AIR POLLUTION CONTROL

ACTIVE RESEARCH GRANTS

FOR FISCAL YEAR 1971

U. S. ENVIRONMENTAL PROTECTION AGENCY

AIR POLLUTION CONTROL ACTIVE RESEARCH GRANTS FOR FISCAL YEAR 1971

OFFICE OF RESEARCH GRANTS
RESEARCH TRIANGLE PARK, N.C.

ENVIRONMENTAL PROTECTION AGENCY
Office of Air Programs
Research Triangle Park, North Carolina
July, 1971

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Office of Air Programs Publication No. APTD-0740

FOREWORD

Under the authority of the Clean Air Act, the Office of Air Programs, Office of Research Grants, promotes and administers a research grants program with universities and other nonprofit organizations on the causes, effects, extent, prevention, and control of air pollution with respect to human health, welfare, and productivity. The purpose of this program is to promote and encourage research and development of new concepts, methods, and equipment for the establishment of air pollution standards and more effective air pollution control.

During fiscal year 1971, grants were awarded in eight major areas: human health effects, agricultural effects, socio-economic and political studies, physico-chemical investigations, development of analytic methods and equipment, meteorology, air pollution source control, and communications.

The grants listed herein represent those grants active during fiscal year 1971. In instances where no support is shown, these are grants already being supported which, for one reason or another, did not require that funds be awarded during this fiscal year. In some cases, the reader will note that project ending dates may have occurred prior to the end of the fiscal year; however, these grants are listed since they were active during the reporting period.

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AIR POLLUTION CONTROL ACTIVE RESEARCH GRANTS FOR FISCAL YEAR 1971

Table 1. Summary of Active Research Grants in Fiscal Year 1971

Research category	Number of grants	Amount
A. Air Pollution Effects on Human Health, Welfare, or Productivity	33	902,470
B. Agricultural Effects of Air Pollution	40	1,032,875
C. Economic and Social Studies and Regional Planning	11	234,585
D. Physico-Chemical Investigations	71	1,758,148
E. Development of Analytic Methods and Equipment	32	641,395
F. Meteorology	28	753,326
G. Description and Control of Air Pollution Sources	59	1,489,086
H. Communication	7	81,651
TOTALS	281	6,893,536 1/

1/ This total does not include funds paid during FY-71 to grantees whose grants had terminated, but who were eligible for reimbursement of indirect costs based on Reports of Expenditures.

Table 2. Distribution of Research Grants Within Research Categories in Fiscal Year 1971

Total grants - 281	Total funds - $6,893,536[1/]		
	Number of grants	Amount	Percent of total funds
A. Air Pollution Effects on Human Health, Welfare, or Productivity---	33	902,470	13.1
1. Epidemiological and Statistical Studies----------	1	66,680	1.0
2. Broncho-Pulmonary Physiology and Pathology----------	9	173,374	2.5
3. Broncho-Pulmonary Diseases-----	7	328,109	4.8
4. Aeroallergens----------	4	51,191	0.7
5. Physiological Effects of Specific Air Pollutants----------	12	283,116	4.1
B. Agricultural Effects of Air Pollution----------	40	1,032,875	15.0
1. On Plants----------	26	786,395	11.4
2. On Microorganisms, Plant Cells, and Tissues----------	10	191,670	2.8
3. Plant Related - Emissions, Pollen, Sinks for Pollutants, etc.----------	4	54,810	0.8
C. Economic and Social Studies and Regional Planning----------	11	234,585	3.4
1. Economic Studies----------	4	100,493	1.4
2. Economic Effects----------	2	19,434	0.3
3. Social Studies and Urban and Regional Planning----------	5	114,658	1.7
D. Physico-Chemical Investigations----	71	1,758,148	25.5
1. On Gases----------	45	1,274,820	18.5
2. On Aerosols and Particulates---	22	455,648	6.6
3. On Metals----------	4	27,680	0.4

Table 2 (continued). Distribution of Research Grants Within Categories in Fiscal Year 1970

	Number of grants	Amount	Percent of total funds
E. Development of Analytic Methods and Equipment	32	641,395	9.3
1. For Gases	20	365,786	5.3
2. For Aerosols and Particulates	5	149,595	2.2
3. For Metals	7	126,014	1.8
F. Meteorology	28	753,326	10.9
1. Basic Studies	21	636,684	9.2
2. Air Pollution Forecasting	2	-	-
3. Biometeorology	5	116,642	1.7
G. Description and Control of Air Pollution Sources	59	1,489,086	21.6
1. Stationary Sources	40	829,278	12.0
a. Power Generation and Heating	22	541,824	7.8
b. Industrial Processing	8	107,839	1.6
c. Other	10	179,615	2.6
2. Mobile Sources	19	659,808	9.6
a. Existing Systems	14	467,500	6.8
b. Advanced Power Systems	5	192,308	2.8
H. Communication	7	81,651	1.2
Total	281	6,893,536	100.0

1/ This total does not include funds paid during FY-71 to grantees whose grants had terminated, but who were eligible for reimbursement of indirect costs based on Reports of Expenditures.

A. AIR POLLUTION EFFECTS ON HUMAN HEALTH, WELFARE OR PRODUCTIVITY

Grant Number	Name, Institution, Project Title	Project Period	Fiscal Year 71 Support
1. Epidemiological and Statistical Studies			
AP 01100-01S1	Mervyn W. Susser Columbia University New York, New York 10027 "Air Pollution and Emergency Room Visits"	4/1/70 - 8/31/72	$ 68,680
2. Broncho-Pulmonary Physiology and Pathology			
AP 00229-08	Jere Mead Harvard University Boston, Massachusetts 02115 "Mechanical Factors in the Control of Breathing"	9/1/65 - 2/28/71	None*
AP 00321-10	John J. Ballenger Evanston Hospital Association Evanston, Illinois 60201 "Effect of Noxious Agents on Ciliated Epithelium"	1/1/67 - 12/31/70	None**
AP 00463-03S3	Arend Bouhuys John B. Pierce Foundation of Connecticut, Inc. New Haven, Connecticut 06519 "Physiological Studies on Air Pollution"	5/1/66 - 10/31/70	None*
AP 00607-04	Russell P. Sherwin University of Southern California Los Angeles, California 90007 "Pseudomonas in Tissue Cultures in Guinea Pig Lungs"	9/1/69 - 8/31/72	30,979
AP 00608-05	T. Timothy Crocker University of California San Francisco, California 94122 "Air Pollutants on Respiratory Mucosa in Organ Culture"	6/1/70 - 7/31/71	9,113

*Supported by FY 70 funds.
**Supported by FY 69 funds.

Grant Number	Name, Institution, Project Title	Project Period	Fiscal Year 71 Support
AP 01069-01S1	Mauricio J. Dulfano Veterans Administration Hospital Brooklyn, New York 11209 "A Model of Mucociliary Function and Viscoelasticity"	4/1/70 - 7/31/72	$ 1,913
AP 01323-01	Donald Bartlett, Jr. Dartmouth Medical School Hanover, New Hampshire 03755 "Effects of Atmospheric Pollutants on Lung Development"	2/1/71 - 1/31/74	22,100
AP 01395-01	Nicholas E. Geacintov New York University New York, New York 10003 "Reactivity of Carcinogens Present in Polluted Air"	6/1/71 - 5/31/74	23,766
AP 01555-01A1	Jack D. Hackney Rancho Los Amigos Hospital, Inc. Downey, California 90242 "Effects of Atmospheric Pollutants on Human Lung Function"	6/1/71 - 5/31/74	85,503

3. Broncho-Pulmonary Diseases

AP 00484-06	Robert E. Snell Hospital for Sick Children Washington, D.C. 20017 "Atmospheric Pollution and Respiratory Disease"	6/1/69 - 5/31/72	146,622
AP 00549-05	Quentin N. Myrvik Bowman Gray School of Medicine, Wake Forest University Winston-Salem, North Carolina 27103 "Air Pollution and Respiratory Infections"	2/1/67 - 1/31/72	22,280
AP 00838-03	Stephen M. Ayres St. Vincent's Hospital and Medical Center New York, New York 10011 "Chronic Lung Disease Response to Pollution Free Air"	5/1/69 - 4/30/72	26,800

