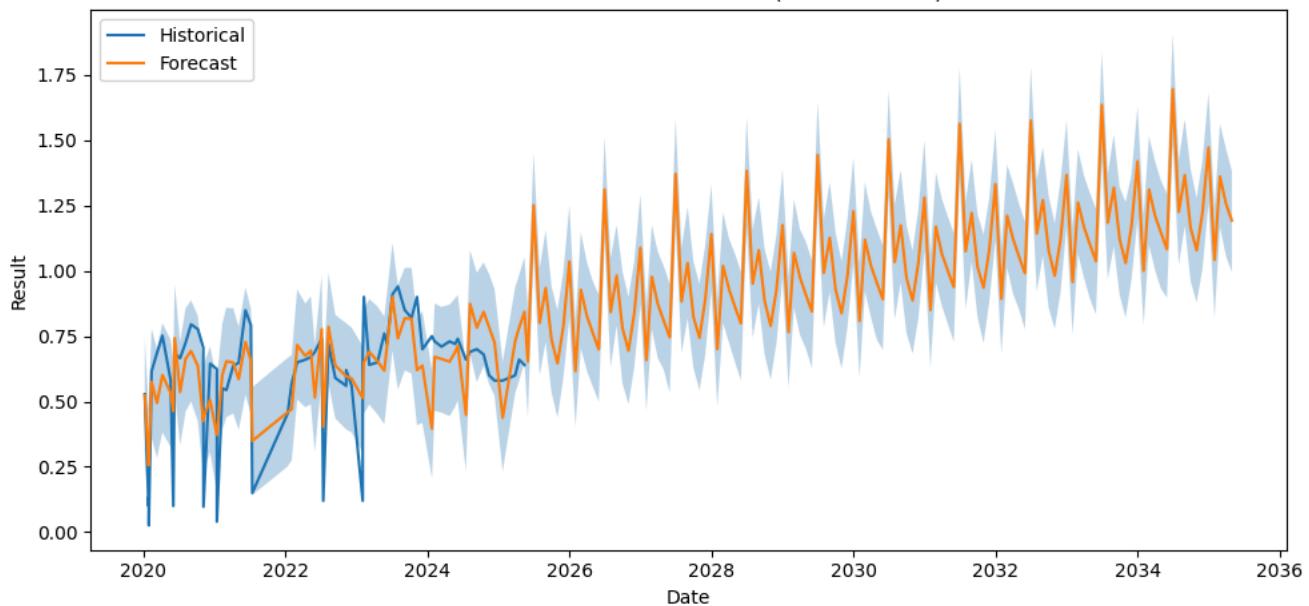


ARSENIC Forecast in SUTTER (Next 10 Years)

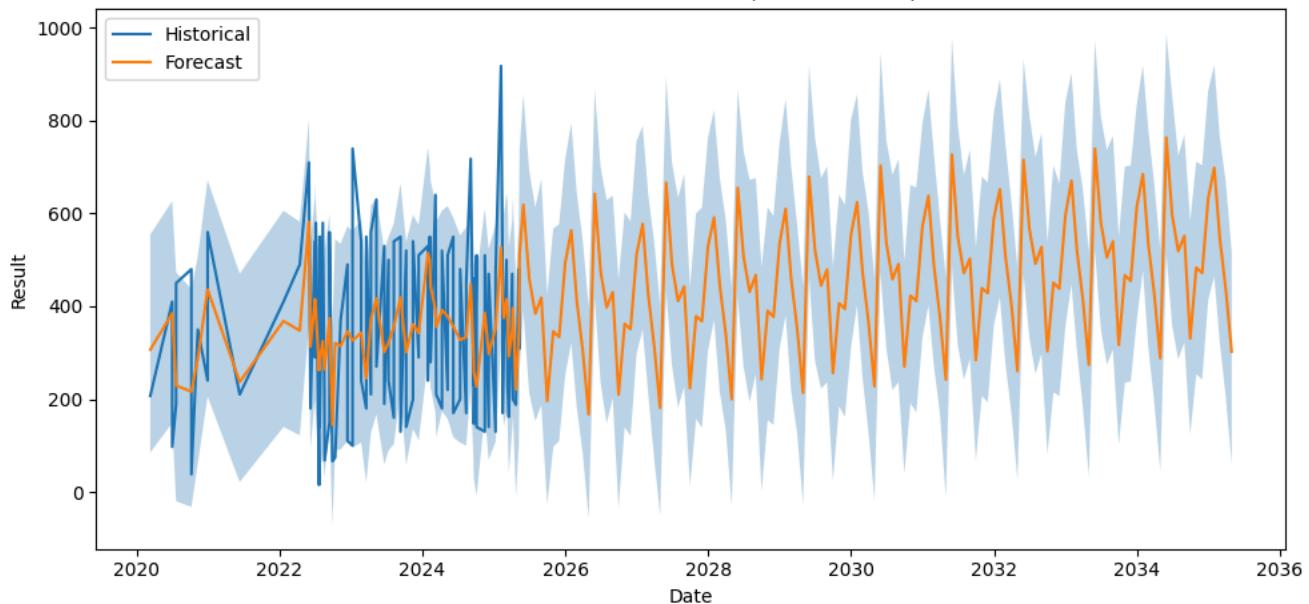




FLUORIDE Forecast in SUTTER (Next 10 Years)

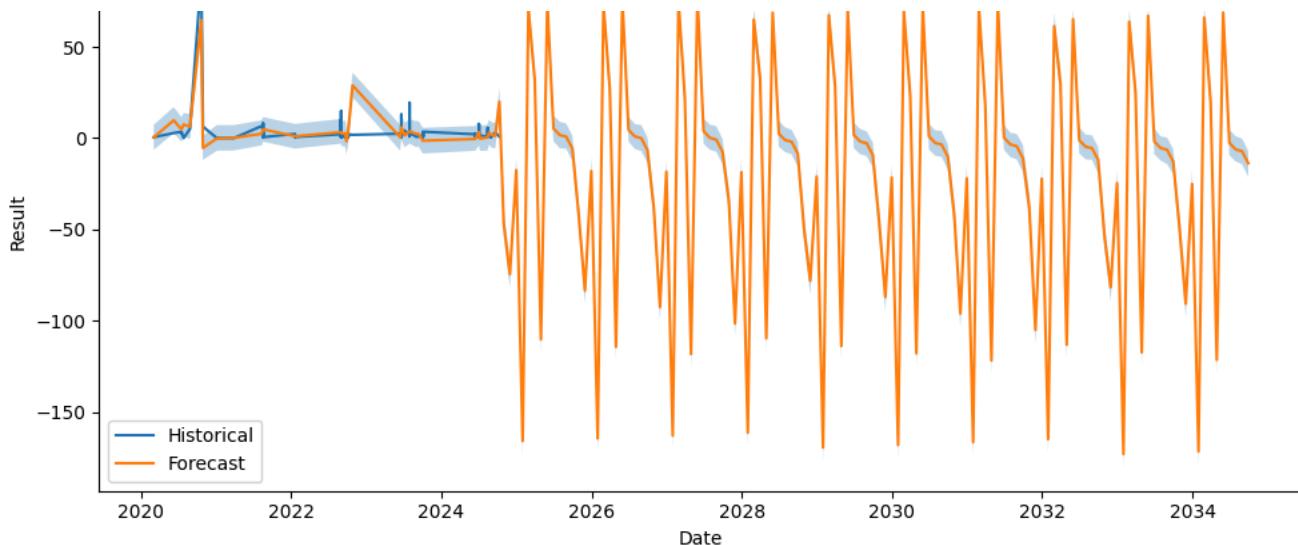


FLUORIDE Forecast in SUTTER (Next 10 Years)

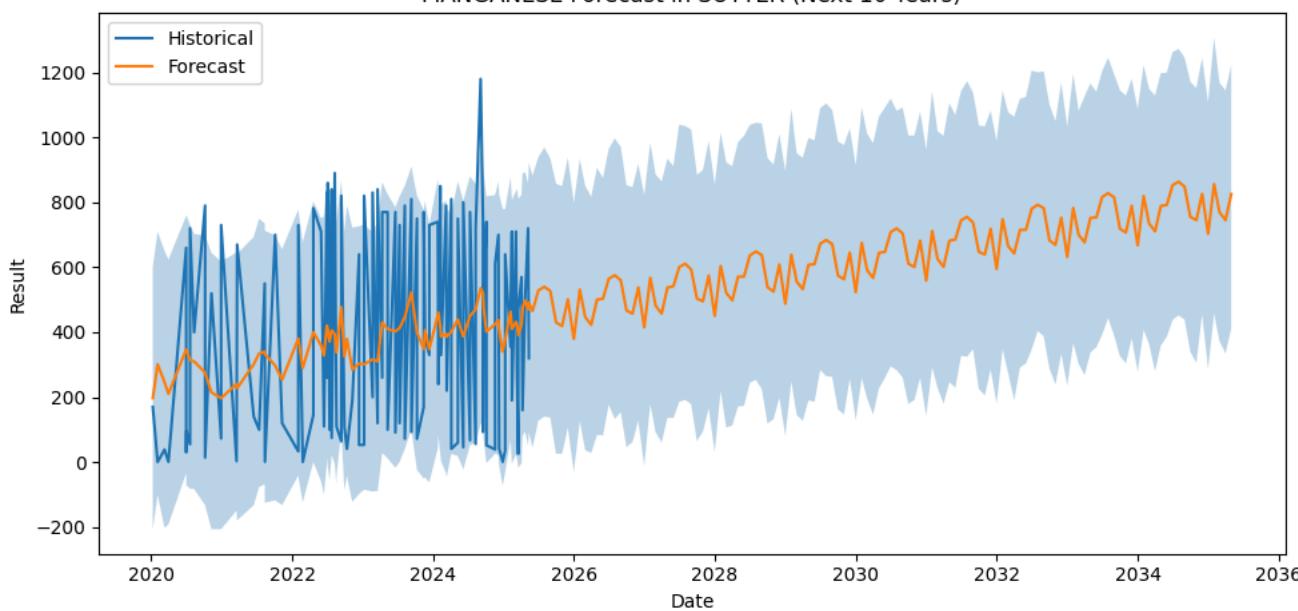


IRON Forecast in SUTTER (Next 10 Years)

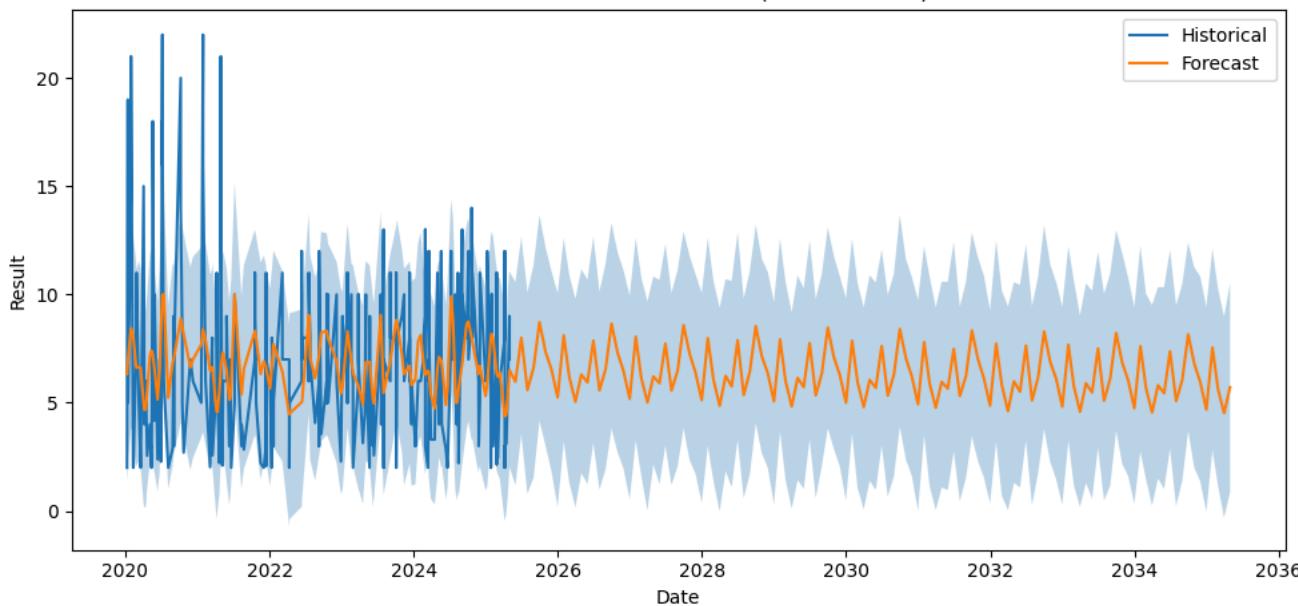




MANGANESE Forecast in SUTTER (Next 10 Years)

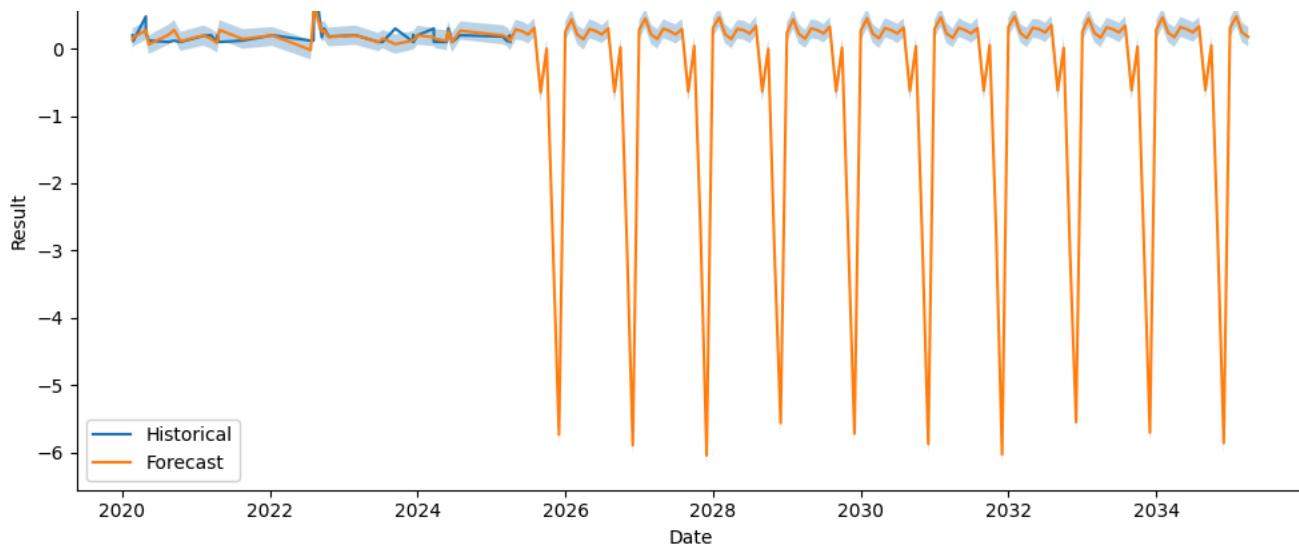


ARSENIC Forecast in TEHAMA (Next 10 Years)

