



# **Governance and Data Policy of the GMOS Facility**

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## Governance and Data Policy of the GMOS Facility

### Preamble

The Global Mercury Observation System (GMOS) is the programme aimed to develop a coordinated global observation system for mercury, including ground-based stations at high altitude and sea level locations, ad-hoc oceanographic cruises over the seas, and free tropospheric mercury measurements. The high quality data produced is made available to external scientific community for the validation and application of regional and global scale atmospheric models, and provide concrete findings that can be used to support future policy development and implementation.

All GMOS activities are strongly supporting the Group on Earth Observations (GEO) 2016-2025 Work Plan implementation through the achievement of the goals of Global Earth Observation System of Systems (GEOSS), which are the i) full and open exchange of data, metadata and products shared within GEOSS, recognizing relevant international instruments and national policies and legislation; ii) share of data, metadata and products will be made available with minimum time delay and at minimum cost; and iii) share of data, metadata and products being free of charge or no more than cost of reproduction will be encouraged for research and education.

GMOS is also supporting other on-going international programs, including the UNEP Mercury Program to implement the Minamata Convention, as well as major international conventions, such as the Task Force on Hemispheric Transport of Air Pollutants (TF HTAP) of the UNECE Convention on Long-Range Transboundary Air Pollution (CLRTAP).

To assure high capability in data acquisition and sharing a Cyber(e)-Infrastructure has been established within GMOS to support:

- Data collection from monitoring activity, model assessments and literature surveys;
- Management of ground-based monitoring sites by the establishment of advanced on-line services for data quality control, instrument maintenance and alerting, dissemination of site activity at global and local level;
- Transformation of data and their descriptors (metadata) into recognized standards such as ISO19139 and INSPIRE;
- Sharing of model results and averaged observations, in respect of intellectual property rights, to support on-going international programs.

With the above in mind the GMOS Consortium has produced this document on “Governance and Data Policy” (hereafter cited as the DOCUMENT) to endorse the Global Mercury Observation System Facility (hereinafter referred to as “GMOS-F”).

The signatories to this non-binding DOCUMENT, being researchers, public research centres, inter-governmental or international organisations, other organisations with an international scope, or entities designated by them, have decided that a co-ordinated international scientific effort is needed to enable users throughout the world to establish a unique end-point for large quantities of global mercury data, thereby supporting scientific research in many disciplines, promoting technological and economic evaluation of abatement technology implementation, facilitating impact assessment on the environment and human health, and establishing benefits in enhancing the quality of life of members of society.

In addition, the importance of sharing model results with all countries and individuals is underscored by various international agreements. Recognising this need, the GMOS direct and associated participants endorsed the recommendation that a GMOS-F be established, with open-ended participation.

This DOCUMENT has a duration of five years (2016-2021), and possibly beyond, and the signatories to this DOCUMENT hereby express their intention either to continue their existing Participation in GMOS-F or to become new Participants in GMOS-F as a mechanism of technical and scientific international co-operation.

## Article 1

### DEFINITIONS

#### 1. Term of Reference

The following definitions apply to the implementation of this DOCUMENT.

##### a) Data

Data refers to scientific data, primarily measured in the atmosphere, water and soil, as well on biological species and specimens or observations of biological matrices, including humans. Results of simulation models must also be considered as data.

##### b) Sensitive data

Any data, that because of its nature, the data provider does not want to make available.

##### c) Metadata

Metadata are data descriptors which report information on collection methodologies, intellectual property and other relevant information on data. Metadata will be made available following recognized international standards.

##### d) Data owner/creator

The legal entity or individual that owns data as defined in *Paragraph 1*.

##### e) Data provider

The legal entity or individual that makes data electronically available, which may or may not be the data owner. If not, the data provider will have to declare to GMOS-CI that it has the data owner's permission to make the data available.

##### f) Data publisher

The legal entity or individual that publishes data and metadata through the GMOS-CI

##### g) Participant

A legal entity or individual that has signed this DOCUMENT and has expressed its intention to implement the contents thereof. A Participant is solely responsible for data shared with the GMOS-CI.

##### h) User/end-user

Anyone who uses the Internet to access data through the GMOS-CI.

##### i) Web service

Any advanced service provided through the Internet that supports data management, access to databases and information visualization.

##### j) Model

Any method or tool for simulating real-behaviour of a parameter or combination of parameters or process by means of mathematical and chemical equations.

##### k) Monitoring site/monitoring campaign

Any measurement infrastructure/activity performed at a permanent or temporary site.

