

OPERATING PRINCIPLES AND PROCEDURES

for the

**GLOBAL LAKE ECOLOGICAL OBSERVATORY NETWORK
(GLEON)**

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Introduction

Operating principles and procedures for GLEON

Lakes are a key ecosystem under stress in this changing world. Lakes provide human communities with freshwater for drinking and irrigation, food resources, and also opportunities for recreation and aesthetic appreciation. The increasing availability of sensing devices and the advancement in networking and cyberinfrastructure allow for improved and expanded observations of the environment; sharing of data, expertise, experience, and models; replication of experiments in different ecosystems; and discovering patterns at local, regional, global scales not previously detected. During the early 2000s, a number of researchers across the world organized a coordinated international scientific effort to harness these new technologies to address the challenges facing lake ecosystems, resulting in the establishment of the Global Lake Ecological Observatory Network (hereafter referred to as “GLEON”). GLEON aims to use international collaboration as a means to examine and monitor lakes during this time of unprecedented global change. Great potential exists to use recently developed technology to conduct aquatic science on a scale never before attempted. By integrating the expertise of multidisciplinary researchers, GLEON provides insight, scientific understanding, technical expertise, education, and outreach while determining the role and response of lakes in a changing global environment. Four international workshops were held to take initial steps to establish GLEON between 2005 and 2007. As an outcome of these workshops, Operating Principles and Procedures were developed to guide the operation of GLEON as a form of technical and scientific international collaboration. This OPP document has been updated many times to reflect the growing ambition and reach of GLEON, and this current document is the 24th version of the OPP of GLEON.

Paragraph 1: Definitions

Cyberinfrastructure

Cyberinfrastructure integrates data storage, computers, communication networks, software, and people to link distributed resources for a common scientific purpose. Its goal is to advance scientific discovery by enabling the development of new theories and knowledge.

Sensor Networks and Observing Systems

Sensor networks are spatially-extended, intelligent networks of multi-variable intelligent sensor arrays that capture data across time and spatial scales. Observing systems tie together sensor networks with other remote sensing devices via cyberinfrastructure to gain understanding of basic environmental processes at local, regional, and global scales.

Lakes

By lakes we mean lakes, ponds, reservoirs and any other lotic waterbodies.

Participation

GLEON comprises individual members.

Individual Member

An *Individual Member* is a person who has expressed his/her intention to observe the provisions of this Operating Principles and Procedures document, completed a membership application, and received confirmation that their membership application has been approved.

Related Organizations and Projects

The issues motivating GLEON are extremely urgent with significant ramifications for society. In order to improve effectiveness and avoid duplication of efforts, we will work with other groups and projects with related interests to GLEON's mission, where mutual benefit can be found.

Paragraph 2: Understandings

1. GLEON welcomes all individuals that align with the goals of GLEON.
2. The involvement of a member in GLEON is subject to the goodwill and the applicable laws and regulations of institution, organization, consortium of institutions, or research group.
3. This document is not legally binding and will have no effect as a legal or political precedent.
4. The Steering Committee (SC) of GLEON will strive to reach decisions by consensus.
5. This document will be made public via dissemination resources such as the GLEON website, www.gleon.org.

Paragraph 3: Mission, vision and values

Mission

The Global Lake Ecological Observatory Network conducts international team science to advance our understanding of lakes and their benefits in a changing environment.

Vision

GLEON envisions:

- A worldwide network of instrumented buoys on lakes, placing critical lake information at the fingertips of researchers, managers, and the general public.
- A research environment that fosters collaboration across disciplines and political borders.
- An international community of scientists, educators, policy makers, and citizens invested in the future of fresh waters.

Values

Shared values are critical to accomplishing the mission of GLEON. These values are important to foster collaboration, trust among members and to help define how the GLEON organization interacts with its members and the broader community.