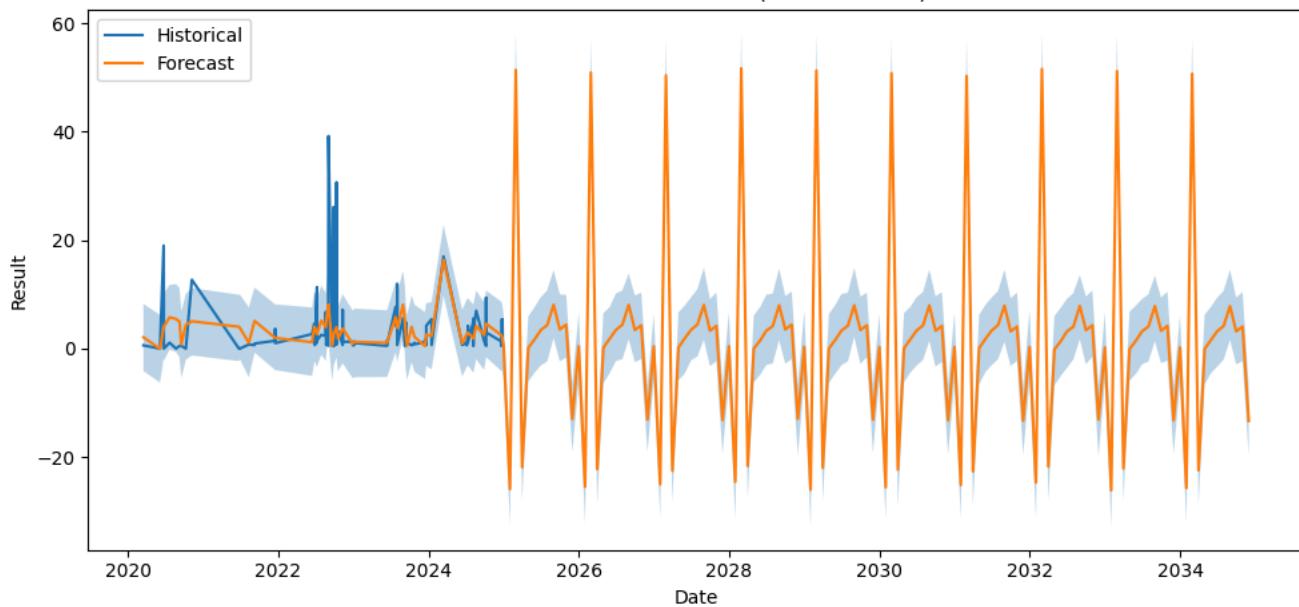


FLUORIDE Forecast in TEHAMA (Next 10 Years)

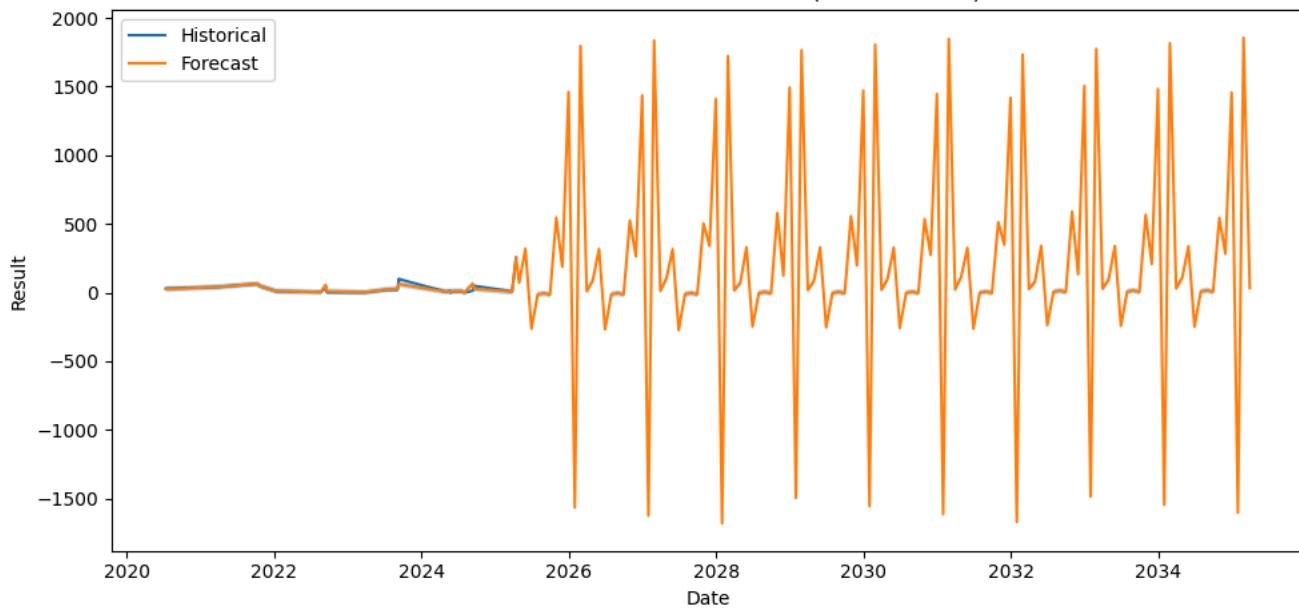




LEAD Forecast in TEHAMA (Next 10 Years)

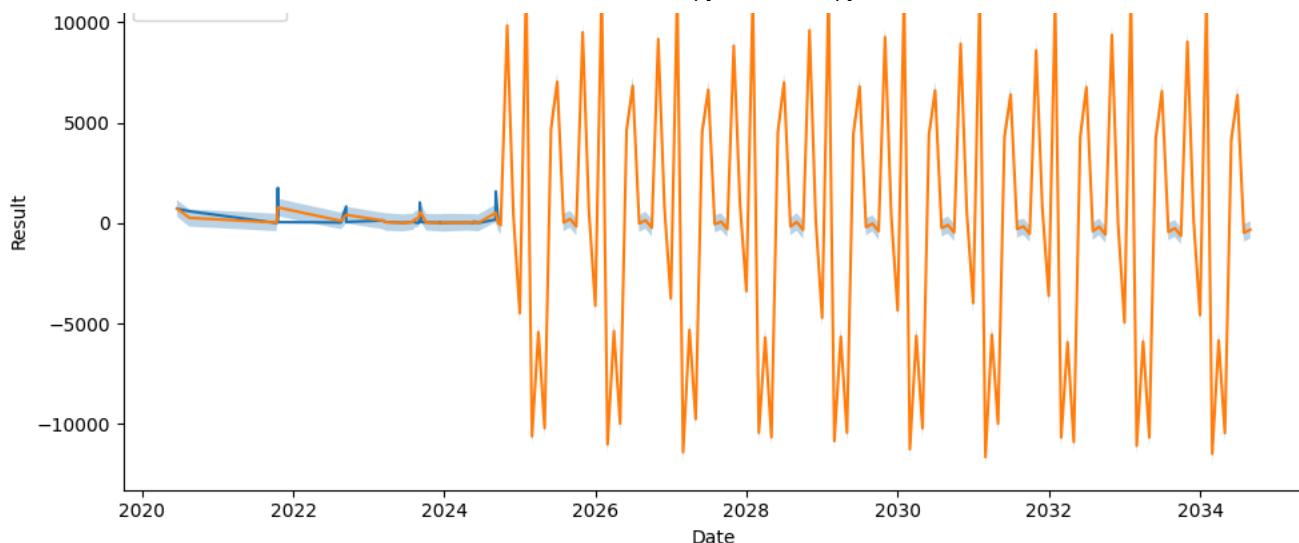


MANGANESE Forecast in TEHAMA (Next 10 Years)

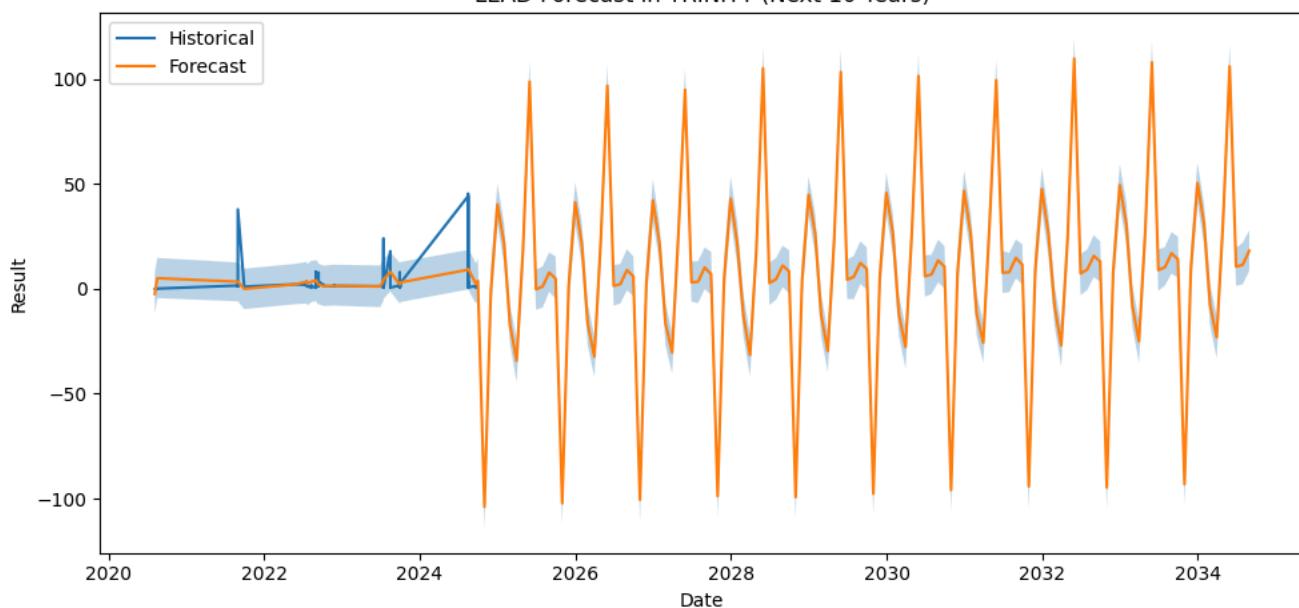


ZINC Forecast in TEHAMA (Next 10 Years)

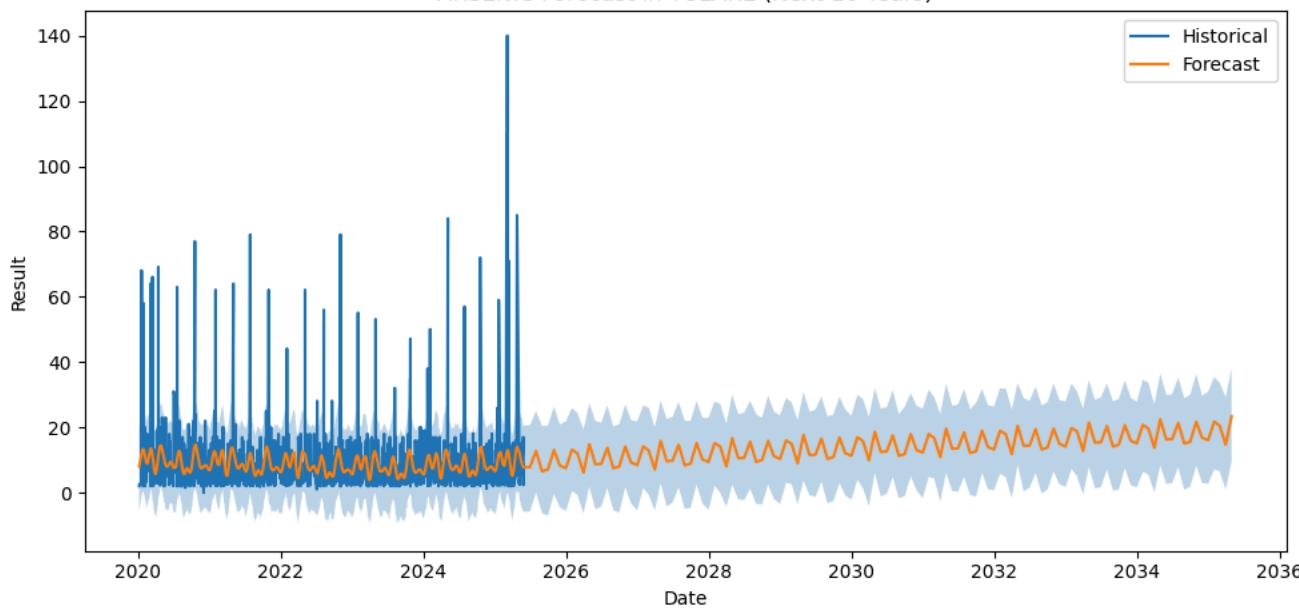




LEAD Forecast in TRINITY (Next 10 Years)

