

MODEL for a COLLABORATIVE RESEARCH PROPOSAL

Permission to reprint the proposal on the following pages was kindly given by

Ron Kiene, University of South Alabama
and
David Kieber, SUNY College of Environmental Science and Forestry

Recent PhDs are increasingly embarking on interdisciplinary research careers which involve collaborations with colleagues at different institutions. Developing collaborative proposals for funding is a particularly difficult task and many grads are not adequately prepared for this during their time as graduate students. For this reason, it was thought that posting a good example of a collaborative research proposal would be useful.

The proposal on the following pages was identified as being a particularly strong collaborative proposal during a recent round of proposal review within the National Science Foundation's Antarctic Program.

While each agency requires different forms and has its own requirements, most of the ingredients for an outstanding proposal are sufficiently universal that the proposal on the following pages should provide a sound starting point.

For more tips on proposal development, visit
<http://www.nsf.gov/od/opp/antarct/workshop/tipsProposal.cfm>

**NSF proposals are confidential in nature
and
cannot be distributed without the permission of the PI's.**

I want to particularly thank **Ron Kiene** and **David Kieber** for their willingness to display their proposal in such a public forum. It is a wonderful reminder that aquatic scientists are part of an extended community of friends and colleagues.

Note: NSF- or institution-specific information and forms have been deleted to protect confidentiality and reduce the size of this file.

COVER SHEET FOR PROPOSAL TO THE NATIONAL SCIENCE FOUNDATION

PROGRAM ANNOUNCEMENT/SOLICITATION NO./CLOSING DATE/if not in response to a program announcement/solicitation enter NSF 02-2					FOR NSF USE ONLY		
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OPP - ANTARCTIC BIOLOGY & MEDICINE							
DATE RECEIVED	NUMBER OF COPIES	DIVISION ASSIGNED	FUND CODE	DUNS# (Data Universal Numbering System)	FILE LOCATION		
EMPLOYER IDENTIFICATION NUMBER (EIN) OR TAXPAYER IDENTIFICATION NUMBER (TIN)		SHOW PREVIOUS AWARD NO. IF THIS IS ☐ A RENEWAL ☐ AN ACCOMPLISHMENT-BASED RENEWAL		IS THIS PROPOSAL BEING SUBMITTED TO ANOTHER FEDERAL AGENCY? YES ☐ NO ☒ IF YES, LIST ACRONYM(S)			
NAME OF ORGANIZATION TO WHICH AWARD SHOULD BE MADE University of South Alabama			ADDRESS OF Awardee ORGANIZATION, INCLUDING 9 DIGIT ZIP CODE University of South Alabama 307 University Boulevard Mobile, AL. 36688				
AWARDEE ORGANIZATION CODE (IF KNOWN) 0010579000							
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IS Awardee ORGANIZATION (Check All That Apply) (See GPG II.C For Definitions) ☐ FOR-PROFIT ORGANIZATION ☐ SMALL BUSINESS ☐ MINORITY BUSINESS ☐ WOMAN-OWNED BUSINESS							
TITLE OF PROPOSED PROJECT Collaborative Research: Impact of solar radiation and nutrients on biogeochemical cycling of DMSP and DMS in the Ross Sea, Antarctica							
REQUESTED AMOUNT \$ 316,556		PROPOSED DURATION (1-60 MONTHS) 36 months		REQUESTED STARTING DATE 04/01/03		SHOW RELATED PREPROPOSAL NO., IF APPLICABLE	
CHECK APPROPRIATE BOX(ES) IF THIS PROPOSAL INCLUDES ANY OF THE ITEMS LISTED BELOW							
☐ BEGINNING INVESTIGATOR (GPG I.A)			☐ HUMAN SUBJECTS (GPG II.C.11)				
☐ DISCLOSURE OF LOBBYING ACTIVITIES (GPG II.C)			Exemption Subsection _____ or IRB App. Date _____				
☐ PROPRIETARY & PRIVILEGED INFORMATION (GPG I.B, II.C.6)			☐ INTERNATIONAL COOPERATIVE ACTIVITIES: COUNTRY/COUNTRIES INVOLVED (GPG II.C.9)				
☐ HISTORIC PLACES (GPG II.C.9)							
☐ SMALL GRANT FOR EXPLOR. RESEARCH (SGER) (GPG II.C.11)							
☐ VERTEBRATE ANIMALS (GPG II.C.11) IACUC App. Date _____			☐ HIGH RESOLUTION GRAPHICS/OTHER GRAPHICS WHERE EXACT COLOR REPRESENTATION IS REQUIRED FOR PROPER INTERPRETATION (GPG I.E.1)				
PI/PD DEPARTMENT Department of Marine Sciences		PI/PD POSTAL ADDRESS LSCB-25					
PI/PD FAX NUMBER 251-460-7357		Mobile, AL 36688 United States					
NAMES (TYPED)	High Degree	Yr of Degree	Telephone Number	Electronic Mail Address			
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CO-PI/PD							
CO-PI/PD							
CO-PI/PD							
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NAME OF ORGANIZATION TO WHICH AWARD SHOULD BE MADE SUNY College of Environmental Science and Forestry			ADDRESS OF Awardee ORGANIZATION, INCLUDING 9 DIGIT ZIP CODE SUNY College of Environmental Science and Forestry P. O. Box 9 Albany, NY. 122010009				
AWARDEE ORGANIZATION CODE (IF KNOWN) 0028514000							
NAME OF PERFORMING ORGANIZATION, IF DIFFERENT FROM ABOVE			ADDRESS OF PERFORMING ORGANIZATION, IF DIFFERENT, INCLUDING 9 DIGIT ZIP CODE				
PERFORMING ORGANIZATION CODE (IF KNOWN)							
IS Awardee ORGANIZATION (Check All That Apply) (See GPG II.C For Definitions) ☐ FOR-PROFIT ORGANIZATION ☐ SMALL BUSINESS ☐ MINORITY BUSINESS ☐ WOMAN-OWNED BUSINESS							
TITLE OF PROPOSED PROJECT Collaborative Research: Impact of Solar Radiation and Nutrients on Biogeochemical Cycling of DMSP and DMS in the Ross Sea, Antarctica							
REQUESTED AMOUNT \$ 338,730		PROPOSED DURATION (1-60 MONTHS) 36 months		REQUESTED STARTING DATE 04/01/03		SHOW RELATED PREPROPOSAL NO., IF APPLICABLE	
CHECK APPROPRIATE BOX(ES) IF THIS PROPOSAL INCLUDES ANY OF THE ITEMS LISTED BELOW ☐ BEGINNING INVESTIGATOR (GPG I.A) ☐ DISCLOSURE OF LOBBYING ACTIVITIES (GPG II.C) ☐ PROPRIETARY & PRIVILEGED INFORMATION (GPG I.B, II.C.6) ☐ HISTORIC PLACES (GPG II.C.9) ☐ SMALL GRANT FOR EXPLOR. RESEARCH (SGER) (GPG II.C.11) ☐ VERTEBRATE ANIMALS (GPG II.C.11) IACUC App. Date _____ ☐ HUMAN SUBJECTS (GPG II.C.11) Exemption Subsection _____ or IRB App. Date _____ ☐ INTERNATIONAL COOPERATIVE ACTIVITIES: COUNTRY/COUNTRIES INVOLVED (GPG II.C.9) _____ ☐ HIGH RESOLUTION GRAPHICS/OTHER GRAPHICS WHERE EXACT COLOR REPRESENTATION IS REQUIRED FOR PROPER INTERPRETATION (GPG I.E.1)							
PI/PD DEPARTMENT Department of Chemistry		PI/PD POSTAL ADDRESS 417 Jahn Laboratory 1 Forestry Drive Syracuse, NY 13210 United States					
PI/PD FAX NUMBER 315-470-6856							
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CO-PI/PD							
CO-PI/PD							
CO-PI/PD							
CO-PI/PD							

