

By-Laws of the Community Surface Dynamics Modeling System (Oct. 2016)

PREAMBLE

The Community Surface Dynamics Modeling System (CSDMS) assumes responsibilities to develop, support, and disseminate to the earth-science research and teaching community integrated software modules that are aimed at predicting the erosion, transport, and deposition of sediment and solutes in landscapes, seascapes and their repository sedimentary basins. The goal of CSDMS is to enable the rapid development and application of linked dynamical models tailored to specific landscape-basin evolution problems. These models should address time scales that range from years to thousands of years or longer, and spatial scales that include global, regional and local aspects of the earth's surface — from the mountain tops covered in glaciers to the deep seafloor and their sediments. To foster longer-term progress in surface modeling, CSDMS gathers and makes available models designed to elucidate poorly understood aspects of landscape and seascape dynamics. CSDMS develops and maintains a high-level of community participation to ensure:

- a) Well-documented and user-friendly earth-surface dynamics software that keeps pace with both hardware and scientific developments;
- b) Partnerships with related computational and scientific programs in order to eliminate duplication of effort, leverage mutual progress, and provide and benefit from an intellectually stimulating environment;
- c) Appropriate training for both the users and teaching communities;
- d) Hardware and personnel resources to support and facilitate software development and its use by the community;
- e) Strong linkage between what is predicted by CSDMS codes and what is observed both in nature and in physical experiments.

CSDMS develops and maintains the computational system to ensure the portability and interoperability of modules, the computational efficiency of system code, and the clarity and consistency of documentation. CSDMS offers pedagogically evaluated earth-surface numerical technology to enhance and inform education in undergraduate to graduate programs, and science museums.

CSDMS Members adopt these By-Laws of the Community Surface Dynamics Modeling System for conducting CSDMS business in a collegial manner. These By-Laws do not override the standard responsibilities and prerogatives of Principal Investigator and his/her institution.

Articles

ARTICLE I. NAME

Section 1. Name: The name of the Organization is *Community Surface Dynamics Modeling System (CSDMS)*.

ARTICLE II. WORKING GROUPS, MEMBERS AND THEIR INSTITUTIONS

Section 1. Working Groups: The six Working Groups (WGs) to support the CSDMS program include three (3) Environmental Working Groups and two (2) Integrative Working Groups, and one (1) Interagency Committee. The three key Environmental Working Groups are:

- i) Terrestrial WG: weathering, hillslope, fluvial, glacial, aeolian, lacustrial;
- ii) Coastal WG: delta, estuary, bays and lagoons, nearshore;
- iii) Marine WG: shelf, carbonate, slope, deep marine.

The Integrative Working Groups are:

- iv) Education and Knowledge Transfer (EKT) WG: includes marketing to gain end-users, workshops to provide training for end-users, web-based access to simple models (e.g. K-12 teaching), access to archives of simulations. This WG will interact closely with its Partner Committees (Industry, Agency), field programs, and cyberinformatic partners.
- v) Cyber-Infrastructure and Numerics WG: includes technical computational aspects of the CSDMS, ensures that the modeling system properly functions and is accessible to users; software protocols are maintained, along with model standardization and visualization.
- vi) A CSDMS Interagency Committee has the focus of fostering linkages between the main US environmental agencies that have interest in CSDMS products, standards, and approaches.

Section 2. Focus Research Groups: The CSDMS Focus Research Groups (FRGs) were established in 2008 to cut across our Environmental Working Group structure, to serve a unique subset of our surface dynamics community often with support of well-developed sister organization. The current FRGs include:

- i. Hydrology FRG is cosponsored by CUAHSI, the Consortium of Universities for the Advancement of Hydrologic Science, Inc., and deals with aspects of the hydrological system that impact earth-surface dynamics;
- ii. Carbonate & Biogenics FRG is cosponsored by NSF's Sedimentary Geology and Paleobiology Program to address the grand challenges for fundamental research on ancient and recent carbonate systems, reefs and other seafloor supporting environments, through creation of the next generation of numerical carbonate and other seafloor-based biological process models;
- iii. Chesapeake FRG a 'geographically-focused' effort co-sponsored by the Chesapeake Community Modeling Program, to develop a watershed-estuary model consisting of interchangeable modules including hydrodynamics, ecosystem dynamics, trophic exchanges, and watershed interactions;
- iv. Critical Zone FRG is co-sponsored by NSF's Critical Zone Observatory (CZO) Program to represent Critical Zone data and model development within CSDMS;
- v. Human Dimensions FRG is co-sponsored by the Future Earth Programme and their AIMES (Analysis, Integration and Modeling of the Earth System) project, and by CoMSES Net, the Network for Computational Modeling for SocioEcological Science, a scientific research coordination network to support and expand the development and use of computational modeling in the social and life sciences. The HD FRG engages to codify the human and societal process into models of a future Earth, including next-generation agent based models, economic models, able to quantify human influences (behaviour and decision making) that affect earth system responses;

