

DATA TO DECISIONS

Opportunities & challenges in incorporating satellite data at OR DEQ

Meenakshi Rao

10th July, 2019

HAQAST6, Pasadena CA

THE AIR TEAM @ DEQ

Air Administrator : Ali Mirzakhali

Lab Administrator (acting) : Lori Pillsbury

Meenakshi Rao

Air Quality Monitoring Manager : Tom Roick

Anthony Barnack

Evan Bing

Air Technical Services Manager : Jeffrey Stocum

Phil Allen

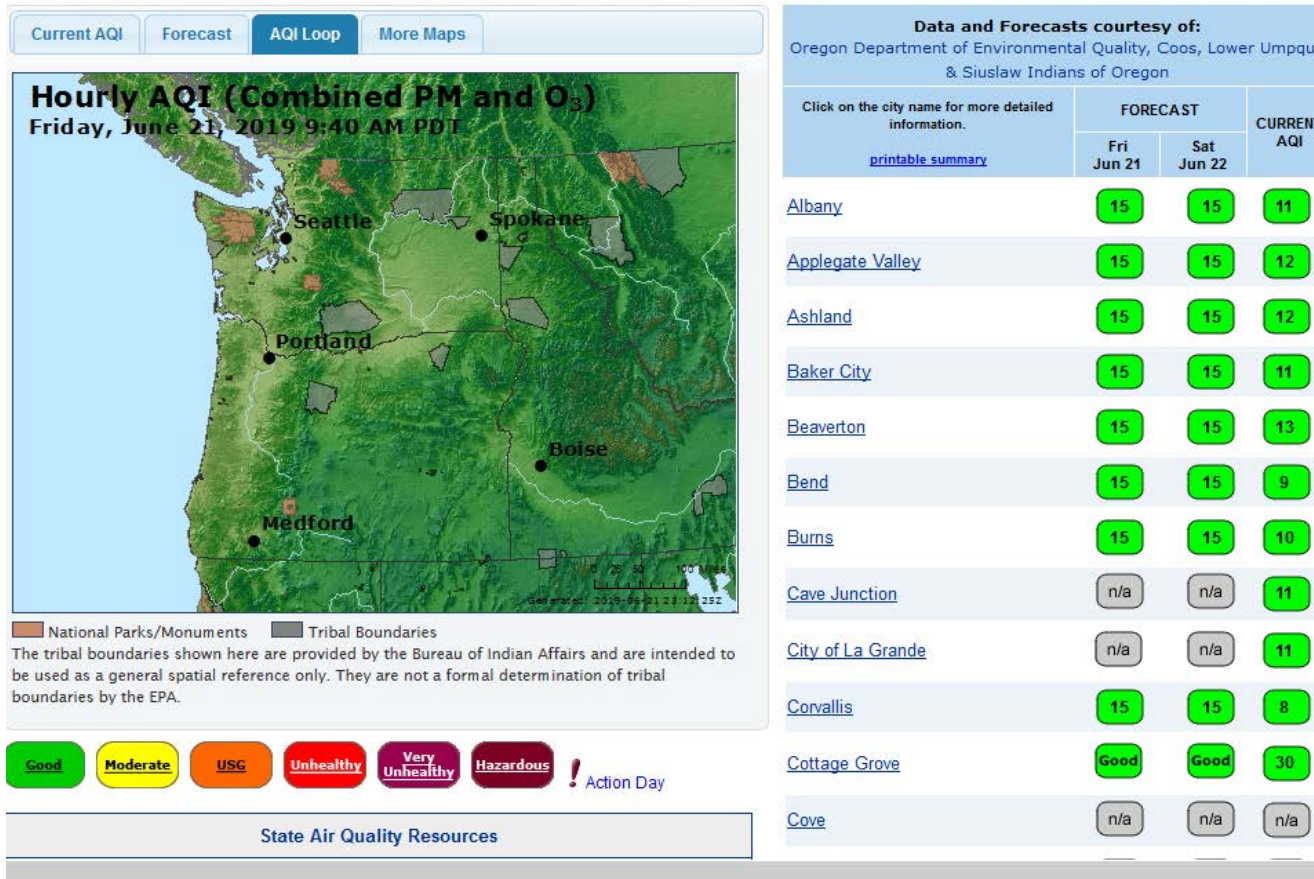
Brandy Albertson

Air Planning Manager : Michael Orman

D Wu

“...to be a leader in restoring, maintaining and enhancing the quality of Oregon's air, land and water.”