## Article 2

### UNDERSTANDINGS

#### 2. What is GMOS-F

The GMOS-Facility (GMOS-F) is an integrated framework established to manage the GMOS-CI. It includes a governing body. The GMOS-F has established policies for sharing information through the GMOS-CI.

#### 3. What is GMOS-CI

The GMOS Cyber(e)-Infrastructure (GMOS-CI) is a research environment that supports advanced data acquisition, storage, management, integration, mining, visualization and other computing and information processing services distributed over the net by establishing research collaborations built upon infrastructures for calculation and for Information and Communication Technologies.

The GMOS-CI has the overall aim of furthering technical and scientific efforts to develop and maintain a global information facility on digital mercury data.

#### 4. Scope of this DOCUMENT

This DOCUMENT was established in order to maintain, expand and disseminate the benefits of GMOS-CI and allow its management and development through the GMOS-F.

#### 5. How to contribute to GMOS-CI

The Participants' involvement in this DOCUMENT is subject to the goodwill and effective contribution to GMOS-CI activities and operations by providing information on mercury.

#### 6. Respect of international Conventions

Nothing in this DOCUMENT should be read to contradict the principles of international Conventions.

#### 7. Property rights

The data publisher does not assert any intellectual property rights over the data that is made available by the data creator/owner or data provider through the GMOS-CI. GMOS-CI is committed to the correct acknowledgement of the data creator/owner, the data provider and data publisher as specified in the dataset and/or metadata. GMOS-CI will make reasonable efforts to ensure that the data are properly acknowledged by partner or stakeholder networks. Metadata will be made openly and freely available to all users to make datasets discoverable through the GMOS-CI.

#### 8. Legally binding effects

This DOCUMENT is not legally binding and has no effect as a legal or political precedent.

#### 9. Financial support

The GMOS-F and the GMOS-CI are based on financial support of the GMOS project. Any other voluntary contributions decided on a voluntary base by legal entities or individuals will be approved by the GMOS Scientific Advisory Board (see *Article 5*).

## Article 3

### OBJECTIVES

#### 10. Purpose of the GMOS-F

The purpose of GMOS-F is to provide a governing structure to the GMOS-CI. The GMOS-F will therefore have a Scientific Advisory Board as reported in *Article 5*.

#### 11. Purpose of the GMOS-CI

The purpose of GMOS-CI is to provide advanced web services for collecting measurements, estimates and literature surveys of mercury and its compounds in all types of environmental media including biological specimens. The GMOS-CI will, therefore:

- collect at global level information of mercury in different biota;
- promote, co-ordinate, and implement the standardisation for data and metadata exchange processes by the adoption of widely recognize standards like ISO19139 and INSPIRE;
- support the dissemination of research results at global and local level to support development and implementation of policies as well as to demonstrate the strategic role of the involved partner/monitoring station;
- support partners in the management of monitoring stations by enabling near-real time data quality control, instrument functioning alerting and real-time inter-comparison of measurements within regions.



## Article 4

### ASSOCIATION AND DISASSOCIATION OF PARTICIPANTS

#### 12. Association of Participants

Association with GMOS-F is open to any country, economy, inter-governmental, international organisation or organisation with an international scope or to an entity designated by them. Such association becomes effective upon signature of this DOCUMENT.

#### 13. Participant Status

A legal entity or individual that has signed the DOCUMENT becomes a Participant to the Scientific Advisory Board.

#### 14. Involvement of the Participant

Each Participant signing this DOCUMENT should seek to:

- a. participate actively in the formulation and implementation of the GMOS-F Strategic Plan and the Work Programme, both cooperatively in the Scientific Advisory Board and through development of national initiatives as appropriate;
- b. share mercury data collected during campaigns or at monitoring sites through the GMOS-CI under a common minimal set of technical standards and within an intellectual property rights framework (such as that described in *Article 8*);
- c. support the development of metadata to make available and well clear intellectual right properties;
- d. secure its national intellectual, technological and data mobilisation investments as a Participant in GMOS-F;
- e. as appropriate, contribute to training and capacity development for promoting global access to mercury data, including implementing specific programs to enhance the mercury informatics capacity and technical skills base of developing countries;
- f. inform the Scientific Advisory Board of any intellectual property infringement.

#### 15. Disassociation of Participants

Any Participant may disassociate itself from this DOCUMENT by advising the Scientific Advisory Board in writing of its intention to do so and of the effective date of disassociation.

In the event of disassociation, the Scientific Advisory Board may decide by consensus to adjust the Work Programme to take account of such disassociation.