- vi. Geodynamics FRG is co-sponsored by the NSF MGeoPRISMS Program, committed to better understanding and modeling the coupled geodynamic - geomorphic system through the development and innovation of numerical tools, relevant and challenging proof-of-concept questions.
- vii. Ecosystem Dynamics FRG represents the ecological modeling community and is co-sponsored by the International Society for Ecological Modelling. The FRG deals with ecosystem and ecological dynamics with an emphasis on interactions with landscape processes.

Section 3. Membership: Working and Focus Research Group members shall be holders of an academic or research appointment, with major responsibilities for instruction and/or research in the earth, environmental and engineering sciences, in a department, program, or other organizational unit of their Institutions (academic institutions, not-for-profit organizations, state and federal labs, and consulting and industrial companies). Members shall have demonstrated a major commitment to research in Earth System Science with a particular emphasis on computational earth-surface dynamics, and related fields (hydrology, fluvial processes, biogeochemistry, sedimentology, stratigraphy, geomorphology, glaciology, oceanography, marine geology, climate forcing, active tectonics, surface geophysics, remote sensing, geomathematics, computational fluid dynamics, computational science, and environmental engineering). Applicants may apply to the CSDMS Integration Facility to join one or more of the CSDMS Working and Focus Research Groups. The CSDMS Integration Facility shall maintain a list of Members and their Institutions. Working Group membership requires a two-thirds majority approval of the CSDMS Executive Committee. A membership fee may be levied on for-profit organizations. Working and Focus Research Group Chairs may appoint a Coordinating Committee.

Section 4. Responsibilities/Activities:

- iv) **Group Discussion:** Stay current in the processes and models associated their disciplinary toolkit, and identify gaps in knowledge and areas where numerical tools need to be developed. Set scientific modeling priorities for their discipline. Make recommendations for resource prioritization and facilitate the movement of these priorities up the hierarchy from technology group to steering committee.
- v) **Review Activities:** Ensure quality control for the algorithms and modules for their area of expertise (benchmarking and model testing). Coordinate the evaluation of numerical codes according to interoperability, scientific contribution, and technical documentation. Ensure adequacy of supporting boundary conditions and boundary initializations.
- iv) **Group Project:** Address a CSDMS proof-of-concept challenge as outlined within the latest/updated CSDMS Strategic Plan, as appropriate.
- v) **Individually and collectively:** Stimulate proposals and input from the community. Create and/or manage the various environmental process modules related to their discipline. Provide community continuity to meet long-term CSDMS objectives.
- vi) **Meetings:** Working Groups will coordinate much of their activity via remote communication systems, but are encouraged to meet as resources and interests permit.
- vii) **Reporting:** Working Groups will report annually on their progress.

Section 5. Foreign Membership: Working and Focus Research Group members from foreign academic institutions, not-for-profit organizations, foreign government labs, and consulting and industrial companies, are offered all of the privilege of U.S. working group members, except for the privilege of voting for the Chairs of the Working Groups that reside on the governing body of CSDMS — the CSDMS Executive Committee.

Section 6. Resignation or Removal: Any Member or Chair may resign at any time by giving written notice to the Chairperson of the Steering Committee, or to the CSDMS Executive Director. Such resignation shall take effect at the time of receipt of the notice, or later specified therein. Given sufficient cause, any Member or Chair may be removed by the affirmative vote of two-thirds of the Voting Members of the CSDMS Executive Committee.

Section 7. Voting: For the purpose of the election of a Working Group Chair, each CSDMS WG member shall be entitled to one vote as specified in Article III, Section 7. All WG members will be offered a chance to vote, via the Internet (e.g. email, a CSDMS Web Wiki). All other voting will be through a majority of the Working Group members present at the time of the vote (e.g. Annual Meeting of the Working Group).