Grant Number	Name, Institution, Project Title	Project Period	Fiscal Year 71 Support
AP 00923-02	James McCarroll University of Washington Seattle, Washington 98105 "Air Pollution Effects on Airborne Respiratory Disease"	4/1/70 - 3/31/73	$ 38,944
AP 01106-02	Edward W. Swenson University of Florida Gainesville, Florida 32601 "SO_2 Vs Cigarette Smoke in Experimental Bronchitis"	5/1/70 - 4/30/72	27,311
AP 01220-01	Edward H. Bergofsky New York University New York, New York 10016 "Effect of Air Pollution on Obstructive Lung Disease"	3/1/71 - 2/29/72	43,658
AP 01239-02	Elliot Goldstein University of California Davis, California 95616 "Effect of Air Pollutants on Pulmonary Bacterial Defense"	6/1/70 - 5/31/72	22,494

4. Aeroallergens

AP 00001-15S1	Kenneth P. Mathews University of Michigan Ann Arbor, Michigan 48104 "Atmospheric Pollution by Aeroallergens: Medical Phase"	3/1/65 - 11/30/70	None*
AP 00955-01	Thomas J. McDevitt Idaho State University Pocatello, Idaho 83201 "Allergic Evaluation of Industrial Emissions"	5/1/69 - 3/31/71	None**
AP 01135-02	Darrell J. Weber Brigham Young University Provo, Utah 84601 "Characterization of Unknown Lipids in Fungal Spores"	5/1/70 - 4/30/72	27,795
AP 01339-01	William Solomon University of Michigan Ann Arbor, Michigan 48104 "Human Respiratory Responses To Aeroallergens"	2/1/71 - 1/31/74	23,396

*Supported by FY 70 funds.
**Supported by FY 69 funds.

Grant Number	Name, Institution, Project Title	Project Period	Fiscal Year 71 Support
5. Physiologic Effects of Specific Air Pollutants			
AP 00002-12	Albert P. Krueger University of California Berkeley, California 94720 "Biological Effects of Gaseous Ions"	9/1/70 - 8/31/72	$ 68,522
AP 00045-10	H. David Kerr University of Maryland Baltimore, Maryland 21201 "Environmental Factors and Chronic Bronchitis"	2/1/70 - 1/31/71	None*
AP 00084-16	Mary O. Amdur Harvard University Boston, Massachusetts 02115 "Physiological Response to Atmospheric Pollutants"	9/1/69 - 8/31/74	61,581
AP 00260-08	Roger P. Smith Dartmouth College Hanover, New Hampshire 03755 "Sulfide Poisoning and Methemoglobinemia"	12/1/65 - 1/31/71	None*
AP 00655-02	Peter K. Mueller California State Department of Public Health Berkeley, California 94704 "Respiratory Uptake of Gaseous Air Pollutants"	1/1/68 - 12/31/71	None**
AP 00726-02	James M. Ramsey University of Dayton Dayton, Ohio 45409 "Nervous Function in Hypoxic Patients Exposed to CO"	12/1/69 - 4/30/71	None*
AP 00774-02S1	Russell P. Sherwin University of Southern California Los Angeles, California 90033 "A Biologic Indicator for Air Pollution"	5/1/69 - 10/31/71	10,368

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Grant Number	Name, Institution, Project Title	Project Period	Fiscal Year 71 Support
AP 00788-03	Alvin Felmeister Rutgers University New Brunswick, New Jersey 08903 "Study of Irradiated Air Pollutants on Spread Films"	12/1/68 - 11/30/71	$ 27,876
AP 00872-01S1	James L. Wolfe Mississippi State University State College, Mississippi 39762 "Effects of Auto Exhaust on Roadside Mammals"	6/1/70 - 11/30/71	1,347
AP 01014-02	Matilda S. McIntire University of Nebraska Omaha, Nebraska 68105 "Air Lead Pollution: Effect on the G-6-PD Deficient Negro"	9/1/69 - 8/31/71	23,396
AP 01075-02	Clayton G. Loosli University of Southern California Los Angeles, California 90033 "Respiratory Tract Air Pollutants and Biological Agents"	4/1/70 - 3/31/73	82,430
AP 01153-01S1	Frances L. Estes Gulf South Research Institute Baton Rouge, Louisiana 70808 "Biochemical Effects of Simulated Air Pollutants"	8/1/69 - 4/30/71	7,596

B. AGRICULTURAL EFFECTS OF AIR POLLUTION

Grant Number	Name, Institution, Project Title	Project Period	Fiscal Year 71 Support
1. On Plants			
AP 00040-09	W. M. Dugger, Jr. University of California Riverside, California 92502 "Biochemical and Physiological Effects of Oxidant Smog"	6/1/71 - 5/31/74	$ 82,508
AP 00189-10	Leonard H. Weinstein Boyce-Thompson Institute Yonkers, New York 10701 "Effects of Air Pollutants on Plant Systems"	5/1/70 - 4/30/73	116,674
AP 00270-07S1	C. Ray Thompson University of California Riverside, California 92502 "The Total Effect of Air Pollutants on Bearing Citrus"	1/1/70 - 7/31/71	30,847
AP 00272-06	Ellis F. Darley University of California Riverside, California 92502 "Effects of Dusts on Vegetation"	9/1/67 - 4/30/71	None*
AP 00341-08	Merrill R. Pack Washington State University Pullman, Washington 99163 "Response of Plant Fruiting to HF Fumigation"	6/1/69 - 5/31/72	25,509
AP 00393-07	Saul Rich Connecticut Agricultural Experiment Station New Haven, Connecticut 06504 "Nature and Control of Ozone Injury to Plants"	6/1/71 - 5/31/72	21,139**
AP 00436-05	Francis A. Wood Pennsylvania State University University Park, Pennsylvania 16802 "Air Pollution Effects"	9/1/69 - 8/31/71	25,629

*Supported by FY 70 funds.
**Includes "06S1" supplement - $2,120.

Grant Number	Name, Institution, Project Title	Project Period	Fiscal Year 71 Support
AP 00452-06	A. Clyde Hill University of Utah Salt Lake City, Utah 84112 "Effects and Fate of Air Pollutants	10/1/70 - 9/30/73	$ 74,152
AP 00544-05	Chester D. Leonard University of Florida Gainesville, Florida 32601 "Effects of Airborne Fluorides on Citrus"	2/1/67 - 6/30/72	54,681
AP 00630-03	Robert L. Barnes Duke University Durham, North Carolina 27706 "Biochemistry of Ozone Injury to Pines"	3/1/68 - 2/28/71	None*
AP 00631-04	Michael Treshow University of Utah Salt Lake City, Utah 84112 "Impact of Air Pollutants on Ecosystems"	3/1/68 - 2/29/72	27,744**
AP 00686-03	George R. Hoffman University of South Dakota Vermillion, South Dakota 57069 "The Effects of Atmospheric Pollution on Epiphytes"	6/1/68 - 8/31/72	11,488
AP 00701-04	Henry D. Gerhold Pennsylvania State University University Park, Pennsylvania 16802 "Breeding Trees Resistant to Air Pollutants"	6/1/68 - 5/31/72	31,911
AP 00733-03S2	Eugene L. Sharp Montana State University Bozeman, Montana 59715 "Air Ions and the Infection Process of Fungi"	6/1/68 - 8/31/71	7,238***
AP 00761-01	Eileen G. Brennan Rutgers University New Brunswick, New Jersey 08903 "Factors in Response of Austrian Pine to Air Pollution"	6/1/70 - 8/31/72	None*

*Supported by FY 70 funds.
**Includes "03S1" supplement - $3,381.
***Includes "03S1" supplement - $ 987.

