

CliC IPY Proposal

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This WORD template is to assist in developing an agreed document for submission to IPY by June 30, 2005. Submissions to the IPO are to be made ONLY via the online version of this form which will be available at www.ipy.org.

1.0 PROPOSER INFORMATION

1.1 Title of Activity

The State and Fate of the Cryosphere

1.2 Short Form Title of Proposed Activity

Cryos - State of the Cryosphere

1.3 Activity Leader Details

First Name	Surname	
Jeffrey	Key	
Affiliation	Country	
U.S. National Oceanic and Atmospheric Administration (NOAA)	USA	

1.4 Lead International Organisation(s) (if applicable)

WCRP Climate and Cryosphere Project (CliC)	

1.5 Other Countries involved in the activity

Canada	Norway	Argentina	Switzerland
Russia	Sweden	Chile	
United Kingdom	Finland	New Zealand	
Australia	Denmark	Netherlands	

1.6 Expression of Intent ID #'s brought together in the proposed activity(Lead first)

607	185	270	21	796	561	876	351	30	183
203	301	418	756	654	125	439	790	73	831
546	644	392	446	410	683	197	501	332	715
409	150	404	415	113	627	80	6		

1.7 Location of Field Activities (Arctic, Antarctic or Bipolar)

Bipolar

1.8 Which IPY themes are addressed (insert X where appropriate)

1. Current state of the environment	X	4. Exploring new frontiers	
2. Change in the polar regions	X	5. The polar regions as vantage points	
3. Polar-global linkages/tele-connections	X	6. The human dimension in polar regions	X

1.9 What is the main IPY target addressed by this activity (insert X for 1 choice)

1. Natural or social science	X	3. Education, Outreach, Communication	
2. Data management		4. Legacy	

2.0 SUMMARY OF THE ACTIVITY (*maximum of 1 page A4*)

The cryosphere, which includes sea-, lake-, and river-ice, snow cover, solid precipitation, glaciers, icebergs, ice sheets, ice caps, permafrost, and seasonally frozen ground, plays a crucial role in not only the polar climate system, but also in the global climate system. It is inseparable from the polar freshwater system, both on land, ice and in the sea. Understanding the state of the cryosphere, and its associated past, present and future variability and change in time and space, is essential to understanding the polar environment in terms of its physical and biogeochemical interactions with the ocean, atmosphere and terrestrial systems, and the impacts on and interactions with social, cultural and economic systems.

This project is proposed and supported by the World Climate Research Programme (WCRP) Climate and Cryosphere (CliC) project to provide a framework for assessing the polar cryospheric system and the related physical and chemical processes, interactions and impacts within the Earth system. The IPY provides the opportunity for a coordinated circumpolar assessment of both polar regions by nations and their organizations, scientists, and residents that likely would not be otherwise undertaken.

The “State and Fate of the Polar Cryosphere” will establish links with the main projects (clusters) involved in monitoring, assessing, and understanding the variability, uncertainty, and change in the global cryosphere. This includes projects that will study permafrost, glaciers and ice sheets, sea ice, snow cover, and precipitation, as well as those involved in developing observing systems and data and information systems. We are also linking with projects involved in socioeconomic and cultural issues and those that will provide education and outreach, including traditional knowledge. (See section 4.2 for a complete list of participants.) The project will play a leadership, management, and coordinating role in the development of a sustained long-term cryospheric polar observing system, which would be implemented in the future through GCOS, GOOS, GTOS, CEOS, and possibly GEOSS. We propose to coordinate activities and synthesize results to

1. **assess the current state** of cryospheric parameters in the high latitude regions, providing a **snapshot** of the cryosphere and an evaluation of its current (IPY) state in the context of past states and projections of the future;
2. **formulate the observational requirements** of cryospheric variables for weather and climate monitoring and prediction and for other environmental assessments;
3. **strengthen international cooperation** in the development of cryospheric observing systems.

The CliC International Project Office will support the coordination, and the CliC Data and Information System (DISC, <http://clic.npolar.no/disc/>) will provide the portal on the current state of the global cryosphere.

The “State and Fate of the Polar Cryosphere” project will complement the newly developed Cryosphere Theme for the Integrated Global Observing Strategy (IGOS), which is being developed jointly by CliC and SCAR (Scientific Committee on Antarctic Research) (<http://stratus.ssec.wisc.edu/IGOS-cryo>).