FORECASTING



Daily point forecast for 1,2, and 3 days out for PM2.5, O3 and stagnation conditions, based on ground-based monitors + models

OPPORTUNITY

- Integrate satellite ozone & AOD with ground-based networks and models to improve 1, 2, 3 day forecasts
- Predict hourly PM2.5 and O3 surfaces
- Build capacity at DEQ to leverage data from new satellites (TEMPO, GOES)

CHALLENGE

- Column AOD to surface PM2.5
- Spatial and temporal resolution

SMOKE IMPACTS FROM WILDFIRE AND PRESCRIBED BURNS



Smoke from multiple NW fires, 13th Aug, 2018

OPPORTUNITY

As part of a multi-agency team, work to:

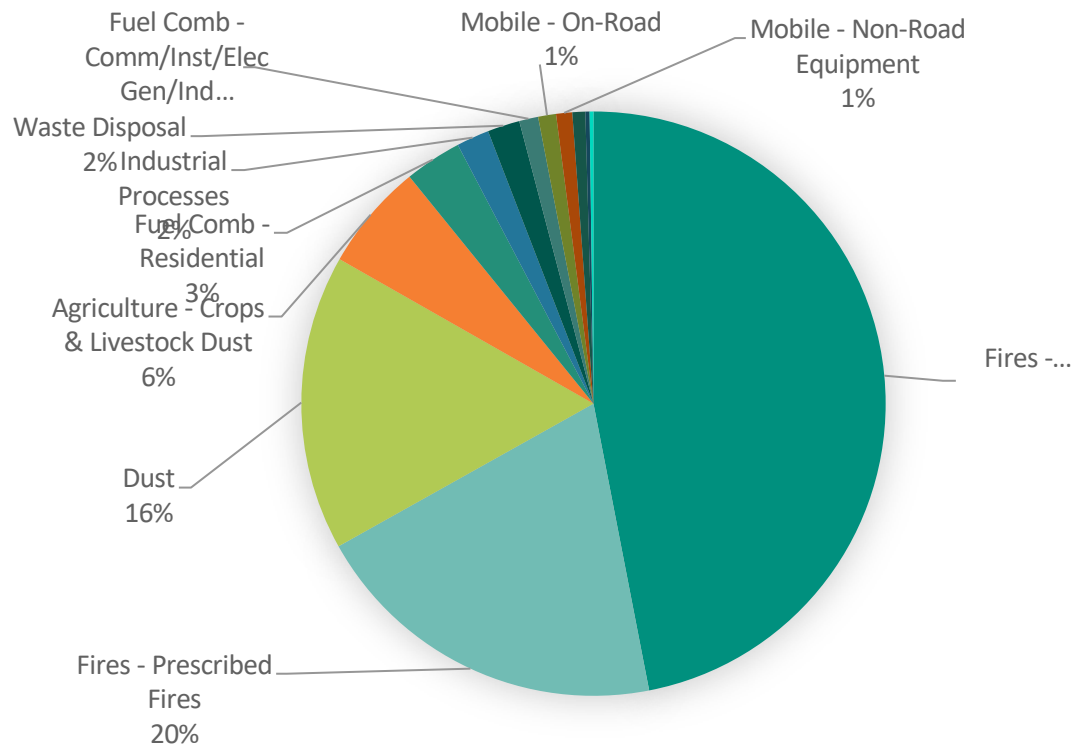
- Exceptional events
- Minimize health impacts and build resilience to increasing wildfire events through forecasting
- Proactively prioritize and target response

CHALLENGE

- Multi-agency collaboration
- Integrating multiple, complex data sets (monitors, models, satellite data from multiple instruments – MODIS, OCEO) in near-real time
- Validating models