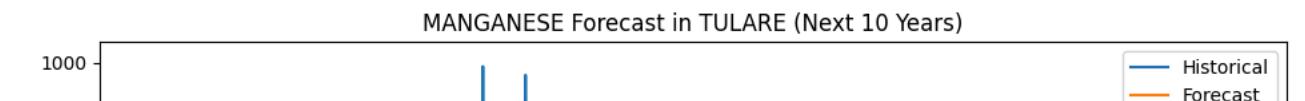
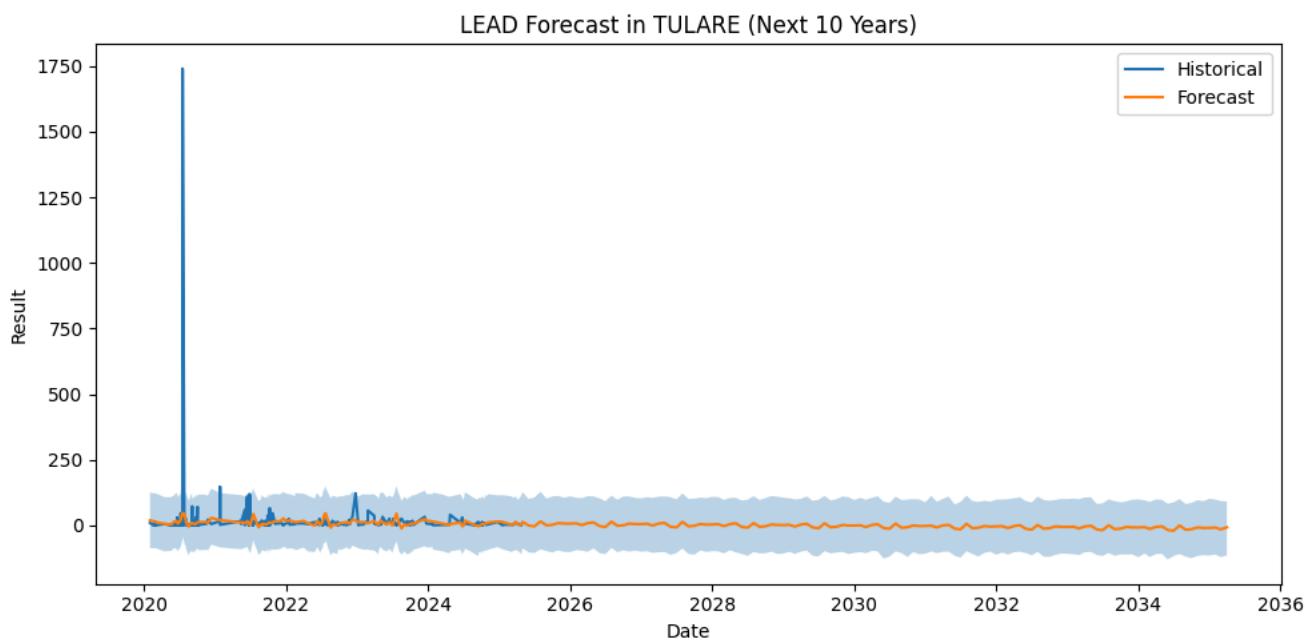
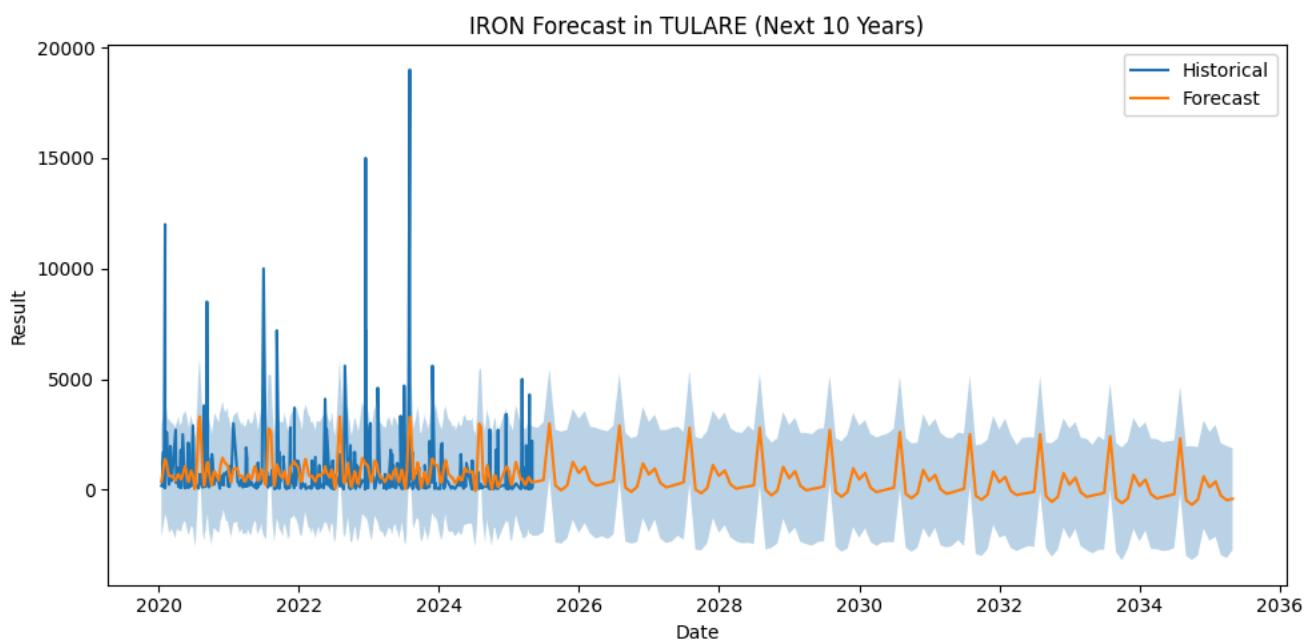
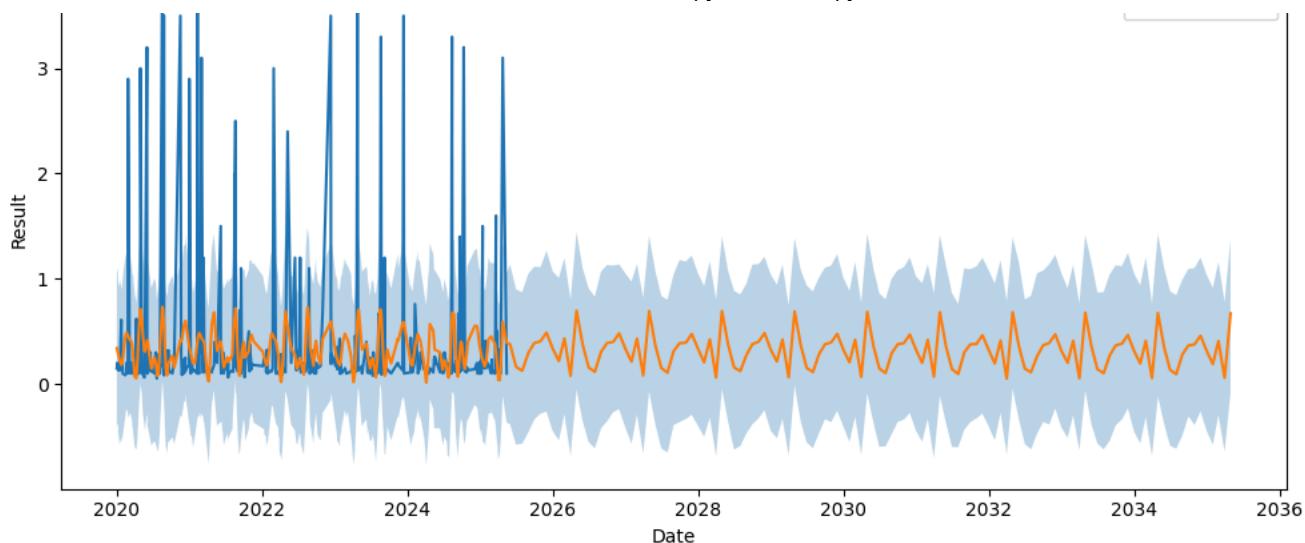


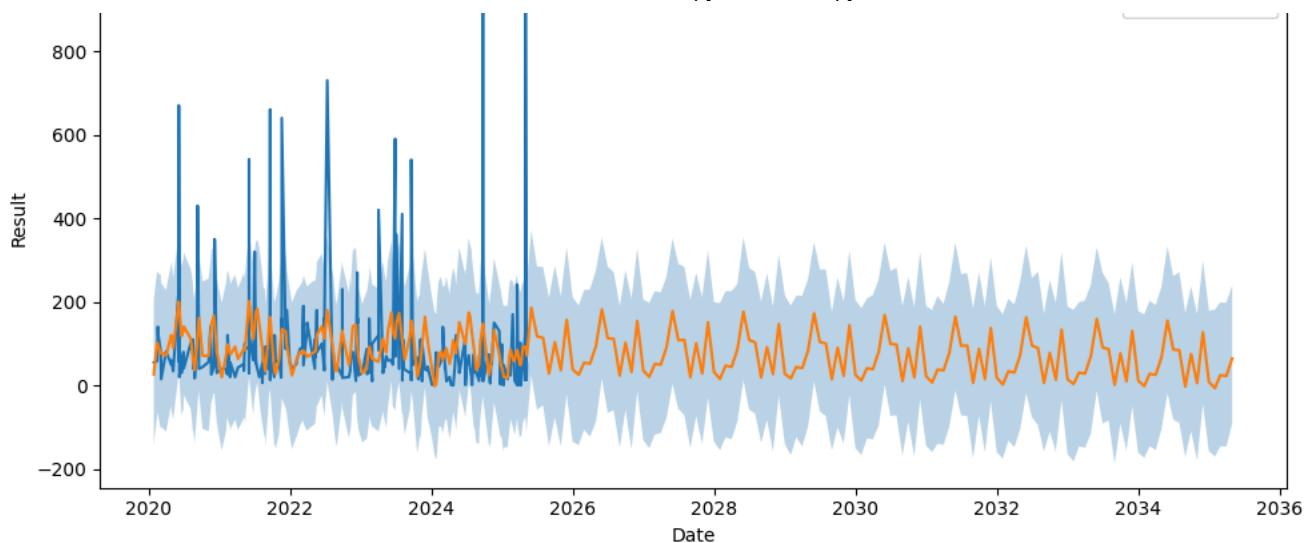
ARSENIC Forecast in TULARE (Next 10 Years)



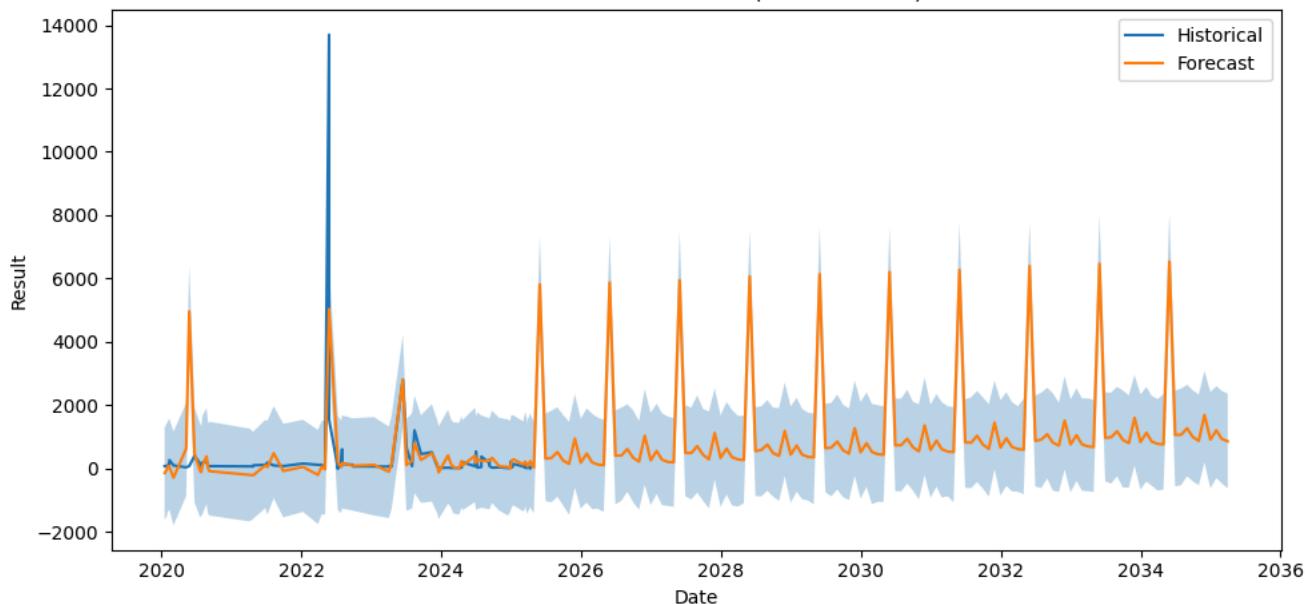
FLUORIDE Forecast in TULARE (Next 10 Years)



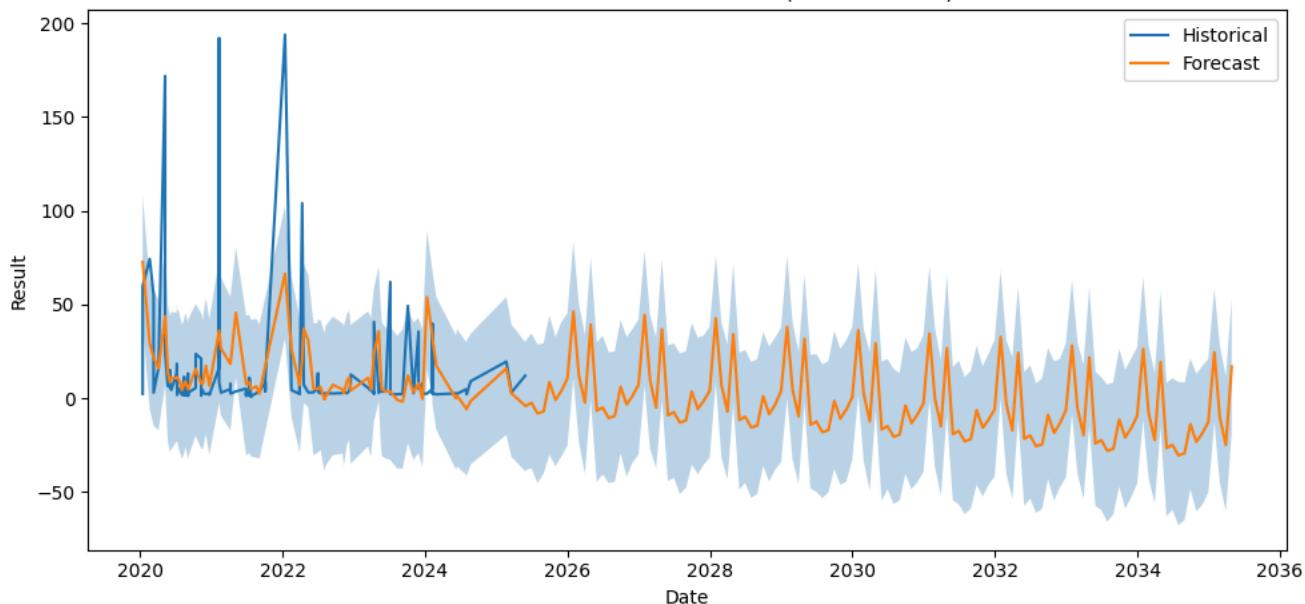




ZINC Forecast in TULARE (Next 10 Years)

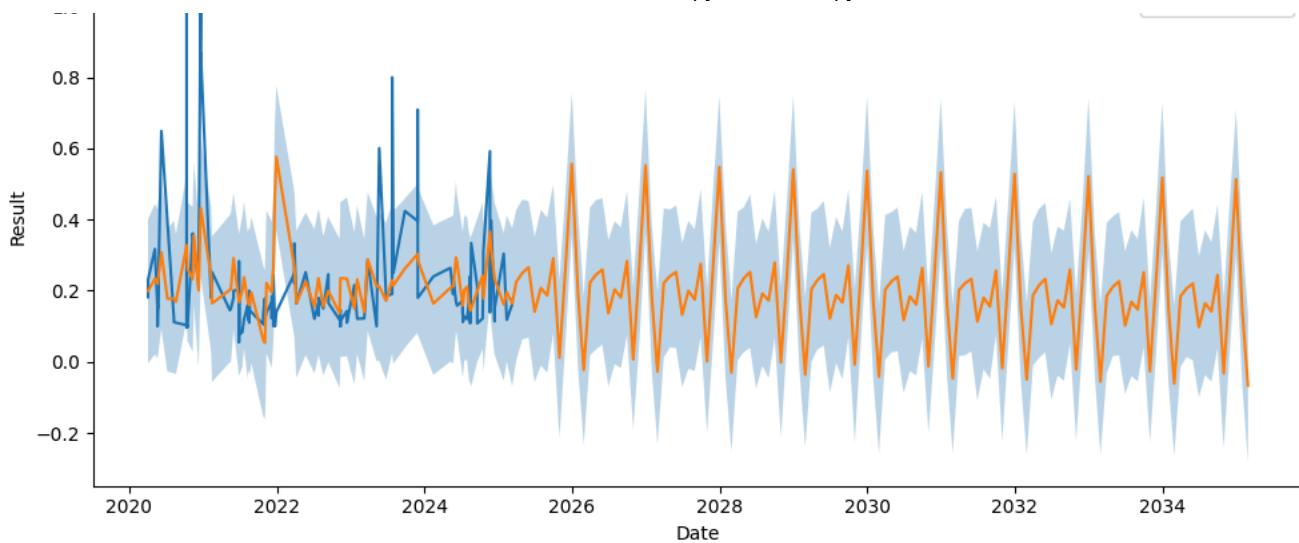


ARSENIC Forecast in TUOLUMNE (Next 10 Years)

