WORLD METEOROLOGICAL ORGANIZATION

REPORT OF THE MEETING OF
THE MANAGEMENT GROUP OF
THE COMMISSION FOR CLIMATOLOGY

Denver, USA, 26-29 October 2011

11 January 2012
NOTE

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1. OPENING OF THE MEETING

1.1 Opening and welcoming remarks

1.1.1 The meeting of the Management Group (MG) of the Commission for Climatology (CCI) was opened by Dr Thomas Peterson, president of the Commission for Climatology at the Sheraton Denver Downtown Hotel, at 13:30 hrs on Wednesday 26 October 2011 (List of Participants is given in Annex 1).

1.1.2 Dr Peterson welcomed all the members of the Group and congratulated them on the active role they played in addressing the mission of CCI.

1.1.3 Dr Peterson mentioned that organizing the MG meeting in conjunction with the Open Science Conference of WCRP provided a good opportunity for all the participants in the meeting to interact with the climate research community. He encouraged the MG members to discuss relevant aspects of CCI with experts from the WCRP.

1.1.4 Dr Peterson thanked the Secretariat on the support given in the preparation of the different posters from CCI that were displayed at the WCRP OSC. He congratulated all the co-chairs of the OPACEs for ensuring that the important aspects of their work were covered in the posters.

1.1.5 Finally Dr Peterson requested all the members of the MG to be active in contributing during the discussions as the meeting will prioritize CCI activities for the future.

1.1.6 On behalf of the Secretary-General of WMO, Dr Mannava Sivakumar welcomed the president of the Commission and members of the Group to the meeting. He mentioned that it was for the first time that a CCI-MG meeting was being organized in conjunction with a major conference on climate. He hoped that the members of the management group appreciated the opportunity of participating in the plenary sessions of the important Open Science Conference of WCRP and enjoyed their interactions with the broader climate research community. This is the second time in three years that CCI was interacting closely with WCRP, the first one being the Technical Conference held in conjunction with the Fifteenth Session of CCI. Dr Sivakumar suggested that CCI should continue to work closely with the WCRP community.

1.1.7 Dr Sivakumar mentioned that for the first time, CCI planned and organized a poster cluster on CCI activities. He thanked Dr Peterson, Mr Sensoy and all the co-chairs of the four OPACEs as well as Mr Baddour, Dr Kolli, Ms Malone and Mr Delju for their active collaboration in designing and finalizing all the posters in time.

1.1.8 Dr Sivakumar pointed out that the current inter-sessional period is particularly important because WMO is now in the active phase of developing a detailed implementation plan for the Global Framework for Climate Services (GFCS). The Commission plays an extremely important role in developing this implementation plan and I am sure that GFCS implementation will bring new challenges and opportunities for the Commission as the GFCS is definitely a major element in shaping the CCI activities. He mentioned about the establishment of the new EC Task Team (ECTT) on GFCS and since Dr Peterson will be participating actively in the deliberations of this Task Team, it is important that the management group provides him its valuable input.

1.1.9 Dr Sivakumar reported that the Executive Council also re-established the EC Working Group on Climate and Related Weather, Water and Environmental Matters considering the enhanced focus on WMO’s climate activities in addressing the emerging needs of GFCS implementation.

1.1.10 Dr Sivakumar informed the group that since the last meeting of the management group, four significant publications and products were brought out. These include the Proceedings of the Technical Conference on "Changing Climate and Demands for Climate Services for Sustainable Development" (published as a Special Issue of Climate Research, Volume 47); the 2011 edition of the Guide to
Climatological Practices; the History of the Commission for Climatology (WMO-No. 1079) and the Publications of CCI from 1950 brought out in the form of a DVD.

1.1.11 Dr Sivakumar thanked Dr Peterson, Mr Sensoy, and all the members of the Management Group for their excellent cooperation and commitment in implementing the activities of CCI. He also recognized the valuable support of his colleagues in the Secretariat: Dr Kolli, Mr Baddour, Ms Malone, Mr Delju and Mr Hechler over the past two years in organizing several important meetings, seminars and workshops for CCI.

2. ADOPTION OF THE AGENDA AND ORGANIZATION OF THE MEETING

2.1 The provisional agenda of the meeting (Annex 2) was reviewed by the MG. The MG approved the provisional agenda.

2.2 In view of the participation of the members in the plenary sessions of WCRP Open Science Conference during the morning time, the Group agreed that the meeting would be conducted from 13:30 to 17:30 hrs on Wednesday, 26 October and Thursday, 27 October; from 11:30 to 17:30 hrs on Friday, 28 October and from 08:30 to 17:30 hrs on Saturday, 29 October...

3. REPORT FROM THE PRESIDENT OF CCL

3.1 Dr Peterson gave brief report on the major non-CCI work carried out by him. He is currently editing a new annual Bulletin of the American Meteorological Society paper, a companion to the State of the Climate Report, explaining the events of the previous year from a climate perspective (with Peter Stott of the U.K. Met Office and Stephanie Herring of NOAA).

3.2 Dr Peterson informed the group that he is organizing a workshop on heat waves, cold waves, floods and droughts to contribute to the U.S. National Assessment and produce a BAMS paper.

3.3 Regarding annual CCI-related meetings, Dr Peterson referred to his participation in the Meeting of the Presidents of Technical Commissions of WMO as well as in the meeting of the such the WMO Executive Council’s Working Group on Climate and related Weather, Water and Environmental Matters in January/February 2011.

3.4 In June, Dr Peterson participated in the session of the WMO Executive Council and in the GCOS Steering Committee Meeting in September 2011

3.5 Dr Peterson informed the group about the special CCI-related meetings in which he participated such as the WMO Congress in May 2011 and the Australian surface temperature dataset review in August 2011. Dr Peterson mentioned about the future meetings in which he would likely be participating such as the North African climate change workshop in March 2012 and a Caribbean Regional Climate workshop in the first half of 2012.

3.6 Dr Peterson frankly discussed his weaknesses in that he was not as involved in or aware of the work of OPACE’s III and IV as he should have been. He pointed out that he does not have a CCI-wide plan but rather 4&1/2 plans (one for each of the OPACEs and the Vice President). He also referred to the fact that he needs to have a better understanding of the CCI related WMO budget. He mentioned that he still receives documents from WMO and that he does not know how to respond to.

3.7 At the same time, Dr Peterson referred to his strengths which include the coordination of a great Management Group so that he did not have to step in to fill in any weaknesses. He was also seeking win/win strategies; so to a large extent if he could line up appropriate volunteers he only needed to step back and let them go.
4. **CLIMATE RESEARCH SPECIAL ISSUE – OUTCOME OF TECHNICAL CONFERENCE HELD IN CONJUNCTION WITH CCL-XV SESSION**

4.1 Dr Mannava Sivakumar reported on the outcome of the Technical Conference on “Changing Climate and Demands for Climate Services for Sustainable Development” which was held in Antalya, Turkey, from 16 to 18 February 2010 in conjunction with the CCI-XV session.

4.2 Dr Sivakumar mentioned that fifteen papers presented during the Technical Conference were peer reviewed as per the journal procedures and the papers accepted for publication were included in a Special Issue of Climate Research, Volume 47. This Special Issue presented a synthesis of the requirements of the society for climate information, products and services to support adaptation to climate variability and change, as well as sustainable development.

4.3 Online version of this Special Issue is available with Open Access ie., the issue can be downloaded freely any where in the world using the web link: [http://www.int-res.com/journals/cr/cr-specials/cr-special-25/](http://www.int-res.com/journals/cr/cr-specials/cr-special-25/). Hard copies of the special issue were sent to all authors and to all the PRs of Members with WMO.

4.4 Dr Peterson complimented the Secretariat on the publication of the Special Issue and mentioned that such a product is stimulating to the developing countries as several scientists are encouraged with the publication. This is being used as a reference for projects since it is a peer-reviewed journal. Dr Peterson emphasized on the need to continue to press for such initiatives in future. He also mentioned that in terms of interactions with WCRP community, such publications give strength and put CCI in a better perspective as they enhance the visibility of the Commission and we need to look for more such opportunities in the inter-sessional period.

4.5 Dr Martinez pointed out the need to put research achievements into operations and such special issues help. He mentioned that this provides a message to WCRP to enhance operational applications in collaboration with CCI. Most of the scientific community addresses the major challenges, but there are no mechanisms to address research needs at the national level. This is where CCI and WCRP can cooperate.

5. **REVIEW OF ACTIONS ARISING FROM THE MEETING OF THE MANAGEMENT GROUP IN MAY 2010**

5.1 Dr Mannava Sivakumar presented the review of actions arising from the meeting of the Management Group in May 2010. He mentioned that in all, 24 actions were identified. The Group reviewed the actions and noted that action was taken on most of them. Regarding the items on which further action is needed, the Group decided to discuss them under the agenda items covering different OPACES.

6. **THE FUTURE OF CCL, PARTICULARLY THE ROLE OF CCL IN THE IMPLEMENTATION OF THE GLOBAL FRAMEWORK FOR CLIMATE SERVICES (GFCS)**

6.1 **Cg-XVI discussion on Report of High Level Task Force on GFCS and on CCI-related matters**

6.1.1 Dr Mannava Sivakumar presented the report on Cg-XVI discussion on Report of High Level Task Force on GFCS and on CCI-related matters.

6.1.2 The MG noted that Cg-XVI discussed various components and modalities of GFCS in document 3.5-Cg-XVI. It further noted that the Cg-XVI adopted two Resolutions 11.1/1 and 11.1/2 on the ‘Governance’ and ‘Implementation’ of the GFCS, accordingly.
6.1.3 Congress highlighted the concept that operational climate services will be the core element of the Framework while recognizing that these services should be directed at benefitting developing countries through capacity building. Congress supported the general proposal of the Taskforce that the international community would make, consistent with its ability to do so, a significant investment in the implementation of the GFCS (Recommendation 1). Congress decided to proceed with Option A of Recommendation (5) as reflected in Chapter 10 of the Taskforce Report while ensuring that the governance mechanism of the Framework shall be accountable to the WMO Congress.

6.1.4 Congress also discussed the implications of the implementation of GFCS for the Technical Commissions. Congress recognized that while the CCI will have a central role in the implementation of the GFCS, other technical commissions will also have important roles to play. Congress urged the technical commissions to keep under review their work plans as the implementation of the GFCS proceeded so that they could give effective support to the initiative and also take advantages of the opportunities that it offered.

6.2 Implications of GFCS on Future Climate Activities

6.2.1 Dr Kolli made a presentation on the implications of GFCS on future climate activities.

6.2.2 The MG recalled that its Terms of Reference, as approved by CCI-XV, include support to fulfill WMO’s role in the implementation of the GFCS. The MG noted that, while the OPACEs have appropriately integrated the relevant aspects in their work plans, this needs to be further elaborated keeping in view the report of the High Level Taskforce on GFCS (HLT-GFCS), and ongoing developments in GFCS implementation strategy following the Congress and Executive Council (EC) decisions.

6.2.3 The MG noted that, while CCI-XV has already decided to align the work of the Commission to the structure of the GFCS, the associated work elements can be more clearly delineated within the CCI as follows:

<table>
<thead>
<tr>
<th>GFCS Component</th>
<th>Lead Role</th>
<th>Supporting Role</th>
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<tbody>
<tr>
<td>Observations and Monitoring</td>
<td>OPACE-1 &amp; 2</td>
<td>OPACE-3</td>
</tr>
<tr>
<td>Research, Modeling and Prediction</td>
<td>OPACE-2 &amp; 3</td>
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<tr>
<td>Climate Services Information System</td>
<td>OPACE-2 &amp; 3</td>
<td>OPACE-1 &amp; 4</td>
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<tr>
<td>User Interface Platform</td>
<td>OPACE-4</td>
<td>OPACE-3</td>
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<tr>
<td>Capacity Building</td>
<td>All OPACEs and MG</td>
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6.2.4 The MG further noted the significant interrelationships between among the five components of the GFCS and the consequent inter-linkages required between the CCI OPACEs as well as the overarching responsibilities of the MG. The MG urged all the OPACEs to keep their work plans constantly under review to explicitly address the relevant aspects in the emerging draft implementation plan for the GFCS.

6.2.5 The MG decided that the OPACE Co-Chairs would review the draft outline of the draft implementation plan for GFCS, and provide their inputs to the President and the Secretariat, by end of November 2011; OPACE Co-Chairs to consolidate their inputs on the relevant components of the GFCS, and provide them to the President. The President would then communicate the CCI-wide inputs to the ECTT-GFCS.

