



Public Meeting for Contract 23RD017
Scientific Evaluation of Nitrogenous Emissions from soils

May 7, 2024

Agenda

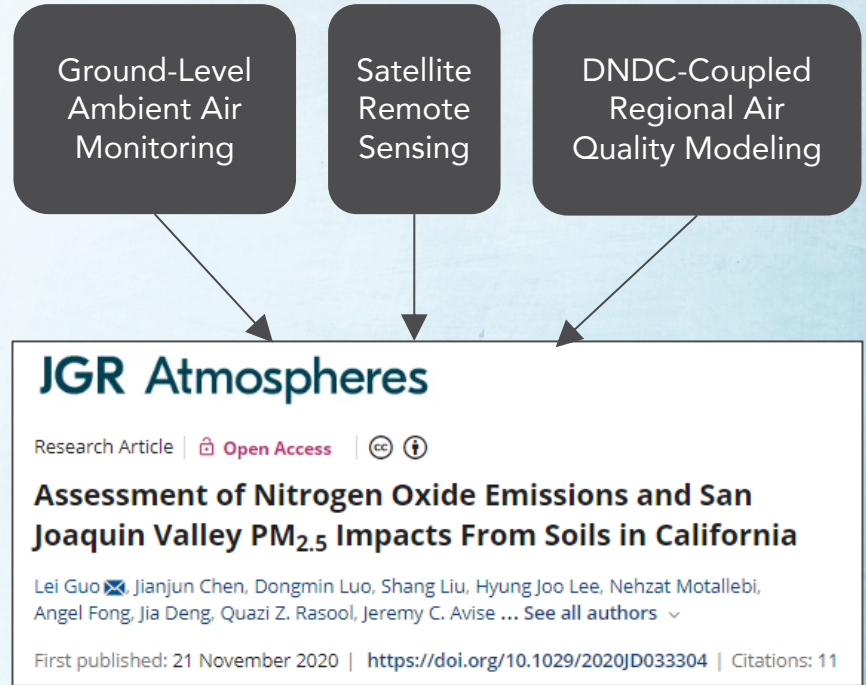
- Background
- Subject Matter Expert Review Panel (SMERP) selection process
- Contract logistics

Background

- State Strategy for the State Implementation Plan (State SIP Strategy) describes control measures and emissions reductions necessary from State-regulated sources to support the attainment of the health-based federal air quality standards
- A research study suggested that nitrogen oxides (NO_x) emissions from soils could be underestimated in the emission inventory, which would increase the statewide NO_x budget by 20 to 51%
- Potential implications for the state's attainment strategy for criteria air pollutants like PM_{2.5} and ozone

Background (cont.)

- NO_x emissions from soils have been incorporated into the regional air quality modeling for years and CARB uses DeNitrification-DeComposition (DNDC) biogeochemical modeling to further evaluate its performance
- Contrary to the research findings, multi-method evaluation of NO_x in California's San Joaquin Valley suggested that, although they are important, soils do not significantly contribute to California's NO_x budget



Background (cont.)

- More recent research reported soil NO_x underestimates by various emission estimation schemes:
 - Model of Emissions of Gases and Aerosols from Nature (MEGAN)
 - Biogenic Emission Inventory System (BEIS)
 - Berkeley Dalhousie-Iowa Soil NO Parameterization (BDISNP)
- These research findings warranted a holistic review and synthesis of the science surrounding nitrogenous emissions from soils to better inform the agency on its importance

SMERP Selection Process

- CARB worked with external stakeholders to develop a set of research questions on nitrogenous emissions from soils
- Nomination was released in August 2023



NOMINATION/APPLICATION FORM

Subject Matter Expert Review Panel on Nitrogenous Emissions from Soils

ABOUT

CARB is seeking five technical experts to serve in the Subject Matter Expert Review Panel (SMERP) that will independently evaluate existing data and science to improve our current understanding of nitrogenous emissions, including oxides of nitrogen, nitrous oxide, and ammonia, from soils, particularly in California. The SMERP will assess the merits and caveats of each reference used in this process and objectively synthesize California-specific information on nitrogenous emissions from soils in a document. Such a document will include clear and relevant comparisons between nitrogenous emissions data from soils in California and elsewhere. The SMERP is expected to formulate future research and air monitoring recommendations to improve how California accounts for nitrogenous emissions from soils. See Appendix A for a list of scientific questions that the SMERP must answer as part of this project.

Interested parties are encouraged to nominate their peers or apply themselves to be a member of the SMERP. Self-applicants must fill out the Conflict-of-Interest (COI) section prior to submission. Otherwise, CARB staff will contact the nominees to collect such information prior to SMERP member selection. *Complete and submit this form to abhishek.dhiman@arb.ca.gov by the deadline on 8/21/2023 at 5:00 PM PDT.*

Source: <https://ww2.arb.ca.gov/subject-matter-expert-review-panel-nitrogenous-emissions-soils>

SMERP Selection Process (cont.)

- CARB received 20 submissions
- Nominees evaluated as Recognized Authority based on a quantitative ranking system that used categories shown in the right table

Note: Ranking system was created prior to the start of the process

Ranking Category
Completeness of the Nomination Criteria
Conflict of Interest
Topic of Expertise: Listed
Topic of Expertise: Other
Recognized Authority: Peer-Reviewed Publications
Recognized Authority: Advisory Role
Recognized Authority: Citations

SMERP Selection Process (cont.)

Cumulatively over 250 peer-reviewed scientific publications and reports related to nitrogenous emissions from soils and agricultural operations, with citation of over 15,000.



Will Horwath
UC Davis



Whendee Silver
UC Berkeley



Xia Zhu-Barker
UW-Madison



Martin Burger
CDFA
(formerly)



Viney Aneja
NCSU

Contract 23RD017

- **Title:** Scientific Evaluation of Nitrogenous Emissions from Soils
- **Objective:** Evaluate the state of the science on nitrogenous emissions from soils in California through comprehensive review of scientific literature, pertinent databases, and emission estimation methodologies
- **Contract term:** March 1, 2024 to February 28, 2025

- **Project Schedule**

k = kick-off meeting
 p = progress meeting
 d = draft final report
 f = final report
 s = seminar

Task	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB
Meetings	■	■	■	■	■	■	■	■	■	■	■	■
Review	■	■	■	■	■	■	■	■	■	■	■	■
Report	■	■	■	■	■	■	■	■	■	■	■	■
	k, p		p		p		p		p	d	p	f, s