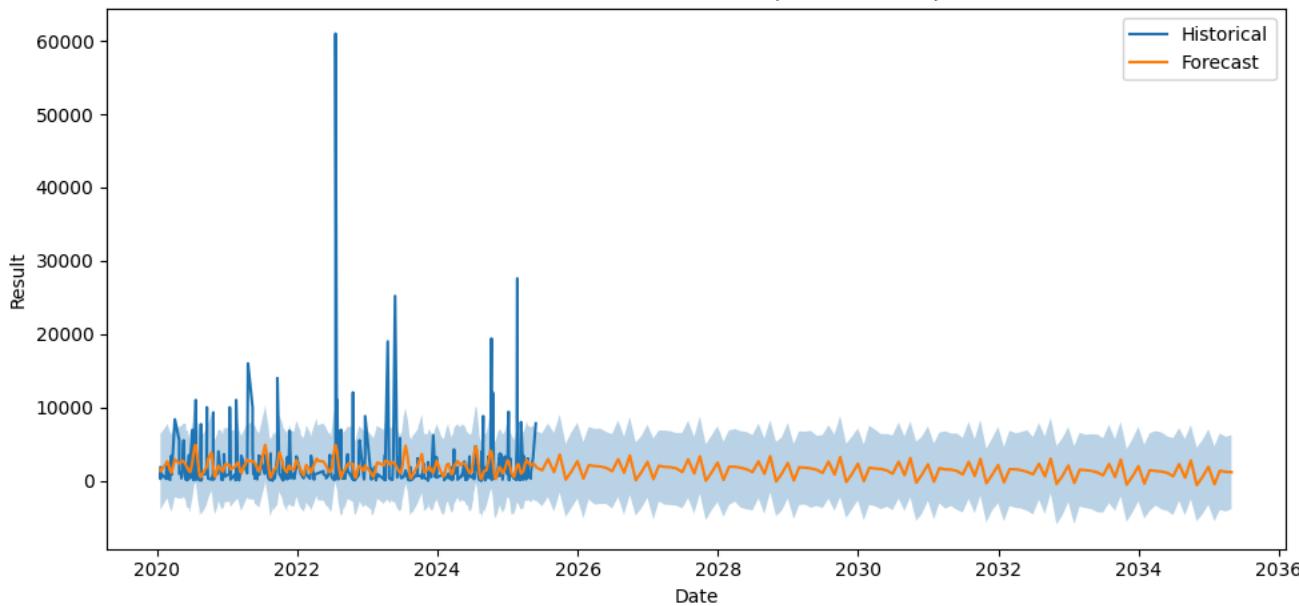


FLUORIDE Forecast in TUOLUMNE (Next 10 Years)

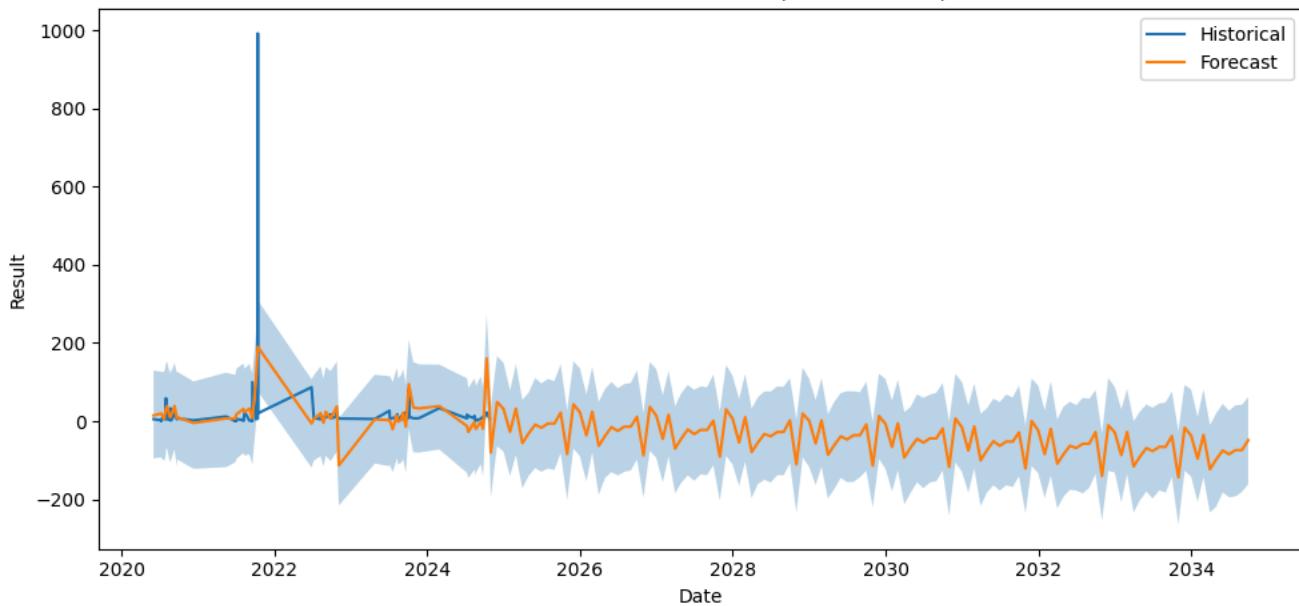




IRON Forecast in TUOLUMNE (Next 10 Years)

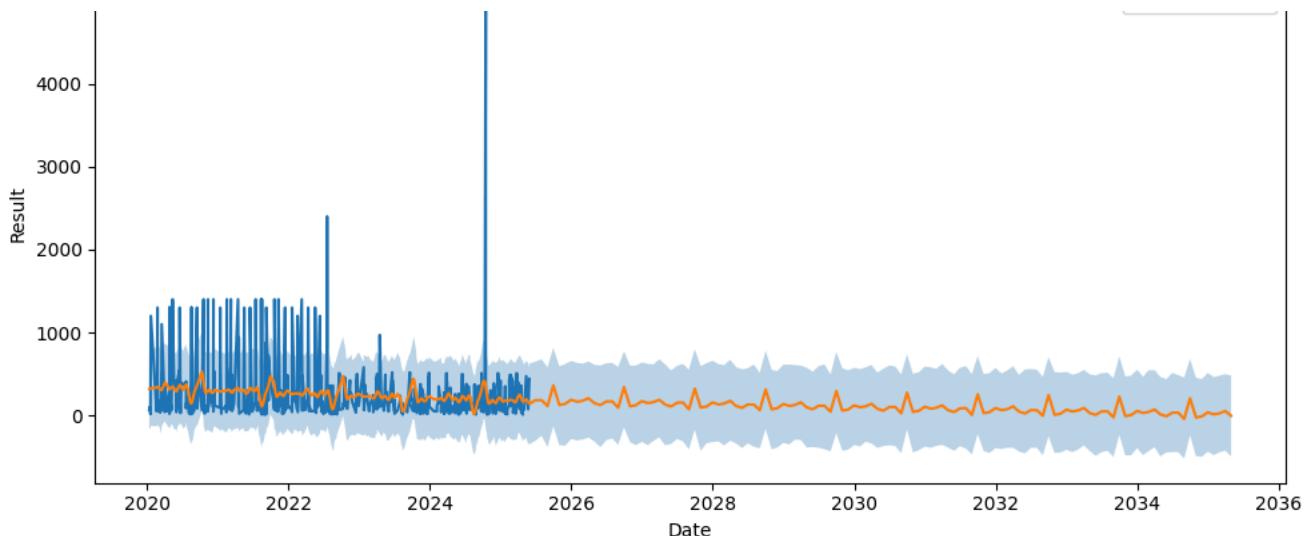


LEAD Forecast in TUOLUMNE (Next 10 Years)

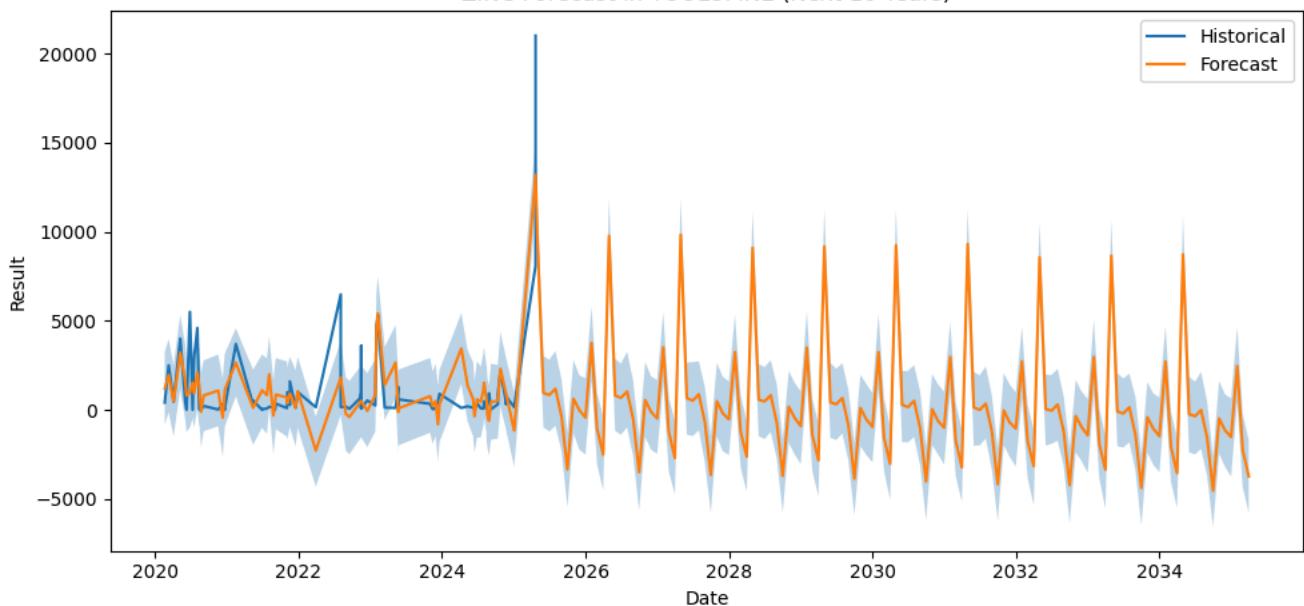


MANGANESE Forecast in TUOLUMNE (Next 10 Years)

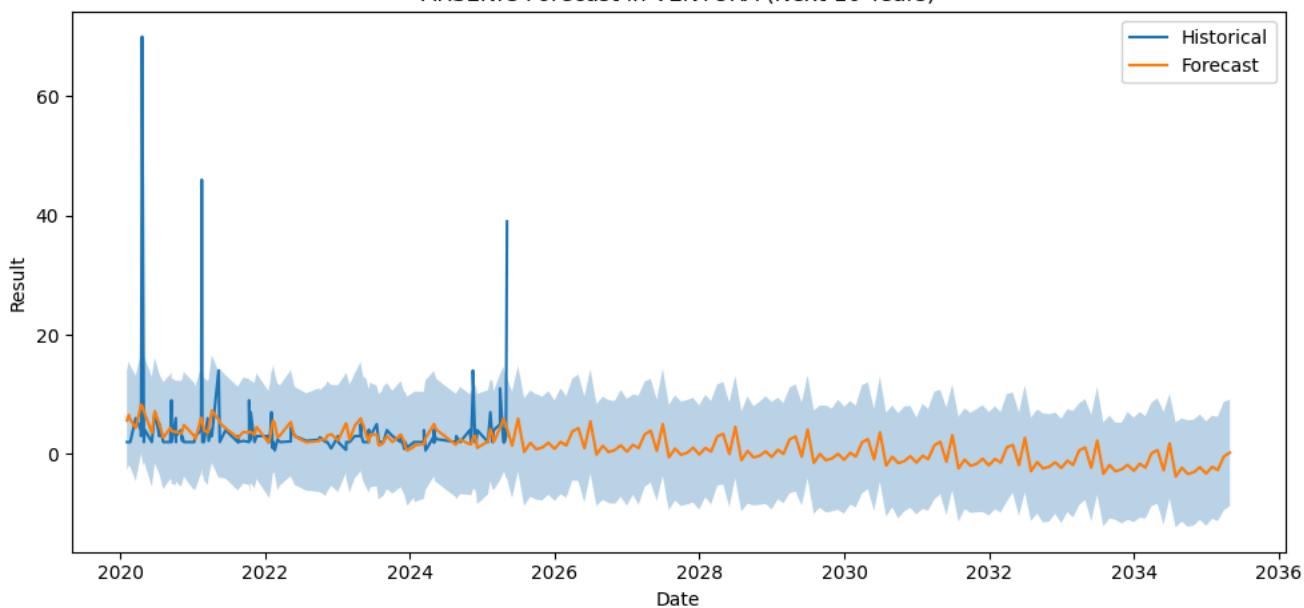




ZINC Forecast in TUOLUMNE (Next 10 Years)