This project will also develop links to a number of diverse projects and activities that are examining the effects of a changing cryosphere on biological and human systems, e.g., the implications of changing polar snow cover characteristics on bird and mammal

breeding. The aim is to document not only the changes that are happening to the global cryosphere, but to also highlight the diverse impacts of these changes.

2.1 What is the evidence of inter-disciplinarity in this activity?

The study of the global cryosphere as an integrated system involves knowledge from a wide range of disciplines, including oceanography, glaciology, meteorology, climatology, hydrology, and biogeochemistry. In addition, the study of the impact of changes in the cryosphere on biological and human systems will foster interactions between the earth, environmental, and human scientists.

2.2 What will be the significant advances/developments from this activity? What will be the major deliverables, including the outputs for your peers?

This is the only project in IPY that is evaluating the entire global cryosphere as an integrated component of the global climate system. It is also one of the few projects attempting to place current changes in the context of past variability and change, and to document the impact of changes in the cryosphere on biological and human systems. The planned outputs (deliverables) of this project are

1. a near real-time integrated product on the current state of the global cryosphere during IPY,
2. a global, quantitative assessment of the **current** state of cryospheric parameters based on a snapshot of the cryosphere during IPY, presented in report and data set forms with estimated error bars,
3. a detailed compilation of the observational requirements of cryospheric variables for weather and climate monitoring, prediction and projection with an identification of gaps in the current observing system, taking into account the rates of detected changes in the cryosphere,
4. an evaluation of the current (IPY) state of the cryosphere in the context of **past** states through comparison with existing data on past states and also provision of a benchmark for future evaluation thus creating the foundation for more accurate estimates of the cryospheric contribution to sea level rise, information on freshwater resources and related decision making,
5. an assessment of **future** cryospheric conditions through regional and global climate modeling,
6. the establishment of the initial elements of the Arctic Ocean and Southern Ocean observing systems and start of the implementation of the Arctic HYCOS project,
7. the establishment of multidisciplinary “supersites” that would include cryospheric observations in their set of measurements with CEOP as main means for data integration,
8. an assessment of cryospheric-climate linkages and feedbacks that can be used to understand and explain the observed cryospheric variability and change,
9. an assessment of the ecological and human implications of the observed/predicted changes.

2.3 Outline the geographical location(s) for the proposed field work (approximate coordinates will be helpful if possible)

Location(s)	Coordinates
The project will cover both polar regions but is not itself proposing any field work. It will use in situ and satellite data, model output, as well as results from other IPY	

studies. National IPY projects and other clusters may have field components. This project will co-ordinate as feasible. It aims to integrate with studies of the state of the cryosphere in others regions of the globe.	

2.4 Define the approximate timeframe(s) for proposed field activities?

Arctic Fieldwork time frame(s)	Antarctic Fieldwork time frame(s)
mm/yy – mm/yy	mm/yy – mm/yy
mm/yy – mm/yy	mm/yy – mm/yy
mm/yy – mm/yy	mm/yy – mm/yy

2.5 What major logistic support/facilities will be required for this project? (see notes)

Further details –	
No new logistics or support being requested by this project. Required logistics will be requested nationally as required and co-ordinated with other projects. Licencing and permitting will be the responsibility of investigators in this cluster.	

2.6 How will the required logistics be supplied? Have operators been approached?

Source of logistic support	X for likely potential sources	X where support agreed
Consortium of national polar operators		
Own national polar operator	X	
Another national polar operator		
National agency	X	
Military support		
Commercial operator		
Own support	X	
Other sources of support (details)		

2.7 If working in the Arctic regions, has there been contact with local indigenous groups or relevant authorities regarding access?

Projects are required to meet these needs as part of the approval process to carry out research in the Arctic.
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3.0 STRUCTURE OF THE ACTIVITY

3.1 Origin of the activity(X for one choice)

Is this a new activity developed for the IPY period?	N
Is this activity the start of a new programme that will outlive IPY?	N
Is this a pulse of activity during 2007-2009 within an existing programme?	Y

If part of an existing programme please name the programme – IGOS Cryosphere Theme and WCRP CliC Implementation Strategy.