A. PROJECT SUMMARY

COLLABORATIVE RESEARCH: IMPACT OF SOLAR RADIATION AND NUTRIENTS ON BIOGEOCHEMICAL CYCLING OF DMSP AND DMS IN THE ROSS SEA, ANTARCTICA

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Cover Sheet for Proposal to the National Science Foundation		
A Project Summary (not to exceed 1 page)		

C. PROJECT DESCRIPTION

RESULTS FROM PRIOR NSF SUPPORT

1. University of South Alabama (RPK).





Station number

a

a

a

Phaeocystis

Phaeocystis

Phaeocystis

Nutrient impacts on DMSP production and cycling.

Phaeocystis **N₂ H₂**

Fraction of added ³⁵

Effects of light on bacterial processes in the DMSP/DMS cycle.

Unique aspects of the Ross Sea environment with respect to DMSP/DMS cycling.

Phaeocystis antarctica

P. antarctica

1. *Determine effects of light intensity and quality on phytoplankton DMSP production and lyase activity.*

a

3. Determine DMS photolysis rates.

in situ

μ

situ

in

Vähätalo

ms in preparation

in situ

μ

Phaeocystis

4. Determine yield of DMS from DMSPp in algae and bacteria, and effect of surface mixed layer (dmix₀) (l-h) (m

Phaeocystis

a

a

Phaeocystis

a

6. Determine contribution of DMSP cycling to carbon budget in the Ross Sea

Phaeocystis

a

Phaeocystis

TIMING, CRUISE LOGISTICS AND COORDINATION WITH COLLABORATORS

Nathaniel B. Palmer

Phaeocystis

—

DMS turnover rate constant.

ase activity and fluorescence.

