State of California
AIR RESOURCES BOARD

Improved Understanding of the Magnitude of Trans-Pacific Long Range Transported Ozone Aloft at California's Coast

Resolution 15-33

July 23, 2015

Agenda Item No.: 15-6-2

WHEREAS, the Air Resources Board (ARB or Board) has been directed to carry out an effective research program in conjunction with its efforts to combat air pollution, pursuant to Health and Safety Code sections 39700 through 39705;

WHEREAS, a research proposal, number 2797-283, titled "Improved Understanding of the Magnitude of Trans-Pacific Long Range Transported Ozone Aloft at California's Coast," has been submitted by San José State University, for a total amount not to exceed $281,699;

WHEREAS, the Research Division staff has reviewed Proposal Number 2797-283 and finds that in accordance with Health and Safety Code section 39701, research is needed to better quantify the magnitude and temporal variations in baseline ozone concentrations entering California, particularly in the high ozone season in the San Joaquin Valley; and

WHEREAS, in accordance with Health and Safety Code section 39705, the Research Screening Committee has reviewed and recommends funding the Research Proposal.

NOW, THEREFORE BE IT RESOLVED that the Air Resources Board, pursuant to the authority granted by Health and Safety Code section 39700 through 39705, hereby accepts the recommendations of the Research Screening Committee and staff and approves the Research Proposal.

BE IT FURTHER RESOLVED that the Executive Officer is hereby authorized to initiate administrative procedures and execute all necessary documents and contracts for the Research Proposal as further described in Attachment A, in an amount not to exceed $281,699.

I hereby certify that the above is a true and correct copy of Resolution 15-33 as adopted by the Air Resources Board.

Tracy Jensen, Clerk of the Board

ATTACHMENT A

"Improved Understanding of the Magnitude of Trans-Pacific Long Range Transported Ozone Aloft at California's Coast"

Background

Increasing global industrialization and development have contributed to increases in background ozone over the eastern Pacific and western United States. Intermittent field studies have documented instances of elevated ozone concentrations aloft (associated with global, regional, and local sources) that could potentially be relevant to ground level exceedances in California. There have been limited, episodic campaigns of instrumented aircraft flights sponsored by federal, state, and regional groups (e.g., the National Oceanic and Atmospheric Administration (NOAA), the National Aeronautics and Space Administration (NASA), the San Joaquin Valley (SJV) Air Pollution Control District, and ARB) as well as weekly ozonesonde launches on the north coast of the State (sponsored by NOAA) to investigate ozone events and processes. But these isolated efforts do not provide sufficient information to fully understand the spatial and temporal variations in baseline ozone concentrations entering California. Currently, global modeling results from the National Center for Atmospheric Research (NCAR) are used to generate California's boundary conditions for SIP modeling. However, there are relatively large uncertainties in the global modeling results and therefore continuous evaluation and improvement of modeled boundary conditions using the measurement data is critically important. This project is designed to collect ozone vertical profiles from a California coastal site on near daily basis during the ozone season of 2016. The data and information collected in this project will help to assess the ability of global models to simulate the vertical and temporal variability of incoming air masses and as such lead to improvements in regional air quality simulations for SIP purposes. The daily measurements will give great insight into the daily variability and the frequency of incoming high pollution events and greatly enhance the characterization of long-range pollution transport. This research project is a necessary first step toward understanding the difficult policy relevant question of what is the contribution of Pacific long-range transported ozone to surface exceedances in the state.

Objective

The overall objective of this project is to collect vertical profiles of ozone concentrations from a California coastal site once a day to quantify the magnitude and temporal variations in baseline ozone entering California.

Methods

The proposed work by researchers in San José State University includes measurements of ozone vertical profiles during the late spring and summer of 2016 for about three months at the Bodega Bay site. Ozonesondes will be launched from the University of California, Davis Bodega Marine Laboratory once a day to collect the vertical profiles of ozone concentrations. Data will be processed and fully screened and validated for quality assurance and quality control, and then submitted to ARB.

Expected Results
It is anticipated that this project will provide ARB with 3 months of near daily ozone vertical profile data to better quantify the magnitude and temporal variations in baseline ozone concentrations entering California.

Significance to the Board
The upper air ozone data collected from this project will help us to better quantify the magnitude and temporal variations in baseline ozone concentrations entering California, particularly in the high ozone season in SJV. The data are also critically important for evaluating and improving the boundary conditions generated from the global transport models used in our ozone SIP modeling.

Contractor:
San José State University

Contract Period:
36 months

Principal Investigator (PI):
Sen Chiao, Ph.D.

Contract Amount:
$281,699

Basis for Indirect Cost Rate:
The State and the California State University system have agreed to a twenty five percent indirect cost rate.

Past Experience with this Principal Investigator:
The principal investigator from San José State University has field experience in making atmospheric measurements with sonde based instruments. Also, his knowledge and specific familiarity with California's meteorology will contribute to the overall project in selecting sites and identifying meteorological conditions and regimes. He has demonstrated flexibility, the ability to adapt to recommendations and a cost-effective project design.

Prior Research Division Funding to San José State University:

Year	2014	2013	2012
Funding	$ 0	$ 0	$ 0

BUDGET SUMMARY

San José State University

Improved Understanding of the Magnitude of Trans-Pacific Long Range Transported Ozone Aloft at California's Coast

DIRECT COSTS AND BENEFITS			
1.	Labor and Employee Fringe Benefits	$ 114,839	
2.	Subcontractors	$ 0	
3.	Equipment	$ 15,345	
4.	Travel and Subsistence	$ 17,790	
5.	Electronic Data Processing	$ 4,275	
6.	Reproduction/Publication	$ 0	
7.	Mail and Phone	$ 0	
8.	Supplies	$ 87,591	
9.	Analyses	$ 0	
10.	Miscellaneous	$ 1,500	
	Total Direct Costs		$ 241,340
INDIRECT COSTS			
1.	Overhead	$ 40,359	
2.	General and Administrative Expenses	$ 0	
3.	Other Indirect Costs	$ 0	
4.	Fee or Profit	$ 0	
	Total Indirect Costs		$ 40,359
TOTAL PROJECT COSTS			**$ 281,699**