Section 8. Action without a Meeting: Any action required or permitted to be taken by the CSDMS members, or the Executive Committee, may be taken without a meeting if the CSDMS members, or the Executive Committee, consent in writing to the adoption of a resolution authorizing the action. The resolution and the written consents thereto shall be filed with the minutes of the proceedings of the CSDMS members or the Executive Committee.

ARTICLE III. CSDMS EXECUTIVE COMMITTEE

Section 1. Executive Committee of CSDMS: The Executive Committee (ExCom) will comprise: a) Executive Director and PI of the award as Chair, (non-voting, except to break a tied vote); b) Chair of the Steering Committee (voting); c) Chairs of the defined working groups (voting) — (i) Terrestrial, (ii) Coastal, (iii) Marine, (iv) Cyber-Infrastructure and Numerics, (v) Education and Knowledge Transfer, and (vi) Interagency. The elected members of ExCom shall have terms not to exceed three years or until his or her successor is chosen and qualified. Members of ExCom other than the chair of the Steering Committee may not simultaneously serve on the Steering Committee. Chairs of the Focus Research Groups will be ex-officio non-voting members of the Executive Committee.

Section 2. Powers of the Executive Committee of CSDMS: The ExCom is the primary decision-making body of the CSDMS, and will meet twice a year to approve the annual science plan, the annual report including the management plan, budget, partner membership, and other day-to-day issues that arise in the running of the CSDMS. The Executive Committee will ensure that the objectives of the Cooperative Agreement are met. The ExCom will develop the By-Laws and Operational Procedures, to be co-approved by the Steering Committee. At all meetings of ExCom, the presence of a simple majority of its Voting members then in office shall constitute a quorum for the transaction of business. So long as they do not conflict with the responsibilities of the Principal Investigator (the CSDMS Executive Director), power in the management of the affairs of the CSDMS Organization is vested in the CSDMS Executive Committee. To this end and without limitation of the foregoing or of its powers expressly conferred by these By-Laws, the CSDMS Executive Committee shall have power to authorize such action on behalf of the Organization, make such rules or regulations for its management, and create additional offices or special committees. The Executive Committee shall have the power to fill vacancies in, and change the membership of, such committees as are constituted by it. Appointments of Working Group membership shall rest with the Executive Committee.

The CSDMS Executive Committee will co-share authority with the CSDMS Steering committee to amend or repeal the By-Laws, or the adoption of new By-Laws.

Section 4. Executive Director: The Executive Director shall, when present, preside at all meetings of the Executive Committee and shall perform such other duties and exercise such other powers as shall from time to time be assigned by the Executive Committee. The Executive Director shall be an *ex officio* member of all CSDMS committees. The Director is the Chief Executive Officer of the Organization, and unless authority is given by the Executive Committee to other officers or

agents to do so, he or she shall execute all contracts and agreements on behalf of the Organization. The Director shall be the Principal Investigator on proposals, which fund the core CSDMS Facility. It shall be his or her duty, insofar as the facilities and funds furnished to him or her by the Organization permit, to see that the purposes, orders and voting within the CSDMS Organization are carried out. The Director shall preside at CSDMS-wide town-hall meetings.

Section 5. Chairperson of the Steering Committee: The SC Chairperson when present shall preside at all meetings of the Steering Committee and perform such other duties and exercise such other powers as shall from time to time be assigned by the Executive Committee. The Chairperson of the Steering Committee shall be an ex officio member of all CSDMS committees. After the Chair's term is complete, they will be offered the honorary title of Past-Chair and provided with travel funds, when available, to attend CSDMS meeting as appropriate to their interest and CSDMS need.

Section 6. Group Chairs: Chairs of the defined groups will be full voting members of the Executive Committee and will represent the following areas of surface dynamics expertise. They will have the authority to call meetings of the group they are responsible for, and to meet the collective long-term CSDMS objectives.

Section 7. Election and Term of Office: All members of the Executive Committee must stand for election. The Chairperson of the Steering Committee shall be elected by a virtual vote of the CSDMS membership orchestrated and recorded by the CSDMS Executive Assistant, for a term not to exceed three years or until his or her successor is chosen and qualifies. Chairs of the Working Groups shall be elected by the members of the respective working groups, orchestrated and recorded by the CSDMS Executive Assistant, for terms not to exceed three years or until their successors are chosen and qualify, and they shall be eligible for re-election. Focus Research Group Chairs are appointed by the CEO of the sponsoring organization and the CSDMS Executive Director.