GLEON values:

- Inter-disciplinary lake science
- Empowered, diverse membership
- Informality, collegiality and collaboration
- Curiosity and creativity
- Sharing ideas, expertise and data
- Transparency of decision-making
- Professional development of members
- Open communication of results, tools and products

Paragraph 4: GLEON membership

GLEON is composed of three networks: people, lake observatories and data; i.e., a network of scientists, engineers, computer specialists and others, a network of lake observatories, and a network of lake observation data.

People: Individual membership is the route to the people-side of the network. This includes the science, generation of hypothesis generation, sharing of ideas, experiences and expertise (this includes, but is not limited to, limnology and broader environmental science, the

computing aspects, and sensing technology). No membership distinction is made in benefits or commitments among the different individual backgrounds.

Lakes: GLEON lake observatories are lakes that have been part of GLEON research and/or where associated researchers can provide access to various types of knowledge, data and infrastructure.

Data: a fundamental component of GLEON activities is the sharing of data in an open, accessible manner, to develop a network of lake data.

Benefits of Membership

Membership of GLEON provides access to a network of individuals with a strong interest in limnology or environmental science and the role of technology in answering fundamental and applied research questions, as well as a network of sensor-equipped GLEON Lake observatories and access to shared data.

Benefits include:

- **Exchange** of knowledge and data on the ecological phenomena that occur in lakes around the globe;
- **Collaborate** to test and validate limnological or environmental hypotheses in different lakes through data sharing and/or collaboration with other GLEON members;
- **Support** from other GLEON members in the development and improvement of observatory technologies and data management;
- **Access** to an on-going discussion about global lake ecological issues and access to data and collaborative partners to address these;
- **Affiliation** with a more formalized research network that can be used to enhance competitive power for funds;
- **Opportunities** to provide leadership for and gain experience in a global community of researchers.

Commitment of Members

A key concept of commitment is the desire to participate in GLEON, collaborate with other members, and to contribute to advancing GLEON's mission. Furthermore, all members must endorse and express a willingness to adhere to GLEON's "Operating Principles and Procedures," [Code of Conduct](#), and the shared values and means of conducting GLEON's operations.

Each Member should seek to:

- Promote the mission, vision and values of GLEON (Paragraph 3);
- Participate actively in the formulation and implementation of activities.

Membership application process

The SC will be responsible for the growth of GLEON, and in particular the addition and withdrawal of Members. The SC oversees the addition of members who can contribute to the mission and activities of GLEON, thus balancing growth with demonstrated contribution to and success of GLEON. The SC may designate an active GLEON member to assist the GLEON coordinator with processing membership applications, and coordinate with the SC in terms of annual summaries and updates.

Process for Individual Member applications

Prospective individual members can apply using the individual membership form on the GLEON website. Information required for the application includes:

Expertise and area of interest: e.g., theoretical or applied research of lake ecology, lake ecological observatory techniques, ecological data analysis, catchments environmental managements, tool and software developers, sensor designers, social or economic scientists, educators, etc.

Interest in GLEON: Why is the applicant interested in joining GLEON?

Agreement to follow the Operating Principle and Procedures.

Agreement to allow membership information to be placed on the web.

The application process involves:

1. **Submit** application using the online form on the www.gleon.org;
2. **Review** of the application by the SC or their designee;
3. **Approval** of the SC or their designee to convey membership;
4. **Notification** to the applicant on the status of their application.

Process for Removing Members

There are two ways in which Participants will be removed: Self-initiated or SC initiated:

1. Self-initiated Removal: Members may remove themselves from GLEON by stating their intention in writing to the SC with an effective date;
2. SC Initiated Removal: The SC will periodically review members, and if there has been misrepresentation on the part of the member, a violation of the principles of this document, or if the member has not adhered to GLEON's code of conduct, the SC may decide to remove Members, and will notify that entity in writing, with an effective date. The SC has to vote and obtain a majority in order to remove an existing member.