Grant Number	Name, Institution, Project Title	Project Period	Fiscal Year 71 Support
AP 00874-02S1	Clarence C. Gordon University of Montana Missoula, Montana 59801 "A Study of Plants Growing in Polluted Atmospheres"	5/1/69 - 6/30/71	$ 2,356
AP 01051-02	Merrill R. Pack Washington State University Pullman, Washington 99163 "Effects of Fluoride on Phosphorus Metabolism of Plants"	5/1/70 - 4/30/72	19,205
AP 01148-02	Albert List, Jr. Drexel University Philadelphia, Pennsylvania 19104 "Plant Growth Responses to Air Pollutants"	5/1/70 - 4/30/73	41,725
AP 01152-02	Gene W. Miller Western Washington State College Bellingham, Washington 98225 "HF - Air Pollution and Intermediary Metabolism"	11/1/70 - 10/31/73	55,436
AP 01157-01	Ernest A. Ball University of California Irvine, California 92664 "Variable Toxic Response as a Means of Obtaining Smog-Resistant Plants"	6/1/70 - 12/31/71	None*
AP 01170-01	Thomas H. Nash, III Rutgers University New Brunswick, New Jersey 08903 "Effects of Air Pollution on a Forest Ecosystem"	4/1/70 - 9/30/71	None*
AP 01223-01	Joe H. Cherry Purdue University Lafayette, Indiana 47907 "Biochemical Effects of Pollutants on Growth of Plants"	4/1/71 - 3/31/73	33,453
AP 01230-01A1	John R. Rowlands Southwest Research Institute San Antonio, Texas 78228 "Early Diagnosis of Pollution-Induced Plant Damage"	3/1/71 - 2/28/74	67,952

*Supported by FY 70 funds.

Grant Number	Name, Institution, Project Title	Project Period	Fiscal Year 71 Support
AP 01265-02	Douglas P. Ormrod University of Guelph Guelph, Ontario, Canada "Environment - Air Pollution Interactions on Plants"	5/1/70 - 4/30/73	$ 12,786
AP 01360-01	George P. Hanson California Arboretum Foundation, Inc. Arcadia, California 91006 "Plant Mechanisms of Ozone Absorption and Tolerance"	6/1/71 - 5/31/73	14,553
AP 01407-01	C. Ray Thompson University of California Riverside, California 92502 "Effects of Peroxyacetyl Nitrate in Orange Trees"	3/1/71 - 2/29/72	29,409
2. <u>On Micro-Organisms, Plant Cells and Tissues</u>			
AP 00071-09	John B. Mudd University of California Riverside, California 92502 "Biochemical Effects of Air Pollutant Oxidants"	9/1/68 - 8/31/71	26,007
AP 00213-09	Lawrence Ordin University of California Riverside, California 92502 "Effect of Air Pollutants on Cell Growth"	12/1/68 - 11/30/71	36,125
AP 00586-04	Aly H. Mohamed University of Missouri Kansas City, Missouri 64110 "Cytogenetic Effects of Hydrogen Fluoride on Corn"	9/1/70 - 8/31/71	21,079
AP 00650-04	Leroy H. Wullstein University of Utah Salt Lake City, Utah 84112 "Nitrogen Pollutants and Their Fate in the Ecosystem"	12/1/70 - 11/30/73	39,513
AP 00699-03	Mendel Mazelis University of California Davis, California 95616 "Effect of SO_2 on Metabolic Pathways in Higher Plants"	3/1/68 - 6/30/71	None*

*Supported by FY 70 funds.

Grant Number	Name, Institution, Project Title	Project Period	Fiscal Year 71 Support
AP 00729-02	Guenther Stotzky New York University New York, New York 10003 "Effect of Air Pollution Microbes in Vivo and in Vitro"	5/1/70 - 8/31/75	$ None*
AP 00797-03	Craig R. Hibben Brooklyn Botanic Garden Brooklyn, New York 10562 "Air Pollution Effects on Powdery Mildew Fungi"	2/1/69 - 1/31/72	11,067
AP 01095-02	John P. Rier, Jr. Rutgers University New Brunswick, New Jersey 08903 "Ozone and Vascular Tissue Differentiation in Plants"	5/1/70 - 4/30/73	2,558
AP 01374-01	Shang F. Yang University of California Davis, California 95616 "Biochemical Effects of Sulfur Dioxide on Higher Plants"	6/1/71 - 5/31/75	35,395
AP 01376-01	William A. Feder University of Massachusetts Amherst, Massachusetts 01002 "Air Pollution/Plant Disease Interactions"	6/1/71 - 5/31/73	19,926

3. Plant Related - Emissions, Pollen, Sinks for Pollutants, etc.

AP 00736-03	James W. Hanover Michigan State University East Lansing, Michigan 48823 "Essential Oils Evolved by Species of Pinaceae"	6/1/68 - 5/31/71	None*
AP 01115-01A1	Reinhold A. Rasmussen Washington State University Pullman, Washington 99163 "Atmospheric Photochemical Reaction of Terpenes"	3/1/71 - 2/28/74	28,851
AP 01370-01	Bruce Lighthart Western Washington State College Bellingham, Washington 98225 "Effects of Air Pollutants on Airborne Microbes"	4/1/71 - 9/30/72	9,533

*Supported by FY 70 funds.

Grant Number	Name, Institution, Project Title	Project Period	Fiscal Year 71 Support
AP 01379-01	Te-Hsiu Ma Western Illinois University Macomb, Illinois 61445 "Chromatid Aberration Induced by SO_2 and NO_2"	6/1/71 - 5/31/73	$ 16,426

C. ECONOMIC AND SOCIAL STUDIES AND REGIONAL PLANNING

Grant Number	Name, Institution, Project Title	Project Period	Fiscal Year 71 Support
1. Economic Studies			
AP 00512-02	Henry C. Wohlers Drexel University Philadelphia, Pennsylvania 19104 "Cost of Air Pollution Reduction in Delaware Valley"	6/1/68 - 8/31/70	$ None*
AP 00556-03S2	Benjamin H. Stevens Regional Science Research Institute Philadelphia, Pennsylvania 19101 "Effects of Air Pollution on Optimal Urban Form"	2/1/67 - 10/31/71	7,415
AP 01130-01	Arthur C. Stern University of North Carolina Chapel Hill, North Carolina 27514 "Critique of Air Quality Management Standards"	4/1/71 - 3/31/74	83,387
AP 01310-01	Leslie L. Roos, Jr. Northwestern University Evanston, Illinois 60201 "Air Pollution and Industrial Concern"	3/1/71 - 8/31/72	9,691
2. Economic Effects			
AP 00542-04	S. Haig Zeronian University of California Davis, California 95616 "Effect of Air Pollutants on Textile Fabrics"	6/1/67 - 5/31/71	None**
AP 01348-01	Victor S. Salvin University of North Carolina Greensboro, North Carolina 27412 "Effects of Air Pollutants on White Textile Fabrics"	4/1/71 - 3/31/72	19,434

*Supported by FY 69 funds.
**Sypported by FY 70 funds.

Grant Number	Name, Institution, Project Title	Project Period	Fiscal Year 71 Support

3. Social Studies and Urban and Regional Planning

AP 00842-02	Walter Isard Harvard University Cambridge, Massachusetts 02138 "Air Quality Management for a Regional System"	5/1/69 - 3/31/73	$ 98,725
AP 00902-01	Frank A. Tillman Kansas State University Manhattan, Kansas 66502 "Optimal Control of Pollution Distribution"	6/1/70 - 11/30/71	None*
AP 00982-01	Leanne G. Rivlin City University of New York New York, New York 10036 "The Effects of Air Pollution on Interpersonal Behavior"	4/1/70 - 9/30/71	None*
AP 01165-01	Michael E. Eckstein Southern Connecticut State College New Haven, Connecticut 06515 "The Organizational Factors in Air Pollution Control"	9/1/69 - 6/30/71	None*
AP 01345-01	Robert M. Gray Univeristy of Utah Salt Lake City, Utah 84112 "Community Attitudes Toward Air Pollution"	3/1/71 - 8/31/72	15,933

*Supported by FY 70 funds.

D. PHYSICO-CHEMICAL INVESTIGATIONS

Grant Number	Name, Institution, Project Title	Project Period	Fiscal Year 71 Support
1. On Gases			
AP 00018-11	I.C. Hisatsune Pennsylvania State University University Park, Pennsylvania 16802 "Structures of Some Oxides of Nitrogen"	10/1/66 - 10/31/71	$ 30,348
AP 00104-12	Harold S. Johnston University of California Berkeley, California 94720 "Photochemistry of Substances Present in Urban Air"	5/1/68 - 4/30/73	44,649
AP 00109-12	James N. Pitts University of California Riverside, California 92502 "Mechanisms of Photochemical Reactions in Urban Air"	12/1/68 - 11/30/71	95,263
AP 00131-11	Jack G. Calvert Ohio State University Research Foundation Columbus, Ohio 43210 "Mechanisms of Photochemically Initiated Oxidations"	1/1/68 - 12/31/72	88,273*
AP 00265-06S2	William H. Corcoran California Institute of Technology Pasadena, California 91109 "Microkinetics Studies in Reactions of Nitric Oxide"	5/1/66 - 8/31/70	338
AP 00353-07	Sidney W. Benson Stanford Research Institute Menlo Park, California 94025 "Kinetics and Thermochemistry of Free Radicals"	11/1/67 - 10/31/72	84,096

*Includes "10S1" supplement - $2,638.