Section 9. Resignation: Any Officer may resign at any time by giving written notice to the Chairperson of the Steering Committee, or the CSDMS Executive Director. Such resignation shall take effect at the time of receipt of the notice, or later specified therein.

Section 10. Vacancies: the Executive Director may fill any vacancy in any Office for the unexpired portion of the term of such office.

Section 11. Removal: Any officer may be removed at any time with cause by a vote of the Executive Committee.

ARTICLE IV. OPEN MEETINGS

Section 1. Annual CSDMS Meeting: An annual open meeting of the CSDMS membership will be held to solicit comment and feedback from the community. Comments from the community will be recorded and forwarded to the CSDMS Executive Committee and the CSDMS Steering Committee.

Section 2. Special Meetings: Special meetings may be called by the Chairperson of the Steering Committee, or by the CSDMS Executive Director, upon written request of at least one-fifth (1/5) of the membership of the CSDMS Working Groups.

Section 3. Place of Meetings: The CSDMS Executive Director shall designate the place and forum (face-to-face or virtual) of the annual meeting or any special meeting and which shall be specified in the notice of meeting or waiver of notice thereof. The meeting venue will be chosen to maximize community participation.

Section 4. Notice of Meetings: Notice of such meeting of the CSDMS members shall be given at least sixty days before the date fixed for the meeting.

ARTICLE V. STEERING COMMITTEE AND OTHER COMMITTEES

Section 1. Steering Committee: In order to carry out and oversee CSDMS operations, a Steering Committee (SC) shall be established. *Upon the recommendation of the Steering Committee, the Executive Committee approved the expansion of the Steering Committee membership.*

“The Steering Committee be comprised of a minimum of seven (7) members selected by the ExCom to represent the spectrum of relevant Earth science and computational disciplines, and each of the two Partner Sub-Committees.” The serving NSF program officer or his/her designate, and the Executive Director or his/her designate, will serve as *ex officio* members of the SC. During SC meetings, there may be occasions when these *ex officio* members would exclude themselves from discussions.

The SC members will serve terms up to three years duration. The Steering Committee will meet once a year to assess the competing objectives and needs of the CSDMS; will comment/advise on the progress of CSDMS in terms of science (including the development of working groups and partner memberships), management, outreach, and education; and will comment on and advise on revisions to the 5-year strategic plan. The Steering Committee will provide a timely report to the Executive Director who is to respond within four weeks.

Section 2. Special or Standing Committees: The ExCom may create such special or standing committees as may be deemed desirable, the members of which shall be appointed by the Executive Director from among the Membership, with the Membership approved by the Executive Committee. Each such committee shall have only the lawful powers specifically delegated to it by the Executive Committee.

ARTICLE VI. ELECTIONS

Section 1. Executive Committee: With the exception of the Executive Director, the CSDMS Membership in accordance with the procedures established in this Article will elect voting members of the Executive Committee.

Section 2. Nominations for the Executive Committee: In consultation with the Steering Committee, the Executive Director will nominate candidates for each position to be filled. The Membership is encouraged to suggest nominees to the Executive Director.

Section 3. Election: Election shall be conducted electronically. The CSDMS Integration Facility must receive Electronic or Paper votes by the deadline specified in the ballot. The outcome of the election will be decided by a simple majority of the votes cast.

Section 4. Counting of ballots: the Steering Committee Chair, or his/her designated representative shall count Ballots.

ARTICLE VI. COMPENSATION

Section 1. Compensation: No Member shall be paid any compensation for serving on the CSDMS Executive Committee, Steering Committee or other committees and Working Groups. Representatives may be reimbursed for the actual expenses incurred in performing duties assigned to them, within limitations of the host Institution’s budget associated with the NSF Cooperative Agreement 0621695.

ARTICLE VII. AMENDMENTS TO THE BY-LAWS

Section 1. Amendments: All By-Laws of the Organization shall be subject to amendment or repeal and new By-Laws may be made by the affirmative vote of two-thirds of the Executive Committee and the Steering Committee.