

CY2017 AIR QUALITY FORECAST ACCURACY

Air Quality Subcommittee, September 15, 2017

ACTION REQUESTED

No action requested. This item is for presentation and discussion.

- **Air Quality Forecast Summary**

PREVIOUS ACTION

No Prior Action (Quarterly Update for Subcommittee)

BACKGROUND

NOACA forecasts daily peak 8-hour ground-level ozone concentrations and fine particulate matter concentrations.

- In 2017, daily forecasts for ozone begin March 1 and conclude October 31
- Daily forecasts for fine particulate matter are year-round

NOACA posts daily air quality forecasts through AirNowTech, in affiliation with the United States Environmental Protection Agency (U.S. EPA)



BACKGROUND

NOACA ground-level ozone and fine particulate matter forecasts based on a review of several meteorological variables and model guidance.

- National Oceanic & Atmospheric Administration (NOAA) National Air Quality Forecast Capability (ozone only).
- Classification and Regression Tree (CART) Model
- Sonoma Tech Guidance (via Columbus/Central Ohio Forecast on AirNow.gov)

BACKGROUND

NOACA and NOAA Forecast Performance for June-August, 2017 (O₃):

FORECAST		THRESHOLD	
		50ppb	70ppb
AGENCY	NOACA	76%	91%
	NOAA (6Z/12Z)	(80/76)%	(91/93)%

BACKGROUND

NOACA and NOAA Forecast Performance for March-August, 2017 (O₃):

FORECAST		THRESHOLD	
		50ppb	70ppb
AGENCY	NOACA	79%	93%
	NOAA (6Z/12Z)	(85/82)%	(95/96)%



BACKGROUND

NOACA and NOAA Forecast Exceedance Days for March-August, 2017 (O₃):

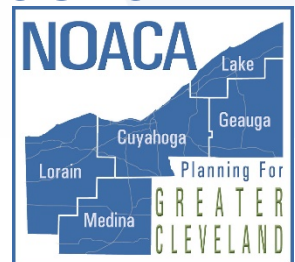
DATE	FORECAST CATEGORY		OBSERVED	
	NOAA	NOACA	PEAK (ppb)	# STATIONS
APRIL 26	3	1	2	na
MAY 16	1	2	3	3
MAY 17	3	1	2	na
JUNE 10	2	2	3	5
JUNE 11	3	2	3	1
JUNE 13	2	3	3	6
JULY 19	2	2	3	4
JULY 20	2	3	2	na
JULY 21	2	3	2	na
JULY 29	1	2	3	2
AUGUST 20	2	3	2	na
AUGUST 21	3	3	2	na

AIR QUALITY INDEX	
CATEGORY	HEALTH CONCERN LEVEL
1	GOOD
2	MODERATE
3	UNHEALTHY FOR SENSITIVE GROUPS
4	UNHEALTHY
5	VERY UNHEALTHY
6	HAZARDOUS

BACKGROUND

NOAA Forecast Performance (O₃): Exceedance Days

- “Missed Opportunities” – five (5) days NOAA (and NOACA) did not forecast observed Exceedance of 2015 8-hour ozone standard (70ppb)
- “False Alarms” – three (3) days NOAA (four NOACA) forecasted Exceedance of 2015 8-hour standard (70ppb) when observed concentrations did not exceed the standard



BACKGROUND

NOACA Forecast Performance (PM_{2.5}):

PM _{2.5} GOOD/MODERATE THRESHOLD (12µg/m ³)		NOACA FORECAST	
		BELOW	ABOVE
OBSERVED	BELOW	55%	21%
	ABOVE	10%	14%
CORRECT = 69%			

BACKGROUND

NOACA Forecast Performance (PM_{2.5}):

PM _{2.5} MODERATE/UNHEALTHY THRESHOLD (35µg/m ³)		NOACA FORECAST	
		BELOW	ABOVE
OBSERVED	BELOW	100%	0%
	ABOVE	0%	0%

CORRECT = 100%

NEXT STEPS

Track forecast performance of NOACA and NOAA for ozone; NOACA only for fine particulate matter

Collaborate with NOAA personnel to report model performance in Northeast Ohio

Collaborate with other air quality forecasters in Great Lakes, Northeast and Mid-Atlantic to tweak forecast protocol to improve performance

Update Air Quality Subcommittee in December

NORTHEAST OHIO



AREAWIDE
COORDINATING
AGENCY

NOACA: Planning For Greater Cleveland

NOACA will **STRENGTHEN** regional cohesion, **PRESERVE** existing infrastructure, and **BUILD** a sustainable multimodal transportation system to **SUPPORT** economic development and **ENHANCE** quality of life in Northeast Ohio.