#### 16. Co-operation and Co-ordination

The Participants intend to encourage co-operation amongst themselves in the implementation of GMOS-F, and in the development of joint work programmes in areas of mutual interest within mercury research, and with other appropriate bodies and initiatives to avoid duplication and to benefit from existing resources and expertise.

## Article 5

### THE GMOS-F SCIENTIFIC ADVISORY BOARD

#### 17. Role and Purpose

The Scientific Advisory Board is the means by which the Participants make collective decisions on all matters relating to GMOS-F.

#### 18. Composition

The Scientific Advisory Board consists of one representative from each GMOS Participant that have signed this DOCUMENT.

#### 19. Observers

Countries or organisations or other international bodies that have not signed the DOCUMENT, but are interested in sharing mercury data and/or follow the activities of GMOS-F, may be recognized by the GMOS-F Scientific Advisory Board as “observers”.

#### 20. Responsibilities

The Scientific Advisory Board may:

- a. establish its Rules of Procedure and such subsidiary bodies as it sees necessary for its proper functioning and the achievement of GMOS-F goals;
- b. formalise relationships with organisations that may assist GMOS-F to achieve its goals;
- c. adopt a multi-year Strategic Plan for GMOS-F and a multi-year Budget Plan with an associated Table of suggested Basic Financial Contributions (See also *Paragraph 43*);
- d. adopt the Work Programme and the annual Budget;
- e. monitor the Strategic Plan, the Work Programme and the Budget and make adjustments as needed;
- f. decide the timing and scope of independent reviews of GMOS-F, implementation, governance, impact or uptake;
- g. review and adjust, by consensus, the Guidelines for calculating the Basic Financial Contribution;
- h. adopt such rules, regulations and policies as may be required for the operations of GMOS-F;
- i. establish Working groups for any purpose of the GMOS-F like for example sharing of data;
- j. approve the annual financial statement and select the audit company;
- k. carry out other functions conferred upon it by this DOCUMENT;
- l. consider any matters pertaining to GMOS-F or its operations submitted to it by any Participant;

## Article 6

### DATA CONTRIBUTION POLICY

#### 21. Scope

Policy for Data Contribution to the GMOS-CI applied to Participants that have subscribed to this DOCUMENT. The policy clarifies how their data can be legitimately used within the GMOS-CI provides guidelines for a Co-Authorship Policy to clarify procedures for data providers who might wish to be co-authors of scientific publications using their data in part.

#### 22. Data provision Agreement Policy

The ownership of data provided to GMOS-CI, lies solely with the data owner/creator. Such data cannot be delivered to third parties without full consultation and agreement of the owner/creator and the provider. The data provided can be either raw data or averages allowing production of derived information.

Provision of data implies the agreement of the data owner/creator with GMOS-F initiatives:

- To use and communicate aggregated data (such as regional, multiple-country, trends and maps, and national or supra-national indicators) for the wider audience (e.g. media, policy makers, EU etc);
- To conduct exploratory analyses of data for scientific purposes to better understand and interpret patterns and trends in the outputs described above. Such exploration may be further developed in the form of scientific papers or other publications.

External data requests from outside of GMOS-F, for aggregated information such as supranational trends and indices, including data requests for commercial uses, will be dealt with on a case-by-case basis by the GMOS-F Scientific Advisory Board and through an established Working Group on modelling.

Outputs generated by GMOS-F initiatives based on synthetic analysis and combinations of national data are deemed to be owned by those initiatives.

#### 23. Co-authorship Policy

In the early stages of writing of scientific papers or reports, all data providers (for data used in the paper or report) will be informed of the use of their data. All are potential contributors to scientific papers that use the data they provided to a GMOS-F initiative, and all should be asked if they wish to become involved as following:

1. The leading author of the scientific paper or report is responsible for informing data providers that their data may be used in a scientific paper, and in asking all potential contributors whether they wish to participate and for their inputs.
2. Ideally, potential contributors will be asked to contribute in the early stages of the writing of a scientific paper. In those situations where this is not the case, for example, when opportunities for publications arise very rapidly, or highly novel results are found unexpectedly, data providers should be informed of plans for publications as soon as possible
3. Active involvement in the process of writing the scientific paper is needed to justify co-authorship; this involvement can concern either theoretical or methodological aspects, data analyses, interpretation of results, or contributing to the writing. For that purpose, the leading author shall send a detailed plan on what kinds of analyses are to be published (including preliminary results), hence enabling data providers to contribute according to their research interests. This also means that the potential contributor promises to follow the time table of the plan, and that delaying persons cannot act as co-authors. If the leading author passes the preliminary phase and sends an almost ready manuscript (that is usually difficult to contribute to), all data providers willing to contribute shall be co-authors.
4. Co-authors will be informed of the submission and revision process by the leading author, so that they can also comment on revised versions of the manuscript and remain fully informed of progress.
5. GMOS-F and the leading authors have a duty to report the eventual use of the data in publications to the data providers.

