



# Air Quality

VIL ORSHEA

REQUEST FOR PROPOSAL

RFP #: TS – F1.H3

TITLE: Ozone

CLOSING DATE AND TIME: SEPTEMBER 16, 2020 @ 5:00 PM

# Ozone Forecast: TS – F1.H3

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## Background and Purpose

By responding to this Request for Proposal (RFP), the Proposer agrees that s/he has read and understood all documents within this RFP package.

## Submission Details

Responders to this RFP should supply:

- A business report up to 5 pages (not including cover page or table of contents), including any supporting plots and tables.
- The commented code (in a separate file) used to produce the results.
- Both files should be uploaded to Moodle by September 16, 2020 @ 5:00 PM.

The report should address **all points described in the “Objective” section** below.

## Objective

The EPA (hereafter the “client”) is seeking proposals for understanding and predicting average monthly Ozone levels at the Millbrook School station in Wake County, NC. The scope of services includes the following:

- Evaluation of the data to handle further time series modeling:
  - Check the stationarity of the average monthly Ozone levels including any potential trend and/or random walks; the analysts recommend using the Augmented Dickey-Fuller tests up to lag 2 tests for the results, however, you are welcome to suggest other techniques as long as the reasons are clearly stated and supported.
  - What strategies (if any) should the client take to make the data stationary (the EPA would like to consider only non-seasonal options at this time, however, feel free to discuss recommendations)?
  - Does the stationary time series exhibit white noise? Provide evidence on whether it does or does not have white noise and the implications for future ARIMA modeling.

## Data Provided

- The data is provided in a csv format. The variables contained within this data set are:

Date - Date of the observation (in days)

Source -usually AQS (Air Quality System)

Site ID – unique ID for the given monitoring station

POC – Parameter Occurrence Code (used to distinguish different instruments that measure the same parameter at the same site)

Daily Measurements – The measurement of interest

Units – Units in which daily measurements are recorded

Daily AQI – The daily Air Quality measurement

Site – Name of the site in which data was recorded

State Code – State code (37)

State – State (NC)

County Code – County Code (183)

County – County (Wake)

Site Latitude and Site Longitude of where the measurement was taken