Paragraph 5: The Steering Committee (SC)

Role and Purpose

The Steering Committee (SC) will be the means by which representatives of the network membership will make collective decisions on matters relating to GLEON.

Responsibilities

The SC may:

1. Review all activities of GLEON and recommend directions for the advancement of GLEON mission and goals;
2. Set policies pertaining to the operation of GLEON;
3. Carry out the other functions conferred upon it by this Operating Principles and Procedures document, including any Annexes or modifications hereto;
4. Refine processes and definition of membership and participation in the SC;
5. Review at each meeting any applications by any individual;
6. Determine and maintain relationships with other related networks and key projects;
7. Review and select at each meeting any application to host a future GLEON meeting;
8. Review and approve plans (topics, agenda, participation) for any GLEON meetings, including the setting of registration fees;
9. Review progress on activities between GLEON meetings;
10. Review and approve strategic partnerships with relevant networks or projects;
11. The SC may create other committees under its umbrella for specific goals. Currently, there are three of such standing committees in GLEON, i.e., the GSA (GLEON Student Association), the GPA (GLEON Post-student Association) and the CCC (Committee for Inclusive Collaboration).

Coordination between the steering committee and standing committees

1. The standing committees are at liberty to self-organize as long as they act in compliance with the GLEON OPP.
2. GLEON SC approves the standing committees' leadership and their advisor appointments.
3. The leadership of the standing committee ensures direct and open links between the standing committees.

Composition of the SC

1. The key principle for SC membership is the extent of the contributions that an individual could make to the SC and to GLEON's mission. Some examples might be participating in working groups, committees, projects, GLEON Lake observatories, student activities, training or other activities which support GLEON's mission and operations.
2. One representative from each standing committee (currently GSA, GPA, and CCC) will be voting members of the SC on behalf of their committees, with one vote each.
3. Other principles that guide the evolution of the SC membership are:
 - a. Continued success of GLEON and of the operation of the SC;
 - b. Representation of members;
 - c. Contribute to or support diversity of the SC, including gender, sexual orientation, disability, physical appearance, race, religion, national origin, academic position, or economic situation;
 - d. Limited size for both effectiveness and efficiency. A size of 10 to 15 members is considered reasonable for representation as well as frank discussions. The larger this group, the harder it is to find time for a meeting;
 - e. Retain GLEON 'memory' whilst at the same time engaging new energy and talent from members.

Appointment Term

Each SC member will serve a 3-year term renewable for a maximum of two terms (6 years).

SC Election Process

1. Six months prior to the end of each rotation, three members of the SC will be appointed to the nominations committee. These people may not be one of the SC members seeking re-election.
2. Nominations for new SC members will be collected from the full GLEON membership by the nominations committee. This committee will follow the process detailed in Annex IV.
3. A SC member rotating off can self-nominate to be considered along with all other nominations gathered during the election process.
4. The SC members will vote to elect new members based on the principles stated in the previous section. The SC should reflect the diversity of GLEON as a whole.
5. Each member of the SC can vote for the new members, with the exception of those rotating off. Voting principles of the SC are outlined below.

Commitment to SC meetings

Unless there are extenuating circumstances, SC members are required to be present at SC meetings, either in-person, online or by telephone.

Voting

The SC should strive to work by consensus. Except where mandated that a decision must be made by consensus, the following rules apply:

1. If consensus cannot be reached after reasonable attempts have been made, then approval of decisions shall be made by a majority of those members present.
2. A majority vote is the affirmative vote of the majority of the eligible voters present.
3. Each Member of the SC will have one vote.
4. If a decision requires choosing between multiple alternatives, the voting process will consist of a series of votes, such that during any round the alternative with the smallest number of votes will be removed from further consideration. The process will terminate when any alternative gets the majority vote.