Grant Number	Name, Institution, Project Title	Project Period	Fiscal Year 71 Support
AP 00357-07	Paul Urone University of Colorado Boulder, Colorado 80302 "Tracer Studies in Air Pollution: I. Sulfur Dioxide"	10/1/68 - 5/31/71	$ 9,046
AP 00390-07	Garnett R. McMillan Case Western Reserve University Cleveland, Ohio 44106 "Elementary Reaction in Polluted Atmospheres"	12/1/70 - 11/30/73	28,575
AP 00391-05	Donald W. Setser Kansas State University Manhattan, Kansas 66502 "Kinetic Behavior of Inorganic Radicals"	9/1/65 - 8/31/70	None*
AP 00462-06	Sigmund Jaffe California State College Los Angeles, California 90032 "Photolytic Oxidation in the Presence of NO_2"	1/1/70 - 12/31/72	20,338
AP 00502-05	Richard B. Timmons Catholic University of America Washington, D.C. 20017 "Studies of O Atom Reactions Atmospheric Importance"	2/1/70 - 1/31/73	13,441
AP 00505-06	Paul R. Story University of Georgia Athens, Georgia 30601 "Mechanisms of Ozonolysis"	5/1/69 - 4/30/74	31,780
AP 00558-04	Robert C. Robbins Stanford Research Institute Menlo Park, California 94025 "CO Concentrations in the Atmosphere"	4/1/69 - 8/31/71	52,767
AP 00580-04	Paul R. Story University of Georgia Athens, Georgia 30601 "Chemistry and Properties of Ozonides"	5/1/67 - 4/30/71	None*

*Supported by FY 70 funds.

Grant Number	Name, Institution, Project Title	Project Period	Fiscal Year 71 Support
AP 00596-04	Alfred Hassner University of Colorado Boulder, Colorado 80302 "The Chemistry and Photo-chemistry of Air Pollutants"	3/1/71 - 2/29/72	$ 30,118
AP 00633-03	Simon H. Bauer Cornell University Ithaca, New York 14850 "Reactions of SO_2 with Hydrocarbons CO and H_2"	10/1/68 - 9/30/72	55,654
AP 00675-04	Kent R. Wilson University of California, San Diego La Jolla, California 92037 "Air Pollution Chemistry by Photofragment Spectroscopy"	4/1/71 - 3/31/75	89,954
AP 00681-04	Christopher S. Foote University of California Los Angeles, California 90024 "Mechanisms of Photooxidation"	3/1/68 - 2/28/73	34,552
AP 00698-03	Sidney W. Benson Stanford Research Institute Menlo Park, California 94025 "Activation Energies for Radical and Molecular Reactions"	1/1/68 - 7/31/71	None*
AP 00718-03S1	Julian P. Heicklen Pennsylvania State University University Park, Pennsylvania 16802 "Photochemistry of Heterocyclic Molecules"	6/1/68 - 11/30/71	14,809
AP 00742-03	Kinsell L. Coulson University of California Davis, California 95616 "Ultraviolet Radiation in a Polluted Atmosphere"	6/1/68 - 5/31/71	None*
AP 00768-02	Zdenek Sekera University of California Los Angeles, California 90024 "Polarization of EM Radiation in a Polluted Atmosphere"	6/1/68 - 5/31/71	None*

*Supported by FY 70 funds.

Grant Number	Name, Institution, Project Title	Project Period	Fiscal Year 71 Support
AP 00771-04	James N. Pitts University of California Riverside, California 92502 "Singlet Molecular Oxygen: Oxidation in Polluted Air"	6/1/71 - 5/31/74	$ 45,324
AP 00818-03	George D. Blyholder University of Arkansas Fayetteville, Arkansas 72701 "Heterogeneous Reactions in Air Pollution"	5/1/69 - 4/30/72	31,834
AP 00820-02	Benjamin A. DeGraff University of Virginia Charlottesville, Virginia 22901 "The Reaction of O (D) Atoms with Water Vapour"	5/1/70 - 4/30/73	12,409
AP 00827-02	Jack L. Lambert Kansas State University Manhattan, Kansas 66502 "New Analytical Methods for Sulfur Dioxide"	6/1/70 - 5/31/72	11,078
AP 00828-02	William E. Wilson Battelle Memorial Institute Columbus, Ohio 43201 "Elementary Reactions in Photochemical Smog"	2/1/69 - 7/31/71	None*
AP 00830-03	Edgar R. Stephens University of California Riverside, California 92502 "Photochemical Reactions in a Flow Reactor"	2/1/69 - 1/31/72	38,086
AP 00925-03	Robert W. Murray University of Missouri Columbia, Missouri 65201 "Chemistry of Singlet Oxygen from Ozone Sources"	2/1/69 - 1/31/72	29,373
AP 00931-03	Garnett R. McMillan Case Western Reserve University Cleveland, Ohio 44106 "Photochemical Gas-Particle Interactions"	2/1/69 - 1/31/72	23,885

*Supported by FY 70 funds.

Grant Number	Name, Institution, Project Title	Project Period	Fiscal Year 71 Support
AP 01044-02	Julian P. Heicklen Pennsylvania State University University Park, Pennsylvania 16802 "Conversion of NO to NO_2 in Polluted Atmospheres"	4/1/70 - 3/31/73	$ 33,769
AP 01070-01	Elmar R. Altwicker Rensselaer Polytechnic Institute Troy, New York 12181 "Measurement of Ozone Concentrations in the Atmosphere"	5/1/70 - 10/31/71	None*
AP 01078-02	Edel Wasserman Rutgers University New Brunswick, New Jersey 08903 "EPR Study of Photoreactions in the Atmosphere"	4/1/70 - 3/31/73	27,692
AP 01096-02	Edward G. Janzen University of Georgia Athens, Georgia 30601 "Photochemical Studies by ESR Spin Trapping Techniques"	5/1/70 - 4/30/73	25,434
AP 01127-02	Keiji Morokuma University of Rochester Rochester, New York 14627 "Aspects of Chemical Reactions of Air Pollutants"	5/1/70 - 4/30/73	28,131
AP 01142-02	Melvin J. Goldstein Cornell University Ithaca, New York 14850 "Recombination of Peracetoxyl Radicals"	6/1/70 - 5/31/73	31,575**
AP 01150-02	William A. Guillory Drexel University Philadelphia, Pennsylvania 19104 "Matrix-Isolated Spectra of Nitrogen Oxides"	5/1/71 - 4/30/74	40,760
AP 01181-02	Jack H. Lunsford Texas A&M University College Station, Texas 77843 "Structure and Reactivity of Adsorbed Oxides of Sulfur"	5/1/70 - 4/30/73	16,255

*Supported by FY 70 funds.
**Includes "01S1" supplement - $6,696.

Grant Number	Name, Institution, Project Title	Project Period	Fiscal Year 71 Support
AP 01222-01	Norman Cohen The Aerospace Corporation El Segundo, California 90245 "Free Radical Reactions in Polluted Air"	4/1/71 - 3/31/73	$ 27,488
AP 01245-01A1	John Y. Yang Western New York Nuclear Research Center, Inc. Buffalo, New York 14214 "The Role of Chlorine in Photochemical Air Pollution"	6/1/71 - 5/31/73	17,449
AP 01297-01	Stewart J. Strickler University of Colorado Boulder, Colorado 80302 "Photochemistry of Sulfur Dioxide and Other Compounds"	4/1/71 - 3/31/74	26,933
AP 01342-01	Ronald E. Erickson University of Montana Missoula, Montana 59801 "Kinetics of Reaction of Ozone with Sulfur Compounds"	3/1/71 - 2/28/74	42,681
AP 01347-01	Kenneth M. Cohen The Cooper Union New York, New York 10003 "The Fate of Carbon Monoxide in Polluted Atmospheres"	2/1/71 - 8/31/72	9,999
AP 01496-01	Eric Block University of Missouri St. Louis, Missouri 63121 "The Role of Thiolsulfinates and S_NO in Air Pollution"	6/1/71 - 11/30/72	13,807
AP 01513-01	Paul Urone University of Florida Gainesville, Florida 32601 "Tracer Studies in Air Pollution: I. Sulfur Dioxide"	6/1/71 - 5/31/72	16,857

2. On Aerosols and Particulates

AP 00039-06	Jimmie E. Quon Northwestern University Evanston, Illinois 60201 "Significance of Combustion Nuclei to Air Pollution"	10/1/66 - 11/30/70	None*

*Supported by FY 69 funds.