6.2.6 The MG agreed that a major priority for CCI in contributing to the GFCS implementation would be to address the needs of climate services at the national level. The MG recognized that, while the global and regional levels of the GFCS, particularly its CSIS component, are reasonably well-defined and partially in place, the national structures are still to be adequately conceptualized.
6.3 Coordination of Activities among Various WMO Programmes and Technical Commissions

6.3.1 Dr Mannava Sivakumar made the presentation on coordination of activities among various WMO Programmes and Technical Commissions.

6.3.2 The MG noted that coordination of activities among various WMO programmes and Technical Commissions on specific thematic areas take place in different levels. Cross-cutting initiatives are either between two or among more commissions, e.g. Joint CCI/CLIVAR/ICOMM Expert Team on Climate Change Detection and Indices (ETCCDI/ET2.1), Intercommission Group on WIGOS. Nevertheless the annual meeting of the Presidents of Technical Commissions (PTC) is the main forum to coordinate multi-Commission activities with WMO programmes.

6.3.3 The last PTC has noted that there could be two approaches to inter-Commission collaboration: project based, which would be time-bound; and broad strategic alignment involving the planning of PTC activities, the areas of common interest and how TC reacts to the five priorities of the Organization.

6.3.4 CCI also interacts with the WCRP Joint Scientific Committee (JSC) and the GCOS Steering Committee to coordinate relevant issues to CCI and reflect them to the Commission for further follow up.

6.3.5 The Executive Council on Climate and related Water, Weather and Environmental Matters (ECWG-CWE) is a wider high level forum which directly involves the President of CCI. This Group has been re-established by the Sixteenth Congress on the important climate related matters that included the Global Framework for Climate Services (GFCS) and a restructured World Climate Programme. The Executive Council has agreed that, in addition to guiding these activities central to WMO’s climate responsibilities, it is critical to coordinate climate related activities among the various WMO programmes to adequately consider and cover the climate and related weather, water and environmental matters.

6.3.6 MG noted that the Council agreed on the revised terms of reference of the ECWG-CWE and adopted Resolution 3/4 (EC-LXIII) – Coordination of Climate Activities, establishing the ECWG-CWE.

6.3.7 MG noted the need to examine the terms of Reference of ECWG-CWE (Annex to Resolution3/4 (EC-LXIII) on Coordination of Climate Activities). Two TORs are of particular importance: promotion of cross-cutting activities between WCP and the World Weather Watch, World Weather Research Programme (WWRP), Atmospheric Research and Environmental Programme (AREP) and Hydrology and Water Resources Programme (HWRP); and provision of inputs to the relevant EC working groups on matters concerning climate data management and policies on exchange of climate data and products to support climate services, particularly through review of Annex I of Resolution 40 (Cg-XII).

6.4 Collaboration and partnership

6.4.1 Dr Mannava Sivakumar made the presentation on collaboration and partnership.

6.4.2 MG noted that the implementation of GFCS will provide a unique opportunity to develop partnership with key climate sensitive sectors in the context of climate user interface mechanisms which focus on building linkages, between providers and users of climate information at all levels.

6.4.3 The Cg-XVI has recognized that the CUJP of the GFCS which serves such a purpose would help develop functional partnerships between climate scientists; sector-specific and multi-disciplinary scientists; academia; sector-focused agencies and ensure availability of interdisciplinary data, information and knowledge needed for development of user-targeted products.

6.4.4 Various UN agencies, inter-governmental organizations and non-governmental organizations would take the lead in development sectors according to their mandates.
6.4.5 CSIS component of the GFCS promotes benefits to partnering agencies, particularly within the UN System in the spirit of the UN ‘delivering as one’.

6.4.6 MG noted that in the past, Climate Agenda provided the integrating framework for international climate-related programmes under the Inter-Agency Committee on the Climate Agenda (IACCA).

6.4.7 Congress endorsed the recommendation that the Climate Agenda, along with its coordination mechanisms, should be formally retired and replaced by the GFCS and its governance mechanisms, and recommended to the partnering agencies that IACCA be brought to a formal closure.

6.4.8 Cc-XVI had recognized the continuing importance of the WCP and its associated activities to make an effective contribution to the Intergovernmental Panel on Climate Change (IPCC); the United Nations Framework Convention on Climate Change (UNFCCC); United Nations Convention to Combat Desertification (UNCCD); United Nations Commission on Sustainable Development and the International Strategy for Disaster Reduction (ISDR).

6.4.9 The MG noted that there is a need to establish long term partnership with the Intergovernmental Oceanographic Commission of the United Nations Educational, Scientific and Cultural Organization (IOC of UNESCO); the World Health Organization (WHO); the Food and Agriculture Organization of the United Nations (FAO); the United Nations Environment Programme (UNEP); and the International Council for Science (ICSU).

6.4.10 The MG noted the special contributions made to the UNFCCC, especially to the implementation of the Nairobi Work Programme on Impacts, Vulnerability and Adaptation to Climate Change, particularly in the work areas of ‘Data and observations, ‘Climate modelling, scenarios and downscaling’, ‘Climate related risks and extreme events, ‘Methods and tools, ‘Adaptation and practices’ and ‘Research’. The call of UNFCCC for implementation of the Cancún Adaptation Framework which would greatly benefit from various WMO activities including those associated with GFCS. The Cancún Adaptation Framework includes a call for strengthening and establishing regional centres and networks which could very well collaborate with the WMO RCCs.

6.4.11 Regarding the contributions to IPCC, MG noted that An increasing number of experts of the CCI, WCRP, NMHSs and the meteorological community in general are serving as lead authors, contributors and Bureau members of the Intergovernmental Panel on Climate Change (IPCC). MG emphasized that CCI should continue it’s contributions to the AR5 process and other special publications of IPCC.

6.5 CCI RELEVANT ASPECTS OF THE WMO INTEGRATED GLOBAL OBSERVING SYSTEM (WIGOS) AND THE WMO INFORMATION SYSTEM (WIS)

6.5.1 CCI Involvement in WIGOS

6.5.1.1 The MG considered Congress-XVI decisions requesting Technical Commissions to guide the WIGOS implementation plan and develop guidance on the design and evolution of the observing systems. It agreed that there are challenges that require further efforts in improving observing systems to support new requirements climate monitoring and prediction activities. It agreed on the need for CCI to be involved at the appropriate level of representation to provide input to the WIGOS implementation plan whereby some of CCI technical publications would be useful in guiding the WIGOS implementation plan. It further agreed that the ongoing CCI work led by OPACE-1 on QA/QC, AWS for climate and on the guidance on Capacity development in climate observations for developing and least developed countries, as well as CCI input to the WMO Rolling Review Requirements and Statement of Guidance would constitute the basis for proving guidance on the design and evolution of the observing systems within WIGOS. Another element of interest for CCI contribution to WIGOS is the urgent need in providing guidance on improving national climate networks and furthering the establishment of national reference climate networks. This would complement...
the role of GCOS in providing guidance on the requirements and principles for global climate monitoring. In many cases these networks are operated by collaborative agencies or by individuals with low level or lack of standardization, continuity and sustainability.

6.5.1.2 The MG decided that William Wright will represent CCI at the Inter-Commission Group on WIGOS (ICG-WIGOS) and that the CCI representation within the CBS Expert Team on the Evolution of the Global Observing Systems (ET-EGOS) will be assured by Lianchun Song replacing William Wright in this position.

6.5.2 CCI involvement in WIS

6.5.2.1 The MG was informed on the WIS plan for 2012-215 focusing on completing WIS implementation across all WMO Centres; capacity development; leveraging WIS advantages for all WMO Programmes; and taking advantage of WIS in all WMO Data Management. The WIS implementation for 2012-2015 includes adding more DCPCs, i.e. WIS interfaces at WMO programmes centres. It emphasized the need to further develop its collaboration with CBS, as requested by CG.XVI, on Data Management issues to respond to the emerging needs for improved provision, generation and dissemination of climate data and products, including new ones and relevant Metadata. In this aspect, it identified some activities to be considered on continuous manner within CBS working mechanisms. The issue of CLIMAT messages and their possible extension to include new requirements and the emerging potential for developing new national climate monitoring products meant for global or regional dissemination as being suggested by the CCI Task Team on National Climate Monitoring Products (TT-NCMP) (Ref. Report of the first meeting of the CCI- TT-NCMP, September 2011) constitute sufficient rational for CCI to be represented at the CBS Inter-Programme Expert Team on Data Representation and Codes (IPET-DRC). There is also a need for CCI to be involved in metadata development work led by CBS. On another hand CCI is also interested to work with CBS on the designation of WIS-DCPCs.

6.5.2.2 The MG decided to nominate a focal point, one member of the OPACE-2 TT-NCMP to liaise with IPER-DRC; a focal point, one member of the OPACE-1 ET-CDMS to liaise with IPET-MDI; and a focal point from OPACE-3 to liaise with the CBS Expert Team on WIS Centres (ET-WISC). It urged relevant OPACE co-chairs to provide the Secretariat with the names and the TORs of these focal points by end of November 2011.

6.6 Reorganization of WCP

6.6.1 Dr Mannava Sivakumar made a presentation on the reorganization of the World Climate Programme (WCP). It was founded in 1979 following the first World Climate Conference and was composed of four component programmes: the World Climate Data and Monitoring Programme (WCDMP); the World Climate Applications and Services Programme (WCASP) including the CLimate Information and Prediction Services (CLIPS) Project; the World Climate Research Programme (WCRP), and the World Climate Impact Assessment and Response Strategies Programme (WCIARP), coordinated by UNEP.

6.6.2 In the light of the Cg-XVI decision on GFCS (agenda item 6.1) and to optimally support the implementation and operation of its various components, Congress decided to reconstitute the World Climate Programme to serve the strategic goals of the Organization (Annex to Res. 3.5/3 (Cg-XVI) — World Climate Programme).

6.6.3 Congress decided that the new WCP would include: GCOS, WCRP, a new World Climate Services Programme (WCSP), merging the existing activities under WCDMP, WCASP and the CLIPS project. Congress also decided to establish, based on the recommendations of the HLT-GFCS, a vision statement and goal for the WCP that would be consistent with its contributions in particular, and those of WMO in general, to the GFCS and that the WCP will be a key programme in the delivery of GFCS.
6.6.4 Congress agreed to the request of UNEP for the formal closure of WCIRP component of WCP. It authorized the Executive Council to assess UNEP’s request to replace WCIRP with their new Programme of Research on Climate Change Vulnerability, Impacts and Adaptation (PROVIA), duly considering its scope, governance structure, funding arrangements, priorities vis-à-vis its relation with GFCS, and take appropriate decision in this regard.

6.6.5 Congress requested the CCI, the WCRP Joint Scientific Committee (WCRP JSC) and the GCOS Steering Committee (GCOS SC) to ensure close cooperation with each other for an effective implementation of the WCP.

6.6.6 The MG noted the importance of the new WCSP programme under the restructured WCP and the potential contributions it can make for the implementation of the GFCS. It noted that further discussion on this topic would be undertaken under agenda items 7.3 and 7.4.

7. CCI WORK PROGRAMME: CURRENT STATUS AND FUTURE PLANS

7.1 OPACE I – CLIMATE DATA MANAGEMENT

7.1.1 Dr William Wright made the presentation on OPACE I on Climate Data Management including the activities of the Expert Team on Climate Data Management Systems (ET-CDMSs); the Task Team on Data Rescue; Data issues, especially the Review of Annex to Resolution 40; the International Conference on Climate Data and the UK Workshop on Datasets.

Expert Team on Climate Data Management Systems (ET-CDMSs)

7.1.2 The MG reviewed activities of the Expert Team on Climate Data Management Systems (ET-CDMSs) and noted with satisfaction that the team met in October 2010, an early date in the intersession period. ET-CDMS developed an ambitious work-action plan which was posted on the ET website.

7.1.3 The MG noted that important steps have been taken by the ET in featuring the expected deliverables, including a survey sent to WMO Members through WMO official channels. MG expressed its appreciation for the analysis of the questionnaire and the important conclusions that were drawn.

7.1.4 The MG highlighted the importance of completing the ET tasks during the current intersession period to achieve the expected deliverables as decided by CCI-XV. It is of particular importance for Members to have ET guidance on CDMS specifications as well as in developing capacity for Developing countries and Least Developed countries.

7.1.5 The MG urged ET-CDMS to complete the document on new specifications for CDMSs within the current intersession period preferably well ahead of the next CCI session to allow its publication and dissemination to the Members in due time.

7.1.6 The MG urged ET and the Secretariat to seek ways and mechanisms for further developing capacity for the countries in need with particular focus on least developed countries; MG requested the secretariat to resend a reminder to the countries which have not yet responded to the ET survey.