3.2 How will the activity be organised and managed? Describe the proposed management structure and means for coordinating across the cluster

This project will be managed by a Steering Group with representatives from the CliC Science Steering Group (SSG) and Panel and Project leads, lead contributors to the IGOS Cryosphere Theme, and projects involved in this proposal (section 4.2). Coordination will be provided by the CliC International Project Office in Tromso, Norway.

Scientific collaboration will be fostered through a minimum of two CliC-sponsored workshops, one prior to IPY on the cryospheric observing systems for IPY, and one following IPY to synthesize knowledge on variability and change in the global cryosphere and the impacts for biological and human systems. The process of evaluating current cryospheric observing systems and identifying gaps has already begun through the first workshop on the IGOS Cryosphere Theme (March 2005). At least two more IGOS Cryosphere workshops will be held before IPY, providing additional venues for collaboration with scientists involved in this IPY project.

Information on the state of the polar cryosphere produced by other projects in the cluster will be made available through the Data and Information System for CliC (DISC). DISC will act as a data portal to existing data products and information and will also synthesize information to highlight anomalies and trends for public and media interest. These will link to any data management system established by IPY.

3.3 Will the activity leave a legacy of infrastructure and if so in what form?

The project, in collaboration with other clusters, would leave a legacy of

- a comprehensive, international cryospheric component of the global climate, ocean, and terrestrial observing systems as well as other relevant observing systems,
- a global data set of cryospheric elements suitable for climate, weather and hydrological model initialization and/or validation.
- established international collaboration and co-operation in polar regions research and monitoring,
- a broad-ranging set of samples, data and information regarding the state and behaviour of the polar regions to provide a reference for comparison with the future and the past, and
- observing sites, facilities and systems to support ongoing polar research and monitoring.

3.4 Will the activity involve nations other than traditional polar nations? How will this be addressed?

The two proposed workshops will target local scientists from equatorial and South American countries to participate in the assessment of the State of Fate of our Cryosphere.

3.5 Will this activity be linked with other IPY core activities? If yes please specify

Yes. This project involves links to the main cryosphere monitoring clusters (see names

of cluster leads noted in section 4.2 below). It also includes clusters that address weather and climate prediction (through the assimilation of cryospheric products), data management, and education/outreach.

3.6 How will the activity manage its data? Is there a viable plan and which data management organisations/structures will be involved?

Information on the state of the cryosphere during IPY will be made available through the Data and Information System for CliC (DISC). DISC will act as a data portal to existing data products and information and will also synthesize information to highlight anomalies and trends for public and media interest. In general, DISC does not provide low-level data, but rather is a source of metadata. We will work in close collaboration with the Data and Information Service (DIS) IPY project, on which CliC is one of the lead organizations.

A significant fraction of the data and information linked to by DISC will reside with data holders or information systems such as the National Snow and Ice Data Center (NSIDC, USA) and the Canadian Cryospheric Information Network (CCIN) that follow ISO metadata standards. These systems have requested additional resources to accommodate IPY datasets and DISC will act as a portal for these systems.

DISC will also play an active role in assembling global datasets required to generate a snapshot of the global cryosphere. Datasets will be managed according to the IOOS and GOOS standards for data management. They will be archived in the World Data Centers and national data centers, as appropriate. DISC will comply with the IPY 2007-2008 Data Policy.

Datasets that need to be archived include, but are not limited to

- WMO GTS data stream (from polar nations)
- National network data from participating polar nations (SOA's, buoys, ships, regional surface arrays)
- Operational satellite products, including radar
- Numerical weather prediction data (initialization data, reanalysis products, etc.)
- Data from research projects (e.g., SEARCH, AOSF, OASIS, RIME, SBI)
- Specialized observations of the Cryosphere
- Historical data and results

3.7 Data Policy Agreement (Place X in box for agreement)

Will this activity sign up to the IPY Data Policy (see website)	X
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3.8 How will the activity contribute to developing the next generation of polar scientists, logisticians, etc.?

The datasets and research results will provide new opportunities for research on understanding the role of the cryosphere in earth systems. The integrated view of the cryosphere and its interactions with biological and human systems will promote new areas of cross-disciplinary research. A strong academia involvement will produce new highly trained graduates who will continue and expand future multidisciplinary cryospheric research. Involvement of northern peoples will enhance future involvement in research investigations in our high latitudes.