Grant Number	Name, Institution, Project Title	Project Period	Fiscal Year 71 Support
AP 00048-10	Milton Kerker Clarkson College of Technology Potsdam, New York 13676 "Physical Chemical Studies of Aerosols"	4/1/68 - 3/31/73	$ 36,306
AP 00336-08	Robert J. Charlson University of Washington Seattle, Washington 98105 "Influence of Aerosol Characteristics on Visibility"	4/1/71 - 3/31/74	62,763*
AP 00421-06	Edwin J. Crosby University of Wisconsin Madison, Wisconsin 53706 "Coalescence of Drops in a Gaseous Medium"	9/1/68 - 8/31/71	20,449
AP 00479-06	James R. Brock University of Texas Austin, Texas 78712 "Dynamical Theories of Knudsen Aerosols"	2/1/69 - 1/31/72	18,273
AP 00511-04	Charles D. Hendricks University of Illinois Urbana, Illinois 61801 "Uniform Particle Generation and Application"	5/1/68 - 8/31/71	None**
AP 00552-03S1	Alvin W. Czanderna Clarkson College of Technology Potsdam, New York 13676 "The Effect of Air Pollutants on Solid Surfaces"	2/1/67 - 4/30/71	None**
AP 00670-03S1	Simon L. Goren University of California Berkeley, California 94720 "Aerosol Filtration in Slip and Transition Flow"	6/1/68 - 12/31/71	975
AP 00680-04	Sheldon K. Friedlander California Institute of Technology Pasadena, California 91109 "Bioengineering Aspects of Air Pollution"	1/1/68 - 3/31/73	56,185***

*Includes "07S1" supplement - $1,260.
**Supported by FY 70 funds.
***Includes "03S1" supplement - $1,674.

Grant Number	Name, Institution, Project Title	Project Period	Fiscal Year 71 Support
AP 00743-04	Milton Kerker Clarkson College of Technology Potsdam, New York 13676 "Multiple Light Scattering of Polluted Atmospheres"	6/1/71 - 5/31/74	$ 26,641
AP 00758-03S1	Frank C. Goodrich Clarkson College of Technology Potsdam, New York 13676 "Kinetics of Particle Growth"	6/1/68 - 5/31/71	47
AP 00800-03	Myron L. Corrin Colorado State University Fort Collins, Colorado 80521 "Properties of Particulate Pollutants"	5/1/69 - 4/30/72	21,486
AP 00839-02	Kenneth T. Whitby University of Minnesota Minneapolis, Minnesota 55455 "Aerosol Measurements in Los Angeles Smog"	9/1/70 - 8/31/72	13,264
AP 00880-01	Gerald van Belle Florida State University Tallahassee, Florida 32306 "Statistical Methods in Aerosol Studies"	6/1/70 - 11/30/71	None*
AP 00908-03	John O. Frohliger University of Pittsburgh Pittsburgh, Pennsylvania 15213 "Analysis of Chemical Compounds in an Urban Aerosol"	6/1/69 - 5/31/72	35,307
AP 00910-02	Gerhard W. Israel University of Maryland College Park, Maryland 20740 "Investigations of Beams of Submicron Particles"	2/1/69 - 1/31/71	None*
AP 00944-01	Benjamin R. Payne University of Nevada Reno, Nevada 89507 "The Orovada, Nevada Basin Environmental Study"	6/1/70 - 7/31/72	None*

*Supported by FY 70 funds.

Grant Number	Name, Institution, Project Title	Project Period	Fiscal Year 71 Support
AP 01161-02	Emil Pfender University of Minnesota Minneapolis, Minnesota 55455 "Aerosol Generation with High Intensity Arcs"	4/1/70 - 3/31/72	$ 20,665
AP 01190-01A1	Seymour Siegel Aerospace Corporation El Segundo, California 90245 "The Role of Solid-Gas Interactions in Air Pollution"	6/1/71 - 5/31/73	56,400
AP 01198-01	Dudley R. Herschbach Harvard University Cambridge, Massachusetts 02138 "Molecular Beam Kinetics Oxygen Atom Reactions"	4/1/71 - 3/31/74	49,955
AP 01303-01	Teoman Ariman University of Notre Dame Notre Dame, Indiana 46556 "Collection of Dust in an Electric Field"	3/1/71 - 8/31/72	10,041
AP 01458-01	Benjamin Y.H. Liu University of Minnesota Minneapolis, Minnesota 55455 "Development of Basic Aerosol Standards"	6/1/71 - 5/31/73	26,891
3. On Metals			
AP 00875-06	Tsaihwa J. Chow Scripps Institution of Oceanography La Jolla, California 92037 "Lead Isotopic Chemistry for Pollution Research"	1/1/69 - 12/31/71	27,680
AP 00971-01	James C. Fanning Clemson University Clemson, South Carolina 29631 "The Reaction of Metalloporphyrins with Air Pollutants"	5/1/70 - 5/31/72	None*

*Supported by FY 70 funds.

Grant Number	Name, Institution, Project Title	Project Period	Fiscal Year 71 Support
AP 01085-01	Warren A. McAllister East Carolina University Greenville, North Carolina 27834 "Transition Metal Chem of Two Common Air Pollutants"	5/1/70 - 10/31/71	None*
AP 01214-01	Robert A. Duce University of Rhode Island Kingston, Rhode Island 02881 "Continental Trace Element Air Pollution in Hawaii"	3/1/70 - 8/31/71	None*

*Supported by FY 70 funds.

E. DEVELOPMENT OF ANALYTIC METHODS AND EQUIPMENT

Grant Number	Name, Institution, Project Title	Project Period	Fiscal Year 71 Support
1. For Gases			
AP 00308-07	Albert Zlatkis University of Houston Houston, Texas 77004 "Ionization Methods of Gas Analysis"	1/1/70 - 12/31/70	$ None*
AP 00432-04	Francis J. Norton State University of New York Albany, New York 12203 "Permeation Rates of Tracer Gases through Polymers"	5/1/69 - 4/30/72	None**
AP 00578-03S1	William H. Prengle, Jr. University of Houston Houston, Texas 77004 "Pollutants in Chimney Stack Plumes"	6/1/68 - 8/31/71	12,244
AP 00640-02S1	Martin V. Sussman Tufts University Medford, Massachusetts 02155 "Continuous Chromatographic Monitoring of Gas Streams"	10/1/68 - 11/30/71	13,492
AP 00812-03	Bernard E. Saltzman University of Cincinnati Cincinnati, Ohio 45219 "Development of Air Sampling Methodology"	2/1/69 - 1/31/72	72,113
AP 00814-03	Harry P. Burchfield Gulf South Research Institute Baton Rouge, Louisiana 70808 "GLC Detector for Carcinogenic Hydrocarbons"	5/1/69 - 4/30/72	43,735
AP 00816-02	Clyde Orr Georgia Institute of Technology Atlanta, Georgia 30332 "Homogeneous Nucleation in Contaminated Atmospheres"	4/1/69 - 3/31/71	None*