μ

ight measurements.

Miscellaneous measurements.

COLLABORATION AND RESEARCH RESPONSIBILITIES

D. REFERENCES

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Kiene, R.P. and T.S. Bates. 1990. Biological removal of dimethyl sulphide from sea water. *Nature* 345:702-705.

MS. & Ph.D. (1981-86). Prof. Douglas G. Capone, University of Southern California
Post-Doctoral. (1986-87). Prof. Barrie F. Taylor, RSMAS University of Miami, Miami Fl.

Jose Gonzalez (Teneriffe), Mark Hines (Alaska), Colin Roessler (Bigelow), Bill Sunda (NMFS), David Kieber (SUNY Syracuse), Patricia Matrai (Bigelow), Mary Ann Moran (Georgia), Maurice Levasseur (Canada), Mikhail Zubkov (PML, UK), Rafel Simó (I.C.M. Spain), Carlos Pedros-Alió (I.C.M. Spain).

Glen Miley (M.S. 1995), Lynn Hoffmann Williams (M.S. 1996), Brian Jones (M.S. 2000), Ted Stets (M.S. 2002), Rita Peachey (Ph.D. expected Fall 2002), Jody Bruton (Ph. D. expected, Fall 2002), Haykubun Harada (Ph.D. In progress), Daniel Husband (Ph.D. In progress).

Michael Osland (REU, Willamette University), Melissa Aikens (REU, Bowdin College), Anne Marie LeBlanc (REU, U. of Alabama), William Ward (U. of Alabama), David Parker (REU, U. Florida).

E. BIOGRAPHICAL SKETCH (D. J. Kieber)

Chemistry Department
College of Environmental Science and Forestry
State University of New York

Summary of Field Experience:

R/V Cape Henlopen, Calanus, Cape Florida, Columbus Iselin, Endeavor, LM Gould, Knorr, NB Palmer,

leva(n)-3.6t. ublcauo10.9(n)-3.6(s)-12(e:)TJ/TT Tff-1.1196 TD0Tc0Tw()T0-1.122 TD0.0012 Tc=0.0012 Tw(S

Budget Justification - Collaborative Research: Impact of solar radiation on the biogeochemical cycling of DMSP and DMS in the Ross Sea, Antarctica

Ronald P. Kiene, PI, Department of Marine Sciences, University of Mississippi

Salary support for a full time post-doctoral associate is requested for each of the first two years of the project. During the time before the first cruise the post-doc will be carry out preliminary experiments and refine methods for use during the Antarctic cruises, and between cruises they will be involved in data processing and interpretation. We are very fortunate to have in place an outstanding post-doc, Dr. Doris Slezak, who joined my group in February 2002 (see her C.V. in Supplementary Documents). Dr. Slezak has extensive experience with the DMSP/DMS cycle and in particular she was among the first to study the influence of UVR on this cycle. She has already participated on a research cruise with my group and become proficient with the use of the ³⁵S-DMSP/DMS tracers. Her current funding is cobbled together from several sources and lasts only through June 03.

Three years of stipend support (\$17,000 in Y1, \$17,680 in Y2 and \$18, 387 in Y3) is requested for a full time Ph.D. student who will work directly on this project as part of their dissertation research. .

Support is also requested (\$3360 in Y1) to support undergraduate students to work on this project either during the summer, or if possible, on the Antarctic cruises. Fringe benefits are set at 25% of salaries, and apply only to the PI salaries; students and post-docs salaries are not subject to fringe-benefits at Univ., South Alabama. Salaries are incremented 4% per year in years 2 & 3.

Equipment – No equipment is requested as part of the regular NSF budget.

Other Direct Costs – Shipping costs \$2,000, and \$2,080 in years 1, & 2 are requested for costs associated with shipping research equipment to and from the US west coast (Los Angeles) where the equipment will move into the Antarctic Support network.

F. BUDGET JUSTIFICATION AND PERSONNEL (D. J. Kieber)

Personnel. The PI requests two months of summer salary during the first two years of the proposed

Current and Pending Support

(See GPG Section II.D.8 for guidance on information to include on this form.)

The following information should be provided for each investigator and other senior personnel. Failure to provide this information

[illegible]

Current and Pending Support

(See GPG Section II.D.8 for guidance on information to include on this form.)

