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National Aeronautics and
Space Administration

Headquarters

Washington, DC 20546-0001



December 16, 2005

Reply to Attn of:

Solar System Division

Dr. Michael Mendillo
Boston University
725 Commonwealth Avenue
Room 506
Boston, MA 02215-1401

Dear Dr. Mendillo:

I am pleased to inform you that your proposal entitled "*Analysis of Accelerometer Data from Aerobraking.*" (NASA proposal number **05-ODYS05-17**) submitted in response to Amendment No. 13 to NASA Research Announcement NNH05ZDA001N-ODS for selection of U.S. Participating Scientists for the Mars 2001 Odyssey Mission, has been selected for funding at **\$45,000** for FY2006. Decisions concerning acceptance and level of funding were based on the peer review panel rating, program balance, and the funds assumed available in our projected budget. The consensus comments of the peer review panel are enclosed for your information.

You are appointed as a Participating Scientist on the Odyssey mission. The purpose of this award is to provide you with a means of assisting with the mission and is not intended solely to give you access to the data; that would be the role of a data analysis or R&A program.

Although you are responsible for the investigation that you proposed and will be expected to carry it out, you were primarily selected to provide your expertise in assisting the team to which you will be assigned in accomplishing their objectives and to complete any additional duties as assigned by the Odyssey Project Scientist. You will coordinate your activities and analyses with the PIs and Co-Investigators (Co-Is) on Odyssey. You will have full rights of access to mission data and be expected to participate in data analysis, archiving, and publication as do Co-Is on your specific investigation.

Please refer to the attached Final Consensus Review for guidance in meeting the expectations of NASA.

Your award will be negotiated by the Odyssey Project. Contingent on the availability of funds, NASA anticipates support for a total of one year beginning in fiscal year 2006.

You should not construe this notification letter as a legally binding obligation. All grants, interagency transfers, and contracts will be issued through the Jet Propulsion Laboratory (JPL).

NASA policy strongly encourages participation in Education and Public Outreach (E/PO) activities by members of the science community. As a research investigator whose proposal has been selected for award, you are now eligible to propose a supplemental E/PO program. Such proposals are due no later than 90 days after the date of this letter. E/PO programs will be funded up to \$15K per year for the period of performance of the parent research award and up to \$50K per year for institutional proposals. For additional information and guidelines regarding the submission of an E/PO proposal please refer to <http://science.hq.nasa.gov/research/epo.htm> and click on "Opportunities." When you are ready to submit, E/PO proposals must be submitted at <http://props.oss.hq.nasa.gov>. If you cannot access the Web site, please contact epo@nasaprs.com.

Based on the Guidebook for Proposers, Section F.14 on how NASA is to be acknowledged in publications, all publications of any material based on or developed under NASA sponsored projects should conclude with the following acknowledgement:

"This material is based upon work supported by the National Aeronautics and Space Administration under Grant/Contract/Agreement No. <xxxxxx> issued through the Office of XYZ <or ABC Program, as appropriate>."

Except for articles or papers published in peer-reviewed scientific, technical, or professional journals, the exposition of results from NASA supported research should also include the following disclaimer:

"Any opinions, findings, and conclusions or recommendations expressed in this article <or report, material, etc.> are those of the author(s) and do not necessarily reflect the views of the National Aeronautics and Space Administration."

Finally, without any exceptions, all releases of photographic or illustrative data products must list NASA first on the credit line followed by the name of the PI organization, for example:

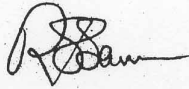
"Photograph <or illustration, figure, etc.> courtesy of NASA <or NASA Center managing the mission or program> and the <Principal Investigator institution>."

The attached summary of the reviewers' comments can help guide you in meeting the expectations of NASA and the Odyssey Project as you participate in this exciting mission. You may contact the Program Scientist for Odyssey, Dr. R. Stephen Saunders, if you have questions (phone: 202 358 0294, email: stephen.saunders@nasa.gov).

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Congratulations and thank you for the effort that you have put in to develop your proposal. The Odyssey mission is an exciting opportunity for us to continue exploration of Mars.

Sincerely,

A handwritten signature in black ink, appearing to read "R. Saunders", with a stylized flourish at the end.