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Grant Number	Name, Institution, Project Title	Project Period	Fiscal Year 71 Support
AP 00834-02S1	Eldon L. Knuth University of California Los Angeles, California 90024 "Molecular-Beam Sampling from Cycling-Pressure Sources"	2/1/69 - 1/31/72	$ 41,193
AP 00890-01	Stanley E. Manahan University of Missouri Columbia, Missouri 65201 "A New Approach to Automated Sulfur Dioxide Analysis"	2/1/69 - 7/31/70	None*
AP 00929-01	Jacob Becher Old Dominion College Norfolk, Virginia 23508 "Detection of Small Amounts of SO_2 in Atmosphere"	6/1/70 - 11/30/71	None**
AP 00946-01S1	Yi H. Ma Worcester Polytechnic Institute Worcester, Massachusetts 01609 "Gas Chromatography and Air Pollution Control"	6/1/70 - 11/30/71	2,535
AP 00974-02	Donald F. Adams Washington State University Pullman, Washington 99163 "Development of a Fluoride-Specific Microelectrode"	11/1/70 - 10/31/72	9,410
AP 00994-01	Robert C. Harriss Florida State University Tallahassee, Florida 32306 "Atmospheric Chemistry of Boron"	5/1/70 - 10/31/71	None**
AP 01232-02	Reinhold A. Rasmussen Washington State University Pullman, Washington 99163 "Evaluation of a New Cryogenic Sampler for Field Use"	6/1/70 - 5/31/72	23,738
AP 01254-01	Kyle D. Bayes University of California Los Angeles, California 90024 "A New Instrument for Kinetic Studies of Air Pollution"	6/1/70 - 5/31/74	None**

*Supported by FY 69 funds

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Grant Number	Name, Institution, Project Title	Project Period	Fiscal Year 71 Support
AP 01286-01	James W. Robinson Louisiana State University Baton Rouge, Louisiana 70803 "Remote Control of Air Pollution Using a Laser"	4/1/71 - 3/31/74	$ 55,488
AP 01293-01	David T. Williams University of Florida Gainesville, Florida 32601 "Field Applications of Multi-Component D_2 Spectrometer"	6/1/71 - 5/31/73	35,533
AP 01419-01	James R. Katzer University of Delaware Newark, Delaware 19711 "Kinetics of Nitric Oxide-Ammonia Reaction in Platinum"	4/1/71 - 3/31/73	17,046
AP 01424-01	John U. Hidalgo Tulane University New Orleans, Louisiana 70118 "Development and Use of a Laser Air Pollution Monitor"	6/1/71 - 5/31/73	25,429
AP 01552-01	Lyle D. Feisel South Dakota School of Mines and Technology Rapid City, South Dakota 57701 "Thin Film Gaseous Pollutant Detector"	6/1/71 - 11/30/72	13,830

2. <u>For Aerosols and Particulates</u>

AP 00136-11	Kenneth T. Whitby University of Minnesota Minneapolis, Minnesota 55455 "Generation and Decay of Small Ions"	5/1/70 - 4/30/74	34,193
AP 00367-06	Frank T. Gucker Indiana University Foundation Bloomington, Indiana 47401 "Physical Chemistry of Aerosols"	10/1/68 - 9/30/71	55,752
AP 00468-06	Othmar Preining University of Vienna Vienna, Austria "Studies on Aerosols of Sizes Down to 0.05 Micron"	4/1/69 - 3/31/72	6,000

Grant Number	Name, Institution, Project Title	Project Period	Fiscal Year 71 Support
AP 00480-05	Kenneth T. Whitby University of Minnesota Minneapolis, Minnesota 55455 "Study of Atomizer Aerosol Generators"	5/1/68 - 4/30/71	None*
AP 00728-04	Peter K. Mueller California State Department of Public Health Berkeley, California 94704 "Characterizing Asbestos-Bearing Aerosols"	6/1/71 - 5/31/73	53,650**
3. For Metals			
AP 00128-08S2	Philip W. West Louisiana State University Baton Rouge, Louisiana 70803 "Atomic Absorption Spectroscopy of Trace Pollutants"	1/1/67 - 5/31/71	85
AP 00444-04	Carl E. Moore Loyola University Chicago, Illinois 60626 "Study of Air Pollutants by Absorption Spectroscopy"	4/1/68 - 3/31/72	None***
AP 00724-03	Philip W. West Louisiana State University Baton Rouge, Louisiana 70803 "Selenium and Its Significance as an Air Pollutant"	9/1/70 - 8/31/72	29,195
AP 00866-02	James W. Robinson Louisiana State University Baton Rouge, Louisiana 70803 "The Direct and Continuous Determination of Metals in Air"	4/1/70 - 3/31/73	31,512****
AP 00900-01	Edward Buchanan University of Iowa Iowa City, Iowa 52240 "Spreading of Lead in Rural Areas"	6/1/70 - 11/30/71	None*

*Supported by FY 70 funds.
**Includes "03S3" supplement - $9,429.
***Supported by FY 69 funds.
****Includes "01A1S1" supplement - $3,000.

Grant Number	Name, Institution, Project Title	Project Period	Fiscal Year 71 Support
AP 00942-02	Volker A. Mohnen State University of New York Albany, New York 12203 "Conversion of Gas Molecules into Detectable Particles"	6/1/70 - 5/31/72	65,222*
AP 01263-01	Robert W. Detenbeck University of Vermont Burlington, Vermont 05401 "Automated Microparticle Shape Discrimination"	6/1/70 - 11/30/71	None**

*Includes "01S1" supplement - $22,808.
**Supported by FY 70 funds.

F. METEOROLOGY

Grant Number	Name, Institution, Project Title	Project Period	Fiscal Year 71 Support
1. Basic Studies			
AP 00601-04	Dave Fultz University of Chicago Chicago, Illinois 60637 "Atmospheric Diffusion Model Experiments"	1/1/71 - 12/31/73	$ 47,841
AP 00609-04	Herman Newstein Drexel University Philadelphia, Pennsylvania 19104 "Atmospheric Diffusion of Radon"	6/1/70 - 5/31/71	None*
AP 00627-03S1	Donald C. Grey University of Utah Salt Lake City, Utah 84112 "Atmospheric Fluids Provenance Using Stable Isotopes"	1/1/68 - 5/31/71	0
AP 00672-04	Edward D. Goldberg Scripps Institution of Oceanography La Jolla, California 92037 "Air Transport of Pollutants to the Marine Environment"	3/1/71 - 2/28/74	29,551
AP 00678-03	James A. Fay Massachusetts Institute of Technology Cambridge, Massachusetts 02139 "Dispersion of Air Pollutants"	6/1/68 - 5/31/71	None*
AP 00811-01	Patrick Squires University of Nevada Reno, Nevada 89507 "Urban Air Pollution and Climatic Change"	5/1/70 - 1/31/73	None*
AP 00940-01S1	John E. Geisler University of Miami Coral Gables, Florida 33124 "A Numerical Model of the Sea-Breeze Circulation"	6/1/70 - 9/1/71	10,652

*Supported by FY 70 funds.

Grant Number	Name, Institution, Project Title	Project Period	Fiscal Year 71 Support
AP 01013-02	James R. Mahoney Harvard School of Public Health Boston, Massachusetts 02115 "Numerical Study of Urban Scale Atmospheric Transport"	9/1/69 - 12/31/71	$ 40,089
AP 01082-02	William J. Moroz Pennsylvania State University University Park, Pennsylvania 16802 "Modelling Pollutant Concentrations"	4/1/70 - 3/31/72	32,463
AP 01126-02	S.K. Kao University of Utah Salt Lake City, Utah 84112 "Air Pollution in Topographical Depressions"	5/1/70 - 4/30/72	39,624
AP 01144-01S1	Victor W. Nee University of Notre Dame Notre Dame, Indiana 46556 "Diffusion in Turbulent Surface Layer"	6/1/70 - 7/31/73	28,538
AP 01174-02	Donald L. Veal University of Wyoming Laramie, Wyoming 82070 "Inadvertent Weather Modification by Urban Pollution"	6/1/70 - 5/31/72	70,517
AP 01186-01	Robert N. Meroney Colorado State University Fort Collins, Colorado 80521 "The Behavior of Negatively Buoyant Gas Plumes"	5/1/70 - 8/31/72	None*
AP 01200-02	Morris Neiburger University of California Los Angeles, California 90024 "Diffusion and Disposal of Air Pollution"	6/1/70 - 5/31/73	25,754
AP 01201-01	Alan L. Cole Northern Illinois University Dekalb, Illinois 60115 "Design of a Great Lakes Region Air Pollution Model"	10/1/69 - 7/31/71	None*

*Supported by FY 70 funds.