The following information should be provided for each investigator and other senior personnel. Failure to provide this information may delay consideration of this proposal.			
Investigator: Ronald Kiene	Other agencies (including NSF) to which this proposal has been/will be submitted.		
Support: ☐ Current ☒ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support Project/Proposal Title: Collaborative research: Impact of solar radiation and nutrients on biogeochemical cycling of DMSP and DMS in the Ross Sea, Antarctica - THIS PROPOSAL Source of Support: NSF-Office of Polar Programs Total Award Amount: \$ 316,556 Total Award Period Covered: 04/01/03 - 03/31/06 Location of Project: University of South Alabama Person-Months Per Year Committed to the Project. Cal: 0.00 Acad: 0.00 Sumr: 2.00			
Support: ☐ Current ☐ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support Project/Proposal Title:			
Source of Support: Total Award Amount: \$ Total Award Period Covered: Location of Project: Person-Months Per Year Committed to the Project. Cal: Acad: Sumr:			
Support: ☐ Current ☐ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support Project/Proposal Title:			
Source of Support: Total Award Amount: \$ Total Award Period Covered: Location of Project: Person-Months Per Year Committed to the Project. Cal: Acad: Sumr:			
Support: ☐ Current ☐ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support Project/Proposal Title:			
Source of Support: Total Award Amount: \$ Total Award Period Covered: Location of Project: Person-Months Per Year Committed to the Project. Cal: Acad: Sumr:			
Support: ☐ Current ☐ Pending ☐ Submission Planned in Near Future ☐ *Transfer of Support Project/Proposal Title:			
Source of Support: Total Award Amount: \$ Total Award Period Covered: Location of Project: Person-Months Per Year Committed to the Project. Cal: Acad: Summ:			

*If this project has previously been funded by another agency, please list and furnish information for immediately preceding funding period.

Current and Pending Support

(See GPG Section II.D.8 for guidance on information to include on this form.)

The following information should be provided to

FACILITIES:

FACILITIES, EQUIPMENT & OTHER RESOURCES

H. FACILITIES, EQUIPMENT AND OTHER RESOURCES (D. J. Kieber)



May 30, 2002

Dr. Ron Kiene
Department of Marine Sciences
University of South Alabama
Mobile, AL 36688

Dear Ron,

On behalf of Patrick Neale and Ann Gargett, I wish to offer our enthusiastic support for your proposal with David Kieber entitled

BIOGRAPHICAL SKETCH (Doris Slezak)

Post-Doctoral Associate
Department of Marine Sciences
University of South Alabama

e-mail: dslezak@disl.org

Five relevant publications:

- Slezak D., & G.J. Herndl (subm.): Impact ultraviolet and visible radiation on the cell content and concentration of dimethylsulfoniopropionate in *Emiliana huxleyi* (strain L). Mar. Ecol. Prog. Ser.
- Slezak D., A. Brugger & G.J. Herndl (2001): Impact of solar radiation on the biological removal of dimethylsulfoniopropionate and dimethylsulfide in marine surface waters. Aquat. Microb. Ecol. 25:87-97
- Griebler C., & D. Slezak (2001): Microbial activity in aquatic environments measured by dimethyl sulfoxide reduction and intercomparison with commonly used methods. Appl. Environ. Microbiol. 67:100-109
- Brugger A., D. Slezak, I. Obernosterer & G.J. Herndl (1998): Photolysis of dimethylsulfide in the Northern Adriatic Sea: dependence on substrate concentration, irradiance and DOC concentration. Mar. Chem. 59: 321-331.
- Slezak D., S. Puskaric & G.J. Herndl (1994): Potential role of acrylic acid in bacterioplankton communities in the sea. Mar. Ecol. Prog. Ser. 105: 191-197

Five other publications:

- Griebler, C. B. Mindl, D. Slezak and M. Geiger-Kaiser (*in press 4/02*): Distribution patterns of attached and unattached bacteria in pristine and contaminated shallow aquifers studied with an in situ sediment exposure microcosm (ISSEM). Aquat. Microb. Ecol.
- Griebler C., & D. Slezak (2000): Microbial DMSO reduction is widespread among microorganisms and is therefore proposed as a reliable activity parameter. Verh. Internat. Verein. Limnol. 27:2492-2497
- Riegman R., W. Stolte, A.A.M. Noordeloos & D. Slezak (2000): Nutrient uptake and alkaline phosphatase (EC 3:1:3:1) activity of *Emiliana huxleyi* (Strain L) during growth under N and P-limitation in continuous cultures. J. Phycol. 36:87-96
- Unanue M., B. Ayo, M. Agis, D. Slezak, G.J. Herndl & J. Iriberry (1999): Ectoenzymatic activity and uptake of monomers in marine bacterioplankton described by a biphasic kinetic model. Microb. Ecol. 37: 36-48
- Herndl G.J., A. Brugger, S. Hager, E. Kaiser, I. Obernosterer, B. Reitner & D. Slezak (1997): Role of ultraviolet-B radiation on bacterioplankton and the availability of dissolved organic matter. Plant Ecology 128: 42-51

Research Collaborators – last 4years:

Christian Griebler (Germany), Dan Danielopol (Austria), Roel, Riegman (Netherlands)

Graduate Students Co-Advised:

Albert Brugger (M.S. 1996)