Task Team on Data Rescue (TT-DARE)

7.1.7 The MG was informed about the replacement of Mr Tom Ross (USA) who retired recently. It commended his outstanding services within CCI in the past and during the current intersession period. TT-DARE started its work by a teleconference organized in October 2010 involving the two co-leads of the Team Dr Aryan van Engelen and Dr Joseph Kimani, and Dr Lianchun Song the co-chair of OPACE-1. Dr Manola Brunet was invited to join as the Chair of MEDARE as well as Dr Albert Klein Tank as the CCI co-lead of the ETCCDI. The teleconference set the stage for the TT work by defining the role of the Team leaders,
addressing the priority work towards achieving the expected deliverables and establishing the linkage with ETCCDI. The MG was pleased to note the increased collaboration between TT-DARE and ETCCDI including the collaboration on DARE/ETCCDI workshops. (DARE actions arising from the ETCCDI meeting are included in the ETCCDI report.

7.1.8 The MG noted with interest the emphasis made by the GFCS HLTF on rescuing and digitizing historical data records as a critical component of the development of local climate services. It took note of the ongoing Members support to DARE including through coordination of international and regional initiatives such as NCDC-CIMP, MEDARE, ACRE and IEDRO through carrying out onsite practical trainings and the replacement of DARE equipment in developing and least developed countries and through providing funding for DARE activities using WMO Voluntary Contribution Programme (VCP).

7.1.9 The first face-to-face meeting of the Task Team will take place in 5-7 December 2011 in Geneva to review the status of the actions raising from the teleconference, including the action regarding the implementation of an international data rescue portal. I-DARE and the revision of the guidelines on Data Rescue as well as the opportunity for organizing a workshop on DARE in West Africa similar to the one organized in Spain in 2007 for initiating MEDARE.

7.1.10 The MG emphasized the importance of delivering the TT high priority expected deliverables including in particular the International DARE initiative (I-DARE) based on the experience of MEDARE. I-DARE will provide a tool for DARE worldwide and help in developing guidance to the Members and the GFCS on designing, implementing and monitoring DARE. Therefore I-DARE will be a useful tool for guiding WMO on future strategies for Capacity Development on climate data.

7.1.11 The MG decided to continue the work of the TT-DARE with focus the establishment of I-DARE. It requested the Secretariat to facilitate the establishment of Climate Data Services focal points in the countries with the priority given to providing updates on DARE and Metadata to I-DARE

Data Issues – Review of Annex to Resolution 40 and International Conference on Climate Data

7.1.12 The MG recalled the increasing interest of WMO Members (ref. EC-XLI and CG-XVI) in progressing climate data modernization with consideration of the new and evolving requirements in the quantity, quality, timeliness and space-time resolution of climate data. EC-LXII urged CCI, in cooperation with other technical commissions, WCRP and GCOS to consider the most appropriate ways to address these requirements to support Global Framework for Climate Services. On the other hand, Cg-XVI requested (through Resolution 3.5/1) CCI, CBS and CIMO, in collaboration with other technical commissions and programs as appropriate, to facilitate an analysis of the strengths, weaknesses and the opportunities associated with climate data to provide an up-to-date assessment of the existing gaps and shortcomings and propose solutions for improved climate data availability and exchange. It agreed that a holistic approach on climate data consisting of four (4) elements as follows:

- Undertake a gap analysis for climate data, including the required quality, quantity and exchange for meeting the new requirements of the GFCS. This would lead to better understand the current processes in generating and disseminating climate data as well as to identify the need for developing new procedures and regulations for climate data quality assurance and climate data exchange;

- Perform opportunity analysis on data quality, standards and exchange. Real opportunities now exist through various WMO projects and initiatives which are offering new conceptual, technological and organizational solutions (WMO QMF, WIGOS, WIS). This would help to address issues with other programs and stakeholders in synergy; at the same time to benefit from these solutions to achieve climate data modernization targets;
• Further support the international coordination for implementing urgent climate data priorities as prescribed in CG-XVI resolution on data requirements including Data Rescue, Exchange of WWRs and the development of CDMSs; and

• Develop new generation of capacity development workshops whereby NMHSs will be given tools and knowledge to develop high impact climate products and services in parallel with drawing added value from DARE, Climate Data Management Systems (CDMSs) to support national needs in Multi-hazards Early Warning Systems (MHEWS) and Climate Watch Systems (CWSs). This would include, for example, tools for the development of climate atlases, data bases on climate hazards and frequency analysis of weather and climate extremes.

7.1.13 The MG decided to take the following actions:

(a) Provide recommendation on the revision the preamble of and the relevant annexes to Resolution 40 (Cg-XII)—WMO policy and practice for the exchange of meteorological and related data and products including guidelines on relationships in commercial meteorological activities and propose amendments; (Lead: Dr Thomas Peterson);

(b) Undertake Gap-Opportunity Analysis on climate data and advise on the required modernization needs for data quality and exchange (Lead: Dr William Wright);

(c) Review and make proposal for updating WMO Technical Regulations which govern the collection, QC and dissemination of climate data (CLIMAT, WWRs, Climate normals, etc)

(d) Advise on and guide the establishment of a future high quality global data management systems for climate involving national, regional and global infrastructures;

(e) Consult with TCs, GCOS, WCRP and other international stakeholder to initiate new generation of international collaboration on climate data aspects including engaging preliminary discussions on the opportunity for the organization of an international conference on climate data (Lead: Dr Lianchun)

7.1.14 The MG decided to invite the following experts to assist Dr Peterson in these actions: Dr P. Bessemoulin (France) for Action (c), Dr M. Coughlan (Australia) for Action (d), Dr S. Boodhoo (Mauritius) and Dr R. Raajeevan (India) for actions (a) and (e) respectively.

7.1.15 The MG decided that the item on generation of international collaboration on climate data aspects including engaging preliminary discussions on the opportunity for the organization of an international conference on climate data, will be addressed by Dr Lianchun Song.

UK Workshop on Datasets

7.1.16 The MG noted that the initiative is very ambitious and that they wanted to have a global data set while there are no external resources available. MG encouraged OPACE I to continue to be involved.

7.2 OPACE II - CLIMATE MONITORING AND ASSESSMENT

7.2.1 Dr Fatima Driouech made a presentation on climate monitoring and assessment and Dr. Manola Brunet on OPACE II achievements.

Joint CCI/Clivar/JCOMM Expert Team On Climate Change Detection And Indices

7.2.2 The MG noted with satisfaction that ETCCDI met in Victoria, Canada from 23 to 25 February, 2011 with all the active representation and participation of all co-sponsors. In addition to the Core Team,
several other invited participants attended, including from CCI, the President, Dr Peterson and the two OPACE-2 co-chairs, Dr Manola Brunet and Dr Fatima Driouech and the co-lead of the CCI Task Team on Data Rescue, Dr Joseph Kimani. The meeting covered core issues that ETCCDI deals with, i.e. developing indices and organizing regional workshops. In addition the meeting was an opportunity to discuss ways and mechanisms to liaise with other relevant CCI teams such as the OPACE-1 Task Team on Data Rescue, the OPACE-2 Task Team on National Climate Monitoring Products and the OPACE-4 Expert Team on Climate Risk and Sector specific Climate Indices (ET-CRSCI).

7.2.3 The MG noted with interest the steps taken by ETCCDI to develop an outreach strategy. It appreciated the collaboration amongst the sponsors to develop an informative flyer on ETCCDI work and relevant topics such as promoting data exchange and fostering collaboration based on the regional workshops. The flyer was distributed during the sixteenth session of the WMO Congress 16 Mai-3 June 2011 to the Permanent Representatives of the WMO and placed on information desks including the joint WCRP-GCOS information desk.

7.2.4 The MG reviewed the key recommendations and actions of the ETCCDI. It agreed with the importance given by the Team to complete the review paper on indices (X. Zhang, T. Peterson, et al., accepted by WIREs Climate Change) and to prepare a JCOMM position paper on marine indices, variability and extremes (E.Harrison, S. Woodruff, E. Kent, draft to be available around November 2011). These materials will serve in addition to the scientific purpose, the need for WMO Members in the provision of continuous authoritative updates on the current status of knowledge on climate indices and their relevance to climate change monitoring and adaptation to climate change. The Group suggested to OPACE-2 co-chairs to request about the status of the JCOMM position paper and the possibility to be presented at the upcoming JCOMM session in 2012.

7.2.5 The MG endorsed ETCCDI recommendations prescribing inter-alia that future ETCCDI workshops be tailored to the needs of the region being targeted (language, local host responsibilities), making use of possibilities to have ETCCDI workshops in connection with other WMO activities (e.g. Data Management and Data Rescue) and enhancing regional collaboration and participation in international follow-on activities that involve multiple countries (e.g. as in Southeast Asia example [http://saca-bmkg.knmi.nl](http://saca-bmkg.knmi.nl)).

7.2.6 The MG recognized the need for considering the ETCCDI work as an already effective mechanism to support key areas of the GFCS, including Observations, Monitoring and Capacity Development. This recognition should be made known to the ongoing work led by the WMO Executive Council Task Team on the implementation plan for the GFCS (link to the first meeting of this TT).

**Rapporteurs on World Records of Weather and Climate Extremes**

7.2.7 In 2006, the WMO CCI approved the development and maintenance of an official global archive of accepted (and, for new records, verified) set of global, hemispheric, and continental weather and climate extremes. Since that time, a working on-line Archive has been constructed at: [http://wmo.asu.edu/](http://wmo.asu.edu/)

7.2.8 The MG was pleased to note that the website has proven quite popular within the general public and the scientific communities. Additionally, a number of investigations of new records have been undertaken using ad-hoc evaluation committees comprised of recognized climate and weather authorities. Results from those investigations have been published in such publications as the *WMO Bulletin* and the *Bulletin of the American Meteorological Society*. Results of a recent past investigation (global highest recorded wind gust) are currently under review with the *Australian Meteorological and Oceanographic Journal*.

7.2.9 MG reviewed the report of the two rapporteurs, including the current status of the work and future actions. It recommended to register the archive web site [http://wmo.asu.edu/](http://wmo.asu.edu/) in the WMO
Information System Catalogue to allow ease access and visibility within the WMO and the scientific community in general.

Task team on National Climate Monitoring Products

7.2.10 The MG noted with satisfaction that the Task Team on National Climate Monitoring Products (TT-NCMP) met at the WMO, Geneva, from 12-14th September 2011 after an initial teleconference organized by WMO in June 2010 which paved the way for developing the TT work-plan. It reviewed and endorsed the key recommendations of the TT-NCMP including the proposed six national climate monitoring products and the recommendations for establishing the mechanisms for their provision, reporting and dissemination and Capacity development. (ANNEX-I), MG recognized the difficulty in selecting the appropriate reference periods for computing these products and concurred to use the 1971-2000 reference period for the operational use of these products keeping in mind that inference about global warming should still be based on the current WMO standard normal 1961-1990.

7.2.11 The MG decided that the TT-NCMP continue its work until it completes the guidelines on the six products.

Task Team on Definitions of Extreme Weather and Climate Events

7.2.12 The MG recalled CCI-XV resolution 8 (CCI-XV) on activities and expected deliverables in the period (2010-2014) and the MG decision to establish TT-DEWCE to work to achieve the following deliverables:

- Guidelines on methodologies and standards for defining extreme weather and climate events that are of major societal impacts and assessing their attribution and return periods in the framework of a changing climate, such as for drought, heat waves, extreme precipitation anomalies and wind storms.

- Project proposal for developing standards for creating global, regional and national databases on extreme weather and climate events.

7.2.13 The MG was informed on the forthcoming TT-DEWCE meeting, which will be hosted by the University of Rovira I Virgili, Totosa, Spain 23-25 November 2011. It emphasized the importance of delivering the TT high priority expected deliverables as was decided by CCI-XV, including in particular the Guidelines on methodologies and standards for defining extreme weather and climate events which would be useful for research and operational work in climatology, as well as in the context of providing coherent and consistent climate services in the domain of monitoring and prediction of extremes weather and climate events.

7.2.14 The MG decided to continue the work of the TT-DEWCE after its first meeting in view of achieving the high priority deliverables as described above. It urged the team to accomplish the guidelines within a reasonable time frame such that enough time would be given for its review, publication and dissemination before the CCI-XVI session which is planned in July 2014.

New development/strategy for WMO CSM

7.2.15 The MG recalled that the ultimate goal of the WMO Climate System Monitoring (CSM) is to deliver timely authoritative information on the status of the climate system which is required for operational use as well as for decision and policy making [http://www.wmo.int/pages/prog/wcp/wcdmp/CA_1.php](http://www.wmo.int/pages/prog/wcp/wcdmp/CA_1.php).

