THE INTEGRATED GLOBAL OBSERVING STRATEGY (IGOS) PARTNERSHIP PROCESS

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Revised May 2002

I. INTRODUCTION

1. This document constitutes an authoritative statement on the procedures for the IGOS Partnership and covers both IGOS-P Themes and other IGOS-P activities. The modifications and additions to the previous version were agreed at the 9th IGOS Partners meeting in May 2002, and the present document replaces all previous IGOS-P documents on this subject. It is intended that it will be reviewed regularly in the light of experience.

II. IGOS PARTNERS

2. Currently, the IGOS Partnership consists of:

Sponsors of the Global Observing Systems (ICSU, FAO, UNESCO, UNEP, IOC/UNESCO, WMO);

Global Observing Systems (GCOS, GOOS, GTOS Programme Offices and GOS/GAW);

Committee on Earth Observation Satellites (CEOS);

International Group of Funding Agencies (IGFA);

International Geosphere-Biosphere Programme (IGBP) Programme Office;

World Climate Research Programme (WRCP) Programme Office.

3. Two existing Partners may propose a new partner. The proposal should be submitted through the IGOS-P Secretariat to the IGOS-P Co-chairs, for consideration at the next IGOS-P meeting, where the decision will be made by consensus. Partners' delegations to IGOS-P can, at their discretion, include non-Partners. It should be noted that participation in specific activities of IGOS-P (such as the Themes) is open to non-Partners.

III. IGOS-P STRUCTURE & MANAGEMENT

4. The IGOS Partnership has two Co-chairs, one of whom is the CEOS Chair, and the other is nominated by consensus among the other Partners. Each Co-chair is nominated for a period of one year. Normally, the CEOS Co-chair is nominated in November, on the occasion of the CEOS Plenary, and the other Co-chair in the middle of the year. The Co-chairs are jointly responsible for ensuring the organisation of and reporting on the IGOS-P meetings.

5. IGOS-P meetings are normally convened once a year, in the middle of the year. The Co-chairs have the possibility of convening additional meetings if necessary.

6. An active IGOS-P Secretariat is maintained in support of IGOS-P activities by the Partners on a "best efforts" and "no exchange of funds" basis. Annex A gives details of the current composition of the IGOS-P Secretariat.

7. Each Partner has nominated a Principal and a Point-of-Contact in order to facilitate communications between IGOS-P meetings. A list of the current Principals and Points-of-Contact is given in Annex B.

IV . BACKGROUND TO CREATION OF IGOS PARTNERSHIP

8. The IGOS Partners group was created in June 1998 as a result of an informal meeting of potential Partners held in Paris. The Partnership seeks to provide a comprehensive framework to harmonize the common interests of the major space-based and *in situ* systems for global observation of the Earth. Its aim is to provide an over-arching strategy for conducting observations relating to climate and atmosphere, oceans and coasts, the land surface and the Earth's interior.

The Partners, through IGOS, will build upon the strategies of existing international global observing programmes, and upon current achievements, in seeking to improve observing capacity and deliver observations in a cost-effective and timely fashion. Efforts will be directed to those areas where satisfactory international arrangements and structures do not currently exist.

9. Cooperation between the Partners reflects the principle of "best efforts" and no additional financial obligation or exchange of funds except with the mutual consent of relevant Partners. The principle of "synergy" among existing efforts, including optimal use of opportunities in connection with other meetings will be followed.

10. The Partners have agreed that:

- The principal objectives of the strategy should be to address how well user requirements are being met by the existing mix of observations, including those of the global observing systems, and how they could be met in the future through better integration and optimization of remote sensing (especially space-based) and *in situ* systems;

- The strategy should serve as guidance to those responsible for defining and implementing individual observing systems. The implementation of the strategy; i.e., the establishment and maintenance of the components of an integrated global observing system, must remain with the governments and organizations with commitments expressed, for example, within the governing council of the observing systems' sponsors;

- The "theme" approach (see Section VI below) should be a step-wise internal process based on perceived priorities towards the development of an integrated global observing strategy.

11. In line with its terms of reference, the Partnership, in furthering the definition, development and implementation of the Integrated Global Observing Strategy, will:

- exchange information on the Partners' relevant activities;
- promote dialogue between the space agencies and *in situ* observation communities;
- identify gaps and seek to address IGOS-related user requirements;
- identify requirements to strengthen institutional capacity to make integrated global observations;
- carry out specific activities to develop individual components of the strategy;
- identify and suggest projects that complement and demonstrate the value of an IGOS; and,
- promote all aspects of strategy implementation, among national and international agencies, as well as different user groups.