SC Leadership

The SC may establish subsidiary bodies and procedural rules required for its proper functioning. It elects two Co-chairs who will serve a term of up to six years, which can be renewed once. The term length will ideally be offset by a reasonable period of time to ensure continuity between Co-chair terms. The election procedure will follow for rotation and selection of GLEON SC Co-chair as detailed below. The Co-chairs will be responsible for the following SC functions:

1. Conducting the meetings;
2. Setting the agenda (with input from members of the committee);
3. Calling meetings on a regular (as needed) basis;
4. Report on the committee activities;
5. Supplying the GLEON membership with regular updates;
6. Review and approve requests for letters of support for proposals;
7. Supporting the administrative activities of the committee (but excluding travel and associated costs of members);
8. Documenting successes.

Procedure for rotation and selection of GLEON SC Co-chair

1. Between three and 12 months prior to the end of a Co-chair's term, the SC will discuss reappointment of the incumbent. Satisfactory service of the Co-chair is expected in order to receive the approval of the SC to be reappointed.
2. At least three months prior to the end of Co-chair appointments, nominations will be collected for the Co-chair position.
3. A sub-committee composed of 3 members of the SC or appointed ex-officio members will be appointed in charge of the election and charged with collecting nominations. The membership of this sub-committee needs to be endorsed by a majority of the SC.
4. With the exception of the GSA and GPA representatives, all past and present members of the SC are eligible Co-chair candidates, including the past and present Chairs of the Collaborative Climate Committee (CCC). If the current Chair of the CCC is elected as Co-chair, they will give up the chair of the CCC.
5. The list of eligible Co-chair candidates is circulated to all GLEON members. Each GLEON Member is allowed to put forward one nomination from the list of eligible Co-chair candidates. SC members may self-nominate.
6. Following the nominations by GLEON members, the committee in charge of the election will contact nominees to ensure they are willing to serve and, following their approval, send a summary of nominees to the SC at least two weeks prior to the election.
7. Nominees are expected to send a brief summary of qualifications and goals for the chair position. These summaries will be collected by the member in charge of the election and forwarded to the SC.
8. Election of the Co-chair will take place by majority, following voting guidelines laid out in paragraph 5. Nominees are not permitted to vote in the election, nor is the co-chair that is rotating off.
9. The candidates will be informed by the committee in charge of the election of the outcome in relation to their nomination for the Co-chair position. The successful candidate will then be referred to as the Co-chair Elect. During the period after they have been selected as Co-chair Elect and before they officially commence their appointment as Co-chair, the Co-chair Elect will work closely with the current Co-chairs to ensure a full understanding of the current requirement of the Co-chair role.

Meetings of SC

Meetings of the SC will be held in conjunction with GLEON meetings or at other times as needed. The agenda for the meeting will be circulated by the Chair, no later than two weeks prior to the meeting, after soliciting topics for discussion. Occasionally, the agenda of the meeting will be enhanced by the involvement of others outside of the SC, who will be invited to attend the SC meeting by the Chair, after discussions with the SC.

Designation as an Official GLEON SC Meeting

A meeting of SC members shall be designated as an official GLEON SC Meeting if the number of the committee members present is more than two thirds of the total number of the SC Members. Any decisions taken at an official SC Meeting should be transmitted to any SC member not present at the meeting.

Ex-officio (non-voting) SC members

The SC or Co-chairs may appoint an ex-officio member of the SC, to undertake a specific task. This appointment has a fixed time period and is related to a specific task, both of which are determined by the SC or Co-chairs. Examples of such tasks may be representing GLEON at a high-level meeting, or attending a SC meeting to provide mentoring and advice to the SC and Co-chairs. Ex-officio appointees must be GLEON members, but they are ineligible to vote on SC matters. By invitation of the SC or its Co-chairs, ex-officio members may attend SC meetings related to their specific task.

Paragraph 6: Intellectual property

Applicable Law

Nothing in this document should be read to alter the scope and application of Intellectual Property Rights and benefit sharing agreements as determined under relevant laws, regulations and international agreements of the Participants.