7.2.16 The MG stressed that a successful implementation of CSM depends on the degree of performance in managing and monitoring these processes at the various levels of intervention at national,
7.2.17 The MG decided that as part of the development of the WMO CSM, there is a need to achieve some key development targets during the period 2012-2015 concerning data sets, methodologies, data exchange, products and services and capacity building.

7.2.18 The MG requested the OPACE-2 co-chairs and the relevant Team leaders to work closely with the secretariat to propose a time-table including milestones for achieving the above targets. The time table should indicate \textit{inter alia} the steps and actions to be taken internally and with other Commissions and Programmes with due consideration to the session calendar of these bodies and their subsidiary groups.

7.3 OPACE III - CLIMATE PRODUCTS AND SERVICES AND THEIR DELIVERY MECHANISMS

7.3.1 Mr Jean-Pierre Ceron made a presentation on the activities of OPACE III.

7.3.2 The MG appreciated that OPACE III actively pursued the linkages between the CCI and CBS, particularly in the development of global and regional mechanisms for generating and disseminating climate products and services, particularly on the participation of the GPC community in the scoping and development of the GSCU and also the designation processes for the RCCs.

7.3.3 The MG noted that a WMO international workshop was organized (5-7 April 2011, Geneva) with active support from OPACE-III, to develop a strategy for an effective implementation of the CSIS as an integral component of the GFCS. The MG further noted the following key recommendations of the workshop (\url{http://www.wmo.int/pages/prog/wcp/wcasp/documents/CSIS_Workshop_2011_Final_Report.pdf}):

- Formalized structures for CSIS elements and mechanisms are essential for standardization, sustainability, adherence to policies etc (following GDPFS formalisms);
- Existing WMO CSIS elements, particularly on the global level, do not yet fully cover all aspects of climate information, and there is a need for ‘seamless’ provision across timescale;
- There is a need to work up designation criteria covering e.g., data and monitoring centres, decadal prediction centres, centennial prediction activities, downscaling activities, etc.;
- Standardization is required in CSIS operations and products, e.g., common climate reference period for both observed and predicted climate anomalies;
- Enhanced programme of capacity building needed to ensure prudent use of new climate products.

7.3.4 The MG noted that, as a follow-up to the outcome of the CSIS workshop, a document on the implementation strategy for the CSIS has been developed. The MG agreed to review the draft document for its submission to the ECTT-GFCS as a CCI input for its consideration for inclusion in the draft implementation plan.

7.3.5 The MG noted that Cg-XVI adopted a resolution on the implementation of CSIS as part of the WCP, and decided that CSIS would be guided by the CCI. The MG agreed that concerted efforts should be made to pursue a lead position for CCI in the technical committee or other substructure for CSIS component within the governance mechanism being developed for the GFCS. Keeping in view the importance of the implementation of CSIS to CCI’s work for the current intersessional period and beyond,
7.3.6 MG requested the OPACE III Co-Chairs and the Secretariat to take the necessary formal steps to establish the ET-CSIS and facilitate its work to contribute to the ECTT-GFCS.

7.3.7 The MG noted that, as highlighted by the HLT Report on GFCS, capacity building of NMHSs is a major requirement in the implementation of the GFCS. In this regard, the MG recognized the need to assess the current status of the NMHSs in their capabilities in providing climate services, to be used as a baseline and estimate the resource requirements to enhance their capabilities in a systematic manner. The MG endorsed the proposal to organize a survey and self-assessment of the NMHSs under the auspices of OPACE III, and noted the draft template prepared for this purpose covering the wide range of climate related activities within the NMHSs. The MG agreed to review the draft template for its use by the Secretariat to initiate the survey.

7.3.8 The MG appreciated that OPACE III has been actively supporting the conduct of Regional Climate Outlook Forums (RCOFs) around the world, and also the efforts to promote RCOFs to cover new regions in need. The MG endorsed OPACE III plans to continue its efforts to improve the operational practices within the RCOFs by building on the outcomes of RCOF Review 2008 and developing guidance on best practices within RCOFs including, inter alia, national inputs to RCOFs as well as communication aspects.

7.3.9 The MG noted with satisfaction that OPACE III has been pursuing close links with the research community, keeping in view the need for strong research-operations linkages in all the delivery mechanisms for climate products and services. The MG endorsed CCl representation by Mr Jean-Pierre Céron within the Planning Group for a new WWRP/THORPEX/WCRP Sub-seasonal to Seasonal Prediction Project, and also his serving as a CCl focal point for the Research Chapter under coordination by WCRP for the draft implementation plan being developed for GFCS. The MG requested Mr Céron to address the aspects relevant to all the OPACEs in this regard.

7.3.10 The MG noted that at least four technical bodies of WMO are addressing different aspects of seasonal prediction: CCI, CBS, CAS and WCRP. The MG recognized the need to coordinate these efforts, to ensure consistency and complementarity in the establishment of operational seasonal prediction capabilities at all levels in the CSIS. The MG decided that the President would formally write to the CBS, CAS and WCRP proposing a Joint CCI/CBS/ CAS /WCRP Working Group on Seasonal Prediction.

Regional Climate Centres

7.3.11 The MG noted that the Expert Team on RCCs (ET-RCCs) has been formally constituted as a Joint CCI/CBS Expert Team, with the nomination of two CBS experts by the President of CBS, at the invitation of the President of CCI. The MG appreciated that ET-RCCs has been quite active in the GFCS consultations, and pursued the due recognition of the role of RCCs in GFCS implementation strategy, including the coordination of CSIS workshop.

7.3.12 The MG noted that ET-RCCs held its first meeting from 12 to 14 October 2011 at Offenbach, Germany, and considered the various issues related to the designation process of RCCs, current status of RCC implementation, guidance on RCC establishment and operations, standardization of RCC products and services, promoting and supporting resource mobilization, etc. The MG endorsed the minor revisions to its Terms of Reference as given in Annex 4.

7.3.13 The MG noted the progress reported by the ET-RCCs in the establishment of the RCCs around the world, as summarized below, and urged it to assist expedited implementation of RCCs in all WMO Regions:
• RA I
  o Africa initiates RCC implementation by identifying six RCCs (two of them being RCC-Networks); Demonstration phase formally initiated by ICPAC and ACMAD

• RA II
  o Beijing and Tokyo designated as WMO RCCs in June 2009; North Eurasian Climate Centre (Russia) commenced RCC demonstration phase in December 2010; India preparing for a demonstration phase
  o Iran and Saudi Arabia expressed interest to host RCCs

• RA III
  o South America decides to establish 3 RCCs (two of them being RCC Networks); Consultative Meeting finalized proposals (CIIFEN, Brazil+French Guayana; Argentina+Brazil); RA III WGCS developing the implementation plan

• RA IV
  o Discussions underway; CIMH expressed interest

• RA V
  o Discussions underway (RA V WGCS likely to discuss in Nov 2011)

• RA VI
  o Demonstration phase of RCC Network successfully completed in Europe (ready for designation).

The MG also noted that discussions are underway to explore the establishment of WMO RCCs in areas with common climate characteristics which straddle the traditional domains of two or more WMO Regional Associations (e.g., Polar Regions, Mediterranean Basin, etc.).

7.3.14 The MG noted that ET/RCCs developed a draft guidance document for the establishment and operation of RCCs. The MG requested members to offer their preliminary comments on the draft document, to help the ET to further improve/expand the document for final publication and distribution.

7.3.15 The MG noted the following recommendations made by ET-RCCs concerning the RCC establishment and operations:

• Need to develop, in close liaison with OPACE I, a common syntax to uniquely identify WMO RCC products in the GISC catalogue;
• All WMO RCCs to develop liaison mechanisms with the research community, such as regional CLIVAR panels, universities, research institutions and programmes etc., with appropriate action to be included in the RCC Guidance document;
• WMO RCCs need to establish appropriate training programmes and the ET would liaise with the WMO ETR Programme in order to identify and to develop suitable training materials for RCC staff and users;
• Clear labelling of all RCC products is strongly recommended, preferably on dedicated RCC WebPages;
• WMO RCCs and RCC candidates are encouraged to adopt the current WMO practices with respect to the use of Normals and reference periods in the development and display of anomaly products.
• The RCC Guidance document being developed by the Expert Team would include liaison principles for WMO RCCs with other relevant CSIS entities and mechanisms. Such principles might include formalised arrangements with individual GPCs to allow for the exchange of data, products and expertise beyond globally agreed minimum requirements.
• WMO RCCs should take the principal responsibility for the generation of technical inputs to RCOFs,
and in particular on the current status of the climate system in the region of interest and the seasonal outlooks.

- Keeping in view the GFCS initiatives regarding the implementation of WMO RCCs, RCC candidates are encouraged to identify donors interested in their region and to refer to the ‘Compendium of project initiatives to be funded from voluntary contributions’ when elaborating specific project proposals.

CLIPS Evolution

7.3.16 The MG noted that the Task Team on CLIPS (TT-CLIPS) held its first meeting from 24 to 26 November 2010 at Geneva, Switzerland, and considered various aspects related to CLIPS evolution aiming at its eventual transition into the emerging GFCS.

7.3.17 The MG appreciated the draft final report submitted by TT-CLIPS, including its recommendations on how CLIPS activities should be re-oriented to align with the emerging aspects of the GFCS implementation plan. The MG noted the following key recommendations:

- All countries are encouraged to create a National Framework for Climate Services (NFCS) to coordinate the development and provision of climate services within their country to create a source of consistent and authoritative climate information within the country to foster better decision-making by the end users. Such a framework will involve the key national institutions collecting and compiling climate observations and other climate-related datasets, undertaking relevant research, producing and interpreting climate forecasts and projections, and providing tailored information products and expert advice. NMHS will be involved to varying degrees, depending on the range of its activities, in some or all of these activities and will be part of this national framework. In some cases international collaboration may also be appropriate, for example in capacity building.

- All countries are encouraged to create a National Climate Centre (NCC), an operational entity nationally mandated to have the responsibility for generating and providing climate information and standardised products. The NCC would be part of the NFCS, perhaps central to it, and its outputs will be essential for the nation’s climate services.

- One organization within each country should be the coordinator of the National Climate Service. This coordination should ensure the consistency and quality of information and services, efficiently utilise the skills and resources within the country (i.e. avoid unnecessary duplication), and adopt best practices.

- The choice of the coordinating organization will vary from country to country. The organization needs to have the ability, and authority, to bring together all of the relevant institutions to enable the provision of authoritative, credible, usable, dependable, sustainable climate services. The NMS will in many countries be well placed to do this often having the ability and authority to do so, but it is for each country to decide which organization is best placed.

- Define a minimum set of climate information products, covering historical, monitoring, prediction and verification information, that are expected of the CSIS.

- Define a minimum set of climate services expected of the NMS in its role in the User Interface Platform (UIP).

- Outline the needs for, and implement a program of, training-of-trainers for core RCC staff to identify and support needs of NMSs in the provision of these minimum sets of climate products and services.

- Identify a primary set of Climate Service Toolkit contents.

- Create a draft prototype Toolkit from a selection of commonly-used climate datasets and the primary set of software tools that can be freely distributed on electronic media, or links to tools that are available only online.

- Conduct a program of training-of-trainers for core RCC staff in these tools.

- Establish a national Focal Point network for CSIS.
7.3.18 The MG agreed to review the draft final report submitted by TT-CLIPS and provide feedback for its improvement. The MG thanked the TT-CLIPS for its valuable contribution, and decided that the TT-CLIPS will be disbanded upon finalization of its report. The MG requested that the proposed ET-CSIS should take into account the recommendations of TT-CLIPS in the implementation of CSIS.

7.3.19 MG requested members to review the final draft report of TT-CLIPS and offer their comments and suggestions for its improvement, through OPACE III Co-Chairs.

Global Seasonal Climate Update (GSCU)

7.3.20 The MG noted that an international expert meeting on scoping the GSCU was organized by WMO from 12 to 14 October 2010 at WMO Headquarters, Geneva, Switzerland, which discussed the GSCU concept elaborated with a vision (i) to summarize – on a regular basis – the current status (monitoring) and the expected future behaviour (prediction) of the global climate system including major general circulation features and large-scale oceanic anomalies and (ii) to discuss briefly its likely impacts on continental-scale temperature and precipitation patterns. Respective user requirements as well as communication needs were also reviewed. The MG noted that the meeting proposed to focus primarily on the development of a GSCU to serve the specific needs of RCCs, RCOFs and NMHSs in order to elaborate their regional and national climate updates, and that in parallel, prospects of a GSCU version to be targeted at global user communities as well as the general public would be considered.

7.3.21 The MG noted that the meeting developed an outline and an initial draft structure for GSCU, and recommended on its further evolution leading to a pilot phase to build, demonstrate and implement the GSCU on a sustainable basis. The MG noted with satisfaction that the meeting provided valuable inputs for TT-GSCU to co-ordinate its further development.

