AQRP Monthly Technical Report

PROJECT TITLE	Improve Cloud Modeled by WRF using COSP and Generative Adversarial Network	PROJECT #	20-026
PROJECT PARTICIPANTS	PI: Zheng Lu	DATE SUBMITTED	Nov. 11, 2020
REPORTING PERIOD	**From:** Oct. 10, 2020 **To:** Nov. 11, 2020	REPORT #	3

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 15th of the month following the reporting period shown above.

Detailed Accomplishments by Task for reporting period

Task 1: Totally 18 cases – both 9 cases with NCEP FNL and ECWMF reanalysis are finished and archived. We generate the met and wrfinput as well as wrfbdy from NAM reanalysis data.

Task 2: we download the COSP package (the latest version) and we examine and prepare the inputs for COSP package. The inputs are generated from the WRF output.

Preliminary Analysis

Preliminary results demonstrate that the microphysics scheme plays more important role than reanalysis inputs in terms of simulating cloud radiative effect. The Morrison scheme predicts more reflective clouds than the other two microphysical schemes.

Data Collected

1. Outputs from the 18 cases of WRF simulations (all cases with FNL and ECWMF reanalysis inputs).
2. COSP input Netcdf file.

Identify Any Problems or Issues Encountered and Proposed Solutions or Adjustments

N.A.

Goals and Anticipated Issues for the Succeeding Reporting Period

1. Finish the last 9 cases with NAM reanalysis

2. Run COSP simulation and prepare the time series of inputs from WRF simulation (writing script that makes the workflow automatically.) We expect to generate COSP MODIS cloud fields that will be compared against the observation.

Detailed Analysis of the Progress of the Task Order to Date

2/3 of Task 1 finished and in the beginning of Task 2.

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**

Submitted to AQRP by
[Zheng Lu]