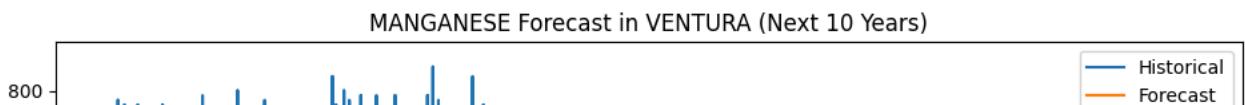
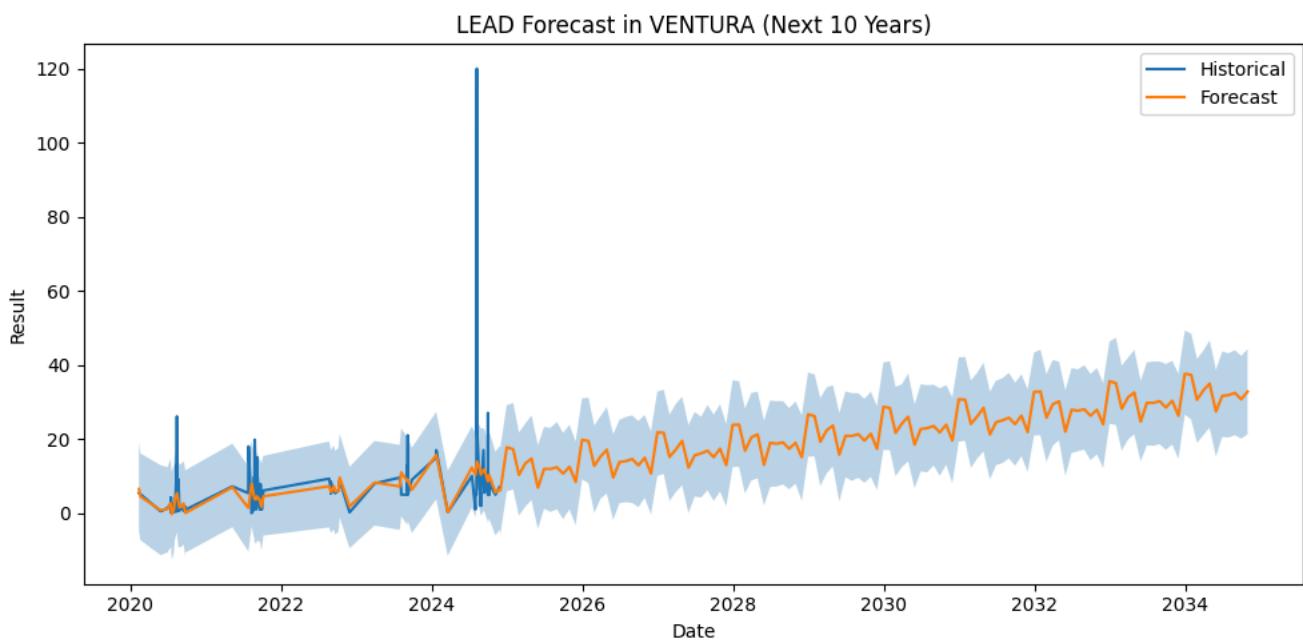
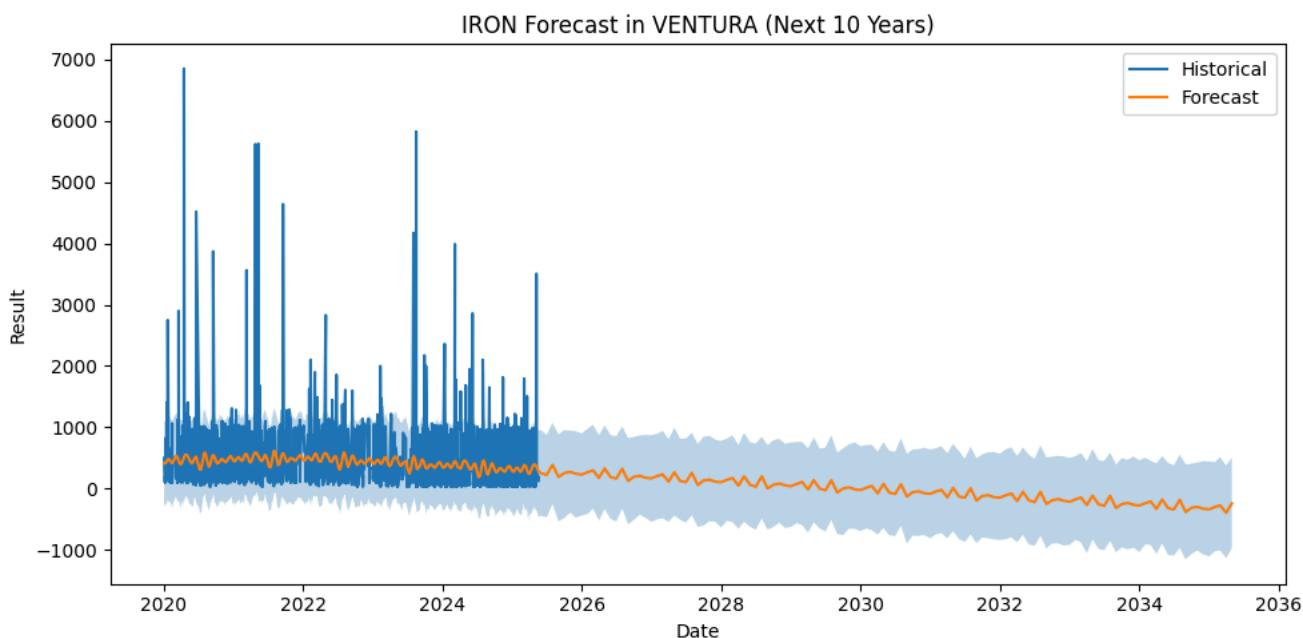
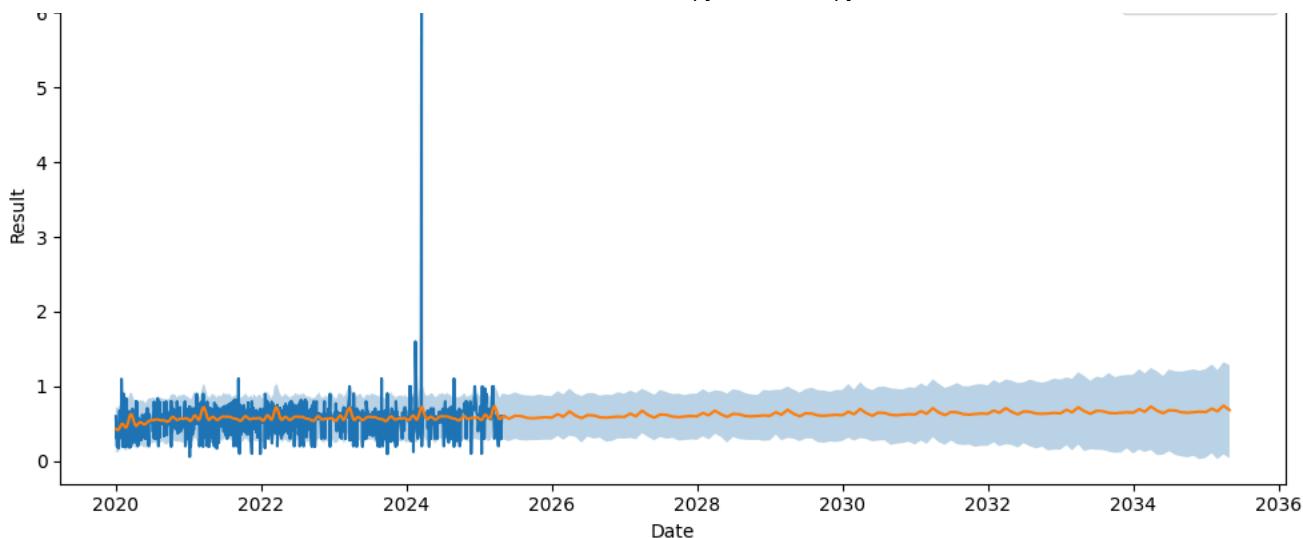
ZINC Forecast in TUOLUMNE (Next 10 Years)

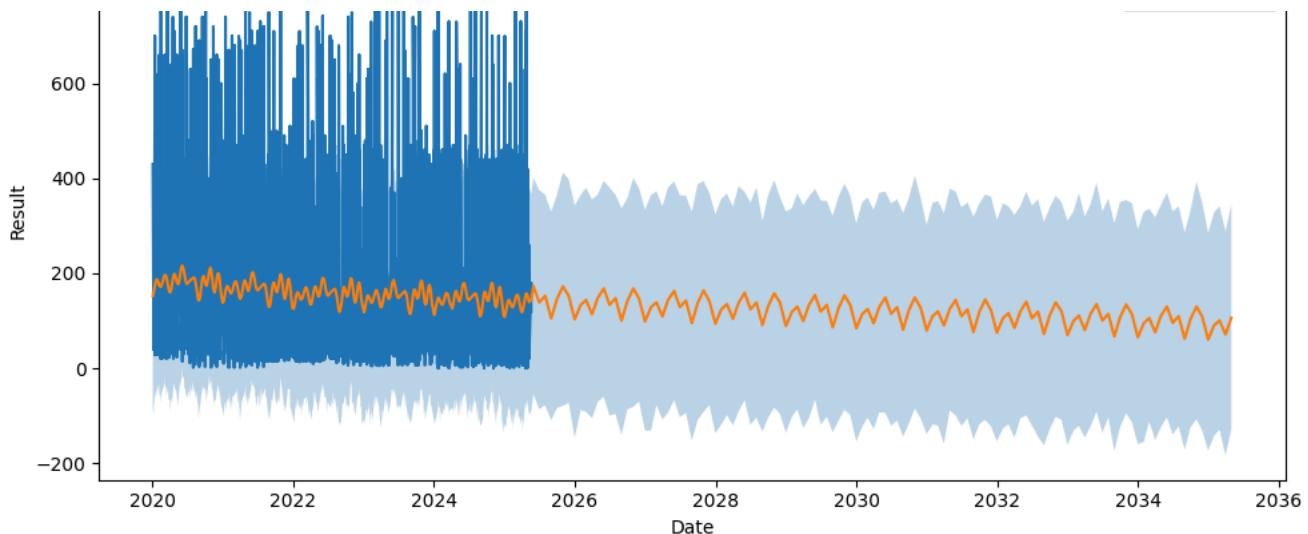


ARSENIC Forecast in VENTURA (Next 10 Years)

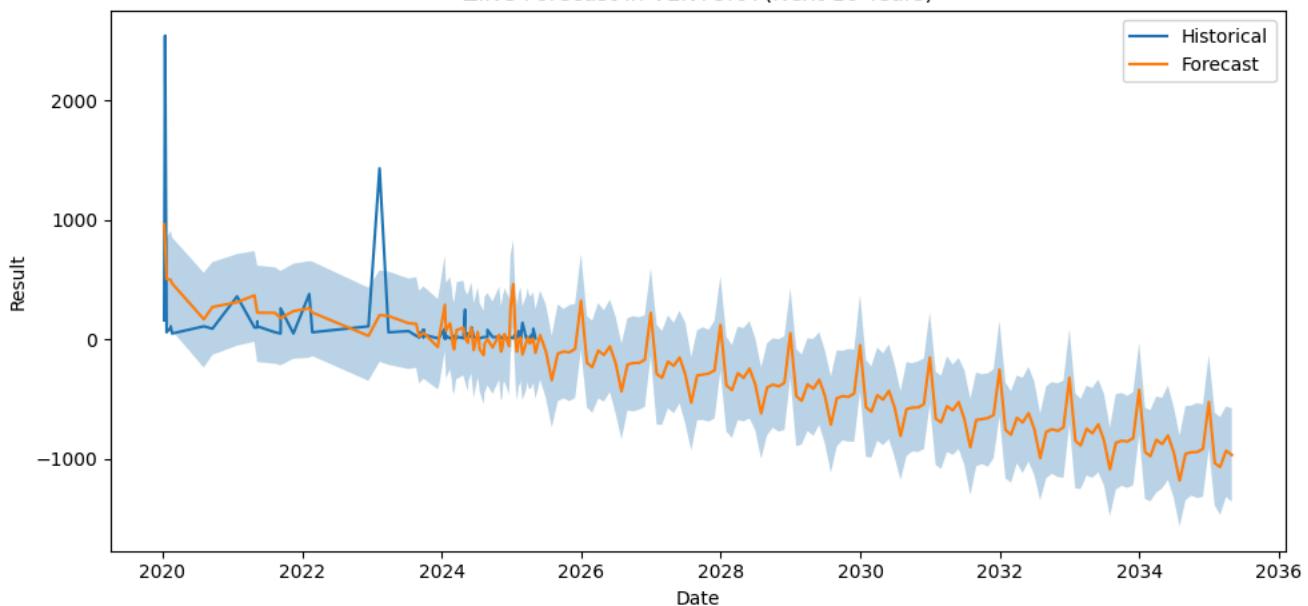


FLUORIDE Forecast in VENTURA (Next 10 Years)

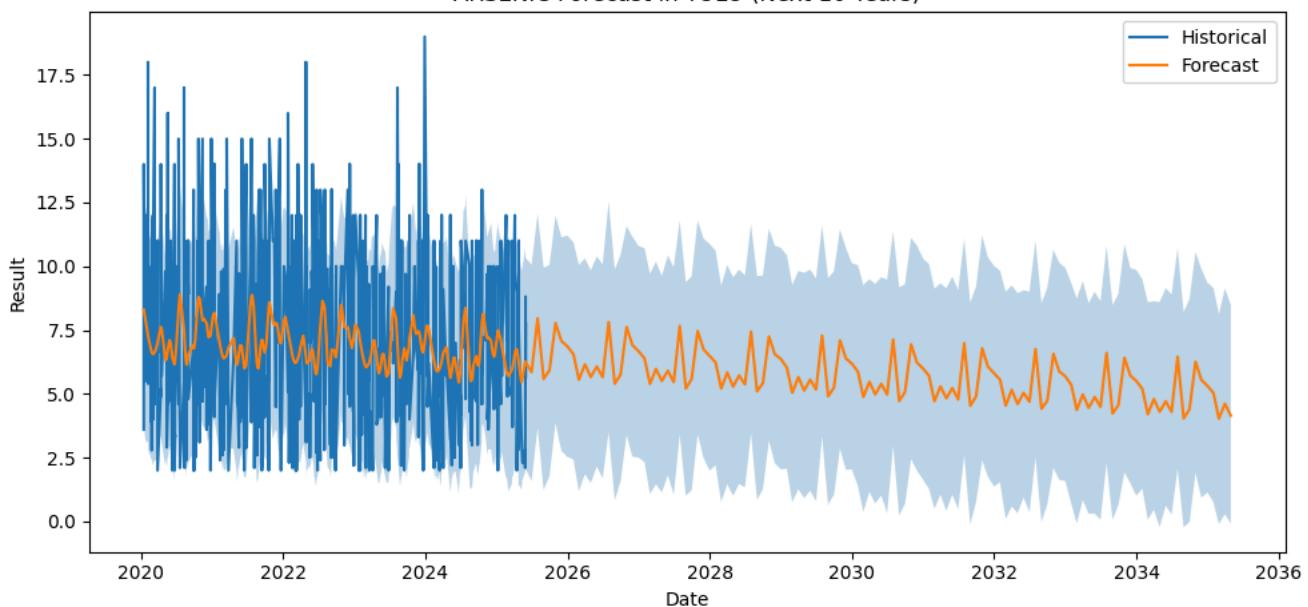




ZINC Forecast in VENTURA (Next 10 Years)

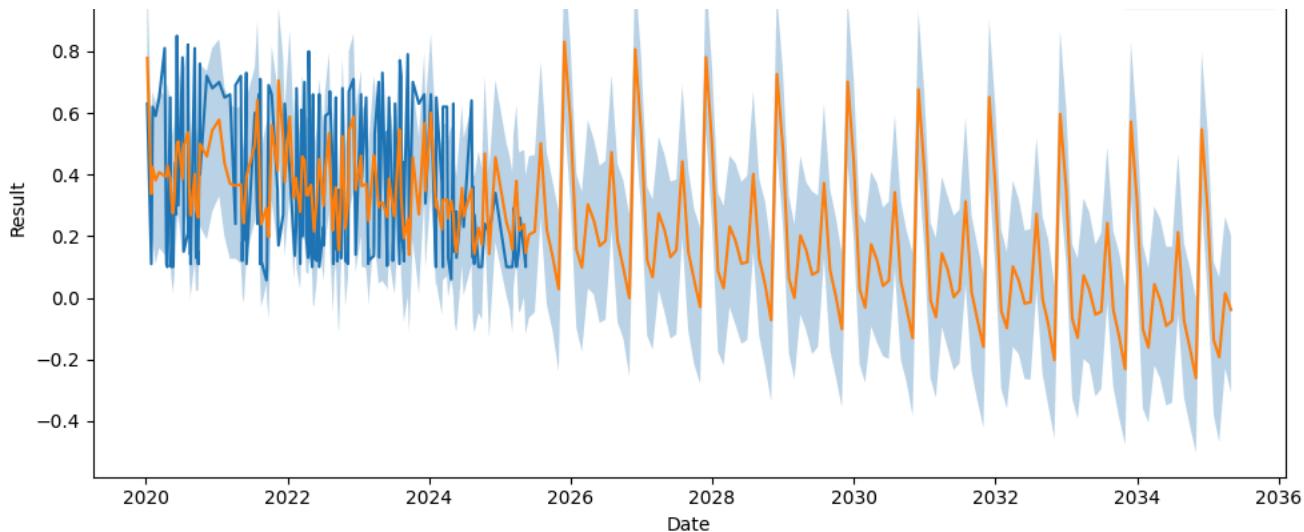


ARSENIC Forecast in YOLO (Next 10 Years)