3.9 How will this activity address education, outreach and communication issues outlined in the Framework document?

Much of the activity will take place in academic institutions and will therefore involve students at the undergraduate and graduate levels. Web-based data visualization and distribution tools (such as Live Access Server) will be used for disseminating results to the broad community. The CliC International Project Office will use the IPY snapshot activity coordinated through DISC to develop items of media interest. Project partners at NSIDC and CCIN will likewise use IPY as a vehicle for generating items of interest to the media, general public and educators.

3.10 What are the proposed sources of funding for this activity?

The various projects involved will obtain funding from national programs. See their EoIs and proposals for details. CliC investigators will obtain funding for the synthesis effort from agencies in their home countries, as appropriate. The CliC program office provides salary support for the CliC Secretariat and activities related to DISC.

3.11 Additional Comments

The project web site is <http://stratus.ssec.wisc.edu/ipy-cryos>. Additional information, including a full list of investigators, is available there.

Not all collaborative efforts with consortium members have been finalized at the time of this proposal submission.

4.0 CONSORTIUM INFORMATION

4.1 Contact Details

	Lead Contact	Second Contact
Title	Dr.	Dr.
First Name	Jeffrey	Barry
Surname	Key	Goodison
Organisation	NOAA NESDIS	Chair, CliC SSG
Address	1225 West Dayton Street Madison, Wisconsin	4905 Dufferin Street Downsview, Ontario
Postcode/ZIP	53706	M3H 5T4
Country	USA	CANADA
Telephone	(608) 263-2605	(416) 739-4345

Mobile		
Fax	(608) 262-5974	
Email	Jeff.Key@noaa.gov	barry.goodison@ec.gc.ca
Repeat Email	Jeff.Key@noaa.gov	barry.goodison@ec.gc.ca

4.2 Other significant consortium members and their affiliation

Name	Organisation	Country	Misc	EoI ¹
Sea ice:				
Dr. Don Perovich	CRREL	USA		185 (lead)
Dr. Steve Ackley	CRREL	USA		270 (lead)
Dr. Harmut Hellmer	Alfred Wegner Institut	Germany	Icebergs	21 (lead)
Dr. Ivan Frolov	Arctic and Antarctic Research Institute	Russia		796 (lead)
Ice sheets, ice caps, glaciers:				
Prof. Dorthe D. Jensen	University of Copenhagen	Denmark		561 (lead)
Dr. Mahlon Kennicutt II	Texas A&M University	USA		876 (lead)
Dr. Robert Bindshadler	NASA	USA		351 (lead)
Prof. Johannes Oerlemans	Utrecht University	Netherlands		30 (lead)
Dr. Martin Jakobsson	Stockholm University	Sweden		183 (lead)
Dr. Edward Brook	Oregon State University	USA	Ice core studies	203 (lead)
Prof. Heinz Miller	Alfred Wegner Institut	Germany		301 (lead)
Dr. Mark Fahnestock	University of New Hampshire	USA		418 (lead)
Dr. Andrey Glazovsky	Russian Academy of Sciences	Russia		756 (lead)
Dr. Roy Koerner	Geological Survey of Canada	Canada		654 (lead)
Permafrost and seasonally frozen ground:				
Dr. Jerry Brown	International Permafrost Association	USA		125 (lead)
Dr. Frederick Nelson	University of Delaware	USA	CALM	439 (lead)
Dr. Jan Boelhouwers	Uppsala University	Sweden	Antarctic permafrost	627
Snow cover:				
Dr. Ute Herzfeld	University of Colorado	USA		790
Dr. Don Cline	National Operational Hydrologic Remote Sensing Center	USA		73
Ocean:				
Dr. Sara Bowden	Arctic Ocean Sciences Board	Germany		80 (lead)
Dr. Steve Rintoul	CSIRO	Australia	CASO	109 (lead)
Precipitation:				
Dr. Jeffrey Welker	University of Alaska	USA		831
Interdisciplinary (global cryosphere, air-ice-ocean):				
Dr. Cecilie Mauritzen	Norwegian Meteorological Institute	Norway		546
Mr. Ross Brown	Meteorological Service of Canada	Canada		644
Dr. Pavel Groisman	National Climatic Data	USA		392 (lead)