Practicality and workability of multi-author papers with over 20 contributors (with respect to correcting or commenting papers, sign agreements etc.) must be considered too. Finally, the named authors on papers should also represent

GMOS-F inputs and interests where this is appropriate. In all cases, national data providers will be fully acknowledged for their data provision in the Acknowledgements section of any paper or report, as long as this is allowed by the relevant journal/publication. The GMOS-F is aware that most national data providers work in scientific/research fields and that their funding will depend to some degree on scientific production so that co-authorship when appropriate will help in securing the running of their national GMOS-F schemes and building organisational reputations.

Data Provision and Co-authorship Policies are valid during the years 2010-2015. A new agreement policy will be decided after this.

## Article 7

### DATA USAGE POLICY

#### 24. Scope

This section provides information to those who wish to access and use data that is held within the GMOS-CI. Metadata will be provided freely without any conditions. The access to data and other products will require registration, acceptance of conditions, and acceptance of this DOCUMENT.

#### 25. Data usage Agreement Policy

In general, all data provided by the GMOS-CI can be accessed directly by a participant owner of such data. Permission from the owner are required to access different data. Metadata are open and freely accessible. The following access to data applies for different scenarios:

- Raw data: Only the last 200 measures are available for pictorial plotting and for dissemination purposes. The creator/owner of data can view, analyze and download data provided to the GMOS-CI;
- Quality controlled data: The ownership of data provided to GMOS-CI, lies solely with the data provider. Such data cannot be delivered to third parties without full consultation and agreement of the provider.

GMOS-F has established the Mercury Modelling Task Force (MMTF) through which data usage became possible after the approval of the data owner.

#### 26. Special cases

According to the GEOSS Data Sharing Implementation guideline, low resolution data, images, and maps will be provided to the end-user as they have been uploaded to GMOS-CI for dissemination purposes, research and education.

#### 27. Community institutions access to data

Information provided by the GMOS-CI may be relevant for the INSPIRE themes of “Human health and safety” and “Environmental monitoring facilities”. National and international institutions and bodies may be licensed to access high resolution data when they are relevant for human health and safety and when they are related to emergency management. The European Guidance on the 'Regulation on access to spatial data sets and services of the Member States by Community institutions and bodies under harmonised conditions' is adopted to access the GMOS-CI services.

#### 28. License agreement

All data provided through the GMOS-CI will be accompanied by a user license agreement. This is an agreement between the data user and GMOS-F, outlining any limitations on how the data may be used, how the user must acknowledge the source of the data, and the limits of liability for the data that GMOS provides. GMOS does not accept liability for the user’s interpretation of data. Correct and scientifically sound interpretation of data is solely the responsibility of the user.

In the license agreement, users will be requested to not supply GMOS data to third-party users.

If a user encounters any problems or errors in a GMOS-provided dataset, they will be requested to inform GMOS in a timely manner so that any necessary corrections can be applied to the dataset for future use. These collaboration is important for ensuring the production and use of high-quality datasets.

## Article 8

### INTELLECTUAL PROPERTY

#### **29. 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.

#### **30. Access to Data**

To the greatest extent possible, GMOS-CI is an open-access facility. All users whether GMOS-CI Participants or others, should have equal access to data in databases affiliated with or developed by GMOS-CI.

#### **31. Intellectual Property Rights to Mercury Data**

GMOS-CI promotes the free dissemination of mercury data and, in particular:

- (a) should not assert any proprietary rights to the data in databases that are developed by other organisations and that subsequently become affiliated to GMOS-CI;
- (b) should seek, to the greatest extent possible, to make freely and openly available, with the least possible restrictions on reuse, any data commissioned, created or developed directly by GMOS-CI; and
- (c) should respect conditions set by data publishers that affiliate their databases to GMOS-CI.

When establishing affiliations or linkages with other databases, GMOS-CI should seek to ensure that the data so made available will not be subject to limitations on the further non-commercial use and dissemination of those data, apart from due attribution of their source.