V. CURRENT RANGE OF ACTIVITIES

12. The Partnership currently fulfils its role primarily through two focused activities, each of which has a procedure and lead Partner(s) for its implementation. These activities are:

- the theme approach to defining the Integrated Global Observing Strategy; and
- the production of IGOS promotional material.

The current process for these two activities is set out below. For new activities a similar process would need to be developed.

13. Progress on IGOS-P approved activities and proposals for new activities are reviewed at the meetings of the Partnership, which are currently being held annually.

VI. THE IGOS-P THEME PROCESS

14. The theme approach to define the overall strategy recognises that in reality it is impossible, in one step and for all eventualities, to complete the exercise of defining all the necessary observational requirements and hence the observational systems, data handling, processing and analysis infrastructure for a comprehensive global system. The theme approach allows the coherent definition and development of an overall global strategy whilst recognising the different state and stage of development in different areas. Themes have not *a priori* been defined, rather it is anticipated that the user communities will identify areas that require action and bring forward themes for agreement and action.

15. On the above basis, the theme approach is used as a broad strategic planning tool for agencies, and individual themes are likely to be quite broad in scope. This has been reflected in the first theme selected, which is on Oceans, and the next ones on Global Carbon, Atmospheric Chemistry, Global Water Cycle and a Coral Reefs sub-theme. However, some areas may better be tackled in steps – starting with a relatively narrow theme, which can subsequently be expanded.

(i) Proposing a Theme

16. A theme should be proposed by one or more of the IGOS Partners, and, provided that they have a relevant contribution to make, non-IGOS Partners can be associated with the proposal. The proposal should be made in the form of a short explanatory paper submitted to the IGOS Partnership through the IGOS-P Secretariat.

17. A theme should be based on a sound set of observational requirements that is of relevance to all the Partners involved in a proposal. A broadly based theme team is the best way of ensuring that a general consensus on observational requirements exists or can be rapidly reached. The observational data requirements have been developed and documented by the various IGOS Partners, and the WMO holds a consolidated list of requirements that have each been approved by one or more Partners. The intention would be for a theme to be based on a consolidation of these requirements, with the addition of other formally recognised requirements e.g., from a national level or international protocols and/or conventions. If such consensus has not been achieved, then the introduction of the theme is likely to be premature.

18 The proposal for a theme should contain at a minimum sections addressing the following five agreed acceptance criteria:

(1) Objectives: Theme objectives must be clearly defined and focused. Is the theme focused on applications, operational needs or research? A theme may have any focus, but it must be understood up-front which areas the theme is envisioned to coordinate and optimize. Some themes may have an existence outside their role as IGOS demonstration activities (i.e., they existed before being brought into the IGOS framework and/or may continue after contributing to IGOS). In these cases, it is important to have an understanding of the general objectives outside of IGOS and the specific objectives to be accomplished as IGOS demonstration activities. The remaining selection and evaluation criteria should be used to assess only the IGOS demonstration portions of themes.

(2) Roles and Responsibilities: The IGOS Partnership roles and responsibilities between users and providers must be clearly defined in considerable detail after appropriate consultations. This should entail a specific listing of what each space agency and user organization commits to contribute to theme implementation. The listing should cover all aspects of the themes. Development of stronger and more formal institutional collaboration between space agencies and user organizations is essential.

(3) Milestones: Major milestones from theme initiation to completion must be clearly identified with concrete dates identified. The specific results or outputs that constitute completion of the IGOS demonstration task must be specified so that the end-point when a theme has successfully completed its role as an IGOS theme will be clear.

(4) Evaluation criteria: Performance criteria for evaluation of a theme's progress must be defined for each milestone. In order to evaluate the success of a theme, it is critical to have some understanding of what is expected to be achieved within a specified timeframe.

(5) Resources: Personnel and resources required to support implementation of a theme must be clearly defined.

19. In addition, each proposal will also need to show the following:

(i) where relevant, how it interacts with other existing themes, in order to avoid potential duplication of effort. The proposal should take account of other themes already accepted by IGOS-P as well as other relevant international initiatives;

(ii) the proposal should specify the team leadership. Co-leadership between a representative of a supplier of observations, and a representative of the users is an optimal solution. It should also give a preliminary list of team members and their affiliations. It is essential for the team to include all appropriate scientific expertise as well as representation from the observations providers and user organisations, both from IGOS Partners and non-Partners. Adequate expertise in Data Information Systems and Services is also essential;

(iii) the proposal should describe the division of responsibilities between the team members, and give an assurance that these responsibilities are known and acceptable to the persons and organisations concerned;

(iv) a team is normally expected to conclude its report in a time scale of some 12 months, and a work plan should be included to indicate how this will be achieved.

