

# AQRP Monthly Technical Report

<b>PROJECT TITLE</b>	Improving WRF representation of coastal, marine, and residual boundary layers and quantifying the effects on ozone prediction	<b>PROJECT #</b>	24-021
<b>PROJECT PARTICIPANTS</b>	Yuxuan Wang, James Flynn	<b>DATE SUBMITTED</b>	07/10/2025
<b>REPORTING PERIOD</b>	<b>From:</b> 06/01/2025 <b>To:</b> 06/30/2025	<b>REPORT #</b>	10

A Financial Status Report (FSR) and Invoice will be submitted separately from each of the Project Participants reflecting charges for this Reporting Period. I understand that the FSR and Invoice are due to the AQRP by the 15<sup>th</sup> of the month following the reporting period shown above.

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## Detailed Accomplishments by Task for reporting period

### Task 6:

- Submitted Task 6 Report on July 1.
- Continued to work on the remaining parts from Tasks 5 and 6, including:
  - Running Comprehensive Air Quality Model with Extensions (CAMx) simulations for the selected days in 2023 and comparing the results with the available observations,
  - Improving the algorithm for the representation of the residual layer during high ozone days.

### Draft final report:

- Working on the draft final report

We continued working on the remaining parts of Tasks 5 and 6. For Task 6, we began running CAMx simulations for selected days in 2023, as previous simulations were conducted only for 2021 and 2022. The objective is to compare ozone predictions across all three years and evaluate model performance against observations. In Task 5, we previously developed an algorithm to calculate the residual layer height, which performed well with the base simulation but requires further tuning for the perturbation simulations. We are currently refining the algorithm to improve its applicability across different the Weather Research and Forecasting (WRF) perturbation simulations. In addition, we are also working on completing the draft final report.

**Data Collected**

None

**Identify Any Problems or Issues Encountered and Proposed Solutions or Adjustments**

None

**Goals and Anticipated Issues for the Succeeding Reporting Period**

Goals: Continue working on the remaining parts of Tasks 5 and 6, and begin drafting the final report.

Anticipated Issues: None.

**Detailed Analysis of the Progress of the Task Order to Date**

None

**Do you have any publications related to this project currently under development? If so, please provide a working title, and the journals you plan to submit to.**

Yes       No

**Do you have any publications related to this project currently under review by a journal? If so, what is the working title and the journal name? Have you sent a copy of the article to your AQRP Project Manager and your TCEQ Liaison?**

Yes       No

**Do you have any bibliographic publications (ie: publications that cite the project) related to this project that have been published? If so, please list the reference information. List all items for the lifetime of the project.**

Yes       No

**Do you have any presentations related to this project currently under development? If so, please provide working title, and the conference you plan to present it (this does not include presentations for the AQRP Workshop).**

Yes       No

**Do you have any presentations related to this project that have been published? If so, please list reference information. List all items for the lifetime of the project.**

Yes       No

**Have any personnel changes occurred that were not listed in the original proposal? If so, please include a detailed description of the personnel change(s) below.**

Yes       No

**Are any delays expected in the progress of the research? If so, please include a detailed description of the potential delay below.**

Yes       No

**Describe any possible concerns/issues (technical or non-technical) that AQRP should be made aware of.**

**Are you anticipating using all the available funds allocated to this project by the end date? If not, why and approximately what is the amount to be returned?**

Yes       No

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Submitted to AQRP by  
Yuxuan Wang