	Center			
Prof. Craig Lingle	University of Alaska Fairbanks	USA		446 (lead)
Dr. Thor Erik Nordeng	Norwegian Meteorological Institute	Norway	THORPEX-IPY	294 (lead)
Dr. Gilbert Brunet	Meteorological Service of Canada	Canada		683
Dr. Per Kallberg	Swedish Meteorological and Hydrological Institute	Sweden	Arctic Reanalysis	113
Prof. Terry Prowse	University of Victoria	Canada	Coordination, ICARP	
Satellite Observations:				
Dr. Ken Jezek	Ohio State University	USA		197 (lead)
Dr. Mark Drinkwater	European Space Agency	Netherlands	GIIPSY	501 (lead)
Human issues:				
Dr. Igor Krupnik	Arctic Studies Center, Smithsonian Institution	USA		332
Dr. Claudio Aporta	Université Laval	Canada		715
Data:				
Mr. Mark Parsons	National Snow and Ice Data Center	USA		409 (lead)
Dr. William Peterson	Laboratory for Atmospheric and Space Physics	USA	Electronic Geophys. Year	150 (lead)
Outreach:				
Dr. Lars Kullerud	University of the Arctic	Finland		404 (lead)
Dr. Andrew McMinn	Institute of Antarctic and Southern Ocean Studies	Australia		415 (lead)
Dr. Martin Jeffries	University of Alaska	USA	ALISON	6
CliC:				
Dr. Victoria Lytle	CliC International Project Office	Norway		
Dr. Konrad Steffen	CU/CIRES	USA		561
Dr. Vladimir Ryabinin	WCRP	Switzerland		
Dr. Tatiana Khromova	Russian Academy of Sciences	Russia		
Dr. Ian Allison	Australian Antarctic Division	Australia		
Dr. John Turner	British Antarctic Survey	UK		

¹”EoI” indicates the Expression of Intent number. “lead” indicates that this person/EoI is a cluster lead.

Notes for completing the WORD template for Proposed IPY Activities

- ** The form is not for submission (that must be done online) - it is a tool for preparing the material required for completing the online form.
- ** This form is 7 pages long and the online form will match this length so if your completed WORD template is 7 pages you will have no problems in cutting and pasting to the online form
- ** We suggest you use 11 pt Times or Times Roman for text entry.

Proposer Information

- 1.1 A full title for the proposed activity
- 1.2 Please provide a short title, ideally an acronym which will help with database searching.
- 1.3 This should be the person nominated to lead the activity. They may also be the primary contact with whom the IPO and JC will interact (see 4.1)
- 1.4 Where an international organisation is involved in the activity, they should be named (acronym is sufficient)
- 1.5 These are countries other than that of the activity leader. There will be more cells available on the web form. It is important that each activity demonstrate that there is internationalisation. Components of IPY activities can be operating at simply a national level but should synchronize with comparable groups in other nations activities to ensure internationalization at the IPY activity (core project) level.
- 1.6 The ID # for each EoI (from the Jan 14 exercise) involved in the activity should be named here. This will allow the IPO to track EoI's that have joined or left clusters identified in the original assessment.
- 1.7 Insert only one of the three choices.
- 1.8 Put an X against all of the themes for which the activity is relevant.
- 1.9 Put an X against one of the IPY targets which most closely describes the activity's main target

Activity Description and Time/Location Information

- 2.0 A description of what the activity entails and that includes reference to how the various component EoI's contribute to the overall activity. The description should focus on what will be undertaken within the activity and not how it will be organised. The text must not include graphics, equations or substantial formatting as these all cause problems for the database search engine. The JC only wants text entry in this field – leave the fancy presentations for the funding agency applications. Do not exceed 1 page.
- 2.1 The IPY is promoting interdisciplinary science and it is one of the IPY criteria that researchers should attempt to address.
- 2.2 This should focus on what will broadly emerge from the activity and if possible list some deliverables. It will be valuable to outline what outputs will be targeted at your peers – papers, workshops, e-media.
- 2.3 IPY activities should be polar-focussed (not necessarily located in polar regions. These fields should identify one or more areas where field activities will occur, e.g. West Antarctic Ice Sheet, Weddell Sea, Svalbard, Greenland. There is no need to include reference to Antarctica or Arctic (picked up in 1.7). If approximate coordinates are available this will allow distribution maps to be generated for IPY planning and promotional activities and assist logistic operators. An IPY activity does not have to include a field component but will do so in most cases.
- 2.4 IPY activities should occur during 2007-2009. Use the given format to define fieldwork periods.
- 2.5 This refers to major facilities and infrastructure and some examples (not comprehensive) are given below. Please use the fields to enter logistic requirements and use the text box to add further details.

