Report of the Committee of Visitors (COV) on CESD Programs in 2010-2012

Minghua Zhang
Stony Brook University, SUNY

The COV Charge

1. Efficacy and quality of funding processes
    a) Solicit, review, recommend, and document application and proposal actions
    b) Processes to monitor active awards, projects and programs

2. Effect of the award process on portfolios
    a) Breadth and depth of portfolio elements
    b) National and international standing of portfolios elements

3. Other review criteria

The Programs and Facilities Reviewed

1. Atmospheric System Research (ASR)
2. Earth System Modeling (ESM)
3. Regional and Global Climate Modeling (RGCM)
4. Integrated Assessment Research (IAR)
5. Terrestrial Ecosystem Science/Carbon Dioxide Information Analysis Center (TES/CDIAC)
6. Subsurface Biogeochemical Research (SBR)
7. ARM Climate Research Facility (ACRF)
8. Environmental Molecular Sciences Laboratory (EMSL)

Cross Cutting Themes

1. **Facilities**
2. **Interagency coordination**
3. **Workshops and initiatives**
4. **SFA management and CESD strategic plan**

The Committee of Visitors (COV)

Enriqueta Barrera	NSF
Ana Barros	Duke
Joe Berry	Carnegie Inst.
Ken Bowman	Texas A&M
William Collins	LBNL
Robert Dickinson	UT Austin
Leo Donner	GFDL
Jae Edmonds	PNNL
Robert Ellingson	FSU
Jeffrey Gralnick	U. Minnesota
Christopher Hill	MIT
Ross Hinkle	U. of Central FL
Peter Jaffe	Princeton U.
Lisanne Lucas	NOAA
Chin-Hoh Moeng	NCAR
Kathryn Nagy	UI Chicago
Michael Prather	UC Irvine
Gemma Reguera	Michigan State
Gary Sayler	U. Tennessee
Anne-Marie Schmoltner	NSF
Peter van Oevelen	GEWEX
Diane E. Wickland	NASA
Minghua Zhang (chair)	Stony Brook

COV Operation: Materials Examined

- Funding Opportunity Announcements (FOAs)
- SC Merit Review Guidance
- Preproposals, preproposal decisions
- Reviewer and panel compositions
- Proposals
- Reviews
- Summary by PMs
- Justifications of award or declinations
- Communications with PIs
- Progress reports and their usage
- Monitoring methods
- Workshops and meetings
- Evidences of portfolio quality
- Response to previous reviews

COV Operation: Site Visit

July 8-10, 2013, Germantown

- **Presentations**
  - **Sharlene Weatherwax**
  - **Gary Geernaert**
  - **David Lesmes**
  - **CESD Program Managers**
- **Questions and Answers**
- **Discussions with program managers**
- **Discussions among COV members**

Acknowledgements

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David Thomassen
Gary Geernaert

Program managers:
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Staff
Nver Mekerdijian, Leslie Runion and Karen Carlson-Brown
Tracey Vieser (ORISE)

General Findings

Finding #1

The COV found the CESD Program Managers (PM) to be knowledgeable, dedicated and energetic. Their commitment to managing their programs and seeking solutions is laudable. The PMs worked tirelessly to obtain the best ideas and scientists for the programs through workshops, annual meetings, visits to the labs, and communication with the PIs. There is great communication and coordination among the PMs in CESD.

PM Responsibilities

1) Prepare solicitations for proposals
2) Review preproposals
3) Solicit external review of full proposals
4) Arrange for panel meetings (if employed)
5) Make award recommendations to management based on reviewer evaluations and program priorities
6) Communicate decisions to PIs
7) Prepare budget requests
8) Monitor funded projects
9) Document all substantive communication with PIs
10) Review annual and final reports

Arrange annual PI and contractors' meetings
Hold workshops
Attend research meetings
Engage the community
Stay at the cutting edge and constantly define research needs and future directions.

Finding #2

The solicitations, the proposal reviews, and the award decisions are rigorous. The communications with the investigators and feedbacks to the proposers were well documented. The funded projects were tracked closely through annual and final reports, workshops, site visits, reverse-site visits, regular reviews and direct communications. The award decision and management processes were appropriate and effective.

