



NW-AIRQUEST PROJECT STATUS REPORT

NW-AIRQUEST ANNUAL Meeting
June 8-10, 2021

Joe Vaughan for LAR/CEE/VCEA/WSU

BUDGET STATUS

WSU has adopted a new uber-system called Workday, so budgets reports are new and different. We used to show a report such as this; Von will present our current Budget status.

BTD Through: 06/08/2020

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	122,343.00	100,460.31	5,391.96	16,490.73	86.52 %
Wages	01	2,251.00	11,112.29	0.00	-8,861.29	493.66 %
Consumable Goods And Services	03	18,700.00	15,872.40	0.00	2,827.60	84.88 %
Travel	04	6,157.00	7,783.40	0.00	-1,626.40	126.42 %
Equipment - Capitalized	06	40,000.00	30,190.24	0.00	9,809.76	75.48 %
Employer Contributions	07	46,335.00	40,779.87	814.11	4,741.02	89.77 %
Facilities & Administrative Cost	13	23,214.00	19,720.68	3,493.32	0.00	100.00 %
Account Totals:		259,000.00	225,919.19	9,699.39	23,381.42	90.97 %

META TASK: STAFFING AT LAR

For AQ
Modeling

Brian K Lamb, Professor, Emeritus ... still shows up occasionally!

(Yunha Lee, Assistant Professor, resigned.)

Mahshid Etesamifard, PhD student, w/ CMAQ v5.2 in Ports & Boise Projects.

(Amit Sharma, Postdoc April 2019 – April 2020. Departed for job at IIT.)

Joe Vaughan, 50% of a Research Associate Prof. Retiring 6/30/21.

(Nicole June, 2018 REU student & PSU Met. Grad, now at CSU. KFBC!)

For Machine
Learning

Ana Fernandez (PhD student) WRF-Chem and continuing at WSU

(Kai Fan (PhD) Machine Learning, now with Yunha Lee in Germany.)

For Sensor
work

Von Walden, working on Lightweight & Dense Sensor Networks

Matthew Roetcisoender (PhD student) working with Von Walden on Sensors.

In Process: Hiring of New Postdoc to support NW-AIRQUEST!

META TASKS

Cluster upgrades (February)	<p>December 2020: Worked on power issues for the new cluster racks.</p> <p>January 2021:</p> <ul style="list-style-type: none">Made major improvements to the cooling infrastructure to handle the new serversEstablished a L2/physical link to the HSSRC (high-speed research network for WSU campuses) <p>February 2021: Currently working on:</p> <ul style="list-style-type: none">login and compute node firmware updateslogin and compute node OS installsalpha testing storage setupauthentication mechanisms for usersSLURM scheduler (replacement to Torque and Maui)environment modules <p>New storage: was waiting on power/cooling that happened in January.</p> <p>Currently pending some parts purchases.</p>
	Awaiting update from Sys Admin on Aeolus and Motley.

ONGOING TASKS

Task	Status June 2021	
<p>1. Provide daily forecasts of air quality for the three-state region that can be used in daily AQ management.</p>	<p>DAY-ONE runs for July '20 into June '21, 333 days show success rate by 7 AM was 86%. Causes for late runs include:</p> <ul style="list-style-type: none">Late runs due to fire emissions failures- especially September wildfires,Networking file transfer failures,Security upgrade with new VPN, andSystem maintenance outages.	

ONGOING TASKS

Task	Status June 2021
<p>2. Provide near real-time verification statistics of the current AIRPACT system accuracy by pollutant, by month, and Provide for user access to AIRPACT results and monitoring data for user-defined periods for download & analysis.</p>	<p>Statistics maintained.</p> <p>Recent data requests:</p> <p>Rong Li of IDEQ requested AIRPACT5 Ozone results for Pocatello and Idaho Falls.</p>

ONGOING TASKS

Task	Status June 2021	
3. Track and continue to improve model performance so that model predictions provide useful guidance for air quality forecasting.	Ongoing concern.	

ONGOING TASKS

Task	Status June 2021	
4. Maintain ambient air monitoring data streams from AIRNow.	Ongoing.	
5. Maintain satellite retrievals.	Ongoing, except for GOES Cloud Type.	
6. Continue improvements and requested additions to web graphical display.	No new graphics requests. (But added KFBC AIRNow site-specific 24-hr PM2.5 fcst.)	

ONGOING TASKS

Task	Status June 2021	
7. Maintain the “Change Log”, posted on the AIRPACT website.	Ongoing.	
8. Archive daily model output of the first 24 hours... Web-based graphical displays for each day’s first 24 hours of forecast should be available for the most recent 5 years & gridded files for at least one month.	Ongoing. Forecast graphics available beginning December 2015.	

ONGOING TASKS

Task	Status June 2021
9. Modify AIRPACT as needed to respond to changes in fire emissions produced by other organizations.	Received info on USDA/FS new Fire Info System (FIS/BSP (Spider?)). Implemented in AIRPACT5 in August '20.
10. Continue hosting the link to the latest background concentration lookup tool.	Hosted at http://lar.wsu.edu/nw-airquest/lookup.html

SFY 2021 TASKS

Task	Comments
Implement PM2.5 bias correction scheme.	<p>Completed: Nicole June (Penn State & CSU) wrote a Kalman Filter bias correction scheme and interpolation of bias correction throughout domain.</p> <p>Daily KFBC results are online, both mapped to entire domain (variably successful) and site-specific.</p> <p>Linear & Gaussian Kriging implemented, but Bayesian-Kriging was not.</p>

SFY 2021 TASKS

Task	Comments
<p>Provide training workshops (webinars) on AIRPACT modeling system, AIRPACT web products and their use for air-quality forecasting.</p>	<p>First webinar was provided at June '20 meeting. Revised & additional materials made available in June '21.</p>

SFY 2021 TASKS

Task	Comments
<p>Create updated forecasting framework AIRPACT6 and associated tasks accommodating changes in computation platform Aeolus (Linux cluster at VCEA/WSU), and implementing component updates/upgrades.</p>	<p>All AIRPACT6 tasks are late due to:</p> <ul style="list-style-type: none">• Delays in availability of new CENTOS 7 system, Motley;• Problems building new netCDF and IOAPI libs, & other codes;• transitioning to new FORTRAN compiler, from PG to NVIDIA;• Buggy F90 NVIDIA compiler, since updated...

SFY 2021 TASKS

Task	Comments
Incorporate new emission inventory (MOVES, Canada, etc.) (MOVES update from Idaho...)	FHT has updated emissions and run through CMAQ. SMOKEv4.5 has been built, tested, and <i>partly</i> tested for AIRPACT5 by FHT. Testing for AIRPACT6 pending...

SFY 2021 TASKS

Task	Comments
Develop an ML forecast system for PM2.5 for points within the PNW domain including mountain areas, such as Pinehurst, ID.	Completed as part of the Ozone ML project. Is any new web publishing on AIRPACT pages desired for this work funded and directed by Ecology?

SFY 2021 TASKS

Task	Comments
Experimental drone flights of opportunity to study wintertime inversion conditions (e.g., Pinehurst, ID).	Deferred during pandemic



Thank you!