Grant Number	Name, Institution, Project Title	Project Period	Fiscal Year 71 Support
AP 01240-01S1	Leonard O. Myrup University of California Davis, California 95616 "Numerical Model of the Urban Atmosphere"	6/1/70 - 6/30/72	$ 33,647
AP 01246-01	William D. Green Atmospheric Research Group Altadena, California 91001 "Scavenging of Pollutants by Marine Aerosols"	6/1/71 - 11/30/72	13,486
AP 01278-01A1	Raymond Viskanta Purdue University Lafayette, Indiana 47907 "Effect of Pollutants on Temperature in the Atmosphere"	6/1/71 - 5/31/74	14,297
AP 01289-01	James M. Rosen University of Wyoming Laramie, Wyoming 82070 "Stratospheric Monitoring of Particulate Pollutants"	6/1/71 - 5/31/72	39,330
AP 01369-01	David Atlas University of Chicago Chicago, Illinois 60637 "Ultra-High Resolution Radar Study of the Mixing Layer"	4/1/71 - 3/31/73	41,218
AP 01556-01	Robert A. Huggins Stanford University Stanford, California 94305 "Materials Research Related to Air Pollution Abatement"	6/1/71 - 5/31/73	169,677

2. Air Pollution Forecasting

AP 0611-03	John F. Griffiths Texas A & M University College Station, Texas 77843 "A Time and Space Study of Atmospheric Pollutants"	6/1/67 - 2/28/71	None*
AP 00895-01	E. Stanley Lee Kansas State University Manhattan, Kansas 66502 "Adaptive Modeling for Air Pollution Control"	2/1/69 - 12/31/70	None*

*Supported by FY 69 funds.

Grant Number	Name, Institution, Project Title	Project Period	Fiscal Year 71 Support
3. Biometeorology			
AP 00080-15	Charles L. Kramer Kansas State University Manhattan, Kansas 66502 "Diurnal Investigations of Airborne Fungi"	4/1/71 - 3/31/72	$ 19,044
AP 00081-13	Eugene C. Ogden State University of New York Albany, New York 12224 "Travels of Airborne Pollen"	10/1/70 - 9/30/73	65,875
AP 00456-05	Murray F. Buell Rutgers University New Brunswick, New Jersey 08903 "Changing Vegetation and Atmospheric Pollen"	2/1/70 - 1/31/72	10,502
AP 00553-04	Ivan W. Buddenhagen University of Hawaii Honolulu, Hawaii 96822 "Air-Spora in Hawaii"	2/1/67 - 4/30/72	21,221
AP 00581-03	William E. Booth Montana State University Bozeman, Montana 59715 "Aerobiological Survey in the Northern Rockies and Plains"	6/1/67 - 5/31/71	None*

*Supported by FY 70 funds.

G. DESCRIPTION AND CONTROL OF AIR POLLUTION SOURCES

Grant Number	Name, Institution, Project Title	Project Period	Fiscal Year 71 Support
1. Stationary Sources			
a. Power Generation and Heating			
AP 00323-07	Ronald Long University of Birmingham Edgbaston, Birmingham, 15 England "Reduction of Polycyclic Aromatic Hydrocarbons"	1/1/71 - 12/31/71	$ 8,250
AP 00387-06	Eugene Petersen University of California Berkeley, California 94720 "Catalytic Reduction of Oxides of Nitrogen"	12/1/67 - 11/30/70	None*
AP 00388-05	Max S. Peters University of Colorado Boulder, Colorado 80302 "Catalytic Mechanisms for Nitrogen Oxides Reduction"	1/1/65 - 2/28/71	None**
AP 00406-06	Philip L. Walker, Jr. Pennsylvania State University University Park, Pennsylvania 16802 "Interaction of Flue Gases with Carbon Surfaces"	12/1/68 - 11/30/71	14,291
AP 00464-05	Arthur Levy Battelle Memorial Institute Columbus, Ohio 43201 "Kinetics of Sulfur-Oxide Formation in Flames"	4/1/69 - 8/31/71	None*
AP 00498-06	Imre Zwiebel Worcester Polytechnic Institute Worcester, Massachusetts 01609 "Adsorption Rate Studies Air Pollution"	6/1/69 - 5/31/72	29,799

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Grant Number	Name, Institution, Project Title	Project Period	Fiscal Year 71 Support
AP 00517-06	Harold J. Gluskoter University of Illinois Urbana, Illinois 61801 "Mineral Matter in Coal"	6/1/69 - 5/31/72	$ 31,598
AP 00639-03	C. Beat Meyer University of Washington Seattle, Washington 98105 "Chemistry of Sulfur in Hot Combustion Gases"	2/1/69 - 1/31/72	53,571
AP 00643-03S1	Robert J. Heinsohn Pennsylvania State University University Park, Pennsylvania 16802 "Use of Electric Fields in Combustion"	3/1/68 - 1/31/72	20,176
AP 00669-05	Manfred J.D. Low New York University New York, New York 10003 "Fundamentals of Air Cleaning by Sorption Processes"	6/1/68 - 5/31/72	58,070
AP 00692-03	Arthur M. Squires The City College of New York New York, New York 10031 "Filtration of Aerosols by Granular Beds"	6/1/68 - 2/29/72	14,241
AP 00717-04	John Happel New York University Bronx, New York 10453 "Sulfur Dioxide Oxidation"	6/1/71 - 5/31/74	38,852
AP 00738-03	Robert W. Coughlin Lehigh University Bethlehem, Pennsylvania 18015 "Regeneration of Carbon Adsorbents for SO_2"	6/1/68 - 8/31/71	19,794
AP 00791-03	W. Leigh Short University of Massachusetts Amherst, Massachusetts 01002 "SO_2 and NO_x Removals from Stack Gases by CO"	2/1/69 - 8/31/72	23,165
AP 00794-02	James P. Collman Stanford University Stanford, California 94305 "Catalysis for Autoxidation of Toxic Gases"	6/1/69 - 5/31/71	None*

*Supported by FY 70 funds.

Grant Number	Name, Instituion, Project Title	Project Period	Fiscal Year 71 Support
AP 00833-03	Raymond L. Zahradnik Carnegie-Mellon University Pittsburgh, Pennsylvania 15213 "SO_2 Sorption by and Removal from Polymeric Materials"	2/1/69 - 1/31/72	$ 22,982
AP 00876-03	Robert W. Bartlett Stanford University Stanford, California 94305 "Sulfation Kinetics in SO_2 Adsorption from Flue Gas"	5/1/69 - 4/30/72	25,985*
AP 00945-03	Arthur M. Squires City College Research Foundation New York, New York 10031 "Desulfurization of Fuels by Calcined Dolomite"	4/1/69 - 5/31/72	37,875
AP 01004-03	Leonard B. Sand Worcester Polytechnic Institute Worcester, Massachusetts 01609 "New Inorganic Materials for Sulfur Oxide Removal"	5/1/69 - 4/30/72	23,157
AP 01275-01	Sidney Kleinberg Lehigh University Bethlehem, Pennsylvania 18015 "Droplets with Electrostatic Charge for Dust Collection"	3/1/71 - 2/29/72	23,430
AP 01443-01	James R. Kittrell University of Massachusetts Amherst, Massachusetts 01002 "Catalyst Deactivation Studies of NO Reduction"	6/1/71 - 5/31/74	39,334
AP 01448-01	Seymour S. Block University of Florida Gainesville, Florida 32601 "Desulfurization of Coal"	6/1/71 - 5/31/75	57,254

b. Industrial Processing

AP 00301-06S1	Jerome F. Thomas University of California Berkeley, California 94720 "Malodorous Products of Kraft Black Liquor Combustion"	9/1/66 - 2/28/71	10,543

*Includes "02S1" supplement $2,938.

Grant Number	Name, Institution, Project Title	Project Period	Fiscal Year 71 Support
AP 00363-06	Kyosti V. Sarkanen University of Washington Seattle, Washington 98105 "Odor Formation in Alkaline Pulping"	1/1/68 - 12/31/70	$ None*
AP 00383-06	Irwin B. Douglass University of Maine Orono, Maine 04473 "Chemical Aspects of Air Pollution from Kraft Pulping"	10/1/67 - 9/30/71	None*
AP 00475-04	Michael J. Schaer Montana State University Bozeman, Montana 59715 "Pollution Abatement by Process Gas Chromatography"	10/1/68 - 12/31/72	17,466
AP 00589-02S1	Ewin A. Eads Lamar State College of Technology Beaumont, Texas 77705 "Attempts to Control Kraft Mill Odor"	11/1/69 - 10/31/70	None*
AP 00723-03	Dilip Mehta University of California Riverside, California 92502 "Basic Study of Air Pollution Control Wet Scrubbers"	9/1/68 - 12/31/70	None*
AP 01269-01	Knut P. Kringstad North Carolina State University Raleigh, North Carolina 27607 "Elimination of Odor in Kraft Pulping"	2/1/71 - 1/31/73	49,478
AP 01527-01	John H. Kennedy University of California Santa Barbara, California 93106 "Solid Electrolyte Materials Research"	6/1/71 - 5/31/74	30,352
c. Other			
AP 00397-04S2	Robert H. Essenhigh Pennsylvania State University University Park, Pennsylvania 16802 "Incinerator Processes and Emissions"	5/1/65 - 6/30/71	None*

*Supported by FY 70 funds.