Attribution

GLEON will seek to ensure that individual and resource contributions of GLEON activities are acknowledged in publications and presentations [See Annex I]

Jointly Developed Software and Data Products

GLEON will seek to promote open access to software and data produced by joint efforts of the Members, subject to international, and institutional restrictions and due attribution.

Technology Transfer

GLEON will seek to promote the public dissemination of GLEON activities and results.

Paragraph 7: Funding and organization of meetings

Costs Borne by Members

Members bear the costs of their own participation in GLEON, including travel costs, and other expenses related to attendance at meetings and other GLEON functions, events, and activities.

Hosting GLEON Meetings

1. All-hands meetings can be in person or virtual. Both kinds of meetings will have a host organizational committee and a programme committee.
2. A host organizational committee of an in-person all hands meetings is responsible for all local arrangements including: meeting rooms, setting up blocks of hotel rooms, arranging for food, arranging for local transportation from airport to hotel (i.e., letting participants know how to get from airport to hotel, not necessarily paying for transportation), and at least one cultural or distinctly unique local event.
3. Should funding for some participation be available, priority would be given to members to attend. The host organizational committee may, but is not required to, support non-members or non-participants.
4. The programme committee will collectively set the meeting agenda. The programme committee will include someone from the host team organizational committee, and if possible, the future host team of the next all-hands meeting.
5. The program committee chair will inform the SC of progress at appropriate meetings.

Paragraph 8: Other matters

OPP approval

The Operating Principles and Procedures outlined in this document came into effect when two-thirds of the proposed members of the SC agreed in writing to this Operating Principles and Procedures document.

Duration

Except as provided below, GLEON was set up for an initial 5-year period from the Montreal GLEON 5 Workshops, 11 August 2007. Continuation is allowed as long as the SC sees fit.

Termination

The SC members may terminate this Operating Principles and Procedures document at any time by a unanimous decision.

Modifications

Except where otherwise specified, this Operating Principles and Procedures document and any Annexes thereof may be modified at any time by the SC.

Annex I: Guidance on acknowledgement and co-authorship

This is the suggested quote for acknowledging GLEON in publications:

“This work is the result of an international team science effort facilitated by the Global Lake Ecological Observatory Network (GLEON)”

GLEON’s success depends on collaborations among its members. Sharing of data can lead to collaborations, which can result in additional scholarship and publications. GLEON members are encouraged to be broadly inclusive and cognizant that data sharing presents opportunities for collaboration and co-authorship. Co-authorship, or an offer of co-authorship, may be appropriate in instances where GLEON data are used, or intellectual contribution is derived from the activities of GLEON. Discussing authorship with data originators or others who have contributed is necessary to ensure transparency of process, equity of acknowledgment, and goodwill within the network. Authorship discussions should happen at the onset of data sharing/exploring and should be revisited frequently. Authorship and co-authorship are often the end result of an interactive and invitational process. Data themselves, and especially data that either require interpretation or can be enhanced by interacting with the generators of that data, are often an entry into the synthesis and publication process. While guidelines exist that outline the specific contributions that warrant co-authorship, the opportunities to make many of these contributions often arise as a result of such activities as sharing data, entering into casual or structured conversations about the data or interpretation of them, or being asked to comment on and contribute to manuscript drafts. Thus, members are encouraged to consider that several of the standard criteria for co-authorship require active inclusion, or such invitations to participate. The activities of GLEON and its community are designed to facilitate these interactions.

The International Committee of Medical Journal Editors, having identified common and persistent problems with authorship, developed criteria in the “Uniform Requirements for Manuscripts Submitted to Biomedical Journals” in 1985, most recently revised in 1997.

Several hundred journals worldwide have adopted the following criteria:

- All persons designated as authors should qualify for authorship*.
- Each author should have participated sufficiently in the work to take public responsibility for the content.
- Authorship credit should be based only on substantial contributions to: (1) either the conception and design or the analysis and interpretation of data; (2) drafting the article or revising it critically for important intellectual content; and (3) final approval of the version to be published. Conditions 1, 2, and 3 must all be met.
- Other contributors should be listed in an appendix or footnote.
- Editors may ask authors to describe their contribution(s).