#### **32. Attribution**

GMOS-CI seeks to ensure that the publisher/holder of data is acknowledged and requests that such attribution be maintained in any subsequent use of the data.

#### **33. Access to Specific Data**

Nothing in this DOCUMENT should be read to restrict the right of publisher/holder of databases affiliated with GMOS-CI to restrict access to any data.

#### **34. Validity of Data**

It should be a condition of access to and use of GMOS-CI accessible data that users acknowledge that the validity of the data in any databases affiliated with GMOS-CI cannot be assured. GMOS-CI disclaims responsibility for the accuracy and reliability of the data as well as for the suitability of its application for any particular purpose.

#### **35. Legitimacy of Data Collection**

Where the collection of new data has entailed access to mercury resources, GMOS-CI should ask for reasonable assurances from the data publisher/holder that such access was consistent with applicable laws, regulations and any relevant requirements for prior informed consent.

#### **36. Intellectual Property Rights to Mercury Tools**

GMOS-CI may claim appropriate Intellectual Property Rights available within applicable national jurisdictions over any tools, such as search engines or other software products that are developed by GMOS-CI while carrying out the GMOS-CI Work Programme.

#### **37. Technology Transfer**

The Participants acknowledge that, subject to any relevant Intellectual Property Rights, GMOS-CI should seek to promote the non-exclusive transfer, on mutually decided terms, to research institutions, particularly in developing countries, of such information technology as it has available, especially in conjunction with training and capacity development programs.

## **Article 9**

### **FINANCE**

#### **38. Basic Financial Contributions**

Basic Financial Contributions are the annual contribution to GMOS-F from International and European funded projects and initiatives. A Table of suggested Basic Financial Contributions should be calculated and presented by the GMOS-F the Scientific Advisory Board on a multi-year basis. This Table should indicate the suggested contributions in actual figures for each project/initiative for each of the years in a multi-year period calculated on the basis of an approved multi-year Budget Plan for GMOS-F.

The Scientific Advisory Board may decide by consensus to change the approved Table of suggested Basic Financial Contribution during the multi-year period.

#### **39. Supplementary Financial Contributions**

In addition to Basic Financial Contributions, Participants may make Supplementary Financial Contributions to fund specific parts of the Work Programme, or for other specified purposes decided upon by the Scientific Advisory Board. Those specified purposes may include facilitating attendance by Participants from developing countries at meetings of the Scientific Advisory Board.

Supplementary Financial Contributions are to be held separate from the Basic Financial Contributions. Funds may only be used for the purposes specified by the contributor.

#### **40. Costs Borne by Participants**

Participants bear the costs of their own participation in GMOS-F, including the costs of establishing a connection to GMOS-CI, programmes for digitisation of mercury data, formulating or transmitting reports, travel costs for their delegates, and other expenses related to attendance by their representatives at meetings of the Scientific Advisory Board and other GMOS-F functions, events, and activities.

#### **41. Crediting of Income**

Any income generated in the course of GMOS-F activities is to be used for advancing the GMOS-F Work Programme.

## Article 10

### OTHER MATTERS

#### 42. Duration

GMOS-F is intended to be an open-ended long-term cooperative endeavour in order to maintain the benefits of access to mercury data.

#### 43. Discontinuation

The Scientific Advisory Board, acting by consensus, may discontinue this DOCUMENT at any time. In a situation where discontinuation has been so decided the GMOS-F Scientific Advisory Board, acting in accordance with the laws of the jurisdiction in which it is located will arrange for the liquidation of the assets of GMOS-F; property held by the GMOS-F for the benefit of the Participants is to be regarded, for this purpose, as assets of GMOS-F. In the event of such liquidation, the GMOS-F Scientific Advisory Board, so far as practicable, will distribute any assets of GMOS-F or the proceeds there from, in proportion to the Basic Financial Contributions which the Participants have made from the beginning of the operation of GMOS-F.

#### 44. Modifications

This DOCUMENT may be modified at any time by the Scientific Advisory Board through a consensus vote of all the representatives of all the Participants.



**Article 11**

**ACCEPTANCE AND SIGNATURES**

**45. Acceptance**

The       Institute/University       declares to accept entirely and without any reserve this “Governance and Data Policy of the Global Mercury Observation System Facility” Document.

**46. Signature**

On behalf of the CNR-IIA	On behalf of the <u>      Institute/University      </u>
Signature	Signature
Prof. Nicola PIRRONE GMOS Co-ordinator Director of CNR-Institute for Atmospheric Pollution Research	

**47. Date of Signature**

This Agreement was signed on \_\_\_\_\_