7.3.22 The MG noted that the first meeting of TT-GSCU was held on 15 October 2010, at WMO Headquarters in Geneva/Switzerland, and that the Team reviewed the main recommendations of the preceding Scoping Meeting on GSCU, as well as the recommended outline of the GSCU and a Mark 0 version of GSCU draft.

7.3.23 The MG noted that the TT-GSCU plans to finalize the Mark 1 version of the GSCU and to use it to begin a trial phase by the end of 2011. The MG endorsed the proposed contents of GSCU Mark 1 for the trial phase, but urged the TT to subject it to a wider review for improvement during the course of the trial phase.

7.3.24 The MG endorsed the implementation strategy for the GSCU, as developed by the TT:

- **Monitoring**: Information will be contributed by global data and monitoring centres.
- **Outlook**: Information will be contributed principally by WMO GPCs with data collected, processed and displayed by the WMO Lead Centre for Long-range Multi-Model Ensembles (LC-LRFMME). Two prediction lead times will be covered in the Mark 1 version: 2-4 months ahead and 3-5 months ahead.
- Monitoring and prediction information will also included for selected climate indices.
- Maps showing the prediction skill of the prediction products will be provided via the WMO Lead Centre for the Standard Verification System for Long-range Forecasts (LC-SVSLRF).
- **Trial phase**: The Mark 1 GSCU will be trialed with the target users for a period of 1-year. Feedback on the content and usefulness will then be used to develop a final version to be considered for implementation.

7.3.25 The MG endorsed the minor revisions proposed by the TT-GSCU to its Terms of Reference, as presented in Annex 5. The MG decided to continue the TT-GSCU in its present composition and the revised
Terms of Reference, in order to guide the implementation of the trial phase to be hosted by the WMO LC-LRFMME.

7.4 OPACE IV - CLIMATE INFORMATION FOR ADAPTATION AND RISK MANAGEMENT

7.4.1 Mr Rodney Martinez made a presentation on OPACE IV - Climate Information for Adaptation and Risk Management.

Expert Team on Climate Risk and Sector-Specific Climate Indices (ET-CRSI)

7.4.2 ET-CRSI met from 13 to 15 July 2011 in Tarragona, Spain. There was an effective liaison with OPACE II ET-CCDI, CAgM Agriculture experts and CCI health experts.

7.4.3 The ET decided that work would be based on CCDI methods and RClimDex (CRSCI and CCDI will collaborate). In collaboration with CAgM, the ET will incorporate, inter alia, SPI (meteorological drought) and SPEI (and as available, other agreed indices for hydrological and agricultural drought). The team will work with CCI experts on health and heat waves to develop a new heat wave index using consecutive days of Tx and Tn above certain thresholds; and other indices relevant to comfort and lifecycles of vectors. The team also decided that documentation will be produced in English and Spanish. A proof of concept workshop will be organized in autumn 2012.

7.4.4 The team recognized key challenges: definitions of the new indices may require research and testing of concept; programming and testing of software; and adding new variables (P=R+S; humidity; wind speed/direction; SSTs, onset/cessation dates).

7.4.5 The MG endorsed the decisions of the ET-CRSI and its recommendations to develop the complementary software for sectoral indices in close coordination with ET-CCDI and organize a Proof of concept workshop with the proposed new indices and software in the last quarter of 2012.

Task Team on User Participation in Climate Outlook Forums (TT-UPCOF)

7.4.6 The TT-UPCOF will meet from 15 to 17 November 2011 in Geneva and will liaise with IRI, representatives of RCOFs, NCOFs and user-driven climate forums.

7.4.7 The team will collaborate with OPACE III teams on products; communicating uncertainty and with CAgM and CHy and health sector needed to build on existing mechanisms for greater sector benefit from COFs.

Task Team on User Interface (TT-UI)

7.4.8 The TT-UI met in Geneva from 29 to 31 March 2011 and liaised with OPACE III and planned future liaison with TT-CRM.

7.4.9 The team decided that:

- Case studies on quantification of the social and economic benefits of use of climate information will be collected, and assessed based on criteria
- Information notes should be developed, on susceptibility of sectors to climate variability and change.
- It would Work closely with TT-CRM on guidelines on integration of climate information into CRM
- Would Coordinate OPACE IV contribution to CBS Rolling Requirements review.
7.4.10 The team decided that it will provide useful elements for CUIP of GFCS and will interact with CBS in its efforts on assessing socio-economic benefits of meteorological information. It will also assess the strengths and weaknesses of provision of climate services to Humanitarian sector.

7.4.11 The MG endorsed the recommendation of the team to include the leader of the TT-UI in the discussions regarding GFCS CUIP Implementation Plan.

Task Team on Climate Risk Management (TT-CRM)

7.4.12 The TT-CRM met from 13 to 14 October 2011 in Guayaquil, Ecuador, following the Symposium on CRM from 10 to 12 October 2011. The team liaised with Commissions, agencies, and risk management community.

7.4.13 The team decided to use contributions and recommendations from Symposium and set up a definition of CRM and its characteristics; recommended steps in the CRM process, and the criteria for determining effective CRM practices. The team developed a check list to help NMHSs to improve their capability to CRM and agreed to publish the Symposium results. The team developed project demonstration proposals to implement and test the CRM approach and agreed to continue to engage the Symposium group in further CRM developments.

7.4.14 Recommendations of the team include the development of CRM demonstration projects where results can be obtained in a short time; development in a short term a check list to help NMHSs to support adequately CRM; and promotion of consultation with WMO’s DRR Community on CRM concept and implementation activities.

7.4.15 The MG endorsed the recommendations of the TT-CRM and requested the Education and Training Department of WMO and OPACE III to consider the interaction with the TT-CRM to develop a curriculum on this matter.

Joint CCI, CAgM, CHy Expert Group on Climate, Food and Water (JEG-CFW)

7.4.16 The JEG-CFW established by EC-LXIII in 2011. JEG-CFW will meet in Casablanca, Morocco from 7 to 8 November 2011,

7.4.17 The Key objectives of JEG-CFW are:
- To oversee and coordinate the joint activities of CCI, CAgM and CHy with regard to climate, food and water applications related to climate variability, climate change adaptation and risk management
- To oversee development of guidance; improve linkages with commissions, sectors
- To reinforce partnerships relevant to climate and food and water security
- To guide planning for capacity development

7.4.18 The MG recommended future linkages to PROVIA through OPACE IV in support for adaptation.

8. STRATEGY FOR CAPACITY BUILDING

8.1 Mr Serhat Sensoy made a presentation on the strategy for capacity building.

8.2 The MG recalled the strong emphasis given by CCI-XV to develop a strategy for capacity building for climate services that supports Members in meeting the current and emerging demands for
climate information, products and services, through Resolution 7 (CCI-XV) – Capacity Building for Climate Services, particularly the responsibilities entrusted to the MG by CCI-XV in further developing and refining the strategy. The MG noted the need to closely align this activity with the development of the draft implementation plan for the GFCS currently underway.

8.3 The MG noted that the report of HLT-GFCS gave much importance to the Capacity Building component of the GFCS, outlining the existing and needed capacity building support for components of the GFCS. The report addressed four areas (human resource, infrastructural, procedural and institutional) of capacity building from the demand side as well as supply side and also highlighted provider infrastructural capacity in four categories (basic, essential, full and advanced).

8.4 The MG noted that Cg-XVI (2011) had recognized the importance of capacity-building activities in a wide range of WMO Programmes, and the need for a coordinated and cohesive approach for capacity development to enhance capabilities of NMHSs in developing countries, particularly those with economies in transition, Least Developed Countries (LDCs) and Small Island Developing States (SIDS), to meet growing Societal Needs at different levels.

8.5 The MG urged the Expert Team on Strategy for Capacity Building for Climate Services (ET-SCBCS) to adequately take into account the HLT-GFCS report, Cg-XVI decisions and the subsequent activities in the development of the GFCS, while developing the CCI strategy for capacity building for climate services. The MG noted with satisfaction that ET-SCBCS is actively engaged in the consultative processes for GFCS draft implementation plan.

8.6 The MG was also informed that ‘Capacity development strategy and guidelines on the role, operation and management of NMSs’ has been discussed by the Presidents of Technical Commissions (PTC) meeting in February 2011. The PTC has considered a new holistic approach (‘capacity development’), ensuring better cooperation and partnership with Members, development organizations and other stakeholders and enhancing the basic capacities of the Member’s NMHSs, in particular those in the developing and least developed countries. It was stressed that this approach was more comprehensive and integrated than the current WMO capacity building methods, taking account of the need for sustainability and self-renewal of the respective national organizations. The capacity development approach was strongly linked with the priorities identified in the WMO Strategic Plan and put emphasis on national ownership of the development process. The PTC noted the roadmap for promulgating the WMO Capacity Development Strategy, including a presentation to Congress and approval by the EC in 2012. It was stressed that the Strategy should further result in concrete practical working methods aimed at bringing quick wins and sustainable progress.

8.7 The MG noted that, as part of the capacity development approach, a document titled “Guidelines on the Role, Operation and Management of NMSs” was under preparation. The aim is to develop an enhanced set of guidelines for the senior management of NMSs to assist in the change process and better realization of their duties and responsibilities at national and international level. It will take into account recent developments, such as the GFCS, implementation of WIS and WIGOS, support to DRR and QM.

8.8 The MG agreed that an expert meeting under the auspices of CCI should be convened to develop education and training curricula in climatology, involving experts from different parts of the world, to support a sustainable process for human resource development. The MG requested Mr Serhat Sensoy to develop a concept note on this initiative, in close consultation with the Secretariat.

8.9 The MG urged ET-SCBCS to develop an appropriate monitoring process of the various capacity development efforts for climate services, and to identify successful approaches. The MG noted that such successful approaches need to be incorporated into effective long-term mechanisms to make sure that the capacity building is sustainable. The MG therefore requested ET-SCBCS to include this aspect in their Terms of Reference (ToRs).
8.10 The MG noted the need to improve NMHS’s climate communication capabilities, and requested ET-SCBCS to add communication aspects to their ToRs.

9. QUALITY MANAGEMENT FRAMEWORK

9.1 Mr Serhat Sensoy made a presentation on the quality management framework.

9.2 The MG was apprised of the preliminary report of the first meeting of the CCI Expert Group on Quality Management for Climatology (EG-QMC), held at Geneva from 21 to 23 September 2011 (http://www.wmo.int/pages/prog/wcp/wcdmp/documents/EG-QMC_PreliminaryReport.pdf). The MG was pleased to note that EG-QMC developed its work plan as well as an outline on CCI strategy for QM.

9.3 The MG recalled Resolution 2 (CCI-XV) in which CCI decided to develop a strategy for implementing quality management in climatology including in the main areas: Climate observations, including in-situ and remote-sensing measurements; Climate data exchange, including time-critical and non-real time exchange through the WMO Information System (WIS); Climate Database development and maintenance, including global, regional and national Database and homogenized datasets; Climate product generation and development, including climate analyses, climate predictions and climate watch advisories; Climate service delivery, user interaction and promotional activities; Publications including Guidelines and Guide to Climatological Practices (WMO No.100); Capacity building, including educational and training material, curricula and learning; Applied climate research.

9.4 The MG noted that Cg-XVI recognized that the diversity in size and operational complexity of NMHSs, including many SIDS and some LDCs, will require a cooperative and mutually supportive approach to the implementation of a Quality Management System (QMS).

9.5 The MG noted Resolution 4.5/1 (Cg-XVI) which urged the technical commissions to explore opportunities to develop new common Technical Standards under the Working Arrangements between ISO and WMO.

9.6 The MG further noted the EC-LXIII decision to designate Prof. M. Ostojić (2nd Vice President of WMO) as its focal point on QMS and ex-officio member of the CAeM Task Team with a view to establishing how best this work can be expanded to other activity areas and bodies, where requirements for QMS are currently emerging.

9.7 CCI-MG reviewed the report of the CCI/EG-QMC and noted the EG’s recommendation that it will focus on three priorities in its work-plan including:

**Priority 1** - Defining essential climatological processes at NMHSs and at regional level with the following four proposed categories: operational, development, user interface and service delivery, and capacity development. These four categories include sub-elements which underpin the whole chain of climate services development. Therefore the EG-QMS proposed to start with defining the processes of these elements. There may be additional elements that could be considered as the work on QMS evolves.