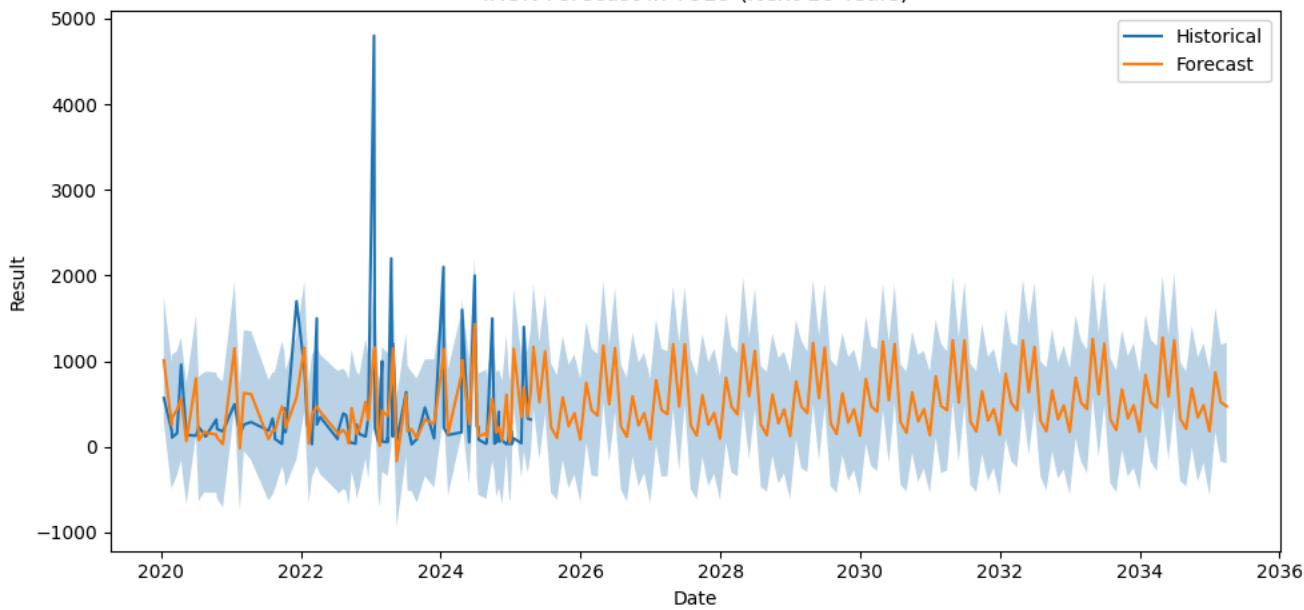


FLUORIDE Forecast in YOLO (Next 10 Years)

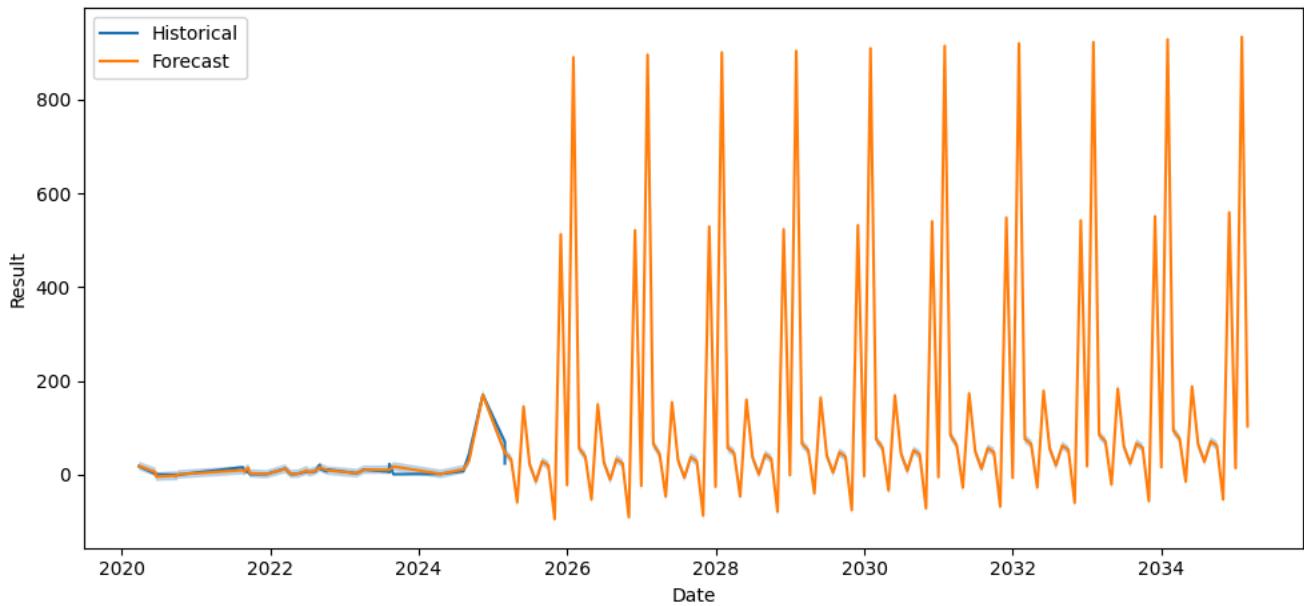




IRON Forecast in YOLO (Next 10 Years)

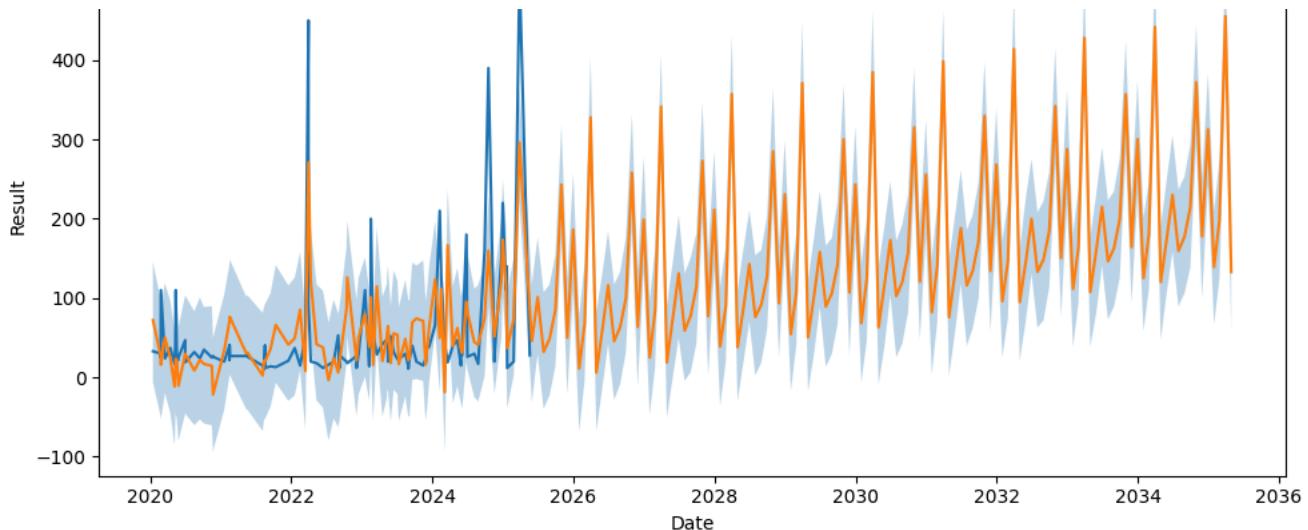


LEAD Forecast in YOLO (Next 10 Years)

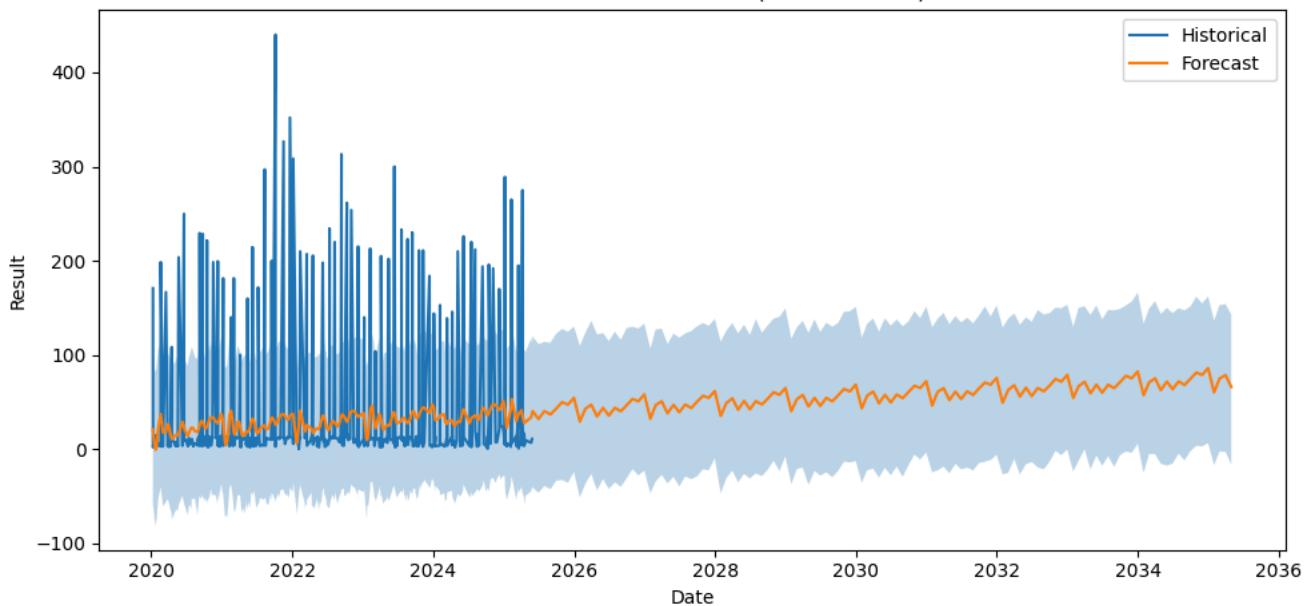


MANGANESE Forecast in YOLO (Next 10 Years)

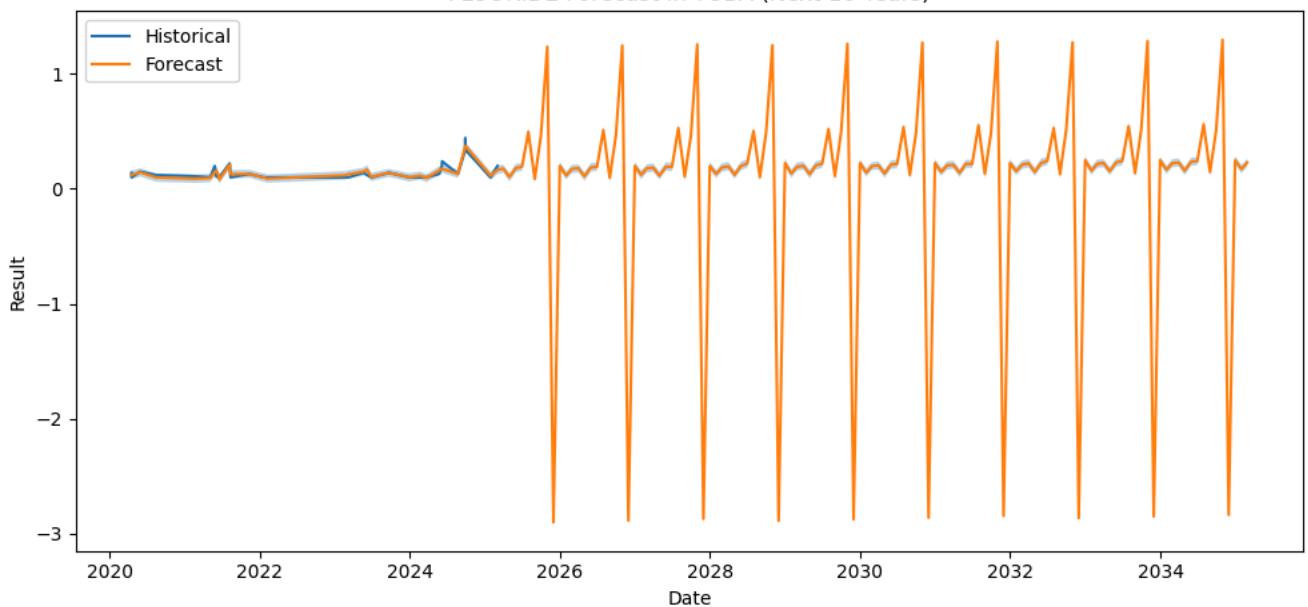




ARSENIC Forecast in YUBA (Next 10 Years)

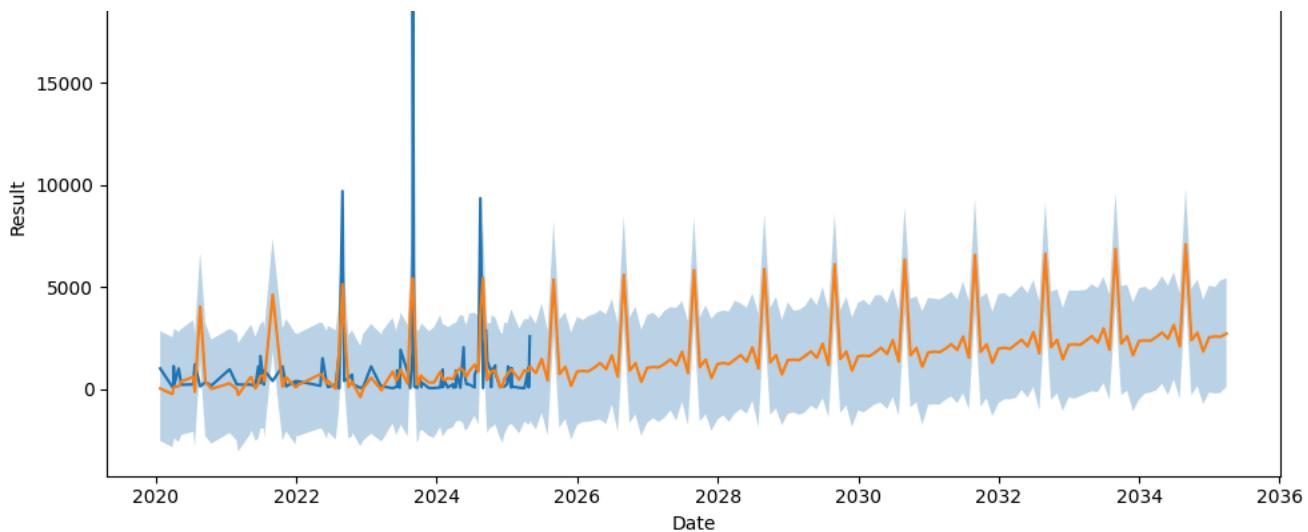


FLUORIDE Forecast in YUBA (Next 10 Years)