Grant Number	Name, Institution, Project Title	Project Period	Fiscal Year 71 Support
AP 00562-04S1	Donald F. Adams Washington State University Pullman, Washington 99163 "Composition and Distribution of Forest Fire Smoke"	2/1/67 - 3/31/72	$ 23,312
AP 00568-05	Ellis F. Darley University of California Riverside, California 92502 "Characterization of Smoke from Cellulosic Fuels"	2/1/70 - 1/31/73	32,828
AP 00574-04	Lauri Vaska Clarkson College of Technology Potsdam, New York 13676 "Reversible Metal Complexes with Air Pollutants"	8/1/70 - 7/31/75	60,714
AP 00829-02	Ellis F. Darley University of California Riverside, California 92502 "Air Pollution from Forest and Agricultural Burning"	4/1/70 - 3/31/73	36,961
AP 00851-01	Walter J. Weber University of Michigan Ann Arbor, Michigan 48104 "Scrubbing of Refuse Incinerator Emission Gases"	6/1/70 - 12/31/73	None*
AP 00949-01	Alfred J. Engel Pennsylvania State University University Park, Pennsylvania 16802 "Sorption of Gasesous Pollutants by Cycled Operation"	6/1/70 - 11/30/71	None*
AP 01043-01	Harry R. Allcock Pennsylvania State University University Park, Pennsylvania 16802 "Inclusion Adducts for Air Purification"	5/1/70 - 10/31/71	None*
AP 01137-01	Richard C. Corlett University of Washington Seattle, Washington 98105 "Flame Retardants and Air Pollution from Slash Burning"	6/1/70 - 9/30/71	None*

*Supported by FY 70 funds.

Grant Number	Name, Institution, Project Title	Project Period	Fiscal Year 71 Support
AP 01151-02	Jack P. Holman Southern Methodist University Dallas, Texas 75222 "Air Pollution Control Fluidized Vortex Incineration"	5/1/70 - 4/30/73	$ 25,800

2. Mobile Sources

a. Existing Systems

AP 00275-08	Bernard D. Tebbens University of California Berkeley, California 94720 "Aromatic By-Products of Combustion"	9/1/66 - 8/31/71	49,846
AP 00365-07	Jay A. Bolt University of Michigan Ann Arbor, Michigan 48104 "Carburetors, Reduction of Engine Exhaust Emissions"	9/1/67 - 12/31/71	34,948
AP 00385-06	Robert A. Sawyer University of California Berkeley, California 94720 "Combustion Gas Composition"	8/1/68 - 9/30/72	88,899
AP 00560-04	Wolfgang E. Meyer Pennsylvania State University University Park, Pennsylvania 16802 "Engine Emission Reduction by Combustion Control"	2/1/70 - 1/31/71	None*
AP 00576-04S1	Richard A. Matula Drexel University Philadelphia, Pennsylvania 19104 "Diesel Fuel Combustion Chemistry as Related to Odor	6/1/70 - 11/30/71	22,820
AP 00763-03	Richard C. Corlett University of Washington Seattle, Washington 98105 "Kinetics of Nitrogen-Oxide Automotive Pollution"	6/1/68 - 11/30/71	None*
AP 00813-01S1	Robert G. Squires Purdue University Lafayette, Indiana 47907 "Oxidation Mechanisms on Supported Chromia Catalysts"	6/1/70 - 8/31/73	2,350

*Supported by FY 70 funds.

Grant Number	Name, Institution, Project Title	Project Period	Fiscal Year 71 Support
AP 00835-03	Jay A. Bolt University of Michigan Ann Arbor, Michigan 48104 "Fuel Injection System Analysis: Diesel Smoke Reduction"	2/1/69 - 1/31/73	$ 43,575
AP 00847-02	Robert F. McAlevy, III Stevens Institute of Technology Hoboken, New Jersey 07030 "Nitrogen-Oxide Kinetics in Auto Combustion Products"	9/1/69 - 1/31/73	45,048
AP 00871-01	Wallace Chinitz Cooper Union, Advancement of Science and Art New York, New York 10003 "Non-Equilibrium Effects in Internal Combustion Engine"	6/1/70 - 11/30/71	None*
AP 0913-03	Ken Nobe University of California Los Angeles, California 90024 "Air Pollution Control by Catalysis"	5/1/69 - 4/30/72	65,951
AP 01012-01	George S. Springer University of Michigan Ann Arbor, Michigan 48104 "Measurements of Particulates in Automotive Exhaust"	3/1/71 - 2/28/74	49,288
AP 01196-02	Harry W. Edwards Colorado State University Fort Collins, Colorado 80521 "Reduction of Nitric Oxide by Graphite"	5/1/70 - 4/30/72	22,191
AP 01511-01	William A. Sirignano Princeton University Princeton, New Jersey 08540 "Formation of Pollutants in Internal Combustion Engines"	6/1/71 - 5/31/74	42,584

*Supported by FY 70 funds.

Grant Number	Name, Institution, Project Title	Project Period	Fiscal Year 71 Support

b. Advanced Power Systems

AP 00582-05	Henry K. Newhall University of Wisconsin Madison, Wisconsin 53706 "Combustion Process Analysis"	6/1/70 - 5/31/73	$ 33,545
AP 00858-03	Richard A. Matula Drexel University Philadelphia, Pennsylvania 19104 "Kinetics of Nitric Oxide at High Temperatures"	4/1/69 - 3/31/72	33,573
AP 00906-03	Richard L. Peskin Rutgers University New Brunswick, New Jersey 08903 "Liquid Fuel Ignition and Combustion"	2/1/69 - 1/31/72	34,743
AP 01228-02	James C. Keck Massachusetts Institute of Technology Cambridge, Massachusetts 02139 "Kinetics of NO and CO Formation in Combustion Gases"	6/1/70 - 5/31/72	46,714
AP 01301-01	Jon G. McGowan University of Massachusetts Amherst, Massachusetts 01002 "Study of Two Stage Automotive External Combustor"	3/1/71 - 2/28/74	43,733

H. COMMUNICATION

Grant Number	Name, Institution, Project Title	Project Period	Fiscal Year 71 Support
AP 00256-06S2	Arthur C. Stern American Public Health Association, Inc. New York, New York 10019 "Manual of Methods for Ambient Air Sampling and Analysis"	6/1/66 - 12/31/70	$ None*
AP 00489-06	Frank W. Barton American Medical Association Chicago, Illinois 60610 "Air Pollution Medical Research Conference"	1/1/71 - 12/31/74	1,200
AP 00508-05S1	Knud W. Leffland University of Southern California Los Angeles, California 90007 "COMEX - Air Pollution Computer Research Project"	6/1/68 - 8/31/71	31,217
AP 00786-03	Michael Y. Nuttonson American Institute of Crop Ecology Silver Spring, Maryland 20910 "USSR Literature on Air Pollution and Related Diseases"	1/1/69 - 12/31/73	41,821
EP 01015-01	Rex K. Ranier Auburn University Auburn, Alabama 36830 "A Study, Report, and Conference on the Economics of Environmental Quality in Alabama"	6/1/71 - 12/31/71	5,031**
AP 01131-01S1	Arthur C. Stern University of North Carolina Chapel Hill, North Carolina 27514 "Colloquium of International Air Pollution Scientists"	5/1/70 - 4/30/71	2,382

*Supported by FY 70 funds.

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Grant Number	Name, Institution, Project Title	Project Period	Fiscal Year 71 Support
AP 01202-01	Ronald F. Coburn University of Pennsylvania Philadelphia, Pennsylvania 16802 "Conference of 'Biological Effects of Carbon Monoxide'"	12/1/69 - 11/30/70	None*

*Supported by FY 70 funds.

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