* From ["The Roles and Activities of Scientific Societies in Promoting Research Integrity, 2000.](#)

Annex II: Guidelines to support workshops or conferences

The following are criteria for GLEON to apply in considering “supporting” an event (e.g., conference, workshop).

The event should:

1. Be aligned with the mission of GLEON;
2. Foster cooperation between GLEON members;
3. Obtain support from GLEON only through in-kind contributions (and have no financial cost to GLEON or its members for the support provided by GLEON);
4. Have benefits for GLEON members (for example, activities such as the listing of GLEON as a “supporter” of the meeting on the website and in printed material, providing reduced rates of attendance for GLEON members, allowing space for a GLEON booth or materials);
5. Involve GLEON members.

Currently, GLEON does not provide financial support for events, but does support events in other ways. The decision to support an event will be made by the SC (or a designated subgroup). It is expected that the organizers of the event would submit a brief description of the event addressing the five points listed above. This would be circulated (electronically) for approval by the SC or delegated group. If support for an event is approved by the SC, GLEON would list the event on its website and circulate a message to GLEON members about the event.

Annex III: Guidelines to support proposals

The following are criteria for GLEON to apply in considering supplying a “letter of support” for a proposal for funding.

The proposed work should:

1. Be aligned with the mission of GLEON;
2. Foster cooperation between the GLEON members;
3. Obtain support from GLEON only through in-kind contributions (and have no financial cost to GLEON or its members for the letter of support provided by GLEON);
4. Have benefits for GLEON members (for example, activities that would enhance the functioning of GLEON lake observatories resources);
5. Involve interested GLEON members in a collaborative activity.

It is envisaged that GLEON would not support a proposal by providing funds. The decision to support a proposal will be made by the SC, that can delegate to the Co-Chairs. It is expected that the requester of the letter would submit an executive summary of the proposed activity, address the five points listed above, and state any expectations on specific GLEON members for access to resources or use of staff. This would be circulated (electronically) for approval by the SC (or Co-chairs if this is delegated to them). It is expected that the request would be made at least a week before it was needed. If support for the proposal is approved, a letter will be drafted for signature by either of the Co-chairs.

Annex IV: Procedure for gathering GLEON SC nominations

The job for the sub-committee in charge of SC nominations involves:

1. Draft the letter which will go to all hands, seeking nominations for the SC. Include an email address to which people can respond and a date by which people should respond
2. Distribute this letter via the appropriate channel (currently the listserv), and include a pdf of the current SC and their terms.
3. Confirm nominee interest.
 - a. Check with each nominee whether they are willing to serve on the SC if elected.
 - b. Inform them of the degree of effort involved.
 - c. Mention the standing subcommittees and some information on frequency of meetings.
 - d. Inform them about the information the SC would like, in order to make their decision. This should include a short personal statement outlining why they would like to serve on the SC, and a list of previous, current, and potential future activities and contributions to GLEON.
4. Populate a matrix with the information about the candidates. Include:
 - a. Name
 - b. Gender
 - c. Country of origin
 - d. Country of affiliation
 - e. Career stage
 - f. Years in GLEON
 - g. # Meetings attended
5. Organize a candidate list, categorizing people who meet all qualifications as above the bar, and those without as below. Qualifications should include:
 - a. at least 1 year of membership
 - b. attendance of at least 1 GLEON all hands meeting
6. Provide the full SC with a discussion document that summarizes:
 - a. the aspects of diversity being lost from the SC due to rotations off
 - b. diversity targets based on existing make-up
 - c. The personal statements from each candidate
7. Distribute this document to the SC 2 weeks before the election
8. Contribute to the discussion about candidates during this meeting, including answering any queries that arise.