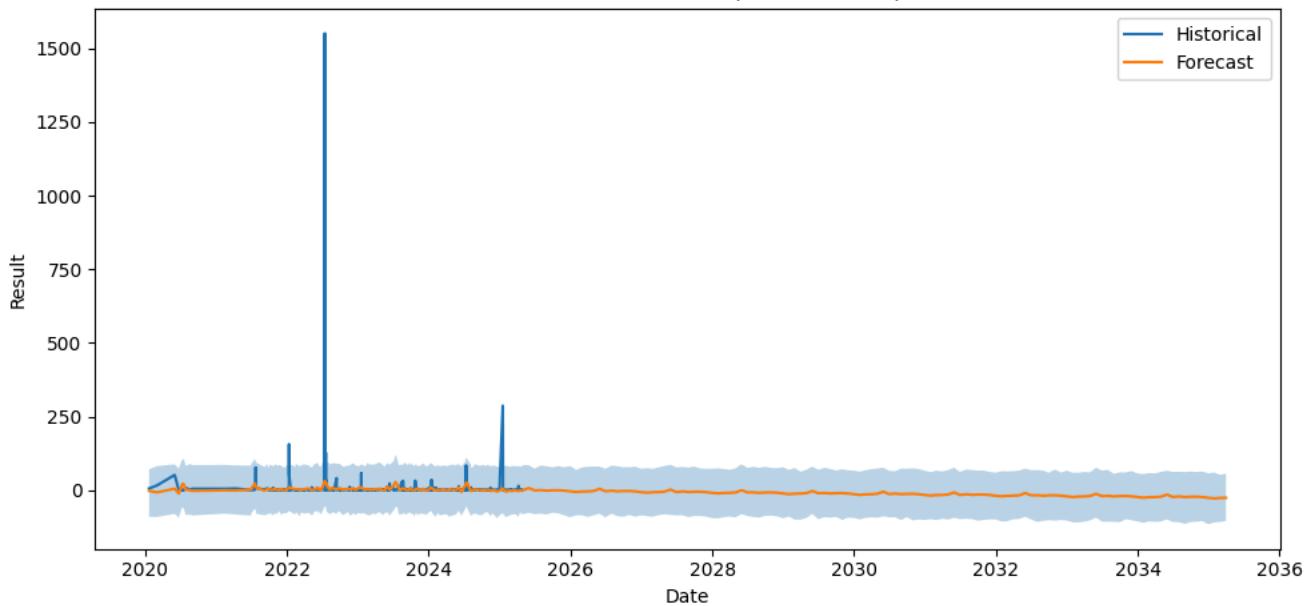


IRON Forecast in YUBA (Next 10 Years)

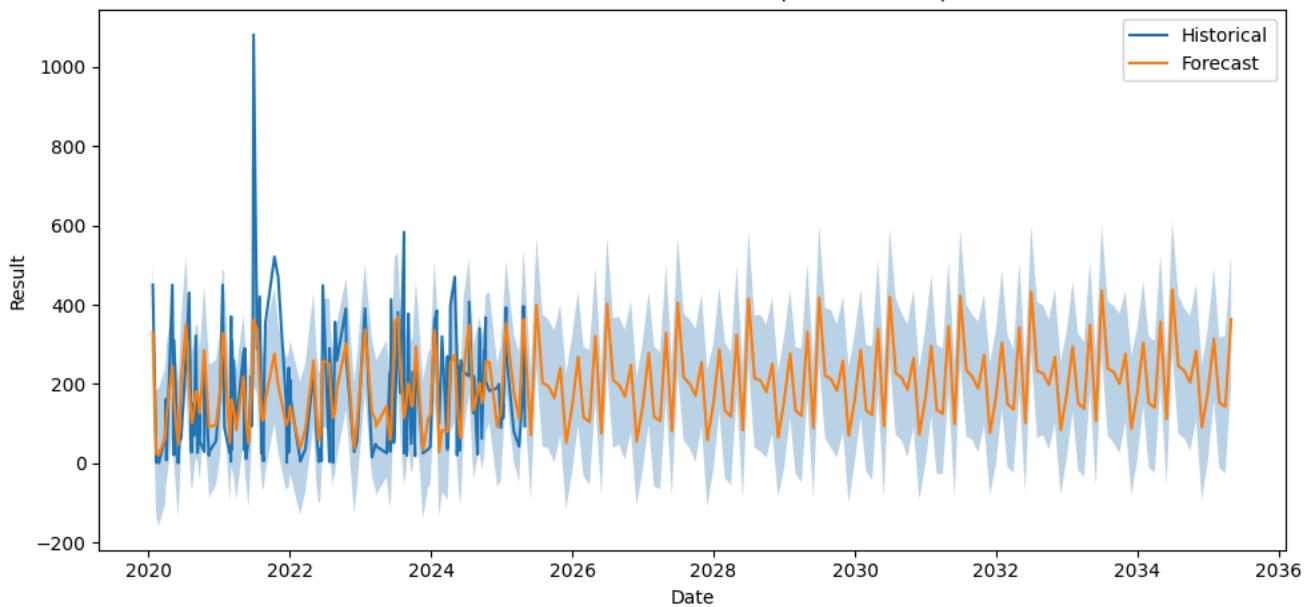




LEAD Forecast in YUBA (Next 10 Years)



MANGANESE Forecast in YUBA (Next 10 Years)



```
from prophet import Prophet
import matplotlib.pyplot as plt

analytes = df['Analyte Name'].unique()

for analyte in analytes:
    analyte_df = df[df['Analyte Name'] == analyte]

    ts = analyte_df[['Analysis Complete Date', 'Result']].rename(columns={
        'Analysis Complete Date': 'ds',
        'Result': 'y'
    })

    if len(ts) < 24:
        print(f"Skipping {analyte} (not enough data)")
        continue

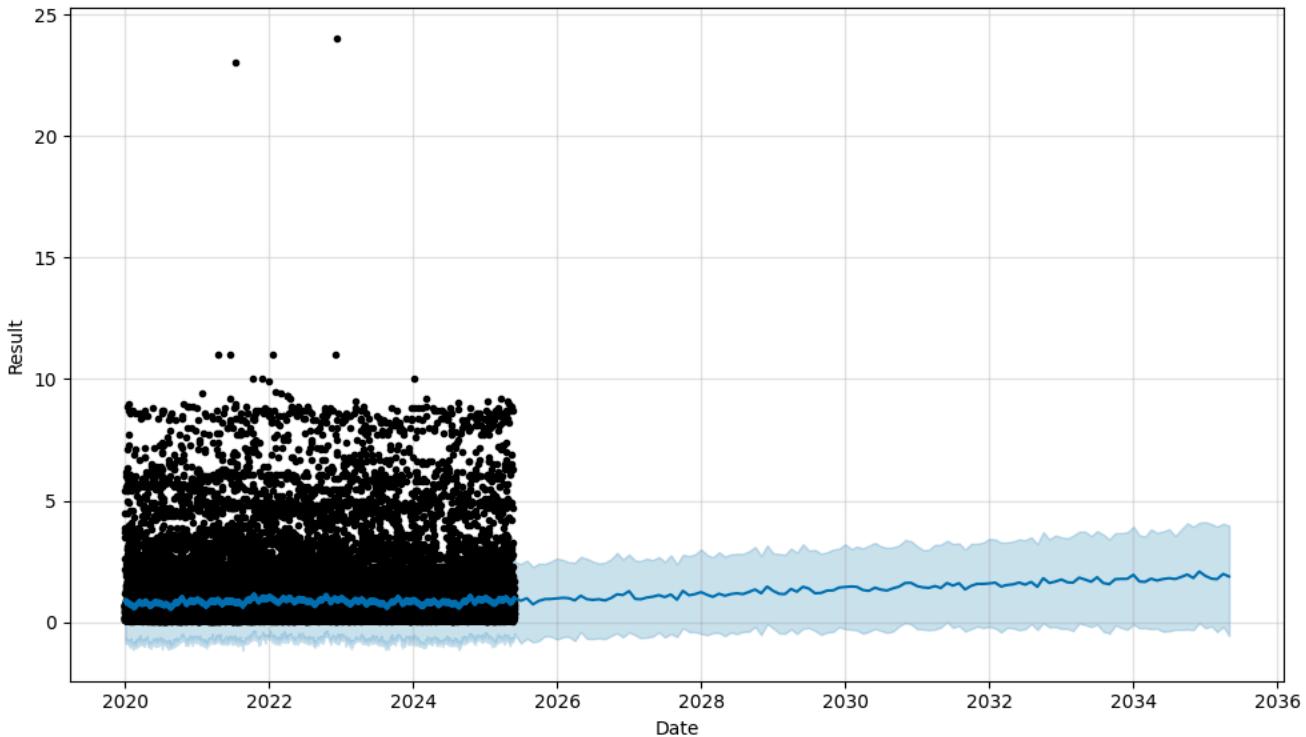
    # Fit the model
    model = Prophet(yearly_seasonality=True)
    model.fit(ts)

    future = model.make_future_dataframe(periods=10*12, freq='M')
    forecast = model.predict(future)

    # Plot forecast
    fig = model.plot(forecast)
    plt.title(f"{analyte} Forecast (Next 10 Years)")
    plt.xlabel("Date")
    plt.ylabel("Result")
    plt.tight_layout()
    plt.show()
```

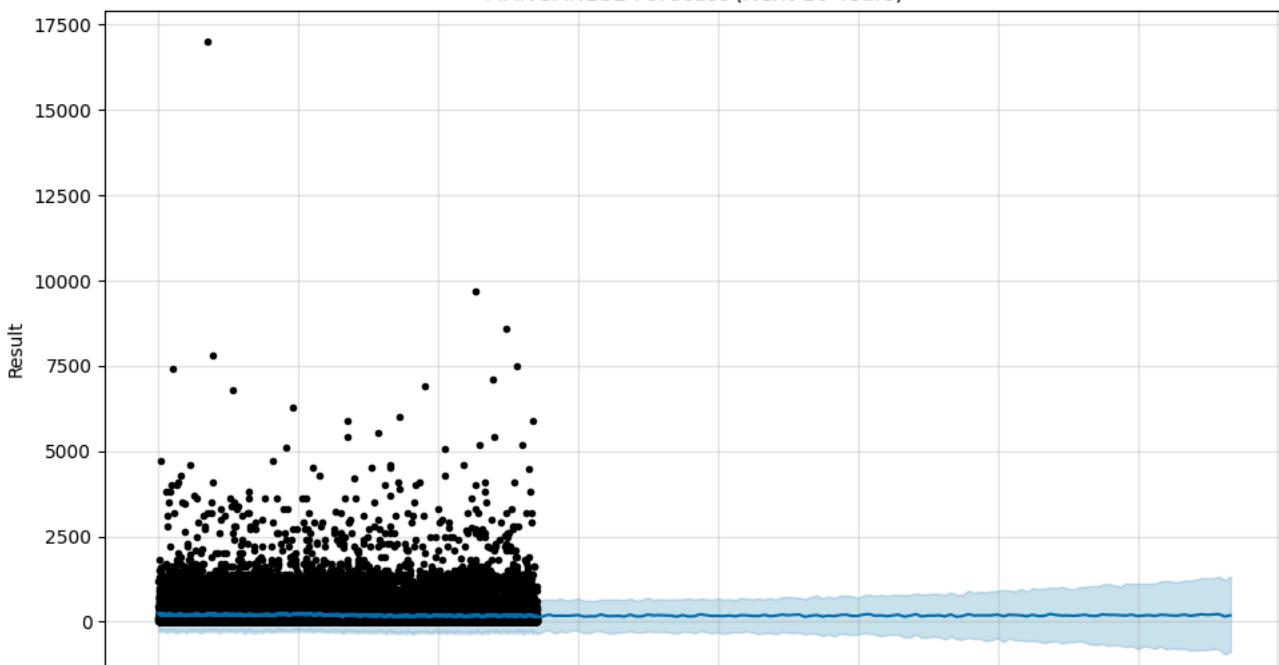
```
INFO:prophet:Disabling daily seasonality. Run prophet with daily_seasonality=True to override this.
DEBUG:cmdstanpy:input tempfile: /tmp/tmpok0h9snw/g9pi75w.json
DEBUG:cmdstanpy:input tempfile: /tmp/tmpok0h9snw/02_4kuo5.json
DEBUG:cmdstanpy:idx 0
DEBUG:cmdstanpy:running CmdStan, num_threads: None
DEBUG:cmdstanpy:CmdStan args: ['/usr/local/lib/python3.11/dist-packages/prophet/stan_model/prophet_model.bin', 'random', 'seed=83872', '05:10:45 - cmdstanpy - INFO - Chain [1] start processing
INFO:cmdstanpy:Chain [1] start processing
05:10:53 - cmdstanpy - INFO - Chain [1] done processing
INFO:cmdstanpy:Chain [1] done processing
```

FLUORIDE Forecast (Next 10 Years)



```
INFO:prophet:Disabling daily seasonality. Run prophet with daily_seasonality=True to override this.
DEBUG:cmdstanpy:input tempfile: /tmp/tmpok0h9snw/fw9zge1o.json
DEBUG:cmdstanpy:input tempfile: /tmp/tmpok0h9snw/aaospnrs.json
DEBUG:cmdstanpy:idx 0
DEBUG:cmdstanpy:running CmdStan, num_threads: None
DEBUG:cmdstanpy:CmdStan args: ['/usr/local/lib/python3.11/dist-packages/prophet/stan_model/prophet_model.bin', 'random', 'seed=43090', '05:10:56 - cmdstanpy - INFO - Chain [1] start processing
INFO:cmdstanpy:Chain [1] start processing
05:11:01 - cmdstanpy - INFO - Chain [1] done processing
INFO:cmdstanpy:Chain [1] done processing
```

MANGANESE Forecast (Next 10 Years)