How this is carried through to implementation is described below.

(ii) Agreement on a Theme Proposal

20. A theme proposal shall be passed to the IGOS-P Secretariat which will interact with the Partners and determine whether there is sufficient support for it to be considered formally by the Partnership. The IGOS-P Secretariat will:

(i) ensure that the proposal is *prima facie* consistent with the agreed acceptance criteria - which may involve a dialogue with the theme proposers;

(ii) transmit the validated application to the IGOS Co-chairs for approval to circulate to Partners;

(iii) arrange a place on the agenda at the next Partnership meeting and the prior distribution of the document by the IGOS-P Co-chairs.

21. The IGOS-P meeting will be asked to agree on the proposal, and to confirm the leaders of the theme team. The team will then be responsible for developing the comprehensive statement defining the operational long-term characteristics of the observational system required to address the theme. The specific IGOS-P agreement will be set out in the minutes of the relevant IGOS Partners' meeting. Any further clarifications would be obtained from a member of the IGOS-P Secretariat. The team leaders are responsible for informing the IGOS-P Co-chairs if the approval

conditions cannot be met, or if promised commitments do not materialise, so that appropriate measures can be taken at a subsequent Partners' meeting.

22. Within six weeks of the theme proposal having been approved by IGOS-P, the co-leaders should notify the IGOS-P Co-chairs of the definitive list of team members and their responsibilities. This list, together with a description of the division of responsibilities, will be distributed to all Partners for their information. Amendments to the team's composition will be dealt with in a similar manner. This process is intended to ensure that all interested Partners, and indeed all relevant non-Partners, have the possibility of being associated with the Theme Team.

(iii) Theme Report Content

23. Reports are required to be short and clear. There will be variations between themes, but 20 pages should be taken as a guide, with appendices kept to a minimum. As a guide to the report structure, the Oceans theme report can be seen as a useful model. Each theme is intended to evolve as part of a complete process, with commitments not only for collecting information, but also for the assimilation of observations, for product-generation and utilisation, and for stewardship. All the various stages of this process need to be fully described in the report.

24. The report should contain details of commitments which are in place or have been committed to within the known plans of each Partner. In the case of space observations this would be through CEOS. For *in situ* observations and analysis tools it could be a more complex mix of Partners. The report should specifically draw attention to elements for which satisfactory commitments are still lacking.

25. Equally important is the inclusion of proposals for feedback mechanisms that will permit the assessment of the success of the implementation phase by analysing the adequacy of new observations and data processing, and indicating the possible need for future improvements and innovations. Data and information issues are similarly of importance, and theme team leaders are recommended to become familiar with the Data and Information Systems and Services (DISS) Principles as contained in Annex C.

(iv) Agreement of a Theme Report

26. The Theme Team will present its report to an IGOS Partners' meeting, after having sent it to the IGOS-P Secretariat which will arrange for distribution by the IGOS-P Co-chairs at least five weeks before the date of the meeting. The Partners' meeting will either endorse the report and its recommendations or ask for modifications or additions to the report. The latter may require a resubmission to a new Partners' meeting, or Partners may approve the report subject to specified modifications being incorporated.

27. The approval can never be stronger than “in principle” because responsibilities for international issues rest formally with the individual Partners, and implementation of most changes in observations rests with national or regional entities. However, approval of a theme report will be subject to a reasonable expectation that the Partners are prepared to commit themselves to the provision of the proposed observations.

(v) Implementation of a Theme

28. The agreement of a theme team report by the IGOS Partners will include agreement on which IGOS Partner(s) will be responsible for overseeing the implementation. This Partner will then, with the assistance of a small team, be responsible for reporting to future Partners’ meetings on the progress in implementation of this theme team report. It is suggested that the small group should at least include the co-leaders of the theme team. With the basic aim of ensuring that the theme team's recommendations are indeed implemented, a Theme Implementation Team should:

(i) monitor whether commitments are indeed being undertaken;

(ii) suggest back-up solutions where providers of observations or products are not able to maintain their commitments;

(iii) assess the extent of uptake of products by users who committed to using them; and ensure the definition of responsibilities for DISS activities following data set production, including archiving stewardship and access.