Finding #3

The CESD programs are nationally and internationally respected, many of which are unique. For example, DOE contributions to the CCSM and CESM have been instrumental for the US to maintain a leadership role in climate modeling. Results from CCSM and CESM have played major roles in the the IPCC AR reports. Data obtained from ACRF are used worldwide for climate modeling efforts. The selected investigators and teams are of world class quality.

General Recommendations

General Recommendation #1

Funding to the National Labs has been shifting to large Scientific Focus Areas (SFAs) so that complex questions and large problems can be attacked more effectively. The COV recommends that CESD maintain flexibility and appropriate balance of funding to allow both SFAs and exploratory or cutting edge research by individual PIs at the Labs. The COV also recommends that CESD consider options for reducing the administrative burden of the SFA reviews while still maintaining the quality of the research program.

General Recommendation #2

The COV considers the current overall balance of laboratory and university research to be appropriate and we recommend that such balance be approximately maintained in the future.

	Total (M$)	Non-Lab	Non-Lab %
ESM	35.3	7.3	21%
RGCM	28.2	12.3	44%
IAR	9.9	3.9	39%
ASR	26.3	13.4	51%
TES	40.1	14.1	35%
SBR	27.6	5	18%

General Recommendation #3

The COV strongly recommends that DOE increase travel fund allocations to allow PMs to attend scientific meetings both domestically and internationally. It is imperative that CESD PMs attend some of these meetings in order to enhance the impact of DOE sciences, to exert leadership in setting research directions in the international community, and to leverage DOE resources.

General Recommendation #4

The COV recognizes the tremendous workload and responsibilities of the PMs who made the CESD programs successful. We recommend that DOE improve its electronic grant information system to better assist the PMs and support staff for project management.

General Recommendation #5

The COV encourages PMs to develop program-wide metrics of performance and progress synthesis in addition to the quantitative measure of publications to measure programs and to enhance their impact.

Program Recommendations

Recommendation to Programs
ASR & ESM & RGCM

CESM and its component models are DOE's highly leveraged assets. The COV considers CESM as the single most important element contributing to the DOE's position of international leadership in climate modeling. The COV strongly recommends that DOE maintain its proactive collaborations with the community and its investments in CESM activities.

ASR
Atmospheric System Research

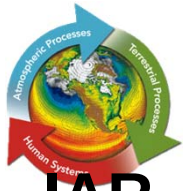
ESM

RGCM

Recommendation to Programs: IAR

Given the history and scope of research activities in the Integrated Assessment Research (IAR) Program, the COV recommends consideration of the establishment of formal cooperative agreement in meeting its objectives.

(The COV examined FOAs for the past 3 fiscal years: LAB 10-06, 10-219. Each received 3 proposals with 1 proposal funded. $9.9M in FY12.)



Recommendation to Programs: TES

The COV recommends that CESD engage other federal agencies to address how voids in ecosystem and carbon cycle research at DOE, including both managed ecosystems and the oceans, can be filled and information about these elements of the Earth system be included in DOE modeling efforts.

Recommendation to Programs: SBR

The COV recognizes the need of the NGEE Arctic project within the CESD Environmental System Science (ESS) programs. NGEE has necessitated the adjustment of some SBR SFAs from geochemical processes to carbon cycle research. The COV recommends that SBR maintain appropriate funding to retain key expertise and activities in radionuclide research.

Recommendation to Programs: ACRF

The Atmospheric Radiation Measurement (ARM) Climate Research Facility (ACRF) management was proactive in the development of the "best estimate" data sets. The COV recommends that the PMs continue these efforts.

Recommendation to Programs: EMSL

The COV recommends that the Environmental Molecular Sciences Laboratory (EMSL) continue to increase the user pool, especially to attract new investigators, including allowing postdoc researchers to serve as PIs of EMSL proposals.

Recommendation to Programs: Facilities

Recognizing the growing costs of instruments and maintenance for the CESD facilities, the COV recommends that ACRF and EMSL PMs continue to engage the science community to set priorities and to maintain the proper balance of protecting legacy datasets and acquiring new instruments.

Summary

1. **The funding processes across all CESD programs are rigorous, appropriate, and well documented. The awards and projects are monitored effectively.**

2. **The CESD programs are of high quality. They are nationally and internationally respected.**

3. **The Program Managers are dedicated and effective.**

4. **The COV made recommendations in the report on portfolio balances, travel, efficiency, metrics, CESM, program breadth, usage and budget vigilance on facilities.**