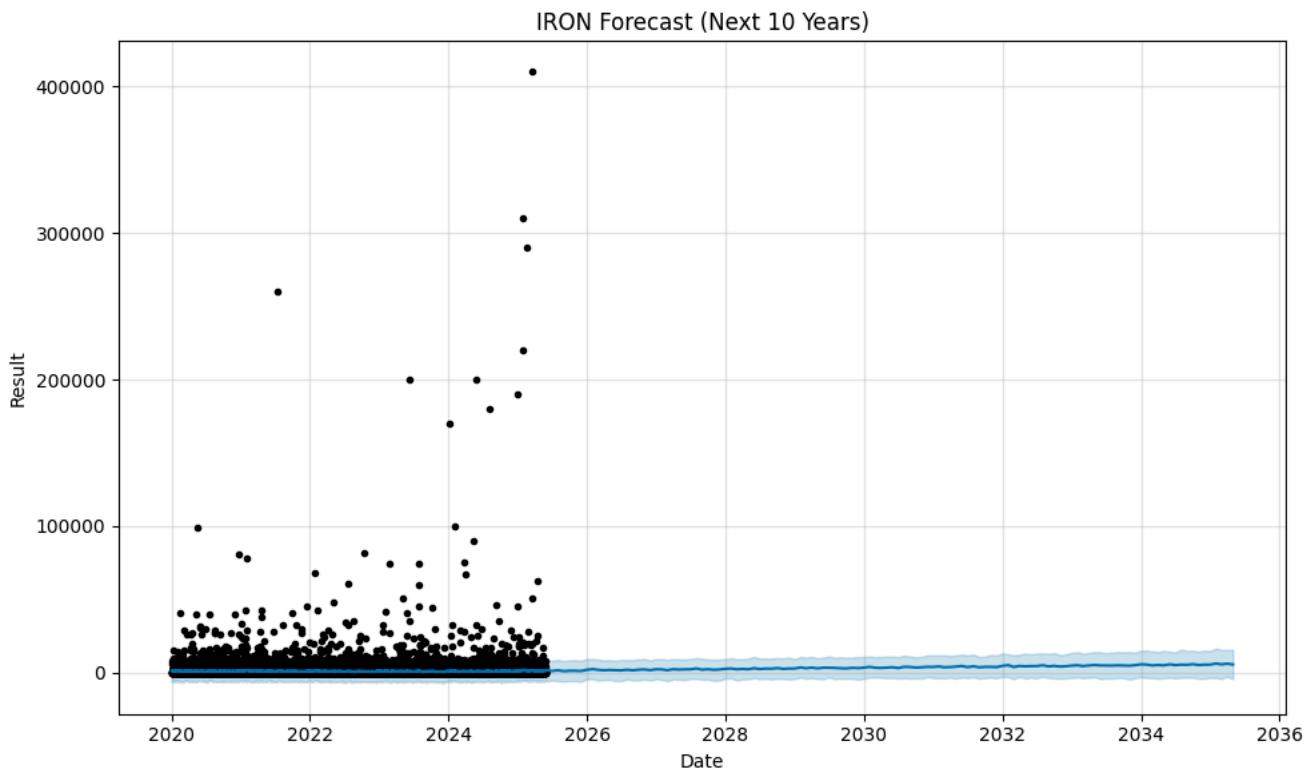




```

INFO:prophet:Disabling daily seasonality. Run prophet with daily_seasonality=True to override this.
DEBUG:cmdstanpy:input tempfile: /tmp/tmpok0h9snw/i2kz8g8c.json
DEBUG:cmdstanpy:input tempfile: /tmp/tmpok0h9snw/ji7q6vg2.json
DEBUG:cmdstanpy:idx 0
DEBUG:cmdstanpy:running CmdStan, num_threads: None
DEBUG:cmdstanpy:CmdStan args: ['/usr/local/lib/python3.11/dist-packages/prophet/stan_model/prophet_model.bin', 'random', 'seed=16033', '05:11:05 - cmdstanpy - INFO - Chain [1] start processing
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05:11:09 - cmdstanpy - INFO - Chain [1] done processing
INFO:cmdstanpy:Chain [1] done processing

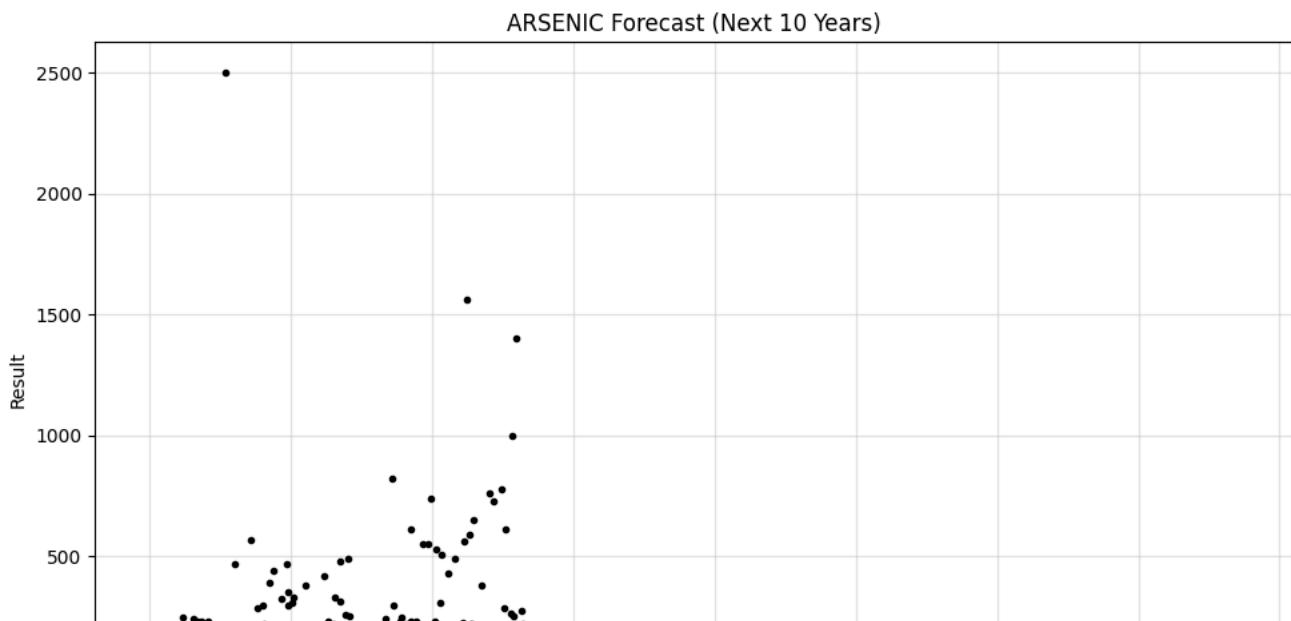
```

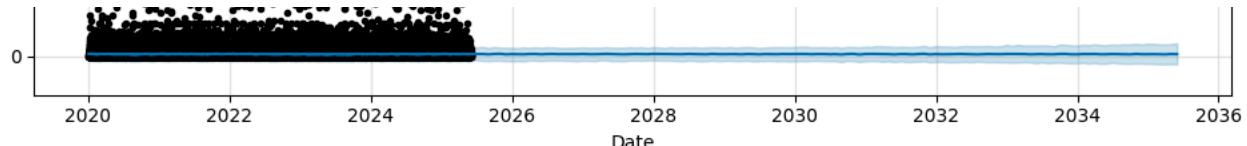


```

INFO:prophet:Disabling daily seasonality. Run prophet with daily_seasonality=True to override this.
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DEBUG:cmdstanpy:input tempfile: /tmp/tmpok0h9snw/54404ja0.json
DEBUG:cmdstanpy:idx 0
DEBUG:cmdstanpy:running CmdStan, num_threads: None
DEBUG:cmdstanpy:CmdStan args: ['/usr/local/lib/python3.11/dist-packages/prophet/stan_model/prophet_model.bin', 'random', 'seed=57282', '05:11:16 - cmdstanpy - INFO - Chain [1] start processing
INFO:cmdstanpy:Chain [1] start processing
05:11:26 - cmdstanpy - INFO - Chain [1] done processing
INFO:cmdstanpy:Chain [1] done processing

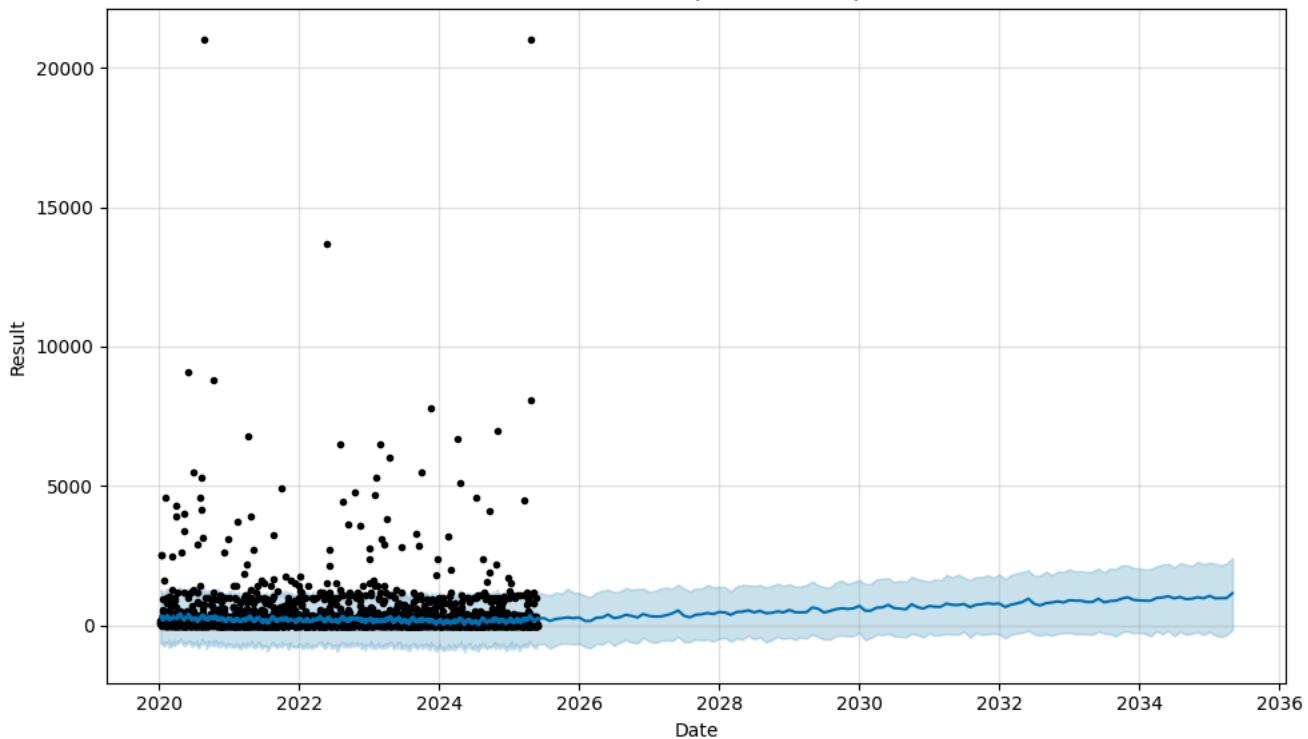
```





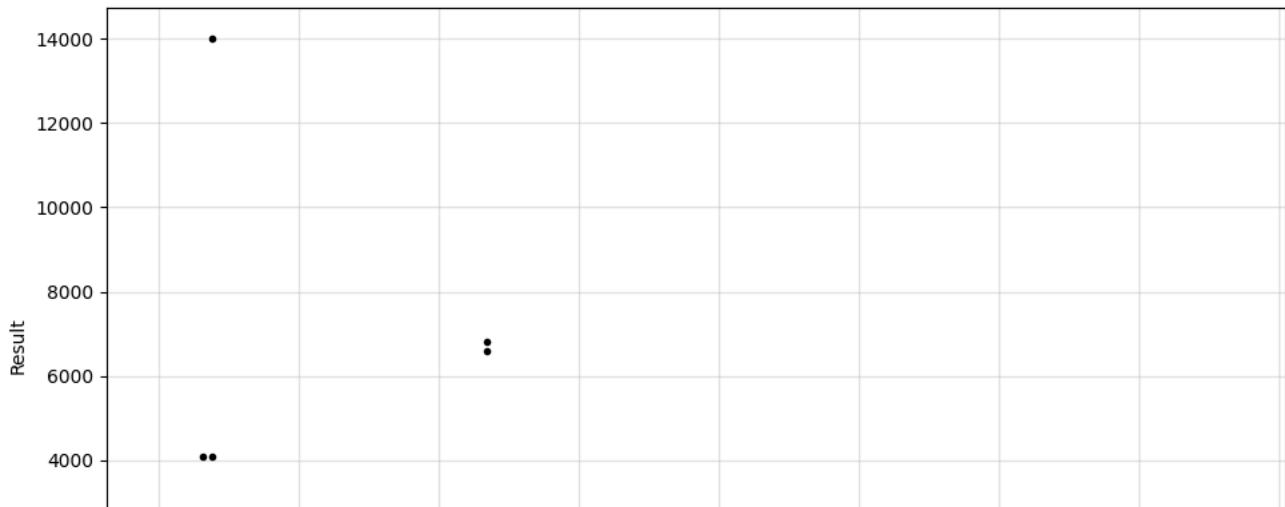
```
INFO:prophet:Disabling daily seasonality. Run prophet with daily_seasonality=True to override this.
DEBUG:cmdstanpy:input tempfile: /tmp/tmpok0h9snw/nja0wijy.json
DEBUG:cmdstanpy:input tempfile: /tmp/tmpok0h9snw/p4c7mo3e.json
DEBUG:cmdstanpy:idx 0
DEBUG:cmdstanpy:running CmdStan, num_threads: None
DEBUG:cmdstanpy:CmdStan args: ['/usr/local/lib/python3.11/dist-packages/prophet/stan_model/prophet_model.bin', 'random', 'seed=68818', '05:11:28 - cmdstanpy - INFO - Chain [1] start processing
INFO:cmdstanpy:Chain [1] start processing
05:11:29 - cmdstanpy - INFO - Chain [1] done processing
INFO:cmdstanpy:Chain [1] done processing
```

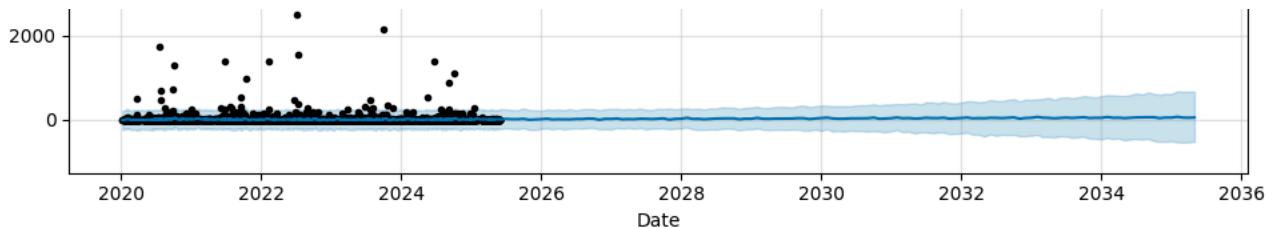
ZINC Forecast (Next 10 Years)



```
INFO:prophet:Disabling daily seasonality. Run prophet with daily_seasonality=True to override this.
DEBUG:cmdstanpy:input tempfile: /tmp/tmpok0h9snw/da77ehbu.json
DEBUG:cmdstanpy:input tempfile: /tmp/tmpok0h9snw/m6ohgl2j.json
DEBUG:cmdstanpy:idx 0
DEBUG:cmdstanpy:running CmdStan, num_threads: None
DEBUG:cmdstanpy:CmdStan args: ['/usr/local/lib/python3.11/dist-packages/prophet/stan_model/prophet_model.bin', 'random', 'seed=82865', '05:11:30 - cmdstanpy - INFO - Chain [1] start processing
INFO:cmdstanpy:Chain [1] start processing
05:11:33 - cmdstanpy - INFO - Chain [1] done processing
INFO:cmdstanpy:Chain [1] done processing
```

LEAD Forecast (Next 10 Years)





```
INFO:prophet:Disabling daily seasonality. Run prophet with daily_seasonality=True to override this.  
DEBUG:cmdstanpy:input tempfile: /tmp/tmpok0h9snw/3yqosz6v.json  
DEBUG:cmdstanpy:input tempfile: /tmp/tmpok0h9snw/miirbom9.json  
DEBUG:cmdstanpy:idx 0  
DEBUG:cmdstanpy:running CmdStan, num_threads: None  
DEBUG:cmdstanpy:CmdStan args: ['/usr/local/lib/python3.11/dist-packages/prophet/stan_model/prophet_model.bin', 'random', 'seed=44316', '05:11:33 - cmdstanpy - INFO - Chain [1] start processing  
INFO:cmdstanpy:Chain [1] start processing  
05:11:33 - cmdstanpy - INFO - Chain [1] done processing  
INFO:cmdstanpy:Chain [1] done processing
```

CADMIUM Forecast (Next 10 Years)