(a) Operational processes (covering national, regional and global needs)
   - Data management (including exchange for regional and global requirements)
   - Climate monitoring
   - Climate prediction
(b) Development processes:
   - DARE
   - Climate time series reconstruction
(c) User interface and service delivery
• Communication (Outreach, feedbacks, surveys...forums)
(d) Capacity development
• Definition of climatological competencies (incl. training competencies)

Priority 2 - Establish a mechanism (may be a rapporteur or a TT) to assess, review and advise on the need to update WMO TD and references relevant to climatology. This mechanism will complement the role of the rapporteur on the Guide to climatological practices (Mr Aryan Van Engelen). In this aspect, EG-QMS recommended that the most urgent WMO technical documents to be assessed are:

• WMO Technical regulation, WMO No 49,
• WMO International Meteorological Vocabulary, WMO No 182

The updates should benefit from the definitions, procedures and practices already existing in the various CCI publications, such as the CCI guide and the WCDMP guidelines. The update would seek to elevate the status of some given guidance in these publications to the regulatory level.

Priority 3 - Establish a web page to inform on the work of EG-QMS and on relevant resources and existing experiences.

9.8 The MG appreciated the high value of the work of EG-QMS and for its useful report, and it endorsed the proposed priorities of the action-plan and outlines for a strategy on QM in climatology.

9.9 The MG requested the Mr Sensoy to liaise with the Executive Council focal point on QM to report on the present status of CCI work and achievements in QMS at the next Executive Council session (EC-LXIV);

9.10 The MG recognized the need to strengthen the structure of EG-QMC by adding a number of rapporteurs to support it on aspects such as WMO technical regulations (WMO No 49), WMO International Meteorological Vocabulary (WMO No 182), methodology for calculating the mean daily temperature, etc. The MG agreed that the rapporteurs would work in close liaison with the rapporteur on Guide to Climatological Practices (Mr Aryan Van Engelen) to ensure synergy and consistency in the review of the references and the provision of the recommendations.

9.11 The MG agreed that Mr Sensoy will canvas CCI OPACE memberships to identify experts willing to volunteer. The MG requested the Secretariat to facilitate resources, if required, to engage experts in certain priority tasks in a time-bound manner.

10. CLIMATE NORMALS

10.1 Dr William Wright, Co-Chair, OPACE-I, made a presentation on the climate normals.

10.2 The MG reviewed the discussion paper developed by Dr William Wright, on the revision of the climatological standard normals. The MG noted that these standard normals were published formally by WMO in the past (CLINO 1961-1990 WMO No 847, and CLINO1931-1960, WMO No 117). The CLINO publication is listed as a WMO mandatory publication (Annex to Resolution 21 (Cg-XIII)).

10.3 In his paper, Dr Wright argued in favour of a dual normals standard. The MG concurred with the conclusion that there is a need for making frequent updates in computing the normals for climate applications (prediction and climatology purposes), based on the need to base fundamental planning decisions on average and extreme climate conditions in non stationary climate conditions. Under this model, a set of 30 year Normals updated every 10 years is proposed. For example, 1981-2010 becomes the current base-period, until 2021, when 1991-2020 will become the new base period, and in 2031, that 2001-2030 become the base period and so on.
10.4 The MG concurred also on the need for keeping the current 30 year updates of the climatological standard normals as a recommended practice for long term climate assessment, i.e., retain 1961-90 as the reference period until 2021, when 1991-2020 will become the new base period.

10.5 The MG also noted the recommendation of the Task Team on National Climate Monitoring Products (TT-NCMP) which recommended that 1971-2000 is an appropriate period to use for NCMPs for the time being. The TT-NCMP noted that there is better coverage during this period (than, say, 1961-1990) and many countries are already using 1971-2000 for the NCMPs and other products they produce. Station data are more complete and relatively stable during this period and metadata are likely to be more complete. TT-NCMP recommended that this period should be updated every ten years, considering the decision of the CCI task team on climate normals. For the time being the TT-NCMP recommends that the period 1981-2010 is less favoured as few countries have recalculated the normal for this period.

10.6 The MG considered three different scenarios in determining the way forward with respect to climate normals:

**Scenario A: (Amending WMO technical regulations)**

Endorsement of the concept of dual standard normal and the proposed (30/10) model for its computation and to:

(a) Develop a peer reviewed technical document (which will be reviewed by other stakeholders, groups, commissions and programs). The technical document should be based on Dr William Wright’s discussion paper as well as on Dr Blair Trewin’s (2007) paper The role of climatological normals in a changing climate. World Climate Data and Monitoring Program No. 61, WMO-TD No 1377. 46pp);

(b) Submit the peer-reviewed document for endorsement by the Commission at its sixteenth session (CCI-XVI). The new concept should be reflected afterwards in the CCI guide to Climatological practices which will need to be updated accordingly; - After the above two steps are accomplished, The WMO technical regulations (WMO-No49, Vol I) should be amended to reflect the new definitions of WMO dual standard normals. The amendment should be formally decided by CG-XVII in 2015.

**Benefit:** WMO Technical regulations are the best mechanism for providing standards and recommending practices. It is endorsed by Congress and have the status of regulations not only guidelines.

**Disadvantage:** it is a long process for updating the Technical regulations as it should be endorsed by CCI session and CG.

**Scenario B (Provision of guidance)**

Endorsement of the concept of the dual approach for computing climate Normals and to:

(a) Finalize Dr Wright’s paper and publish it as a WMO technical document. The document will guide the members on the two models for computing the normals i.e., reflecting the need for using 10 year cycle updates of the normals (without calling them standard normals) which would be useful for climate applications; and the need for keeping the 30 years update cycle for the Standard Normals as a requirement long term climate variability and climate change monitoring.

(b) Communicate formally this guidance to the Members, through an appropriate decision at the next EC session. The new normals 1981-2010 can be computed by all members by 2013 and be effective starting January 2013.
Benefit: Quick implementation and keep the technical regulation unchanged. Disadvantage: Not being part of the technical regulation, the guidance can be forgotten with time. Also other institutions beyond WMO might not be aware of the guidance.

Scenario C (Hybrid)

Implement Scenario B while working on Scenario A, with a view to amend the technical regulations through CCI‐XVI (2014) and Cg‐XVII (2015).

Comment: This is desirable in view of the urgency of providing preliminary guidance with in view to introducing the new normals 1981‐2010 in January 2013 for example.

After a detailed discussion on the three scenarios proposed, the MG agreed with Scenario C, while acknowledging that other options are also possible as the paper goes out for discussion. The MG requested Dr Wright and the Secretariat to take the necessary steps for follow‐up action in this regard.

The MG decided that CCI should engage consultations with other technical commissions and programs on the implications of the new definitions in the generation, coding and dissemination of climate data in particular CLIMAT and CLIMAT SHIP reports and any other relevant products that uses the WMO definition of the Normals. This would ensure a common understanding of the new approach among the stakeholders and the Members.

11. MONITORING AND EVALUATION

11.1 Dr Mannava Sivakumar made a presentation on the Monitoring and Evaluation (M&E).

11.2 The MG noted that M&E are tools to measure the performance of the Organization in the timely implementation of its Strategic Plan. Monitoring and evaluation also contribute to the identification of good practices and lessons learned with respect to implementation, as well as policy, strategy and programmatic design that will inform the next phase of strategic planning. They provide information for ensuring the continuing effectiveness and relevance of the WMO Programmes. The evaluation results are important inputs to the strategic planning process and are used to adjust strategic direction and priorities, if required. While monitoring is an ongoing function, evaluations are conducted annually and results are reported to the constituent bodies of WMO, in particular the Executive Council.

11.3 The MG noted that the following Expected Results (ERs) of the WMO Strategic Plan are directly relevant to the work and mandate of the CCI and should be taken into consideration when M&E is conducted:

ER 1: Enhanced capabilities of Members to deliver and improve access to high‐quality weather, climate and water and related environmental predictions, information, warnings, and services in response to users' needs and to enable their use in decision‐making by all relevant societal sectors.

ER 2: Enhanced capabilities of Members to reduce risks and potential impacts of hazards caused by weather, climate and water and related environmental elements.

ER 3: Enhanced capabilities of Members to produce better weather, climate, water and related environmental information, predictions and warnings to support in particular disaster risk reduction, climate impact and adaptation strategies.

11.4 The MG further noted that the Cg‐XVI had reviewed the progress in the development and implementation of the WMO M&E System and agreed with the decisions of EC‐LXII that the development and implementation of the WMO M&E system focus on:

(a) Activities of WMO and issues on which there is a direct impact;
(b) Those activities of NMHSs that help society to adapt to climate variability and change;
(c) A simple system, which would report programme performance with clear targets for success.

11.5 The MG noted the Congress request to continue with the further development and implementation of the M&E System, with a particular focus on the following:

(a) The M&E System should be precisely defined and correctly applied;
(b) The M&E System should be simplified to the extent possible to reduce the workload associated with its implementation;
(c) Financial information should be incorporated into the M&E System to ensure that the relationship between expended resources and achieved results is transparent to all stakeholders;
(d) Since not all indicators of high-level results are easily measurable or quantifiable, qualitative measures should also be considered with a standardized rating scheme.

11.6 The MG noted that the Congress agreed that full implementation of the M&E System should start in 2012 and encouraged the technical commissions and regional associations to continue to contribute to its further development and implementation.

11.7 Noting the above information, the MG recommended that CCI take into consideration the ERs, 1, 2 and 3 of the WMO Strategic Plan and the relevant guidance when M&E will be conducted, for reporting to the Executive Council and Congress sessions.

12. COMMUNICATION ASPECTS RELATED TO CCL WORK AND PRODUCTS

12.1 Dr Mannava Sivakumar made a presentation on communication aspects related to CCI work and products.

12.2 The MG recalled that it had discussed the communication strategy of CCI in its first meeting in May 2010. The MG further recalled that it had agreed to promote communication strategies within and outside the CCI through more dynamic and more active use of CCI webpage and Ad hoc Newsletters.

12.3 The MG noted that communication aspects of the work of CCI has recently been sensitized and consulted by the President who had been considering two possible approaches for the communication strategy:

(a) to set up a team focusing on communication.
(b) to involve a communicator on teams where communication is of key importance either as a full member or as a consultant.

The MG noted that each of the above approaches has its own merit, though in the latter several teams would benefit from assistance of a consultant. This approach might be more helpful as that would involve less work on the communicator's part and therefore allow him or her or them to serve on more teams.

12.4 The MG recognized that the teams most in need of communication assistance are: Task Team on definitions of extreme weather and climate events (2.4); Task Team on global seasonal climate updates (3.3); Task Team on user participation in climate outlook for a (4.2); Task Team on climate risk management (4.4), and most especially, task team on user interface (4.3).

12.5 The MG noted the initial thoughts of CCI President, as follows:

(a) Underpinning any increase in communication activity should be a brief strategy, including an action plan that could be approved and shared to inform internal stakeholders of our plans. Key messages should be developed about international collaboration, respect of the science/scientists, longevity and robustness of the science; etc.
(b) Activities could include reaching new audiences and achieving an increase in public awareness via the media, by identifying regional and global spokespeople to comment on current issues proactively – and also develop a response plan so that comment could be provided if appropriate when windows of opportunity open (for example, an extreme event, high-profile science paper, etc).
(c) CCI should develop a social media plan, perhaps involving any office bearers with an enthusiasm in this area, to increase awareness through Facebook, Twitter and perhaps blogs. The aim would be to augment, or even reduce the focus on, traditional newsletters.
(d) Consideration of different audiences, and what they need to hear – balanced with what we’d like to communicate.
(e) Consideration of risks and misinterpretation of the science, and managing the reputation of CCI.
(f) Traditional identification of good stories to communicate through the WMO or partner organizations. Consideration of incorporating CCI messages in statements by partner organizations and via identified local champions.
(g) Consideration of bringing in contracted communication expertise such as feature writers to ghost-write and place opinion pieces, animators to develop visualizations, etc.
(h) The focus would be on external communication including improvements to internal communication.
(i) Evaluation of reach and impact of communication activities.

12.6 The MG agreed that the main topics of interest for communication aspects in CCI work as well as the mechanisms under its development and guidance are:

(a) The communication issues related to climate products and services (e.g. conveying uncertainty, RCOFs’ best practices, GSCU, etc.);
(b) The communication issues related to the climate science (e.g. major climate events, climate change, etc.);
(c) the communication related to the CCI itself (e.g., publicizing the CCI work, including relevant linkages like WCRP, GCOS, IPCC and other global climate related programmes, ensuring the relevant communication within the CCI itself among the OPACEs and other CCI bodies).