EMISSION INVENTORIES VERIFICATION

OR - PRIMARY PM2.5 EMISSIONS



OPPORTUNITY

- Improve models – GIGO principle

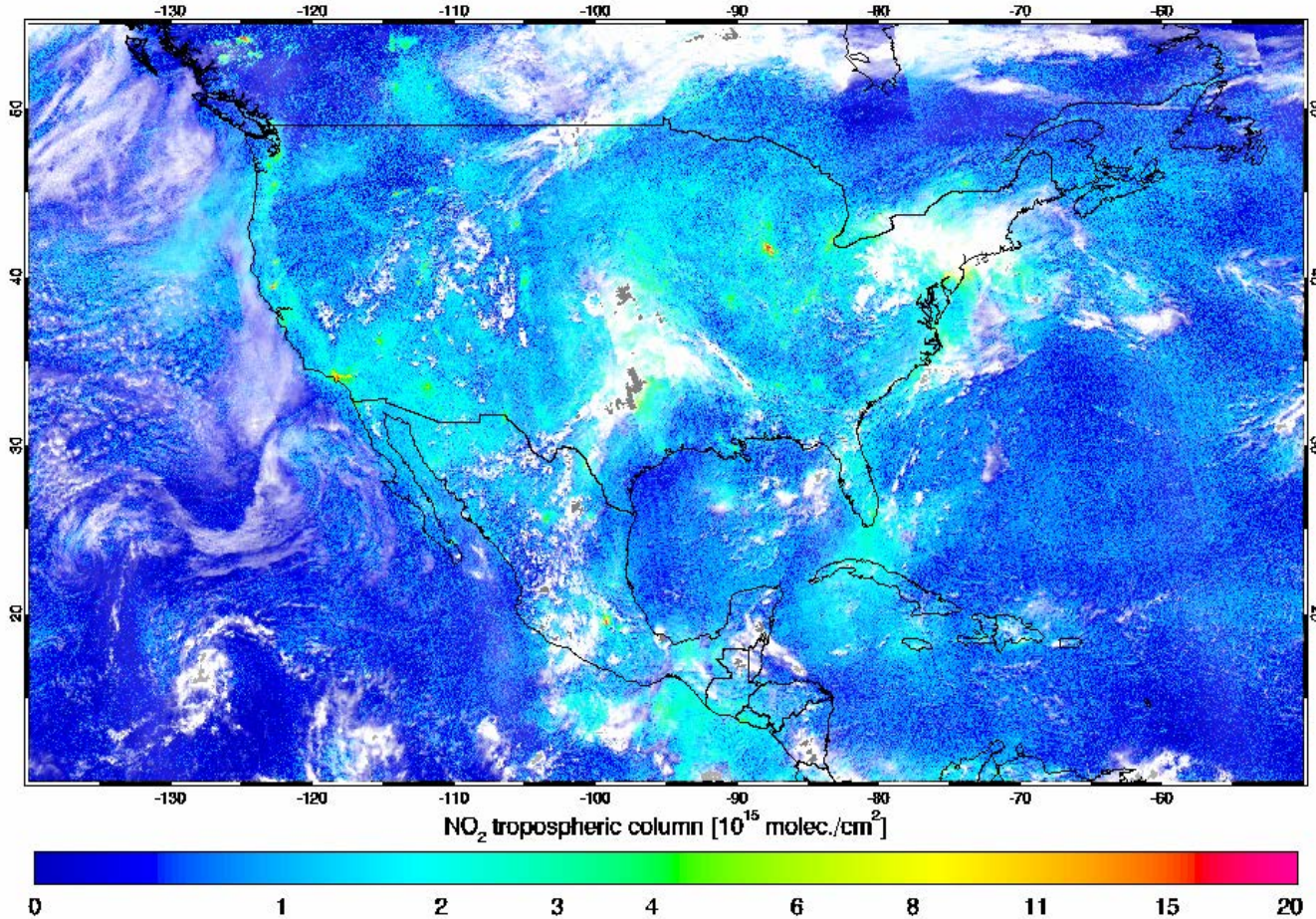
CHALLENGE

- Verification

ASSESSING HEALTH AND ENVIRONMENTAL IMPACTS OF AIR POLLUTION

TROPOMI tropospheric NO₂ 13 Aug 2018

KNMI/ESA



OPPORTUNITY

- Develop spatially and temporally resolved maps of air pollution to investigate the link between air pollutants and acute and chronic health risks.

CHALLENGE

- Validation