R. Stephen Saunders
Solar System Division
Science Mission Directorate

Enclosure

cc:

HQ: S. Saunders, M. Meyer
JPL: J. Plaut

**MARS ODYSSEY
CONSENSUS EVALUATION
SUBMITTED IN RESPONSE TO
NNH05ZSS001N**

PI and Affiliation: Mendillo, Michael; Boston University
Proposal Number: 05-ODYS05-0017
Title: Analysis of Accelerometer Data from Aerobraking

All proposals and reviews are proprietary and should be handled by the reviewer in a confidential manner.
Comments on this page may be transmitted anonymously to the proposer.

(1) SUMMARY OF EVALUATIONS. Describe the proposal according to (1) Intrinsic Merit (discuss strengths and weaknesses); (2) Relevance to NASA Objectives (evaluate the likelihood that the results of the proposed work will contribute positively to NASA's goals and strategic plan), and (3) Cost Effectiveness (measure the balance between the requested budget, the value of the results/products, and the importance or relevance to current NASA objectives).

Intrinsic Merit

Intrinsic Strengths:

MAJOR: The analysis of accelerometer data taken by Mars orbiters during aerobraking is important for the validation of models and engineering databases used in the planning of future missions to Mars. It also provides insight into upper atmospheric structure and processes that play a role in the loss of volatiles from Mars into space, which is key to answering fundamental questions about the evolution of the Mars atmosphere, particularly early in its history.

The team is experienced in the analysis of accelerometer data. Computer software tools and facilities needed already exist at the respective institutions to conduct this research.

MINOR: None

Intrinsic Weaknesses:

MAJOR: The authors propose to provide "early products" to MRO, and make them a cornerstone of their proposed timeline, but MRO has passed the planning stage where such data will be useful for the initial aerobraking passes. Nominal start of funding is one month after start of MRO aerobraking, for which MRO will use its own accelerometers to evaluate the upper atmosphere environment.

There is a risk that the investigation team will not be able to successfully obtain the necessary engineering data to accomplish the proposed task.

MINOR: None

Rating of Intrinsic Merit: Very Good

Relevance to NASA Objectives

Relevance Strengths:

MAJOR: Knowledge of upper atmospheric processes and structure addresses a fundamental part of the Mars "follow the water" strategy. Validation of engineering models for future missions is a key part of the Mars Exploration Program.

Data processing, PDS delivery and scientific analysis of ACC data is highly relevant to the future success of aerobraking maneuvers at Mars. This fulfills the NASA strategic objective to "...enable and support sustained...robotic exploration of Mars."

Relevance Weaknesses:

MAJOR: This proposal does not fulfill the extended mission objectives of the ODY mission, and does not take advantage of the present and future capabilities of Odyssey, which weakens its relevance to this program.

MINOR: If it is too late to provide data to MRO, then the proposal does not have strong programmatic relevance.

Rating of Relevance: Very Good

Cost Effectiveness

Cost Strengths:

MAJOR: The budget is reasonable for the proposed tasks.

Cost Weaknesses:

MAJOR: None

MINOR: The proposed timeline/milestones indicate a 3-year integrated effort, yet a one-year maximum period of effort is specified in the NRA description. Confusion exists concerning the exact period of the effort and total costs required.

"Current and Pending Support" section for PI and Co-I is incomplete, and several current support commitments are not listed.

Rating of Cost Effectiveness Very Good

(2) Overall Evaluation. (a) Include Summary of Research Objectives as the first paragraph; (b) Include comments that will be useful for the PI

Adherence to these comments does not constitute a guarantee of future funding.

(a) This proposal aims to process ODY ACC data and deliver validated products to the PDS. These data will be used to understand the upper martian atmosphere during the time of ODY aerobraking by deriving a series of density profiles of the upper atmosphere. Lower atmosphere models will be used to assist in validation of the obtained profiles. These data may have potential use for MRO aerobraking activities.

Upper atmosphere data is important for the validation of climate models and ODY ACC data provides one of the few instances of in situ data of this region, hence it is a valuable dataset to have. The team is experienced in the analysis of accelerometer data. Computer software tools and facilities needed already exist at the respective institutions to conduct this research.

ACC data can be made into a useful product for studying the upper atmosphere, however there are three substantial issues to contend with in this proposal: 1. Funding for this proposal would commence no earlier than one month after MRO aerobraking activities begin, severely limiting the usefulness of this data to the MRO mission. Without this application, there lacks a strong operational justification to this proposal. 2. The authors do not make clear whether they will be able to successfully obtain the necessary engineering data to accomplish this task. 3. As this proposal uses past data exclusively, it fails to fulfill the extended mission objectives of this announcement, which are to take advantage of the ongoing scientific capabilities of the Odyssey spacecraft.

(b) None

Overall Score: Very Good