12.7 The MG invited Ms Susan Hassol, a professional communications expert, to provide her perspectives on the communications aspects relevant to CCI. The MG appreciated her inputs, and requested her to continue her engagement with CCI. Following detailed discussions on the topic, the MG agreed to have a “Communication Advisor” for each CCI OPACE and one for CCI in general. The MG further agreed that these would include Ms Susan Hassol (USA), Heidi Cullen (USA), Mr Simon Torok (Australia); Ms Tanya Cegnar (Slovenia) and Mr Patrick Luganda (Uganda). The MG noted that Mr Luganda has long experience in communication effort in Africa and could be best suited for supporting communication needs of the CCI in general. As CCI’s biggest communication challenge is with climate services in developing countries, the MG agreed that Mr Ezgi Gozerger and Mr Gokhan Abur (Turkey), both of whom are TV meteorology editors, could also be approached.

13. DISCUSSION ON DROUGHT ISSUES

13.1 Dr Mannava Sivakumar made a presentation on the High Level Meeting on National Drought Policy (HMNDP) which WMO is planning to organize in March 2013.

13.2 Dr Sivakumar presented the sequence of planned activities leading to a High Level Meeting on National Drought Policy. He mentioned that Australia is the only country having a national drought policy and systematically integrated climate related concerns. He outlined the need for having a drought policy in drought prone countries. He referred to the expert meeting on the subject which was held in July 2011 at the George Mason University in Washington DC where a Compendium on National Drought Policy was developed. He informed the group that an International Symposium on Integrated Drought Information System (ISIDIS) will be held in November 2011 in Casablanca, Morocco.
13.3 Dr Sivakumar emphasized that the WMO’s approach in encouraging the development of national drought policies by countries will not be prescriptive and that it would be based on the needs and priorities identified by the individual countries. The countries will be provided with the need-based technical advice to prepare and enact a national drought policy and it’s up to the countries to decide on how to align with ongoing activities related to drought risk management.

13.4 The MG agreed that the HMNDP initiative is very timely in the light of the increased frequency and magnitude of drought events around the world and the large impacts of droughts on the communities. It encouraged CCI members to participate actively in the HMNDP in March 2013.

14. DISCUSSION ON OPEN SCIENCE CONFERENCE RECOMMENDATIONS AND CONCLUSIONS

14.1 MG noted that the final draft of the recommendations and conclusions from the OSC would be forthcoming and it requested the members to review the recommendations and conclusions to enhance further cooperation with WCRP in the inter-sessional period.

15. ANY OTHER BUSINESS

15.1 As there were no other items for discussion, the meeting decided to review the action items as outlined in agenda item 16.

16. REVIEW OF ACTION ITEMS AND ADOPTION OF MEETING REPORT

16.1 Dr Peterson presented 41 action items identified under different agenda items during the meeting and these were reviewed by the group and finalized as follows:

1. Dr Peterson to get Prof. A. Busalacchi, Chair of Joint Scientific Committee for WCRP, to visit CCI MG so Mr Martinez can say WCRP proposals mention societal benefits in the last paragraph but CCI has the necessary structure at the ground level to do that. Collaboration could be promoted on joint projects for application of WCRP science in communities (Action: Dr Peterson).

2. Dr Peterson to follow-up on old action item 21 to get schedule for revising the Guide from Ned. A wider group could perhaps be asked to volunteer for this task, maybe even through CCI’s Facebook page (Action: Dr Peterson).

3. Secretariat to populate CCI web pages in a timely fashion, e.g., 1 month after a meeting, posting ppts, documents (Action: Dr Sivakumar).

4. Secretariat will review documents for EC TT for GFCS and pass on relevant parts to MG highlighting, e.g., OPAE 3 co-chairs should pay attention to items 4 and 7. OPAE co-chairs inputs will route to President who will then officially pass it on to the TT on behalf of CCI. Perhaps proposals for projects can be made through this system as well. Draft GFCS implementation plan/outline will be addressed the same way. OPAE co-chairs will likely find some volunteers to help them review all these documents and provide recommendations (Action: Secretariat).

5. Mr Sensoy to represent CCI on a IUGG climate group. This will help the MG to know if anything relevant comes up but MG is expecting this to involve almost no work as the overlap with CCI is likely to be minimal with this geodesy and geophysics group. However to ensure clarity, Serhat’s involvement is being suggested (Action: Mr Sensoy).

6. Regarding the CCI relevant aspects of WIGOS and WIS (document 6.5), Dr William Wright was nominated to participate in ICG-WIGOS group. Tom to inform Ms Fatima from IRIMO that her role is going to be replaced. Dr William Wright to take the lead on developing strategic documents on climate data that will contribute to ICG-WIGOS and GFCS (Action: Dr Peterson and Dr Wright).
7. Dr Wright to get Dr Jay Lawrimore to represent CCI (as well as GCOS) at the ET EGOS (Action: Bill).

8. Regarding the focal point on Data Representation and Codes (DRC), OPACE II will identify an appropriate expert. Regarding the focal point on MetaData and Interoperability (MDI), OPACE I will identify an expert. Regarding the focal point on WIS Centres, OPACE III will identify an expert (Action: Relevant Co-Chairs of OPACEs)

9. Dr Lianchun is invited to develop a scoping document (where, when, who, anticipated outcomes etc.,) on a meeting in mid-2012 in Beijing on Data Rescue, Data Management and Data Service by the end of November (Action: Mr Baddour and Dr Lianchun to collaborate to help make this meeting a reality).

10. Dr Peterson to develop recommendations for edits to WMO Resolution 40 in collaboration with Drs Mike Coughlan, S. Boodhoo, Pierre Bessemoulin, and Raajeevan and others to provide final wording to MG for evaluation by 1 April (Action: Dr Peterson)

11. For the provision of the recommendation on the revision to the preamble and the relevant annexes to Resolution 40, Dr Peterson will take action. Dr William Wright will lead the action on Gap-Opportunity Analysis on climate data and advise on the required modernization needs for data quality and exchange. Dr Wright will ask Dr Bessemoulin to review and make proposal for updating WMO Technical Regulations which govern the collection, QC and dissemination of climate data. Dr Wright will contact Drs Mike Coughlan and Pierre Bessemoulin to serve a joint rapporteurs to advise on and guide the establishment of a future high quality global data management systems for climate involving national, regional and global infrastructures. The item on generation of international collaboration on climate data aspects including engaging preliminary discussions on the opportunity for the organization of an international conference on climate data, will be addressed by Dr Lianchun’s meeting (Action: Drs Peterson, Wright and and Lianchun).

12. The MG agreed to have a “Communication Advisor” for each CCI OPACE and one for CCI in general. Tom will broach this individually with communication experts. These include Ms Susan Hassol who fits best with OPACE II or CCI in general (and visited our MG meeting); Heidi Cullen (U.S.); Mr Simon Torok (CSIRO, Australia); Ms Tanya Cegnar (Slovakia) (Dr Jean-Pierre Ceron to invite her for OPACE III); Mr Patrick Luganda (Uganda; Dr Kolli to provide email address) who has a communication effort in Africa – perhaps best for CCI in general as CCI’s biggest communication challenge is with developing country meteorological services; and Mr Ezgi Gozerger and Mr Gokhan Abur from Turkey (Mr Sensoy to provide email addresses) both of whom are TV meteorology editors (Action: Dr Peterson).

13. Dr Sivakumar to prepare bullet list of draft responses to the letter from Dr David Grimes to Dr Tom Peterson (Action: Dr Sivakumar , final deadline isn’t until February, but Dr Peterson to get this in before the PTC).

14. Mr Sensoy to communicate (as CCI VP to capacity development group) CCI’s key training priorities, data rescue, data QC, data homogeneity, etc. in a way to make sure they get incorporated in the GFCS Implementation Plan (Action: Mr Sensoy by end of November as the Implementation Plan is on target for finalizing in December).

15. OPACE II co-chairs coordinate ETCCDI recommendation #11 for area-based indices with TT on National Climate Monitoring Products (Action: OPACE II co-chairs).

16. OPACE II co-chairs to follow up on ETCCDI #19 on JCOMM position paper on marine indices, variability and extremes to encourage the preparation of the Position Paper for the JCOMM meeting in Korea (Action: OPACE II co-chairs).
17. All MG members review OPACE III’s draft questionnaire and provide comments to Dr Jean Pierre Ceron by 3rd week of November (Action: All MG Members).

18. Dr Sivakumar to send to Dr Peterson all the power point presentations made (or put them on the WMO FTP site) by end of first week of November (Action: Dr Sivakumar).

19. MG conveyed it’s appreciation to Secretariat (i.e., Mr Delju) for the publication on the History of CCI. MG also thanked Ms Karolyn Eichler for her assistance with the posters.

20. MG agreed with presentations and plans of Dr Jean Pierre Ceron and Dr Kolli on action items for OPACE III (Action: Dr Jean Pierre Ceron and Dr Kolli).

21. OPACE IV to add one socio-economist to the ET-CRSCI (Action: Dr Sivakumar to make a suggestion).

22. Mr Martinez and Dr Sivakumar to provide a draft letter recommending that Dr Roger Stone be consulted by Mr Filipe Lucio (Head of GFCS office) in the preparation of the GFCS implementation plan by writing to Dr Peterson with a request to forward it as a CCI recommendation (Action: Mr Martinez to contact Dr Roger Stone by end of November so that it does not catch him by surprise.)

23. Dr Kolli to send Dr Peterson a draft letter to forward to CBS President requesting CCI participation from Mr Fernandez’s TT-UI. Mr Martinez to make sure that a team member is willing to serve in this role prior to Dr Peterson sending the letter to CBS President (Action: Mr Martinez).

24. Dr Kolli and Ms Malone to talk to each other to ensure appropriate interaction between OPACE IV’s TT-UPCOF and OPACE III’s teams working on climate outlook forums (Action: Dr Kolli and Ms Malone).

25. Dr Wright to draft statement for GFCS implantation plan for need for integrating climate and other sector’s data sources (e.g., NGO’s) (Action: Dr Wright, by end of Dec. Mr Baddour to ensure that this is consistent with other aspects).

26. OPACE III will identify an expert to look at the gaps in the curricula that the TT-CRM is developing (Action: OPACE III co-chairs by end of December).

27. MG recognizes that the relevant World Climate Impact Assessment and Response Strategies Programme (WCIRP) activities of WCP will be taken up within UNEP’s new Programme of Research on Climate Change Vulnerability, Impacts and Adaptation (PROVIA). If EC approves linkages with PROVIA, OPACE IV should be involved (Action: OPACE IV co-chairs).

28. MG endorsed the following decisions from OPACE-IV: decisions from ET-CRSCI and it’s recommended actions; the inclusion of the leader of the TT-UI in the discussions regarding the GFCS CUIP Implementation Plan; the recommendations of TT-CRM and its request to WMO’s ETR Department and OPACE III to consider interaction with TT-CRM to develop a curricula on this matter.

29. MG agreed that if OPACE co-chairs become too busy they should encourage individuals from within their OPACE’s to take on some of their work. If they know of individuals outside their OPACEs they would like to involve, the O in OPACE is for Open, so additional individuals can easily be brought in as OPACE co-chairs deem appropriate (Action: Ongoing).

30. The Secretariat to request (on behalf of CCI) the PR of every country asking them to nominate one focal point for climate so that when CCI has a need to link up with individuals working on Data Rescue, Climate Monitoring, Long-term data set development, Climate Services Information System coordination. These focal points could also be those with links to climate services working groups
of Regional Associations. That focal point won’t be the right person to do the work but would be the right person to pass on the request (i.e., the focal point knows who are the key people working in these areas). The Secretariat to provide clear TORs for the person. Hybrid approach may be best to offer to nominate numerous individuals to address each of these tasks instead of just one. (Action: Dr Sivakumar to develop a draft letter and circulate to CCI MG by the end of December)

31. CCI to bring together an expert meeting on curricula in climatology, from different parts of the world, to start a regular process (Action: Dr Sivakumar and Mr Sensoy to develop the concept note by end of January 2012).

32. Capacity Building team to develop a monitoring process; how to track the success and that the success if permanent, needs a mechanism to make sure that the capacity building is effective. (Action: Mr Sensoy to add this to TOR for team by end of November).

33. Capacity building team adds communication to their TOR ie., the need to improve NMHS’s climate communication capabilities (Action: Mr Sensoy by end of November).

34. Regarding QM related rapporteurs, MG agreed that Mr Sensoy will canvas CCI OPACE memberships to see if he can find people willing to volunteer. Rapporteurs to be selected by end of December. If no capable person volunteers for one or more of these, then Mr Sensoy to ask Secretariat to hire someone to do these tasks if Mr Sensoy deems the task important enough (Action: Mr Sensoy).

35. Regarding Climate Normals, MG agreed with Scenario C while acknowledging that other options are possible while the paper goes out for discussion (Action: Dr William Wright and Secretariat).

