NW-AIRQUEST PROJECT STATUS REPORT

NW-AIRQUEST ANNUAL MEETING

JUNE 11-13, 2019

BOISE

JOE VAUGHAN FOR LAR/CEE/VCEA/WSU

BUDGET STATUS

Budget as of 6/05/2019

BTD Through: 06/05/2019

14E 3815-5561 NW AIRQUEST REG AIR QUAL MODEL SYSTEM: AIRPACT 5 #SYNTAX #ERROR #SYNTAX

Category	Object	Allocation	Expense	Encumbrance	Balance	Alloc Spent
Salaries	00	61,909.00	25,418.38	4,718.36	31,772.26	48.68 %
Wages	01	0.00	1,770.00	0.00	-1,770.00	0.00 %
Consumable Goods And Services	03	8,700.00	5,966.70	0.00	2,733.30	68.58 %
Travel	04	2,920.00	1,744.07	0.00	1,175.93	59.73 %
Equipment - Capitalized	06	30,000.00	0.00	30,190.24	-190.24	100.63 %
Employer Contributions	07	25,114.00	11,102.79	1,132.40	12,878.81	48.72 %
Facilities & Administrative Cost	13	10,357.00	5,012.01	5,344.99	0.00	100.00 %
Account Totals:		**139,000.00**	**51,013.95**	**41,385.99**	**46,600.06**	**66.47 %**

META TASKS

Staffing for AQ Modeling at LAR		• Brian K Lamb, Professor, retired… after 40 years at LAR • Yunha Lee, Assistant Professor … • Mahshid Etesamifard (PhD student) • Jordan Munson (MS student) • Ana Fernandez (PhD student) • Kai Fan (PhD student) • New Postdoc Amit Sharma started April 2019 • Joe Vaughan, 75% of a Research Associate Prof.

META TASKS

Professor Brian K Lamb Retired… after 40 years at LAR

META TASKS

Cluster upgrades		• Purchased for Cluster improvement: $40K for new PGI licenses, 4 AMD nodes, ancillary hardware… • Negotiating, still, how VCEA Aeolus will be supported by CIRC and WSU office of Research, yet remain independent and optimal for VCEA research support. • Still waiting for administratively flexible cost recovery center to be approved…

TASKS CARRIED FORWARD TO 2018-2019

SFY 2019 Task	Status June 2019	Comments
Annual AIRPACT evaluation	Well along. Jordan Munson has drafted a paper covering AIRPACT-3, -4, & 5 and is working on a BENMAP analysis.	Jordan is presenting a multi-year evaluation,. Has created automated procedures, designed for rerunning for updates. Annual reruns are intended to provide an appendix to annual state of the model reports.

TASKS CARRIED FORWARD TO 2018-2019

SFY 2019 Task	Status June 2019	Comments
Assess feasibility of employing bidirectional NH3 scheme.	On hold… Not targeted for SFY 2020	Consultation with Donna Schwede (EPA) suggests that EPIC's design in not currently compatible with requirements of a daily forecasting system, i.e. AIRPACT5. Discussions in NW-AIRQUEST don't give this high priority.

TASKS CARRIED FORWARD TO 2018-2019

SFY 2019 Task	Status June 2019	Comments
Incorporate dust-suppression module for rainy days (AFDUST)	Pending, still	Farren Herron-Thorpe (ECY) has been in touch with BH Baek @CMAS Center. • AIRPACT5: modify the EI so that dust is turned on for the Eastside of Cascades. • AIRPACT6: implement AFDUST option to control dust based on met moisture. • Possibly a task for our new postdoc.

TASKS CARRIED FORWARD TO 2018-2019

SFY 2019 Task	Status June 2019	Comments
Get BCON from the NCAR Whole Atmosphere Community Climate Model (WACCM).	Implemented WACCM BCON for AIRPACT5 effective 11/1/18	

TASKS CARRIED FORWARD TO 2018-2019

SFY 2019 Task	Status June 2019	Comments
Incorporate new emission inventory (MOVES, Canada, etc) (MOVES update from Idaho…)	MOVES update files from IDEQ (Wei Zhang) have been acquired.	Not yet updated in AIRPACT5

TASKS CARRIED FORWARD TO 2018-2019

SFY 2019 Task	Status June 2019	Comments
Develop PM2.5 bias correction scheme.	Active task	Nicole June (LAR Summer 2018 REU student from Penn State Meteorology) is working on a Kalman Filter bias correction scheme and interpolation throughout domain. Work being presented, and will be continued.

TASKS CARRIED FORWARD TO 2018-2019

SFY 2019 Task	Status June 2019	Comments
Hosting wood smoke PM forecast models from formulas shared by the state and local agencies.	In receipt, April 2019, of PM2.5 model to implement from Phil Swartzendruber (PSCAA).	"PSCAA Statistical Air Quality Model (SAQM), PM2.5 Box Model"

SFY 2019 NEW TASKS

SFY 2019 Task	Comments
Develop standard annual evaluation report using the AIRNOW/web generated stats along with one or two episode case studies (perhaps). ⁎ Do this every year, but keep it simple and concise.	Jordan is presenting his multi-year analysis. ⁎ Discussion with NW-AIRQUEST leaders clarified that this expectation has been deprecated with newer scope and shift to machine learning items.

SFY 2019 NEW TASKS

SFY 2019 Task	Comments
Conversion to SMOKE 4.5, Update to CMAQv5.2 and include latest MCIP Update MEGAN v2.10 to MEGAN v3 New PGI license, and CENTOS update to v7	SMOKEV4.5 as installed only runs on Intel nodes, & being used in UI update. SMOKE4.5 still needs to be built locally to run on LAR's dedicated AMD nodes. Tested CMAQv5.2 in Boise (& Ports), with MCIPv4.5 MEGAN v3 needs parallelization.. Likely task for new Postdoc, Amit Sharma.

SFY 2019 NEW TASKS

SFY 2019 Task	Comments
Implement IDEQ wildfire plume rise, emission updates, and in-line photolysis and compare to current/recent runs	IDEQ plume rise is in place now. In-line photolysis was tested by Mahshid in CMAQv5.2. in the Boise project. In-line photolysis along with WRF aerosol treatment should help with ozone.

SFY 2019 NEW TASKS

SFY 2019 Task	Comments
Use the WRF-Chem system on the WSU Kamiak cluster (initiated with an Ecology contract) to demonstrate WRF-Chem capabilities. Operation in a forecast mode will be decided at a later time. More resources will be required to run this at the same level as the current AIRPACT.	Ana Fernandez is presenting on Preliminary results of WRF-Chem urban simulations over the Spokane area.

RUN COMPLETION DELIVERABLES

1. The 1st day forecast products will be produced and updated to the website by 6am Pacific/7am Mountain local time every day with a reliability goal of 95% or better pending availability of WRF outputs and excepting other external factors such as power failures. ~91%

2. The 2nd day forecast products will be produced and updated to the website within 6 hours after the 1st day products with the same reliability target as the 1st day forecast. ~96%

Discussion Time!

Thank you…