29. A Theme Implementation Team should submit a short report on its activities at least annually to an IGOS Partnership meeting through the IGOS-P Secretariat. IGOS-P will from time to time consider whether additional measures are necessary and, in due course, decide when the activity should be closed down. Of particular importance during the implementation phase, is the coordination with the secretariats, advisors and delegates of relevant international environment conventions, to ensure that the possibilities afforded by the theme are being fully exploited.

(vi) Assessment

30. It is important to have regular assessments of the theme activities, in particular to understand the extent to which new commitments, both from observation providers and from users, have materialised, and also to allow a re-evaluation of the requirements in the light of scientific and technological advances. These assessments will constitute an important element in the theme process. The assessment mechanism will vary with the nature of the theme, but it may well be advantageous in having the reports prepared independently of the theme's Implementation Team. The annual Partnership meetings will be asked at appropriate stages to agree to specific arrangements for each theme. The Partnership will give further consideration to this subject.

VII. IGOS PROMOTIONAL ACTIVITIES

31. The partnership has four main activities in support of promotional activities. These are the:

Brochure: several have been produced by an *ad hoc* group of Partners under the leadership of MEXT/NASDA. Each new brochure will be reviewed as necessary and reproduced by agreement of all Partners.

Bulletin: this is produced by CNES biannually on behalf of the Partners, and is developed by a small *ad hoc* group of volunteers.

IGOS Web Pages: on behalf of IGOS-P, IOC/UNESCO has a specific set of pages devoted to IGOS activities that they maintain and update (<http://www.igospartners.org>). This web site contains key IGOS-P documents that can be cross-referenced or downloaded. Individual Partners are invited to provide additional material.

Dedicated communication: of particular importance is the provision of up-to-date information on IGOS Themes and activities of relevance to international conventions and other related intergovernmental processes.

Special Events/Conferences: specific support through the IGOS-Partnership to events such as WSSD, COP-n to inform about and promote the IGOS Process.

32. In addition to the above, the individual Partners are all expected to include the relevant references to IGOS activities in their own promotional material and Web pages. This is an individual responsibility and an ongoing commitment.

VIII. OTHER IGOS-P ACTIVITIES

33. IGOS-P activities are by no means confined to themes. IGOS-P has sponsored, and will continue to sponsor, projects or other activities which either pave the way for the definition of a new theme, or else are considered to have a value in their own right. “Information needs of the international conventions” is an agenda item for every IGOS-P meeting. There are likely to be many such opportunities and they will be treated individually on their merits, but the following underlying principles are given for guidance both within the Partnership and to those who may wish to seek IGOS-P sponsorship of new activities:

- individual Partners or groups of Partners are invited to report actions deemed relevant to the Partners. If sufficient interest is shown, then the option of having the action recognised as an IGOS activity is possible;

- for an activity to be labelled an "IGOS Partners' activity", it must have been approved at an annual meeting of the Partnership ;

- non-Partners should use the IGOS-P Secretariat to discuss the most practical way of seeking IGOS Partners' support for their work.

ANNEX A:
IGOS-P Secretariat
(subject to revision by the IGOS Plenary)

IGOS-P 6 approved the formation of an IGOS-P Secretariat replacing the former Liaison Group, with the following tasks:

- Maintain close liaison with the established IGOS Principals and Points-of-Contact of those Partners not specifically contributing to the IGOS-P Secretariat;
- Support the IGOS-P Co-chairs in the development of agendas and in drafting of meeting records for IGOS Partners meetings;
- Assist the IGOS-P Co-chairs in the interim period between IGOS Partners' meetings, to include tracking of action items, and assuring the distribution and coordination of Theme Team reports and IGOS-P-relevant documents with designated Partner Principals and Points-of Contact;
- Update, as needed, the IGOS Partners working documents, e.g., Process Paper, and develop other IGOS conceptual documentation for consideration and approval by Partners;
- In line with agreed procedures, provide an effective interface between the IGOS Partners/IGOS-P Co-chairs and IGOS Theme Teams:
    - Work with Theme Team leaders to assure that themes are developed in accordance with established criteria;
    - Advise team leaders on establishing balanced teams, assuring that team members are approved by the IGOS-P Co-chairs;
    - Assist team leaders, as appropriate, in interfaces with collaborating committees and organizations;
    - Assure that Theme Team reports are circulated to Partners in a timely manner for consideration at upcoming Partners' meetings; and,
    - Assist team leaders in implementation phases, including coordination, as appropriate, with relevant international environmental conventions.
- Provide the interface between the IGOS Partners/IGOS-P Co-chairs and other organizations in the conceptual development and implementation of IGOS-relevant activities including educational and outreach efforts, and promotion of IGOS themes;
- Assist, as needed, in liaison with institutions and user groups outside of the Partnership, including those organizations who seek to join or affiliate with the Partnership; and,
- Facilitate communications among Partner Principals and Points-of-Contact through maintenance of an electronic mail list server and web site.