36. Recommend to WCRP on how to engage private sector as partners in sensible projects, not just providing them with data and information. (Action: Dr Peterson to pass on to Prof. Tony Busalacchi by end of November).

37. CCI and WCRP to exchange annual calendar of events, or at least the two or three major events, so that synergies could be identified ahead of time. (Action: Dr Peterson to pass on to Prof. Tony Busalacchi by mid Nov).

38. Where WCRP needs to work with meteorological services at the national level, CCI and the RCCs have the potential to help bridge the gap, particularly with CLIVAR. (Action: Dr Peterson to pass on to Prof. Tony Busalacchi by mid Nov).

39. OPACE II co-chairs to further encourage the JCOMM part of the ETCCDI to make additional progress on their ocean indices that would be helpful to regions. (Action: OPACE II co-chairs by end of December; Mr Baddour to help facilitate linkages).

40. Invite chairs of climate working groups of Regional Associations to participate in part of the next meeting of the CCI MG six months before CCI XVI in 2014, possibly May-June-July in Germany (Action: Secretariat).

41. Dr Wenjian Zhang to make linkages with polar activities (Action: Dr Wenjian Zhang).
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PROVISIONAL ANNOTATED AGENDA

1. OPENING OF THE MEETING

1.1 Welcome and introductions

The meeting of CCl Management Group will open at 1330 hrs on Wednesday 26 October 2011 at the Sheraton Denver Downtown Hotel, Court Place, Denver, Colorado, United States for additional information about the venue please visit the following link: http://www.sheratondenverdowntown.com/

1.2 Address by the Representative of the SG

Dr M.V.K. Sivakumar, representative of the WMO Secretary General will make a short opening speech to outline the expected outcomes of meeting.

2. ADOPTION OF THE AGENDA AND ORGANIZATION OF THE MEETING

2.1 Adoption of the Agenda

The provisional agenda will be presented to the meeting for approval with the understanding that it can be amended at any time in the course of the session.

2.2 Organization of the Meeting

The meeting will run from 1330 hrs to 1530 hrs on Wednesday (26 Oct) and Thursday (27 Oct); from 1130 hrs to 1730 hrs on Friday (28 Oct) and from 0830 hrs to 1730 hrs on Saturday (29 Oct). It will be conducted in English.

3. REPORT FROM THE PRESIDENT OF CCI

The meeting will consider a brief progress report from the President of the Commission on the activities undertaken since the last meeting of the Management Group in May 2010.

4. CLIMATE RESEARCH SPECIAL ISSUE- OUTCOME OF TECHNICAL CONFERENCE HELD IN CONJUNCTION WITH CCI-XV SESSION

The meeting will consider the special issue of Climate Research journal which includes papers submitted to the WMO Technical Conference preceding CCI-XV, in Antalya, Turkey, February 2010, following a peer review. The meeting may also discuss other publications of the Commission such as the Guide to Climatological Practices-WMO No. 100, Over 85 Years of Service- History of CCI and CCI publications on DVD.
5. REVIEW OF ACTIONS ARISING FROM THE MEETING OF THE MANAGEMENT GROUP IN MAY 2010

The Group will take stock of activities which were decided in the meeting in May 2010. It may then propose follow up actions based on the progress of work in each area after consideration of the report of four OPACEs.

6. THE FUTURE OF CCI PARTICULARLY THE ROLE OF CCI IN THE IMPLEMENTATION OF THE GLOBAL FRAMEWORK FOR CLIMATE SERVICES

The meeting will be briefed on the report of High Level Task Force for implementation of GFCS and will review the relevant decisions of Cg-XVI and EC-LXIII, including the new structure adopted for the World Climate Programme (WCP). The meeting will be briefed on the follow-up activities, particularly those in support of the preparation of draft implementation plan by the EC Task Team on GFCS. The Group will be invited to elaborate the implications of these developments and identify a core set of activities and responsibilities for the Commission in the context of the five components of the GFCS, as per the following sub-items:

6.1 Report on Cg-XVI discussion on Report of High Level Task Force on GFCS and on CCI-related Matters

6.2 Implications of GFCS on future CCI activities

6.3 Coordination of activities among various WMO Programmes and Technical Commissions

6.4 Collaboration and partnerships

6.5 CCI-relevant Aspects of WMO Integrated Observing and Information Systems (WIGOS-WIS)

6.6 Reorganization of WCP

7. CCI WORK PROGRAMME: CURRENT STATUS AND FUTURE PLANS

The meeting will be invited to consider the progress reports of actions which the four Open Panels of Experts (OPACEs) of CCI have completed according to the current work programme. The Group will propose any follow-up actions based on the progress of work in each area, to ensure completion of all currently committed efforts in time for CCI-XVI. The Group will then further explore future plans based on Cg-XVI decisions and priorities. The OPACEs will report as follows:

7.1 OPACE I - Climate Data Management – past accomplishments and plans for the next year or two

- Expert Team on Climate Database Management Systems
- Task Team on Data Rescue
- Data issues – Review of Annex to Res. 40 (Cg-XII); International Conference on Climate Data
- UK Workshop on Datasets

7.2 OPACE II – Climate Monitoring and Assessment – past accomplishments and plans for the next year or two

- Joint CCI/Clivar/JCOMM Expert Team on Climate Change Detection and Indices
- Rapporteurs on World Records of Weather and Climate Extremes
- Task team on National Climate Monitoring Products
- Task Team on Definitions of Extreme Weather and Climate Events
- Rapporteurs on World records of weather and climate extremes
- New development/strategy for WMO CSM
7.3 OPACE III - Climate Products and Services and their Delivery Mechanisms – past accomplishments and plans for the next year or two

- Expert Team on Regional Climate Centres
- Task Team on Global Seasonal Climate Update
- Task Team on CLIPS Evolution

7.4 OPACE IV - Climate Information for Adaptation and Risk Management – past accomplishments and plans for the next year or two

- Expert Team on Climate Risk and Sector-Specific Climate Indices
- Task Team on User Participation in Climate Outlook Forums
- Task Team on User Interface
- Task Team on Climate Risk Management
- Joint (CCI CAgM CHy) Expert Group on Climate, Food and Water

8. STRATEGY FOR CAPACITY BUILDING

The meeting will discuss capacity building activities in the context of the overall decisions of the CCI-XV and the GFCS draft implementation plan which is under development. It will then consider adjustments to the future actions toward such strategies advocated by the Cg-XVI.

9. QUALITY MANAGEMENT FRAMEWORK

The Management Group will consider the report of Expert Group on Quality Management for Climatology which has discussed implementing quality management in climatology including in the main areas as climate observations, climate data exchange, climate database development and maintenance, climate product generation, climate service delivery, publications, capacity building as well as climate and climate applications research.

10. CLIMATE NORMALS

The MG will consider progress of work taken by the Task Team on Climatological Normals and further discuss user community requirements in the context of this subject. The meeting will then discuss a way forward for comprehensive review of current standards

11. EVALUATING AND MONITORING

The Group will take note of current monitoring and evaluation activities in WMO. It will also consider evaluation of progress as regards to Expected Results 1, 2 and 3 of the WMO Strategic Plan which are directly relevant to the work of the Commission. The meeting may recommend simple and practical principles for monitoring and evaluation within the Commission.

12. COMMUNICATION ASPECTS RELATED TO CCI WORK AND PRODUCTS

The meeting will discuss and exchange views on how effective communication has been established with OPACE members and the Working Groups on Climate Related Matters of Regional Associations. The Group will identify success and gaps in terms of communication to ensure that the flow of information either from top to down or bottom up is fluent enough.

13. DISCUSSION OF DROUGHT ISSUES
Given the current concerns with climate change, projected increases in the frequency, intensity, and duration of droughts and resulting impacts on many sectors, in particular food, water, and energy, there is cause for concern regarding the lack of drought preparedness and appropriate drought management policies for virtually all nations. The meeting will be informed about WMO/UNCCD Initiative on the High Level Meeting on National Drought Policy to be organized in March 2013 and how CCI could be actively engaged in this process.

14. DISCUSSION ON OPEN SCIENCE CONFERENCE RECOMMENDATIONS AND CONCLUSIONS

The meeting will consider the recommendations and conclusions of the WCRP Open Science Conference and will review the participation and contribution of the Commission in this event. The Group may suggest a number of actions for further improvement in the next Open Science Conference.

15. ANY OTHER BUSINESS

The meeting will discuss other items of interest not covered by the agenda items under items 1-14.

16. REVIEW OF ALL ACTION ITEMS AND ADOPTION OF THE MEETING REPORT

The meeting will review all action items agreed during the meeting and will adopt the draft report of the meeting prepared by the Secretariat.
EXPERT TEAM ON CLIMATE SERVICES INFORMATION SYSTEM

Terms of Reference:

1. Keep under review the emerging features of the Climate Services Information System (CSIS) within the draft implementation plan of the Global Framework for Climate Services (GFCS), and liaise CCI contributions thereto;
2. Advise the CCI Management Group on the GFCS governance aspects relevant to CSIS;
3. Develop and implement an action plan for the transition of the CLIPS project into the GFCS as decided by Cg-XVI and based on the recommendations of the CCI Task Team on CLIPS;
4. Define a minimum set of climate information products, covering historical, monitoring, prediction and verification information, that are expected of the CSIS;
5. Define of a minimum set of climate services expected of the NMS in its role in the User Interface Platform (UIP);
6. Identify of a primary set of Climate Service Toolkit (CST) contents;
7. Guide the creation of a draft prototype CST from a selection of commonly-used climate datasets and the primary set of software tools that can be freely distributed on electronic media, or links to tools that are available only online;
8. Guide the establishment of a national Focal Point network for CSIS, including their terms of reference, reporting process and coordination;
9. Liaise closely with CBS to establish formal structures for operational CSIS elements, and facilitate the global-regional-national linkages in the flow of climate information;
10. Liaise and work closely with the other OPACEs to ensure that the relevant aspects are adequately addressed;
11. Submit reports in accordance with timetables established by the OPACE III Co-Chairs.

Members:

1. Mr Peer Hechler, Germany (Lead)
2. Dr Simon Mason, USA (Co-Lead)
3. Dr Arun Kumar, USA
4. Dr Andre Kamga, Cameroon
5. Ms Barbara Tapia, Chile
6. Dr Madhavan Rajeevan Nair, India
7. Dr M. Coughlan, Australia (Lead, ET-RCCs, ex-officio)
8. Dr Manola Brunet, Spain (OPACE-II Co-Chair, ex-officio)
9. Dr Roger Stone, Australia (Lead, TT-User Interface, ex-officio)
Annex 4

Revised Terms of Reference of
Joint CCI-CBS Expert Team on Regional Climate Centres

Develop and provide to the CCI and CBS Management Groups for further consideration, technical guidance as well as the oversight approaches for the establishment and operation of Regional Climate Centres (RCCs) and RCC-Networks, and to closely liaise with the concerned experts of CBS, Regional Associations and RCCs/RCC-Networks on this matter, with the following specific activities;

1. Guide the implementation, designation and effective operation of RCCs;
2. Identify, and support the adoption of, common standards for mandatory RCC products and services and their delivery as well as verification of forecasts and reporting of results;
3. Promote the use of GPC and RCC products at regional and national levels and development of consensus-based forecasts, especially through mechanisms such as RCOFs;
4. Liaise with other relevant CCI OPACEs, regional associations, WCRP/CLIVAR regional panels, CBS/DPFS, and CAS and other relevant entities;
5. Provide guidance on the development of project concepts for resource mobilization and advise on RCC implementation;
6. Submit reports in accordance with timetables established by the OPACE 3 co-chairs.
Annex 5

Revised Terms of Reference

Task Team on Global Seasonal Climate Update

1. Develop, including through a scoping workshop, a mechanism to generate regular global consensus statements on the seasonal climate, termed Global Seasonal Climate Updates (GSCU), through expert assessments of global climate monitoring products of the current season and outlooks for the ensuing season;

2. Develop the content of GSCU, including the uncertainty aspects, to assist in risk management, adaptation policies and decision making taking into consideration requirements of global climate users, global and regional WMO entities and mechanisms, such as GPCs, RCCs, RCOFs, etc. as well as NMHSs;

3. Develop an implementation plan for a pilot phase by engaging potential contributors to develop the GSCU on a trial basis in near-real-time and for limited circulation and peer review;

4. Liaise with the CCI-XV OPACE-2 expert/task teams on aspects of climate monitoring and assessment, particularly in relation to climate watches, and with the CBS Expert Team on Extended and Long-range Forecasts on aspects of climate prediction;

5. Identify lead coordinators for operational production of the GSCU;

6. Report to OPACE-3 co-chairs on the progress; and

7. Task team lead to inform the OPACE co-chairs that the task is finished and that the team can be dissolved.