Ice-breaker	Multi-instrumented platforms	Snow terrain vehicles
Ice strengthened research ship	Helicopters	Existing field stations
Ship-based drilling capability	Fixed wing geophysical aircraft	New field station
Ship recovery of buoys etc	Fixed wing transport aircraft	Observatories
Submarines	Rockets	Fuel depots
Autonomous Underwater Vehicle	Satellites	Ice drilling capability
Remotely Operated Vehicle	Radars	Rock-drilling capability

Please note if your project will share facilities with other IPY activities, or if there is capacity to support other projects as part of your activity (e.g. a marine biodiversity cruise could feasibly offer to deploy or recover buoys, moorings, etc., for an ocean/climate project).

- 2.6 Mark X against the 1 or more support options you would anticipate using and place an X against those which have been agreed or are being considered by logistic operators.

- 2.7 Access to certain Arctic areas is subject to licensing and should not be assumed will be granted so a dialogue with relevant authorities will be necessary. The Canadian IPY Office is a useful start point.

Structure of the Activity

- 3.1 Identify if your activity is a new activity limited to the IPY period, a new one that may be running for many years but will use IPY to kick start its programme, or an existing programme that will undertake a pulse of activity to coincide with the IPY period. If the latter please name the programme.
- 3.2 A major IPY criterion is “evidence of a viable management plan” and this is an opportunity to outline how the cluster will organise itself and ensure there is proper coordination. The Joint Committee for IPY 2007-2008 will be overseeing Polar Year activities but will not be managing the individual projects. It is anticipated that IPY projects will be self-managed, free-standing activities or be part of a planned or existing programme that has an established management structure. The JC will need to be satisfied that all proposals have realistic plans for structuring and managing activities. For the larger proposals the JC anticipates that a Project Steering Committee will be established.
- 3.3 Whilst IPY is envisaged as primarily a pulse of activity during 2007-2009, it is hoped that, as with many IGY initiatives, the initial activity leaves a legacy longer term which could be for example – an observational network, a field research facility, an accessible database, an education course or a health monitoring programme.
- 3.4 The IPY wants to broaden interest in the polar regions to include nations not traditionally involved in polar activities and has included this as one of its criteria. In some cases this may involve researchers joining clusters for field work but could also be, for example, through attendance of a workshop organised by the cluster.
- 3.5 The Joint Committee envisages a relatively small number of substantial core projects during IPY and it is anticipated that the JC will assist these projects to interact. Some activities are already considering formal and informal links with related clusters which will bring added value to these IPY activities.
- 3.6 IPY will generate enormous quantities of data and it should be accessible data so core projects will have to agree a data policy that will allow interaction across projects and early availability to the community. This field offers the opportunity to demonstrate that the components of the cluster have an agreed and valid approach to data management which can be considered alongside other approaches across IPY by the Data Management Sub-Committee to ensure effective coordination. Data organisations such as the World Data Centres, JCADM or national data centres.
- 3.7 IPY wishes all data to be freely available to the community (accepting certain exceptions e.g. human research) and all core projects will be expected to agree to sign up to the IPY Data Policy (which will be available on the website before the end of May 2005).
- 3.8 IPY has the development of the next generation of polar researchers as a high priority and IPY activities should show evidence of having considered how to address this issue.
- 3.9 All activities are expected to give consideration to addressing education, outreach and communication (mainly media focussed). Establishing a website will be a popular suggestion but interactions with schools, involving children/teachers in field activities, holding workshops, producing books or electronic media, collaborating with film-makers are all further possibilities.
- 3.10 It is recognised that many proposed activities will not yet have established funding lines but it should be demonstrated that valid sources of funding will be approached to support the activity.
- 3.11 This field can be used for any additional information that you feel is not addressed in the rest of the form or it maybe a specific piece of information that helps a national committee locate its nation’s proposed activities.

Consortium Information

- 4.1 Details for the two primary people in each activity that the IPO can then contact where necessary on behalf of the consortium.
- 4.2 A list of other significant consortium members, their affiliation and country. The on-line form will also ask for email addresses. Up to 35 additional names can be added to this table, more will be available in the online version.