As of 31 May 2002, the following are the members of the **IGOS-P Secretariat:**

The current IGOS-P Co-chairs and their appointed contacts.

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ANNEX C

DATA & INFORMATION SYSTEMS AND SERVICES (DISS) PRINCIPLES

INTRODUCTION

The IGOS Partners have adopted the set of DISS principles stated below and, in line with the priority the IGOS Partnership has set for itself, that these principles be applied to all IGOS-P's implementation activities. These DISS principles are of a sufficiently general nature as to allow those responsible for individual activities, such as Theme Teams, to complement or interpret them in ways appropriate to the specific activity.

The IGOS principles for data and information systems and services should be consistent with an integrated global strategy allowing the integrated use of data sets from multiple sources.

To allow developing countries to benefit from the implementation of the following principles it is recommended that attention be paid to capacity building.

It is recognized that most IGOS Partners have a data policy tailored to their individual needs and approved by their governing bodies. Similarly, within CEOS, each space agency has a data policy relating to data and data use against which it conducts its Earth Observation activities. Those individual data policies, sometimes legally binding, are often the result of long discussion and negotiation, and each is designed for purposes distinct from IGOS-P. The IGOS Partnership is not attempting to design an umbrella data policy.

Each Partner will ensure that its own data policy can be applied with sufficient flexibility to enable commitments made under the aegis of the IGOS Partnership to be fulfilled. It is noted that, in developing their individual data policies, the IGOS Partners have all recognized the specific needs of the science and research communities and it is important in the furtherance of the IGOS that this specificity continue to be taken into account.

DISS PRINCIPLES

The following DISS principles are to be applied to the data sets and services relevant to the IGOS-Partnership.

Each approved IGOS Partnership activity is required to explain in its reports how it proposes to adhere to each of these principles. The principles should apply both to long-term and short-term observation activities.

(i) Continuing commitment is needed by participating national governments and international bodies to data management systems and services to ensure the establishment, maintenance, validation, description, accessibility, reliability, and distribution of high-quality data.

(ii) Commitment to the provision of sufficient, long-term observations by responsible agencies is essential and it should be based on clearly articulated user needs.

(iii) Full and open sharing and exchange of data and products for all users in a timely fashion is a fundamental objective.

(iv) Data and products should have a specified quality and consistency sufficient to meet user requirements. All data and products should be subjected to comprehensive and well documented quality control and quality assurance procedures.

(v) Metadata should be assembled and maintained so that it is easily and fully accessible to users. These metadata include information on calibration, long-term quality assessments and guidance for locating and obtaining the data records.

(vi) All relevant data, including metadata, should be preserved and suitable archive facilities established to enable easy access. Archives should be adequately maintained to permit recalculation of the geophysical and biogeochemical data as improved algorithms become available. Procedures and criteria for setting priorities for data purging should be developed and implemented.

(vii) All data and products should be described in readily accessible directories, which conform to agreed-upon standards.

(viii) Internationally-agreed standards should be used to the greatest extent possible in the implementation of these principles for acquisition, processing, archiving, and distribution of data and metadata. Where additional standards are required, they should be developed in cooperation with appropriate national and international programmes and bodies. Objective external standards should be used in calibrating data.

(ix) The utility and efficiency of the information access and retrieval system should be continuously monitored to ensure that the system is performing to specifications. Routine and permanent mechanisms should be put in place to evaluate and monitor observing system performance.

(x) Information must be collected, analyzed, and distributed so that the veracity and consistency of the record can be assessed, including assessment of random errors and long-term systematic biases. Where there are actual or potential disturbances to the record (e.g., due to changing technology), there should be a commitment to ensuring that the internal consistency of the record is maintained.

(xi) Comprehensive feedback should be provided on problems with data collection or data flow, on the accuracy and usefulness of the products to the user, and on user satisfaction. Feedback should include correction of timeliness problems in data flow; correction or flagging of values for erroneous, suspect or missing data or metadata; correction of model deficiencies to produce more reliable outputs; improved design of products to meet user's needs; and knowledge of the impact and value of the products and services provided.